FOI#14279

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September 10, 2013

The Port Authority of NY & NJ
225 Park Avenue South
New York, New York 10003
Attn: Nichelle Gracey

09-17-13P03:08 RCVD

Re: ***F.O.I.L. Request***
Penelope Sciortino v. Port Authority of NY & NJ
D/A: May 11, 2013
Your File No.: 201311924
Facility: JFK International Airport

Dear Ms. Gracey:

Pursuant to the Freedom of Information Law, please provide a copy of the following:

1. Agreement (AYB876) between British Airways and The Port Authority of NY & NJ.

Thank you for your attention to this request.

Very truly yours,

KUJAWSKI & KUJAWSKI

Bryan P. Kujawski
BPK/sf

THE PORT AUTHORITY OF NY & NJ

FOI Administrator

September 20, 2013

Mr. Bryan P. Kujawski
The Law Office of Kujawski & Kujawski
1637 Deer Park Avenue, Post Office Box 661
Deer Park, NY 117290661

Re: Freedom of Information Reference No. 14279

Dear Mr. Kujawski:

This is a response to your September 10, 2013 request, which has been processed under the Port Authority's Freedom of Information Code (the "Code", copy enclosed), for a copy of Agreement No. AYB-876 between British Airways and the Port Authority at John F. Kennedy International Airport.

Material responsive to your request and available under the Code can be found on the Port Authority's website at http://www.panynj.gov/corporate-information/foi/14279-LPA.pdf.

Please refer to the above FOI reference number in any future correspondence relating to your request.

Very truly yours,

Ann L. Qureshi
FOI Administrator

Enclosure

225 Park Avenue South, 17th Floor
New York, NY 10003
T: 212 435 3642
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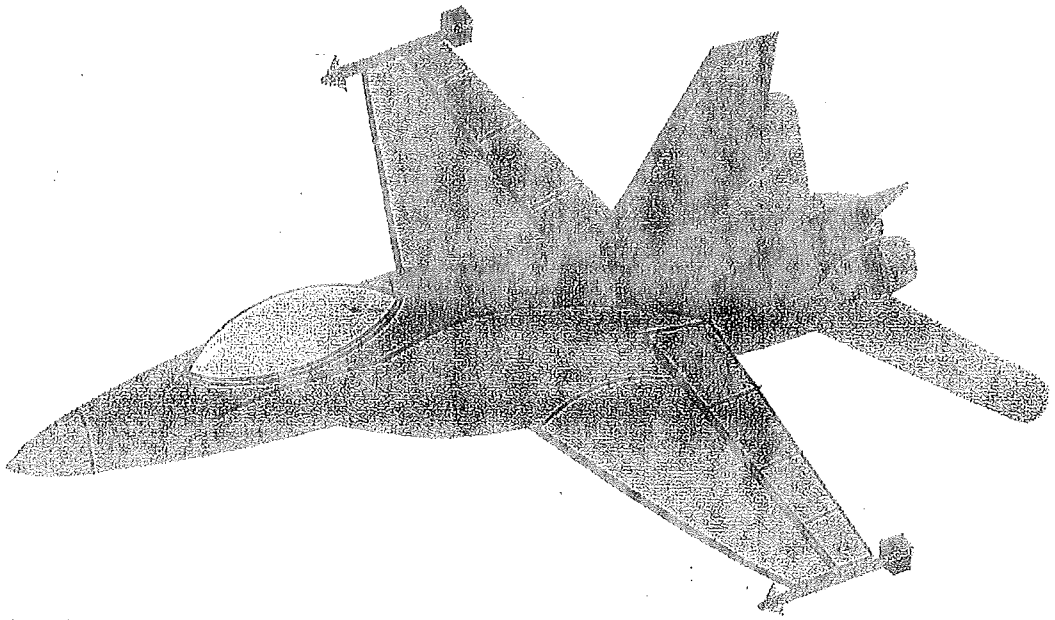
LEASE AYB-876

BETWEEN THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

AND

BRITISH AIRWAYS, PLC.



DATED AS OF JANUARY 4, 1988

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Exhibit A (Sheet 2 of 3).....Data
Exhibit A (Sheet 3 of 3).....Data
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Schedule A.....Future Intra Airport Transportation Facilities
Schedule E.....Affirmative Action Guidelines

UTBBA-1287.3

THIS AGREEMENT SHALL NOT BE BINDING UPON
THE PORT AUTHORITY UNTIL DULY EXECUTED BY
AN EXECUTIVE OFFICER THEREOF AND DELIVERED
TO THE LESSEE BY AN AUTHORIZED
REPRESENTATIVE OF THE PORT AUTHORITY

John F. Kennedy International Airport
Lease No. AYB-876

AGREEMENT OF LEASE

THIS AGREEMENT OF LEASE, dated as of the fourth day of January, 1988, by and between THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY (hereinafter called "the Port Authority"), a body corporate and politic, established by Compact between the States of New Jersey and New York with the consent of the Congress of the United States of America, and having an office at 1 World Trade Center, in the Borough of Manhattan, City, County and State of New York, and BRITISH AIRWAYS, Plc. (hereinafter called "the Lessee"), a corporation of England and Wales, having an office and place of business at 75-20 Astoria Boulevard, Jackson Heights, New York 11370, whose representative is Arthur Mc Mahon, Senior Vice President, Customer Services,

WITNESSETH, That:

The Port Authority and the Lessee for and in consideration of the rents, covenants and mutual agreements hereinafter contained, hereby covenant and agree as follows:

Section 1. Letting

(a) The Port Authority hereby lets to the Lessee and the Lessee hereby hires and takes from the Port Authority at John F. Kennedy International Airport (sometimes hereinafter referred to as "the Airport") in the Borough of Queens, City and State of New York, the land shown in stipple and in stipple-diagonal hatching on the sketch attached hereto hereby made a part hereof and marked "Exhibit A (sheet 1 of 3)", and the land shown in stipple on the sketch attached hereto, hereby made a part hereof and marked "Exhibit B", together with all buildings, improvements and structures, which were erected thereon under the Agreement of lease between the Lessee's predecessor and the Port Authority made as of January 11, 1967 and bearing Port Authority Lease No. AYA-101 (which agreement of lease, as the same has been supplemented and amended, is sometimes hereinafter referred to as the "Prior Lease"), the aforesaid land, together with the fixtures, improvements and other property of the Port Authority,

if any, located therein, thereon or thereunder, and all the foregoing buildings, improvements and structures erected thereon by the Lessee and all structures, improvements, additions, buildings and facilities located, constructed or installed or to be located, constructed or installed therein, thereon or thereunder, being hereinafter collectively referred to as "the premises". The parties acknowledge that the premises constitute nonresidential real property.

(b) Except to the extent required for the performance of any of the obligations of the Lessee hereunder nothing contained in this Agreement shall grant to the Lessee any rights whatsoever in the air space above the premises in excess of a sight line slope as shown on the sketch attached hereto, hereby made a part hereof and marked "Exhibit B".

(c) The strip of land lying along and within the easterly (directions set forth in this paragraph (c) are true) boundary line of the premises (which strip is shown in stipple-diagonal hatching on Exhibit A, Sheet 1 of 3), together with the corresponding contiguous strip of land lying along and within the westerly boundary of space let to Pan American World Airways, Inc. and occupied by Trans World Airlines, Inc. and immediately abutting on the easterly side of the premises (which strip is shown in diagonal hatching on Exhibit A, Sheet 1 of 3) shall be subject to a joint and mutual easement for a taxiway to be used jointly by the Lessee and Trans World Airlines, Inc. or by any successors in interest of either or both of them or other sublessees or other occupants or users who, pursuant to Port Authority permission, may occupy or use the premises herein or the space let to Pan American World Airways, Inc. and occupied by Trans World Airlines, Inc. and such rights of easement for such taxiway purposes shall continue during the effective periods of the respective agreements covering the same.

Section 2. Term

(a) The term of the letting under this Agreement shall commence on January 1, 1995.

(b) Unless sooner terminated, the term of the letting under this Agreement shall expire on November 30, 2015.

Section 3. Rental

(a) Rental Obligations:

(1) The Lessee hereby agrees to and shall pay to the Port Authority a basic rental at the annual rate of

(Ex. 2.a.)

subject to increase as provided in paragraph (b) hereof.

(2) In addition to the rental set forth in subparagraph (1) above effective on and after the day following the 25th anniversary of either (i) the Construction Completion Date, as defined in the Letter Agreement (as set forth in Section 4 hereof), or (ii) September 30, 1989, whichever is earlier, the Lessee shall pay to the Port Authority a rental (hereinafter called "the Additional Facility Rental") at an annual rate in an amount equal to the sum obtained by multiplying the number of interior square feet constructed by the Lessee as a part of the Terminal Expansion Work, as hereinafter defined, by(Ex. 2.a.) as increased effective on and after January 1, 1995 by increases in the CPI pursuant to paragraph (b) hereof, said Additional Facility Rental to be thereafter subject to increase as provided in paragraph (b) hereof.

(b) CPI Adjustments:

The following terms as used in this Section 3 shall have the respective meanings given below:

(1) "CPI" or "Consumer Price Index" shall mean the Consumer Price Index for all Urban Consumers, New York, N.Y. Northeastern, N.J., All Items (1967=100) published by the Bureau of Labor Statistics of the United States Department of Labor.

(2) The Port Authority shall ascertain the CPI for the month of September 1993 and for the month of September in each year thereafter during the term of this Agreement after the same has been published, and the Port Authority shall also determine the annual percentage increase, if any, for each such twelve month period (from September to September) after the same has been published (hereinafter called "the annual CPI percentage increase").

(3) Effective on January 1, 1995 the rentals set forth in paragraph (a) of this Section 3 shall be increased as follows: the annual rental rates as set forth in paragraph (a) shall be multiplied by a percentage composed of 1/4 of the annual CPI percentage increase, if any, from September 1993 to September 1994 plus 100%; and the product so obtained shall be and become the annual rental in effect for the annual period ending on the last day of the next following month of December.

(4) Effective on January 1, 1996 and thereafter on the first day of the month of January in each succeeding year of the term of the letting the rentals set forth in paragraph (a) of this Section 3 shall be increased as follows: the annual rental rates as set forth in paragraph (a) as the same may have been last adjusted hereunder, shall be multiplied by a percentage composed of 1/2 of the annual CPI percentage increase, if any, as determined for the latest period from September to September plus 100%; and the product so obtained shall be and become the annual rental in effect for the annual period ending on the last day of the next following month of December.

(5) In the event that the Consumer Price Index is not available for any specified month as hereinabove set forth within the time set forth for payment such index for the latest month then published shall be used to constitute the Consumer Price Index. In the event of the change of basis or the discontinuance of the publication by the United States Department of Labor of the Consumer Price Index such other appropriate index or indexes shall be substituted as may be agreed by the parties hereto as properly reflecting changes in the value of the current United States money in a manner similar to that established in the said indexes used in the latest adjustment. In the event of the failure of the parties to so agree, the Port Authority may select and use such index or indexes as it deems appropriate, provided, however, that the foregoing shall not preclude the Lessee from contesting the Port Authority's selection.

(6) In no event shall any rental rate established under this paragraph (b) be less than the rental rate it supersedes.

(c) The rental hereunder shall be payable by the Lessee in advance in equal monthly installments on the first day of the term of the letting and on the first day of each and every calendar month thereafter during the balance of the term of the letting.

(d) Abatement

In the event that the Lessee shall at any time by the provisions of this Agreement become entitled to an abatement of basic rentals, said abatement shall be computed as follows (it being understood that there shall be no abatement of rental under the Lease for any portion of the premises or for any portion of the term except as specifically provided herein):

(1) For each square foot of land as shown in stipple and stipple-diagonal hatching on Exhibit A (sheet 1 of 3) and in stipple on Exhibit E the use of which is denied to the Lessee at the daily rate of (2.a.) ~~CPI adjustments~~ as appropriately adjusted to reflect any and all pursuant to paragraph (b) above.

(2) For each square foot of the 334,860 square feet of interior space located within the Unit Terminal Building and Security Building as shown on Exhibit C attached hereto and hereby made a part hereof, and from and after the Completion Date for each square foot of the interior space constructed by the Lessee as a part of the Terminal Expansion, the use of which is denied to the Lessee, at the daily rate of (2.a.) ~~CPI adjustments~~ as appropriately adjusted to reflect any and all pursuant to paragraph (b) above.

(e) For the purposes of paragraph (d) and subparagraph (a) (2), all of the interior space shall be measured and the same shall be ascertained by measuring between the interior plaster surfaces of the exterior building walls, and no deductions will be made therefrom for columns, pilasters, projections, partitions, toilets, vertical shafts, elevator shafts, stairs, fire towers, vents, pipe shafts, meter closets, flues, stacks, structures or facilities of any kind or anything else located therein.

Section 4. Conditional Limitations: Performance of the Terminal Expansion Work - Termination of the Prior Lease

(a) The Lessee and the Port Authority hereby understand and agree that if any one or more of the following events shall occur, that is to say:

(1) The Prior Lease, as defined in Section 1 hereof, shall expire or shall have been terminated, surrendered, revoked or cancelled for any reason whatsoever prior to December 31, 1994, or

(2) The sublease agreement between BIDL Properties, Inc. and the Lessee's predecessor dated as of June 10, 1968, and consented to by the Port Authority in a Consent Agreement entered into among the Port Authority, the Lessee's predecessor and BIDL Properties, Inc. and dated as of June 10, 1968 shall expire or shall have been terminated, surrendered, revoked or cancelled, for any reason whatsoever, prior to November 30, 1994, or

(3) The Lessee shall not be in possession of the premises under the Prior Lease on December 31, 1994;

then, effective upon the date of such expiration, termination, surrender, revocation or cancellation under subparagraphs (1) or (2) above or effective as of the date the Lessee shall no longer be in possession under the Prior Lease under subparagraph (3) above this Lease and the letting hereunder shall be and shall be deemed to be terminated, cancelled, null, void and of no force or effect.

(b) The Lessee and the Port Authority have simultaneously herewith entered into a letter agreement dated April 12, 1988 which sets forth the terms and conditions under which the Port Authority will consent to the performance by the Lessee of certain construction work on the premises under the Prior Lease (herein called "the Terminal Expansion Work" and said letter agreement as the same may be amended and supplemented from time to time being herein called "the Letter Agreement"). The Lessee understands and acknowledges that the performance of the Terminal Expansion Work is of the essence to the Port Authority in entering into this Agreement of lease with the Lessee and in

consenting to the sublease to, and occupancy of, portions of the premises by United (as set forth in Section 24 hereof). The Lessee understands and agrees that the Terminal Expansion Work shall be substantially completed and ready for occupancy and the Lessee shall have expended at least $60 million thereon on or before July 1, 1991 in accordance with all of the terms and conditions of the Letter Agreement and that in the event the Lessee shall not have completed the Terminal Expansion Work, as aforesaid, by July 1, 1991 or if the Terminal Expansion Work shall have been completed but the Lessee shall not have expended $60 million thereon by July 1, 1991 in accordance with all of the terms and conditions of the Letter Agreement then, without limiting the generality of any other term or provision hereof, and subject to the provisions of this paragraph (b), such failure or failures on the part of the Lessee shall be and be deemed an event of termination under subparagraph (10) of paragraph (a) of Section 25 of this Lease and subject to the terms of provisions of Section 25, including but not limited to the Port Authority's right of termination as therein provided.

It is understood that the provisions of Section 69 (Force Majeure) of this Lease shall apply to and pertain to the performance and completion by the Lessee of the Terminal Expansion Work as set forth in this Section 4 provided, however, that the Lessee understands and agrees that nothing contained in said Section 69 shall extend or be deemed to extend the time of the Lessee to complete the Terminal Expansion Work and to have invested at least $60 million therein, as set forth herein, beyond June 30, 1994, at which time in any and all events, and without regard to Section 69, which shall no longer apply thereto, or the right of the Lessee to cure under subparagraph (10) of paragraph (a) of Section 25 hereof and whether or not the Port Authority shall have served a Notice of Default hereunder on the Lessee with respect to such failure of performance by the Lessee, this Lease and the term of letting hereunder shall be and shall be deemed to be, effective June 30, 1994, terminated, cancelled, null, void and of no further force or effect without other further or separate notice to or from either party hereto.

(c) Termination hereunder and the effect of this Section 4 shall be and operate as a conditional limitation. In the event any court of competent jurisdiction shall not give full and complete effect to this termination provision and its operation as a conditional limitation, the Lessee and the Port Authority agree, as a condition of this Agreement, and not merely as a covenant, that this Agreement and the stated term of the letting hereunder is nonetheless, from and after the effective date of termination provided above, to be deemed to have expired.

Section 5. Use of Premises

The Lessee, in connection with its business of transportation by aircraft, may use the premises for the following purposes and for activities reasonably required for such purposes and for such purposes and activities only:

(1) For the reservation of space and the sale of tickets for transportation on aircraft operated by the Lessee.

(2) For the reservation of space and the sale of tickets for transportation by other carriers but only as an incident to or in connection with transportation performed or to be performed by the Lessee or as an incident to or in connection with the cancellation of such transportation, or for the accommodation or convenience of the incoming or outbound passengers of the Lessee at the Airport. The occasional reservation of space and the sale of tickets for transportation by other carriers shall not be deemed to be prohibited by this provision.

(3) For the clearance, checking and rendering of service to passengers of the Lessee and for the furnishing of information service to such passengers and the general public.

(4) For providing rooms or space for the special handling of or the furnishing of special services to any of its passengers, guests, or invitees, subject to the provisions of Section 66 hereof.

(5) For the handling of baggage of passengers of the Lessee including baggage and parcels such passengers decide to send as air cargo.

(6) For the handling of unclaimed baggage and lost and found articles.

(7) For the conduct of operations, traffic, communications, reservations and administrative office functions and activities in connection with air transportation performed by the Lessee.

(8) For the preparation, packaging and storage of food, beverages and commissary supplies to be consumed on aircraft operated by the Lessee.

(9) For the storage of repair parts, supplies and other personal property owned or leased by the Lessee and for the performance of minor repairs to personal property of the Lessee.

(10) For the storage of such automotive fuel and lubricants as may be approved by the Port Authority.

(11) For the operation of a cafeteria for over-the-counter sales to officers and employees of the Lessee and their families and to occasional business guests of such officers and employees (other than passengers of the Lessee), of food, beverages and other merchandise normally sold in such an establishment at no profit to the Lessee and either directly by the Lessee or through a subsidiary thereof or by an independent

contractor who has received a permit from the Port Authority so to do.

(12) For use as crew quarters to be used by personnel of the Lessee during layovers between flights and for the establishment of lounges for employees of the Lessee.

(13) For the loading and unloading of passengers, baggage, mail, air cargo and commissary supplies, that the use of the premises for the unloading and loading of passengers and their baggage from ground transportation vehicles shall be subject to limitation and restriction, from time to time, as set forth in Section 75 hereof.

(14) For the parking and storage of aircraft and ramp equipment operated by the Lessee.

(15) For the fueling and routine servicing of aircraft and ramp equipment operated by the Lessee and for the maintenance of ramp equipment operated by the Lessee.

(16) For the performance of emergency or turn-around aircraft maintenance on aircraft operated by the Lessee.

(17) For the training of personnel employed or to be employed by the Lessee or other persons engaged in commercial transportation by aircraft, provided, that unless consented to by the Port Authority, the Lessee shall not engage in the training of persons employed by others or to be employed by others if the training of such persons is in competition with any concessionaire, permittee or licensee of the Port Authority at the Airport (other than another person engaged in the business of transportation by aircraft).

(18) For the temporary storage of baggage, mail and air cargo.

(19) For federal inspection services by federal agencies (if the United States Government makes the same available to the Lessee).

(20) For any other purpose or activity, in addition to those specified in this Section 5, for which the premises are expressly authorized to be used by any other provision of this Agreement.

The loading or unloading on the premises of any aircraft used principally for cargo is expressly prohibited.

Section 6. Ingress and Egress

(a) The Lessee, its officers, employees, passengers, customers, patrons, invitees, contractors, suppliers of material and furnishers of services, shall have the right of ingress and

egress between the premises and city streets or public ways outside the Airport by means of existing roadways to be used in common with others having rights of passage within the Airport, provided, however, that the Port Authority may from time to time substitute other reasonably equivalent means of ingress and egress and provided, further, however, notwithstanding anything contained in the General Airport Agreement as defined in Section 53 hereof that the Lessee hereby expressly understands and agrees that the Lessee shall have no right of ingress and egress or access hereunder or otherwise for its employees, passengers, customers, patrons, invitees and their baggage between the premises and the city streets or public ways outside the Airport by means of any mode of transportation or any vehicle which may be limited or restricted in accordance with Section 75 hereof it being understood that access to the premises for emergency response for reasons of safety or health shall not be deemed a breach hereof.

(b) The Lessee shall have the right of ingress and egress between the premises and the Public Landing Area at the Airport, by means of existing taxiways to be used in common with others having rights of passage thereon, provided, however, that the Port Authority may from time to time substitute other reasonably equivalent means of ingress and egress.

(c) The use of all roadways and taxiways shall be subject to the Rules and Regulations of the Port Authority which are now in effect or which may hereafter be promulgated for the safe and efficient operation of the Airport. In addition to the rights of closure granted above, the Port Authority may, at any time, temporarily or permanently close, or consent to or request the closing of, any such roadway, taxiway and any other area at the Airport presently or hereafter used as such, so long as a means of ingress and egress reasonably equivalent to that provided in paragraphs (a) and (b) above remains available to the Lessee. The Lessee hereby releases and discharges the Port Authority its successors and assigns, of and from any and all claims, demands or causes of action which the Lessee may now or at any time hereafter have against any of the foregoing, arising or alleged to arise out of the closing of any street, roadway, taxiway or other area used as such whether within or outside the Airport, provided, a reasonably equivalent means of ingress and egress is available. The Lessee shall not do or permit anything to be done which will interfere with the free access and passage of others to space adjacent to the premises or in any streets, ways and walks near the premises.

Section 7. Compliance with Governmental Requirements

(a) The Lessee shall comply with all laws and ordinances and governmental rules, regulations and orders now or at any time during the term of this Lease which as a matter of law are applicable to or which affect the operations of the Lessee at the premises hereunder and the Airport, and the Lessee

shall, in accordance with and subject to the provisions of Section 44 hereof, make any and all structural and non-structural improvements, alterations or repairs of the premises that may be required at any time hereafter by any such present or future governmental law, rules, regulation, requirement, order or direction.

(b) The Lessee hereby agrees that it shall, at its own cost and expense procure and obtain from all governmental authorities having jurisdiction over the operations of the Lessee hereunder and shall maintain in full force and effect throughout the term of this Agreement all licenses, certificates, permits or other authorization which may be necessary for the conduct of such operations. "Governmental authority" shall not be construed as intending to include The Port Authority of New York and New Jersey, the lessor under this Agreement.

(c) The obligation of the Lessee to comply with governmental requirements is provided herein for the purpose of assuring proper safeguards for the protection of persons and property on the premises. Such provision is not to be construed as a submission by the Port Authority to the application to itself of such requirements or any of them.

(d) Since the Port Authority has agreed in the Basic Lease to conform to the enactments, ordinances, resolutions and regulations of the City of New York and its various departments, boards and bureaus in regard to the construction and maintenance of buildings and structures and in regard to health and fire protection which would be applicable if the Port Authority were a private corporation to the extent that the Port Authority finds it practicable so to do, the Lessee shall comply with all such enactments, ordinances, resolutions and regulations which would be applicable to its operations at the premises if the Port Authority were a private corporation except in cases where the Port Authority either notifies the Lessee that it need not comply with or directs it not to comply with any such enactments, ordinances, resolutions or regulations which are applicable only because of the Port Authority's agreement in the Basic Lease. The Lessee shall, for the Port Authority's information, deliver to the Port Authority promptly after receipt of any notice, warning, summons, or other legal process for the enforcement of any such enactment, ordinance, resolution or regulation a true copy of the same. Any direction by the Port Authority to the Lessee not to comply with any such enactment, ordinance, resolution or regulation shall be given only pursuant to a resolution duly adopted by the Board of Commissioners of the Port Authority or by an authorized committee of its Board and if any such direction is given by the Port Authority to the Lessee, the Port Authority to the extent that it may lawfully do so, shall indemnify and hold the Lessee harmless from and against all claims, actions, damages, liabilities, fines, penalties, costs and expenses suffered or incurred by the Lessee as a result of noncompliance with such enactment, ordinance, resolution or regulation.

In the event of compliance with any such enactment, ordinance, resolution or regulation on the part of the Lessee, acting in good faith, commenced after such delivery to the Port Authority but prior to the receipt by the Lessee of a written direction from the Port Authority not to comply (and thereafter discontinued) such compliance shall not constitute a breach of this Agreement, although the Port Authority thereafter directs the Lessee not to comply. Nothing herein contained shall release or discharge the Lessee from compliance with any other provision hereof respecting governmental requirements.

(e) The Lessee shall have such time within which to comply with the aforesaid laws, ordinances, rules and regulations as the authorities enforcing the same shall allow.

Section 8. Rules and Regulations

(a) The Lessee covenants and agrees to observe and obey (and to require its officers, employees, guests, invitees, and those doing business with it to observe and obey) with respect to the premises the existing Rules and Regulations of the Port Authority in effect as of the execution of this Agreement and such reasonable future Rules and Regulations for the government of the conduct and operations of the Lessee and others on the premises as may from time to time during the letting be promulgated by the Port Authority for reasons of safety, health, noise, sanitation or good order. The obligation of the Lessee to require such observance and obedience on the part of its guests, invitees, and those doing business with it shall obtain only while such persons are on the premises. The Port Authority agrees that except in cases of emergency, it will give notice to the Lessee of every such future rule or regulation adopted by it at least ten (10) days before the Lessee shall be required to comply therewith.

(b) Upon the expiration or earlier termination of the General Airport Agreement as defined in Section 53 hereof the following shall be deemed to apply hereunder and be a part hereof: "The use by the Lessee and its officers, employees, passengers, guests, invitees and those doing business with it, of the Public Aircraft Facilities and any and all other portions of the Airport which it may be entitled to use under this Lease (other than space leased to the Lessee for its exclusive use) shall be subject to the Rules and Regulations of the Port Authority in effect as of the execution of this Agreement, and such reasonable future rules and regulations (including amendments and supplements to existing Rules and Regulations) as the Port Authority may from time to time promulgate in the public interest and in the interest of health, safety, sanitation, good order and the economic and efficient operation of the Airport, including but not limited to, the number and type of aircraft which at any particular time may use the Public Aircraft Facilities and the time or times when such aircraft may use the Public Aircraft Facilities. Without limiting the foregoing, the

Port Authority may take into account in adopting such Rules and Regulations the adequacy, capacity and suitability of (i) aircraft using the Airport, (ii) passenger handling facilities at the Airport including, but not limited to the Passenger Distribution System and the Transportation Center, as hereinafter defined, (iii) the Public Aircraft Facilities at the Airport, (iv) the roadways and (v) the parking facilities. In the event the Port Authority promulgates rules and regulations pursuant to this paragraph (b), the Port Authority may devise and implement reasonable procedures governing the affected use of the Public Aircraft Facilities, including but not limited to, allocations among Aircraft Operators at the Airport."

(c) If a copy of the Rules and Regulations is not attached, then the Port Authority will notify the Lessee thereof by delivery of a copy, or by making a copy available at the office of the Secretary of the Port Authority.

Section 9. Various Obligations of the Lessee

(a) The Lessee shall conduct its operations hereunder in an orderly and proper manner, considering the nature of such operations so as not to annoy, disturb or be offensive to others at or off the Airport. The Lessee shall take all reasonable measures (1) to eliminate or reduce as low as possible vibrations tending to damage any equipment, structure, building or portion of a building which is on the premises, or is a part thereof, or is located elsewhere on or off the Airport; and (2) to keep the sound level of its operations as low as possible.

(b) The Lessee shall use its best efforts to conduct all its operations at the premises in a safe and careful manner, following in all respects the best practices of the air transportation industry in the United States.

(c) The Port Authority shall have the right to object to the Lessee regarding the conduct and demeanor of the employees of the Lessee whereupon the Lessee will take all steps reasonably necessary to remove the cause of the objection. If requested by the Port Authority the Lessee shall supply and shall require its employees to wear or carry badges or other suitable means of identification, which shall be subject to the prior and continuing approval of the General Manager of the Airport.

(d) The Lessee shall control all vehicular traffic on the roadways or other areas within the premises or serving the same the use of which is granted to the Lessee hereunder and shall take all precautions reasonably necessary to promote the safety of all persons. The Lessee shall employ such means as may be necessary to direct the movement of vehicular traffic within the premises to prevent traffic congestion on the public roadways leading to the premises.

(e) The Lessee shall remove from the Airport or otherwise dispose of in a manner approved by the General Manager of the Airport, all garbage, debris and other waste materials (whether liquids which are not susceptible to ordinary sanitary sewerage disposal or solids) arising out of its occupancy or use of the premises or out of its operations at the Airport. Any such which may be temporarily stored in the open shall be kept in suitable garbage and waste receptacles, the same to be made of metal or other suitable material, and equipped with tightfitting covers, and to be of a design safely and properly to contain whatever material may be placed therein. The Lessee shall use extreme care when effecting removal of all such waste materials, and shall effect such removal at such times and by such means as first approved by the Port Authority. No such garbage, debris, or other waste materials shall be or be permitted to be thrown, discharged or deposited into or upon the waters at or bounding the Airport.

(f) From time to time and as often as reasonably required by the Port Authority, the Lessee shall conduct pressure, waterflow, and other appropriate tests of the fire extinguishing system and apparatus which constitute a part of the premises. The Lessee shall keep in proper functioning order all firefighting equipment on the premises and the Lessee shall at all times maintain on the premises adequate stocks of fresh, usable chemicals for use in such system and apparatus. The Lessee shall notify the Port Authority prior to conducting such tests. If requested by the Port Authority, the Lessee shall furnish the Port Authority with a copy of written reports of such tests.

(g) It is the intention of the parties hereto that noise caused by aircraft engine operations shall be held to a minimum considering the nature of the Lessee's operations. To this end the Lessee will conduct its operations in such a manner as to keep the noise produced by aircraft engines to a minimum and where appropriate shall employ noise arresting and noise reducing devices that are suitable. Aircraft testing and aircraft runups will be conducted only in such areas as shall meet with the prior and continuing approval of the Port Authority. The obligations assumed by the Lessee under this paragraph (g) shall not diminish, limit, modify or affect all other obligations of the Lessee with respect to noise under this Agreement.

(h) In its use of the premises, the Lessee shall use its best efforts to minimize jet or prop blast interference to aircraft operating on or to buildings and structures now located on or which in the future may be located on areas adjacent to the premises. In the event the Port Authority determines at any time and from time to time that the Lessee has not so minimized the jet or prop blast interference, it may serve a notice to the Lessee to such effect and if the condition is not corrected to the satisfaction of the Port Authority within thirty days after

the service of said notice, the Lessee hereby covenants and agrees to erect and maintain at its own expense such structure or structures as may be necessary to minimize the said jet or prop blast interference, subject, however, to the prior written approval of the Port Authority as to the type, manner and method of construction. The obligations assumed by the Lessee under this paragraph shall not diminish, limit, modify or affect all other obligations of the Lessee with respect to interference under this Agreement.

(i) The Lessee agrees that it will not erect, construct or maintain or otherwise create or continue any obstacle or so park or store any aircraft or other object on the premises so as to create any obstacle that will hamper or interfere with the free, orderly, unobstructed and uninterrupted passage of vehicles, aircraft or of the wings or other integral part of aircraft of any type, nature or description, while such vehicle is operating or aircraft is taxiing or being transported or towed along any runways, taxiways and roads outside of and adjacent to the premises.

(j) In addition to compliance by the Lessee with all laws, ordinances, governmental rules, regulations and orders now or at any time in effect during the term of the letting hereunder which as a matter of law are applicable to the operation, use or maintenance by the Lessee of the premises or the operations of the Lessee under this Agreement (the foregoing not to be construed as a submission by the Port Authority to the application to itself of such requirements or any of them), the Lessee agrees that it shall exercise the highest degree of safety and care and shall conduct all its operations under the Agreement and shall operate, use and maintain the premises in accordance with the highest standards and in such manner that there will be at all times a minimum of air pollution, water pollution or any other type of pollution and a minimum of noise emanating from, arising out of or resulting from the operation, use or maintenance of the premises by the Lessee and from the operations of the Lessee under this Agreement. The Port Authority hereby reserves the right from time to time and at any time during the term of the Lease to require the Lessee, and the Lessee agrees to design and construct at its sole cost and expense such reasonable structures, fences, equipment, devices and other facilities as may be necessary or appropriate to accomplish the objectives as set forth in the first sentence of this paragraph. All locations, the manner, type and method of construction and the size of any of the foregoing shall be determined by the Port Authority. The Lessee shall submit for Port Authority approval its plans and specifications covering the required work and upon receiving such approval shall proceed diligently to construct the same.

(k) The obligations assumed by the Lessee under paragraph (j) hereof shall continue throughout the term of this Lease and shall not be limited, affected, impaired or in any

manner modified by the fact that the Port Authority shall have approved any Construction Application and supporting plans, specifications and contracts covering construction work and notwithstanding the incorporation therein of the Port Authority's recommendations or requirements and notwithstanding that the Port Authority may have at any time during the term of the Lease consented to or approved any particular procedure or method of operation which the Lessee may have proposed or the Port Authority may have itself prescribed the use of any procedure or method. The agreement of the Lessee to assume the obligations under this paragraph (k) is a special inducement and consideration to the Port Authority in entering into this Lease with the Lessee.

(l) The Lessee shall periodically inspect, clean out and maintain the oil separators serving the premises which are located on the premises and the oil separators located outside the premises if they exclusively serve the premises.

(m) The Lessee shall at all times during the term of this Agreement on a twenty-four hour basis maintain sufficient qualified personnel at the Airport or on call within 30 minutes, who shall be qualified to perform the maintenance obligations of the Lessee under this Agreement and particularly be able to respond to all emergencies.

Section 10. Prohibited Acts

(a) The Lessee shall commit no nuisance, waste or injury at the Airport, and shall not do or permit to be done anything which may result in the creation or commission or maintenance of such nuisance, waste or injury at the Airport.

(b) The Lessee shall not create nor permit to be caused or created at the Airport any obnoxious odors or smokes, or noxious gases or vapors. The creation of exhaust fumes by the operation of the Lessee's internal combustion engines or aircraft engines of other types, so long as such engines are maintained and are being operated in a proper manner, shall not be a violation of this paragraph (b).

(c) The Lessee shall not do or permit to be done anything which may interfere with the effectiveness or accessibility of the drainage and sewerage system, water system, communications system, electrical, fire protection system, sprinkler system, alarm system, fire hydrants and hoses, if any, or any other part of utility, electrical mechanical or other systems installed or located from time to time at the Airport.

(d) The Lessee shall not do or permit to be done any act or thing at the Airport (1) which will invalidate or conflict with any fire insurance, extended coverage or rental insurance policies covering the premises or any part thereof, or the Airport, or any part thereof, or (2) which may constitute an

extra hazardous condition, so as to increase the risks normally attendant upon the operations permitted by this Agreement. The Lessee shall promptly observe, comply with and execute the provisions of any and all present and future rules and regulations, requirements, orders and directions of The National Board of Fire Underwriters and The Fire Insurance Rating Organization of New York, or of any other board or organization exercising or which may exercise similar functions, which may pertain or apply to the operations of the Lessee at the Airport and the Lessee shall, subject to and in accordance with the provisions of Section 44 hereof, make any and all structural and non-structural improvements, alterations or repairs to the premises required at any time hereafter by any such present or future rule, regulation, requirement, order or direction. If by reason of any failure on the part of the Lessee to comply with the provisions of this paragraph any fire insurance rate, extended coverage or rental insurance rate on the premises or any part thereof, or on the Airport or any part thereof, shall at any time be higher than it would otherwise be then the Lessee shall pay to the Port Authority, as an item of additional rental, that part of all insurance premiums paid by the Port Authority which shall have been charged because of such violation or failure by the Lessee.

(e) The Lessee shall not dispose of nor permit any one to dispose of any waste material taken from its aircraft (whether liquids or solid) by means of the toilets, manholes, sanitary sewers or storm sewers in the premises except after treatment in installations or equipment included in plans and specifications submitted to and approved by the Port Authority.

(f) The Lessee shall not keep or store during any 24 hour period flammable liquids within any enclosed portion of the premises (other than in rooms or areas expressly constructed for the storage of such liquids) in excess of the Lessee's working requirements during the said 24 hour period. Any such liquids having a flash point of less than 110 degrees Fahrenheit shall be kept and stored in safety containers of a type approved by the Underwriters Laboratories or the Factory Mutual Insurance Association.

(g) (1) The Lessee shall prevent access by persons or vehicles (unless duly authorized by the Port Authority) to the Public Landing Area from the premises except for aircraft, which aircraft shall be equipped with radio receivers tuned to control tower frequencies and adequately manned in accordance with applicable Rules and Regulations. Such aircraft may be towed by a motor vehicle equipped with a radio receiver tuned to the appropriate control tower frequency and adequately manned or such other means as may be approved by the Port Authority. The Lessee shall control access by its passengers and patrons from and to aircraft ramp, apron and parking areas on the premises and shall maintain control of its passengers and patrons while they are upon said areas by proper measures to insure that the highest standards of safety are maintained.

(2) The Lessee shall furnish adequate security and guard service or such comparable means as approved by the Port Authority from time to time, on a 24 hour, seven day-a-week basis for the prevention of access to and control of persons on the aeronautical operations areas of the premises and the prevention of access to the Public Landing Area.

(h) The Lessee shall not use or permit the use of any structural supporting member of the building or roof or any part thereof for the storage of any material or equipment, or hoist, lift, move or support any material or equipment or other weight or load, by means of said trusses or structural supporting members, without prior approval of the Port Authority.

(i) The Lessee shall not overload any floor on the premises, and shall repair, replace or rebuild any floor, including supporting members, damaged by overloading. Nothing in this paragraph or elsewhere in this Agreement shall be or be construed to be a representation by the Port Authority of the weight any floor or paved area will bear.

(j) The Lessee shall not use any cleaning materials having a harmful corrosive effect, on any part of the premises.

(k) The Lessee shall not fuel or defuel any equipment in the enclosed portions of the premises without prior approval of the General Manager of the Airport.

(l) The Lessee shall not start or operate any engine or any item of automotive equipment in any enclosed space at the Airport unless such space is adequately ventilated and unless such engine is equipped with a proper spark-arresting device which has been approved by the Port Authority.

(m) The Lessee shall not operate or cause to be operated aircraft engines in any areas of the premises other than for the purpose of taxiing or maneuvering aircraft to and from the premises or in connection with authorized aircraft maintenance on the premises. (The Lessee shall not perform any aircraft maintenance on the premises other than emergency or turn-around maintenance.)

(n) The Lessee shall not keep or store aviation fuel on the premises except that fueling equipment may be operated on the unenclosed portions of the premises in accordance with all the provisions of this Agreement and with the Port Authority Rules and Regulations pertaining thereto.

Section 11. Care, Maintenance, Rebuilding and Repair by the Lessee

(a) The Lessee shall repair, replace, rebuild and paint all or any part of the Airport which may be damaged or destroyed

by the acts or omissions of the Lessee or by those of its officers or employees or of other persons on or at the premises with the Lessee's consent.

(b) The Lessee shall, throughout the term of this Lease, assume the entire responsibility for, shall perform and shall relieve the Port Authority from all responsibility for all repair, replacement, rebuilding and maintenance whatsoever in the premises, whether such repair, replacement, rebuilding or maintenance be ordinary or extraordinary, partial or entire, inside or outside, foreseen or unforeseen, structural or otherwise, and without limiting the generality of the foregoing, the Lessee shall:

(1) Keep at all times in a clean and orderly condition and appearance, the premises and all the Lessee's fixtures, equipment and personal property which are located in any part of the premises which is open to or visible by the general public;

(2) Remove all snow and ice and perform all other activities and functions necessary or proper to make the premises available for use by the Lessee;

(3) Take good care of the premises and maintain the same at all times in good condition, except for reasonable wear and tear which does not adversely affect the efficient or the proper utilization thereof; including but not limited to painting (the exterior of the premises and areas visible to the general public to be painted only in colors which have been approved by the Port Authority); and make all repairs and replacements, and do all rebuilding, inside and outside, ordinary and extraordinary, partial and entire, foreseen and unforeseen, structural or otherwise, which repairs, rebuilding and replacements by the Lessee shall be in quality and class not inferior to the original in materials and workmanship; and to pay promptly the cost and expense of such repairs, replacements and maintenance;

(4) Provide and maintain all obstruction lights and similar devices on the premises, and provide and maintain all fire protection and safety equipment and all other equipment of every kind and nature required by any law, rule, ordinance, resolution or regulation of the type and nature described in Sections 9 and 10 of this Agreement. The Lessee shall enter into and keep in effect through the term of the Lease a contract or contracts with a central station alarm company acceptable to the Port Authority to provide continuous and automatic surveillance of the fire protection system on the premises. The Lessee shall insure that all fire alarm signals with respect to the premises shall also be transmitted to the Airport's police emergency alarm board or to such other location on the Airport as the General Manager of the Airport may direct. The Lessee's obligations hereunder shall in no way create any obligation whatsoever on the part of the Port Authority;

(5) Take such anti-erosion measures and maintain the landscaping at all times in good condition, including but not limited to periodic replanting, as the Port Authority may require, and perform and maintain such other landscaping with respect to all portions of the premises not paved or built upon, as the Port Authority may require;

(6) Be responsible for the maintenance and repair of all utility service lines, including but not limited to, service lines for the supply of water, electric power and telephone conduits and lines, sanitary sewers and storm sewers, located upon the premises or located adjacent to the premises and used by the Lessee exclusively.

(7) Be responsible for appropriate lighting of all ramp and apron areas and for the maintenance and repair of all access roadways, taxiways and ramp and apron areas located upon the premises or located adjacent to the premises and used by the Lessee exclusively.

(8) Repair any damage to the paving or other surface of the premises caused by any oil, gasoline, grease, lubricants or other flammable liquids and substances having a corrosive or detrimental effect thereon.

(c) If the performance of any of the foregoing repair, maintenance, replacement, repainting or rebuilding obligations of the Lessee requires work to be performed near an active taxiway or where safety of operations is involved, the Lessee agrees that it will at its own expense, post guards at such locations to insure the safety of the work performed thereat.

(d) In the event the Lessee fails to commence so to maintain, clean, repair, replace, lamp, relamp, rebuild, paint repaint or to restore as required by this Agreement within a period of twenty (20) days after notice from the Port Authority so to do in the event that the said notice specifies that the required work to be accomplished by the Lessee includes maintenance or repair other than preventive maintenance, or within a period of one hundred eighty (180) days if the said notice specifies that the work to be accomplished by the Lessee involves preventive maintenance only, or fails diligently to continue to completion the cleaning, maintenance, repair, replacement, lamping and relamping, rebuilding, painting, repainting or restoration of all of the premises required to be repaired, replaced, rebuilt, painted, repainted or restored by the Lessee under the terms of this Agreement, the Port Authority may, at its option, and in addition to any other remedies which may be available to it, clean, maintain, repair, replace, lamp or relamp, rebuild, paint, repaint or restore all or any part of the premises included in the said notice, and the cost thereof shall be payable by the Lessee upon demand.

Section 12. Insurance

The Lessee shall, during the term of this Agreement, insure and keep insured to the extent of the full replacement value thereof, all buildings, structures, improvements, installations, facilities and fixtures now or in the future located on the premises against all risks of physical loss or damage (including, but not limited to flood and earthquake risks) if available, and if not available, then against such hazards and risks as may now or in the future be included under the Standard Form of Fire Insurance Policy of the State of New York and also against damage or loss by windstorm, cyclone, tornado, hail, explosion, riot, flood, earthquake, civil commotion, aircraft, vehicles and smoke, under the Standard Form of Fire Insurance Policy of New York and the form of extended coverage endorsement prescribed as of the effective date of the said insurance by the Rating Organization having jurisdiction, and also covering nuclear property losses and contamination hazards and risks if it becomes a reasonably available insurable risk in the commercial market, and boiler and machinery hazards and risks in a separate insurance policy or policies or as an additional coverage endorsement to the aforesaid policies in the form as may now or in the future be prescribed as of the effective date of said insurance by the Rating Organization having jurisdiction and/or the Superintendent of Insurance of the State of New York and the Lessee shall furthermore provide additional insurance with respect to the premises covering any other peril of loss or damage that the Port Authority may at any time during the term of this Agreement cover by carrier or self-insurance covered by appropriate reserves at other locations at the Airport upon written notice to the Lessee to such effect.

The aforesaid insurance coverage and renewals thereof shall insure the Port Authority, the Lessee and the City of New York, as their interests may appear, and shall provide that the loss, if any shall be adjusted with and payable to the Port Authority.

In the event the premises or any part thereof shall be damaged by any casualty against which insurance is carried pursuant to this Section 12, the Lessee shall promptly furnish to the Port Authority such information and data as may be necessary to enable the Port Authority to adjust the loss.

The policies or certificates representing insurance covered by this Section 12 shall be delivered by the Lessee to the Port Authority prior to the commencement date of the Lease and each policy or certificate delivered shall bear the endorsement of or be accompanied by evidence of payment of the premium thereon, and also, a valid provision obligating the insurance company to furnish the Port Authority and the City of New York thirty (30) days' advance notice of the cancellation, termination, change or modification of the insurance evidenced by said policy or certificate. Renewal policies or certificates shall be delivered to the Port Authority at least ten (10) days before the expiration of the insurance which such policies are to renew.

Regardless, however, of the persons whose interests are insured, the proceeds of all policies covered by this Section 12 shall be applied as provided in Section 13; and the word "insurance" and all other references to insurance in said Section 13 shall be construed to refer to the insurance which is the subject matter of this Section 12, and to refer to such insurance only.

The insurance covered by this Section 12 shall be written by companies approved by the Port Authority, the Port Authority covenanting and agreeing not to withhold its approval unreasonably. If at any time any of the insurance policies shall be or become unsatisfactory to the Port Authority as to form or substance or is any of the carriers issuing such policies shall be or become unsatisfactory to the Port Authority, the Lessee shall promptly obtain a new and satisfactory policy in replacement, the Port Authority covenanting and agreeing not to act unreasonably hereunder. If the Port Authority at any time so requests, the Lessee shall make available to the Port Authority at a location in the Port of New York District, during normal business hours, the original or a certified copy of the entirety of each of the said policies and shall, upon request, deliver to the Port Authority a certified copy of such portions of said policies pertaining to the coverage hereunder as the Port Authority shall request.

Section 13. Damage to or Destruction of the Premises

(a) Removal Of Debris. If the Premises, or any part thereof shall be damaged by fire, the elements, the public enemy or other casualty, the Lessee shall promptly remove all debris resulting from such damage from the premises, and to the extent, if any, that the removal of debris under such circumstances is covered by insurance, the proceeds thereof shall be made available to and be used by the Lessee for such purpose.

(b) Minor Damage. If the premises, or any part thereof, shall be damaged by fire, the elements, the public enemy or other casualty but not rendered untenantable or unusable for a period of ninety (90) days, the premises shall be repaired with due diligence in accordance with the plans and specifications for the premises as they existed prior to such damage by and at the expense of the Lessee and if such damage is covered by insurance, the proceeds thereof shall be made available to and be used by the Lessee for such repairs.

(c) Major Damage to or Destruction of the Premises. If the premises, or any part thereof shall be destroyed or so damaged by fire, the elements, the public enemy of other casualty as to be untenantable or unusable for ninety (90) days, or if within ninety (90) days after such damage or destruction the Lessee notifies the Port Authority in writing that in its opinion said premises will be untenantable or unsuable for ninety (90)

days then: The Lessee shall proceed with due diligence to make the necessary repairs or replacements to restore such premises in accordance with the plans and specifications for the premises as the same existed prior to such damage or destruction; or with the approval in writing of the Port Authority make such other repairs, replacements or changes as may be desired by the Lessee. If such destruction was covered by insurance, the proceeds thereof shall be made available to and used by the Lessee for such restoration.

(d) The obligation of the Lessee to repair or replace shall be limited to the amount of the insurance proceeds provided the Lessee has carried insurance to the extent and in accordance with Section 12 hereof. Any excess of the proceeds of insurance over the costs of the restoration shall be retained by the Port Authority.

(e) The parties hereby stipulate that neither the provisions of Section 227 of the Real Property Law of New York nor those of any other similar statute shall extend or apply to this Agreement.

Section 14. Assumption of Maintenance and Repair of the Premises by the Port Authority

Subdivision I. Defined Terms in this Section.

The following terms shall have the meanings stated in this Subdivision I for the purposes of this Section:

(a) "Assumable Maintenance and Repair" shall mean the obligation of the Lessee to clean, maintain, perform janitorial services and perform structural and non-structural improvements, repairs and rebuilding as such obligations are set forth in:

(i) paragraphs (a) and (b) of Section 11 hereof; and

(ii) Section 7 hereof insofar as laws, ordinances and governmental rules, regulations, orders, requirements and directions require structural and non-structural improvements, alterations or repairs of the premises; and

(b) The "Cost of Assumable Maintenance and Repair" shall, for each calendar year, consist of the sum of the Operation and Maintenance Cost and the Annual Capital Cost which shall both be determined as follows:

(i) The Port Authority will determine the total of all costs incurred or accrued during each calendar year in connection with the Assumable Maintenance and Repair in accordance with normal Port Authority accounting practice and as follows:

The Port Authority will apportion Assumable Maintenance and Repair performed between "Operation and Maintenance" and "Capital Work". The cost of Operation and Maintenance is hereinafter called the "Operation and Maintenance Cost" and the cost of the Capital Work is hereinafter called the "Capital Cost".

(ii) Operation and Maintenance Cost for each calendar year shall consist of the following expenditures for, in connection with, or related to Operation and Maintenance:

(1) On-the-job payroll costs of employees and supervisory personnel (including Airport supervisors, foremen and clerks) (including, but not limited to, contributions to any retirement system or the cost of or participation in any pension plans or the like, social security, old age, survivor's, disability and unemployment insurance and other insurance costs, sick leave pay, holiday, vacation, authorized absence and severance pay, other employee fringe benefits and any other payments made or costs incurred whether pursuant to law or by Port Authority policy to or with respect to said employees and personnel;

(2) The cost (including rental charges) of materials, equipment, supplies and utilities (including but not limited to, electricity, water and phone);

(3) Payment to contractors and any other third persons, firms or corporations for work performed or services rendered;

(4) The cost of any performance bond or bonds;

(5) The cost of insurance;

(6) Any other direct costs as charged under the Port Authority's normal accounting practice;

(7) Twenty-five percent (25%) of the sum of all of the foregoing items (1) through (6).

(iii) A. Capital Cost for each calendar year shall consist of the following expenditures, for, in connection with, or related to Capital Work;

(1) On-the-job payroll costs of employees and supervisory personnel (including Airport supervisors, foremen and clerks) including but not limited to, contributions to any retirement system or the cost of or participation in any pension plans or the like, social security, old age, survivor's, disability and unemployment insurance and other insurance costs, sick leave pay, holiday, vacation, authorized absence and severance pay, other employee fringe benefits and any other payments made or costs incurred whether pursuant to law or by Port

Authority policy to or with respect to said employees and personnel;

(2) The cost (including rental charges) of materials, supplies, equipment and utilities (including but not limited to electricity, water and phone):

(3) Payment to contractors and any other third persons, firms or corporations for work performed or services rendered;

(4) The cost of any performance bond or bonds;

(5) The cost of any insurance;

(6) Payments to independent consultants, architects and engineers engaged or retained by the Port Authority;

(7) Any other direct costs as charged under the Port Authority's normal accounting practice;

(8) Financial Expense on the foregoing computed in accordance with Port Authority accounting practice;

(9) Ten percent (10%) of the sum of all the foregoing items (1) through (8);

B. "Annual Capital Cost" shall mean the total of all annual amounts based upon the amortization of the Capital Cost for each calendar year over the shorter of the weighted average period of the useful life of the Capital Work for each calendar year, or the remaining term of this Agreement as determined by the Port Authority. Each annual amount shall be determined on the basis of an equal annual payment method. The rate used in determining the Annual Capital Cost for all of the annual amounts shall be for each successive calendar year an annual percentage rate equal to the sum of (i) the average of all the weekly indices of the Bond Buyer Revenue Bond Index as reported in the publication "The Bond Buyer" for the 52-week period in the immediately preceding calendar year and (ii) three (3) percentage points. For purposes of example and illustration only, The Bond Buyer Revenue Bond Index for the week ending January 15, 1988 was 8.31% as set forth in the table entitled "Bond Buyer Indices" on page 30 of The Bond Buyer, Vol. 283 No. 230, New York, N.Y., dated January 15, 1988. In the event that The Bond Buyer or its weekly Bond Buyer Revenue Bond Index shall be discontinued prior to the commencement date of the term of the letting a comparable substitute for such Index shall be mutually agreed upon in writing by the Lessee and the Port Authority within thirty (30) days after discontinuance. In the event that the Port Authority and the Lessee shall fail to agree upon such a substitute within the time hereinabove specified then upon notice of either

party such dispute shall be disposed of by arbitration in accordance with the then existing rules of the American Arbitration Association or any successor association. One half of the cost of said arbitration shall be borne by the Port Authority and the other half of said cost shall be borne by the Lessee.

Subdivision II. Commencement of Performance of Assumable Maintenance and Repair

(a) The "Port Authority Effective Date" shall be the date, from time to time, determined as follows:

(i) The Port Authority may at any time and from time to time during the term of this Agreement advise the Lessee, by notice, of one or more deficiencies in the performance by the Lessee of the Assumable Maintenance and Repair, or in any portion, or portions, thereof. Such notice shall specify the aforesaid deficiencies in reasonable detail. In such notice the Port Authority shall also advise the Lessee of what reasonable period of time shall be afforded the Lessee to cure such deficiencies and the Port Authority shall advise the Lessee therein when and where its representatives may meet with representatives of the Port Authority to discuss the foregoing. The Port Authority will consider the response, if any, of representatives of the Lessee, as given at the aforesaid meeting or during such period for a further response from the Lessee, as the Port Authority may, in its sole discretion, afford the Lessee. The Port Authority may, after the occurrence of the above, advise the Lessee, by notice, that it has elected not, at that time, to assume the performance of the Assumable Maintenance and Repair. The Port Authority, in its sole discretion, may condition such an election on such terms as it chooses to include in the notice, including the taking of certain remedial or other actions by the Lessee to the continuing satisfaction of the Port Authority. The fact that the Port Authority may previously have given a notice under this subparagraph but has subsequently elected on one or more occasions not to assume the performance of the Assumable Maintenance and Repair or having on one or more occasions assumed the Assumable Maintenance and Repair and thereafter returned the said obligations to the Lessee pursuant to the provisions hereof, shall not be deemed to limit the right of the Port Authority to, at any time, give another notice of one or more deficiencies pursuant to this subparagraph or notice pursuant to subparagraph (ii) below.

(ii) The Port Authority may at any time and from time to time during the term of this Agreement, but only after the issuance of a notice described above and giving the opportunity to cure as provided above, advise the Lessee, by notice, that commencing on a date to be specified in such notice, which shall be not less than ninety (90) days after the giving thereof, the Port Authority will perform the Assumable Maintenance and Repair. Such date as the same may be established from time to time shall be the "Assumable Maintenance and Repair Date".

Subdivision III. Performance of the Assumable Maintenance and Repair

(a) The Port Authority shall perform the Assumable Maintenance and Repair from and after the Assumable Maintenance and Repair Effective Date with the Cost of Assumable Maintenance and Repair to be paid by the Lessee as provided in Subdivision IV below.

(b) The Lessee and the Port Authority each acknowledge and agree that the rights and obligations of the Port Authority and the Lessee hereunder are limited to the performance of all of the Assumable Maintenance and Repair by the Port Authority and not of particular portions thereof.

(c) The Lessee shall give its full cooperation to the Port Authority so as to better enable the Port Authority and its contractors to perform the Assumable Maintenance and Repair and the Port Authority and its employees, agents and contractors shall have the right to enter the premises at all reasonable times to perform the Assumable Maintenance and Repair.

Subdivision IV. Payment for the Assumable Maintenance and Repair

The Cost of the Assumable Maintenance and Repair shall be payable by the Lessee from and after the Assumable Maintenance and Repair Effective Date as follows:

(a) The Port Authority shall establish monthly interim billing rates. Such billing rates shall be based upon determinations by the Port Authority of its estimate of the Cost of the Assumable Maintenance and Repair for the calendar year or; for the portion of the calendar year in which the Assumable Maintenance and Repair Effective Date, if less than a calendar year, shall occur or for the portion of the calendar year during which the term of this Agreement shall expire, if less than a calendar year. Such determinations shall be based upon the prior calendar year's experience, if any, and upon other such reasonable basis as the Port Authority shall select. The Port Authority may prospectively revise its billing rates during any calendar year. The Lessee shall pay current billings as they are received.

(b) As soon as practicable after the expiration of each calendar year, the Port Authority shall determine the actual Cost of the Assumable Maintenance and Repair for the preceding calendar year and shall determine the amounts payable by the Lessee. In the event the Assumable Maintenance and Repair Date does not fall on the first day of a calendar year or in the event the term of this Agreement expires on a day other than the last day of a calendar year the Annual Capital Cost for said calendar year shall be prorated based on the number of days during said calendar year during which the Port Authority provides the Assumable Maintenance and Repair. Corrected billings based upon such determination shall thereupon be rendered by the Port Authority to the Lessee and if any monies are due to the Port Authority they shall be promptly paid by the Lessee

and if any monies are due to the Lessee they shall be credited to it.

Subdivision V. Limitation of Port Authority Obligations and No Waiver of Rights of Port Authority

(a) The right and obligation of the Port Authority to perform the Assumable Maintenance and Repair shall not release, waive or affect the obligations of the Lessee with respect thereto set forth in any provision of this Agreement, nor limit, waive or effect any rights of termination with respect thereto, including but not limited to, the right of the Port Authority to terminate this Agreement, whether before or after the occurrence of the Assumable Maintenance and Repair Effective Date pursuant to Section 25 of this Agreement.

(b) The Port Authority shall not be obligated to the Lessee to furnish the Assumable Maintenance and Repair at any time while the Lessee shall be in default under this Agreement.

(c) No failure, delay or interruption in performing the Assumable Maintenance and Repair by the Port Authority shall be or be construed to be an eviction of the Lessee or grounds for the diminution or abatement of rentals, fees, or other charges, or (unless resulting from the negligence or wilful failure of the Port Authority) shall be grounds for termination of this Agreement by the Lessee pursuant to Section 48 hereof or for any claims by the Lessee for damages, consequential or otherwise.

(d) The Port Authority shall be under no obligation to perform the Assumable Maintenance and Repair if and to the extent that during any period such performance shall be prohibited, limited or rationed by any federal, state or municipal law, rule, regulation, requirement, order or direction and if the Port Authority deems it in the public interest to comply therewith, even though such law, rule, regulation, requirement, order or direction may not be mandatory on the Port Authority as a public agency. Furthermore, the obligation of the Port Authority to perform the Assumable Maintenance and Repair shall be deemed limited and modified during any period that repair or rebuilding of the premises is required pursuant to Section 11 or Section 13 hereof.

Subdivision VI. Return of the Assumable Maintenance and Repair to the Lessee

At any time and from time to time after the Port Authority may have exercised its rights under Subdivision II (a) (ii)) to perform the Assumable Maintenance and Repair the Port Authority shall have the right, upon notice to the Lessee to return the obligation to perform the Assumable Maintenance and Repair to the Lessee commencing on a date to be specified in such notice which date shall be not less than thirty (30) nor more than ninety (90) days from the giving of such notice. Such date shall be "the Return Date of the Assumable Maintenance and Repair". From and after the Return Date

of the Assumable Maintenance and Repair the Lessee shall perform the Assumable Maintenance pursuant to and in accordance with all the terms and provisions of the Lease including, but not limited to, this Section 14.

From and after the Return Date of the Assumable Maintenance and Repair the Lessee shall continue to pay the cost of Assumable Maintenance and Repair, it being understood, that nothing herein shall release or be deemed to release the Lessee from the payment to the Port Authority of the cost of Assumable Maintenance and Repair including that portion thereof consisting of the Annual Capital Cost in accordance with Subdivision IV hereof arising prior to the Return Date of the Assumable Maintenance and Repair; nor shall anything herein require the Port Authority to make any calculation or determination with respect to the cost of Assumable Maintenance and Repair prior to the time specified therefor in Subdivision IV hereof.

Section 15. Indemnity and Liability Insurance

(a) The Lessee shall indemnify and hold harmless the Port Authority, its Commissioners, officers, employees and representatives, from and against (and shall reimburse the Port Authority for the Port Authority's costs and expenses including reasonable legal expenses incurred in connection with the defense of) all claims and demands of third persons including, but not limited to, claims and demands for death or personal injuries, or for property damages arising out of a breach or default of any term or provision of this Agreement by the Lessee or out of the use or occupancy of the premises by the Lessee, or by others with its consent, or out of any other acts or omissions of the Lessee, its officers and employees, guests, invitees and business visitors on the premises or arising out of the acts or omissions of the Lessee, its officers and employees elsewhere at the Airport (excepting only claims and demands arising from the sole negligence of the Port Authority); including claims and demands of the City of New York, from which the Port Authority derives its rights in the Airport, for indemnification, arising by operation of law or through agreement of the Port Authority with the said City.

(b) If so directed, the Lessee shall at its own expense defend any suit based upon any such claim or demand (even if such, claim or demand is groundless, false or fraudulent), and in handling such it shall not, without obtaining express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority, or the provisions of any statutes respecting suits against the Port Authority.

(c) In addition to the obligations set forth in paragraph (a) of this Section and all other insurance required under this Agreement, the Lessee during the term of this Agreement in its own

name as insured and including the Port Authority as an additional insured shall maintain and pay the premiums on a policy or policies of comprehensive general liability insurance, including automotive, products, liquor liability and covering bodily injury, including death, and property damage liability, broadened to include or equivalent separate policies covering aircraft liability and airport operator's liability under an airport liability policy, none of the foregoing to contain care, custody or control exclusions, and providing for coverage in the limits set forth below. The Lessee may elect, in lieu of the foregoing requirement with respect to care, custody and control exclusions, in its own name as insured and including the Port Authority as an additional insured as its interest may appear to maintain and pay the premiums on a Hangar Legal Liability, Cargo Legal Liability, Baggage Legal Liability and Real Property Legal Liability policy or policies in the limits set forth below. The said policy or policies of insurance shall also provide or contain an endorsement providing that the protections afforded the Lessee thereunder with respect to any claim or action against the Lessee by a third person shall pertain and apply with like effect with respect to any claim or action against the Lessee by the Port Authority and any claim or action against the Port Authority by the Lessee as though the Port Authority were a named insured but such endorsement shall not limit, vary, change, or affect the protection afforded the Port Authority thereunder as an additional insured. The said policy or policies of insurance shall also provide or contain a contractual liability endorsement covering the obligations assumed by the Lessee under paragraph (a) hereof.

	Minimum Limits
Comprehensive General Liability Bodily Injury Liability: For injury to or wrongful death of one or more than one person in any one occurrence:	$100,000,000
Property Damage Liability (including but not limited to aircraft in the care, custody and control of the Lessee) For all damages arising out of injury to or destruction of property in any one occurrence:	$100,000,000
Comprehensive Automobile Liability Bodily Injury Liability: For injury to or wrongful death one or more than one person in any one occurrence:	$25,000,000
Property Damage Liability: For all damages arising out of injury to or destruction of property in any one occurrence:	$25,000,000

Notwithstanding the foregoing, it is specifically understood and agreed that the Port Authority shall have the right upon notice to the Lessee given from time to time and at any time to require the Lessee to increase any or all of the foregoing limits to reasonably commercial amounts and the Lessee shall promptly comply therewith and shall promptly submit a certificate or certificates evidencing the same to the Port Authority.

(c) As to the insurance required by the provisions of this Section a certified copy of the policies or a certificate or certificates or binders, evidencing the existence thereof, or binders, shall be delivered by the Lessee to the Port Authority at least ten (10) days prior to the commencement date of the letting. Each policy, certificate or binder delivered as aforesaid shall bear the endorsement of or be accompanied by evidence of payment of the premium thereon. In the event a binder is delivered, it shall be replaced within thirty (30) days by a certified copy of the policy or a certificate. Each such copy or certificate shall contain a valid provision or endorsement that the policy may not be cancelled, terminated, changed or modified without giving thirty (30) days' written advance notice thereof to the Port Authority. Each such copy or certificate shall contain an additional endorsement providing that the insurance carrier shall not, without obtaining express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority or the provisions of any statutes respecting suits against the Port Authority. Any renewal policy shall be delivered to the Port Authority at least ten (10) days prior to the expiration of each expiring policy, except for any policy expiring after the date of expiration of the term of this Agreement. The aforesaid insurance shall be written by a company or companies approved by the Port Authority, the Port Authority agreeing not to withhold its approval unreasonably. If at any time any of the insurance policies shall be or become unsatisfactory to the Port Authority as to the form or substance or if any of the carriers issuing such policies shall be or become unsatisfactory to the Port Authority, the Lessee shall promptly obtain a new and satisfactory policy in replacement, the Port Authority covenanting and agreeing not to act unreasonably hereunder. If the Port Authority at any time so requests, the Lessee shall make available to the Port Authority at a location in the Port of New York District, during normal business hours, the original or a certified copy of the entirety of each of the said policies and shall, upon request, deliver to the Port Authority a certified copy of such portions of said policies pertaining to the coverage hereunder as the Port Authority shall request.

Section 16. Signs

(a) Except with the prior written approval of the Port Authority, the Lessee shall not erect, maintain or display any signs

or any advertising at or on the exterior parts of the premises or in the premises so as to be visible from outside the premises or at or on any other portion of the Airport outside the premises. Interior signs affecting public safety and security shall be in accordance with established Port Authority standards.

(b) Upon the expiration or termination of the letting, the Lessee shall remove, obliterate or paint out, as the Port Authority may direct, any and all signs and advertising on the premises or elsewhere on the Airport and in connection therewith shall restore the portion of the premises and the Airport affected by such signs or advertising to the same condition as existing prior to the installation of such signs and advertising. In the event of a failure on the part of the Lessee so to remove, obliterate or paint out each and every such sign or advertising and so to restore the premises and the Airport, the Port Authority may perform the necessary work and the Lessee shall pay the cost thereof to the Port Authority on demand.

Section 17. Obstruction Lights

The Lessee shall furnish such obstruction lights as the Port Authority shall direct, of the type and design approved by the Port Authority, and shall install said lights in the locations on the premises designated by the Port Authority and shall maintain them in first class operating condition at all times. The Lessee shall furnish and install the bulbs and furnish the electricity necessary for the operation of said lights, and shall operate the same in accordance with the directions of the Port Authority. The Port Authority hereby directs that all said obstruction lights shall, until further notice be operated daily for a period commencing thirty (30) minutes before sunset and ending thirty (30) minutes after sunrise (as sunset and sunrise may vary from day to day throughout the year) and for such other periods as may be directed or requested by the control tower at the Airport.

Section 18. Additional Rent and Charges

If the Port Authority is required or elects to pay the sum or sums or incurs any obligations or expense by reason of the failure, neglect or refusal of the Lessee to perform or fullfill any one or more of the conditions, covenants or agreements contained in this Agreement or as a result of an act or omission of the Lessee contrary to the said conditions, covenants and agreements, the Lessee agrees to pay the sum or sums so paid or the expense so incurred including all the interest, costs, damages and penalties, and the same may be added to any installment of rent thereafter due hereunder, and each every part of the same shall be and become additional rent, recoverable by the Port Authority in the same manner and with like remedies as if it were originally a part of the rent as set forth in Section 3.

Section 19. Late Charges

If the Lessee should fail to pay any amount required to be paid by the Lessee under this Agreement when due to the Port Authority, including without limitation any payment of rental or Additional Facility Rental or other rental or any payment of utility or other charges or if any such amount if found to be due as the result of an audit, then, in such event, the Port Authority may impose (by statement, bill or otherwise) a late charge with respect to each such unpaid amount for each late charge period (hereinbelow described) during the entirety of which such amount remains unpaid, each such late charge not to exceed an amount equal to eight tenths of one percent of such unpaid amount for each late charge period. There shall be twenty-four late charge periods on a calendar year basis; each late charge period shall be for a period of at least fifteen (15) calendar days except one late charge period each calendar year may be for a period of less than fifteen (but not less than thirteen) calendar days. Without limiting the generality of the foregoing, late charge periods in the case of amounts found to have been owing to the Port Authority as the result of Port Authority audit findings shall consist of each late charge period following the date the unpaid amount should have been paid under this Agreement. Each late charge shall be payable immediately upon demand made at any time therefor by the Port Authority. No acceptance by the Port Authority of payment of any unpaid amount or of any unpaid late charge amount shall be deemed a waiver of the right of the Port Authority of payment of any late charge of late charges payable under the provisions of this Section with respect to such unpaid amount. Each late charge shall be and become additional rent, recoverable by the Port Authority in the same manner and with like remedies as if it were originally a part of the rental. Nothing in this Section is intended to, or shall be deemed to, affect, alter, modify or diminish in any way (i) any rights of the Port Authority under this Agreement, including without limitation the Port Authority's rights to set forth in Section 25, of this Agreement or (ii) any obligations of the Lessee under this Agreement. In the event that any late charge imposed pursuant to this Section shall exceed a legal maximum such late charges payable under this Agreement shall be payable instead at such legal maximum.

Section 20. Rights of Entry Reserved

(a) The Port Authority, by its officers, employees, agents, representatives and contractors shall have the right at all reasonable times to enter upon the premises for the purpose of inspecting the same, for observing the performance by the Lessee of its obligations under this Agreement, and for the doing of any act or thing which the Port Authority may be obligated or have the right to do under this Agreement.

(b) Without limiting the generally of the foregoing, the Port Authority, by its officers, employees, agents, representatives, and contractors, and furnishers of utilities and other services, shall have the right, for its own benefit, for the benefit of the

Lessee, or for the benefit of other than the Lessee at the Airport, to maintain existing and future utility, mechanical, electrical and other systems and to enter upon the premises at all reasonable times to make such repairs, replacements or alterations as may, in the opinion of the Port Authority, be deemed necessary or advisable and, from time to time, to construct or install over, in or under the premises new systems or parts of the Airport otherwise not conveniently accessible; provided, however, that in the exercise of such rights of access, repair, alteration or new construction the Port Authority shall not unreasonably interfere with the use and occupancy of the premises by the Lessee.

(c) Further, without limiting the generality of this Section the Port Authority, by its officers, employees, agents, representatives and contractors and furnishers of service shall have the right, for its own benefit, for the benefit of the Lessee, or for the benefit of others than the Lessee at the Airport to maintain the portions of the Distribution Portion of the Underground Fuel Distribution System as described in the General Airport Agreement as defined in Section 53 located under or on the premises and to enter upon the premises at all times to make such repairs, replacements or alterations to the Distribution Portion of the Underground Fuel Distribution System as may, in the opinion of the Port Authority, be deemed necessary or desirable and, from time to time to construct or install over, in or under the premises additions or extensions to said Distribution Portion of the Underground Fuel Distribution System; provided however, that in the exercise of such rights of access, repair, alteration or new construction the Port Authority shall not unreasonably interfere with the use and occupancy of the premises by the Lessee pursuant to the provisions of this Agreement.

Neither the Distribution Portion of the Underground Fuel Distribution System or any part thereof as described in Supplement No. 37 to the General Airport Agreement as defined in Section 53 of the Lease, shall be or be deemed to be a part of the premises under the Lease.

(d) In the event that any property of the Lessee shall obstruct the access of the Port Authority, its employees, agents or contractors to any of the existing or future utility, mechanical, electrical and other systems and thus shall interfere with the inspection, maintenance or repair of any such system, the Lessee shall move such property, as directed by the Port Authority, in order that access may be had to the system or part thereof for its inspection, maintenance or repair, and, if the Lessee shall fail to so move such property after direction from the Port Authority to do so, the Port Authority may move it and the Lessee hereby agrees to pay the cost of such moving upon demand.

(e) Nothing in this Section shall or shall be construed to impose upon the Port Authority any obligations so to construct or maintain or to make repairs, replacements, alterations or additions, or shall create any liability for any failure so to do. The Lessee is and shall be in exclusive control and possession of the premises

and the Port Authority shall not in any event be liable for any injury or damage to any property or to any person happening on or about the premises nor for any injury or damage to the premises or to any property of the Lessee or of any other person located in or thereon (other than those occasioned by the affirmative acts of the Port Authority, its employees, agents and representatives).

(f) At any time and from time to time during ordinary business hours within the six (6) months next preceding the expiration of the letting, the Port Authority, for and by its agents and employees, whether or not accompanied by prospective lessees, occupiers or users of the premises, shall have the right to enter thereon for the purpose of exhibiting and viewing all parts of the same, and during such six month period the Port Authority may place and maintain on the premises the usual "To Let" signs, which signs the Lessee shall permit to remain without molestation.

(g) If, during the last month of the letting, the Lessee shall have removed all or substantially all its property from the premises, the Port Authority may immediately enter and alter, renovate and redecorate the premises.

(h) The exercise of any or all of the foregoing rights by the Port Authority or others shall not be or be construed to be an eviction of the Lessee and shall not be made the grounds for any abatement of rental nor any claim or demand for damages, consequential or otherwise.

Section 21. Condemnation

(a) Definitions

As used in this Section the phrase, "temporary interest," when used with reference to real property, shall mean an interest in such real property entitling the owner of such interest to the possession of such property (whether or not such interest includes or is coextensive with an interest of the Lessee therein under this Agreement), for an indefinite term or for a term terminable at will or at sufferance of for a term measured by a war or an emergency or other contingency or for a fixed term expiring prior to the expiration date of this Lease; and the phrase "permanent interest," when used with reference to real property, shall mean an interest in such real property entitling the owner of such interest to possession thereof, other than a temporary interest as above defined, including among others a fee simple and an interest for a term of years expiring on or after the expiration date of this Agreement.

As used in this Section with reference to any premises or facilities leased to the Lessee for its exclusive use or with reference to the Public Landing Area, the phrase "a material part" shall mean such a part of the said premises or said public Landing Area that the Lessee cannot continue to carry on its normal operations at the Airport without using such part.

(b) Condemnation or Taking of a Permanent Interest in All or any part of the Premises or All or a Material Part of the Public Landing Area.

Upon the acquisition by condemnation or the exercise of the power of eminent domain by any body having a superior power of eminent domain of a permanent interest in all or any part of the premises or of a permanent interest in all or any part of the Public Landing Area (any such acquisition under this Section 21 hereinafter referred to as a "taking"), the Port Authority shall purchase from the Lessee, and the Lessee shall sell to the Port Authority, the Lessee's leasehold interest (excluding any personal property whatsoever) in the premises except that in the event of a taking of less than all of the said premises, the Port Authority shall purchase and the Lessee shall sell only so much of the Lessee's leasehold interest in the premises as are taken. The sole and entire consideration to be paid by the Port Authority to the Lessee shall be an amount equal to the unamortized capital investment (as defined in Section 81 hereof), if any, of the Lessee in the premises or, in the event of a taking of less than all of the said premises, an amount equal to the unamortized capital investment (as defined in Section 81 hereof), if any, of the Lessee in so much of the premises as are taken. However, the Port Authority shall purchase and the Lessee shall sell only if the consideration paid by the Port Authority therefor will constitute "unamortized Port Authority funds other than bond proceeds or Federal or State grants expended for capital improvements at the municipal air terminals," within the meaning of said phrase as used in Section 23, I, D of the Basic Lease or if an amount not less than such consideration can otherwise be retained by the Port Authority (and not be required to be paid to the City of New York) out of the damages or award in respect to such talking without violation of any obligation of the Port Authority to the City of New York under the Basic Lease. Such purchase and sale shall take effect as of the date upon which such body having superior power of eminent domain obtains possession of any such permanent interest in the demised premises or in the Public Landing Area, as the case may be, and in that event, the Lessee (except with respect to its personal property), shall not have any claim or right to claim or be entitled to any portion of the amount which may be awarded as damages or paid as a result of such taking, and all rights to damages, if any, of the Lessee (except for damages to its personal property) by reason thereof are hereby assigned to the Port Authority.

If however, the amount to be paid by the Port Authority (the unamortized capital investment, as defined in Section 81 hereof, if any, of the Lessee in the premises) for such leasehold interest will not constitute "unamortized Port Authority funds other than bond proceeds or Federal or State grants, expended for capital improvements at the municipal air terminals," within the meaning of said phrase as used in Section 23, I, D of the Basic Lease or if an amount not less than such consideration cannot otherwise be retained by the Port Authority (and not be required to be paid to the City of

New York) out of the damages or award in respect to such taking without violation of any obligation of the Port Authority to the City of New York under the Basic Lease, then the aforesaid agreement to purchase and sell said leasehold interest shall be null and void; and in any such event, the Lessee shall have the right to appear and file its claim for damages in the condemnation or eminent domain proceedings, to participate in any and all hearings, trials and appeals therein, and to receive such amount as it may lawfully be entitled to receive as damages or payment as a result of such taking, because of its leasehold interest in the premises, up to but not in excess of an amount equal to the unamortized capital investment (as defined in Section 81 hereof), if any, of the Lessee in the premises. The Port Authority and the Lessee hereby agrees that as full and final settlement of any sum that may be due as rent or otherwise for the balance of the term of this Lease, the Lessee will pay to the Port Authority the excess, if any, which the Lessee may be entitled to receive over the foregoing sum. If there be no excess, any sum that may be due as rent or otherwise for the balance of the term of this Lease shall abate.

In the event of the taking of all of the premises and if the Lessee has no unamortized capital investment (as defined in Section 81 hereof) in the premises at the time of the taking, then the aforesaid agreement to purchase and sell said leasehold interest shall be null and void; and in that event, this Lease and all rights granted by this Lease to the Lessee to use or occupy the premises for its exclusive use or for its use in common with others at the Airport and all rights, privileges, duties and obligations of the parties in connection therewith or arising thereunder shall terminate as of the date of the taking, and in that event, the Lessee (except with respect to its personal property) shall not have any claim or right to claim or be entitled or paid as a result of such taking, and all rights to damages, if any, of the Lessee (except for damages to its personal property) by reason thereof are hereby assigned to the Port Authority.

In the event that the taking covers only a material part of the premises, then the Lessee and the Port Authority shall each have an option exercisable by notice given within (10) days after the effective date of such taking to terminate the letting hereunder with respect to the premises not taken, as of the date of such taking and such termination shall be effective as if the date of such taking were the original date of expiration hereof. If the Port Authority exercises this option, it shall purchase from the Lessee the Lessee's leasehold interest (excluding any personal property whatsoever) in the premises not taken for a consideration equal to the unamortized capital investment (as defined in Section 81 hereof), if any, of the Lessee in the premises not taken. If the letting of the entire premises is not terminated, the settlement or abatement of rentals after the date possession is taken by the body having a superior power of eminent domain shall be in accordance with Section 3 thereof.

(c) Condemnation or Taking of a Permanent Interest in Less Than a Material Part of the Public Landing Area.

Upon the acquisition by condemnation or the exercise of the power of eminent domain by a body having a superior power of eminent domain of a permanent interest in less than a material part of the Public Landing Area, the Port Authority and the Lessee each shall have the right to appear and file claims for damages, to the extent of their respective interest, in the condemnation or eminent domain proceedings, to participate in any and all hearings, trials and appeals therein, and receive and retain such amount as they may lawfully be entitled to receive as damages or payment as a result of such taking. However, if at the time of such taking the Lessee has no unamortized investment (as defined in Section 81 hereof) in the premises, in that event, the Lessee (except with respect to its personal property) shall not have any claim or right to claim or be entitled to any portion of the amount which may be awarded as damages or paid as a result of such taking, and all rights to damages, if any, of the Lessee (except for damages to its personal property) by reason thereof are hereby assigned to the Port Authority.

(d) Condemnation or Taking of a Temporary Interest in All or Any Part of the Premises or All or a Material Part of the Public Landing Area.

Upon the acquisition by condemnation or the exercise of the power of eminent domain by a body having a superior power of eminent domain of a temporary interest in all or any part of the premises or of a temporary interest in all or a material part of the Public Landing Area, there shall be no abatement of any rental payable by the Lessee to the Port Authority under the provisions of the Agreement but the Lessee shall have the right to claim and in the event of an award thereof shall be entitled to retain the amount which may be awarded as damages or paid as a result of the condemnation or other taking of such temporary interest, provided, that the Lessee shall be obligated to pay over to the Port Authority all such payments as may be made to the Lessee as damages or in satisfaction of such claim, after deduction of (a) reasonable expense incurred by the Lessee in the prosecution of such claim; (b) an amount equal to the unamortized capital investment (as defined in Section 81 hereof), if any, of the Lessee in the premises, or in the event of a taking of less than all of the said premises, an amount equal to such unamortized capital investment in the premises as are taken, to the extent in either case that the same is to be amortized over the period of the taking; and (c) the then present capitalized value of the Lessee's obligation for rentals thereafter payable during the period of the taking in respect to the demised premises, or, in the event of a taking of less than all of the said premises, in respect to the premises so taken.

In the event that the taking covers a material part but less than all of the premises, then the Lessee and the Port Authority shall each have an option, exercisable by notice given within ten (10) days after the effective date of such taking, to suspend the term of the letting of such of the premises as are not so taken during the period of the taking, and, in that event, the rentals for such premises shall abate for the period of the suspension. If the Port Authority exercises the option, it shall purchase from the Lessee the Lessee's leasehold interest (excluding any personal property whatsoever) in the premises not taken for the period of suspension for a consideration equal to the unamortized capital investment (as defined in Section 81 hereof), if any, of the Lessee in such premises which is to be amortized over the period of such suspension.

(e) Condemnation or Taking of a Temporary Interest in Less Than a Material Part of the Public Landing Area.

Upon the acquisition by condemnation or the exercise of the power of eminent domain by a body having a superior power of eminent domain of a temporary interest in less than a material part of the Public Landing Area, the Lessee shall not have any claim or right to claim or be entitled to any portion of the amount which may be awarded as damages or paid as a result of such condemnation or taking, and all rights to damages, if any, of the Lessee, including consequential damages, by reason of such condemnation or taking, are hereby assigned to the Port Authority.

Section 22. Right of Termination - Securities Ownership

(a) The occurrence of any one or more of the following events shall be and shall be deemed an event of termination under Section 25 of the Lease, and upon the occurrence of any such event or at any time thereafter during the continuance thereof the Port Authority shall have the right to terminate the Lease and the letting hereunder pursuant to the provisions of said Section 25.

(i) Excepting only the Government of the United Kingdom of Great Britain and Northern Ireland, any individual, corporation, partnership or other entity shall have direct or indirect beneficial ownership (as described below) of a portion of any class of outstanding voting securities of the Lessee (as described below) in excess of thirty percent (30%) thereof; which shall result in a detectible decrease in the amount of, and a change in, the nature of the Lessee's scheduled passenger aircraft operations at the Airport or shall have the effect of causing this Lease to become the only asset or a significantly greater portion of the assets of the Lessee than prior to such action; unless the Port Authority shall have given its prior written consent thereto;

(ii) There shall be an issuance, transfer, purchase or exchange of all or a portion of the securities of the Lessee or

of a subsidiary corporation of the Lessee or the creation, transfer, purchase or exchange of any rights or privileges thereunder, or the transfer, purchase or exchange of all or a portion of the assets of the Lessee or of a subsidiary corporation of the Lessee, which causes or results in a change in the relationship between the Lessee and a subsidiary corporation of the Lessee, or the Lessee and the holders of the securities of the Lessee, or the creation of another corporation for the purpose, among others, of accepting and holding securities of the Lessee, or which places control of the Lessee in a single entity, or which effects, causes or results in a transfer or change in the entity exercising control over the Lessee unless the Port Authority shall have given its prior written consent thereto; which shall in any such case result in a detectible decrease in the amount of and a change in the nature of the Lessee's scheduled passenger aircraft operations at the Airport or shall have the effect of causing this Lease to become the only asset or a significantly greater portion of the assets of the Lessee than prior to such action.

(b) The foregoing right of termination shall be in addition to all other rights of termination the Port Authority has under this Agreement and the failure of the Port Authority to exercise its right of termination under this Section at any time in which it may have such right shall not affect, waive or limit its right to exercise said right of termination at any subsequent time.

(c) The Lessee represents, knowing that the Port Authority is relying on the accuracy of such representation, that, at the time of execution of this Agreement, it is a corporation organized and existing under the laws of England and Wales, and has issued and has outstanding (2.a.) voting securities which constitute all its outstanding voting securities.

(d) The phrase "direct or indirect beneficial ownership" shall include without limiting the generality thereof the direct or indirect power through contract, arrangement, understanding, relationship or otherwise to dispose of or to direct the disposal of, or to vote or to direct the voting of, any voting security of a corporation.

(e) The term "voting security" shall include any stock, bond or other obligation of a corporation the holder of which has any voting rights including but not limited to the right to vote for the election of members of the board of directors of said corporation and shall include any security convertible into a voting security and any right, option or warrant to purchase a voting security.

(f) The Lessee shall promptly advise the Port Authority of any change in the representation made in paragraph (c) of this Section.

Section 23. Assignment to a Trust

In the event that the Port Authority is of the opinion that it is advisable due to changes (occurring after the execution of this Agreement) in the laws of the United States of America regarding bankruptcy and insolvency, which changes lessens or limits the rights or remedies of a landlord should a tenant under a lease of non-residential real property become a debtor pursuant to the aforesaid laws, (such changes being hereinafter called "Changes in Landlord Rights'), the Port Authority and the Lessee agree that this Agreement, as the same may have been theretofore amended or supplemented and as then amended by a Supplement to be prepared by the Port Authority and executed by the Lessee and the Trust (described below) and delivered to the Port Authority for its execution, shall be assigned to a Trust, created as provided herein. The Trust shall be created by a Trust Indenture to be prepared by the Port Authority and executed by the Port Authority and the Lessee. The Trust would be under the voting control of the trustee designated by the Lessee, unless and until stipulated events of the type set forth as Triggering Events in Exhibit X occurred, in which event voting control would shift to the trustee designated by the Port Authority. The occurrence of such Triggering Events would be as certified by the independent trustee jointly designated by the Port Authority and the Lessee. The Port Authority agrees that it will simultaneously with the assignment of this Agreement, as the same may have been theretofore amended or supplemented, to the Trust, consent to the Trust entering into a sublease with the Trust as landlord and the Lessee, as sublessee, provided however that such sublease shall be a month-to-month periodical tenancy and the Trust Indenture shall provide for the same. If four consecutive calendar quarters shall elapse after voting control of the Trust shifted to the trustee designated by the Port Authority and (i) the Trustee designated by the Port Authority shall not have, by notice, advised the Lessee that it may no longer occupy the premises as a month-to-month periodical tenant pursuant to the aforesaid sublease and the Lessee in fact is so occupying and (ii) none of the aforesaid stipulated events shall have occurred or continued to occur or shall have again occurred, the Port Authority will, at the request of the Lessee prepare a Supplemental Agreement to be executed by the Trust and the Lessee, and delivered to the Port Authority for its execution reassigning this Agreement to the Lessee. If the Trust becomes the assignee of this agreement as provided above, and there are further changes in Landlord Rights such that the rights and remedies of a landlord, as aforesaid, are restored, the Port Authority shall prepare and tender to the Lessee, and the Trust a Supplemental Agreement to be executed and delivered by each of them and returned to the Port Authority for its execution, reassigning this Agreement, as the same may have been theretofore amended or supplemented, to the Lessee.

Section 24. Assignment and Sublease

(a) The Lessee covenants and agrees that it will not sell, convey, transfer, mortgage, pledge or assign this Agreement or any

part thereof, or any rights created thereby or the letting thereunder or any part thereof without the prior written consent of the Port Authority; provided, however, that this Agreement may be assigned in its entirety without such consent to any successor in interest of the Lessee which is or is to be a Scheduled Aircraft Operator, and with or into which the Lessee may merge or consolidate, or which may succeed to the assets of the Lessee or the major portion of its assets related to its air transportation system, but in any such event, such assignment shall not take effect before the assignee is actually engaged in the business of scheduled transportation by aircraft; provided, further, that the successor entity has a financial standing as of the date of the transfer or assignment at least as good as that of the Lessee by which is meant that its ratio of current assets to current liabilities, its ratio of fixed assets to fixed liabilities and its net worth shall each be at least as favorable as that of the Lessee and provided, further, that such successor entity or purchaser executes and delivers to the Port Authority an instrument in a form satisfactory to the Port Authority assuming the obligations of the Lessee as if it were the original tenant hereunder.

Without limiting the foregoing, in the event the successor entity referred to above is not anticipated to have a financial standing as of the date of transfer or assignment which is as good or better than the Lessee, the Lessee shall have the right to request the Port Authority to consider an appropriate increase in the amount of the security deposit required pursuant to Section 79 or other additional form of security as a condition of its consent to an assignment hereunder to such entity.

(b) The Lessee shall not sublet the premises or any part thereof, without the prior written consent of the Port Authority, provided, however, that if any of the events set forth in Section 48 (a) (1) hereof shall occur, the Lessee may sublet the entire premises or assign this Agreement, with the consent of the Port Authority thereto not to be unreasonably withheld if the sublessee or assignee is a Scheduled Aircraft Operator.

(c) If without the prior written consent of the Port Authority, the Lessee assigns, sells, conveys, transfers, mortgages, pledges or sublets in violation of paragraph (a) or (b) of this Section or if the premises are occupied by anybody other than the Lessee, the Port Authority may collect rent from any assignee, sublessee or anyone who claims a right under this Agreement or letting or who occupies the premises, and the Port Authority shall apply the net amount collected to the rental herein reserved; but no such collection shall be deemed a waiver by the Port Authority of the covenants contained in paragraph (a) and (b) of this Section or an acceptance by the Port Authority of any such assignee, sublessee, claimant or occupant as Lessee, nor a release of the Lessee by the Port Authority from the further performance by the Lessee of the covenants contained herein.

(d) Neither the limited right of assignment provided in paragraph (a) hereof nor the exercise of said right by the Lessee shall be construed or deemed to release, relieve or discharge any succeeding assignee, successor or transferee of the Lessee or any other person claiming any right, title or interest in this Agreement from the requirement of obtaining the prior written consent of the Port Authority in the event it wishes to sell, convey, transfer, mortgage, pledge, sublet or assign this Agreement or any part thereof, or any rights created thereby or the letting hereunder or any part thereof; and such assignee, successor or transferee or other person claiming any right, title or interest in this Agreement shall not sell, convey, transfer, mortgage, pledge, sublet or assign this Agreement or any part thereof, or any rights created thereby or the letting thereunder or any part thereof without such prior written consent of the Port Authority.

(e) The Lessee shall not use or permit any person to use the premises or any portion thereof for any purpose other than the purpose stated in Section 5 hereof. Except as provided in this Agreement or otherwise permitted in writing by the Port Authority, the Lessee shall not permit the premises to be used or occupied by any person other than its own officers, employees, passengers, contractors and representatives.

(f) Notwithstanding the provisions of paragraph (b) hereof and subject to obtaining the approval and written consent of the Port Authority to do so in a written agreement in a form prepared by the Port Authority to be entered into among the Port Authority, the Lessee and United Air Lines, Inc., (hereinafter called "United"), a corporation of the State of Delaware, the Lessee shall have the right and the obligation to sublet to United for a term expiring on the last day of the month preceding the month in which the expiration date of the term of this Lease shall fall, a portion of the premises herein let to the Lessee equal to approximately 50% of the enclosed space and associated outside area forming a part of the premises computed on the basis of the square footage of floor space of such enclosed space and outside area. It is understood and agreed that notwithstanding the right and obligation of subletting to United described herein, the Lessee shall continue to be liable and responsible to the Port Authority for the performance of all of the obligations of the Lessee hereunder on the part of the Lessee to be performed with respect to all the premises under the Lease, regardless of whether occupied and used by the Lessee or United, in the same manner and to the same extent as if such sublease agreement with United had never been made or consented to by the Port Authority and all acts and omissions of United shall, as between the Port Authority and the Lessee, be deemed to be acts and omissions of the Lessee.

Section 25. Termination by the Port Authority

(a) If any one or more of the following events shall occur, that is to say:

(1) The Lessee shall become insolvent (which shall mean the inability to pay debts in the regular course of business) or shall take the benefit of any present or future insolvency statute, or shall make a general assignment for the benefit of creditors, or file a voluntary petition in bankruptcy or a petition or answer seeking an arrangement or its reorganization or the readjustment of its indebtedness under the federal bankruptcy laws or under any other law or statute of the United States or of any State thereof, or consent to the appointment of a receiver, trustee, or liquidator of all or substantially all of its property; or

(2) By order or decree of a court the Lessee shall be adjudged a bankrupt or an order shall be made approving a petition filed by any of its creditors or by any of the stockholders of the Lessee, seeking its reorganization or the readjustment of its indebtedness under the federal bankruptcy laws or under any law or statute of the United States or of any state thereof provided that if any such judgment or order is stayed or vacated within sixty (60) days after the entry thereof, any notice of termination shall be and become null, void and of no effect; or

(3) By or pursuant to, or under authority of any legislative act, resolution or rule, or any order or decree of any court or governmental board, agency or officer having jurisdiction, a receiver, trustee, or liquidator shall take possession or control of all or substantially all of the property of the Lessee, and such possession or control shall continue in effect for a period of thirty (30) days; or

(4) The Lessee shall voluntary abandon, desert or vacate the premises or discontinue its operation at the premises, or after exhausting or abandoning any right of further appeal, the Lessee shall be prevented for a period of thirty (30) days by action of any governmental agency other than the Port Authority having jurisdiction thereof, from conducting its operations at the Airport, regardless of the fault of the Lessee; or

(5) Any lien is filed against the premises because of any act or omission of the Lessee and shall not be removed, discharged or bonded within thirty (30) days after the Lessee has received notice therof; or

(6) Except as otherwise provided in Section 23 or paragraph (a) of Section 24, the letting hereunder or the interest or estate of the Lessee under this Agreement shall be transferred directly by the Lessee or shall pass to or devolve upon, by operation of law or otherwise, any other person, firm or corporation; or

(7) A petition under any part of the federal bankruptcy laws or an action under any present or future insolvency law or statute shall be filed against the Lessee and shall not be dismissed within sixty (60) days after the filing thereof; or

(8) Except as otherwise provided in paragraph (a) of Section 24, the Lessee, if a corporation, shall, without the prior written approval of the Port Authority, become a possessor or merged corporation in a merger, a constituent corporation in a consolidation, or a corporation in dissolution; or

(9) The Lessee shall fail duly and punctually to pay the rentals or fees or to make any other payment required hereunder when due to the Port Authority and shall continue in its failure to pay rentals or fees or to make any other payment required hereunder for a period of ten (10) days after receipt of notice by it from the Port Authority to make such payment; or

(10) The Lessee shall fail to keep, perform and observe each and every other promise, covenant and agreement set forth in this Agreement on its part to be kept, performed, or observed, within thirty (30) days after receipt of notice of default thereunder from the Port Authority (except where fulfillment of its obligation requires activity over a period of time, and the Lessee shall have commenced to perform whatever may be required for fulfillment within thirty (30) days after receipt of notice and continues such performance without interruption except for causes beyond its control);

then upon the occurrence of any such event or at any time thereafter during the continuance thereof, the Port Authority may upon twenty (20) days' notice terminate the rights of the Lessee hereunder and the letting, such termination to be effective upon the date specified in such notice. Such right of termination and the exercise thereof shall be and operate as a conditional limitation.

(b) No acceptance by the Port Authority of rentals, fees, charges or other payments in whole or in part for any period or periods after a default of any of the terms, covenants and conditions hereof to be performed, kept or observed by the Lessee shall be deemed a waiver of any right on the part of the Port Authority to terminate the letting.

(c) No waiver by the Port Authority of any default on the part of the Lessee in performance of any of the terms, covenants or conditions hereof to be performed, kept or observed by the Lessee shall be or be construed to be a waiver by the Port Authority of any other or subsequent default in performance of any of the said terms, covenants and conditions.

(d) The rights of termination described above shall be in addition to any other rights of termination provided in this Agreement and in addition to any rights and remedies that the Port Authority would have at law or in equity consequent upon any breach of this Agreement by the Lessee, and the exercise by the Port Authority of any right of termination shall be without prejudice to any other such rights and remedies.

Section 26. Additional Rights of Termination by the Port Authority as to Portions of the Premises

(a) It is hereby agreed that for the purpose of this Section 26 the term "the Lessee's Commencement Basic Schedules" shall be and mean a revenue seats daily average (as said term is defined in paragraph (e) hereof) of (2.a.)

(b) Commencing with calendar year 1995 and for each and every calendar year thereafter, the Port Authority may ascertain the revenue seats daily average of the Lessee for the Airport for the preceding calendar year in accordance with the provisions of paragraph (e) hereof, which revenue seats daily average shall be the Lessee's Basic Schedules for the preceding calendar year and shall be referred to as such. Thus, for example, in the case of the first calculation which would be based on the calendar year 1994 experience, said revenue seats daily average shall be called the "Lessee's Basic Schedule for 1994".

(c) As of January 1, 1995 and as of January 1 of each succeeding calendar year (i) in the event that the Lessee's Basic Schedules for the immediately preceding calendar year for the Airport are less than sixty percent (60%) of the Lessee's Commencement Basic Schedules or (ii) in the event that because of reasons beyond the control of the Lessee the Lessee's Basic Schedules for the immediately preceding two calendar years are less than sixty percent (60%) of the Lessee's Commencement Basic Schedules, then in either of such events and without limiting each and every other right of termination the Port Authority has under this Agreement or otherwise, the Port Authority shall have the right, upon six (6) month's written notice to the Lessee, to terminate the letting under the Lease as to any portion or portions of the premises which the Port Authority determines to be underutilized by the Lessee. Such termination shall be effective on the date set forth in said notice of termination. Upon such termination the term of the letting as to the terminated portion or portions of the premises shall cease and expire on the effective date set forth in said notice with the same force and effect as if said date were the date originally stated in this Agreement for the expiration of the term of the letting as to said portion or portions of the premises. This Agreement and the letting as to all other portions of the premises shall continue in full force and effect. In the event of the termination of any portion or portions of the premises, as aforesaid, the annual amount of the rental payable by the Lessee to the Port Authority shall, from and after the effective date of termination, be abated in accordance with Section 3 hereof.

The Port Authority shall give thirty (30) days' prior notice of its intention to give the termination notice set forth above and it is expressly agreed that the Port Authority shall not exercise the aforesaid right of termination with respect to any portion or portions of the premises if the Lessee has submitted to the Port Authority definite plans for the use of the entire premises at least at the levels specified in subparagraph (i) above provided

the Lessee in fact commences such use including the portions of the premises proposed to be terminated by the Port Authority within ninety (90) days after the submission of the said plans.

(d) The failure of the Port Authority to exercise its right of termination under this Section during any year in which it may have such a right, shall not affect, waive or limit its right to exercise said right of termination in any subsequent year.

(e) In the event the Port Authority decides to ascertain the revenue seats daily average of the Lessee for the preceding calendar year it shall do so as follows: based upon the Official Airline Guide (herein called "the Guide"), or in the event that the Guide shall not list the Lessee's schedules then based upon the generally accepted United States aviation industry standard published airline schedule reference which shall include the Lessee's published schedules, the Port Authority shall ascertain the total number of revenue seats that were accommodated on the aircraft equipment scheduled to have been used by the Lessee on its published aircraft arrivals at the Airport as set forth in the Guide during two specified calendar weeks (Sunday through Saturday), the first of which weeks is the one during which the fifteenth (15th) day of April of the prior calendar year fell and the second being the one during which the fifteenth (15th) day of October of the said prior calendar year fell, and shall total the said number of revenue seats which are hereinafter called "the total revenue seats" of the Lessee. In determining the total revenue seats of the Lessee, the total revenue seats as defined above of those Handled Airlines (as defined in Section 81 hereof), if any, of the Lessee who were Handled Airlines as of the date of such determination and sublessees of the Lessee at the premises who were sublessees on the date of such determination, with respect to the aircraft of the Handled Airlines and aircraft of the sublessee's operating at the premises, shall be included.

In making said determination, the Port Authority shall use the most recent configuration as supplied by the Lessee with respect to the number of revenue seats that can be accommodated on the particular aircraft equipment scheduled to be used by the Lessee at the Airport. The total revenue seats of the Lessee shall then be divided by fourteen, the resulting quotient being herein called "the revenue seats daily average" of the Lessee.

(f) In the event the Port Authority shall, from time to time, exercise its right of termination hereunder as to a portion or portions of the premises then, effective upon the date the Port Authority takes possession thereof, (i) the Lessee's Commencement Basic Schedules as set forth in paragraph (a) hereof shall be adjusted by multiplying the Lessee's Commencement Basic Schedules as originally set forth herein by a fraction, the denominator of which shall be 12 and the numerator of which shall be 12 less the number of gate positions in the portion or portions of the premises then or previously terminated by the Port Authority hereunder and (ii) the Port Authority shall pay to the Lessee the Lessee's unamortized

investment (as defined in Section 81 hereof) in the portion of the premises terminated by the Port Authority hereunder (without reference to unamortized investment in any other portions of the premises) computed from the date actual physical possession of such portion of the premises is delivered to the Port Authority; such payment to be made one hundred and eighty days after such delivery date.

Section 27. Right of Re-Entry

The Port Authority shall, as an additional remedy upon the giving of a notice of termination as provided in Section 25, 26 or other Section hereof, have the right to re-enter the premises and every part thereof upon the effective date of termination without further notice of any kind, and may regain and resume possession either with or without the institution of summary or any other legal proceedings or otherwise. Such re-entry, or regaining or resumption of possession, however, shall not in any manner affect, alter or diminish any of the obligations of the Lessee under this Agreement, and shall in no event constitute an acceptance of surrender.

Section 28. Waiver of Redemption

The Lessee hereby waives any and all rights to recover or regain possession of the premises and all rights of redemption, granted by or under any present or future law in the event it is evicted or dispossessed for any cause, or in the event the Port Authority obtains possession of the premises in any lawful manner.

Section 29. Survival of the Obligations of the Lessee

(a) In the event that the letting shall have been terminated in accordance with a notice of termination as provided in Section 25 hereof, or the interest of the Lessee cancelled pursuant thereto, or in the event that the Port Authority has re-entered, regained or resumed possession of the premises in accordance with the provisions of Section 27 hereof, all the obligations of the Lessee under this Agreement shall survive such termination or cancellation, or re-entry, regaining or resumption of possession and shall remain in full force and effect for the full term of the letting under this Agreement, and the amount or amounts of damages or deficiency shall become due and payable to the Port Authority to the same extent, at the same time or times and in the same manner as if no termination, cancellation, re-entry, regaining or resumption of possession had taken place. The Port Authority may maintain separate actions each month to recover the damage or deficiency then due or at its option and at any time may sue to recover the full deficiency less the proper discount, for the entire unexpired term.

(b) The amount of damages for the period of time subsequent to termination or cancellation (or re-entry, regaining or resumption of possession) on account of the Lessee's rental obligations, shall be the sum of the following:

(1) On account of the Lessee's annual rental obligation, (including the Additional Facility Rental), the amount of the total of all annual rentals, less the amount attributable to the installments of said annual rentals payable prior to the effective date of termination except that the credit to be allowed for the amount attributable to the installment payable on the first day of the month in which the termination is effective shall be prorated for the part of the month the letting remains in effect, on the basis of the actual number of days in the month; and

(2) On account of the Lessee's obligations to pay the cost of Assumable Maintenance and Repair set forth in Section 14 hereof, an amount equal to the total sum of the Capital Cost under Section 14 hereof less the amount thereof payable prior to the effective date of termination, except that the credit to be allowed for the amount attributable to the installment payable on the first day of the month in which the termination is effective shall be prorated for the part of the month the letting remains in effect or the actual number of days in such month.

(c) Port Authority may at any time during an action to recover all the damages as set forth above not previously recovered in separate actions, or it may bring separate actions to recover the items of damages set forth in subparagraphs (1) and (2) of paragraph (b) above and separate actions periodically to recover from time to time only such portion of the damages set forth in subparagraph (1) of paragraph (b) above as would have accrued as rental up to the time of the action if there had been no termination or cancellation. In any such action the Lessee shall be allowed a credit against its survived damages obligations equal to the amounts which the Port Authority shall have actually received from any tenant, licensee, permittee or other occupier of the premises or a part thereof during the period for which damages are sought, and if recovery is sought for a period subsequent to the date of suit a credit equal to the market rental value of the premises during such period (discounted to reflect the then present value thereof). If at the time of such action the Port Authority has used and occupied or relet the premises, the rental for the premises obtained through such use and occupancy or reletting shall be deemed to be the market rental value of the premises or be deemed to be the basis for computing such market rental value if less than the entire premises were used or occupied or relet. In no event shall any credit allowed to the Lessee against its damages for any period exceed the then present value of the annual rental which would have been payable under this Agreement during such period if a termination or cancellation had not taken place.

Section 30. Reletting by the Port Authority

The Port Authority upon termination or cancellation pursuant to Section 25 hereof, or upon any re-entry, regaining or resumption of possession pursuant to Section 27 hereof, may occupy the premises or may relet the premises, and shall have the right to permit any

person, firm or corporation to enter upon the premises and use the same. Such reletting may be of part only of the premises or a part thereof together with other space, and for a period of time the same as or different from the balance of the term hereunder remaining, and on the terms and conditions the same as or different from those set forth in this Agreement. The Port Authority shall also, upon termination or cancellation pursuant to the said Section 25, or upon its re-entry, regaining or resumption of possession pursuant to the said Section 27, have the right to repair or to make structural or other changes in the premises including changes which alter the character of the premises and the suitability thereof for the purpose of the Lessee under this Agreement, without affecting, altering or diminishing the obligations of the Lessee hereunder. In the event either of any reletting or of any actual use and occupancy by the Port Authority (the mere right of the Port Authority to use and occupy not being sufficient however) there shall be credited to the account of the Lessee against its survived obligations under Section 29 hereof any net amount remaining after deducting from the amount actually received from any lessee, licensee, permittee or other occupier in connection with the use of the said premises or portion thereof during the balance of the letting as the same is originally stated in this Agreement, or from the market value of the occupancy of such portion of the premises as the Port Authority may during such period actually use and occupy, all expenses, costs and disbursements incurred or paid by the Port Authority in connection therewith. No such reletting shall be or be construed to be an acceptance of a surrender.

Section 31. Remedies to be Non-Exclusive

All remedies provided in this Agreement shall be deemed cumulative and additional and not in lieu of or exclusive of each other or of any other remedy available to the Port Authority or to the Lessee at law or in equity, and the exercise of any remedy, or the existence herein of other remedies or indemnities shall not prevent the exercise of any other remedy.

Section 32. Surrender

The Lessee covenants and agrees to yield and deliver peaceably to the Port Authority possession of the premises on the date of cessation of the letting, whether such cessation be by termination, expiration or otherwise, promptly and in good condition, reasonable wear arising from the use of the premises to the extent such use is permitted elsewhere in this Agreement, excepted.

Section 33. Acceptance of Surrender of Lease

No agreement of surrender or to accept a surrender shall be valid unless and until the same shall have been reduced to writing and signed by the duly authorized representatives of the Port Authority and of the Lessee. Except as expressly provided in this Section, neither the doing of, nor any omission to do, any act or thing, by any of the officers, agents or employees of the Port

Authority, shall be deemed an acceptance of a surrender of the letting or of this Agreement.

Section 34. Books and Records

(a) The Lessee shall keep in an office or offices in the Port of New York District, appropriate books and records showing (i) the date and hour of each take-off or departure from the Airport of each aircraft operated by it and the date and hour of the landing by such aircraft next preceding each take-off or departure, (ii) all matters which it is required to certify to the Port Authority pursuant to this Lease and (iii) any other matter concerning the Lessee's operations at the Airport with respect to which the Port Authority may reasonably need information to fulfill its obligations or exercise its rights under this Lease whether or not of the type enumerated above in this Section 34 and whether or not an express obligation to keep books and records with regard thereto is expressly set forth elsewhere in this Lease. The Lessee shall not be obligated to preserve any such records for more than twelve (12) months unless they are material to litigation initiated within that time, in which event they shall be preserved until the final determination of the controversy. The Port Authority shall have the right upon prior notice to inspect such books and records during regular business hours.

(b) Without limiting the foregoing, the Lessee shall maintain for a period in accordance with accepted accounting practice, during the term of the letting and for one (1) year after the expiration or earlier termination of this Lease, and for a further period extending until the Airline shall receive written permission from the Port Authority to do otherwise, records and books of account recording all transactions of the Airline at, through, or in anywise connected with in-flight meals and ramp service including without limitation all payments by the Airline to its independent contractors which furnish in-flight meals or any portion thereof, or ramp service, to the Airline at or in connection with the Airport, which records and books of account shall be kept at all times within the Port of New York District and the Lessee shall permit during ordinary business hours during the term of the letting, for one year thereafter, and during such further period as mentioned above, the examination and audit by officers, employees and representatives of the Port Authority of such records and books of account.

(c) If and when service segment data now or formerly supplied by the Lessee to the Department of Transportation pursuant to Economic Regulation 586 or schedule T-9 traffic data, are no longer available to the Port Authority from a government source, the Lessee will provide the following data to the Port Authority, on request, for each of its non-stop city-pair markets involving the Port District: total scheduled flights operated, seats available, revenue passengers carried and similar data for charter flights. The Lessee shall see that such data shall be provided to the Port Authority, on request, by its sublessees and Handled Airlines, if

any. The Lessee and its sublessees and Handled Airlines, if any, shall furnish said data for each month of operations within thirty (30) days after the end of such month.

Section 35. Effect of Basic Lease

(a) This Agreement and the letting hereunder shall, in any event, terminate with the termination or expiration of the Basic Lease with the City of New York which covers the premises, such termination to be effective on such date and to have the same effect as if the term of the letting had on that date expired. The rights of the Port Authority in the premises are those granted to it by the Basic Lease, and no greater rights are granted or intended to be granted to the Lessee than the Port Authority has power thereunder to grant.

(b) The Port Authority covenants that, during the term of this Agreement, the Port Authority will not take any action which would amount to or have the effect of cancelling, surrendering or terminating the Basic Lease prior to the date specified in the Basic Lease for its expiration insofar as such surrender, cancellation or termination would in any manner deprive the Lessee of any of its rights, licenses or privileges under this Agreement.

(c) Nothing herein contained shall prevent the Port Authority from entering into an agreement with The City of New York pursuant to which the Basic Lease is surrendered, cancelled or terminated provided that The City of New York, at the time of such agreement, assumes the obligations of the Port Authority under this Agreement.

Section 36. Removal of Property

All personal property (including trade fixtures) removable without material damage to the premises, which are installed by the Lessee in or on the premises leased to the Lessee pursuant to the Agreement, shall be deemed to be and remain the property of the Lessee. All such property, provided the Lessee shall install suitable replacements therefor if such personal property is necessary to operate the premises in accordance with the terms and provisions hereof in accordance with the best practices of the air transportation industry, may at the Lessee's option be removed by the Lessee from the premises at any time during the term of this Lease. Furthermore, all such property of the Lessee shall, unless otherwise agreed in writing by the parties hereto, be removed by the Lessee on or before the expiration or other termination of the term of the Lease. If the Lessee shall fail to remove its property on or before the termination or expiration of this Agreement, the Port Authority may remove such property to a public warehouse for deposit or retain the same in its own possession, and sell the same at public auction, the proceeds of which shall be applied first to the expenses of removal, storage and sale, second to any sums owed by the Lessee to the Port Authority, with any balance remaining to be paid to the Lessee; if the expenses of such removal, storage and

sale shall exceed the proceeds of sale, the Lessee shall pay such excess to the Port Authority upon demand.

Section 37. Purchase of Property

The Port Authority shall have the option from time to time exercisable by notice to the Lessee effective on the expiration or earlier termination of the letting of the premises hereunder, or any part thereof, to purchase all, or such part as the Port Authority elects, of the Lessee's personal property (including trade fixtures but excluding ground vehicles) including without limiting the generality of the foregoing any system for handling baggage, any counters, and any passenger loading bridges, as and to the extent any of the foregoing are personal property, which may at the time of the giving of such notice have been installed or placed on the premises. In the event the Port Authority exercises its option to make a purchase, the Port Authority shall pay to the Lessee a sum equal to the reasonable value of the personal property (including trade fixtures) purchased. The Lessee hereby agrees that on the effective date of the purchase and sale none of the aforesaid items shall be subject to any lien, security interest or other encumbrance, and upon request of the Port Authority the Lessee will execute a bill of sale or such other document of conveyance as the Port Authority may request to transfer title to the aforesaid items to the Port Authority (including a warranty of Title to the Port Authority) and the Port Authority shall pay the purchase price. Further, the Lessee shall from time to time execute such other documentation as the Port Authority may require and prepare evidencing the option of the Port Authority, as herein provided, to purchase the aforesaid personal property, including without limitation, security agreements and filings pursuant to the Uniform Commercial Code.

Section 38. Brokerage

The Lessee represents and warrants that no broker has been concerned on its behalf in the negotiation of this Agreement and that there is no broker who is or may be entitled to be paid a commission in connection therewith. The Lessee shall indemnify and save harmless the Port Authority of and from any claim for commission or brokerage made by any and all persons, firms or corporations whatsoever for services rendered to the Lessee in connection with the negotiation and execution of this Agreement.

Section 39. Limitation of Rights and Privileges Granted

(a) No greater rights or privileges with respect to the use of the premises or any part thereof are granted or intended to be granted to the Lessee by this Agreement, or by any provision thereof, than the rights and privileges expressly and specifically granted hereby.

(b) The premises are let to the Lessee and the Lessee takes the same subject to all the following: (i) easements,

restrictions, reservations, covenants and agreements, if any, to which the premises may be subject, rights of the public in and to any public street, (ii) rights, if any, of any enterprise, public or private which is engaged in furnishing heating, lighting, power, telegraph, telephone, steam, or transportation services and of the City and State of New York; (iii) permits, licenses, regulations and restrictions, if any, of the United States, the City of New York or State of New York, or other governmental authority, (iv) all of the rights, liabilities, obligations, occupancies and encumbrances, if any, arising out of the Prior Lease (as defined in Section 1 hereof) and the Security Assignment, the Assignment of Lease with Assumption and Consent, the Operating Agreement, the Trust Indenture and the BOAC Sublease, all dated as of June 10, 1968, as the same may have been amended, transferred and assigned.

(c) The Lessee acknowledges that it has not relied upon any representation or statement of the Port Authority or its Commissioners, officers, employees or agents as to the condition of the premises or the suitability thereof for the operations permitted on the premises by this Agreement. Without limiting any obligation of the Lessee to commence operations hereunder at the time and in the manner stated elsewhere in this Agreement, the Lessee agrees that no portion of the premises will be used initially or at any time during the letting which is in a condition unsafe or improper for the conduct of the Lessee's operations hereunder so that there is possibility of injury or damage to life or property. The Lessee shall take possession of the premises in the condition they are in as of the commencement of the term of the letting hereunder. The Lessee hereby further acknowledges that it has during the term of the Prior Lease performed repairs and construction and installed improvements on the premises, title to all of which it is hereby agreed has vested in the City of New York. In the event that as of the commencement of the term of the letting under this Lease, the Lessee shall not have kept any or all of the foregoing in good condition as required under the Prior Lease, the Lessee shall place and keep the same in good condition as required under this Lease.

Any liabilities or obligations which by the terms of the Prior Lease, or letter agreements or permits thereunder to make alterations, mature at the expiration or termination of said lease, shall be deemed to survive and mature at the expiration or earlier termination of this Lease.

Section 40. Notices

Except where expressly required or permitted herein to be oral, all notices, directions, requests, consents and approvals required to be given to or by either party shall be in writing, and all such notices and requests shall be personally delivered to the duly designated officer or representative of such party or delivered to the offices of such officer or representative during regular business hours, or forwarded to him or to the party at such address by registered or certified mail. The Lessee shall from time to time designate in writing an office within the Port of New York District

and an officer or representative whose regular place of business is at such office upon whom notices and requests may be served. Until further notice, the Port Authority hereby designates its Executive Director, and the Lessee designates the person named on the first page hereof as their officers upon whom notices and requests may be served, and the Port Authority designates its office at One World Trade Center, New York, New York, 10048, and the Lessee designates its office at 75-20 Astoria Boulevard, Jackson Heights, New York 11370 as their respective offices where notices and requests may be served. If mailed, the notices herein required to be served shall be deemed effective and served as of the date of the registered or certified mailing thereof.

Section 41. Facilities Non-Discrimination

(a) Without limiting the generality of any of the provisions of the Agreement, the Lessee, for itself, its successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree as a covenant running with the land that (1) no person on the grounds of race, color, sex, creed, or national origin shall be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of the premises, and the exercise of any privilege under this Agreement, (2) that in the construction of any improvements on, over, or under the premises and the furnishing of services thereon, no person on the grounds of race, color, creed, national origin, or sex shall be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the Lessee shall use the premises in compliance with all other requirements imposed by or pursuant to Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the Department of Transportation-Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations may be amended, and any other present or future laws, rules, regulations, orders or directions of the United States of America with respect thereto which from time to time may be applicable to the Lessee's operations at the Airport whether by reason of agreement between the Port Authority and the United States Government or otherwise.

(b) The Lessee shall include the provisions of paragraph (a) of this Section in every agreement or concession it may make pursuant to which any person or persons, other than the Lessee, operates any facility at the Airport providing services to the public and shall also include therein a provision granting the Port Authority a right to take such action as the United States may direct to enforce such provisions.

(c) The Lessee's noncompliance with the provisions of this Section shall constitute a material breach of this Agreement. In the event of the breach by the Lessee of any of the above non-discrimination provisions the Port Authority may take any appropriate action to enforce compliance; or in the event such non-compliance shall continue for a period of twenty (20) days after

receipt of written notice from the Port Authority, the Port Authority shall have the right to terminate this Agreement and the letting hereunder with the same force and effect as a termination under the Section of this Agreement providing for termination for default by the Lessee in the performance or observance of any other term or provision of this Agreement, or may pursue such other remedies as may be provided by law; and as to any or all of the foregoing, the Port Authority may take such action as the United States may direct.

(d) The Lessee shall indemnify and hold harmless the Port Authority from any claims and demands of third persons including the United States of America resulting from the Lessee's noncompliance with any of the provisions of this Section and the Lessee shall reimburse the Port Authority for any loss or expense incurred by reason of such noncompliance.

(e) Nothing contained in this Section shall grant or shall be deemed to grant to the Lessee the right to transfer or assign this Agreement, to make any agreement or concession of the type mentioned in paragraph (b) hereof, or any right to perform any construction on the premises.

Section 42. Affirmative Action

In addition to and without limiting the provisions of Section 43 and Schedule E hereof, the Lessee assures that it will undertake an affirmative action program as required by 14 CFR Part 152, Subpart E, to insure that no person on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 14 CFR Part 152, Subpart E. The Lessee assures that no person shall be excluded on these grounds from participating in or receiving the services or benefits of any program or activity covered by this subpart. The Lessee assures that it will require that its covered suborganizations provide assurances to the Lessee that they will require assurances from their suborganizations, as required by 14 CFR Part 152, Subpart E, to the same effect.

Section 43. The Lessee's Ongoing Affirmative Action Equal Opportunity Commitment

(a) The Lessee shall not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status (such reference to marital status not to preclude Lessee's policies on the hiring and placement of married couples) and shall undertake or continue existing programs of affirmative action to ensure that minority group persons and women are afforded equal employment opportunity without discrimination. Such programs shall include, but not be limited to, recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, rates of pay or other forms of compensation, and selections for training or retraining, including apprenticeship and on-the-job training.

(b) In addition to and without limiting the foregoing, and without limiting the provisions of Sections 41 and 42 and Schedule E hereof, it is hereby agreed that the Lessee in connection with its continuing operation, maintenance and repair of the premises, or any portion thereof, and in connection with every award or agreement for concessions or consumer services at the Airport, shall throughout the term of the letting hereunder commit itself to and use good faith efforts to implement an extensive program of Affirmative Action, including specific affirmative action steps to be taken by the Lessee, to ensure maximum opportunities for employment and contracting by minorities and women. In meeting the said commitment the Lessee agrees to submit its said extensive Affirmative Action program, including the specific affirmative action steps to be taken by the Lessee to meet its aforesaid commitment, within six (6) months prior to the commencement of the term of the letting hereof to the Port Authority for its review and approval. The Lessee shall incorporate in its said program such revisions and changes which the Port Authority initially or from time to time may reasonably require. The Lessee throughout the term of the letting hereunder shall document its efforts in implementing the said program, shall keep the Port Authority fully advised of the Lessee's progress in implementing the said program and shall supply to the Port Authority such information, data and documentation with respect thereto as the Port Authority may from time to time and at any time request, including but not limited to annual reports.

(c) "Minority" as used herein shall be as defined in paragraph II(c) of Part I of Schedule E.

(d) The Lessee's non-compliance with the provisions of this Section shall constitute a material breach of this Agreement. In the event of the breach by the Lessee of any of the above provisions the Port Authority may take any appropriate action to enforce compliance; or in the event such non-compliance shall continue for a period of twenty (20) days after receipt of written notice from the Port Authority, the Port Authority shall have the right to terminate this Agreement and the letting hereunder with the same force and effect as a termination under the Section of this Agreement providing for termination for default by the Lessee in the performance or observance of any other term or provision of this Agreement, or may pursue such other remedies as may be provided by law.

(e) In the implementation of this Section, the Port Authority may consider compliance by the Lessee with the provisions of any federal, state or local law concerning affirmative action equal employment opportunity which are at least equal to the requirements of this Section, as effectuating the provisions of this Section. If the Port Authority determines that by virtue of such compliance with the provisions of any such federal, state or local law that the provisions hereof duplicate or conflict with such law the Port Authority may waive the applicability of the provisions of this Section to the extent that such duplication or conflict exists.

(f) Nothing herein provided shall be construed as a limitation upon the application of any laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents.

(g) Nothing in this Section 43 shall grant or be deemed to grant to the Lessee the right to make any agreement or award for concessions or consumer services at the Airport.

Section 44. Other Construction by the Lessee

(a) The Lessee shall not erect any structures, make any improvements or do any construction on the premises or alter, modify, or make additions, improvements or repairs to or replacements of any structure existing at the commencement of the term of the letting hereunder or built at any time during the letting, or install any fixture (other than trade fixtures, removable without material damage to the premises, any such damage to be immediately repaired by the Lessee) without the prior written approval of the Port Authority and in the event any construction, improvement, alteration, modification, repair, replacement or addition is made without such approval, then upon reasonable notice so to do, the Lessee will remove the same, or at the option of the Port Authority cause the same to be changed to the satisfaction of the Port Authority. In case of any failure on the part of the Lessee to comply with such notice, the Port Authority may effect the removal or change and the Lessee shall pay the cost thereof to the Port Authority.

(b) Without limiting the generality of the foregoing paragraph the Lessee acknowledges and agrees that any Notes and associated reference lines set forth on Exhibit A or Exhibit E to the Lease shall not constitute or be deemed to constitute or imply that approval of the Port Authority will be granted to any proposed construction by the Lessee nor shall the same grant or be deemed to grant any right or permission to the Lessee now or in the future to erect any structures, make any improvements or do any other construction work in the premises, including but not limited to repairs to or replacements of, any structure now existing or built at any time during the letting or install any fixtures on the premises, including but not limited to paving, and that the provisions of the foregoing paragraph of this Section shall be read and construed as if there were no Notes and associated reference lines on Exhibit A and that any which were placed on such Exhibit are solely and exclusively for the benefit of the Port Authority.

(c) Notwithstanding the obligation of maintenance imposed upon the Lessee by the provisions of Section 11 hereof, the Lessee shall not make any repairs or replacements (except emergency repairs or replacements) unless and until it has first obtained an approved Port Authority Alteration Application for such repairs or replacements which shall then be performed in full accordance with the terms of said Alteration Application.

Section 45. Place of Payments

All payments required of the Lessee by this Agreement shall be made to the Port Authority, P.O. Box 17309, Newark, New Jersey 07194, or to such other address, office or location as may be substituted therefor by the Port Authority by notice to the Lessee from time to time.

Section 46. Construction and Application of Terms

(a) The section and paragraph headings, if any, in this Agreement, are inserted only as a matter of convenience and for reference and in no way define, limit or describe the scope or intent of any provision hereof.

(b) The terms, provisions and obligations contained in the Exhibits and Schedules attached hereto, whether there set out in full or as amendments of, or supplements to provisions elsewhere in the Agreement stated, shall have the same force and effect as if herein set forth in full.

(c) It is hereby understood and agreed that any occupancy and use of the premises hereunder which constituted a portion of the premises under the Prior Lease (as defined in Section 1 hereof), from and after the commencement of the term of the letting hereunder, shall be and shall be deemed for all purposes, to be occupancy and use under this Agreement, and not as a holdover tenant under the Prior Lease, which shall be deemed to have been surrendered by the Lessee.

Section 47. Non-liability of Individuals

No Commissioner, director, officer, agent or employee of either party shall be charged personally or held contractually liable by or to the other party under any term or provision of this Agreement or of any supplement, modification or amendment to this Agreement or because of any breach thereof, or because of its or their execution or attempted execution.

Section 48. Termination by the Lessee

(a) If any one or more of the following events shall occur:

(1) If the Lessee shall be prevented from operating its air transportation system to and from the Airport by reason of its inability to use a substantial part or all of the runways and taxiways, as hereinafter defined:

(i) for a period of longer than thirty (30) consecutive days, resulting from any condition of the Airport not due to the fault of the Lessee; or

(ii) for a period of longer than ninety (90) consecutive days, resulting from a permanent injunction issued by any court of competent jurisdiction; or

(iii) for a period of longer than ninety (90) consecutive days, resulting from any order, rule or regulation of the Federal Aviation Administration, or other governmental agency having jurisdiction over the operations of the Lessee with which the Lessee is unable to comply at reasonable cost or expense; or

(2) The Port Authority shall fail to perform any of its obligations under this Lease within twenty (20) days after receipt of notice of default thereunder from the Lessee (except where fulfillment of its obligation requires activity over a period of time and the Port Authority shall commence to perform whatever may be required for fulfillment within twenty (20) days after the receipt of notice and continues such performance without interruption, except for causes beyond its control);

then upon the occurrence of any such event or at any time thereafter during the continuance of the condition, the Lessee may by twenty (20) days' notice terminate the letting, such termination to be effective upon the date set forth in such notice and to have the same effect as if the term of the letting had on that date expired. No waiver by the Lessee of any default on the part of the Port Authority in performance of any of the terms, covenants or conditions hereof to be performed, kept or observed by the Port Authority shall be or be construed to be a waiver by the Lessee of any other or subsequent default in performance of any of the said terms, covenants and conditions.

(b) The payment of rentals by the Lessee for the period or periods after the Lessee shall have a right to terminate under this Section but before any such default of the Port Authority has been cured, shall not be or be construed to be a waiver by the Lessee of any such right of termination.

(c) The rights of termination described above shall be in addition to any other rights of termination provided in this Agreement and in addition to any rights and remedies that the Lessee would have at law or in equity consequent upon any breach of this Agreement by the Port Authority, and the exercise by the Lessee of any right of termination shall be without prejudice to any other such rights and remedies.

Section 49. Effect of Termination by the Lessee

(a) If the Lessee terminates the letting pursuant to the provisions of Section 48 (a) (1) then the Port Authority may at its option, pay to the Lessee the unamortized capital investment (as defined in Section 81 hereof), if any, of the Lessee in the premises. Such option shall be evidenced by notice in writing to the Lessee by the Port Authority within sixty (60) days after the Lessee has given notice of termination. The failure of the Port

Authority to exercise the said option will impose no obligation upon it to relet the premises.

(b) If the Lessee terminates the letting pursuant to the provisions of Section 48 (a) (2) then the Port Authority may, at its option, pay to the Lessee the unamortized capital investment (as defined in Section 81 hereof), if any, of the Lessee in the premises. Such option shall be evidenced by notice in writing to the Lessee by the Port Authority within sixty (60) days after the Lessee has given notice of termination. If the Port Authority fails to exercise such option, then the Port Authority shall use its best efforts to relet the premises.

(c) If the Port Authority relets the premises prior to the date upon which this Lease would have expired but for such termination, then the net rent paid by the new tenant to the Port Authority (after deducting any costs or expenses incurred by the Port Authority in securing said new tenant and in complying with the terms of the lease to such tenant, including but not limited to costs of alteration and decoration of such premises, in the event of termination pursuant to the provisions of Section 48 (a) (1), and after deducting any costs or expenses incurred by the Port Authority for the maintenance of said premises or for services furnished to the new tenant and after deducting the amounts which would have been payable as rent by the Lessee but for such termination) shall be paid over by the Port Authority to the Lessee until said amounts paid over equal the unamortized capital investment (as defined in Section 81 hereof) of the Lessee in the premises as of the date of termination. The obligation of the Port Authority to pay over to the Lessee any net rent received from such new tenant shall endure only while such new tenant continues to pay rent and occupy such premises, and only until the unamortized capital investment (as defined in Section 81 hereof) of the Lessee in such premises is unamortized, and in no event is such obligation to pay over to endure beyond the date upon which this Lease would have expired but for such termination.

Section 50. Abatement

If the Port Authority shall, for safety or other reasons, prohibit the use of the Public Landing Area at the Airport or of any substantial part thereof for foreign or domestic scheduled air transport operations for a period covering more than sixty (60) consecutive days and the Lessee shall thereby be prevented from conducting those operations at the Airport enumerated in Section 5 hereof, then upon the occurrence of such event, the Lessee at its option shall be entitled to abatement of rental during such period of prohibition and prevention. In the event that the Lessee shall exercise such option the Lessee shall be deemed to have released and discharged the Port Authority of and from all claims and rights which the Lessee may have hereunder arising out of or consequent upon such closing and the subsequent interrupted use of such Public Landing Area or part thereof during the period of prohibition.

Section 51. Services to the Lessee

(a) The Port Authority shall sell, furnish and supply to the Lessee for use on the premises and the Lessee agrees to take from the Port Authority and pay for electricity of the same voltage, phase and cycle as supplied to the premises by the public utility in the vicinity, but limited, however, to serve a maximum of 5,000 KVA installed transformer capacity, at the same charge which would be made by such public utility for the same quantity under the same conditions and in the same service classification but in no event less than an amount that would reimburse the Port Authority for its costs of obtaining and supplying electricity to the Lessee hereunder; charges shall be payable by the Lessee when billed and the quantity of electricity consumed shall be measured by the meter or meters installed for the purpose; provided, however, that if for any reason, any meter or meters fail to record the consumption of electricity, the consumption during the period such meter or meters are out of service will be considered to be the same as the consumption for a like period either immediately before or after the interruption as elected by the Port Authority. The Port Authority shall not discontinue the supply of electricity except upon fifteen (15) days' notice to the Lessee and unless a supply of electricity of the same voltage, phase and cycle (subject to the KVA limitation aforesaid) shall be available from another supplier and upon any such discontinuance the Lessee shall be at liberty to contract or otherwise arrange for the supply of such current after the expiration of said fifteen (15) days from any other person, firm or corporation. The Port Authority shall install the appropriate meters.

(b) The Port Authority agrees to sell, furnish and supply to the Lessee for use on the premises cold water (of the character furnished by the City of New York) in reasonable quantities through existing pipes, mains and fittings and the Lessee agrees to take such water from the Port Authority and to pay the Port Authority therefor an amount equal to that which would be charged by the municipality or other supplier of the same (whether or not representing a charge for water or other services measured by water consumption) for the same quantity, used under the same conditions and in the same service classification plus the cost to the Port Authority of supplying such water which shall not be less than ten percent (10%) nor in excess of fifty percent (50%) of the amount charged, but in no event less than an amount that would reimburse the Port Authority for its costs of obtaining and supplying water to the Lessee hereunder. The charge therefor shall be payable by the Lessee when billed and the quantity of water consumed shall be measured by the meter or meters installed for the purpose; provided, however, that if for any reason, any meter or meters fail to record the consumption of water, the consumption during the period such meter or meters are out of service will be considered to be the same as the consumption for a like period immediately before or after the interruption, as elected by the Port Authority. The Port Authority shall install the appropriate meters. In the event meters are not installed to measure the consumption of water under high pressure,

the quantity of such water used by the Lessee will be based upon equitable estimates of consumption, which estimates shall be deemed binding on the Lessee.

(c) The Lessee shall pay to the Port Authority such of the existing and future charges for sewerage services furnished by the City of New York as are presently or may hereafter be imposed or assessed against the Port Authority in respect of the Lessee's premises or its use and occupancy thereof. In the event that the City or the State of New York is now furnishing services with or without charge therefor, which are beneficial to the Lessee in its use and occupancy of the premises, and shall hereafter impose charges or increase existing charges for such services, the Lessee agrees to pay to the Port Authority such of the charges or the increase in charges as may be imposed or assessed against the Port Authority in respect to the Lessee's premises or its use and occupancy thereof.

(d) In the event the Port Authority shall provide extermination service for the enclosed areas of the premises, the Lessee agrees to utilize the same and to pay its pro rata share of the reasonable cost thereof upon demand.

(e) The Port Authority shall not be obligated to perform or furnish any other services whatsoever in connection with the premises or any services at any time while the Lessee shall be in default hereunder after the period, if any, herein granted to cure such default shall have expired.

(f) The Port Authority shall be under no obligation to supply services if and to the extent and during any period that the supplying of any such service or the use of any component necessary therefor shall be prohibited or rationed by any federal, state or municipal law, rule, regulation, requirement, order or direction and if the Port Authority deems it in the public interest to comply therewith, even though such law, rule, regulation, requirement, order or direction may not be mandatory on the Port Authority as a public agency.

(g) No failure, delay or interruption in supplying agreed services (whether or not a separate charge is made therefor) shall be or be construed to be an eviction of the Lessee or grounds for any diminution or abatement of rental, or (unless resulting from the negligence or wilful failure of the Port Authority) shall be grounds for any claim by the Lessee for damages, consequential or otherwise.

Section 52. The Central Heating and Refrigeration and Facility

The Port Authority heretofore designed, constructed and installed at the Airport certain installations consisting of an "L" shaped one story building, two fuel storage spheres, an eleven cell cooling tower array, sixteen absorption refrigeration units, six high temperature hot water generators, a closed loop distribution

system including underground lines, meters, heat exchangers and appropriate and related lines, pipes, mains, motors, pumps, ducts, fixtures, transformers, cables, manholes, wires, conduits, machinery, devices, equipment, structures and facilities and such utility, mechanical, pump, sewer, telephone, water, electrical, fire alarm, fire protection, gas and other systems, all as are appropriate or necessary for the manufacture, production and distribution of high temperature hot water and chilled water. The Port Authority thereafter embarked on a program for the expansion and rehabilitation of the foregoing which program consisted generally of the design, construction and installation of an expansion of the existing building, two additional new cells to the existing cooling tower cell array and a complete upgrading of the existing cells, the installation of a centrifugal refrigeration unit, the construction of new and the replacement of existing high temperature hot water lines and chilled water lines with lines of greater capacity, the enlargement of the fire alarm and telephone systems, the extension of the pump system, together with such appropriate meters, heat exchangers, lines, pipes, mains, motors, pumps, devices, fixtures, transformers, cables, manholes, wires, conduits, machinery, devices, equipment, structures, and facilities as were necessary or appropriate, as well as necessary and appropriate changes to the utility, mechanical, sewer, telephone, water, electrical, fire alarm, fire protection, gas and other systems now part of the Facility, all of the foregoing being sometimes hereinafter collectively in this Section and for the purposes of this Section only called "The Central Heating and Refrigeration Facility" or "the Facility".

(a) The Port Authority agrees to sell, furnish and supply to the Lessee in reasonable quantities for use on the premises, high temperature hot water (hereinafter called "hot water") by a closed loop system to be converted for heating use, for kitchen service, for snow melting and for heating aircraft, and chilled water (hereinafter called "chilled water") for air conditioning (excluding use for air conditioning aircraft, said exclusion not to imply any broadening of permitted uses), and the Lessee agrees to take such hot water and chilled water from the Port Authority and to pay the Port Authority therefor at the times and in the manner hereinafter provided. The Lessee shall pay to the Port Authority for hot water its pro rata share of the Annual Hot Water Facility Cost as hereinafter defined and the Lessee shall pay to the Port Authority for chilled water its pro rata share of the Annual Chilled Water Facility Cost as hereinafter defined. The Lessee's pro rata share of the Annual Hot Water Facility Cost shall be determined by multiplying the Annual Hot Water Facility Cost for each calendar year by a fraction, the numerator of which shall be the total number of BTU's of heat drawn from the hot water lines serving the premises during said calendar year, and the denominator of which shall be the Annual Total Hot Water Reading as hereinafter defined for said calendar year. The Lessee's pro rata share of the Annual Chilled Water Facility Cost shall be determined by multiplying the Annual Chilled Water Facility Cost for each calendar year by a fraction, the numerator of which shall be the total number of BTU's absorbed

by the chilled water lines serving the premises during said calendar year, and the denominator of which shall be the Annual Total Chilled Water Reading as hereinafter defined for said calendar year.

(b) The Annual Total Facility Cost for each calendar year shall consist of the sum of the following:

(1) An Annual Original Facility Capital Charge in the amount of (2.a.)

(2) An Annual Facility Expansion Capital Charge in the amount of (2.a.)

(3) Additional Annual Facility Capital Charges, if any, each of which to be an annual amount equal to the product of the Construction Cost of each Additional Capital Improvement described in paragraph (d) hereof, determined in accordance with the provisions of paragraph (e) hereof, multiplied by the factor of 0.18525.

(4) The Annual Facility Operating and Maintenance Charge as defined in paragraph (g) hereof.

(c) (1) The Annual Hot Water Facility Cost shall be 27.8% of the Annual Total Facility Cost.

(2) The Annual Chilled Water Facility Cost shall be 72.2% of the Annual Total Facility Cost.

(d) The Port Authority shall have the right, in its discretion, to make improvements, alterations, enlargements, extensions, additions, repairs and replacements to the Facility, including but not limited to the extension of the hot water and chilled water service emanating from the Facility to other buildings, terminals, facilities and structures at the Airport but only within the Central Terminal Area as defined in Section 74 hereof. Each of such improvements, alterations, enlargements, extensions, additions, repairs and replacements is hereinafter called "an Additional Capital Improvement" and the same shall be and become a part of the Facility upon its completion. The Construction Cost of each Additional Capital Improvement shall be determined upon the completion thereof in accordance with the provisions of paragraph (e) hereof and shall be the Construction Cost as set forth in subparagraph (3) of paragraph (b) hereof. In instances where repairs or replacements are involved, the Port Authority shall determine, in accordance with its normal accounting practice, whether such repairs or replacements shall be included within the meaning of this paragraph (d) as an Additional Capital Improvement or be covered by the Annual Facility Operating and Maintenance Charge within the meaning of paragraph (g) hereof.

(e) The term "Construction Cost" of any Additional Capital Improvement shall for the purpose of this Section and this Section only be the sum of the following applied to the Additional Capital

Improvement, each Additional Capital Improvement being hereinafter referred to as a category of construction:

(i) Payments by the Port Authority to independent contractors engaged or retained by the Port Authority for the construction of any part of the category of construction or for services rendered incidental to or in connection with the category of construction, including any payments made to any contractors in satisfaction of any claims or judgments arising out of or in connection with any part of the category of construction performed by them;

(ii) Payments by the Port Authority to independent consultants, architects and engineers engaged or retained by the Port Authority to perform services incidental to or in connection with the category of construction, including any payments made to any of the foregoing in satisfaction of any claims or judgments arising out of or in connection with any portion of the work or services performed by them;

(iii) The cost of all materials, supplies, equipment and utilities (including but not limited to electricity, water and phone) used in connection with or incidental to the category of construction;

(iv) The amounts of any claims or judgments paid by the Port Authority to third persons arising out of or in connection with the category of construction, including but not limited to those for personal injury, death or damage to property;

(v) The cost of any performance bond or bonds in connection with the category of construction;

(vi) The cost of any insurance in connection with the category of construction;

(vii) Payments by the Port Authority to any user to whom hot water and cold water is supplied by the Port Authority from the Facility for the construction or installation by said user of any portion of the Facility in connection with its use which construction or installation is the obligation of the Port Authority but is performed by said user with the consent of the Port Authority in order to facilitate the construction or installation;

(viii) Payments by the Port Authority to any other third persons (excluding Port Authority employees) for work performed or services rendered in connection with or incidental to the category of construction.

Notwithstanding any reference in any provision of this Section any Port Authority contract or contracts with respect to any category of construction, it is hereby expressly understood and agreed that the Construction Cost of any category of construction shall not be limited to the contract or contracts which may have

been so mentioned in any provision of this Section, and the Construction Costs with respect to each category of construction shall include the cost of all contracts, purchase orders, extra work orders and any other agreements with a third party of whatever kind or nature for, in connection with, relating to or arising out of the planning, design or construction of the said category of construction.

(f) (1) The total amount of BTU's of heat drawn during each calendar year from the hot water lines emanating from the Facility as measured by the meters installed at all the terminals, facilities, structures and buildings at the Airport, but only within the Central Terminal Area as defined in Section 74 hereof, including the premises but excluding Buildings 181, 182 and 184, receiving such hot water from the Facility shall be ascertained for each calendar year and is hereinafter called the "Annual Total Hot Water Reading" and the total amount of BTU's absorbed during each calendar year by the chilled water lines emanating from the Facility as measured by the meters installed at all the terminals, facilities, structures and buildings at the Airport, but only within the Central Terminal Area as defined in Section 74 hereof, including the premises but excluding Buildings 181, 182 and 184, receiving such chilled water from the Facility shall be ascertained for each calendar year and is hereinafter called the "Annual Total Chilled Water Reading". The Port Authority has installed or will install and maintain all appropriate meters and high temperature heat exchangers including those in the premises.

(2) If any meter or meters fail to record the amount of consumption, the amount of consumption during the period such meter or meters are out of service will be considered to be the same as the consumption for a like period either immediately before or after the interruption, as elected by the Port Authority. In making meter readings and ascertaining consumption for each calendar year, in addition to all readings to be taken during the calendar year, readings shall be taken as soon as practicable to the beginning of each calendar year or at the end of each calendar year.

(g) The service of the Port Authority in furnishing, supplying, activating, cleaning, testing, providing, maintaining, repairing, servicing and operating the Facility and the hot water and chilled water emanating therefrom is hereinafter called "the Facility Service". The Annual Facility Operating and Maintenance Charge shall mean the cost to the Port Authority of the Facility Service for each calendar year. Said Cost shall be determined in accordance with the Port Authority's normal accounting practice and shall consist of the following:

(1) The cost of all fuel, water, electricity and any other utilities and components used, consumed or employed. The cost of water shall include the cost to the Port Authority of sewage and other services based upon water charges or consumption. In the event furthermore that the City or State of New York is now furnishing services with or without charge therefor which in any way

affect the Facility Service, and shall hereinafter impose charges or increase existing charges for such services, the said charges or increase in charges as may be imposed or assessed against the Port Authority shall be deemed a part of the cost under this subdivision (1);

(2) On-the-job payroll costs of employees and supervisory personnel (including Facility supervisors, foremen and clerks) working in the Facility Service, including but not limited to contributions to any retirement system or the cost of or participation in any pension plans or the like, social security, old age, survivors, disability and unemployment insurance and other insurance costs, sick leave pay, holiday, vacation, authorized absence and severance pay, other employee fringe benefits and any other payments made or costs incurred whether pursuant to law or by Port Authority policy to or with respect to said employees and personnel;

(3) The cost (including rental charges) of materials, equipment, machinery and supplies used and the cost of maintaining, cleaning, repairing and servicing the same;

(4) Payments to contractors and any other third persons, firms or corporations for the performance of services;

(5) Payments of premiums (or to the extent of self-insurance an amount equivalent to what the premiums would have been) for insurance on the Facility and the Facility Service, including without limitation thereto, fire and extended coverage, workmen's compensation and comprehensive general liability;

(6) Any other direct costs as charged under the Port Authority's normal accounting practice;

(7) Fifteen percent (15%) of the sum of all of the foregoing items (1) through (6).

(8) (a) There shall be deducted from item (7) hereof an amount as hereinafter defined and herein called "the utility credit".

(b) The utility credit shall mean the amount of $350,000.00, or fifteen percent (15%) of the sum of "the electricity credit", "the gas credit" and "the fuel oil credit" all as hereinafter defined, whichever is less.

(c) The electricity credit shall be an amount determined by dividing the amount paid by the Port Authority for the fuel adjustment factor portion of electricity covered by item (1) hereof by the total number of kilowatt hours (KWH) of electricity covered by said item (1) hereof, and subtracting from the quotient obtained thereby the amount of (2.a.) KWH, and multiplying the resulting difference or KWH, whichever is less, by the total KWH of electricity covered by item (1) hereof.

(d) The gas credit shall be an amount determined by dividing the amount paid by the Port Authority for illuminating gas covered by item (1) hereof by the total number of thousands of cubic feet (MCF) of illuminating gas covered by said item (1) hereof, and subtracting from the quotient obtained thereby the amount of (2.a.) per MCF, and multiplying the resulting difference or per MCF, whichever is less, by the total MCF of illuminating gas covered by item (1) hereof.

(e) The fuel oil credit shall be an amount determined by dividing the amount paid by the Port Authority for fuel oil covered by item (1) hereof by the total number of gallons of fuel oil covered by said item (1) hereof, and subtracting from the quotient obtained thereby the amount of (2.a.) per gallon, and multiplying the resulting difference or per gallon, whichever is less, by the total gallons of fuel oil covered by item (1) hereof.

(h) The Port Authority shall not be obligated to the Lessee to furnish the services covered by paragraph (a) hereof at any time while the Lessee shall be in default hereunder after the period, if any, herein granted to cure such default shall have expired. The Port Authority shall be under no obligation to provide said services, if and to the extent and during any period that the supplying of such services or the use of any component necessary therefore shall be prohibited or rationed by any federal, state or municipal law, rule, regulation, requirement, order or direction and if the Port Authority deems it in the public interest to comply therewith, even though such law, rule, regulation, requirement, order or direction may not be mandatory on the Port Authority as a public agency, nor shall the Port Authority be under any obligation to provide such services if and to the extent and during any period that the same are curtailed or stopped because of the need to repair, replace, rebuild or alter the Facility. The services covered by paragraph (a) with respect to the Terminal Expansion shall commence as of the time the Lessee performs the necessary portion of the construction work pertaining thereto and has received the certificate of the Port Authority pertaining to each such portion of the construction work pursuant to Section 2(h) hereof.

No failure, delay or interruption in supplying said services shall be or be construed to be an eviction of the Lessee or grounds for the diminution or abatement of rentals, fees or other charges, or (unless resulting from the negligence or wilful failure of the Port Authority) shall be grounds for any claims by the Lessee for damages, consequential or otherwise.

(i) In the event that by the end of any calendar year the Construction Cost of any Additional Capital Improvement completed during said year has not been finally determined, the Additional Annual Facility Capital Charge for said calendar year and all subsequent calendar years until said Cost has been finally determined shall be such of the Construction Cost of said Additional

Capital Improvement as has been determined at the time the Port Authority renders corrected billings under paragraph (j) hereof and the amounts payable by the Lessee pursuant to paragraph (a) hereof for all applicable prior calendar years for said Additional Capital Improvement shall be recomputed from time to time until the final determination of said Construction Cost and any amounts owing to the Port Authority shall be promptly paid to it.

(j) The amounts payable to the Port Authority pursuant to paragraph (a) hereof are for each calendar year, but in the event the term of the Lease expires on a day other than the last day of a calendar year, then in each such event the amounts payable to the Port Authority pursuant to paragraph (a) hereof shall, for the year during which each such event occurs, be for such portion of said year during which the Port Authority provides hot water and chilled water pursuant to paragraph (a) hereof. In determining said amounts, the Annual Total Facility Cost, the Annual Hot Water Facility Cost, the Annual Chilled Water Facility Cost, the Annual Total Hot Water Reading, the Annual Total Chilled Water Reading and the readings of BTU's of heat drawn and of BTU's absorbed in the premises shall be computed, determined and ascertained for each calendar year (or portion thereof in the event mentioned in the first sentence hereof) of the term of the Lease subsequent to the commencement date. Notwithstanding the foregoing and for current monthly or other periodic billing purposes as shall from time to time be selected by the Port Authority, the Port Authority shall establish for each calendar year estimated interim rates for hot water based upon BTU's of heat drawn from the hot water lines emanating from the Facility and estimated interim rates for chilled water based upon BTU's absorbed by the chilled water lines emanating from the Facility. Such estimated rates shall be based upon the Annual Chilled Water Facility Cost, the Annual Hot Water Facility Cost, the Annual Total Hot Water Reading and the Annual Total Chilled Water Reading for the previous calendar year and upon estimated changes in the same or upon such other reasonable basis as the Port Authority may determine. The Lessee shall pay current billings as they are received. Said billings shall be based upon the interim rates and upon the total number of BTU's of heat drawn from the hot water lines serving the premises and the total number of BTU's absorbed by the chilled water lines serving the premises. Said readings shall be measured by the meters serving the premises as described in paragraph (f) hereof. The provisions of subparagraph (2) of said paragraph (f) shall apply and pertain as well for current billing purposes.

As soon as practicable after the expiration of each calendar year, the Port Authority shall determine the Annual Hot Water Facility Cost and the Annual Chilled Water Facility Cost for the preceding calendar year and shall determine the amounts payable by the Lessee in accordance with the provisions of paragraph (a) hereof. In the event the term of the Lease expires on a day other than the last day of calendar year, the Expansion Capital Charge for said calendar year shall be prorated based on the number of days during said calendar year during which the Port Authority provides

hot water and chilled water pursuant to paragraph (a) hereof compared to 365. In the event an Additional Capital Improvement has been completed on a day other than the last day of a calendar year, the Additional Annual Facility Capital Charge for said Additional Capital Improvement for said calendar year shall be prorated based on the number of days during said calendar year subsequent to completion compared to 365. Corrected billings based upon such determination shall thereupon be rendered by the Port Authority to the Lessee and if any monies are due to the Port Authority they shall be promptly paid by the Lessee and if any monies are due to the Lessee they shall be promptly credited to it. In the event the term of this Lease expires or is sooner terminated on a date other than the last day of a calendar year, the Port Authority shall have no obligation to immediately make the computations as hereinabove provided which would determine the amounts payable by the Lessee in accordance with paragraph (a) hereof for the period during said year when the Lease was in effect. Said computation shall be made subsequent to the end of the calendar year as hereinabove provided, and if any monies are due to the Port Authority they shall be paid by the Lessee promptly and if any monies are due to the Lessee they shall be promptly paid to it by the Port Authority less such amounts, if any, then owing and due to the Port Authority from the Lessee.

(k) Notwithstanding anything contained in this Section, the Port Authority's obligation to provide hot water and chilled water to the premises shall be limited by the safe and efficient operating capacity of the Facility.

(l) The Lessee has installed or shall install all machinery, equipment and facilities required to be installed in the premises in order to utilize said high temperature hot water and chilled water and has tied into or shall tie into the Facility at the mechanical equipment rooms constructed by the Lessee on the premises, but in the event that any of such rooms are located at a point 100 feet or more from the point or points at the boundary of the premises to which the Port Authority shall have brought high temperature hot water and chilled water, the Lessee shall be responsible for the cost of the installations in excess of 100 feet required to bring high temperature hot water and chilled water to the rooms, which installations shall be a part of the Facility.

(m) The Port Authority shall keep in an office or offices within the Port of New York District such books, records and accounts as may be necessary or appropriate to record the items and transactions affecting the computation of payments to be made by the Lessee under this Section. The Lessee or its designated representative shall have the right to examine the books and records of the Port Authority during regular business hours in connection with or in respect to any cost incurred, charged, allocated or prorated to the construction, operation or maintenance of the Central Heating and Refrigeration Facility to the extent that such affect the computation of such payments by the Lessee, it being understood that the Lessee shall have no right to inspect such parts

thereof as pertain to any cost or expense which is part of the cost of administration and overhead which is covered by item (7) of paragraph (g) of this Section.

Section 53. General Airport Agreement

The parties hereto are also parties to a certain agreement entitled "John F. Kennedy International Airport Airline Lease," dated as of January 1, 1953 (as the same may have been extended, supplemented and amended) and bearing Port Authority file number designation AY-352 which governs the rights, privileges, duties and obligations of and between the parties hereto with respect to the Airport, sometimes herein called the "General Airport Agreement".

The Parties hereto agree that in the event any provisions contained in said Lease AY-352 are inconsistent or otherwise in conflict with any one or more provisions of this Lease, the provisions of this Lease shall apply with respect to the premises let hereunder.

Notwithstanding the foregoing provisions of this Section 53, the Lessee shall have the same rights and privileges under this Lease with respect to "Airline Contractors", "Fees or Charges Against Employees, Passengers and Suppliers" and "Use of Airport by Patrons and Invitees" to the extent applicable, as said phrases are used in Lease AY-352 as if the provisions of Sections 8.15, 8.16 and 8.19 of Title VIII of Lease AY-352 were herewith incorporated in full as to the subject matter of this Lease and in any of such matters the language of such cited Sections of Lease AY-352 shall be deemed to apply to the premises.

The foregoing provisions of this Section 53 shall apply and obtain only up to the expiration or earlier termination of the General Airport Agreement and thereafter shall be void and of no further force or effect.

Section 54. Associated and Affiliated Companies

In addition to the purposes specified in Section 5 hereof the Lessee may use the premises for the following purposes and for activities reasonably required for such purposes:

(1) For the reservation of space and the sale of tickets for transportation on aircraft operated by Associated or Affiliated Companies of the Lessee.

(2) For the reservation of space and the sale of tickets for transportation by other carriers but only as an incident to or in connection with transportation performed or to be performed by the Lessee's Associated or Affiliated Companies or as an incident to or in connection with the cancellation of such transportation, or for the accommodation or convenience of the incoming or outbound passengers of such Associated or Affiliated Companies at the Airport.

(3) For the clearance, checking and rendering of service to passengers of the Lessee's Associated or Affiliated Companies and for the furnishing of information service to such passengers and the general public.

(4) For providing rooms or space for the special handling of or the furnishing of special services to any of the passengers, guests, or invitees of the Lessee's Associated or Affiliated Companies, subject to the provisions of Section 66 hereof.

(5) For the handling of baggage of passengers of the Lessee's Associated or Affiliated Companies including baggage and parcels such passengers decide to send as air cargo.

(6) For the handling of unclaimed baggage and lost and found articles of the Lessee's Associated or Affiliated Companies.

(7) For the conduct of operations, traffic, communications, reservations and administrative office functions and activities in connection with air transportation performed by the Lessee's Associated or Affiliated Companies.

(8) For the preparation, packaging and storage of food, beverages and commissary supplies to be consumed on aircraft operated by the Lessee's Associated or Affiliated Companies.

(9) For the storage of repair parts, supplies and other personal property owned by the Associated or Affiliated Companies of the Lessee and for the performance of minor repairs to personal property of such Associated or Affiliated Companies.

(10) For the storage of such Associated or Affiliated Companies fuel and lubricants as may be approved by the Port Authority.

(11) For the operation of a cafeteria for over-the-counter sales to officers and employees of the Lessee's Associated or Affiliated Companies and their families and to occasional business guests of such officers and employees (other than passengers of such Associated or Affiliated Companies) of food, beverages and other merchandise normally sold in such an establishment at no profit to the Lessee or its Associated or Affiliated Companies and either directly by the Lessee or by an independent contractor who has received a permit from the Port Authority so to do.

(12) For use as crew quarters to be used by personnel of the Lessee's Associated or Affiliated Companies during layovers between flights and for the establishment of lounges for employees of such Associated or Affiliated Companies.

(13) For the loading and unloading of passengers baggage, mail, air cargo and commissary supplies of the Lessee's Associated or Affiliated Companies.

(14) For the parking and storage of aircraft and ramp equipment operated by Associated or Affiliated Companies of the Lessee.

(15) For the fueling and servicing of aircraft and ramp equipment operated by Associated or Affiliated Companies of the Lessee.

(16) For the performance of aircraft maintenance of aircraft operated by the Lessee's Associated or Affiliated Companies subject to the limitations imposed by Section (j) hereof.

(17) For the temporary storage of baggage, mail and air cargo to be carried in aircraft operated by the Lessee's Associated or Affiliated Companies.

The loading or unloading on the premises of all aircraft used principally for cargo is expressly prohibited.

For the purposes of this Lease, the phrase "Associated and Affiliated Companies" when used herein shall be construed to mean any corporation or foreign entity which is an "Associated Company" or an "Affiliated Company" of the Lessee within the meaning of such phrases as defined in Section 17.01 of Title XVII and Exhibit 37 the General Airport Agreement, as it may be amended from time to time.

Any act or thing which the Lessee may do for its Associated and Affiliated Companies pursuant to this Lease may be done by it at the same place and under the same circumstances either directly or through a contractor or contractors of its choice, provided, that such acts and things shall be done through a contractor or contractors only if by the terms of this Lease the Lessee may do the same acts or things for itself through contractors, and then only under the same circumstances and subject to the same conditions, and provided further that this Section shall not be deemed to grant to the Lessee's Associated and Affiliated Companies, any greater rights or privileges than are granted to the Lessee under the Lease.

The Lessee's Associated and Affiliated Companies and the officers, employees, passengers, patrons, contractors, suppliers of material, furnishers of services and invitees of the Lessee shall have such right of ingress and egress with respect to the premises and the right of way over highways at the Airport as are described in Section 6 hereof, subject, however, to the further provisions of said Section 6.

In the event any Associated or Affiliated Company of the Lessee has entered or hereafter enters into a separate lease or other written agreement with the Port Authority for the use of any premises, space, or facilities at the Airport (whether or not containing provisions similar to those in this Section), then any provisions of this Section which are in conflict with or inconsistent with such provisions under such separate lease or agreement shall be null and void.

The foregoing provisions of this Section shall apply and obtain notwithstanding the expiration or earlier termination of the General Airport Agreement unless different provisions are agreed upon in any successor agreement between the parties to the General Airport Agreement, if, as and when there is such a successor agreement, there being no obligation of any kind hereunder to enter into a successor agreement.

Section 55. Consumer Services

The Lessee acknowledges that various portions of the premises have been and will in the future be utilized for consumer services and said portions which have received and will in the future receive the concurrence of the Lessee and the Port Authority, as hereinafter provided, are herein referred to as "the concession areas". Without limiting the provisions of Section 43 hereof, the Lessee shall develop a comprehensive plan for consumer services, including but not limited to the locations of existing and future concession areas, the amount of services to be provided of the types hereinafter set forth in Sections 56, 57, 58, 59, 60, 61 and 62 hereof, and the types and amounts of any consumer services proposed under Section 63, and the Lessee agrees that it will at all times throughout the term of the Lease keep said comprehensive plan updated and that said updated plan shall be submitted to and be subject to the continuing approval of the Port Authority. The Port Authority shall furnish to the Lessee guidelines to be utilized by the Lessee with respect to all matters affecting consumer services in the concession areas including the Lessee's comprehensive plan.

After approval by the Port Authority of the Lessee's comprehensive plan for consumer services the Lessee shall enter into negotiations or go out for bid, as the circumstances dictate, with respect to the selection of proposed new operators and new agreements with the same. At all times during the negotiation and award procedure the Lessee shall consult with the Port Authority as to all aspects of the proposed arrangements including but not limited to the proposed operators and the financial terms thereof. As hereinafter provided the Lessee will be entering into a direct contract with each new operator but said operator must also enter into an appropriate agreement with the Port Authority. The Lessee shall not finalize negotiations with any operator and shall not execute any agreement with any proposed operator until it has received notification from the Port Authority that said arrangement is acceptable to the Port Authority and until said operator has indicated that it is prepared to enter into the appropriate contractual agreement with the Port Authority. The foregoing procedure will be followed throughout the term of the Lease. It is expressly understood and agreed that the provisions of this Section shall not limit or be deemed to limit the provisions of Section 43 hereof and the Lessee's on-going affirmative action commitment with respect to the consumer services awards and agreements provided for herein.

Section 56. Restaurant and Bar

The Lessee may select and thereafter enter into an agreement with a qualified Restaurant Operator (hereinafter referred to in this Section as "the Restaurant Operator") authorizing the Restaurant Operator to operate in the premises facilities for the sale of food, alcoholic and non-alcoholic beverages and similar items for consumption in the premises (hereinafter called "the Restaurant Service") provided, however, that prior to any such selection and prior to the entering by the Lessee into any such agreement with the Restaurant Operator, said Restaurant Operator shall obtain a permit from the Port Authority authorizing such Restaurant Operator to operate the Restaurant Service in a portion of the premises hereunder. Prior to the issuance of any such permit, the proposed Restaurant Operator may be required to submit to the Port Authority evidence satisfactory to the Port Authority of its qualifications, the scope of its proposed operations and the standards of service it will provide. Any such permit will provide that the Restaurant Operator will conduct its operations at the premises in a first-class manner in accordance with the best practices in the industry and shall comply with maximum Port Authority standards with respect to service, health, sanitary and safety measures. The permit will not be revoked without cause by the Port Authority without the prior consent of the Lessee. In the event of any inconsistencies between the terms of the permit and the terms of the agreement between the Lessee and the Restaurant Operator, the terms of the permit shall control and prevail. Without limiting the foregoing, it is agreed that prior to the issuance of the permit the Port Authority shall make a copy of the same available to the Lessee and that upon the execution of the permit by the proposed Restaurant Operator the same shall be consented to in writing by the Lessee.

The agreement between the Lessee and the Restaurant Operator shall cover the arrangements for the space to be used in the Restaurant Service within the premises including the amount, type and location of the space. The Lessee will bring to the perimeter of the space to be occupied by the Restaurant Operator pipes, wires and conduits for the supply of electricity, gas and water, together with the necessary steam and waste lines for use in connection with the Restaurant Service and shall provide said utilities to the Restaurant Operator. Said agreement will also provide that the Restaurant Operator will furnish and install at its own expense all necessary fixtures, furniture and personal property required in connection with the Restaurant Service and that the Restaurant Operator may be required to perform all work necessary or required to finish off the space, including the finishing of the floors and ceilings from the structural slab and the walls from the rough partitions.

The agreement between the Restaurant Operator and the Port Authority will contain appropriate provisions permitting cancellation of such agreement on short notice in the event the service of the Restaurant Operator is unsatisfactory to the

Lessee. In the event of such cancellation the Lessee agrees to reimburse the Restaurant Operator for its unamortized investment in the fixtures, equipment, furniture and personal property furnished in connection with the operation, and the unamortized cost of the work performed in finishing off the space and title to such fixtures, equipment, furniture and personal property shall thereupon vest in the Lessee.

The agreement between the Lessee and the Restaurant Operator shall not call for any fixed rental or fee but shall provide that the Restaurant Operator shall pay a percentage fee based upon the gross receipts of the Restaurant Operator from the sale of food, alcoholic and non-alcoholic beverages, which fee shall be subject to the prior written approval of the Port Authority and shall be incorporated into the permit to be issued by the Port Authority. There shall be no other payments by the Restaurant Operator to the Lessee except for appropriate payments for any utilities which may be furnished to the Restaurant Operator by the Lessee, it being understood, however, that the foregoing shall not preclude the Lessee from furnishing services to the Restaurant Operator, such as janitorial and garbage removal services, and from receiving payments from the Restaurant Operator for such services provided the same are covered by appropriate written agreements duly entered into between the Lessee and the Restaurant Operator including the charges therefor, and that the Lessee hereby agrees to provide the Port Authority with any and all agreements covering any such services promptly and upon the receipt of a request therefor from the Port Authority. It is hereby understood and agreed that 80% of the percentage fee payable by the Restaurant Operator shall be paid by the Restaurant Operator to the Lessee and 20% of the percentage fee payable by the Restaurant Operator shall be paid by the Restaurant Operator to the Port Authority. Both the agreement between the Lessee and the Restaurant Operator and the permit to be issued by the Port Authority shall have provisions covering the fee in accordance with this Section and, without limiting the generality of any other provision of this Section, the permit shall control as to the manner, conditions and terms of payment.

In the event the Restaurant Operator is the same person providing in-flight meal and employee food service to the Lessee and is a wholly owned subsidiary of the Lessee, the fees to be paid by the Restaurant Operator shall apply only to the gross receipts of the Restaurant Operator from the sale of food, alcoholic and non-alcoholic beverages at retail for consumption on the premises, and the Port Authority shall determine the percentage fee to be paid by the Restaurant Operator.

Section 57. Vending Machines, Public Telephones, Advertising Displays

If requested by the Lessee the Port Authority, by itself or through contractors, lessees, or permittees, shall install and maintain in the premises vending machines, public telephones, and advertising displays, at such locations and to such extent as

requested by the Lessee. The Lessee shall provide the necessary wires and conduits for the supply of electricity for such machines and displays.

The Port Authority shall require its contractors, lessees, or permittees to pay a fee, which may be a percentage fee subject to a minimum amount, based upon the gross receipts received from such vending machines, public telephones, and advertising displays or a fixed fee.

The Port Authority shall pay the Lessee an annual fee equivalent to 80% of the fee collected by the Port Authority from its contractors, lessees, or permittees aforementioned. The fees payable hereunder shall be paid in the same manner, under the conditions and at the times, provided in Section 65 hereof.

Section 58. Insurance Covering Air Transportation

The Port Authority may enter into contracts or agreements with qualified insurance vendors requiring such vendors to sell or arrange for the sale, at the premises, of insurance covering air transportation, of such types and coverages as may be required by the Lessee.

The contract between the insurance vendor and the Port Authority shall provide that such vendor shall pay a basic rental for the space occupied by such vendor in the premises in connection with the sale of such insurance. The basic rental will be based upon the cost to the Lessee of providing such space to the vendor. In determining the cost to the Lessee there shall be considered the construction cost of the premises, and an appropriate allocation of the cost of providing and maintaining public areas within the premises. For the purpose of determining the aforesaid costs the premises shall be considered as a single entity and a single rental rate shall be established for all areas of the premises based thereon. The amount of the basic rental to be paid by the vendor shall be agreed upon between the Port Authority and the Lessee, when the costs aforementioned are determined or can be reasonably estimated provided, however, in no event shall such basic rental be computed at a rate in excess of the Consumer Service Maximum Basic Rental Rate as defined in Section 81 hereof.

The contract shall further provide that the vendor shall pay an amount equal to a percentage of the vendor's gross premiums from the sale of such insurance, less the amount of any basic rental paid by the vendor.

It is hereby understood and agreed that all of the basic rental and 50% of the percentage fee payable by the insurance vendor shall be paid by the insurance vendor to the Lessee and 50% of the percentage fee payable by the insurance vendor shall be paid by the insurance vendor to the Port Authority. The rental and fees payable hereunder shall be paid in the manner, under the conditions, and at the times provided in Section 65 hereof.

The contract with the insurance vendor will provide that: (a) if the Lessee so requests, the vendor shall provide a general information service to the public; and (b) the vendor shall not be required to provide a counter for the sale of insurance if, in its opinion, there will be insufficient patronage to support such a counter; and (c) the vendor shall not be required to continue to provide at any designated location vending machines for the sale of insurance when the gross premiums from any such machines at any such location is less than $200 per month, provided, however, if twenty-four (24) hour counter coverage is not provided there shall be at least one machine in the premises; and (d) the provisions of insurance policies and the minimum coverage offered shall be acceptable to the Lessee.

The location of insurance counters and insurance vending machines shall be determined by the Lessee. The vendor will furnish and install at its expense all necessary fixtures, machines, counters and equipment required in connection with its operation. The Lessee shall provide the necessary wires and conduits for the supply of electricity for use in connection with the vendor's operation. The Lessee shall not require unreasonably frequent moves of insurance counters and insurance vending machines hereunder.

Section 59. Newsstands

(a) The Lessee may select and thereafter enter into an agreement or agreements with a qualified newsstand operator or operators authorizing such operators to operate newsstands in the premises for the sale at retail of such of the following items as may be approved by the Port Authority: newspapers, magazines, cigarettes, cigars and other tobacco supplies, candy, chewing gum, playing cards and paperbound books, small novelty gift items, and such other items as may be approved by the Port Authority from time to time, provided, however, that prior to any selection and prior to the entering by the Lessee into any such agreement with any such newsstand operator, each such newsstand operator obtains a permit from the Port Authority authorizing said newsstand operator to operate the newsstand in a portion of the premises hereunder. Prior to the issuance of any such permit, the proposed newsstand operator may be required to submit to the Port Authority evidence satisfactory to the Port Authority of its qualifications, the scope of its proposed operations and the standards of service it will provide. Any such permit will provide that the newsstand operator will conduct its operations at the premises in a first-class manner in accordance with the best practices in the industry and shall comply with maximum Port Authority standards with respect to service, health, sanitary and safety measures. The permit will not be revoked without cause by the Port Authority without the prior consent of the Lessee. In the event of any inconsistencies between the terms of the permit and the terms of the agreement between the Lessee and the newsstand operator, the terms of the permit shall control and be prevailing. Without limiting the foregoing, it is agreed that prior to the issuance of the permit the Port Authority

shall make a copy of the same available to the Lessee and that upon the execution of the permit by the proposed newsstand operator the same shall be subscribed to by the Lessee. The Port Authority shall require such operator or operators to sell at retail from its or their locations, such other items or furnish such other services as may be approved by the Port Authority and as are requested by the Lessee.

(b) The agreement between the newsstand operator or operators and the Port Authority shall provide that each such operator shall pay to the Lessee a basic rental for the space occupied by such operator in the premises in connection with the operation of the newsstand. The basic rental will be based upon the cost to the Lessee of providing such space to the operator. In determining the cost to the Lessee there shall be considered the construction cost of the premises and an appropriate allocation of the cost of providing and maintaining public areas within the premises. For the purpose of determining the aforesaid costs the premises shall be considered as a single entity and a single basic rental rate shall be established for all areas of the premises based thereon. The amount of the basic rental to be paid by the operator shall be agreed upon between the Port Authority and the Lessee, when the costs aforementioned are determined or can be reasonably estimated, provided, however, in no event shall such basic rental be computed at a rate in excess of the Consumer Service Maximum Basic Rental Rate as defined in Section 81 hereof. The Lessee shall furnish without additional charge, a reasonable amount of storage space for the use of the newsstand operator.

(c) The agreement with the newsstand operator or operators shall further provide that the operator will pay to the Port Authority a percentage fee of the gross receipts derived by the newsstand operator from all sales made by the newsstand operator less the amount of the basic rental paid by the newsstand operator to the Lessee, the amount of said percentage fee payable to the Port Authority up to the amount of the basic rental being herein called "the basic rental equivalent".

(d) The agreement with the newsstand operator shall provide furthermore that the newsstand operator shall pay directly to the Port Authority and to the Lessee the excess, if any, of the percentage fee remaining after the newsstand operator has paid to the Port Authority the basic rental equivalent, said excess to be divided equally between the Lessee and the Port Authority. Both the agreement between the Lessee and the newsstand operator and the permit to be issued by the Port Authority shall have provisions covering the percentage fee in accordance with this Section and without limiting the generality of any other provision of this Section, the permit shall control as to the manner, conditions and terms of payment.

(e) The agreement with the newsstand operator or operators will further provide that the newsstand operator will be permitted to sell at retail only such merchandise as is normally sold at

newsstands in operation at Port Authority Airports together with such other merchandise as may be requested by the Lessee, if authorized by the Port Authority. The contract shall further provide that no merchandise objectionable to the Lessee or the Port Authority shall be sold.

(f) The location of newsstands for the use of the newsstand operators shall be determined by the Lessee subject to the approval of the Port Authority and in accordance with the Lessee's comprehensive plan. The said agreement between the newsstand operator and the Lessee shall provide that the newsstand operator will furnish and install at its expense all necessary trade fixtures, stands, counters and equipment required in connection with its operation. The Lessee shall perform all construction work necessary to accommodate such installations including the necessary wires and conduits for the supply of electricity and shall supply the same including the supply of electricity for use in connection with the operation of the newsstand or newsstands at no cost to the newsstand operator or to the Port Authority. In addition to other rights of termination or revocation that may be contained in said agreement between the newsstand operator and the Lessee, the said agreement may contain appropriate provisions permitting cancellation of the agreement by the Lessee on short notice in the event the newsstand service provided by the newsstand operator is unsatisfactory to the Lessee. In the event of such termination or revocation, the Lessee agrees to reimburse the newsstand operator for its unamortized investment in the fixtures, equipment, stands, counters and equipment furnished in connection with the operation, and the unamortized cost of the construction work performed to accommodate such installations, and title to such fixtures, stands, counters and equipment furnished in connection with the newsstand operation shall thereupon vest in the Lessee.

Section 60. Duty-Free Shop

(a) The Lessee may select and thereafter enter into an agreement with a qualified person, firm or corporation (which person, firm or corporation is hereinafter referred to as "the Duty-Free Shop Operator") authorizing such Duty-Free Shop Operator to operate a shop in the premises for the sale at retail of in-bond liquors, in-bond cigarettes, cigars and other in-bond tobacco products, and other in-bond items, (hereinafter called "the Duty-Free Shop"), provided, however, that prior to any such selection and prior to the entering by the Lessee into any such agreement with the Duty-Free Shop Operator, said Duty-Free Shop Operator obtains a permit from the Port Authority authorizing such Duty-Free Shop Operator to operate the Duty-Free Shop in a portion of the premises hereunder. Prior to the issuance of any such permit, the proposed Duty-Free Shop Operator may be required to submit to the Port Authority evidence satisfactory to the Port Authority of its qualifications, the scope of its proposed operations and the standards of service it will provide. Any such permit will provide that the Duty-Free Shop Operator will conduct its operations at the premises in a first-class manner in accordance with the best

practices in the industry and shall comply with maximum Port Authority standards with respect to service, health, sanitary and safety measures. The permit will not be revoked without cause by the Port Authority without the prior consent of the Lessee. In the event of any inconsistencies between the terms of the permit and the terms of the agreement between the Lessee and the Duty-Free Shop Operator, the terms of the permit shall control and be prevailing. Without limiting the foregoing, it is agreed that prior to the issuance of the permit the Port Authority shall make a copy of the same available to the Lessee and that upon the execution of the permit by the proposed Duty-Free Shop Operator the same shall be subscribed to by the Lessee.

(b) The Lessee agrees and the agreement between the Lessee and the Duty-Free Shop Operator shall provide that the Lessee will furnish to the Duty-Free Shop Operator sufficient and suitable space for conducting and carrying on its aforesaid operation. The Lessee agrees that it shall perform all work necessary or required to finish off the space, including the finishing of the floors and ceilings from the structural slab and the walls from the rough partitions, the decor and color scheme to be subject to the approval of the Port Authority. In addition, the Lessee shall construct in the portion of the premises designated by the Port Authority a storage area for the storage of the aforesaid in-bond items to be sold by the Duty-Free Shop Operator (said storage area being herein called "the Duty-Free Distribution Center"). The Lessee shall proceed diligently to construct and install those portion of pipes wires and conduits in the manner and to the locations as shall be shown in detail on the Lessee's plans and specifications to be submitted to and approved by the Port Authority for the supply of such utilities and services including without limitation thereto those portions of the electrical, heating and air-conditioning equipment required by the Duty-Free Shop Operator in its operations in the Duty-Free Shop and the Duty-Free Distribution Center. The Lessee shall supply said utilities and services to the Duty-Free Shop Operator without charge to the Duty-Free Shop Operator or the Port Authority.

(c) The agreement between the Lessee and the Duty-Free Shop Operator shall not call for any fixed rental or fee but shall provide that the Duty-Free Shop Operator shall pay a percentage fee subject to appropriate minimum amounts based upon the gross receipts of the Duty-Free Shop Operator from the sale of in-bond liquors, in-bond cigarettes, cigars and other in-bond tobacco products and other in-bond items, which fee shall be subject to the prior written approval of the Port Authority and shall be incorporated into the permit to be issued by the Port Authority. There shall be no other payments by the Duty-Free Shop Operator to the Lessee except other than as provided herein. It is hereby understood and agreed that 50% of the percentage fee payable by the Duty-Free Shop Operator shall be paid by the Duty-Free Shop Operator to the Lessee and 50% of the percentage fee payable by the Duty-Free Shop Operator shall be paid by the Duty-Free Shop Operator to the Port Authority. Both the agreement between the Lessee and the Duty-Free Shop Operator and

the permit to be issued by the Port Authority shall have provisions covering the fee in accordance with this Section and, without limiting the generality of any other provision of this Section, the permit shall control as to the manner, conditions and terms of payment.

(d) The agreement between the Duty-Free Shop Operator and the Lessee will provide that the Duty-Free Shop Operator will furnish at its expense all necessary trade fixtures, equipment furniture and personal property required in connection with the efficient and satisfactory operation of the Duty-Free Shop and the Duty-Free Distribution Center. The decor and color scheme of the facilities to be operated by the Duty-Free Shop Operator and the location of fixtures therein shall be subject to the prior and continuing approval of the Port Authority. In addition to other rights of termination or revocation that may be contained in said agreement between the Duty-Free Shop Operator and the Lessee, said agreement may contain appropriate provisions permitting cancellation of the agreement by the Lessee on short notice in the event the Duty-Free Shop provided by the Duty-Free Shop Operator is unsatisfactory to the Lessee.

Section 61. Foreign Currency Exchange

(a) The Lessee may select and thereafter enter into agreements with qualified persons, firms or corporations (which persons, firms or corporations are hereinafter referred to as "the Currency Exchange Operator") authorizing the Currency Exchange Operator to operate an establishment in the premises for the exchange, purchase and sale of domestic and foreign currencies (hereinafter called "the Foreign Currency Exchange Service") provided, however, that prior to any such selection and prior to the entering by the Lessee into any such agreement with the Currency Exchange Operator, said Currency Exchange Operator obtains a permit from the Port Authority authorizing such Currency Exchange Operator to operate the Foreign Currency Exchange Service in a portion of the premises hereunder. Prior to the issuance of any such permit, the proposed Currency Exchange Operator may be required to submit to the Port Authority evidence satisfactory to the Port Authority of its qualifications, the scope of its proposed operations and the standards of service it will provide. Any such permit will provide that the Currency Exchange Operator will conduct its operations at the premises in a first-class manner in accordance with the best practices in the industry and shall comply with maximum Port Authority standards with respect to service. The permit will not be revoked without cause by the Port Authority without the prior consent of the Lessee. In the event of any inconsistencies between the terms of the permit and the terms of the agreement between the Lessee and the Currency Exchange Operator, the terms of the permit shall control and be prevailing. Without limiting the foregoing, it is agreed that prior to the issuance of the permit the Port Authority shall make a copy of the same available to the Lessee and that upon the execution of the permit by the proposed Currency Exchange Operator the same shall be subscribed to by the Lessee.

(b) The Lessee agrees and the agreement between the Lessee and the Currency Exchange Operator shall provide that the Lessee will furnish to the Currency Exchange Operator sufficient and suitable space for conducting and carrying on its aforesaid operation. The Lessee agrees that it shall perform all work necessary or required to finish off the space, including the finishing of the floors and ceilings from the structural slab and the walls from the rough partitions, the decor and color scheme to be subject to the approval of the Port Authority. The Lessee shall supply said utilities and services to the Currency Exchange Operator without charge to the Currency Exchange Operator or the Port Authority.

(c) The agreement between the Lessee and the Currency Exchange Operator shall not call for any fixed rental or fee but shall provide that the Currency Exchange Operator shall pay a percentage fee based upon the gross receipts of the Currency Exchange Operator, which fee shall be subject to the prior written approval of the Port Authority and shall be incorporated into the permit to be issued by the Port Authority. There shall be no other payments by the Currency Exchange Operator to the Lessee except other than as provided herein. It is hereby understood and agreed that 50% of the percentage fee payable by the Currency Exchange Operator shall be paid by the Currency Exchange Operator to the Lessee and 50% of the percentage fee payable by the Currency Exchange Operator shall be paid by the Currency Exchange Operator to the Port Authority. Both the agreement between the Lessee and the Currency Exchange Operator and the permit to be issued by the Port Authority shall have provisions covering the fee in accordance with this Section and, without limiting the generality of any other provision of this Section, the permit shall control as to the manner, conditions and terms of payment.

(d) The agreement between the Currency Exchange Operator and the Lessee will provide that the Currency Exchange Operator will furnish at its expense all necessary trade fixtures, equipment furniture and personal property required in connection with the efficient and satisfactory operation of the Foreign Currency Exchange Service. The decor and color scheme of the facilities to be operated by the Currency Exchange Operator and the location of fixtures therein shall be subject to the prior and continuing approval of the Port Authority. In addition to other rights of termination or revocation that may be contained in said agreement between the Currency Exchange Operator and the Lessee, said agreement may contain appropriate provisions permitting cancellation of the agreement by the Lessee on short notice in the event the Foreign Currency Exchange Service provided by the Currency Exchange Operator is unsatisfactory to the Lessee.

Section 62. Retail Banking

(a) The Lessee may select and thereafter enter into agreements with qualified persons, firms or corporations (which

persons, firms or corporations are hereinafter referred to as "the Retail Bank Operator") authorizing such Retail Bank Operator to operate a service consisting of the maintaining of accounts, receipt and disbursement of funds and including automatic teller machine service and foreign currency exchange, sale and purchase (hereinafter called "the Retail Banking Service") in the premises, provided, however, that prior to any such selection and prior to the entering by the Lessee into any such agreement with the Retail Bank Operator, said Retail Bank Operator obtains a permit from the Port Authority authorizing such Retail Bank Operator to operate the Retail Banking Service in a portion of the premises hereunder. Prior to the issuance of any such permit, the proposed Retail Bank Operator may be required to submit to the Port Authority evidence satisfactory to the Port Authority of its qualifications, the scope of its proposed operations and the standards of service it will provide. Any such permit will provide that the Retail Bank Operator will conduct its operations at the premises in a first-class manner in accordance with the best practices in the industry and shall comply with maximum Port Authority standards with respect to service. The permit will not be revoked without cause by the Port Authority without the prior consent of the Lessee. In the event of any inconsistencies between the terms of the permit and the terms of the agreement between the Lessee and the Retail Bank Operator, the terms of the permit shall control and be prevailing. Without limiting the foregoing, it is agreed that prior to the issuance of the permit the Port Authority shall make a copy of the same available to the Lessee and that upon the execution of the permit by the proposed Retail Bank Operator the same shall be subscribed to by the Lessee.

(b) The Lessee agrees and the agreement between the Lessee and the Retail Bank Operator shall provide that the Lessee will furnish to the Retail Bank Operator sufficient and suitable space for conducting and carrying on its aforesaid operation. The Lessee agrees that it shall perform all work necessary or required to finish off the space, including the finishing of the floors and ceilings from the structural slab and the walls from the rough partitions, the decor and color scheme to be subject to the approval of the Port Authority. The Lessee shall supply said utilities and services to the Retail Bank Operator without charge to the Retail Bank Operator or the Port Authority.

(c) The agreement between the Lessee and the Retail Bank Operator shall provide that the Retail Bank Operator shall pay a basic fixed rental for the space occupied by such operator, which rental shall be subject to the prior written approval of the Port Authority and shall be incorporated into the permit to be issued by the Port Authority. There shall be no other payments by the Retail Bank Operator to the Lessee except as provided herein. It is hereby understood and agreed that 50% of the rental payable by the Retail Bank Operator shall be paid by the Retail Bank Operator to the Lessee and 50% of the rental payable by the Retail Bank Operator shall be paid by the Retail Bank Operator to the Port Authority. Both the agreement between the Lessee and the Retail Bank Operator

and the agreement to be issued by the Port Authority shall have provisions covering the rental in accordance with this Section and, without limiting the generality of any other provision of this Section, the agreement shall control as to the manner, conditions and terms of payment.

(d) The agreement between the Retail Bank Operator and the Lessee will provide that the Retail Bank Operator will furnish at its expense all necessary trade fixtures, equipment furniture and personal property required in connection with the efficient and satisfactory operation of the Retail Banking Service. The decor and color scheme of the facilities to be operated by the Retail Bank Operator and the location of fixtures therein shall be subject to the prior and continuing approval of the Port Authority.

Section 63. Other Consumer Services

(a) If the Lessee requests that additional consumer services be provided in the premises for the sale of other items or the furnishing of other services the Port Authority will endeavor to secure a qualified tenant, permittee or licensee (hereinafter referred to as the "Operator"), to furnish such consumer services and shall enter into contracts or agreements with such Operator requiring it to furnish the items or services to the extent required by the Lessee.

(b) The contract between the Operator and the Port Authority shall provide that such Operator shall pay to the Port Authority a basic rental for the space occupied by such Operator in the premises in connection with the furnishing of the consumer services. The basic rental will be based upon the cost to the Lessee of providing such space to the Operator. In determining the cost to the Lessee there shall be considered the construction cost of the premises and the cost of operation and maintenance of the premises. The amount of the basic rental to be paid by the Operator shall be agreed upon between the Port Authority and the Lessee.

(c) The contract shall further provide that the Operator shall pay a percentage fee based upon the gross receipts of such Operator from the operation of such consumer service, less the amount of any basic rental paid by the Operator.

(d) The Operator shall pay to the Lessee the amount of the basic rental. If the percentage fee actually paid to the Port Authority exceeds the amount of the basic rental, the Port Authority shall retain the percentage fee up to the amount of the basic rental. The excess, if any, remaining shall be divided equally between the Port Authority and the Lessee. The rental and fees payable hereunder shall be paid in the same manner, under the conditions, and at the times provided in Section 48 hereof.

(e) The Operator will furnish and install at its expense all necessary fixtures, stands, counters and equipment required in

connection with its operation and all construction work necessary to accommodate such installations.

(f) In the event the Port Authority is unable to secure a qualified tenant, permittee or licensee to provide the consumer services requested by the Lessee, in accordance with the terms and conditions set forth in this Section, the Lessee may make its own arrangements with a tenant, permittee or licensee of its own choice, subject to the Port Authority's approval of such tenant, permittee or licensee. Such approval may include limitations as to the scope of the activities of such tenant, permittee or licensee in the light of the availability of similar services in the Central Terminal Area.

(g) The Lessee understands and agrees that it may not itself nor will the Port Authority install or cause to be installed coin-operated lockers on the premises.

Section 64. Subletting of the Premises for Consumer Services

Irrespective of whether the Persons selected in accordance with this Agreement to furnish the Consumer Services set forth in Sections 56, 57, 58, 59, 60, 61, 62 and 63 hereof have contracts with or are contractors or permittees of the Port Authority, the Lessee may require that such Persons enter into separate agreements or subleases with the Lessee as a condition precedent to the occupancy of space within and the operation of such establishments upon the Lessee's premises, provided, however, that all such Persons must have first obtained a permit from the Port Authority authorizing them to operate such establishments. The terms and provisions of the said agreements or subleases shall not be inconsistent with the terms of this Agreement except that the same may provide for cancellation by the Lessee on short notice in the event the services furnished by such Persons are unsatisfactory to the Lessee.

Prior to the issuance of any of the aforementioned permits, such Persons may be required to submit to the Port Authority evidence satisfactory to the Port Authority of their qualifications, the scope of their proposed operations and the standards of service they will provide. Any such permits will provide that such Persons will conduct their operations thereunder in a first class manner in accordance with the best practices in the industry and shall comply with the maximum Port Authority standards with respect to service, health, sanitary and safety measures. Such Persons shall be required to pay to the Port Authority a fee but such fee shall not in any event exceed the fees or charges that would be retained by the Port Authority if their respective establishments were operated by regular Operators of the Port Authority.

Section 65. Obligations in Connection with Consumer Services Agreements

The Port Authority shall administer all contracts and agreements with its tenants, licensees or permittees furnishing consumer

services at the premises. All such contracts and agreements shall contain provisions, among others, providing that such tenant, licensee or permittee shall:

(a) Take all reasonable measures in every proper manner to maintain, develop and increase the business conducted by it at the premises;

(b) Not divert or cause or allow to be diverted any business from the premises;

(c) Maintain in accordance with accepted accounting practice, records and books of account recording all transactions at, through or in anywise connected with the premises, which records and books of account shall be kept at all times within the Port of New York District and permit, in ordinary business hours during such time, the examination and audit by the officers, employees and representatives of the Port Authority of such records and books of account;

(d) Permit in ordinary business hours the inspection by the officers, employees and representatives of the Port Authority or the Lessee of any equipment used by the tenant, licensee or permittee, including but not limited to cash registers and recording tapes;

(e) Furnish on or before the twentieth day of each month following the commencement date of the operation a sworn statement of gross receipts arising out of the operations of the tenant, licensee or permittee, for the preceding month;

(f) Install and use such cash registers, sales slips, invoicing machines and any other equipment or devices for recording orders taken or services rendered as may be appropriate to the business and necessary or desirable to keep accurate records of gross receipts;

(g) Furnish good, prompt and efficient service, adequate to meet all demands therefor at the premises; furnish said service on a fair, equal and nondiscriminatory basis to all users thereof; and charge fair, reasonable and nondiscriminatory prices for all items and/or services which it is permitted to sell and/or render; and

(h) Promptly observe, comply with and execute the provisions of any and all present and future governmental laws, rules, regulations, requirements, orders and directions which may pertain and apply to its operations or the use and occupancy of the premises.

The Port Authority does not guarantee the payments of rentals and fees required to be paid by the tenant, licensee, permittee or operator pursuant to the provisions of Sections 56, 57, 58, 59, 60, 61, 62 and 63 hereof and shall have no obligation to the

Lessee to make any payments to the Lessee until the fees or rentals are actually collected from the tenant, licensee, permittee or operator. The Port Authority will advise the Lessee of all accounts remaining delinquent for more than sixty (60) days and will consult with the Lessee as to the appropriate steps to effect collection. A default by the Port Authority in observing the provisions of the preceding sentence shall not result in the imposition of any liability on the Port Authority with respect to the Lessee.

Section 66. Club Rooms

In the event the Lessee provides any rooms or space for the special handling of or the furnishing of special services to any of its passengers, guests or invitees it shall furnish such rooms or space at its expense and without cost to the Port Authority. The Lessee agrees that any food, alcoholic or non-alcoholic beverages and similar items sold or furnished to the Lessee's passengers, guests or invitees shall be obtained by the Lessee from the Operator who has been authorized to operate establishments for the sale of food, alcoholic and non-alcoholic beverages and similar items for consumption in passenger terminal facilities at the Airport. All monies paid or payable to the Operator for such sales shall be included in the gross receipts of the Operator. In the event the Lessee wishes to use its own personnel for serving food, alcoholic or non-alcoholic beverages and similar items it may do so; provided that the food, alcoholic and non-alcoholic beverages are obtained by the Lessee from the Operator and provided that monies paid therefor, in that event, shall not be included in the gross receipts of the Operator. If the Lessee uses its own personnel for serving food, alcoholic or non-alcoholic beverages and similar items, the Lessee will not be obligated to pay a fee to the Port Authority which would be greater than the fee that would be retained by the Port Authority if the food, alcoholic or non-alcoholic beverages and similar items were served by the Operator.

Section 67. Ground Transportation Services

(a) The Lessee shall make available within the premises at reasonable rental rates, such counter spaces and at such locations as may be determined by the Port Authority and the Lessee for use by limousine, bus, car rental, taxi and other ground transportation operators at the Airport, all of the foregoing being hereinafter called "the ground transportation operators". The Lessee shall enter into an agreement only with a ground transportation operator designated or approved by the Port Authority, covering the occupancy of said counter space, which agreement may provide for the payment of a basic rental (but no other rental, charge or fee of any kind) to the Lessee for the counter space, provided that such basic rental shall represent a fair and reasonable rental for the counter space. The Port Authority shall have the right to, in its agreement with any ground transportation operator, impose obligations on the ground transportation operator with respect to its operations at the counter space, including but not limited to the dissemination of information applicable to said service, and may charge such fees payable to the Port Authority as it may determine.

(b) (1) In lieu of the provisions of paragraph (a) of this Section obligating the Lessee to make available counter spaces and wall telephone installations with respect to limousine, bus and other ground transportation operators at the Airport (but not including car rental operators as to which the provisions of paragraph (a) shall be and continue in full force and effect) the Lessee shall provide to the Port Authority or its contractor, without charge, such counter space at such location as may be specified by the Port Authority within the premises as may reasonably be required for use as a consolidated ground transportation reservation and information counter (hereinafter called "the Consolidated Counter") to be operated by the Port Authority or its contractors.

(2) The Lessee agrees to provide access to and from the public ways outside the premises to the Port Authority, its employees and its contractors and the ground transportation patrons and other users of the Consolidated Counter; to permit use of such portions of the public pedestrian circulation areas of the premises as may reasonably be required for the operation of the counter and the accommodation of the users thereof; and to permit the installation of such telephone and other communication lines, cables and conduits on and across the premises as may be required for the operation of the Consolidated Counter. The Lessee acknowledges and agrees that the Consolidated Counter shall at all times be a part of the premises under the Lease and subject to all the terms and provisions thereof including, but not limited to indemnity, the payment of rentals, repair and maintenance. The Lessee shall, at its sole cost and expense, supply all utilities necessary for the operation of the Consolidated Counter including but not limited to heat, light, ventilation, air conditioning and electricity on a 24 hour 7 day a week basis. The Lessee shall not be required to provide telephone service to the Consolidated Counter hereunder.

(3) The Port Authority shall have the right at any time, without cause, on 180 days notice to the Lessee to terminate and discontinue the operation of the Consolidated Counter and from and after the effective date stated in said notice the operation of the Consolidated Counter shall terminate and cease and the provisions of this paragraph (b) shall be null, void and of no further force and effect and the provisions of paragraph (a) of the Lease and the Lessee's obligations as set forth therein with respect to limousine, bus, car rental and other ground transportation operators shall be deemed reinstated and in full force and effect.

Section 68. Observation Deck

In the event the Lessee provides an Observation Deck in connection with the Lessee's operations under the Lease and such Deck is open to the public generally the Lessee shall charge a fee for admission upon such Observation Deck. Such fee shall be

established by the Port Authority which shall be uniform throughout the Airport. The Lessee shall pay to the Port Authority a percentage fee equal to 30% of the gross receipts received by the Lessee from the operation of the Observation Deck.

Section 69. Force Majeure

Neither the Port Authority nor the Lessee shall be deemed to be in violation of this Agreement if it is prevented from performing any of its obligations hereunder by reason of strikes, boycotts, labor disputes, embargoes, shortages of material, acts of God, acts of the public enemy, acts of superior governmental authority, weather conditions, tides, riots, rebellion, sabotage or any other circumstances for which it is not responsible and which are not within its control; provided, however, that this provision shall not apply to failures by the Lessee to pay the rentals specified in Section 3 and shall not apply to any other charges or money payments; and, provided, further, that this provision shall not prevent either party from exercising its right of termination under Sections 22, 25, 48, 75 and 77 hereof, and shall not prevent the Lessee from exercising its right to an abatement of rental under Sections 3 and 50 hereof.

Section 70. Federal Inspection

The Lessee has advised the Port Authority that it intends to make available to the United States a portion or portions of the premises for the inspection of the Lessee's passengers and their baggage by the United States for United States customs, immigration, public health and other governmental purposes, if the United States will accept and use the same. The Port Authority shall have no obligation or responsibility of any kind with respect to the foregoing or the arrangements that must be made by the Lessee with the United States and any agencies thereof having jurisdiction.

Section 71. Rotary Wing and Tilt-Rotor Operations

The Lessee hereby acknowledges that the Lease does not grant to it any right and the Lessee does not have any right to use or permit the use of any portion of the premises for the landing or taking off of helicopters, rotary wing, tilt-rotor or other similar aircraft. In the event that the Port Authority determines that approval for such use will be given at any time hereafter, the same shall be granted only in accordance with such terms and conditions, including but not limited to fees, charges and rights of user, as the Port Authority may set forth in a supplement to the Lease, which is duly executed by the Lessee and the Port Authority.

Section 72. Ground Transportation

(a) The Lessee may arrange for the transportation to and from the Airport of its employees and their baggage (and such employees and baggage only) either directly or by contract with a surface carrier or carriers (hereinafter called "the Employee

Surface Carrier or Carriers") of its choice, provided, that such Employee Surface Carrier or Carriers are at all times Ground Carrier Permittees of the Port Authority as defined in paragraph (b) hereof and provided, further, that ten percent (10%) or such lesser percentage as may be set pursuant to paragraph (e) hereof of the gross receipts received from the ground transportation of employees and their baggage by the Employee Surface Carrier providing such service, or by the Lessee, including all advertising and any other revenues of any type arising out of or in connection with said service (excluding only local, state and federal transportation taxes which are separately stated to and paid by the passengers and are directly payable to the taxing authority by the Lessee or by the Employee Surface Carrier) shall be paid to the Port Authority. No fee shall be paid by the Lessee to the Port Authority in connection with the ground transportation of employees and their baggage if the Lessee operates the service itself and if the Lessee makes no charge to its employees and their baggage therefor.

(b) As of the Commencement Date as defined in paragraph (c) hereof, the Port Authority shall endeavor to issue permits to at least 12 qualified surface carriers (herein called "the Ground Carrier Permittees") which Permits shall grant to said Ground Carrier Permittees the privilege of providing a service for the transportation to and from the Airport of employees and their baggage of all Aircraft Operators at the Airport. Each Permit shall provide that the Port Authority shall have the right at any time to revoke the Permit granted to any Ground Carrier Permittee with or without cause and regardless of whether any such Permittee is an Employee Surface Carrier of the Lessee and regardless of any agreement between the Lessee and its Employee Surface Carrier. Without limiting the foregoing right, if the Ground Carrier Permittee selected by the Lessee shall at any time fail to pay the Port Authority ten percent (10%) or such other percentage of its gross receipts as established pursuant to paragraph (e) hereof as required under the Permit, the Port Authority shall have the right in addition to all other rights and remedies, to deny such Permittee entrance upon the Airport for the purpose of transporting employees and their baggage as aforesaid to and from the Airport and the Lessee shall no longer use the same.

In the event that there should at any time during the term of this Lease be less than 12 Ground Carrier Permittees in operation at the Airport the Lessee shall have the right to engage an Employee Surface Carrier of its choice to provide the service set forth in paragraph (a) hereof, subject, however, to the prior and continuing approval of the Port Authority, and provided that such Employee Surface Carrier agrees to become a Permittee of the Port Authority and to pay a percentage of its gross receipts to the Port Authority in accordance with paragraphs (a) and (e) hereof and only for so long as such Permittee observes and complies with the terms of its Permit, it being understood that said Employee Surface Carrier may be restricted to serving the Lessee at the Airport. At such time thereafter as there is in operation at the Airport at least 12 Ground Carrier Permittees, the Permit with the said Employee Surface

Carrier may be revoked by the Port Authority and the Lessee shall thereupon select an Employee Surface Carrier from the Ground Carrier Permittees of the Port Authority. Nothing contained hereunder shall be deemed to preclude the Port Authority from issuing from time to time during the term of the Lease Permits to more than 12 Ground Carrier Permittees. The Permits with the Ground Carrier Permittees may contain privileges other than those set forth in the first subparagraph of this paragraph (b), including but not limited to the privilege to transport passengers and baggage of Aircraft Operators. All Permits shall contain such terms or provisions as the Port Authority may deem from time to time necessary or desirable.

(c) The Port Authority hereby states its intention to attempt to incorporate, into all existing leases and into all new leases with all Scheduled Aircraft Operators covering passenger terminal facilities within the Central Terminal Area, provisions having the same effect as the provisions of paragraphs (a) and (b) hereof. The term "Commencement Date" as used in this Section shall mean the date specified in a written notice from the Port Authority served upon the Lessee and upon all Scheduled Aircraft Operators who are lessees of passenger terminal facilities within the Central Terminal Area, it being understood that such notice shall not be served unless and until all said Scheduled Aircraft Operators have executed agreements with the Port Authority incorporating provisions having the same effect as the provisions of paragraphs (a) and (b) hereof into their leases with the Port Authority covering passenger terminal facilities within the Central Terminal Area. The provisions of this Section other than the foregoing provisions of this paragraph (c) shall be applicable as well to Aircraft Operators who may be occupying space within the Central Terminal Area pursuant to a sublease, subuse or handling agreement with any Unit Terminal Lessee or with any East or West Wing Building Lessee (the foregoing not to waive the requirement for Port Authority consent) as said lessees are defined in Section 74 of the Lease.

(d) For the period prior to the Commencement Date hereunder, the following provisions of this paragraph (d) shall be in effect in lieu of the provisions of paragraph (a) hereof:

The lessee may arrange for the transportation to and from the Airport of passengers, employees and baggage (and such passengers, employees and baggage only) either directly or by contract with a surface carrier or carriers (hereinafter called "Passenger Surface Carrier or Carriers") of its choice, subject, however, to the prior and continuing approval of the Port Authority and provided, that such Passenger Surface Carrier or Carriers agree to become Permittees of the Port Authority and provided, further, that ten percent (10%) or such lesser percentage as may be set pursuant to paragraph (e) hereof of the gross receipts received from the ground transportation of passengers, employees and baggage by the Passenger Surface Carrier providing such service or by the Lessee, including all advertising and any other revenues of any type arising out of or in connection with said service (excluding only

local, state and federal transportation taxes which are separately stated to and paid by and are directly payable to the taxing authority by the Lessee or by the Passenger Surface Carrier) shall be paid to the Port Authority. If the Passenger Surface Carrier designated by the Lessee shall at any time fail to pay to the Port Authority ten percent (10%) or such lesser percentage as may be set pursuant to paragraph (e) hereof of its gross receipts as aforesaid when billed therefor by the Port Authority, the Port Authority shall have the right to deny such carrier entrance upon the Airport for the purpose of transporting passengers, employees and baggage as aforesaid to and from the Airport and the Lessee shall no longer use the same. No fee shall be paid by the Lessee to the Port Authority in connection with the ground transportation of officers and employees of the Lessee if the Lessee operates the service itself and if the Lessee makes no charge to its employees and officers therefor. The occasional non-recurring employment by the Lessee of a surface carrier who is not a Permittee of the Port Authority shall not be deemed to be a breach of this Section by the Lessee; the foregoing, however, shall not affect the right of the Port Authority to the percentage fee with respect to such surface carrier.

For the period subsequent to the Commencement Date hereunder, the foregoing provisions of this paragraph (d) shall continue in effect with respect to passengers and their baggage only of the Lessee and wherever the phrase "passengers, employees and baggage" appears in the foregoing provisions it shall be deemed amended to read "passengers and their baggage".

(e) It is recognized that the Port Authority has established a five percent fee with respect to the service covered by paragraphs (a) and (d) hereof in lieu of the ten percent fee therein stated. It is hereby specifically understood and agreed that the fact that said fee is presently five percent shall not constitute a waiver by the Port Authority of its right to impose a percentage fee of ten percent as provided in paragraphs (a) and (d). It is hereby specifically agreed that the Port Authority shall have the right at any time and from time to time during the term of this Lease to revise the percentage fee it shall charge the Ground Carrier Permittees, other permittees and the Lessee as provided in paragraphs (a) and (d) hereof but in no event shall said fee be greater than ten percent. The Port Authority shall notify the Lessee of any such revision.

(f) The Lessee may arrange for the transportation to and from the Airport of freight and other cargo of the Lessee either directly or by contract with the surface carrier or carriers of its choice. No Permit or fee shall be required of the Lessee or its contractor for the picking up from or the delivery to of freight or other cargo from or to the Lessee. No fee shall be paid to the Port Authority by the Lessee or its contractor for the privilege of transporting freight or cargo of the Lessee on the surface as aforesaid. If such contractor of the Lessee enters into a Lease or other agreement with the Port Authority for space and/or privileges at the Airport, the rent or other compensation payable to the Port

Authority shall not be measured by the amount of freight or other cargo of the Lessee transported on the surface by such contractor.

(g) The right of the Lessee to arrange transportation to and from the Airport of its airline passengers as hereinabove provided shall not be construed as being applicable to any establishment or operation by the Lessee of facilities outside the Airport for the handling of airline passengers of the Lessee arriving at or departing from the Airport.

As used in this Section 72, reference to passengers, baggage, freight or other cargo of the Lessee shall be construed to mean persons, baggage, freight or cargo transported or to be transported on aircraft of the Lessee.

The Ground Carrier Permittee of the Lessee's choice, its Passengers Surface Carrier or any other contractor used by it shall not solicit business on the public areas of the Airport and the Lessee shall prohibit any such activity on the premises or on any other area at the Airport occupied by the Lessee. The use, at any time, either on the premises or elsewhere on the Airport of hand or standard megaphones, loudspeakers or any electric, electronic or other amplifying devices is hereby expressly prohibited and any advertising or signs shall be subject to continuing Port Authority approval.

(h) Effective as of January 1, 1972, the provisions of this Section 72 superseded the provisions of Section 4.11 of Title IV of the General Airport Agreement, as defined elsewhere in this Agreement and from and after said date said provisions of said Section 4.11 of Title IV were no longer of any force or effect.

Section 73. The Original Premises Use Agreements

It is recognized that the Lessee has entered into various agreements with subtenants, licensees and other persons covering the occupancy of the space or providing for the furnishing of services in the premises pursuant to the provisions of the Prior Lease and that the Port Authority has approved or consented to the same, all of the foregoing as to which Port Authority approval or consent has been given, being hereinafter called "the Lessee's use agreements". The Port Authority has no objection to the continuance in effect under the Lease of all of the Lessee's use agreements.

The parties agree that appropriate documents will be prepared and executed, if the same are deemed by the Port Authority to be necessary or desirable, recognizing the continuance under this Lease of the Lessee's use agreements, subject to the existing terms of such agreements and the Port Authority's consent to or approval thereof including but not limited to termination and revocation rights as provided therein.

Without limiting the generality of the foregoing, it is recognized specifically that the Lessee has undertaken certain

obligations pursuant to Section 24 hereof to sublease portions of the premises to United Air Lines, Inc. under this Lease and that in addition United Air Lines, Inc. was a sublessee under the Prior Lease. The Port Authority hereby consents to the continuance under this Agreement of the United Air Lines, Inc. sublease as the same has been consented to by the Port Authority, and the Port Authority Consent Agreement entered into among the Port Authority, the Lessee and United Air Lines, Inc. as of even date herewith covering said sublease without the execution of other or further documents or agreements subject, however, to all of the terms and conditions of said Consent Agreement.

Section 74. Ground Transportation Within the Central Terminal Area

(a) The Port Authority has established at the Airport a Central Terminal Area generally as described in Exhibit S, attached hereto and hereby made a part hereof. If at any time and from time to time during the term of the Lease, the Port Authority substantially revises the Central Terminal Area, it shall thereafter forward to the Lessee a revised Exhibit showing the revised Central Terminal Area which revised Exhibit shall replace Exhibit S and shall become a part of the Lease.

(b) The Lessee hereby agrees that it will not directly, indirectly or by arrangement with any independent third party, operate any surface vehicles for the transportation of its passengers to or from the premises and the various other passenger terminal facilities or other locations within the Central Terminal Area. The prohibition hereinabove set forth in this paragraph (b) shall be effective as of the Commencement Date of the Lease and shall continue thereafter during the term of the Lease, but such prohibition shall be in effect only during such periods as there is in operation at the Airport a CTA ground transportation service as hereinafter defined to be provided by an independent third party contractor. The CTA ground transportation service shall consist of the following: a ground transportation service for the transportation of airline passengers and other persons between the various passenger terminal facilities, including the premises, within the Central Terminal Area including the service of transporting a group of passengers where the Aircraft Operator must accommodate the group as a whole (hereinafter called "the CTA omnibus service") and a ground transportation service for the transportation of passengers of Aircraft Operators within the Central Terminal Area, but only when a passenger is disabled, the passenger must take a direct connection and where time is critical, and in the very limited instance where an Aircraft Operator must accommodate a particular passenger, the foregoing service being hereinafter called "the CTA supplementary service". It is understood furthermore that, notwithstanding the prohibition hereinabove set forth in this paragraph (b), the Lessee may directly, indirectly or by arrangement with an independent third party, operate surface vehicles for the transportation of its passengers to or from the premises and such passenger terminal

facility of the Lessee, if any, located outside the Central Terminal Area, provided, that the Lessee has the prior and continuing approval of the Port Authority to operate such passenger terminal facility outside the Central Terminal Area, that the aforesaid service shall not serve any passenger terminal facility or location within the Central Terminal Area other than the premises and that if the Lessee utilizes a third party to provide the service, said third party shall be subject to the prior and continuing approval of the Port Authority, shall agree to become a permittee of the Port Authority and shall pay the percentage of its gross receipts to the Port Authority with respect to said service as specified in said permit and shall comply with all the terms and conditions of its permit.

Nothing contained in this paragraph (b) or paragraph (c) hereof shall impose or be construed as imposing an obligation on the Port Authority to operate or cause to be operated the CTA ground transportation service for the transportation of passengers and other persons between the various passenger terminal facilities, including the premises, within the Central Terminal Area.

(c) (1) (i) It is hereby agreed that it is in the best interests of the Port Authority and all Participants as hereinafter defined that the CTA omnibus service be a good, proper and efficient service, able to adequately, timely and properly handle the ground transportation needs of airline passengers and other persons between the various passenger terminal facilities including the premises within the Central Terminal Area. The parties recognize furthermore that the CTA supplementary service should be a service that would transport those persons authorized to be carried thereon in an adequate, proper and timely manner so as to meet their flight connections.

(ii) The Port Authority agrees that it shall meet and consult from time to time with the Participants with respect to the procedures, schedules, fares, prices and operations of the CTA omnibus service and shall, except in case of emergency, give the Participants prior written notice of any substantive changes with respect thereto. Notwithstanding the foregoing, it is hereby understood and agreed that the procedures, schedules, fares, prices, operations and other matters affecting the CTA omnibus service shall be determined by the Port Authority.

(iii) The Port Authority agrees that it shall meet and consult from time to time with the Participants with respect to the procedures, schedules, fares, prices and operations of the CTA supplementary service. Before adopting any initial procedures or schedules covering the operation of the CTA supplementary service and before putting into effect any modifications to any procedures or schedules then in effect with respect to the CTA supplementary service, except in case of emergency, the Port Authority shall submit the initial or the changed procedures and schedules (hereinafter called the "submissions") to the Participants for their approval. If

Participants representing more than fifty percent (50%) of the effective published passenger flight schedules to and from the Airport of all Participants for the calendar year prior to the year in which the submissions are made to the Participants for their approval, approve the same, the submissions shall be deemed to be approved for all purposes hereunder and said approval shall be deemed binding as well upon all other Aircraft Operators who may use or pay for the CTA supplementary service, notwithstanding the fact that said submissions had not been submitted to them for their approval. Notwithstanding anything herein provided and without limiting the provisions of paragraph (b) hereof, it is hereby understood and agreed that the Port Authority shall have no obligation hereunder to itself operate the CTA ground transportation service nor any obligation to operate said service through an independent contractor unless and until the submissions with respect to the CTA supplementary service submitted as aforesaid to the Participants have been approved by the Participants in accordance with the foregoing provisions. The failure of any Participant to disapprove the submission within twenty (20) days after its submission to it for approval shall constitute such Participant's approval hereunder to said submissions.

(iv) It is hereby understood and agreed that the amount to be charged for the CTA supplementary service shall consist of an initial price and, if the Port Authority so elects from time to time during the term of the Lease, an excess price. The initial price shall be based upon the cost of the CTA supplementary service. The Lessee shall pay to the Port Authority as and representing the initial price its pro rata share of the cost to the Port Authority of providing the CTA supplementary service. The Lessee's pro rata share of the cost to the Port Authority of providing the CTA supplementary service shall be that proportion of said cost as the number of passengers of the Lessee who actually used the CTA supplementary service bears to the total number of passengers using the CTA supplementary service. Except as provided in the last subparagraph of subparagraph (v) hereof, there will be no charge to the Lessee of either an initial price or an excess price if the Lessee does not have any passengers using the CTA supplementary service.

(v) The initial price payable to the Port Authority pursuant to subparagraph (iv) hereof is for each calendar year, but in the event the Commencement Date as defined in paragraph (d) hereof falls on a day other than the first day of a calendar year or in the event the term of the Lease expires or the provisions covering the CTA transportation services are terminated on a day other than the last day of a calendar year, then in any such event the initial price payable to the Port Authority pursuant to subparagraph (iv) hereof shall, for the year during which such event occurs, be for such portion of said year during which the Port Authority provides the CTA supplementary service. In determining the initial price, the cost of the CTA supplementary service shall be computed, determined and ascertained for each calendar year (or portion thereof upon the occurrence of any of the events mentioned

in the first sentence hereof) of the term of this Lease subsequent to the aforesaid Commencement Date.

Notwithstanding the foregoing and for current monthly or other periodical billing purposes as may from time to time be selected by the Port Authority, the Port Authority shall establish interim billing rates to cover the initial price for the CTA supplementary service. Such billing rates shall be based on determinations by the Port Authority of its estimate of the cost of the CTA supplementary service for the calendar year and the number of passengers to be using the CTA supplementary service for said calendar year. Such determinations shall be based upon the prior calendar year's experience, if any, and upon such other reasonable basis as the Port Authority may determine. The Port Authority may prospectively revise its billing rates during any calendar year. On the 20th day of each calendar month following the month upon which the Commencement Date hereunder falls and on the 20th day of each and every calendar month thereafter the Lessee shall pay to the Port Authority the amount due as the initial price for the preceding calendar month, which shall be determined by multiplying the interim billing rate per passenger for the initial price established by the Port Authority as aforesaid by the number of Lessee's passengers carried on the CTA supplementary service for the previous calendar month.

As soon as practicable after the expiration of each calendar year, the Port Authority shall determine the cost of the CTA supplementary service and the initial price payable therefore. Corrected billings based upon such determination shall thereupon be rendered by the Port Authority and if any monies are due to the Port Authority they shall be promptly paid by the Lessee and if any monies are due to the Lessee they shall be promptly credited to it.

In the event and only in the event that the CTA supplementary service for all or any portion of a calendar year has been provided by the Port Authority but there has been no use thereof by any of the Participants, then the initial price and the excess price shall be payable by all Participants and each Participant's share shall be based on the number of passengers on its outbound and inbound aircraft at the Airport compared to the total number of passengers on all inbound and outbound aircraft using the Airport of all Participants. The Port Authority agrees that, if as of the commencement of any calendar year there appears to be no use by the Participants of the CTA supplementary service, it will use all reasonable efforts to limit its payments to the contractor for the CTA supplementary service for such period where there appears to be no use.

(vi) The Port Authority shall have full discretion in awarding a contract for the CTA ground transportation service and may award the same to a contractor who has not proposed the lowest price for the CTA supplementary service or the CTA omnibus service. As stated in subparagraph (iv) hereof the Port

Authority shall have the right to charge the Lessee, in addition to the initial price for the CTA supplementary service, an additional amount herein called "the excess price", which amount shall be applied to offset any deficit in the CTA omnibus service.

The amount representing the excess price shall be an amount payable only by the Lessee if it uses the CTA supplementary service and shall be an amount fixed for each passenger using the CTA supplementary service. The Port Authority shall advise the Participants prior to the beginning of each calendar year of the amount per passenger which shall constitute the excess price for said calendar year. On the 20th day of the calendar month following the month upon which the Commencement Date hereunder falls and on the 20th day of each and every calendar month thereafter the Lessee shall pay to the Port Authority the amount due as the excess price for the preceding calendar month, which shall be determined by multiplying the amount per passenger for the excess price established by the Port Authority as aforesaid by the number of Lessee's passengers carried on the CTA supplementary service for the previous calendar month. As soon as practicable after the expiration of each calendar year, the Port Authority shall determine the cost of the CTA omnibus service for said calendar year. If there is no deficit or if the deficit is less than the amount received by the Port Authority from users of the CTA omnibus service, then the total amount of the excess price if there is no deficit or the amount of the excess price which is over and above any deficit on the CTA omnibus service shall be refunded or credited to the Participants based on the portion of each Participant's payments of the excess price for said calendar year as compared to the total amount received as the excess price from all Participants. In determining whether or not there is a deficit or in determining the amount of the deficit, revenues from the CTA omnibus service shall be deemed to be 87.5% of the cost of the CTA omnibus service whether or not the revenues actually received add up to 87.5%, but if said revenues exceed 87.5% of the cost, the actual amount of revenues received shall be used.

(vii) The Port Authority shall determine for each calendar year (or portion thereof, where applicable) the cost to the Port Authority of providing the CTA omnibus service and the cost to the Port Authority of providing the CTA supplementary service. Each such cost shall be determined in accordance with the Port Authority's normal accounting practice and shall consist of those of the following items, which are applicable to each such service:

(a) All payments made by the Port Authority to the independent contractor for providing the CTA supplementary service or the CTA omnibus service, as the case may be (it being understood that the Port Authority shall not impose any percentage charge or fee on the contractor for such services);

(b) On-the-job payroll costs of Port Authority employees working in any aspect of the CTA supplementary service or the CTA omnibus service, as the case may be, including but not limited to contributions to any retirement system or the cost of participation in any pension plans or the like, social security, old age, survivors, disability and employment insurance and other insurance costs, sick leave pay, holiday, vacation, authorized absence and severance pay, other employee fringe benefits and any other payments made or costs incurred whether pursuant to law or by Port Authority policy to or with respect to said employees;

(c) The cost (including rental charges) to the Port Authority of providing space, equipment, materials, facilities or services to or in connection with the CTA omnibus service or the CTA supplementary service, as the case may be;

(d) Payments or premiums (or to the extent of self-insurance an amount equivalent to what the premiums would have been) for insurance with respect to the CTA omnibus service or the CTA supplementary service, as the case may be, including without limitation thereto, fire and extended coverage, workmen's compensation and comprehensive general liability;

(e) Other direct costs as charged under the Port Authority's normal accounting practice;

(f) With respect to the CTA omnibus service, ten percent (10%) of the amounts paid to the contractor providing said service under item (a) hereof and with respect to the CTA supplementary service, twenty percent (20%) of the amount paid to the contractor providing said service under item (a) hereof.

In the event that any specific cost incurred or any specific amount expended for any of the items hereinabove set forth covers both the CTA omnibus service and the CTA supplementary service, then the Port Authority shall divide and allocate any such cost or amount as between the CTA omnibus service and the CTA supplementary service in accordance with its normal accounting principles.

(2) If at any time during the term of the Lease the Port Authority receives a written notice from the East and West Wing Building Lessees (as hereinafter defined) representing more than thirty percent (30%) of the effective published passenger flight schedules to and from the Airport of all the East and West Wing Building Lessees for the calendar year prior to the year during which the notice was given, or if the Port Authority receives a written notice from Unit Terminal Lessees (as hereinafter defined) representing more than thirty percent (30%) of the effective published passenger flight schedules to and from the Airport of all Unit Terminal Lessees for the calendar year prior to the year during

which the notice is given, which notice shall be either (i) to the effect that the service being provided by the contractor furnishing the CTA ground transportation service does not satisfy the standards set forth in item (i) of subparagraph (1) hereof and specifying whether it is the CTA omnibus service or the CTA supplementary service, or both, which is at fault, and further specifying the nature and extent of the failure or (ii) to the effect that the Participants serving the notice are dissatisfied for any reason with the service, the Port Authority shall endeavor in the case of item (i) above to rectify the conditions complained of either by the existing contractor doing so or by engaging a new contractor to provide the CTA ground transportation service or by a combination of both.

(3) If the Port Authority receives, by a date no earlier than one hundred twenty (120) days and no later than one hundred eighty (180) days after its receipt of either notice covered by subparagraph (2) hereof, a written notice from the East and West Wing Building Lessees representing more than fifty percent (50%) of the effective published passenger flight schedules to and from the Airport of all East and West Wing Building Lessees for the year prior to the year during which the notice is given or if the Port Authority receives a written notice during the period described above from Unit Terminal Lessees representing more than fifty percent (50%) of the effective published passenger flight schedules to and from the Airport of all the Unit Terminal Lessees for the year prior to the year during which the notice is given, which notice is to the effect that the Participants sending the notice continue to be dissatisfied with the CTA ground transportation service whether provided by the old contractor, or if said contractor has been replaced, by the new contractor, then the Port Authority agrees that, effective no later than sixty (60) days after its receipt of said notice (said date to be established by written notice to the Participants) the provisions of this Section covering the CTA ground transportation service shall be terminated and shall no longer be in effect and from and after said date the Lessee shall have the right directly or by arrangement with an independent third party to operate surface vehicles for the transportation of its passengers to and from the premises and the various other passenger terminal facilities or other locations within the Central Terminal Area, provided, however, that the same shall be used exclusively for the transportation of the Lessee's disabled passengers, passengers who must make a direct connection and where time is critical, in the very limited instances where the Lessee must accommodate particular passengers, and for the transportation of passengers travelling as a group where the Lessee must accommodate the group as a whole, it being understood that the foregoing limitation on the right of the Lessee shall be in effect only during such periods as there is in operation at the Airport a CTA omnibus service as defined in paragraph (b) hereof (the Port Authority having no obligation so to do), excluding the transportation of passengers travelling as a group, and <u>provided, however,</u> that if the Lessee utilizes a third party to provide said service, that said third party shall be subject to the prior and continuing approval of the Port Authority,

shall agree to become a permittee of the Port Authority and shall pay the percentage of its gross receipts to the Port Authority with respect to its service as specified in said permit and shall comply with all the terms and conditions of its permit.

(d) (1) The Port Authority hereby states its intention to attempt to incorporate into all new leases and into all existing leases which may not already include the same with all Scheduled Aircraft Operators covering passenger terminal facilities within the Central Terminal Area provisions having the same effect as the provisions of this Section.

For the purposes of this Section, the term "Unit Terminal Lessees" shall mean all Participants other than the East and West Wing Building Lessees. The term "East and West Wing Building Lessees" shall mean those foreign flag Scheduled Aircraft Operators who shall have entered into long term leases with the Port Authority covering space in the East or West Wing Buildings.

(2) All Aircraft Operators who may be occupying space within the Central Terminal Area pursuant to a sublease, subuse or handling agreement with any Unit Terminal Lessee or with any East or West Wing Building Lessee (the foregoing not to waive the requirement for Port Authority consent) shall be obligated to comply with all obligations of this Section which are applicable to the Participants, but said Aircraft Operators shall not be or be deemed to be Participants within the meaning of subparagraph (1) of this paragraph (d) or be or be deemed to be an East or West Wing Building Lessee or a Unit Terminal Lessee within the meaning of subparagraphs (2) and (3) of paragraph (c) hereof, but their activities, operations and payments hereunder shall be deemed to be those of the Participants whose space they are using.

(e) The agreement by the Lessee under paragraph (b) hereof as well as the agreement by the Lessee under paragraph (c)(3) hereof, in the event the provisions covering the CTA transportation service are terminated and are no longer in effect, are of the essence of this Section and the Lessee agrees that the Port Authority shall be entitled to a decree against the Lessee requiring the specific performance thereof in any court of equity having jurisdiction. The aforesaid remedy which may be available to the Port Authority hereunder in the event the Lessee breaches its agreement.

The Lessee understands and acknowledges that the provisions of this Section 74 have been in effect in the Central Terminal Area of the Airport under the Prior Lease. The Lessee and the Port Authority understand and agree that the foregoing provisions of this Section represent the agreement of the parties reached under the Prior Lease and each acknowledges that in actual operation the ground transportation services actually provided at the Airport pursuant thereto have, by mutual agreement and request of the parties, from time to time, not conformed in particular respects to the provisions hereof. Nothing contained herein, nor the execution of this Agreement, shall grant or be deemed to grant or

confer on either party a retroactive right or claim that any provisions hereof, or of the Prior Lease, has been breached, nor shall either party claim the inclusion of these provisions herein, nor the execution of this Agreement, has created or affirmed such right, nor shall any rights of the parties hereunder be deemed waived or limited thereby.

Section 75. Future Airport Transportation Facilities and Operations - Use of Portions of the Premises - Limitation of Lease Term Upon Failure of Future Agreement

(a) The Lessee understands that the Port Authority has announced a Capital Plan which includes certain work at the Airport, and that such work is, at the time of execution of this Lease, in planning and design and, upon the satisfactory conclusion of such planning and design the Port Authority expects to proceed to modify the air terminal highway system and the utility distribution systems at the Airport and to construct, maintain and operate at the Airport a new system or systems for the accommodation and transportation of persons, baggage and utilities all as generally described in the schedule attached hereto, hereby made a part hereof and marked "Schedule A" (such new systems and modifications including, but not limited to, those to the air terminal highway and utilities systems, ancillary related facilities and others as very generally described in Schedule A, being herein collectively referred to as the "New Systems"). The Lessee acknowledges and agrees that the New Systems will be a benefit and enhancement to the Airport and the Lessee's operations thereon.

(b) (1) The Lessee understands that one or more of the New Systems or portions thereof may be completed and put into operation in whole or in part prior to the execution by the parties of the New Systems Agreement covering the items referred to below in paragraph (c) hereof and may require the location on the premises of various installations including but not limited to a passenger embarkation and debarkation facility, a baggage reception and dispatch facility and new utility tie-ins and, in addition, may require the use of a portion or portions of the premises for and in connection with the construction, maintenance and operation of one or more of the New Systems or portions thereof. The Lessee agrees that it shall make available to the Port Authority upon demand such portion or portions of the premises for such purposes as may be required or be appropriate therefor and, where exclusively serving the premises, the same shall be without abatement of any rental or charges hereunder or any payments by the Port Authority to the Lessee therefor. The Lessee further understands that the efficient utilization of portions of the New Systems including, but not limited to, the Passenger Distribution System and Transportation Center (as set forth in Schedule A) at the Airport, may require or make it appropriate that, effective upon commencement of the use thereof by the Lessee or others, ingress to and egress from the roadways on the premises (including the terminal roadways as defined in Section 76 hereof) as provided for in Section 6 hereof, of

certain types of passenger carrying ground transportation vehicles and the pick-up and discharge of passengers and baggage therefrom shall be prohibited and, in such event, the Lessee shall comply with the Port Authority's directions with respect thereto.

(2) The Lessee agrees that, from time to time, upon the commencement of use of one or more of the New Systems, or portions thereof serving the premises, the Lessee upon the direction of the Port Authority shall accept and utilize the same, and shall accept and comply with the restrictions upon ingress to and egress from the premises and use of the premises for the loading and unloading of passengers and baggage from ground vehicles and such directions, procedures, rules and regulations as, in the opinion of the Port Authority, may be required for the efficient and proper utilization of the New Systems or portions thereof. The Lessee understands that the Port Authority may require, from time to time, that the Lessee enter into an interim agreement covering various aspects of the use of the New Systems or portions thereof, including charges therefor, which charges will include the Lessee's proportional share of the cost of the study, planning, design, construction, maintenance and operation thereof not otherwise included in fees and charges at the Airport, before permission to use the same may be given to the Lessee.

(c) (1) The Lessee understands that the Port Authority considers the construction, operation and maintenance of the New Systems of the utmost importance to the efficient operation of the Airport and to the fulfillment of the Port Authority's governmental function to provide, maintain and develop the Airport; that the efficient use and operation of the New Systems will require that the Lessee's passenger terminal facilities under this Lease utilize and participate in the operation of one or more of the New Systems or portions thereof; and that the Port Authority does not by this Lease intend to enter into an agreement, understanding or commitment which will interfere with, limit, restrict, hinder or prevent in any way the development, construction or maintenance or the efficient use or operation of any of the New Systems or any portion thereof including, but not limited to, the payment of appropriate charges by the Lessee and others therefore, which charges will include the Lessee's proportional share of the cost of the study, planning, design, construction, maintenance and operation thereof not otherwise included in fees and charges at the Airport, and the Lessee agrees that this Lease shall in no event or manner be construed or used for such purposes.

(2) The Lessee also understands and acknowledges that the cost of all or portions of the planning and design, and the contemplated construction, maintenance and operation of the New Systems is includable in and will be included in the calculation of the flight fee and other fees and charges under existing agreements and policies at the Airport, and that as to any of such costs not so includable, the Port Authority has under study and consideration the method to be employed to establish charges based thereon which would include recovery of said costs. Without in any way limiting the

provisions of existing agreements and policies at the Airport which may pertain and apply to the New Systems or portions thereof and payment therefor, the Lessee understands that it may be requested by the Port Authority to execute and deliver to the Port Authority an agreement or agreements (which may be in the form of an agreement supplementary to this Lease, a separate agreement, or an agreement supplementary to another agreement between the Port Authority and the Lessee, or a combination of the foregoing) in the form to be prepared by the Port Authority (said agreement or agreements being collectively referred to in this Section 75 as "the New Systems Agreement") setting forth the agreement of the Lessee and the Port Authority and containing terms and provisions providing for the payment to the Port Authority of charges for the New Systems including the Lessee's proportionate share of the cost of the study, planning, design, construction, maintenance and operation thereof not otherwise included in fees and charges at the Airport and the changes and modifications to the provisions of the Lease set forth below in this subparagraph (2) as well as other terms and provisions deemed necessary or desirable by the Port Authority in connection with the New Systems.

The parties hereby acknowledge that it has been proposed by the Port Authority and accepted in principle by the Lessee that the formula to determine the fees and charges for the use of the New Systems would generally be based upon the creation of an account (hereinafter called "the Airline Direct Account") to accumulate capital and operating costs for the New Systems not otherwise included in fees and charges at the Airport, and the establishment of fees and charges applicable to all passenger aircraft operators at the Airport which would include distribution of the Airline Direct Account (including, but not limited to, capital recovery component consistent with existing lease formuli at the Airport) pro-rata, on the basis of passenger aircraft maximum weight for take-off. The Lessee understands and agrees that the foregoing formula represents an attempt, at the time of execution of this Lease, to achieve an appropriate distribution of the costs of the study, planning, design, construction, maintenance and operation of the New Systems among all passenger airlines at the Airport and that such proposal does not represent the final determination of the matter covered, as to either party. The Port Authority has also advised the Lessee that it is the intention of the Port Authority that all such airlines at the Airport will be treated in a similar manner including the treatment of the cost, if any, of each in accommodating its airport terminal facility to the New Systems.

Without limiting any other provisions of this Section 75 the Lessee understands and agrees that changes and modifications to certain provisions of this Lease including, but not limited to, Section 6 (Ingress and Egress), Section 74 (Ground Transportation Within The Central Terminal Area) and Section 76 (Terminal Roadways) may be required or appropriate to conform the provisions of these Sections to the operation of any of the New Systems or portions thereof. The Lessee and the Port Authority agree that each will consult and discuss with the other and provide information to the

other, from time to time, with respect to the study, planning, design, construction, maintenance and operation of the New Systems and after submission of the New Systems Agreement or any portion thereof to the Lessee the Port Authority will meet with the Lessee and discuss the same with the Lessee.

(d) (1) In the event that the Lessee shall not have entered into and fully executed the New Systems Agreement referred to above in paragraph (c) of this Section 75 and delivered the same to the Port Authority on or before the first anniversary of the date of delivery to the Lessee by the Port Authority of execution copies of the New Systems Agreement which the Port Authority shall notify the Lessee at the time of delivery thereof is the "Final Execution Copy of the New Systems Agreement pursuant to Section 75 of Lease AYB-876" then, in such event, and without regard to the cause of the failure or delay of the Lessee to properly execute and deliver to the Port Authority such New Systems Agreement (including all parts thereof), ten (10) days following such applicable anniversary date this Lease and the term of the letting hereunder shall terminate, and the Lessee shall thereafter be a hold-over tenant, on a month-to-month periodical basis, of the Port Authority. Without limiting the foregoing, in the event the date of termination under this paragraph (d) (1) shall occur prior to the commencement date of the term of the letting, then subject to all limitations and conditions contained in this Agreement, the term of the letting hereunder shall commence on January 1, 1995 as a hold-over tenancy on a month-to-month basis, unless sooner terminated. Without limiting the foregoing the Lessee agrees that it shall never contest in any forum the effectiveness and validity of the Final Execution Copy of the New Systems Agreement, as aforesaid, or the delivery thereof to the Lessee including, but not limited to, a challenge or contest on the basis, or alleged basis, that the Final Execution Copy of the New Systems Agreement tendered to the Lessee by the Port Authority does not represent the Port Authority's final or last offer on the matter to the Lessee or to other airlines at the Airport. Termination of the Lease and the term of the letting hereunder shall be and operate as a conditional limitation. In the event any court of competent jurisdiction shall not give full and complete effect to this termination provision and its operation as a conditional limitation, the Lessee and the Port Authority agree, as a condition of this Lease, and not merely as a covenant, that this Lease and the stated term of the letting hereunder shall nonetheless, from and after the effective date of termination provided above, expire.

(2) In the event that the Port Authority shall exercise its right of termination of the month to month periodical tenancy as described in paragraph (d) (1) above then the Port Authority shall pay to the Lessee within 90 days after the Lessee shall have vacated the premises and delivered possession thereof to the Port Authority in the condition required by the Lease upon expiration of the term of the letting hereunder the Lessee's Unamortized Capital Investment (as said term is defined in Section 81 of the Lease) in the premises, if any, calculated as of the date of delivery of possession of the premises to the Port Authority, as aforesaid.

(e) The Lessee understands that the foregoing principles and provisions of this Section 75 are of the essence of this Lease with the Lessee and that the Port Authority is entering into this Lease on the basis that should the Lessee and the Port Authority fail to reach agreement on the New Systems Agreement, including, but not limited to, payment by the Lessee of charges therefore, including its proportional share of the cost of the study, planning and design, and contemplated construction, maintenance and operation thereof not otherwise included in fees and charges at the Airport, the Port Authority may take such action as it deems necessary or desirable including but not limited to the termination of this Lease under the provisions of this Section 75. The Lessee has considered the position of the Port Authority with respect to the New Systems, understands the great importance the Port Authority attaches to the New Systems and the Lessee has determined that it is in the Lessee's best interest at this time to proceed with this Lease and to proceed with construction work under the Prior Lease even though it may never enjoy the entire term of the letting as provided in Section 2 thereof.

Section 76. Terminal Roadways

(a) The Lessee hereby grants to the Port Authority the right and option, exercisable on thirty (30) days' notice to the Lessee, with respect to the areas shown in diagonal hatching and the areas shown in cross hatching on the sketch attached hereto, hereby made a part hereof and marked "Exhibit D" (which areas are hereinafter sometimes collectively called "the terminal roadways"), to make the terminal roadways available to the general public for general or limited highway use, the Lessee being aware that in the event the Port Authority shall exercise its right hereunder the terminal roadways will be designated by the Port Authority as part of the Air Terminal Highway System at the Airport.

(b) The Port Authority may assign one or more Port Authority law enforcement officers seven (7) days per week to be stationed at positions at the terminal roadways to perform all activities, actions and services which said law enforcement officers may perform on air terminal highways as authorized under the Laws of the State of New York, which shall include but not be limited to enforcement of the Port Authority's Rules and Regulations governing traffic on air terminal highways, enforcement of the law against illegal solicitation and overcharging of the public and responding to emergencies. It is hereby specifically agreed that the Port Authority shall have sole and complete control over all aspects of the foregoing, including but not limited to, the assignment of law enforcement officers and the manner in which the said activities are performed.

(c) Either prior to or subsequent to the exercise by the Port Authority of the right set forth in paragraph (a) hereof the Port Authority shall have the right to terminate this Section and the rights and obligations hereunder with or without cause upon

sixty (60) days' prior written notice to the Lessee. Upon the termination of this Section, the Port Authority shall delete the terminal roadways from being a part of the Air Terminal Highway System at the Airport, if they shall have been made a part thereof and thereafter said terminal roadways shall no longer be a part of the Air Terminal Highway System at the Airport, but all other provisions of the Lease shall be and remain in full force and effect.

(d) Notwithstanding any other term or provision of the Lease, in the event the Port Authority shall have exercised its right under paragraph (a) hereof the Port Authority may from time to time and at any time upon written notice to the Lessee determine how specified portions of the terminal roadways may be used. It is hereby specifically understood that nothing contained in this Section shall relieve the Lessee from its liabilities, obligations, indemnities and responsibilities under the Lease nor limit, in any way, its obligations to operate and maintain the terminal roadways, which roadways shall continue to be a part of the premises under the Lease, including but not limited to, its obligations of cleaning, snow and ice removal and to exercise control over its patrons, employees and invitees using the premises.

(e) Notwithstanding the generality of any other term or provision of the Lease it is hereby specifically understood and agreed that nothing contained in this Section does or shall constitute either party the agent or representative of the other for any purpose whatsoever.

(f) The Lessee hereby expressly represents and agrees that no statements, representations, promises or assurances have been given to the Lessee by the Port Authority or any representatives thereof nor shall the Lessee rely on any the Lessee may allege to have been given with respect to the subject matter of this Section, nor is the Port Authority making any representation, promise or assurance hereunder including, but not limited to, any that any assignment of law enforcement officers hereunder will succeed in any way to alleviate or control any problem associated with traffic or other activities or operations at the Unit Terminal or elsewhere at the Airport.

Section 77. Lessee's Financial Condition - Limitation of Lease Term - Triggering Events

I. If any one or more of the Triggering Events listed in Exhibit X, annexed hereto and hereby made a part hereof, shall occur, then, ten (10) days following the occurrence of any such Triggering Event, the term of this Agreement and the letting hereunder shall be deemed terminated, and the Lessee shall thereafter be a hold-over tenant, on a month-to-month periodical basis, of the Port Authority. Termination hereunder shall be and operate as a conditional limitation. In the event any court of competent jurisdiction shall not give full and complete effect to this termination provision and its operation as a conditional

limitation, the Lessee and the Port Authority agree, as a condition of this Agreement, and not merely as a covenant, that this Agreement and the stated term of the letting hereunder shall nonetheless, from and after the effective date of termination provided above, be deemed to have expired.

II. (a) The Lessee agrees that:

(1) There shall be a semi-annual meeting (from time to time such meeting may be held at a greater time interval at the sole discretion of the Port Authority) between representatives of the Port Authority and the Chief Financial Officer of the Lessee or, at the election of the Lessee, a senior financial officer of the Lessee (but in any event no less senior than the chief financial officer of the Lessee located in the United States) to review the financial performance of the Lessee including, but not limited to, the information supplied in accordance with paragraph (2) below.

(2) The Lessee shall deliver to the Port Authority, as soon as available, but not later than ninety (90) days after the close of each fiscal quarter (except as to Securities and Exchange Commission Form 20-F which shall be delivered not later than 180 days after the close of the latest period covered therein) copies of all material and information provided or made available to shareholders and/or all creditors of the Lessee or the Lessee's parent or subsidiaries (but not including information made available solely to the Lessee), including but not limited to the following:

(i) Financial data including monthly operating statements, changes in bank credit lines and debt obligations, cash flow projections compared with required debt service payments and United States Securities and Exchange Commission filings (including without limitation 6K and 20-F filings) and shareholder reports.

(ii) Traffic data including passengers, aircraft movements, available seat miles and revenue passenger miles.

(iii) Performance indicators including load factors, break-even load factors, yield per revenue passenger mile and cost per available seat mile.

(b) The Lessee shall submit to the Port Authority a statement at any time during the term of the letting signed by the Treasurer of the Lessee notifying the Port Authority that a Triggering Event or Triggering Events listed in Exhibit X has or have occurred as of the date of such notice and the date of the occurrence thereof, provided, however, that failure to give any such notice shall not affect the occurrence of any Triggering Event or the consequences thereof hereunder.

III. If the Lessee has, by notice, advised the Port Authority that it reasonably believes that any of the Triggering Events which are listed in Exhibit X hereof and constitute events which would result in termination pursuant to this Section 77 either are anticipated to occur within forty-five (45) days of said notice, or

has or have already occurred, or if in fact any Triggering Event or Triggering Events has or have occurred, or the Port Authority believes that the same has or have occurred without receipt of any notice from the Lessee, as aforesaid, then:

(a) the Lessee may, at any time prior to the termination of the letting, by notice, request that the Port Authority waive the occurrence of one or more of the Triggering Events, and the effect thereof hereunder, for a period of time to be determined by the Port Authority and to be contained in a letter agreement to be prepared by the Port Authority and executed by the Port Authority, which shall be effective upon its execution by the Lessee; or

(b) the Port Authority may, at any time prior to the termination of the letting, in its sole discretion and without a prior request from the Lessee, waive the occurrence of one or more of the Triggering Events, and the effect thereof hereunder, for a period of time to be determined by the Port Authority and to be set forth in a notice from the Port Authority to the Lessee. Service of a notice hereunder shall not in and of itself imply or be deemed to imply that a Triggering Event has occurred.

The Port Authority shall have no obligation to take either of the above two actions in this Part III.

IV. Although it is hereby specifically acknowledged and agreed that the aforesaid month-to-month periodical tenancy, if any should occur hereunder, is terminable by either party in accordance with law and that the following provision shall have no effect whatsoever on the right of either party to so terminate, it is further understood that if 4 consecutive calendar quarters have elapsed after a Triggering Event has occurred during which time the Lessee is in occupancy of the premises as a month-to-month tenant, and during such period none of the Triggering Events listed in Exhibit X have occurred or continue to occur, the Lessee is not in default in the payment of rental or any other provision of its month-to-month tenancy and neither the Port Authority nor the Lessee has terminated the month-to-month tenancy by notice to the other, then upon request by either party to the other, the parties will enter into a Supplementary Agreement to be prepared by the Port Authority and to be promptly executed by the parties hereto which would provide for the re-establishment of a tenancy between the Port Authority and the Lessee on a fixed term basis in accordance with all of the terms and provisions of this Lease, and upon said execution the Lease, as the same may theretofore have been supplemented and amended, shall have the fixed term stated in Section 2 hereof.

Section 78. Requesting Airlines at the Airport

(a) If a Scheduled Aircraft Operator (hereinafter called a "Requesting Airline") advises the Lessee that it would like to be accommodated by the Lessee at the premises, the Lessee in furtherance of the public interest of having the premises fully and most effectively utilized shall use its best efforts to accommodate

the request of said Requesting Airline. If the Lessee fails to reach agreement with said Requesting Airline for its accommodation, the Lessee shall advise the Port Authority to such effect. Thereafter, the Port Authority shall make a determination as to whether the Lessee should accommodate the Requesting Airline as requested and if so, whether there are any limitations on the nature, extent, cost, duration and extent of such accommodation. Determinations of the Port Authority shall not be arbitrary or capricious. Such determinations of the Port Authority would take into consideration the then existing utilization of the premises and the necessity for the flights, schedules, flight times, operations, operating practices and aircraft equipment of the Requesting Airline to be compatible with those of the Lessee, as well as the need for labor harmony. The Lessee agrees to comply with such determinations of the Port Authority.

(b) Any arrangement between the Lessee and the Requesting Airline made in accordance with any of the foregoing provisions shall be submitted by the Lessee to the Port Authority for its consent, which will be in the form of a Consent Agreement prepared by the Port Authority and to be executed by the Lessee, the Requesting Airline and the Port Authority.

(c) The foregoing shall not be deemed to abrogate, change or affect any restrictions, limitations or prohibitions on assignment, subletting or use of the premises by others under this Lease and shall not in any manner affect, waive or change any of the provisions thereof.

Section 79. Security Deposit

Upon the execution of this Agreement by the Lessee and delivery thereof to the Port Authority, the Lessee shall deposit with the Port Authority (and shall keep deposited throughout the effective period under this Lease) either the sum of [redacted] in cash, or bonds of the United States of America, or of The Port Authority of New York and New Jersey, or of the States of New York or New Jersey having a market value of that amount, as security for the full, faithful and prompt performance of and compliance with, on the part of the Lessee, all of the provisions, terms and conditions of this Lease on its part to be fulfilled, kept, performed or observed. Bonds qualifying for deposit hereunder shall be in bearer form but if bonds of that issue were offered only in registered form, then the Lessee may deposit such bond or bonds in registered form, provided, however, that the Port Authority shall be under no obligation to accept such deposit of a bond in registered form unless such bond has been re-registered in the name of the Port Authority (the expense of such re-registration to be borne by the Lessee) in a manner satisfactory to the Port Authority. The Lessee may request the Port Authority to accept a registered bond in the Lessee's name and if acceptable to the Port Authority the Lessee shall deposit such bond together with a bond power (and such other instruments or other documents as the Port Authority may require) in form and substance satisfactory to the Port Authority. In the event

the deposit is returned to the Lessee, any expenses incurred by the Port Authority in re-registering a bond to the name of the Lessee shall be borne by the Lessee. In addition to any and all other remedies available to it, the Port Authority shall have the right, at its option, at any time and from time to time, with or without notice to use the said deposit or any part thereof in whole or partial satisfaction of any of its claims or demands against the Lessee. There shall be no obligation on the Port Authority to exercise such right and neither the existence of such right nor the holding of the deposit itself shall cure any default or breach of this Agreement on the part of the Lessee. In the event that the Port Authority shall at any time or times so use the deposit, or any part thereof, or if bonds shall have been deposited and the market value thereof shall have declined below the above-mentioned amount, the Lessee shall on demand of the Port Authority and within two (2) days thereafter, deposit with the Port Authority additional cash or bonds so as to maintain the deposit at all times to the full amount above stated, and such additional deposits shall be subject to all the conditions of this Section 79. After the expiration or earlier termination of the letting under this Agreement (or any extension thereof) and upon condition that the Lessee shall then be in no wise in default under any part of this Agreement, and upon written request therefor by the Lessee, the Port Authority will return the said deposit to the Lessee less the amount of any and all unpaid claims and demands (including estimated damages) of the Port Authority by reason of any default or breach by the Lessee of this Agreement or any part thereof. The Lessee agrees that it will not assign or encumber the said deposit and any such assignment or encumbrance shll be void as to the Port Authority. The Lessee may collect or receive annually any interest or income earned on bonds and interest paid on cash deposited in interest-bearing bank accounts less any part thereof or amount which the Port Authority is or may hereafter be entitled or authorized by law to retain or to charge in connection therewith, whether as or in lieu of an administrative expense or custodial charge, or otherwise, provided, however, that the Port Authority shall not be obligated by this provision to place or to keep cash deposited hereunder in interest-bearing bank accounts. Without limiting the foregoing provisions of this Section 79 with respect to any bonds deposited by the Lessee, the Port Authority shall have the right, in order to satisfy any of its claims or demands against the Lessee, to sell the same in whole or in part, at any time and from time to time, with or without prior notice, at public or private sale, all as determined by the Port Authority together with the right to purchase the same at such sale free of any claims, equities or rights of redemption of the Lessee. The Lessee hereby waives any right to participate therein or any right to prior notice or demand of the amount or amounts of the Port Authority's claims or demands against the Lessee. The proceeds of any such sale shall be applied by the Port Authority first to the costs and expenses of the sale (including but not limited to any advertising or commission expenses) and then to the amounts due the Port Authority from the Lessee. Any balance remaining shall be retained in cash toward bringing the security deposit to the sum specified above provided that this shall not

relieve the Lessee from maintaining the deposit in the full amount stated above.

In satisfaction of the security depost required by this Section 79, the Lessee may, at its option, cause to be delivered to the Port Authority as security for the full, faithful and prompt performance of and compliance with, on the part of the Lessee, all of the provisions, terms and conditions of this Agreement of Lease on its part to be fulfilled, kept, performed or observed, a clean, irrevocable letter of credit issued to and in favor of the Port Authority, by a banking institution having its main office within the Port of New York District and acceptable to the Port Authority, payable in the Port of New York District, in the amount of $1,200,000 and in such form and content which shall have been approved in advance by the Port Authority, and which letter of credit (which may be periodically renewable) shall ultimately expire no later than a date six months after the expiration, termination or revocation of this Agreement. In addition to any and all other remedies available to it, the Port Authority shall have the right, at its option, at any time and from time to time, with or without notice to draw upon the said letter of credit or any part thereof in whole or partial satisfaction of any of its claims or demands against the Lessee. There shall be no obligation on the Port Authority to exercise such right and neither the existence of such right nor the holding of a letter of credit shall cure any default or breach of this Agreement on the part of the Lessee. If requested by the Port Authority, the said letter of credit shall be accompanied by a letter expressing the opinion of counsel for the banking institution that the issuance of the said clean, irrevocable letter of credit is an appropriate and valid exercise by the banking institution of the corporate power conferred upon it by law. If at any time and from time to time during the term of this Agreement, including any extension, a payment is made to the Port Authority under any letter of credit running in its favor as provided in this Section 79, the Lessee shall cause to be delivered to the Port Authority on demand from time to time and at any time made, cash or an additional clean, irrevocable letter of credit satisfactory to and issued in favor of the Port Authority by a banking institution satisfactory to the Port Authority, the form and content of which letter of credit shall have been approved by the Port Authority and which, if required by the Port Authority, shall be accompanied by an opinion of counsel as aforesaid and in such an amount so that at all times during the term of this Agreement, the Port Authority shall have clean, irrevocable letters of credit or cash adding up to a total amount of $1,200,000. If at any time any bank shall fail to make payment to the Port Authority in accordance with any letter of credit issued by any such bank in favor of the Port Authority as herein provided, the Lessee shall cause to be delivered to the Port Authority, on demand, cash or another clean, irrevocable letter of credit satisfactory to the Port Authority and issued by another banking institution in favor of the Port Authority and satisfactory to it, the form and content of which letter of credit shall have been approved by the Port Authority and which, if requested by the Port Authority, shall be accompanied by an opinion of counsel as

aforesaid, in an amount equal to the amount of the original letter of credit. Notwithstanding anything hereinabove provided, any failure of any banking institution issuing a letter of credit in favor of the Port Authority to make payments as provided in the said letter of credit shall, after failure of the Lessee to make such payment upon demand therefor by the Port Authority, be and be deemed a breach of this Agreement by the Lessee. No action by the Port Authority pursuant to the terms of any letter of credit, or receipt by the Port Authority of funds from any bank issuing any such letter of credit, shall be or be deemed to be a waiver of any default by the Lessee under the terms of this Agreement and all remedies of this Agreement and of the Port Authority consequent upon such default shall not be affected by the existence of a recourse to any such letter of credit. In the event more than one form of security shall be available to the Port Authority hereunder, use, in accordance with this Section 79, of either cash or other security deposited by the Lessee or a letter or letters of credit delivered to the Port Authority hereunder in lieu thereof shall be at the sole and complete discretion of the Port Authority.

Section 80. Itinerant Aircraft

(a) The Port Authority hereby grants to the Lessee the privilege of permitting the occasional use of the premises by air taxi, corporate and private aircraft (sometimes hereinafter called "the Itinerant Aircraft") for the sole purpose of discharging or picking up passengers, business guests and other invitees of the Lessee. All operations of such Itinerant Aircraft shall be in compliance with all the terms and provisions of the Lease and with the Rules and Regulations of the Port Authority. The Lessee shall be completely responsible for all acts and omissions of said Itinerant Aircraft as if said acts and omissions were the acts or omissions of the Lessee.

(b) The Port Authority shall have the right to cancel the privilege granted to the Lessee as set forth in paragraph (a) hereof in whole or in part or with respect to any particular Itinerant Aircraft at any time and from time to time and without cause upon thirty (30) days' written notice to the Lessee, and upon the effective date of such notice the Lessee shall no longer have the right to permit all or any specific Itinerant Aircraft as specified in the notice to use the premises as hereinabove provided, but the same shall not affect the Lease or any of the terms, rentals, fees, provisions or agreements hereof, all of which shall continue in full force and effect.

Section 81. Definitions

The following terms, when used in this Agreement, shall, unless the context shall require otherwise, have the respective meanings given below.

(a) "Airport" shall mean the land and premises in the City of New York, in the County of Queens and State of New York, which

are shown in green upon the Exhibit attached to the Basic Lease between The City of New York and the Port Authority referred to in subdivision (b) below, said Exhibit being marked "Map II, and lands contiguous thereto which may have been heretofore or may hereafter be acquired by the Port Authority to use for air terminal purposes.

(b) "Basic Lease" shall mean the agreement between The City of New York and the Port Authority dated April 17, 1947, as the same from time to time may have been or may be supplemented or amended. Said agreement dated April 17, 1947, has been recorded in the Office of the Register of The City of New York, County of Queens, on May 22, 1947, in Liber 5402 of Conveyances, at pages 319, et seq.

(c) "Agreement" shall mean this agreement of lease.

(d) "Lease" or "this Agreement of Lease" shall mean this agreement of lease.

(e) "Letting" shall mean the letting under this Agreement for the original term stated herein, and shall include any extension thereof.

(f) "Premises" shall mean and include the land, the buildings, structures and other improvements located or to be located or to be constructed therein or thereon, the equipment permanently affixed or permanently located therein, such as electrical, plumbing, sprinkler fire protection and fire alarm, heating, steam, sewage, drainage, refrigerating, communications, gas and other systems, and their pipes, wires, mains, lines, tubes, conduits, equipment and fixtures, and all paving, drains, culverts, ditches and catchbasins.

(g) "Public Landing Area" shall mean the area of land at the Airport including runways, taxiways and the areas between and adjacent to runways and taxiways, designated and made available from time to time by the Port Authority for the landing and taking off of aircraft.

(h) "Public Ramp and Apron Area" shall mean the area adjacent to the Public Landing Area designated and made available from time to time by the Port Authority for common use for the loading or unloading of passengers or cargo to or from aircraft using the public landing area.

(i) "Runways" (including approaches thereto) shall mean the portion of the Airport used for the purpose of the landing and taking off of aircraft.

(j) "Scheduled Aircraft Operator" shall mean a Civil Aircraft Operator engaged in transportation by aircraft operated wholly or in part on regular flights to and from the Airport in accordance with published schedules; but so long as the Federal Aviation Act of 1958, or any similar federal statute providing for

the issuance of Foreign Air Carrier Permits or Certificates of Public Convenience and Necessity or substantially similar permits or certificates, is in effect, no person shall be deemed to be a Scheduled Aircraft Operator within the meaning of this Lease unless he also holds such a permit or certificate.

(k) "General Manager of the Airport" shall mean the person or persons from time to time designated by the Port Authority to exercise the powers and functions vested in the said General Manager by this Agreement; but until further notice from the Port Authority to the Lessee it shall mean the General Manager (or the temporary or acting General Manager) of the Airport for the time being, or his duly designated representative or representatives.

(l) "Taxiways" shall mean the portion of the Airport used for the purpose of the ground movement of aircraft to, from and between the runways, the public ramp and apron area, the aircraft parking and storage space and other portions of the Airport (not including, however, any taxiways, the exclusive use of which is granted to the Lessee or any other person by lease, permit or otherwise.)

(m) "gross receipts" shall mean and include all monies paid or payable to the Operator for sales made and for services rendered at or from the premises, regardless of when or where the order therefor is received, and outside the premises, if the order therefor is received at the premises, and any other revenues of any type arising out of or in connection with the Operator's operations at the premises, provided, however, that any taxes or other governmental charges imposed by law which are separately stated to and paid by a customer and directly payable to the taxing authority by the Operator, shall be excluded therefrom.

(n) "Unamortized Capital Investment" shall mean for purposes of this Lease, the amount of the Lessee's investment in the premises arising out of the performance of the Terminal Expansion Work as set forth in the letter agreement entered into between the Port Authority and the Lessee, dated February 16, 1988, which provided for the performance of the Terminal Expansion Work under the Prior Lease, after deduction therefrom of an amount equivalent to an allowance for depreciation and amortization; such allowance to be computed on a straight-line basis from the earlier of October 1, 1989 or the completion of the Terminal Expansion Work (the date of the Certificate of Completion or Final Certificate of Completion, issued for the entire Terminal Expansion Work under the aforesaid letter agreement) to the end of the average useful life thereof (as determined under generally accepted United States accounting principles) or September 30, 2014, whichever is the shorter.

The foregoing computation to be made shall not take into consideration the effect of accelerated amortization, if any, granted to or taken by the Lessee on its books or otherwise under the provisions of Section 168(a) of Title 26 USCA or similar legislation hereafter enacted.

For purposes of this subparagraph (n) the Lessee's investment in the premises arising out of the performance of the construction of the Terminal Expansion as aforesaid shall be the lesser of (2.a.) _ _ or an amount equal to the sum of: (i) the amounts paid by the Lessee to independent contractors for work actually performed and labor and materials actually furnished, inclusive of sales, use and like taxes where applicable, and (ii) the payments made and expenses incurred by the Lessee, in connection with such construction, for engineering, architectural, professional and consulting services, and the supervision of construction, provided, however, that such payments and expenses pursuant to this subdivision (ii) shall not exceed eighteen per cent (18%) of the amounts described in subdivision (i); in each case, as the above-mentioned amounts, payments and expenses are evidenced, from time to time, by certificates of a responsible fiscal officer of the Lessee, sworn to before a notary public and delivered to the Port Authority, which certificates shall (a) set forth, in reasonable detail, the amounts paid to specified independent contractors, the payments made to other specified persons and the other expenses incurred by the Lessee, which have not previously been reported in certificates delivered to the Port Authority, (b) have attached thereto reproduction copies or duplicate originals of the invoices of such independent contractors and other persons acknowledging the receipt by them of such amounts and payments, and (c) certify that the amounts, payments and expenses therein set forth constitute the Lessee's investment in the premises arising out of the performance of the construction of the Terminal Expansion. All records of the Lessee with respect to the foregoing shall be kept at all times within the Port of New York District for a period of two (2) years after the final costs of all the construction work have been submitted by the Lessee to the Port Authority or the end of the term of the letting, whichever is later, and shall be subject to the audit and inspection of the Port Authority, its representatives and employees.

(o) "Governmental Authority", "Governmental Board", "Governmental Agency" shall mean federal, state, municipal and other governmental authorities, boards and agencies of any state, nation or government, except that it shall not be construed to include The Port Authority of New York and New Jersey, the lessor under this Lease.

(p) "Subsidiary" shall mean any corporation or company in which the Lessee owns fifty percent (50%) or more of the total outstanding voting securities (other than treasury stock).

(q) "Aircraft Operator" shall mean (a) a Person owning one or more aircraft which are not leased or chartered to any other person for operation, and (b) a Person to whom one or more aircraft are leased or chartered for operation whether the aircraft so owned, leased or chartered are military or non-military, or are used for private business, pleasure or governmental business, or for carrier or non-carrier operations, or for scheduled or non-scheduled

operations or otherwise. Said phrase shall not mean the pilot of an aircraft unless he is also the owner or lessee thereof or a Person to whom it is chartered.

(r) "Civil Aircraft Operator" shall mean a Person engaged in civil transportation by aircraft or otherwise operating aircraft for civilian purposes, whether governmental or private. If any such Person is also engaged in the operation of aircraft for military, naval or air force purposes, he shall be deemed to be a Civil Aircraft Operator only to the extent that he engages in the operation of aircraft for civilian purposes.

(s) "Person" shall mean not only a natural person, corporation or other legal entity, but also two or more natural persons, corporations or other legal entities acting jointly as a firm, partnership, unincorporated association, consortium, joint adventurers or otherwise.

(t) "Handled Airlines" shall mean the Requesting Airlines, as defined in Section 78 hereof, or any other Scheduled Aircraft Operator who is operating at the Airport pursuant to accommodations provided by a Lessee, whether by sublease, handling agreement, or a combination of both, which agreement has been consented to by the Port Authority and in which consent the Port Authority has designated said Operator a Handled Airline.

(u) "In-flight meals" as used in the air transportation industry and in this Lease is a word of art and includes food, beverages, snacks, non-reusable supplies, materials, dry goods and all services rendered in connection therewith.

(v) "Consumer Service Maximum Basic Rental" shall mean the amount of (2.a.) per square foot subject to adjustment based upon changes in the Consumer Price Index as set forth in paragraph (b) of Section 3 in the same manner as adjustments are made to the Lessee's rental obligations in said Section 3 in said paragraph (b).

Section 82 In-Flight Meals

(a) In the event Section 8.04 of Title VIII of the General Airport Agreement, as defined in Section 53 hereof, shall expire or be cancelled or deleted or for any other reason shall be of no further force or effect then the following paragraphs (1), (2) and (3) shall be deemed to apply hereunder and be a part hereof:

(1) If the Lessee desires to prepare, for its exclusive use, in-flight meals (as defined in Section 81 hereof) for consumption by passengers and crew on board aircraft operated by the Lessee and to deliver such meals to such aircraft it shall have the right to do so, individually or through a contractor of its own choice (which contractor shall not be another person engaged in the business of transportation by aircraft). If the Lessee does so directly, it shall do so only on space located outside the Central

Terminal Area (as defined in Section 74 hereof). The foregoing, however, shall create no obligation of the part of the Port Authority to provide such space and shall in no way be deemed a committment by the Port Authority that any such space shall be available. If the Lessee chooses to use an independent contractor, such contractor shall be a regular In-Flight Meal Operator by which is meant an operator authorized by the Port Authority to provide in-flight meals to Aircraft Operators at the Airport unless, in the opinion of the Lessee, all regular In-Flight Meal Operators are unsatisfactory to the Lessee, in which case the Lessee may employ any other contractor (other than another person engaged in the business of transportation by aircraft), satisfactory to the Port Authority, who will accept a permit from the Port Authority on the same terms and conditions including the same rates, fees or charges as imposed upon and required of the Port Authority's In-Flight Meal Operators.

(2) The Lessee shall have the further right, either directly or through an independent contractor of its choice, satisfactory to the Port Authority, or by arrangements, jointly with one or more other users at the Airport, to employ a contractor, satisfactory to the Port Authority, to prepare outside the Airport and to deliver at the Airport to aircraft operated by the Lessee, in-flight meals for consumption by passengers and crew on board such aircraft, provided, however, that if the Lessee employs a contractor either alone, or, by arrangement, jointly with one or more other users at the Airport for the preparation, outside the Airport, of in-flight meals, then the Lessee shall cause such contractor to pay to the Port Authority the rate or rates which would be payable to the Port Authority by a regular Port Authority permittee for the off-Airport preparation or delivery, or both, of such in-flight meals to aircraft for consumption by passengers and crews on board such aircraft.

(3) (i) The Lessee has advised that it may use more that one independent contractor to furnish its 'in-flight meals' at the Airport but may not wish to have all of said contractors become permittees of the Port Authority under permits which require, as aforesaid, the permittees to pay fees at the rates imposed on the Port Authority's In-Flight Meal Operators upon gross receipts based on amounts the Lessee pays said contractors.

(ii) Should the Lessee elect not to have all its independent contractors be Port Authority permittees as aforesaid, it shall serve a written notice on the Port Authority to such effect which notice shall state that it elects the method of additional payment as hereinafter set forth and thereupon the Port Authority shall consent thereto provided that, in addition to the amounts payable to the Port Authority under paragraphs (1) and (2) above, the Lessee shall pay and the Lessee hereby agrees to pay to the Port Authority an amount determined by applying the rates referred to in subparagraph (i) above to the amounts payable by the Lessee to said independent contractors for its 'in-flight meals' or any part thereof delivered to the Lessee's aircraft at the Airport (whether

such delivery be by said independent contractor, the Lessee or another). The foregoing payments by the Lessee shall be made monthly on the 20th day of the month commencing with the first month immediately following the Lessee's notice and continuing each month thereafter up to an including the 20th day of the month following the expiration date hereof. The Lessee at any time on at least thirty (30) days' prior written notice to the Port Authority may change from its selection above and the Lessee may at any time advise the Port Authority that this paragraph (3) no longer applies to it based upon its representation, that it then shall make, that all payments made by it for in-flight meals as said term is defined above shall be made to its contractors who are permittees of the Port Authority as 'In-Flight Meal Operators".

(iii) It is hereby expressly recognized that the procedures allowed under this paragraph (3) are not included within the contemplation of the provisions of paragraphs (1) and (2) above and that the inclusion of the same within this paragraph (3) shall not constitute or be deemed to constitute any concession or agreement by the Port Authority that said procedures are not in violation of paragraphs (1) and (2) hereof.

(b) (1) The Lessee acknowledges and agrees, with respect to any "in-flight meals" prepared and delivered on the Airport pursuant to Section 8.04 of title VIII of the General Airport Agreement, that it may use more than one independent contractor to furnish its in-flight meals at the Airport but may not wish to have all of said contractors become permittees of the Port Authority under permits which require the permittees to pay fees at the rates imposed on the Port Authority's In-Flight Meal Operators upon gross receipts based on amounts the Lessee pays said contractors, nor shall the same limit or be deemed to limit the provisions of said Section 8.04.

(2) Should the Lessee elect not to have all its independent contractors be Port Authority permittees as aforesaid, it shall serve a written notice on the Port Authority to such effect which notice shall state that it elects the method of additional payment as hereinafter set forth and thereupon the Port Authority shall consent thereto provided that, in addition to all other amounts payable to the Port Authority, the Lessee shall pay and the Lessee hereby agrees to pay to the Port Authority an amount determined by applying the rates referred to in subparagraph (1) above to the amounts payable by the Lessee to said independent contractors for its 'in-flight meals' or any part thereof delivered to the Lessee's aircraft at the Airport (whether such delivery be by said independent contractor, the Lessee or another). The foregoing payments by the Lessee shall be made monthly on the 20th day of the month commencing with the first month immediately following the Lessee's notice and continuing each month thereafter up to an including the 20th day of the month following the expiration date of the term of the letting hereunder. The Lessee at any time on at least thirty (30) days' prior written notice to the Port Authority may change from its selection above and the lessee may at any time

advice the Port Authority that this paragraph (b) no longer applies to it based upon its representation, that it then shall make, that all payments made by it for in-flight meals shall be made to its contractors who are permittees of the Port Authority as 'In-Flight Meal Operators'.

(3) It is hereby expressly recognized that the procedures allowed under this paragraph (b) are not included within the contemplation of the provisions of Section 8.04 of Title VII of the General Airport Agreement and that the inclusion of the same within this paragraph (b) shall not constitute or be deemed to constitute any concession or agreement by the Port Authority that said procedures are not in violation of said Section 8.04 of Title VII of the General Airport Agreement, nor shall the same limit or be deemed to limit the provisions of said Section 8.04.

Section 83. Entire Agreement

This Agreement consists of the following: Sections 1 through 83, inclusive, and Exhibits A, B, C, D, E, S and X, and Schedules A and E. It constitutes the entire agreement of the parties on the subject matter hereof and may not be changed, modified, discharged or extended except by written instrument duly executed by the Port Authority and the Lessee. The Lessee and the Port Authority agree that no representations or warranties shall be binding upon the other unless expressed in writing in this Agreement.

IN WITNESS WHEREOF, the parties hereto have executed these presents the day and year first above written.

ATTEST:

Secretary

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By

(Title) Director of Aviation

(Seal)

ATTEST:

Secretary

U.S. Counsel

BRITISH AIRWAYS, Plc.

By

(Title) Senior Vice President

(Corporate Seal)

APPROVED:	
Form	Terms

Exhibit X

TRIGGERING EVENTS

The following are the Triggering Events applicable to the provisions of Section 77 of the Agreement between British Airways (the "Lessee"), and the Port Authority, Lease AYB-876 (the "Agreement") to which this Exhibit is attached.

I. Exhibit X Definitions

All accounting terms used in this Exhibit and not otherwise defined herein shall have the meanings usually given such terms, in accordance with United States generally accepted accounting principles.

As used herein the following terms shall have the following meanings for the purposes of this Exhibit.

(1) "Debt", "debt financing" and "debt financing agreement(s)" of the Lessee shall mean, at any date (i) all obligations of the Lessee evidenced by loan agreement(s), bonds, debentures, notes or other similar instruments or for borrowed money; (ii) all equipment trust certificates, equipment trust indentures, mortgages, conditional sales or other security agreements, or other similar agreements, and (iii) all capital lease obligations of the Lessee.

(2) The terms "protective financial covenants" and "triggering mechanisms" shall mean the events set forth in any debt, debt financing or debt financing agreement between the Lessee and any bank or other financial institution the occurrence of which would give said bank or financial institution the right to accelerate the payment of the debt under the debt financing.

II. Triggering Events

(1) A Triggering Event shall occur when the Lessee shall fail to make payment as provided for in two or more of the categories listed below. Furthermore, such Triggering Event shall not have occurred unless the Port Authority shall have notified the Lessee (such notice to be marked to the attention of the Lessee's Treasurer) that such Triggering Event shall be effective on a date thirty (30) days following the date of such notice unless all payments due from the Lessee pursuant to such

categories listed below and specified in such notice have been received by the Port Authority:

(i) Payment of monthly installments of rental shall be made to the Port Authority on the first day of each calendar month;

(ii) Payment of all sums, including, without limitation, flight fees and fuel gallonage fees under the Lessee's Dewey Lease Agreement, AY-352 or otherwise, shall be made to the Port Authority on or before the twentieth day of the following calendar month;

(iii) Payment of all sums due to the Port Authority under this Agreement or otherwise, and outstanding for more than thirty (30) days, appearing on a Statement of Account rendered by the Port Authority to the Lessee.

No provision of this paragraph (1) shall be deemed to affect or limit the right of the Port Authority to terminate this Agreement pursuant to Section 25 (a) (9) hereof for failure to make such payments when due under this agreement.

(2) The Lessee expressly represents and warrants to the Port Authority that, as of the effective date of the Lease and as of the date of the Lessee's execution thereof, the Lessee has multiple publicly or non-publicly held debt financings each in excess of $36,000,000 which include events of default which could lead to acceleration thereof. The Lessee agrees that it shall within ninety (90) days after execution of said Lease deliver to the Port Authority itemized listings of said events of default for publicly traded debt financings, as aforesaid, together with adequate contextual matter (including but not limited to identity of the parties, amounts, etc.) of the debt financing agreement(s).

(3) A Triggering Event shall occur if any of the following shall occur and the Port Authority shall have previously given or shall thereafter give the Lessee notice of the election of the Port Authority to activate such Triggering Event:

(a) as a result of a default by the Lessee, (other than a default arising due to compliance by the Lessee with any applicable law or directive or (provided that the Lessee has satisfied the Port Authority that it is reasonable to comply therewith) with any requirement, whether having the force of law or not, of any government or regulatory authority to which the Lessee is subject, unless such default results in the Lessee becoming bound to repay prematurely any of its indebtedness for borrowed

moneys as described in (i) below (not being that in respect of which the default has occurred) and steps are taken to obtain repayment thereof):

(i) the Lessee becomes bound to repay prematurely any of its indebtedness for borrowed moneys having an outstanding aggregate principal amount of at least $36,000,000 or its equivalent in any other currency or currencies (hereinafter in this paragraph (a) called the "specified amount") and steps are taken to obtain repayment thereof; or

(ii) any such indebtedness having an outstanding aggregate principal amount of at least the specified amount or any guarantee or indemnity of the Lessee of any indebtedness of any person for borrowed moneys having an outstanding aggregate principal amount of at least the specified amount is not, when due, called or demanded, repaid or paid by the latest of its due date, the expiry of any applicable grace period and (if payment is prevented by any applicable law) 15 days after the first date on which payment is permitted,

provided that any such acceleration of maturity, default or failure to pay, as the case may be, shall not constitute a Triggering Event so long as the Lessee satisfies the Port Authority that it is being contested in good faith by the Lessee; or

(b) a resolution is passed, or a final order of a court in the United Kingdom is made, or an order of a court of competent jurisdiction outside the United Kingdom is made and not discharged or stayed within a period of 60 days, that the Lessee be wound up or dissolved (otherwise than for the purposes of a solvent reconstruction, amalgamation or merger the terms of which have previously been approved in writing by the Port Authority); or

(c) a creditor takes possession or an administrative or other receiver is appointed of the whole or a substantial part of the assets or undertaking of the Lessee or an administrative order is made in relation to the Lessee and such taking of possession, appointment or order is not released, discharged or cancelled within 60 days; or

(d) a distress, execution or seizure before judgment is levied or enforced upon or sued out against a substantial part of the assets or undertaking of the Lessee and is not discharged, dismissed or stayed within 60 days thereof; or

(e) the Lessee stops payment generally or is unable to pay its debts generally as and when they fall due or (otherwise than for the purposes of a solvent reconstruction, amalgamation or merger the terms of which have previously been approved in writing by the Port Authority) or ceases or threatens to cease to carry on all or substantially all of its business; or

(f) the Lessee makes an assignment for the benefit of creditors generally or admits in writing its inability to pay its debts generally as they become due or takes corporate action in furtherance of any such action.

III. Modification Requested by Lessee:

The Lessee may deliver a notice to the Port Authority requesting that one or more of the Triggering Events contained in is Exhibit X be modified. The Lessee shall include as part of such notice the text of the proposed modification. If the Executive Director of the Port Authority, with the approval of the Chairman of the Committee on Finance of the Board of Commissioners of the Port Authority shall countersign such modification, or an amended version of the modification acceptable to the Lessee, such notice duly signed by both the Lessee and the Executive Director of the Port Authority, shall be a valid and binding modification of the Triggering Events.

For the Port Authority

Initialled:

For the Lessee

SCHEDULE A

FUTURE AIRPORT TRANSPORTATION FACILITIES

The following systems and facilites which constitute the New Systems generally as set forth in Section 75 hereof may be independent of one another, or may, in whole or part, be physically combined with each other or with other systems not described below or may not, in whole or part, be included in the New Systems as finally designed, developed installed or operated. The description contained herein is intended to be only a general, conceptualized description of the purposes of the various elements included and is not intended to necessarily set forth discrete and complete facilities nor indicate their final form.

I Passenger Distribution System

An automated system providing transportation for persons among the transportation center, airline passenger terminals and other facilities at the Airport.

II Transportation Center

A transportation center which will serve as a part of the Passenger Distribution System and as a primary arrival and departure facility for airline passenger terminal facilites at the Airport for persons and their baggage arriving and departing the Airport by means of ground transportation and to provide airline passenger check-in, ticketing and baggage pick-up facilities and other services to the public.

III Baggage Handling System

An automated baggage transportation system among the airline passenger terminal facilities, the Transportation Center and other transportation facilities at the Airport.

IV Southwest Area Connection

A transportation system generally among the Transportation Center and locations in the southwesterly, westerly and northwesterly portions of the Airport including, but not limited to, the Howard Beach Station of the New York City Transit Authority, the Airport long term parking lots, Airport employee parking lot and the Airport Federal Circle rental car area.

V Redeveloped Roadway Network

The removal, relocation, reconfiguration, reconstruction, expansion and reinstallation of the Airport roadways to provide a balanced transportation system and to reflect the impact of, and to accommodate to, the other new systems and facilities.

VI Redeveloped Utilities Distribution System

The removal, relocation, reconfiguration, reconstruction, expansion and reinstallation of some or all of the utility distribution systems serving facilities at the Airport including, but not limited to, the disribution systems providing high temperature hot water and chilled water to and from the Central Heating and Refrigeration Facility.

For the Port Authority

Initialled For:

For the Lessee

SCHEDULE A

SCHEDULE E

PART I

Affirmative Action Guidelines - Equal Employment Opportunity

(I) As a matter of policy the Port Authority hereby requires the Lessee and the Lessee shall require the Contractor, as hereinafter defined, to comply with the provisions set forth hereinafter in this Part I and in the Lease. These provisions are similar to the conditions for bidding on federal government contracts adopted by the Office of Federal Contract Compliance and effective May 8, 1978.

The Lessee as well as each bidder, contractor or subcontractor of the Lessee (herein collectively referred to as the "Contractor") must fully comply with the following conditions set forth in this Part I as to each construction trade to be used on the construction work or any portion thereof (said conditions being herein called "Bid Conditions"). The Lessee hereby commits itself to the goals for minority and female utilization set forth below and all other requirements, terms and conditions of the Bid Conditions. The Lessee shall likewise require the Contractor to commit itself to the said goals for minority and female utilization set forth below and all other requirements, terms and conditions of the Bid Conditions by submitting a properly signed bid.

(II) The Lessee and the Contractor shall each appoint an executive of its company to assume the responsibility for the implementation of the requirements, terms and conditions of the following Bid Conditions:

(a) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work are as follows:

Trade	
Electricians	9.0% - 10.2%
Carpenters	27.6% - 32.0%
Steamfitters	12.2% - 13.5%
Metal Lathers	24.6% - 25.6%
Painters	22.8% - 26.0%
Operating Engineers	25.6% - 26.0%
Plumbers	12.0% - 14.5%
Iron Workers (Structural)	25.9% - 32.0%
Elevator Constructors	5.5% - 6.5%
Bricklayers	13.4% - 15.5%
Asbestos Workers	22.8% - 28.0%
Roofers	6.3% - 7.5%
Iron Workers (Ornamental)	22.4% - 23.0%
Cement Masons	23.0% - 27.0%
Glaziers	16.0% - 20.0%
Plasterers	15.8% - 18.0%
Teamsters	22.0% - 22.5%
Boilermakers	13.0% - 15.5%
All other	16.4% - 17.5%*
Women	6.9%*

*(In the event that during the performance of this contract the Office of Federal Contract Compliance establishes different goals for the New York City area the Contractor shall be deemed bound to such different goals and this Schedule shall be deemed amended to substitute such goals for the goals set forth above.)

These goals are applicable to all the Contractor's construction work performed in and for the premises.

The Contractor's specific affirmative action obligations required herein of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of these provisions. Compliance with the goals will be measured against the total work hours performed.

(b) The Contractor shall provide written notification to the Lessee and the Lessee shall provide written notification to the Manager of the Equal Opportunity Programs Unit of the Port Authority within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

(c) As used in these specifications:

(1) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941;

(2) "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asian, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(d) Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the construction work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 those provisions which include the applicable goals for minority and female participation.

(e) The Contractor shall implement the specific affirmative action standards provided in subparagraphs (1) through (16) of paragraph (h) hereof. The goals set forth above are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the premises. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

(f) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer to either minorities or women shall excuse the Contractor's obligations hereunder.

(g) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.

(h) The Contractor shall take specific affirmative actions to ensure equal employment opportunity ("EEO"). The evaluation of the Contractor's compliance with these provisions shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

(1) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all portions of the premises at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each phase of the construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other supervisory personnel at the premises are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at the premises.

(2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

(4) Provide immediate written notification to the Lessee when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (2) above.

(6) Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the Contractor's newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the Contractor's EEO policy on bulletin boards accessible to all employees at each location where the construction work is performed.

(7) Review, at least every six months, the Contractor's EEO policy and affirmative action obligations hereunder with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-premises supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at the premises. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

(9) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students, to minority and female recruitment and training organizations and to State certified minority referral agencies serving the Contractor's

recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the premises and in other areas of a Contractor's workforce.

(11) Tests and other selection requirements shall comply with 41 CFR Part 60-3.

(12) Conduct, at least every six months, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(13) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations hereunder are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(15) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least every six months, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

(i) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (subparagraphs (1)-(16) of Paragraph (h) above). The efforts of a contractor association, joint contractor-union, contractor- community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under Paragraph (h) hereof provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the

program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's non-compliance.

(j) Goals for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation hereof if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation hereof if a specific minority group of women is under-utilized).

(k) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

(l) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

(m) The Contractor shall carry out such sanctions and penalties for violation of these provisions including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered by the Port Authority. Any Contractor who fails to carry out such sanctions and penalties shall be in violation hereof.

(n) The Contractor, in fulfilling its obligations hereunder shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph (h) hereof so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of these provisions, the Lessee shall proceed accordingly.

(o) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), date of changes in status, hours worked per week in the indicated trade, rate of pay, and location at which the work was performed. Records shall be maintained in an easily understandable and

retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

(p) Nothing herein provided shall be construed as a limitation upon the application of any laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

PART II

Minority Business Enterprises/Women-Owned Business Enterprises

As a matter of policy the Port Authority requires the Lessee and the Lessee shall itself and shall require the general contractor or other construction supervisor and each of the Lessee's contractors to use every good faith effort to provide for meaningful participation by Minority Business Enterprises (MBEs) and Women-owned Business Enterprises (WBEs), pursuant to the provisions hereof and of the Lease. For purposes hereof, Minority Business Enterprise (MBE) shall mean any business enterprise which is at least fifty-one percentum owned by or in the case of a publicly owned business, at least fifty-one percentum of the stock of which is owned by citizens or permanent resident aliens who are minorities and such ownership is real, substantial and continuing. For the purposes hereof, Women-owned Business Enterprise (WBE) shall mean any business enterprise which is at least fifty-one percentum owned by, or in the case of a publicly owned business, at least fifty-one percentum of the stock of which is owned by women and such ownership is real, substantial and continuing. A minority shall be as defined in paragraph II(c) of Part I of this Schedule E. "Meaningful participation" shall mean that at least twelve percent (12%) of the total dollar value of the construction contracts (including subcontracts) covering the construction work are for the participation of Minority Business Enterprises and that at least two percent (2%) of the total dollar value of the construction contracts (including subcontracts) are for the participation of Women-owned Business Enterprises. Good faith efforts to include meaningful participation by MBEs and WBEs shall include at least the following:

(a) Dividing the Work to be subcontracted into smaller portions where feasible.

(b) Actively and affirmatively soliciting bids for subcontracts from MBEs and WBEs, including circulation of solicitations to minority and female contractor associations. The Contractor shall maintain records detailing the efforts made to provide for meaningful MBE and WBE participation in the Work, including the names and addresses of all MBEs and WBEs contacted and, if any such MBE or WBE is not selected as a joint venturer or subcontractor, the reason for such decision.

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

On the 2nd day of August, 1988, before me personally came Robert J. Aaronson to me known, who, being by me duly sworn, did depose and say that he resides at South Orange, New Jersey.

;

that he is the Director of Aviation of The Port Authority of New York and New Jersey, (one of) the corporations described in and which executed the foregoing instrument; that he knows the seal of the said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Commissioners of the said corporation; and that he signed his name thereto by like order.

Jaqueline White
(notarial seal and stamp)

JAQUELINE WHITE
NOTARY PUBLIC, State of New York
No. 4737769
Qualified In Suffolk County
Commission Expires March 30, 19 89

STATE OF NEW YORK)
) ss.:
COUNTY OF NEW YORK)

On the 1st day of August, 1988, before me personally came ARTHUR F. MCMAHON to me known, who, being by me duly sworn, did depose and say that he resides at (Ex. 1)

;

that he is the SENIOR VICE President of British Airways, Plc., one of the corporations described in and which executed the foregoing instrument; that he knows the seal of the said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of the said corporation; and that he signed his name thereto by like order.

June S. Dolberg
(notarial seal and stamp)

JUNE S. DOLBERG
Notary Public, State of New York
No. 03-4671675 Qualified in Bronx Co.
Cert. filed in New York County
Commission Expires 8/31/1988

THIS SUPPLEMENT SHALL NOT BE BINDING UPON THE PORT AUTHORITY UNTIL DULY EXECUTED BY AN EXECUTIVE OFFICER THEREOF AND DELIVERED TO THE LESSEE BY AN AUTHORIZED REPRESENTATIVE OF THE PORT AUTHORITY

AVIATION DEPT.
PD & M - JFKIA
FILE COPY

Kennedy International Airport
Port Authority Lease No. AYB-876
Supplement No. 1

THIS AGREEMENT, made as of May 4, 1993, by and between THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY (hereinafter referred to as the "Port Authority") and BRITISH AIRWAYS, Plc. (hereinafter referred to as the "Lessee"),

WITNESSETH, That:

WHEREAS, by an agreement of lease made as of January 4, 1988, (which agreement of lease, as the same may have been heretofore supplemented and amended, is hereinafter referred to as the "Lease"), the Port Authority let to the Lessee and the Lessee hired and took from the Port Authority at Kennedy International Airport (hereinafter called the "Airport") certain premises as more particularly described in the Lease; and

WHEREAS, the Port Authority and the Lessee desire to amend the Lease in certain respects as hereinafter set forth.

NOW, THEREFORE, for and in consideration of the covenants and mutual agreements herein contained, the Port Authority and the Lessee hereby agree, effective on May 4, 1993, as follows:

The Port Authority and KIAC Partners, a New York General Partnership (hereinafter called "KIAC") have entered into agreements consisting of an Energy Purchase Agreement dated as of April 28, 1993, a Construction and Operations Agreement dated as of April 28, 1993, and an Agreement of Lease dated as of April 28, 1993, for the construction, installation and operation of a cogeneration facility at the Airport which will include portions of the Central Heating and Refrigeration Facility, as set forth

in Section 52 of the Lease. Effective May 4, 1993, Section 52 of the Lease entitled "The Central Heating and Refrigeration Facility" shall be deemed amended as follows:

1. The following shall be deemed inserted at the end of the introductory paragraph of Section 52 of the Lease:

> "The Port Authority has entered into agreements consisting of an Energy Purchase Agreement dated as of April 28, 1993, a Construction and Operations Agreement, dated as of April 28, 1993, and an Agreement of Lease, dated as of April 28, 1993, (hereinafter as the same may be supplemented, amended and extended from time to time collectively and individually called the 'Cogeneration Agreement') with KIAC Partners, a New York General Partnership (hereinafter called 'KIAC'), for the construction, installation and operation of a cogeneration facility at the Airport which will include portions of the Central Heating and Refrigeration Facility, as set forth above, now operated at the Airport, which cogeneration facility will, from and after the date of its 'Commercial Operation' as such term is defined in the Cogeneration Agreement, produce electricity, hot water and chilled water, as the terms hot water and chilled water are defined below, and which cogeneration facility is hereinafter called the 'Cogeneration Facility'. Effective on May 4, 1993, and while the construction of the Cogeneration Facility proceeds, KIAC will operate the Facility on behalf of the Port Authority to produce hot water and chilled water, as such terms are defined below, and the following shall be and continue in effect with respect to the sale, furnishing and supply of hot water and chilled water by the Port Authority to the Lessee."

2. The provisions of Section 52 (b) of the Lease shall be deemed deleted therefrom and the following shall be deemed inserted in lieu thereof:

> "(b) (1) The Annual Total Facility Cost for the calendar year commencing on January 1, 1995, and ending on December 31, 1995, shall consist of the sum of the following:
>
> (i) The amount of interest payable by the Port Authority to KIAC pursuant to the Cogeneration Agreement and determined at the rate

or rates provided for in the Cogeneration Agreement on (A) a principal amount of

(Ex. 2.a.)

tion of such calendar year commencing on January 1, 1995, and ending on May 3, 1995, plus (B) a principal amount of

(Ex. 2.a.)

or the portion of such calendar year commencing on May 4, 1995, and ending on December 31, 1995;

(ii) The amount of interest payable by the Port Authority to KIAC pursuant to the Cogeneration Agreement for expenditures for capital improvements that are useable and useful and that have the potential to provide both an immediate benefit to the operation of the Facility prior to Commercial Operation and would provide a continuing and significant benefit to the operation of the Cogeneration Facility after Commercial Operation;

(iii) The Annual Facility Operating and Maintenance Charge as defined in paragraph (g) hereof.

(2) The Annual Total Facility Cost for each calendar year commencing on and after January 1, 1996, shall consist of the sum of the following:

(i) The amount of interest payable by the Port Authority to KIAC pursuant to the Cogeneration Agreement and determined at the rate or rates provided for in the Cogeneration Agreement on a principal amount of

(ii) The amount of interest payable by the Port Authority to KIAC pursuant to the Cogeneration Agreement for expenditures for capital improvements that are useable and useful and that have the potential to provide both an immediate benefit to the operation of the Facility prior to Commercial Operation and would provide a continuing and significant benefit to the operation of the Cogeneration Facility after Commercial Operation;

(iii) The Annual Facility Operating and Maintenance Charge as defined in paragraph (g) hereof."

3. The provisions of Sections 52 (d) and 52 (e) of the Lease shall be deemed deleted therefrom.

4. (a) The provisions of the introductory portion of Section 52 (g) of the Lease shall be deemed deleted therefrom and the following shall be deemed inserted in lieu thereof:

"(g) The service of the Port Authority in furnishing, supplying, activating, cleaning, testing, providing, maintaining, repairing, servicing and operating the Facility and the hot water and chilled water emanating therefrom is hereinafter called the 'Facility Service'. The Cogeneration Agreement provides that KIAC shall furnish most aspects of the Facility Service to the Port Authority. The Annual Facility Operating and Maintenance Charge shall mean the cost to the Port Authority of the Facility Service for each calendar year. Without limiting the generality of the provisions of this paragraph, the said cost to the Port Authority shall include, but not be limited to, the Port Authority's payments to KIAC for the provision of the Facility Service. Said cost shall be determined in accordance with the Port Authority's normal accounting practice and shall consist of the following:"

(b) The provisions of item (4) of Section 52 (g) shall be deemed renumbered as item (4) (A) thereof and the following shall be deemed inserted as item (4) (B) thereof:

"(B) Payments to KIAC by the Port Authority under the Cogeneration Agreement in connection with the Facility Service;"

(c) The provisions of Section 52 (i) of the Lease shall be deemed deleted therefrom.

(d) The second and third sentences of the second paragraph of Section 52 (j) of the Lease shall be deemed deleted therefrom.

(e) The following shall be deemed inserted as the last sentence of Section 52 (l) of the Lease:

> "The Lessee hereby agrees that the Port Authority and KIAC and the contractors or suppliers of either of them shall have the right to enter upon the premises to install, operate and maintain facilities to bring hot water and chilled water to the rooms."

(f) The following shall be deemed inserted as paragraph (n) of Section 52 of the Lease:

> "(n) In the event of the termination of the Cogeneration Agreement, if the facilities at the Airport therefor are, in the opinion of the Port Authority, economically operable, the Port Authority, itself or pursuant to agreement with a contractor or permittee, shall supply hot water and chilled water to the premises and the Lessee shall take and pay therefor with the Annual Facility Operating and Maintenance Charge therefor to be the amount that would reimburse the Port Authority for its capital and operating costs in connection therewith determined in accordance with the Port Authority's normal accounting practice."

5. Effective on a date to be stated in a notice from the Port Authority to the Lessee, the provisions of Section 52 of the Lease as the same have been amended pursuant to Paragraphs 1, 2, 3 and 4 above shall be deemed deleted therefrom (this deletion not to affect or limit the obligation of the Lessee to pay all sums due under the said superseded Section 52 prior to the aforesaid effective date) and the following shall be deemed inserted in lieu thereof:

"Section 52. <u>Hot Water and Chilled Water Requirements</u>

> (a) (i) The Port Authority has entered into agreements consisting of an Energy Purchase Agreement, dated as of April 28, 1993, a Construction and Operations Agreement, dated as of April 28, 1993, and an Agreement of Lease, dated as of April 28, 1993, (hereinafter as the same may be supplemented, amended and extended from time to time collectively and individually called the

"Cogeneration Agreement") with KIAC Partners, a New York General Partnership (hereinafter called 'KIAC'), for the construction, installation and operation of a cogeneration facility at the Airport which will include portions of the Central Heating and Refrigeration Facility previously operated by the Port Authority at the Airport and which cogeneration facility will produce electricity, hot water (hereinafter called 'Hot Water') and chilled water (hereinafter called 'Chilled Water') and which cogeneration facility is hereinafter called the 'Cogeneration Facility'. The Cogeneration Facility shall include a thermal distribution system (the 'TDS') including distribution lines extending to the premises as provided in paragraph (f) below.

(ii) The Lessee acknowledges that it has received a copy of the Cogeneration Agreement and agrees that the supply by KIAC of Hot Water and Chilled Water to the premises is subject to all of the terms and provisions of the Cogeneration Agreement. The Lessee agrees that the Port Authority may grant waivers, consents and approvals to KIAC from time to time and the Port Authority and KIAC may, except to the extent provided in paragraph (i) below, supplement, amend or extend the Cogeneration Agreement from time to time and that the Lessee shall be subject to any such waivers, consents and approvals and supplements, amendments, and extensions as part of the Cogeneration Agreement. Copies of any such supplements, amendments and extensions will be made available to the Lessee upon request by the Lessee therefor.

(b) (i) The Cogeneration Agreement provides, among other things, that the Port Authority will purchase from KIAC for resale to the Lessee, and the Lessee hereby agrees that it will accept and purchase from the Port Authority from and after the date stated in a notice from the Port Authority (the 'Cogeneration Effective Date'), subject to all of the terms and conditions of the Cogeneration Agreement, for use on the premises, to the extent the same is delivered by KIAC to the Port Authority and by the Port Authority to the

Lessee, all of the Lessee's requirements at the premises for Hot Water and Chilled Water (excluding requirements exclusively for aircraft and loading bridges leading to aircraft); and the Lessee hereby agrees to pay the Port Authority therefor as follows:

(1) The Lessee acknowledges and agrees that the charge to the Lessee by the Port Authority for the Lessee's consumption of Hot Water and Chilled Water at the premises and Chilled Water makeup water and chemical treatment of makeup water (due to system leakage at the premises or otherwise) shall be the sum of (A) the amount payable by the Port Authority to KIAC therefor pursuant to the Cogeneration Agreement, plus (B) Five Percent (5%) of the foregoing and plus (C) all applicable taxes.

(2) The Lessee acknowledges that pursuant to the Cogeneration Agreement KIAC will furnish the Port Authority with measurements of the Lessee's consumption of (A) Hot Water based upon energy drawn by the Lessee from KIAC's Hot Water distribution lines, (B) Chilled Water based upon the energy absorbed from the Lessee by KIAC's Chilled Water distribution lines and (C) Chilled Water makeup water and chemical treatment of makeup water consumed on the premises, and the Lessee agrees that the provisions of the Cogeneration Agreement with respect to the accuracy of such measurements, the determination of such measurements in the event of inaccurate registration by metering devices, and the use of estimates in the event of the failure of such metering devices shall all be applicable to the Lessee under this Agreement as though set forth in full herein.

(3) The Lessee acknowledges that the Cogeneration Agreement provides that KIAC shall provide estimated bills to the Port Authority for consumption of Hot Water and Chilled Water on a monthly basis commencing approximately ten (10) days after the Cogeneration Effective Date for the first calendar month or portion thereof and on or about the tenth day of the month for each calendar

month thereafter. KIAC is then to render a final bill with respect to each estimated bill approximately ten (10) days after the conclusion of the said month together with the estimated bill for the then current month.

(4) Notwithstanding such arrangement between KIAC and the Port Authority, the Port Authority shall, with respect to each calendar year or fraction thereof, establish estimated unit rates, subject to change from time to time by the Port Authority, for the consumption on the premises of Hot Water and Chilled Water and shall render an estimated bill to the Lessee for the Lessee's consumption at such estimated rates monthly on the last day of the calendar month following each full or partial calendar month during the term hereof after the Cogeneration Effective Date which bill shall be payable on receipt.

(5) As soon as practicable after the expiration of each calendar year, the Port Authority shall determine the amounts payable by the Lessee in accordance with the provisions of subparagraphs (1), (2) and (3) of this paragraph (b). A corrected billing based upon such determination shall thereupon be rendered by the Port Authority to the Lessee and if any monies are due to the Port Authority they shall be promptly paid by the Lessee and if any monies are due to the Lessee they shall be credited to it. In the event the term of this Agreement expires or is sooner terminated on a date other than the last day of a calendar year, the Port Authority shall have no obligation to immediately make the computations as hereinabove provided which would determine the amounts payable by the Lessee in accordance with subparagraphs (1), (2) and (3) of this paragraph (b) for the period during said year when this Agreement was in effect. In the event this Agreement expires on a day other than the last day of a calendar month and the actual consumption of and charges to the Lessee for such portion of the calendar month are not available, the charge to the Lessee shall be equitably prorated. Said computations shall be made

subsequent to the end of the calendar year as hereinabove provided, and if any monies are due to the Port Authority they shall be paid by the Lessee and if any monies are due to the Lessee they shall be paid to it by the Port Authority less such amounts, if any, then due and owing to the Port Authority from the Lessee.

(6) The Port Authority shall render a bill to the Lessee from time to time for the Lessee's Chilled Water distribution gallonage which shall be payable upon receipt. The charge therefor shall be based on KIAC's charge to the Port Authority for makeup water and chemical treatment of makeup water and shall be determined in accordance with subparagraphs (1) and (2) of this paragraph (b).

(7) In the event that the Lessee disputes any item of an estimated or final bill, the Lessee shall promptly pay the bill in full and the Port Authority shall make any necessary adjustments only after resolution of such dispute.

(ii) The Lessee agrees that in order that KIAC or any successor thereto may maintain the status of the Cogeneration Facility as a "qualifying cogeneration facility" under applicable Federal laws, rules and regulations ('QF Status') including the Public Utility Regulatory Policies Act of 1978 as the same may be amended and any successor statute thereto, the Lessee shall, at all times it is operating the premises for the purposes permitted in this Agreement, purchase from the Port Authority and use on an annual basis a minimum amount of thermal energy contained in Hot Water and Chilled Water produced by use of steam from the Cogeneration Facility equivalent to the lesser of (1) an amount that, together with all thermal energy contained in Hot Water and Chilled Water purchased and used by the Port Authority and all other lessees of premises in the Central Terminal Area, is sufficient to maintain the QF Status of the Cogeneration Facility and (2) the product of (x) 167,379 mmBTUs of thermal energy, which is one-third of the use of thermal energy contained

in Hot Water and Chilled Water in the Central Terminal Area of the Port Authority and the lessees of premises in the Central Terminal Area in the year ended December 31, 1989, and (y) a fraction, the numerator of which is the amount of the Lessee's use of thermal energy contained in Hot Water and Chilled Water at the premises in the most recent complete calendar year preceding the applicable date of determination and the denominator of which is the amount of all use in the Central Terminal Area of thermal energy contained in Hot Water and Chilled Water in such calendar year.

(iii) It is agreed that during or subsequent to the expiration of this Agreement no charge to or payment by the Lessee with respect to Hot Water, Chilled Water or Chilled Water distribution gallonage shall be included in, affect, or change in any way the calculation and determination of Port Authority costs or charges under any other agreement between the Lessee and the Port Authority at the Airport and any such Port Authority cost or charge shall be calculated and determined as if no charge to or payment by the Lessee with respect to Hot Water, Chilled Water or Chilled Water distribution gallonage had been incurred.

(c) THE LESSEE HEREBY WAIVES AND RELINQUISHES for itself, its successors and assigns any right it may have, and further agrees that it, its successors and assigns shall have no right, to manufacture or produce, to cause to be manufactured or produced, or to purchase or receive from any third party, Hot Water or Chilled Water for use on the premises or to use any other manner of air cooling or air heating at the premises except to purchase, receive and use Hot Water and Chilled Water from the Port Authority pursuant to this Agreement.

(d) There shall be no obligation to the Lessee by either KIAC or the Port Authority to furnish the goods and services covered by this Section at any time (i) while any component necessary therefor shall be prohibited or rationed by any federal,

state or municipal, law, rule, regulation, requirement, order or direction or while the Port Authority deems it in the public interest to comply therewith even though such law, rule, regulation, requirement, order or direction may not be mandatory on the Port Authority as a public agency, (ii) while the same are curtailed or stopped because of the need to repair, replace, rebuild or alter the Cogeneration Facility, (iii) during the continuance of any event of Force Majeure, as such term is defined in the Cogeneration Agreement or (iv) that the Lessee shall be in default under this Agreement after the period, if any, herein granted to cure such default shall have expired. No failure, delay or interruption in supplying said goods and services shall be or be construed to be an eviction of the Lessee or grounds for the diminution or abatement of rentals, fees or other charges, nor shall any such failure, delay or interruption be grounds for any claim by the Lessee for damages, consequential or otherwise, against the Port Authority or KIAC.

(e) Without limiting any other provision of this Section, any supply of Hot Water or Chilled Water to the premises from the Cogeneration Facility shall be limited by the safe and efficient operating capacity of the Cogeneration Facility as determined by KIAC and as approved by the Port Authority.

(f) (i) The Lessee has installed or shall install all machinery, equipment and facilities required to be installed in the premises in order to utilize Hot Water and Chilled Water to be distributed and has tied into or shall tie into the TDS at the heat exchangers, heretofore installed by the Port Authority or to be installed by KIAC, in the mechanical equipment rooms constructed by the Lessee on the premises.

(ii) The Lessee hereby agrees that the Port Authority, KIAC and the contractors or suppliers of either of them shall have the right, subject to and as provided in Section 17 of this Agreement, to enter upon the premises to install, operate and maintain any part of the Cogeneration Facility

however, that the Port Authority will not enter into any amendment, supplement or extension of the Cogeneration Agreement which will result in a change in the formula used to calculate the Hot Water and Chilled Water rates payable by the Lessee which change results in an increase in the rates payable by the Lessee pursuant to such formula (the Lessee hereby acknowledging that such formula may, according to its terms, provide for such rates to be adjusted from time to time) without the consent of the lessees (including the Port Authority as and to the extent that the Port Authority uses Hot Water and Chilled Water) of premises that purchased and used at least Fifty-one percent (51%) of the aggregate Hot Water and Chilled Water purchased and used in the Central Terminal Area during the last full calendar year preceding the effective date of such amendment, supplement or extension."

6. The amendment of the Lease by this Agreement shall not be deemed to affect or modify in any way the provisions the provisions of Section 51 entitled "Term" or Section 4 of the Lease entitled "Conditional Limitations: Performance of the Terminal Expansion Work - Termination of the Prior Lease".

7. Neither the execution of this Agreement by the parties hereto nor any reference herein to any date prior to January 1, 1995, shall be deemed to affect or modify in any way the provisions of Section 2 of the Lease entitled "Term" or Section 4 of the Lease entitled "Conditional Limitations: Performance of the Terminal Expansion Work - Termination of the Prior Lease".

8. The Lessee represents and warrants that no broker has been concerned in the negotiation of this Agreement or the extension hereunder and that there is no broker who is or may be entitled to be paid a commission in connection therewith. The Lessee shall indemnify and save harmless the Port Authority of and from any and all claims for commission or brokerage made by any and all persons, firms or corporations whatsoever for services in connection with the negotiation and execution of this Agreement or the extension hereunder.

9. Neither the Commissioners of the Port Authority nor any of them, nor any officer, agent or employee thereof, shall be charged personally by the Lessee with any liability, or held

liable to it under any term or provision of this Agreement, or because of its execution or attempted execution or because of any breach thereof.

10. As hereby amended, all of the terms, covenants, provisions, conditions and agreements of the Lease shall be and remain in full force and effect.

11. This Agreement and the Lease which it amends constitute the entire agreement between the Port Authority and the Lessee on the subject matter, and may not be changed, modified, discharged or extended except by instrument in writing duly executed on behalf of both the Port Authority and the Lessee. The Lessee agrees that no representations or warranties shall be binding upon the Port Authority unless expressed in writing in the Lease or this Agreement.

IN WITNESS WHEREOF, the Port Authority and the Lessee have executed these presents, as of the date first above written.

ATTEST:

Secretary

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

By _____

(Title) DEPUTY DIRECTOR OF AVIATION

(Seal)

~~ATTEST:~~ WITNESS:

General Counsel USA

BRITISH AIRWAYS, Plc.

By _____

(Title) SR Vice President

(Corporate Seal)

APPROVED: FORM | TERMS

FORM E - Acknowledgment (N.Y. Corp.) 6/24/72

STATE OF NEW YORK)
) ss.
COUNTY OF NEW YORK)

On the 21 day of July, 1994, before me came Gerald P. Fitzgerald, to me known, who, being by me duly sworn, did depose and say that he resides at Flushing, NY. that he is the Deputy Director of Aviation of The Port Authority of New York and New Jersey, one of the corporations described in, and which executed the foregoing instrument; that he knows the seal of the said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Commissioners of the said corporation; and that he signed his name thereto by like order.

JACQUELINE WHITE
Notary Public, State of New York
No. 4737769
Qualified in Suffolk County
Commission Expires May 31, 19

Jacqueline White
(notarial seal and stamp)

STATE OF)
) ss.
COUNTY OF Queens)

On the Fourteenth day of April, 1994, before me personally came Robert Kupala to me known, who being by me duly sworn, did depose and say, that he resides at 75-20 ASTORIA BLVD., JACKSON HEIGHTS, NY 11370, Sr. Vice that he is the President of BRITISH AIRWAYS, Plc. one of the corporations described in and which executed the foregoing instrument; that he knows the seal of the said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of the said corporation; and that he signed his name thereto by like order.

S. SAVERIO CAMMARATA JR.
Registration # 41-4902156
Qualified in Queens County
Commission Expires 7-22-95

(notarial seal and stamp)

STATE OF)
) ss.
COUNTY OF)

On the day of , 1994, before me personally came to me known, who being by me duly sworn, did depose and say; that he resides at that he is the President of one of the corporations described in and which executed the foregoing instrument; that he knows the seal of the said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of the said corporation; and that he signed his name thereto by like order.

(notarial seal and stamp)

Unit Terminal

PORT AUTHORITY LEASE NO. AVIC 876

SUPPLEMENT NO. 2

PORT AUTHORITY OF NEW YORK AND NEW JERSEY

AND

BRITISH AIRWAYS, PLC

(the "Lessee")

VOLUME I

utbba-97s2r7ex

THIS AGREEMENT SHALL NOT BE BINDING
UPON THE PORT AUTHORITY UNTIL DULY
EXECUTED BY AN EXECUTIVE OFFICER
THEREOF AND DELIVERED TO THE LESSEE
BY AN AUTHORIZED REPRESENTATIVE OF THE
PORT AUTHORITY

John F. Kennedy International Airport
Port Authority Lease No. **AYB-876**
Supplement No. 2

SUPPLEMENTAL AGREEMENT

THIS SUPPLEMENTAL AGREEMENT made as of April 9, 1998 (said date being hereinafter called the "Effective Date") by and between THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY (hereinafter called the "Port Authority") and BRITISH AIRWAYS, Plc. (hereinafter called the "Lessee"),

WITNESSETH, THAT:

WHEREAS, by an agreement of lease dated as of January 4, 1988 (which lease agreement, as the same has been supplemented and amended is hereinafter called the "Lease"), the Port Authority let to the Lessee and the Lessee hired and took from the Port Authority certain premises at John F. Kennedy International Airport, all as more particularly described in the Lease; and

WHEREAS, the Port Authority and the Lessee desire to amend the Lease in certain respects;

NOW, THEREFORE, for and in consideration of the covenants and mutual agreements herein contained, the Port Authority and the Lessee hereby agree, effective as of the Effective Date (except as otherwise expressly provided), as follows:

1. (a) In addition to the premises heretofore let to the Lessee under the Lease as to which the letting shall continue in full force and effect subject to all the terms and conditions of the Lease, as herein amended, the Port Authority hereby lets to the Lessee and the

Lessee hereby hires and takes from the Port Authority at John F. Kennedy International Airport, Queens, New York, effective as of 12:01 A.M. on the Effective Date (said date being also hereinafter sometimes referred to as the "Area 1 Commencement Date") the ground areas shown in stipple on the sketch attached hereto, hereby made a part hereof and marked "Exhibit A" Sheet 1 of 3 and identified thereon as "Area 1", together with the fixtures, improvements and other property of the Port Authority located or to be located therein or thereon (except as otherwise herein provided), said areas to be and become a part of the premises under the Lease, as herein amended, let to the Lessee (said additional areas being sometimes hereinafter referred to as "Area 1") subject to and in accordance with all of the terms, covenants, provisions and conditions of the Lease, as herein amended for and during all the residue and remainder of the term of the Lease; provided, however, that, notwithstanding anything to the contrary herein, the portions of the "Elevated Parking Structure" (as defined in Section 83 of the Lease, as hereby amended) to be located on or above said added areas shall not be or become part of the premises (or of Area 1) under the Lease, except for the portion thereof which constitutes the "Remote Check-in Space" as defined in Paragraph 3 hereof and which shall become part of the premises on the "Elevated Parking Structure Completion Date" as defined in said Paragraph 3 hereof.

(b) The parties acknowledge and agree that the aforesaid areas added to the premises under this Paragraph 1 constitute non-residential real property.

(c) Subject to Paragraph 2 below, the Lessee accepts Area 1 in its "as is" condition and agrees that the Port Authority shall not have any responsibility for any work or installation to make said Area 1 usable by the Lessee , to place them in any particular condition or to reimburse the Lessee for any work or installation as may be made by or on behalf of the Lessee, the Lessee having exclusive responsibility therefor. However, the Lessee shall not effect, without the prior written approval of the Port Authority, any modification, addition, removal or other change with respect to said areas. Subject to Paragraph 2 below, the Lessee hereby acknowledges that it has not relied upon any representation or statement of the Port Authority or its Commissioners, officers, employees or agents as to the condition of the said areas. The Lessee, prior to the execution of this Agreement, has thoroughly examined the said areas and determined them to be suitable for the Lessee's operations hereunder and the Lessee, subject to Paragraph 2 below, hereby agrees to take Area 1 in the condition it is in as of the Area 1 Commencement Date and, subject to Paragraph 2 below, to assume all responsibility for any and all risks, costs and expenses of any kind whatsoever caused by, arising out of or in connection with, the condition of the said areas whether any aspect of such condition existed prior to, on or after the effective date of the letting of the premises hereunder, including without limitation all Environmental Requirements (as defined in the Lease) and Environmental Damages (as defined in the Lease), and, subject to Paragraph 2 below, to indemnify and hold harmless the Port Authority for all such risks, requirements, costs and expenses. Without limiting any obligation of the Lessee to commence operations hereunder at the time and in the manner stated elsewhere in the Lease as herein amended, the Lessee agrees that no portion of the premises will be used initially or at any time during the letting which is in a condition unsafe or improper for

the conduct of the Lessee's operations hereunder so that there is possibility of injury or damage to life or property. All the obligations of the Lessee under the Lease as hereby amended with respect to the aforesaid responsibilities, risks, costs and expenses assumed by the Lessee shall survive the expiration or termination of the Lease.

(d) The foregoing areas added to the premises as Area 1 shall be subject to the height limitations set forth in paragraph (b) of Section 1 of the Lease, and further subject to the restrictions on construction and to the construction obligations of the Lessee under Section 83 of the Lease, as herein amended.

2. Area 1: Certain environmental testing and clean-up obligations:

(a) (1) Attached hereto, hereby made a part hereof is an exhibit marked "Exhibit L (Book 1 of 3 , Book 2 of 3 and Book 3 of 3)" with respect to Area 1 which consists of (i) a report entitled "J.F.K. International Airport British Airways Building 59 Environmental Investigation Summary Report" including its appendices and its compilation of reports and tests results of soil and water samples taken on various dates in November 1997 from nine (9) test boring and monitoring wells, and setting forth the levels of certain chemicals and compounds in the soil and the groundwater of the upper aquifer of Area 1, as said items are more specifically named and set forth therein; all of the aforesaid items mentioned in the foregoing clauses , as more specifically named and set forth in Exhibit L, for which the said samples were tested as set forth in Exhibit L are hereinafter collectively referred to as the "Analyzed Items".

(2) The said reports and tests results described in sub-subparagraph (1) above as applied by the methodology set forth in paragraph (b) below for the establishment of the levels of the Analyzed Items for all portions of Area 1 are hereinafter called the "Area 1 Initial Existing Condition".

(3) If after any remediation performed on Area 1, whether by the Lessee, the Port Authority or a third party(ies), the Port Authority shall sample and test the soil and upper aquifer of Area 1 or portions thereof (which testing shall be done by a duly qualified independent contractor and testing laboratory mutually acceptable to the Port Authority and the Lessee) and shall set forth the results of such subsequent tests in a report (it being understood however that the Port Authority shall not have any obligation hereunder to perform such subsequent sampling and testing or to set forth the results thereof in a subsequent report), upon delivery of such subsequent report and subsequent test results to the Lessee, such report and test results shall supersede Exhibit L or the applicable portions thereof if the test results and report are of Analyzed Items which have been previously tested and the results thereof reported in Exhibit L and the existing and new test results are from samples taken from the same well or a new well or boring which is immediately adjacent to such well or boring and shall supplement Exhibit L or the applicable portions thereof if the test results and report would not supersede any test results and reports in Exhibit L as aforesaid, and the results of such report setting forth the

levels of the Analyzed Items in the soil and upper aquifer of Area 1 together with those portions of Exhibit L which have not been superseded, as applied by the methodology set forth in paragraph (b) below for the establishment of the level of the Analyzed Items for all portions of Area 1, shall thereafter upon such delivery to the Lessee be and be deemed to be an "Area 1 Succeeding Existing Condition" with respect to Area 1 under this Paragraph; provided, however, and notwithstanding the foregoing, in no event shall the level of any Analyzed Item in any Area 1 Succeeding Existing Condition be above the lower of (i) the level for such Analyzed Item as set forth in the Area 1 Initial Existing Condition or (ii) the lowest level to which such Analyzed Item has been remediated as shown in an Area 1 Succeeding Existing Condition.

(4) The Area 1 Initial Existing Condition as superseded and supplemented by each Area 1 Succeeding Existing Condition is hereinafter called the " Area 1 Existing Condition". The Area 1 Existing Condition shall be, for the purposes of this Agreement, the level of the Analyzed Items in the soil and upper aquifer in Area 1 provided, however, and notwithstanding the foregoing, in no event shall the level of any Analyzed Item in any Area 1 Existing Condition be above the lower of (i) the level for such Analyzed Item as set forth in the Area 1 Initial Existing Condition or (ii) the lowest level to which such Analyzed Item has been remediated to as shown in an Area 1 Succeeding Existing Condition.

(b) The level of an Analyzed Item for any Area 1 Existing Condition at any location in Area 1 shall be the level of that Analyzed Item as shown in the reports and test results constituting such Area 1 Existing Condition taken from samples at the well or boring located on Area 1 at or nearest to such location.

(c) (l) The Lessee and the Port Authority agree as between themselves, and notwithstanding any other evidence to the contrary, that the levels of the Analyzed Items in the soil and upper aquifer of Area 1 as of the Area 1 Commencement Date (as defined in Paragraph 1 hereof) shall be and shall be deemed as set forth in Exhibit L and only as set forth in Exhibit L. Without limiting the generality of Section 39 of the Lease or of Paragraph 1 hereof, the Lessee agrees to accept Area 1 with the Area 1 Initial Existing Condition.

(2) (i) In addition to and without limiting the foregoing or any other term or provision of the Lease, including without limitation Sections 7, 8, 9, 10 and 11 thereof, it is expressly understood and agreed that the proper handling, delivery, treatment, storage, transportation, disposal, and depositing (all of the foregoing being hereinafter collectively referred to as "Disposal"), whether on or off the Airport, of any soil, dirt, sand, water or other matter (hereinafter collectively called the "Matter") excavated, disturbed or removed by the Lessee (or by any contractor or contractors of the Lessee) at or from Area 1 at any time or times, including without limitation any and all remediation and Disposal of said Matter and any and all other remediation, Disposal and clean up (whether soil, upper aquifer or otherwise) necessary, required or appropriate as a result of, caused by, incidental to or triggered by such excavation, disturbance or removal of the Matter or arising therefrom, and the taking or doing of

any and all other action or actions necessary, required or appropriate in connection therewith, shall be the sole and complete responsibility of the Lessee, including without limitation all costs and expenses thereof and any and all claims, penalties or other expenses relating thereto. The foregoing obligations of the Lessee shall obtain and apply with full force and effect irrespective of the nature or source of any contaminants, pollutant, chemical, waste or other substance or whether any of the same is an Analyzed Item or whether any of the same is at a level or levels above or below the level or levels of the Area 1 Existing Condition or whether there has or has not been any increase in such level or levels. The Lessee shall perform all of the foregoing in accordance with and subject to all the terms, provisions, covenants and conditions of the Lease including without limitation Sections 7, 8, 9, 10 and 11 thereof.

(ii) Notwithstanding any term or provision hereof to the contrary, the Lessee shall not be responsible for remediation of soil which is excavated by the Lessee from Area 1 in order for it to perform the On-Premises Area 1 Work or the Lessee LRS Work (as defined in and pursuant to and under Section 83 of the Lease as set forth in this Supplemental Agreement) and during the course of the said On-Premises Area 1 Work or the Lessee LRS Work and which soil is not used at Area 1; *provided that* (x) the Lessee shall deliver such soil at its expense to an on-Airport location as designated by the Port Authority, (y) the contaminant or contaminants in such soil were not caused by or did not result from any act or omission of the Lessee, and (z) the Lessee is able to prove to the reasonable satisfaction of the Port Authority that such contaminant or contaminants, if not listed in Exhibit L, in fact existed in Area 1 prior to the Area 1 Commencement Date.

(3) Notwithstanding anything to the contrary herein or in the Lease, the Lessee shall have no obligation under the Lease with respect to the Area 1 Existing Condition (other than the obligations described in subparagraph (2) above, the obligations described in subparagraph (4) below and the obligations described in paragraph (e) below) including but not limited to any other obligation to remediate the Area 1 Existing Condition, or to pay any claim, penalty or expense with respect thereto (including any which relate to other premises allegedly affected by the Area 1 Existing Condition or the spread of such contaminants from Area 1); provided, however, if any of the levels of the Analyzed Items, or any of them, in the soil or the upper aquifer of Area 1 shall increase above the Area 1 Existing Condition then the Lessee shall have such obligations with respect to such increase to the extent required by and in accordance with the terms and conditions of the Lease, as hereby amended; provided, further, however, if such increase is caused by the flow of ground water from outside the premises under the Lease or by the leaching of contaminants from outside the premises under the Lease or by the acts or omissions of the Port Authority, then the Lessee shall have no such obligations with respect to such increase.

(4) It is expressly understood and agreed that, notwithstanding anything to the contrary above, in the event the Area 1 Initial Existing Condition or any Area 1 Existing Condition or any portion thereof was caused by or resulted from the Lessee's use of or operations

at Area 1, or the Lessee's use or occupancy of any other portion of the premises under the Lease, or any act or omission of the Lessee or of any of its agents, contractors or representatives, or any act or omission of any subusers of the Lessee, then the Lessee shall have all obligations with respect to the remediation of Area 1, the Area 1 Initial Existing Condition and any Area 1 Existing Condition; and neither this Paragraph 2 nor any remediation of the Area 1 Initial Existing Condition by the Port Authority or of the Area 1 Existing Condition shall or shall be deemed to release or relieve the Lessee from its said obligations.

(d) Without limiting the generality of the provisions of Section 20 of the Lease, the Port Authority and its designees shall have the right but not the obligation to enter upon Area 1 upon forty-eight (48) hours' notice to the Lessee to conduct testing and related activities from the existing wells made by the borings referred to in paragraph (a) above, to make additional wells and borings and to conduct testing and related activities therefrom and to perform such activities as shall be necessary to remediate the Area 1 Initial Existing Condition including but not limited to conducting pumping operations from the wells made by borings referred to in paragraph (a) above and this paragraph (d). In the exercise of the foregoing rights the Port Authority and its designees shall not unreasonably interfere with the use and occupancy of Area 1 by the Lessee.

(e) Without limiting the generality of the provisions of Section 11 of the Lease, the Lessee agrees to protect and maintain the wells made by the borings referred to in paragraphs (a) and (d) above and shall repair any damage thereto not caused by the activities of the Port Authority, if any, or its designee(s), if any, pursuant to paragraphs (a) and (d) above. If in connection with the Construction Work under Section 83 of the Lease it is necessary to fill any of the said wells, then, provided that such filling is permitted or approved by the Port Authority, the Lessee shall perform such filling and all work necessary or required for a replacement well or wells in accordance with the terms and provisions of the Lease and the related Construction Applications (s) to be submitted by the Lessee covering such work in accordance with Section 83 of the Lease, as the same may be approved by the Port Authority, and, further the Lessee hereby agrees that all costs and expenses for and in connection with the filling of such well or wells and the drilling of a new well or well to replace the filled well or wells shall be borne by the Lessee and the Port Authority on an equal (50/50) basis provided that the Port Authority's said share of such costs and expenses shall not in any event exceed the amount of Fifteen Thousand Dollars and No Cents ($15,000.00). The said costs and expenses and each part and share thereof shall not form a part of the Cost of the Eligible Construction Work (except as otherwise expressly provided in Section 84 of the Lease) or the Cost of the Lessee LRS Work under Section 84 of the Lease. The obligation of the Lessee to protect and maintain the wells as set forth in the first sentence of this paragraph (e) shall be deemed to also pertain and apply to any and all such replacement wells.

(f) The Lessee acknowledges that it has been in occupancy of the premises under

the Lease (other than Area 1) prior to the Effective Date, and the Lessee's duties, responsibilities, liabilities and obligations, and the Port Authority's rights and remedies, with respect to said premises under the Lease shall not be or construed to be limited, diminished or impaired by this Paragraph 2.

(g) Nothing in this Paragraph 2 shall limit , modify waive or otherwise alter the rights, claims and remedies which the Port Authority or the Lessee may have against third parties or persons whether at law, equity or otherwise.

3. (a) In addition to the premises heretofore let to the Lessee under the Lease, as herein amended, as to which the letting shall continue in full force and effect subject to all the terms and conditions of the Lease, as herein amended, the Port Authority hereby lets to the Lessee and the Lessee hereby hires and takes from the Port Authority at John F. Kennedy International Airport, Queens, New York, effective as of 12:01 A.M. on the Elevated Parking Structure Completion Date (as defined below) the unenclosed space located on that portion of the second level of the Elevated Parking Structure (as defined in Section 83 of the Lease) as shown in stipple on the sketch attached hereto, hereby made a part hereof and marked "Exhibit A"Sheet 2 of 3, together with the fixtures, improvements and other property of the Port Authority located or to be located therein or thereon, said unenclosed space to be and become a part of Area 1 of the premises under the Lease, as herein amended, let to the Lessee (said unenclosed space being sometimes hereinafter referred to as "Area 1 Remote Check-in Space") subject to and in accordance with all of the terms, covenants, provisions and conditions of the Lease, as herein amended for and during all the residue and remainder of the term of the Lease.

For purposes of the foregoing, the term "Elevated Parking Structure Completion Date" shall mean the earliest to occur of (i) the Completion Date, as defined in Section 83 (r) (2) of the Lease; or (ii) the separate date, if any, set forth in a completion certificate delivered to the Lessee by the Port Authority under Section 83 (r) (3) of the Lease as the completion date of the Area 1 Remote Check-in Space.

(b) The parties acknowledge and agree that the aforesaid area added to the premises under this Paragraph 3 constitutes non-residential real property.

(c) The Lessee accepts the aforesaid area in its "as is" condition and agrees that the Port Authority shall not have any responsibility for any work or installation to make said area usable by the Lessee , to place them in any particular condition or to reimburse the Lessee for any work or installation as may be made by or on behalf of the Lessee, the Lessee having exclusive responsibility therefor. However, the Lessee shall not effect, without the prior written approval of the Port Authority, any modification, addition, removal or other change with respect to said area. The Lessee hereby acknowledges that it has not relied upon any representation or statement of the Port Authority or its Commissioners, officers, employees or agents as to the condition of the said area. The Lessee hereby agrees to take the aforesaid area

in the condition it is in as of the Elevated Parking Structure Completion Date, to assume all responsibility for any and all risks, costs and expenses of any kind whatsoever caused by, arising out of or in connection with, the condition of the said area whether any aspect of such condition existed prior to, on or after the effective date of the letting of the premises hereunder, including without limitation all Environmental Requirements (as defined in the Lease) and Environmental Damages (as defined in the Lease), and to indemnify and hold harmless the Port Authority for all such risks, requirements, costs and expenses. Without limiting any obligation of the Lessee to commence operations hereunder at the time and in the manner stated elsewhere in the Lease as herein amended, the Lessee agrees that no portion of the premises will be used initially or at any time during the letting which is in a condition unsafe or improper for the conduct of the Lessee's operations hereunder so that there is possibility of injury or damage to life or property. All the obligations of the Lessee under the Lease as hereby amended with respect to the aforesaid responsibilities, risks, costs and expenses assumed by the Lessee shall survive the expiration or termination of the Lease.

(d) The foregoing area added to the premises shall be subject to the height limitations set forth in paragraph (b) of Section 1 of the Lease, and further subject to the restrictions on construction and to the construction obligations of the Lessee under Section 83 of the Lease, as herein amended.

4. (a) Paragraph (a) of Section 3 of the Lease is hereby amended as follows: There shall be deemed added at the end thereof a new subparagraph (3) reading as follows:

"(3) Additional basic rental--Area 1:

(i) For the portion of the term of the letting hereunder commencing on the date of the commencement of the term of the letting of Area 1 of the premises hereunder, as such date is set forth in subparagraph (a) of Paragraph 1 of Supplement No. 2 of the Lease (the "Area 1 Commencement Date"), to and including the day preceding the Area 1 Remote Check-in Space Rent Start Date, as defined in subsubparagraph (ii) below, in addition to the other rentals set forth in the Lease, hereby agrees to and shall pay to the Port Authority basic rental for Area 1 at the annual rate of (2.a.)

subject to annual increases as provided in Subdivision II of paragraph (b) hereof and subject to the increases as provided in subsubparagraph (ii) below.

(ii) For the portion of the term of the letting hereunder commencing on the Area 1 Remote Check-in Space Rent Start Date, as defined herein, to and including the expiration of the term of the letting hereunder, in addition to the other rentals set forth in the Lease, hereby agrees to and shall pay to the Port Authority basic rental for Area 1 at the annual rate equal to the sum produced (x) by multiplying the number of square feet of the Area 1 Remote Control Check-in Space (to be constructed by the Lessee pursuant to Section 83 hereof)

by (2.a.) as increased on and after the first year anniversary of the Area 1 Commencement Date by the annual increases pursuant to Subdivision II of paragraph (b) below, and (y) by adding to the product of said multiplication the amount of the basic rental for Area 1 under subsubparagraph (i) above as increased effective on and after the first anniversary of the Area 1 Commencement Date by increases pursuant to Subdivision II of paragraph (b) below; said basic rental for Area 1 to be thereafter subject to further annual increases as provided in Subdivision II of paragraph (b) below.

For purposes of the above, the 'Area 1 Remote Check-in Space Rent Start Date' shall mean the earliest to occur of (i) the Completion Date, as defined in Section 83 (r) (2) of the Lease; (ii) the separate date, if any, set forth in a completion certificate delivered to the Lessee by the Port Authority under Section 83 (r) (3) hereof as the completion date of the Area 1 Remote Check-in Space, or (iii) March 31, 2002 ."

(b) Paragraph (b) of said Section 3 of the Lease is hereby amended as follows:

(1) The first line thereof shall be deemed amended to read as follows:

"(b) I. CPI Adjustments applicable to rentals under paragraphs (a) (1) and (a) (2) above:"

(2) The words "subparagraphs (1) and (2) of" shall be deemed inserted immediately preceding the fifth line of subparagraph (4) thereof.

(3) The following shall be deemed inserted immediately following subparagraph (6) thereof:

"II. Annual increases/CPI Adjustments applicable to Area 1 rental under subsubparagraph (i) and (ii) of paragraph (a) (3) above.

(1) 'Area 1 CPI' or 'Area 1 Consumer Price Index' shall mean the Consumer Price Index for all Urban Consumers, New York-Northern New Jersey, Long Island, NY- NJ-CT, (All Items unadjusted 1982-84=100) published by the Bureau of Labor Statistics of the United States Department of Labor.

(2) The Port Authority shall ascertain the Area 1 CPI for the month in which the Area 1 Commencement Date occurs and for the month in which the first year anniversary of the Area 1 Commencement Date occurs and for the same calendar month in each year thereafter during the term of this Agreement after the same has been published, and the Port Authority shall also determine the annual percentage increase, if any, for each such twelve month period after the same has been published (hereinafter

called 'the annual Area 1 CPI percentage increase').

(3) Effective on the first day of the month in which the first year anniversary of the Area 1 Commencement Date occurs the rentals set forth above in subsubparagraph (i) and (ii) of paragraph (a) (3) of this Section 3 shall be increased as follows: (i) the annual rental rates as set forth in said subsubparagraph (i) and (ii) of paragraph (a) (3) shall be multiplied by a percentage composed of l/2 of the annual Area 1 CPI percentage increase, if any, for the latest twelve month period using the same calendar month in accordance with subparagraph (2) above plus 100%; and (ii) the annual rental rates as set forth in said subsubparagraph(i) and (ii) of paragraph (a) (3) shall be multiplied by 104%; and the greater of the two products so obtained by the calculations set forth in the foregoing clauses (i) and (ii) shall be and become the annual rental for Area 1 in effect for the annual period commencing on the said first day of the month in which the first anniversary of the Area 1 Commencement Date occurs and ending on the last day of the immediately succeeding twelfth month.

It is understood that while the foregoing calculation shall also include the annual rental rate applicable to the Area 1 Remote Check-in Space for purposes of determining the annual increases thereto, the same shall become part of the annual rental for Area 1 upon the Area 1 Remote Check-in Space Rent Start Date, in accordance with and as provided in subsubparagraph (ii) of paragraph (a) (3) above.

(4) Effective on the first day of the month in which the second year anniversary of the Area 1 Commencement Date occurs and thereafter on the first day of the month in each succeeding year of the Area 1 Commencement Date during the term of the letting hereunder the basic rental for Area 1 set forth in paragraph (a) (3) of this Section 3 shall be increased as follows: (i) the annual rental rate as set forth in said subsubparagraph(i) and (ii) of paragraph (a) (3) as the same may have been last adjusted hereunder, shall be multiplied by a percentage composed of ½ of the annual Area 1 CPI percentage increase, if any, as determined for the latest twelve month period using the same calendar month in accordance with subparagraph (2) above plus 100%; (ii) and the said annual rental rate as set forth in said paragraph (a) (3) of this Section 3 as the same may have been last adjusted hereunder shall be multiplied by 104%; and the greater of the two products so obtained by the calculations set forth in the foregoing clauses (i) and (ii) shall be and become the basic annual rental for Area 1 in effect for the annual period ending on the last day of the immediately succeeding twelfth month.

It is understood that while the foregoing calculation shall also include the annual rental rate applicable to the Area 1 Remote Check-in Space for purposes of determining the annual increases thereto, the same shall become part of the annual rental for Area 1 upon the Area 1 Remote Check-in Space Rent Start Date, in accordance with and as provided in subsubparagraph (ii) of paragraph (a) (3) above.

the event the Area 1 CPI for the calendar month to be used in
e of the basic rental for Area 1 is not available as of the effective
the Lessee shall continue to pay the basic rental for Area 1 at the
t to retroactive adjustment and a lump sum payment of any
deficiency so determined at such time as the Area 1 Consumer Price Index for said calendar month becomes available. In the event that the Area 1 Consumer Price Index is not available for any specified month as hereinabove set forth within the time set forth for payment such index for the latest month then published shall be used to constitute the Area 1 Consumer Price Index. In the event of the change of basis or the discontinuance of the publication by the United States Department of Labor of the Area 1 Consumer Price Index such other appropriate index or indexes shall be substituted as may be agreed by the parties hereto as properly reflecting changes in the value of the current United States money in a manner similar to that established in the said indexes used in the latest adjustment. In the event of the failure of the parties to so agree, the Port Authority may select and use such index or indexes as it deems appropriate, provided, however, that the foregoing shall not preclude the Lessee from contesting the Port Authority's selection.

(6) In no event shall any rental rate established under this paragraph (b) be less than the rental rate it supersedes."

(c) Paragraph (c) of said Section 3 of the Lease is hereby amended by adding at the end thereof the following:

"That portion of the rental hereunder which constitutes the annual basic rental for Area 1 shall be payable by the Lessee in advance in equal monthly installments on the first day of the term of the letting of Area 1 (the Area 1 Commencement Date) and on the first day of each and every calendar month thereafter during the balance of the term of the letting. If the commencement date for the payment of basic rental for Area 1 herein be other than the first day of the month, or if any installment of basic rental for Area 1 payable hereunder shall be for less than a full calendar month, then the rental payment for the portion of the month for which said payment is due shall be the monthly installment prorated on a daily basis using the actual number of days in the said month."

(d) (1) Subparagraph (1) of paragraph (d) of Section 3 of the Lease is hereby amended by adding at the end thereof the following:

"For each square foot of land of Area 1 as shown in stipple on Sheet 1 of Exhibit A the use of which is denied to the Lessee at the daily rate of (2.a.) as appropriately adjusted to reflect any

and all CPI adjustments pursuant to paragraph (b) above."

(2) A new subparagraph (3) shall be deemed added to said paragraph (d) of said Section 3 of the Lease reading as follows:

"For each square foot of space in the Area 1 Remote Check-in Space as shown in stipple on Sheet 2 of Exhibit A , the use of which is denied to the Lessee at the daily rate of (2.a.) as appropriately adjusted to reflect any and all Area 1 CPI adjustments pursuant to paragraph (b) above."

5. Section 5 of the Lease is hereby amended by adding at the end of paragraph (20) thereof the following:

"(21) With respect to that portion of the premises shown in stipple on Sheet 2 of Exhibit A attached to Supplement No. 2 of the Lease, effective from and after the 'Area 1 Remote Check-in Space Completion Date' as defined in Paragraph 3 of Supplement No. 2 of the Lease, the Lessee shall use the same solely for the remote-check in of automobiles of passengers of the Lessee which automobiles are to parked in a public parking lot at the Airport; it being understood that the Lessee shall not and is expressly prohibited from parking or storing any automobiles or other vehicles on said portion of the premises."

6. (a) Section 83 of the Lease entitled "Entire Agreement" shall be deemed renumbered as Section 88 and the number appearing in the second line thereof as "83" shall be deemed amended to read "88", and the words "and also the Exhibits (A, B, C, D, E, F, G, H, I, J, K, L [Book 1 of 3, Book 2 of 3, and Book 3 of 3], M, and S) and the Attachment A and the Schedule E attached to Supplement No. 2 to this Lease" shall be added at the end of the first sentence thereof.

(b) New Sections 83, 83A, 83B, 84, 85, 86 and 87 are hereby added to the Lease and made a part thereof reading as follows:

"Section 83. Additional Construction by the Lessee

(a) (1) As used herein the term 'Construction Work Site' shall for the purposes of the Construction Work under this Section 83 mean:

(i) 'Area 1' which shall, for purposes of the Construction Work hereunder, consist of the ground areas added to the premises under Paragraph 1 of Supplement No. 2 to the Lease; and the area within the premises upon which the Terminal 7 Building

Expansion, as hereinafter defined, is to be constructed.

(ii) 'Area 2' which shall consist of the areas outside of the premises hereunder and located in 'Quadrant 4' of the Central Terminal Area of the Airport (which encompasses approach roads, exiting and recirculation roadways, frontage and parking areas located in front of the premises hereunder and also in front of Terminals 5 and 6 at the Airport and in front of the Cogeneration Facility (as defined in Supplement No. 1 of the Lease) and includes the north entry toll plaza to the parking lot located in front of Terminal 4 and known as the 'blue parking lot' , and the east parking garage) upon which the Lessee shall perform the Off-Premises Work (as defined below) and portions of the Lessee LRS Work (as defined below) pursuant to this Section 83 as such roads, roadways and areas are generally shown in bubble hatch and cross hatch on Sheet 1 of Exhibit B and in wavy hatch and in cross-hatch on Sheet 2 of Exhibit B attached to said Supplement No. 2 to the Lease.

(2) As used herein the term 'Terminal 7' shall mean the passenger terminal building forming a part of the premises hereunder.

(3) As used herein the terms 'Terminal 4' ,'Terminal 5' , and 'Terminal 6' shall mean the passenger terminal buildings at the Airport identified as such on Exhibit B.

(4) As used herein the term 'Project' shall mean the Construction Work as defined in paragraph (f) of this Section 83.

(5) As used herein the term 'Project Schedule' shall mean the schedule shown on Exhibit C attached hereto and hereby made a part hereof.

(6) As used herein the term 'Port Authority Basis of Design' shall refer to the document attached hereto entitled "Port Authority of New York and New Jersey Technical Design Criteria and Assumptions for JFK Roadway Contract Package # 5", hereby made a part hereof and marked 'Attachment A'.

(7) As used herein the terms 'LRS Contractor' and 'LRS DBOM Contractor' shall mean the contractor(s) hired by the Port Authority to build the 'LRS' (as defined in Section 75 of this Lease).

(8) The Lessee understands that the Port Authority presently has in effect and has planned various physical improvements and policies concerning and affecting the use of vehicular roadways in the Central Terminal Area of the Airport (the 'CTA' as generally shown on Exhibit S) for the limitation and control of traffic thereon including the limitation and control of vehicular traffic on the premises and vehicular traffic moving between the Air Terminal Highways, as designated from time to time by the Port Authority in the CTA of the Airport, and the vehicular roadways on the premises connecting to the said Air Terminal

Highways. It is further recognized that the Port Authority has developed design criteria for the development of the vehicular roadways in the Construction Work Site and that said design criteria is attached hereto and marked 'Attachment A' and hereby made a part hereof.

(b) The Lessee shall, prior to its submission to the Port Authority of the plans and specifications hereinafter provided for, submit to the Port Authority for its consent, the Lessee's comprehensive plan for the development of the Construction Work Site, including the Lessee's completion of the planning, design and performance of the roadway development (roadway package #5) in the Construction Work Site as part of the Construction Work and the construction of the On-Premises Area 1 Work and the Terminal 7 Building Expansion Work as set forth in paragraph (c) below and the construction of the Off-Premises Work as set forth in paragraph (d) below and the construction of the Lessee LRS Work as set forth in paragraph (e) below, including but not limited to renderings, layouts, locations, models, estimated commencement and completion dates, and preliminary functional plans. Said comprehensive plan shall also include the Port Authority's Basis of Design (Attachment A attached hereto), together with the further design development documents (the 'Design Development Documents') based thereon which shall be prepared by the Lessee and submitted to the Port Authority for its approval; said comprehensive plan, Port Authority's Basis of Design and said Design Development Documents as approved by the Port Authority shall constitute the Lessee's 'Comprehensive Plan' hereunder. The Lessee shall keep the Comprehensive Plan covered by this paragraph (b) (including the On-Premises Area 1 Work and the Terminal 7 Building Expansion Work covered by paragraph (c) below and the Off-Premises Work covered by paragraph (d) below and the construction of the Lessee LRS Work as set forth in paragraph (e) below) up to date and shall submit to the Port Authority for its prior approval any amendments, revisions, or modifications thereof, which amendments, supplements or modifications shall not become effective until the same have been approved by the Port Authority.

(c) <u>On-Premises Area 1 Work and Terminal 7 Building Expansion Work:</u> (1) Without limiting the above, the Lessee agrees that said Comprehensive Plan shall include the construction in, on and under the premises of the Terminal Building Expansion Work as defined and described in item (i) below; and the construction in, on and under Area 1 of the following portions of the Construction Work as defined and described in items (ii) through (x) below ("On-Premises Area 1 Work"):

(i) An expansion of the terminal building consisting of the addition of approximately 18,000 square feet of floor space to be located in the area generally shown in solid/broken diagonal hatch on Sheet 2 of Exhibit B, the foregoing together with all associated and related areas and facilities, including but not limited to stairwells, stairways, escalators and elevators being sometimes referred to hereinafter as the 'Terminal 7 Building Expansion';

(ii) The construction and installation of all appropriate lines, pipes, mains,

cables, manholes, wires, conduits and other facilities required in connection with or relating to the mechanical, utility, electrical, storm sewer, sanitary sewer, communications, security, telephone, fire alarm, fire protection, gas and other systems including all necessary relocations, and all work necessary or required to tie the foregoing to the utility access stubs now existing or to be constructed as part of the Off-Premises Work which include water, electrical power, sanitary service lines, including all necessary valves and other equipment and accessories necessary to the use and operation of the heating, electrical, water, communications and other utility systems serving or which are to serve the premises; and including all stubouts for the LRS station at Terminal 7 and guideway tie-ins based on information to be supplied to the Lessee by the Port Authority in a timely manner (said stubouts being hereinafter sometimes referred to as the 'LRS Station 7 Stubouts');

(iii) (1) To the extent permitted by KIAC (as defined in Supplement No. 1 to the Lease), all work necessary or required to relocate and/or construct lateral mains to tie into the Central Terminal Area ring supply lines for hot water for heating and domestic use purposes only and chilled water for air conditioning purposes only in accordance with the requirements and specifications as set forth in Section 52 of this Lease;

(2) To the extent permitted by KIAC, the work specified in subdivision (1) above, upon completion, will become the property of the Port Authority and will not be part of the premises;

(iv) New upper level and lower level roadways on Area 1 and all other necessary or appropriate ground and elevated roadways, ramps, sidewalks, vehicular service areas, and vehicular staging areas, and pedestrian circulation areas, including without limitation the on-premises portions of the following ramp and roads:

> a portion of the elevated ramp that will provide access to Terminal 7; an expanded lower-level Arrivals frontage for Terminal 7 that will provide a separate road and pick up island for private automobiles, taxis and buses; an expanded upper level Departures frontage for Terminal 7; a portion of the new recirculation road for Terminal 7; a portion of the road providing a HOV (high occupancy vehicle) connection between Terminal 6 and Terminal 7;

together with all related and associated areas and facilities (all of the foregoing being herein sometimes called the "Premises Circulation Areas" and the portion of the Construction Work consisting solely of the aforesaid upper level and lower level roadways, ramps, frontage roads, vehicular service areas and vehicular staging areas described in this clause (iv) is also sometimes hereinafter referred to as the 'On-Premises Area 1 Roads');

(v) All grading and paving of ground areas and appropriate landscaping together with all related and associated work, including without limitation decorative paving of

selected areas and landscaping and irrigation of the unpaved areas described in item (iv) above;

(vi) All necessary or required fencing including functional decorative fencing at locations identified by the Port Authority;

(vii) All necessary or required work to conform to Port Authority frontage control requirements, and all necessary or required work to conform to Port Authority requirements for access to public parking areas including static and dynamic sign systems;

(viii) All other appropriate or necessary work in connection with the foregoing items, including without limitation thereto, all borings, surveys, route marker signs, obstruction lights and material inspections and also including all other tie-ins to utility lines and roadway access stubs, and tie-ins to the Off-Premises Work hereunder; and

(ix) Subject to the terms and provisions set forth in Paragraph 2 of Supplement No. 2 of the Lease with respect to the Area 1 Initial Existing Condition, all appropriate, necessary or required demolition and removal work, and including without limitation all appropriate, required or necessary work for the removal, clean-up and remediation and off-airport disposal, in accordance with all Environmental Requirements, of all asbestos, lead and other Hazardous Substances, and including the handling, transporting and off-Airport disposal thereof in accordance with all Environmental Requirements (including, if required, disposal of asbestos in an off-Airport long-term asbestos-only disposal facility);

(x) All necessary or appropriate work within other areas of the premises outside of the Construction Work Site required in connection with the On-Premises Area 1 Work;

(2) All of the foregoing work described in subparagraph (1) of this paragraph (c) shall be constructed by the Lessee on Area 1 and on other portions of the premises where required and shall be and become a part of the premises under the Lease, except as otherwise provided in this Lease. All of the foregoing work described in items (ii) through (x) of the foregoing subparagraph (1) and any other on-premises work on Area 1 which the Lessee includes in its Comprehensive Plan and which is consented to by the Port Authority are sometimes herein collectively referred to as 'the On-Premises Area 1 Work'. The Terminal Building Expansion Work described in items (i) of the foregoing subparagraph (1) and the On-Premises Area 1 Work are sometimes collectively called the 'On-Premises Work'.

(d) Off-Premises Work: (1) In addition to all the hereinabove mentioned, the Lessee shall include as part of its Comprehensive Plan submitted in accordance with paragraph (b) hereof the construction of the following portions of the Project in, on and under Area 2, which construction, however, shall not be on the premises and shall not be part of the premises

under the Lease. The Lessee, its contractors, subcontractors, suppliers of materials and furnishers of services shall at all reasonable times have access to Area 2, subject and pursuant to and in accordance with the Port Authority's right of entry as to other tenant areas, and such other areas immediately adjacent thereto under the control of the Port Authority as necessary to perform the construction obligations set forth in this paragraph (d) of this Section 83. Said portions of the Construction Work outside of the premises under this Lease shall include:

(i) New airport roads and roadway ramps, including but not limited to approach, exiting and frontage roadways and recirculation roadways in Area 2, on the areas shown generally in wavy hatch and in cross-hatch on Sheet 2 of Exhibit B, attached hereto, hereby made a part hereof, and including all replacements to the existing road system in front of the premises and in front of Terminals 5 and 6 , separate circulation routes, all tie-ins to the Premises Circulation Areas and including all frontage, access, ingress and egress roads for Terminals 5 and 6 , as well as any and all associated or related extension, widening, realignment, relocation and rehabilitation of existing Airport roads, together with all appropriate ground lighting, lines, pipes, drains, wires, cables, manholes and conduits and other facilities; including but not limited to the following:

> demolition and reconstruction of a portion of the inbound three-lane road that will provide access to Terminal 5, Terminal 6 and the premises hereunder (Terminal 7); a portion of the elevated ramp that will provide access to Terminal 7; demolition and reconstruction of the access road to Terminal 5 and Terminal 6, a new signalized intersection between Terminal 5 and Terminal 6; modifications to the 'A' Road in front of Terminal 6; construction of a new egress road serving Terminal 5 and Terminal 6, construction of the recirculation road serving Terminal 5 and Terminal 6; construction of a portion of the new recirculation road for Terminal 7 located on the south side of the Cogeneration Facility; construction of a modified access road to the Cogeneration Facility on the south side of the Cogeneration Facility; construction of a portion of the road providing an HOV connection between Terminal 6 and Terminal 7;

all of the foregoing being sometimes hereinafter collectively called the 'Off-Premises Roads';

(ii) All retaining walls, bridge structures, sign bridges, ground mounted signs, static and dynamic sign systems for roads, parking and frontages, lift stations, guiderails and concrete barriers, traffic signals and controllers, canopies, light poles and high mast towers, parking lot entrance and exit plaza realignments, new exit toll plaza at Terminals 5 and 6, all modifications to the Revenue Control System associated with the reconfigured parking lots in the Construction Work Site including but not limited to ancillary structures and service buildings, crash gates at all parking lots, escape lanes between inner and outer frontage roads, a new entrance plaza and its approaching and exiting ramps on the north side of the 'blue parking lot' serving Terminal 4; reconfigured entrance/exit plazas and associated Revenue Control system equipment necessary for the parking lots serving Terminal 4, Terminal 5, Terminal 6 and

Terminal 7; together with all appropriate or necessary work in connection with any or all of the foregoing:

(iii) Expanded vehicular parking areas serving Terminal 7 and including an elevated vehicular parking structure with two (2) levels with a minimum of seven hundred and fifty (750) public parking spaces including all lamping, striping and all appropriate ground and upper-level lighting, lines, pipes, drains, wires, cables, manholes, conduits, fire alarm and fire protection system and other facilities and all other necessary or appropriate work in connection therewith ('the Elevated Parking Structure'), including without limitation all appropriate or necessary work to provide sufficient vertical clearance for equipment to access and maintain or replace utilities under the Elevated Parking Structure; with the second level of said Elevated Parking Structure to include all work necessary, required or appropriate for the 'Area 1 Remote Check-in Space in the area generally as shown in stipple on Exhibit A, Sheet 2.

(iv) Expanded vehicular parking areas serving Terminal 5 and Terminal 6 and including at-grade automobile parking areas to be located in front of Terminal 5 and Terminal 6 with a minimum of four hundred and fifty (450) public parking spaces including all static and dynamic signing required to divert persons parking their vehicles from the parking area known as the 'orange lot' into the 'blue lot' and from the 'blue lot' into the 'orange lot', all lamping, striping and all appropriate ground lighting, lines, pipes, drains, wires, cables, manholes and conduits and other facilities and all other necessary or appropriate work in connection therewith ('the At-Grade Parking Areas');

(v) Construction, including but not limited to all necessary or appropriate relocations, of all appropriate utility lines, mains, pipes, drains, manholes, wires, cables, conduits and other facilities in Area 2 including without limitation portions of the Airport-wide utility distribution network that must be relocated for the construction of the Elevated Parking Structure and the expanded frontage roads serving Terminal 7, the support structure for the LRS connector, station and guideways, and the roadway serving Terminal 7, and also including lift stations for the drainage systems serving below-grade roadways, and also including all service lines for the supply of water, electrical power, gas, communications, security, sanitary sewer, storm sewer, fire alarm, fire protection, and other systems and facilities necessary or appropriate to service all areas, buildings, facilities in Area 2; with the relocations to such locations as the Port Authority may designate; the foregoing being respectively called 'the water lines', or 'the electric lines', 'gas lines', 'sanitary lines', 'sewer lines', 'communication lines', and all of the foregoing being hereinafter called the 'Area 2 Utility Lines Construction';

(vi) With respect to the Area 2 Utility Lines Construction, all appropriate, necessary or required demolition and removal work including without limitation all appropriate, necessary or required removal, clean-up and remediation and off-airport disposal, in accordance with all Environmental Requirements, of all asbestos, lead and other Hazardous Substances, and including the handling, transporting and off-Airport disposal thereof in accordance with all

Environmental Requirements (including, if required, disposal of asbestos in an off-Airport long-term asbestos-only disposal facility);

(vii) All necessary or appropriate work in other areas of the Airport outside of the Construction Work Site and outside of the premises under the Lease directly impacted by the Construction Work and required to be constructed in connection with other portions of the Construction Work;

(viii) All grading and paving of ground areas and appropriate landscaping together with all related and associated work; including without limitation decorative paving of selected areas and landscaping and irrigation of the unpaved areas described in item (i) above;

(ix) All design and construction work and space necessary or required to construct a suitable supporting structure for a connector for the LRS (based upon information relating to design specifications of the LRS existing as of the date of approval by the Port Authority of the Design Development Documents), including without limitation, for the enclosed thirty (30) foot wide connector connecting the LRS station at Terminal 7, which connector is to be constructed by the LRS Contractor and to be located on the Elevated Parking Structure contiguous with the expanded Departures frontage for Terminal 7 as shown generally in bubble hatch on Sheet 1 of Exhibit B attached hereto and hereby made a part hereof; and the design criteria and specifications for the said supporting structure for the LRS connector will be based upon information existing as of the date of approval by the Port Authority of the Design Development Documents.

(2) All of the foregoing work described in subparagraph (1) of this paragraph (d) shall be constructed by the Lessee in, on and under Area 2 and outside of the premises and shall not be or become a part of the premises under the Lease and is herein collectively referred to as the 'Off-Premises Work'.

(3) The Lessee shall be responsible for developing a set of Design Development Documents as part of the Lessee's Comprehensive Plan which shall clearly delineate the Off-Premises Work and the On-Premises Area 1 Work and the Terminal 7 Building Expansion Work and the Lessee LRS Work (as defined in paragraph (e) below) and the Lessee shall provide separate construction costs estimates for the Off-Premises Work and for the On-Premises Area 1 Work and the Terminal 7 Building Expansion Work and the Lessee LRS Work. For purposes of coordination with the On-Premises Area 1 Work and the Lessee LRS Work, consolidated drawings clearly depicting the limits of each of the Off-Premises Work and the On-Premises Area 1 Work and the Terminal 7 Building Expansion Work and the Lessee LRS Work shall also be developed. The Lessee shall be responsible for developing contract documents including separated detailed construction costs estimates for the Off-Premises Work, the On-Premises Area 1 Work and the Lessee LRS Work. For purposes of coordination and review with contiguous On-Premises Area 1 Work, Terminal 7 Building Expansion Work , the Off-Premises

Work and the Lessee LRS Work, consolidated documents depicting the limits of each shall be included.

(e) Lessee LRS Work:

(1) In addition to and without limiting the above, the Lessee agrees that its Comprehensive Plan shall include the construction in, on and under Area 2 of the following:

(i) Fourteen (14) shared foundations at the LRS Station serving Terminal 7 and adjacent LRS guideways: the Lessee shall design and construct the fourteen (14)) common foundations and columns to support the LRS Station serving Terminal 7 as well as the Elevated Parking Structure (shared foundations) identified in Exhibit D, and in accordance with the criteria set forth in Exhibit E . These foundations and columns shall be constructed and completed to support the subsequent construction of the said LRS Station and guideways in accordance with the timeframe and stationing called for in paragraph (r) (2) below; and

(ii) Fourteen (14) independent foundations and columns to support the LRS Station and guideway identified in Exhibit D , and in accordance with the criteria set forth in Exhibit E . These foundations and columns shall be constructed and completed to support the subsequent construction of the said LRS Station and guideways in accordance with the timeframe and stationing called for in paragraph (o) (3) below; and

(iii) The LRS Station 7 Stubouts described in paragraph (c) (ii) above shall be deemed part of the Lessee LRS Work;

The foregoing work specified above in clauses (i), (ii) and (iii) of this paragraph (e) is herein collectively called the 'Lessee LRS Work'.

The Lessee and the Port Authority acknowledge and agree that the preliminary designs prepared by the Lessee as and when approved by the Port Authority for the Lessee LRS Work shall be used by the LRS Contractor to prepare the final construction documents for that portion of the LRS which shall be located on or relate to the premises

(2) LRS Construction Zones: The Lessee shall at all times provide and make available the LRS Construction Zones A through F pursuant to and as defined in paragraph (o) (2) below for the LRS and the LRS Contractor, and the other related items for the LRS called for in paragraph (o) (2) below.

(3) "Notice to Proceed"; "Notice Not to Proceed"; "Notice to Suspend";"Notice to Discontinue"; : In addition to and without limiting any other term or provision of this Lease, it

is specifically understood and agreed that the commencement and performance of the Lessee LRS Work by the Lessee shall be subject to the right of the Port Authority to give the following written notices to the Lessee at any time with respect to the Port Authority's election, exercisable by the Port Authority in its sole discretion, to have the Lessee proceed with or not proceed with the Lessee LRS Work, or portions thereof, or to commence or not to commence the construction of the Lessee LRS Work, or portions thereof, or to have the Lessee discontinue or suspend the construction of the Lessee LRS Work, or portions thereof, in accordance with the following:

(i) "Notice to Proceed": The Lessee shall not commence the construction of the Lessee LRS Work, or any portion thereof, unless and until the Port Authority provides to the Lessee a written notice advising the Lessee to commence with the Lessee LRS Work, or specified portions thereof; and upon the delivery by the Port Authority to the Lessee of such Notice to Proceed the Lessee shall commence the Lessee LRS Work, or the specified portions thereof; in accordance with this Agreement and said Notice.

(ii) "Notice Not to Proceed": The Port Authority shall have the right, exercisable in its sole discretion, to elect not to have the Lessee LRS Work performed by the Lessee, and in such case the Port Authority shall give the Lessee written notice thereof; and upon the delivery by the Port Authority to the Lessee of such Notice Not to Proceed the Lessee shall not have the right or the obligation to perform the Lessee LRS Work nor to receive any reimbursement from the Port Authority with respect thereto under Section 84 hereof; except for actual amounts incurred by the Lessee prior to the date of said Notice for engineering and architectural services forming part of the Cost of the Lessee LRS Work under item (iii) of subparagraph (6) of paragraph (a) of Section 84 hereof, provided that said actual amounts are actually paid by the Lessee not later than ninety (90) days after the date of said Notice and are included in a LRS Work Certificate submitted by the Lessee to the Port Authority pursuant to Section 84 hereof not later than ninety (90) days after the date of said Notice; provided, further, that any such reimbursement shall be made subject and pursuant to said Section 84 hereof.

(iii) "Notice to Suspend"

The Port Authority shall have the right, exercisable in its sole discretion, to suspend the Lessee LRS Work being performed by the Lessee, and in such case the Port Authority shall give the Lessee written notice thereof; and upon the delivery by the Port Authority to the Lessee of such Notice to Suspend the Lessee shall not have the right or the obligation to perform any further Lessee LRS Work nor to receive any further reimbursement from the Port Authority with respect thereto under Section 84 hereof or otherwise; except for actual amounts incurred by the Lessee prior to the date of said Notice for the Cost of the Lessee LRS Work as defined in subparagraph (6) of paragraph (a) of Section 84 hereof, provided that said actual amounts are actually paid by the Lessee not later than ninety (90) days after the date of said Notice and are included in a LRS Work Certificate submitted by the Lessee to the Port Authority pursuant to Section 84 hereof not later than ninety (90) days after the date of said

Notice; provided, further, that any such reimbursement shall be made subject and pursuant to said Section 84 hereof; provided, further, however, that the Lessee shall continue to perform such portions of the Lessee LRS Work that are integral in function to the On-Premises Area 1 Work or the Off-Premises Work as and to the extent designated by the Port Authority in its aforesaid Notice and such work as is reasonably necessary, in the opinion of the Port Authority, for the close-out of the Lessee LRS Work performed prior to the date of said Notice. The Port Authority shall have the right to have the Lessee continue with the Lessee LRS Work in accordance with the terms and provisions of this Lease upon subsequent written notice to the Lessee, the Lessee shall have the obligation to continue with the Lessee LRS Work in event of such subsequent notice from the Port Authority. In the event of any such suspension pursuant to a Notice to Suspend, the applicable time frames set forth in paragraph (o) (2) (A) (1) of this Section 83 shall be extended for each day (on a day per day basis) of the suspension; and in the event the Lessee LRS Work is reinstated subsequent to any such suspension thereof and such suspension and reinstatement has a direct impact on all of the other portions of the Construction Work and on the staging thereof as provided in paragraph (i) of this Section 83, then the date set forth in paragraph (g) (2) (1) (iii) of this Section 83 as the required date for the completion of the Construction Work shall be extended for each day (on a day per day basis) of the suspension.

(iv) "Notice to Discontinue":

The Port Authority shall have the right, exercisable in its sole discretion, to discontinue the Lessee LRS Work being performed by the Lessee, and in such case the Port Authority shall give the Lessee written notice thereof; and upon the delivery by the Port Authority to the Lessee of such Notice to Discontinue the Lessee shall not have the right or the obligation to perform any further Lessee LRS Work nor to receive any further reimbursement from the Port Authority with respect thereto under Section 84 hereof or otherwise, except for actual amounts incurred by the Lessee prior to the date of said Notice for the Cost of the Lessee LRS Work as defined in subparagraph (6) of paragraph (a) of Section 84 hereof, provided that said actual amounts are actually paid by the Lessee not later than ninety (90) days after the date of said Notice and are included in a LRS Work Certificate submitted by the Lessee to the Port Authority pursuant to Section 84 hereof not later than ninety (90) days after the date of said Notice; provided, further, that any such reimbursement shall be made subject and pursuant to said Section 84 hereof; provided, further, however, that the Lessee shall continue to perform such portions of the Lessee LRS Work that are integral in function to the On-Premises Area 1 Work or the Off-Premises Work as and to the extent designated by the Port Authority in its aforesaid Notice and such work as is reasonably necessary, in the opinion of the Port Authority, for the close-out of the Lessee LRS Work performed prior to the date of said Notice

(f) (1) The Lessee agrees at its sole cost and expense to design and to construct (i) the On-Premises Area 1 Work on Area 1 of the premises and the Terminal 7 Building Expansion Work on the premises as described in paragraph (c) above; (ii) the Off-Premises Work on Area 2 outside the premises as described in paragraph (d) above; and (iii) the

Lessee LRS Work on the premises (as to item 1 (iii) of paragraph (e) above and on Area 2 outside the premises (as to items items 1 (i) and (1) (ii) of paragraph (e) above); such design and construction of the On-Premises Area 1 Work and the Off-Premises Work and the Lessee LRS Work shall, without limiting any other term or provision of the Lease, also be in conformance with the Port Authority's Basis of Design and Port Authority standard design details and design criteria as contained in the Port Authority Tenant Construction Review Manual (as the same may be amended from time to time), and, where applicable, LRS design detail and design criteria (such design and construction of the On-Premises Area 1 Work and the Terminal 7 Building Expansion Work and the Off-Premises Work and the Lessee LRS Work being sometimes herein collectively referred to as 'the Construction Work').

(2) Prior to the commencement of the Construction Work, the Lessee shall submit to the Port Authority for the Port Authority's approval complete plans and specifications therefor. The Port Authority may refuse to grant approval with respect to the Construction Work if, in its opinion, any of the proposed Construction Work as set forth in said plans and specifications (all of which shall be in such detail as may reasonably permit the Port Authority to make a determination as to whether the requirements hereinafter referred to are met) shall:

(i) Be unsafe, unsound, hazardous or improper for the use and occupancy for which it is designed, or

(ii) Not comply with the Port Authority's requirements for harmony of external architecture of similar existing or presently planned future improvements at the Airport, or

(iii) Not comply with the Port Authority's requirements with respect to external and interior building materials and finishes of similar existing or presently planned future improvements at the Airport, or

(iv) Not provide for sufficient clearances for taxiways, runways and apron areas, or

(v) Be designed for use for purposes other than those authorized under the Agreement, or

(vi) Set forth ground elevations or heights other than those prescribed by the Port Authority, or

(vii) Not provide adequate and proper circulation areas, or

(viii) Not be at locations or not be oriented in accordance with the Lessee's approved Comprehensive Plan, or

(ix) Not comply with the provisions of the Basic Lease, including without limiting the generality thereof, those provisions of the Basic Lease providing that the Port Authority will conform to the enactments, ordinances, resolutions and regulations of the City of New York and its various departments, boards and businesses in regard to the construction and maintenance of buildings and structures and in regard to health and fire protection which would be applicable if the Port Authority were a private corporation to the extent that the Port Authority finds it practicable so to do, or

(x) Permit aircraft to overhang the boundary of the premises, except when entering or leaving the premises, or

(xi) Be in violation or contravention of any other provisions and terms of this Agreement, or

(xii) Not comply with all applicable governmental laws, ordinances, enactments, resolutions, rules and orders, or

(xiii) Not comply with all applicable requirements of the National Board of Fire Underwriters and the Fire Insurance Rating Organization of New York, or

(xiv) Not comply with the Port Authority's requirements with respect to landscaping, or

(xv) Not comply with Port Authority's requirements and standards with respect to noise, air pollution, water pollution or other types of pollution, or

(xvi) Not comply with the construction limitations set forth in Exhibit A, or Exhibit F ,if any, or elsewhere in this Agreement, or

(xvii) Without limiting any other term or provision hereof, not comply with the Americans With Disabilities Act of 1990 and all federal rules, regulations and guidelines pertaining thereto, or

(xviii) Not comply with the Port Authority's Basis of Design (Attachment A hereto), or

(xix) Not comply with the Port Authority's standard design details;

(xx) Not comply with the Port Authority's plans and policies with respect to ground transportation and traffic control and frontage control within the Central Terminal Area of the Airport, or

(xxi) Not be coordinated in design, functional planning, construction or scheduling or staging with other Port Authority or tenant construction in the Central Terminal Area at the Airport or with the Lessee's staging of the Construction Work hereunder or other ongoing Airport construction projects, including without limitation the Port Authority's planned LRS, or

(xxii) Not provide appropriate or adequate access for KIAC to its cogeneration facility and the Central Heating and Refrigeration Facility for all types of vehicular, including oversized, deliveries, or

(xxiii) Not comply with the construction scheduling set forth in Exhibit G attached hereto and hereby made a part hereof, if any, or

(xxiv) Not comply with the Port Authority's requirements with respect to design and construction of the Lessee LRS Work as contained in Exhibit E

(3) In addition to and without limiting the foregoing, with respect to the portion of the Construction Work representing the Off-Premises Work and the Lessee LRS Work, the Lessee's design thereof and the said plans and specifications shall be subject to the complete prior written approval of the Port Authority and the Lessee shall make all changes and modifications to the said design, plans and specifications as may be required or recommended by the Port Authority.

(4) The Lessee and the Port Authority shall establish a design and construction working group to review the development of the Project and all drawings, specifications, calculations and reports and like items prior to the submission of any drawings or plans to the Port Authority. The working group shall meet on a regular basis in order that the Port Authority will generally be informed of all areas of the design of the Project and be aware of all construction approval dates. The meetings shall be on an informal basis to encourage a full discussion of all appropriate issues and will not supersede the review or approval process of the Design Development Documents and the contract documents as described in this Section. The meetings shall continue until the Project is completed. Attached hereto as Exhibit H is a schedule of the submission by the Lessee to the Port Authority of specified 'Packages' of Design Development Documents and construction documents which include the plans and specifications covering the Construction Work ('Schedule of Design Packages').

(g) All Construction Work shall be done in accordance with the following terms and conditions:

(1) The Lessee hereby assumes the risk of loss or damage to all of the Construction Work prior to the completion thereof and the risk of loss or damage to all property of the Port Authority or others arising out of or in connection with the performance of the

Construction Work including without limitation any and all Environmental Requirements. In the event of such loss or damage, the Lessee shall forthwith repair, replace and make good the Construction Work and the property of the Port Authority or others without cost or expense to the Port Authority. The Lessee shall itself and shall also require its contractors to indemnify and hold harmless the Port Authority, its Commissioners, officers, agents and employees from and against all claims and demands, just or unjust, of third persons (including employees, officers, and agents of the Port Authority) arising or alleged to arise out of the performance of the Construction Work and for all expenses incurred by it and by them in the defense, settlement or satisfaction thereof, including without limitation thereto, claims and demands for death, for personal injury or for property damage, direct or consequential, whether they arise from the acts or omissions of the Lessee, of any contractors of the Lessee, of the Port Authority, or of third persons, or from acts of God or of the public enemy, or otherwise, (including claims of the City of New York against the Port Authority pursuant to the provisions of the Basic Lease whereby the Port Authority has agreed to indemnify the City against claims), excepting only claims and demands which result solely from affirmative wilful acts done by the Port Authority, its Commissioners, officers, agents and employees with respect to the Construction Work, provided, however, that the Lessee shall not be required to indemnify the Port Authority where indemnity would be precluded pursuant to the provisions of Section 5-322.1 of the General Obligations Law of the State of New York.

If so directed, the Lessee shall at its own expense defend any suit based upon any such claim or demand (even if such suit, claim or demand is groundless, false or fraudulent), and in handling such it shall not, without obtaining express advance written permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority, or the provisions of any statutes respecting suits against the Port Authority.

(2) (i) Prior to engaging or retaining an architect or architects for the Construction Work, the name or names of said architect or architects shall be submitted to the Port Authority for its approval. The Port Authority shall have the right to disapprove any architect who may be unacceptable to it. All Construction Work shall be done in accordance with plans and specifications to be submitted to and approved by the Port Authority prior to the commencement of the Construction Work, and until such approval has been obtained the Lessee shall continue to resubmit plans and specifications as required. Upon approval of such plans and specifications by the Port Authority (such approved plans and specifications as modified by a Change Order (as hereinafter defined) being herein sometimes called the 'Contract Documents'), the Lessee shall proceed diligently at its sole cost and expense to perform the Construction Work. All Construction Work, including workmanship and materials, shall be of first class quality. The Lessee shall re-do, replace or construct at its own cost and expense, any Construction Work not done in accordance with the approved plans and specifications, the provisions of this Section 83 or any further requirements of the Port Authority.

(ii) The Lessee shall expend not less than (2.a.) with respect to the following: the Off-Premises Work, the On-Premises Area 1 Work and the Existing Premises Renovation Work as defined in Section 83 B hereof; (and exclusive of the Lessee LRS Work).

(iii) The Lessee shall complete all of the Construction Work no later than March 31, 2002, subject to extensions for force majeure and applicable extensions for Change Orders (as defined in paragraph (iv) below).

(iv) For purposes of Sections 83 and 84 of this Agreement, a 'Change Order' shall mean (x) any material change to the Contract Documents (as defined above) for which the Lessee has received the prior written approval of the Port Authority in such form as may be required by the Port Authority or (y) any immaterial change to the Contract Documents which the Port Authority determines does not require the approval of the Port Authority. The following proposed change orders shall be deemed to be material changes (including but not limited to those resulting from authorized Port Authority Requested Changes as described in paragraph (h) (3) of this Section 83) requiring the prior written approval in such form as may be required by the Port Authority and authorization of the Port Authority:

(A) a proposed change order which increases or reduces the scope of , or the design intent of, the Project from the project described in the Port Authority's Summary Basis of Design (Attachment A) or in the Design Development Documents;

(B) a proposed change order which after the Port Authority has approved the Contract Documents results in the issuance of a new or revised drawing by the Lessee's architect or engineer;

(C) a proposed change order which adversely affects the quality of the Project so that the Project will not deliver a level of service 'C' as defined by AASHTO and IATA Standards during peak operation; or

(D) a proposed change order the performance of which would require an extension of the required completion date beyond March 31, 2002, other than by reason of force majeure.

In the event of any dispute as to whether a change is a material or an immaterial change to the contract documents, such dispute shall be referred to and determined by the Chief Engineer of the Port Authority. The Lessee will not start the work described in any proposed change order without the prior written of the Port Authority until such proposed change order has been so approved.

(3) Prior to entering into a contract for any part of the Construction

Work, the Lessee shall submit to the Port Authority for its approval the names of the contractors to whom the Lessee proposes to award said contracts. The Lessee shall require all proposed contractors to submit a detailed breakdown of bids at bid submittal which allows identification of On-Premises Area 1 Work, Off-Premises Work and Lessee LRS Work. The Port Authority shall have the right to disapprove any contractor who may be unacceptable to it. The Lessee shall include in all such contracts such provisions and conditions as may be reasonably required by the Port Authority. Without limiting the generality of the foregoing all of the Lessee's construction contracts shall provide as follows: 'If (i) the Contractor fails to perform any of his obligations under the Contract, including his obligation to the Lessee to pay any claims lawfully made against him by any materialman, subcontractor or workman or other third person which arises out of or in connection with the performance of the Contract or (ii) any claim (just or unjust) which arises out of or in connection with the Contract is made against the Lessee or (iii) any subcontractor under the Contract fails to pay any claims, lawfully made against him by any materialman, subcontractor, workman or other third persons which arises out of or in connection with the Contract or if in the Lessee's opinion any of the aforesaid contingencies is likely to arise, then the Lessee shall have the right, in its discretion, to withhold out of any payment (final or otherwise and even though such payments have already been certified as due) such sums as the Lessee may deem ample to protect it against delay or loss or to assume the payment of just claims of third persons, and to apply such sums in such manner as the Lessee may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Lessee to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Lessee does not intend to exercise its right with respect to such contingency. Neither the above provisions for rights of the Lessee to withhold and apply monies nor any exercise, or attempted exercise of, or omission to exercise such rights by the Lessee shall create any obligation of any kind to such materialmen, subcontractors, workmen or other third persons. Until actual payment is made to the Contractor, his right to any amount to be paid under the Contract (even though such amount has already been certified as due) shall be subordinate to the rights of the Lessee under this provision.'

The Lessee shall file with the Port Authority a copy of its contracts with its contractors prior to start of the Construction Work.

(4) The Lessee shall furnish or require its architect to furnish a full time resident engineer during the construction period. The Lessee shall require certification by a licensed engineer of all pile driving data and of all controlled concrete work and such other certifications as may be required by the Port Authority from time to time.

(5) The Lessee agrees to be solely responsible for any plans and specifications used by it and for any loss or damages resulting from the use thereof, notwithstanding that the same have been approved by the Port Authority and notwithstanding the incorporation therein of Port Authority recommendations or requirements; provided that with respect to the Lessee LRS

Work, the Lessee shall submit to the Port Authority for its approval the names of the contractors to whom the Lessee proposes to award said contracts. The Lessee shall require all proposed contractors to submit a detailed breakdown of bids at bid submittal which allows identification of On-Premises Area 1 Work, Off-Premises Work and Lessee LRS Work. The Port Authority shall have the right to disapprove any contractor who may be unacceptable to it. The Lessee shall include in all such contracts such provisions and conditions as may be reasonably required by the Port Authority. Without limiting the generality of the foregoing all of the Lessee's construction contracts shall provide as follows: 'If (i) the Contractor fails to perform any of his obligations under the Contract, including his obligation to the Lessee to pay any claims lawfully made against him by any materialman, subcontractor or workman or other third person which arises out of or in connection with the performance of the Contract or (ii) any claim (just or unjust) which arises out of or in connection with the Contract is made against the Lessee or (iii) any subcontractor under the Contract fails to pay any claims, lawfully made against him by any materialman, subcontractor, workman or other third persons which arises out of or in connection with the Contract or if in the Lessee's opinion any of the aforesaid contingencies is likely to arise, then the Lessee shall have the right, in its discretion, to withhold out of any payment (final or otherwise and even though such payments have already been certified as due) such sums as the Lessee may deem ample to protect it against delay or loss or to assume the payment of just claims of third persons, and to apply such sums in such manner as the Lessee may deem proper to secure such protection or satisfy such claims. All sums so applied shall be deducted from the Contractor's compensation. Omission by the Lessee to withhold out of any payment, final or otherwise, a sum for any of the above contingencies, even though such contingency has occurred at the time of such payment, shall not be deemed to indicate that the Lessee does not intend to exercise its right with respect to such contingency. Neither the above provisions for rights of the Lessee to withhold and apply monies nor any exercise, or attempted exercise of, or omission to exercise such rights by the Lessee shall create any obligation of any kind to such materialmen, subcontractors, workmen or other third persons. Until actual payment is made to the Contractor, his right to any amount to be paid under the Contract (even though such amount has already been certified as due) shall be subordinate to the rights of the Lessee under this provision.'

The Lessee shall file with the Port Authority a copy of its contracts with its contractors prior to start of the Construction Work.

(4) The Lessee shall furnish or require its architect to furnish a full time resident engineer during the construction period. The Lessee shall require certification by a licensed engineer of all pile driving data and of all controlled concrete work and such other certifications as may be required by the Port Authority from time to time.

(5) The Lessee agrees to be solely responsible for any plans and specifications used by it and for any loss or damages resulting from the use thereof, notwithstanding that the same have been approved by the Port Authority and notwithstanding the incorporation therein of Port Authority recommendations or requirements; provided that with respect to the Lessee LRS

Work the foregoing shall not be deemed to create any Lessee responsibility for the underlying design assumptions made in the LRS design and supplied by the Port Authority to the Lessee with respect to the location of the LRS in the Construction Work Site. Notwithstanding the requirement for approval by the Port Authority of the contracts to be entered into by the Lessee or the incorporation therein of Port Authority requirements or recommendations, and notwithstanding any rights the Port Authority may have reserved to itself hereunder, the Port Authority shall have no liabilities or obligations of any kind to any contractors engaged by the Lessee or for any other matter in connection therewith and the Lessee hereby releases and discharges the Port Authority, its Commissioners, officers, representatives and employees of and from any and all liability, claims for damages or losses of any kind, whether legal or equitable, or from any action or cause of action arising or alleged to arise out of the performance of any Construction Work pursuant to the contracts between the Lessee and its contractors. Any warranties contained in any construction contract entered into by the Lessee for the performance of the Construction Work hereunder shall be for the benefit of the Port Authority as well as the Lessee, and the contract shall so provide.

(6) The Port Authority shall have the right, through its duly designated representatives, to inspect the Construction Work and the plans and specifications thereof, at any and all reasonable times during the progress thereof and from time to time, in its discretion, to take samples and perform testing on any part of the Construction Work.

(7) The Lessee agrees that it shall deliver to the Port Authority two (2) sets of 'as built' microfilm drawings of the Construction Work mounted on aperture cards, an electronic CADD data file in a format to be designated by the Port Authority, all of which shall conform to the specifications of the Port Authority (the receipt of a copy of said specifications prior to the execution of this Lease being hereby acknowledged by the Lessee), all engineering reports, engineering analysis, boring logs, survey information and engineering design calculations and operation and maintenance manuals in a comprehensive, coordinated package. The Lessee shall during the term of this Lease keep said microfilm drawings and digital electronic files of the drawings and said electronic CADD data file current showing thereon any changes or modifications which may be made. (No changes or modifications shall be made without prior Port Authority consent).

(8) The Lessee shall, if requested by the Port Authority, take all reasonable measures to prevent erosion of the soil and the blowing of sand during the performance of the Construction Work, including but not limited to the fencing of the premises or portions thereof or other areas and the covering of open areas with asphaltic emulsion or similar materials as the Port Authority may direct.

(9) Any soil, dirt, sand or other matter (hereinafter in this item (9) collectively called the 'matter') excavated by the Lessee during the course of the Construction Work and not used at the Construction Work Site shall be delivered and deposited by the Lessee at its expense to

any location on the Airport or to any location off the Airport within the Port of New York District as may be designated by the Port Authority, subject to and in accordance with the provisions hereof and all Environmental Requirements. The entire proceeds, if any, of the sale or other disposition of the matter shall belong to the Port Authority. Notwithstanding the foregoing the Port Authority may elect by prior written notice to the Lessee to waive any rights it may have hereunder as to all or portions of the matter in which event the Lessee at its expense shall dispose of the same without further instruction from the Port Authority, subject to and in accordance with the provisions hereof and with respect to Area 1 subject to Paragraph 2 of Supplement No. 2 of the Lease.

(10) The Lessee shall pay or cause to be paid all claims lawfully made against it by its contractors, subcontractors, materialmen and workmen, and all claims lawfully made against it by other third persons arising out of or in connection with or because of the performance of the Construction Work, and shall cause its contractors and subcontractors to pay all such claims lawfully made against them, provided, however, that nothing herein contained shall be construed to limit the right of the Lessee to contest any claim of a contractor, subcontractor, materialman, workman and/or other person and no such claim shall be considered to be an obligation of the Lessee within the meaning of this Section unless and until the same shall have been finally adjudicated. The Lessee shall use its best efforts to resolve any such claims and shall, keep the Port Authority fully informed of its actions with respect thereto. Nothing herein contained shall be deemed to constitute consent to the creation of any liens or claims against the premises, Area 2 or any other part of the Airport nor to create any rights in said third persons against the Port Authority.

(11) (i) The Lessee in its own name as insured and including the Port Authority as an additional insured shall procure and maintain Comprehensive General Liability insurance, including but not limited to premises-operations, products-completed operations, explosion, collapse and underground property damages, personal injury and independent contractors, with a broad form property damage endorsement, and with a contractual liability endorsement covering the obligations assumed by the Lessee pursuant to subparagraphs (1) and (5) of this paragraph (g), and Comprehensive Automobile Liability insurance covering owned, non-owned and hired vehicles. The said Comprehensive General Liability insurance policy shall have a limit of not less than $10,000,000 combined single limit per occurrence for bodily injury and property damage liability, and said Comprehensive Automobile Liability policy shall have a limit of not less than $10,000,000 combined single limit per accident for bodily injury and property damage liability.

Without limiting the provisions hereof, in the event the Lessee maintains the foregoing insurance in limits greater than aforesaid, the Port Authority shall be included therein as an additional insured to the full extent of all such insurance in accordance with all the terms and provisions hereof.

The foregoing shall be in addition to all policies of insurance otherwise required by this Agreement, or the Lessee may provide such insurance by requiring each contractor engaged by

it for the Construction Work to procure and maintain such insurance including such contractual liability endorsement; said insurance, whether procured by the Lessee or by a contractor engaged by it as aforesaid, not to contain any care, custody or control exclusions or any exclusion for bodily injury to or sickness, disease or death of any employee of the Lessee or of any of its contractors which would conflict with or in any way impair coverage under the contractual liability endorsement. The said policy or policies of insurance shall also provide or contain an endorsement providing that the protections afforded the Lessee thereunder with respect to any claim or action against the Lessee by a third person shall pertain and apply with like effect with respect to any claim or action against the Lessee by the Port Authority, and shall also provide or contain an endorsement providing that the protections afforded the Port Authority thereunder with respect to any claim or action against the Port Authority by the Lessee or its contractor(s) shall be the same as the protections afforded the Lessee thereunder with respect to any claim or action against the Lessee by a third person as if the Port Authority were the named insured thereunder; but such endorsement shall not limit, vary or affect the protections afforded the Port Authority thereunder as an additional insured.

(ii) The Lessee shall also procure and maintain in effect, or cause to be procured and maintained in effect Workers' Compensation Insurance and Employer's Liability Insurance in accordance with and as required by law.

(iii) The insurance required hereunder in this subparagraph (11) shall be maintained in effect during the performance of the Construction Work. As to the insurance required by the provisions of this paragraph (11), a certified copy of the policies or a certificate or certificates or binders, evidencing the existence thereof, shall be delivered by the Lessee to the Port Authority at least fifteen (15) days prior to the commencement of any Construction Work. Each policy, certificate or binder delivered as aforesaid shall bear the endorsement of or be accompanied by evidence of payment of the premium thereon. In the event a binder is delivered, it shall be replaced within thirty (30) days by a certified copy of the policy or a certificate. Each such copy or certificate with respect to the insurance required by the provisions of this paragraph (11), shall contain a valid provision or endorsement that the policy may not be canceled, terminated, changed or modified without giving thirty (30) days' written advance notice thereof to the Port Authority. Each such copy or certificate shall contain an additional endorsement providing that the insurance carrier shall not, without obtaining express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, its Commissioners, officers, agents, or employees, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority or the provisions of any statutes respecting suits against the Port Authority. Any renewal policy or certificate shall be delivered to the Port Authority prior to the expiration of each expiring policy, except for any policy expiring after the date of expiration of the term of this Agreement. The aforesaid insurance shall be written by a company or companies approved by the Port Authority, the Port Authority agreeing not to withhold its approval unreasonably. If at any time any of the insurance policies shall be or become unsatisfactory to the Port Authority as to the form or

substance or if any of the carriers issuing such policies shall be or become unsatisfactory to the Port Authority, the Lessee shall promptly obtain a new and satisfactory policy in replacement, the Port Authority covenanting and agreeing not to act unreasonably hereunder. If the Port Authority at any time so requests, a certified copy of each of the policies shall be delivered to the Port Authority.

(12) The Lessee shall be under no obligation to reimburse the Port Authority for expenses incurred by the Port Authority in connection with its normal review and approval of the original plans and specifications submitted by the Lessee pursuant to this Section. The Lessee however agrees to pay to the Port Authority upon its demand the expenses incurred by the Port Authority in connection with any additional review for approval of any changes, modifications or revisions of the original plans and specifications which may be proposed by the Lessee for the Port Authority's approval. The expenses of the Port Authority for any such additional review and approval shall be computed on the basis of direct payroll time expended in connection therewith plus 100%. Wherever in this Lease reference is made to "direct payroll time", costs computed thereunder shall include a prorata share of the cost to the Port Authority of providing employee benefits, including, but not limited to, pensions, hospitalization, medical and life insurance, vacations and holidays. Such computations shall be in accordance with the Port Authority's accounting principles as consistently applied prior to the execution of this Lease.

(13) The Lessee shall prior to the commencement of construction and at all times during construction submit to the Port Authority all engineering studies with respect to construction and samples of construction materials as may be required at any time and from time to time by the Port Authority.

(14) The Lessee shall procure and maintain Builder's Risk (All Risk) Completed Value Insurance covering the Construction Work during the performance thereof including material delivered to the Construction Work Site but not attached to the realty. Such insurance shall be in compliance with and subject to the applicable provisions set forth herein and shall name the Port Authority, the City of New York, the Lessee and its contractors and subcontractors as additional assureds and such policy shall provide that the loss shall be adjusted with and payable to the Lessee. Such proceeds shall be used by the Lessee for the repair, replacement or rebuilding of the Construction Work and any excess shall be paid over to the Port Authority. The policies or certificates representing insurance covered by this paragraph (14) shall be delivered by the Lessee to the Port Authority at least thirty (30) days prior to the commencement of construction of the Construction Work, and each policy or certificate delivered shall bear the endorsement of or be accompanied by evidence of payment of the premium thereof and, also, a valid provision obligating the insurance company to furnish the Port Authority and the City of New York thirty (30) days' advance notice of the cancellation, termination, change or modification of the insurance evidenced by said policy or certificate. Renewal policies or certificates shall be delivered to the Port Authority at least thirty (30) days before the expiration of the insurance which such policies are to renew.

The insurance covered by this paragraph (14) shall be written by companies approved by the Port Authority, the Port Authority covenanting and agreeing not to withhold its approval unreasonably. If at any time any of the insurance policies shall be or become unsatisfactory to the Port Authority as to the form or substance or if any of the carriers issuing such policies shall be or become unsatisfactory to the Port Authority, the Lessee shall promptly obtain a new and satisfactory policy in replacement, the Port Authority covenanting and agreeing not to act unreasonably hereunder. If at any time the Port Authority so requests, a certified copy of each of the said policies shall be delivered to the Port Authority.

(15) The Lessee shall at the time of submitting the Comprehensive Plan to the Port Authority as provided in paragraph (b) hereof submit to the Port Authority its forecasts of the number of people who will be working at various times during the term of the Lease at the Construction Work Site, the expected utility demands of the premises, noise profiles and such other information as the Port Authority may require. The Lessee shall continue to submit its latest forecasts and such other information as may be reasonably required as aforesaid as the Port Authority shall from time to time and at any time request.

(16) The Lessee shall execute and submit for the Port Authority's approval a Construction Application or Applications in the form prescribed by the Port Authority covering the Construction Work or portions thereof. The Lessee shall comply with all the terms and provisions of the approved Construction Applications. In the event of any inconsistency between the terms of any Construction Application and the terms of this Lease, the terms of this Lease shall prevail and control.

(17) Nothing contained in this Lease shall grant or be deemed to grant to any contractor, architect, supplier, subcontractor or any other person engaged by the Lessee or any of its contractors in the performance of any part of the Construction Work any right of action or claim against the Port Authority, its Commissioners, officers, agents and employees with respect to any work any of them may do in connection with the Construction Work. Nothing contained herein shall create or be deemed to create any relationship between the Port Authority and any such contractor, architect, supplier, subcontractor or any other person engaged by the Lessee or any of its contractors in the performance of any part of the Construction Work and the Port Authority shall not be responsible to any of the foregoing for any payments due or alleged to be due thereto for any work performed or materials purchased in connection with the Construction Work.

(18) (i) Without limiting any of the terms and conditions of this Lease, the Lessee understands and agrees that it shall put into effect prior to the commencement of any Construction Work an affirmative action program and Minority Business Enterprise (MBE) program and Women-owned Business Enterprise (WBE) program in accordance with the provisions of Schedule E, attached to Supplement No. 2 of the Lease and hereby made a part hereof; and as used in said Schedule E the term 'construction work' shall apply to the Construction Work hereunder. The provisions of said Schedule E of this Lease shall be applicable to the Lessee's contractor or

contractors and subcontractors at any tier of construction as well as to the Lessee itself and the Lessee shall include the provisions of said Schedule E within all of its construction contracts so as to make said provisions and undertakings the direct obligation of the construction contractor or contractors and subcontractors at any tier of construction. The Lessee shall and shall require its said contractor, contractors and subcontractors to furnish to the Port Authority such data, including but not limited to compliance reports relating to the operation and implementation of the affirmative action, MBE and WBE programs called for hereunder as the Port Authority may request at any time and from time to time regarding the affirmative action, Minority Business Enterprises and Women-owned Business Enterprises programs of the Lessee and its contractor, contractors, and subcontractors at any tier of construction, and the Lessee shall and shall also require that its contractor, contractors and subcontractors at any tier of construction make and put into effect such modifications and additions thereto as may be directed by the Port Authority pursuant to the provisions hereof and said Schedule E to effectuate the goals of affirmative action and Minority Business Enterprise and Women-owned Business Enterprise programs.

(ii) In addition to and without limiting any terms and provisions of this Lease, the Lessee shall provide in its contracts and all subcontracts covering the Construction Work or any portion thereof, that:

(aa) The contractor shall not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, and shall undertake or continue existing programs of affirmative action to ensure that minority group persons are afforded equal employment opportunity without discrimination. Such programs shall include, but not be limited to, recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, termination, rates of pay or other forms of compensation, and selections for training or retraining, including apprenticeships and on-the-job training;

(bb) At the request of either the Port Authority or the Lessee, the contractor shall request such employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding and which is involved in the performance of the contract with the Lessee to furnish a written statement that such employment agency, labor union or representative shall not discriminate because of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will cooperate in the implementation of the contractor's obligations hereunder;

(cc) The contractor will state, in all solicitations or advertisements for employees placed by or on behalf of the contractor in the performance of the contract, that all qualified applicants will be afforded equal employment opportunity without discrimination because of race, creed, color, national origin, sex, age, disability or marital status;

(dd) The contractor will include the provisions of subparagraphs (aa) through (cc)

of this paragraph in every subcontract or purchase order in such a manner that such provisions will be binding upon each subcontractor or vendor as to its work in connection with the contract;

(ee) 'Contractor' as used herein in this paragraph (18) and in Schedule E shall include each contractor and subcontractor at any tier of construction.

(19) (i) Attached hereto, hereby made a part hereof and identified as "Exhibit M" is a copy of Long Island Well Permit No. 2-6308-00019/00005-0 effective for the period November 2, 1995 through December 31, 2000 issued by the New York State Department of Environmental Conservation ("NYSDEC") to the Port Authority covering the installation and operation of temporary dewatering systems associated with the Central Terminal Area redevelopment program at the Airport (which permit, including the attachment marked as Attachment 1 thereof, as the same may be extended or superseded or replaced by another dewatering permit, is hereinafter called the "General Dewatering Permit"). The Lessee has requested that it be permitted to conduct dewatering performed by it in connection with the certain portions of the Construction Work (hereinafter described) to be performed by the Lessee hereunder and pursuant to the General Dewatering Permit. The Port Authority hereby grants its permission for the Lessee to perform dewatering performed by it in connection with the limited portions of the Construction Work under and pursuant to the General Dewatering Permit on the following terms and conditions, provided, however, that the said permission shall be limited to and shall extend and apply solely to the portions of the Construction Work which consist of the Roadway Package # 5 work and the portion of the Lessee LRS Work stated in sub-subdivision (1) (B) below; and provided, further, however, that the permission granted hereunder with respect to any extension of or replacement or succeeding permit to Permit No. 2-6308-00019/00005-0 shall not be effective if the conduct of dewatering thereunder by the Lessee would be a violation of such permit:

(1) (A) The Lessee shall comply with all the terms and conditions of the General Dewatering Permit and with all additional requirements of the NYSDEC in connection with dewatering performed by the Lessee under the General Dewatering Permit and the JFK SPDES (New York State Pollution Discharge Elimination System) permit (No. NY 0008109) (the 'JFK SPDES Permit') and all other regulations in connection with any dewatering and/or discharge performed by the Lessee or contractor(s) of the Lessee at the Airport. The Lessee, in its own name, prior to the commencement of any portion of the Construction Work, shall also obtain, prior authorization under the NYSDEC Stormwater Discharge Permit for Construction Activity, which requires the Lessee to develop and implement an approved Stormwater Pollution prevention Plan tailored to the Construction Work Site, and the Lessee shall maintain compliance with that Plan for the duration of the Project.

(B) It is specifically understood and agreed that the permission of the Port Authority granted hereunder will allow the Lessee solely to dewater well points under the General Dewatering Permit contingent on NYSDSEC review for the Roadway Package # 5 work and the

installation of the columns for the Lessee LRS Work stated below, as described in Attachment 1 of Exhibit M; with the following additional conditions:

Condition for the Roadway Package #5 work: The Lessee shall not remove through installed deep wells more than 1,250,000 gallons per day under the General Dewatering Permit for the duration of the General Dewatering Permit.

Condition for the Lessee LRS Work: The permission hereunder shall be limited to the installation of columns. The allocation for well dewatering by the Lessee for the said portion of the Lessee LRS Work will be confirmed by the Port Authority Engineering Department, not to exceed 0.6 million gallons per day from October 1, 1998 through September 30, 1999. The Port Authority will allocate from available volume provided under the General Dewatering Permit, not to impact any other LRS construction, pending submission of complete calculations from the Lessee.

The Roadway Package #5 work and the Lessee LRS Work dewatering and discharges must be monitored and reported separately. Accordingly, separate monitoring systems shall be used to track dewatering and discharge activities at the respective portions of the Construction Work Site. In addition, quantities allocated for one portion may not be applied to any other portion of the Construction Work or any other portion of the Construction Work Site.

(2) (A) The Lessee shall designate, by written notice to the Port Authority given not later than five (5) days after the Lessee's execution of Supplement No. 2 to this Lease, a duly authorized representative of the Lessee (the 'Lessee Environmental Representative') who shall be responsible for the Lessee's compliance with the General Dewatering Permit and the aforesaid JFK SPDES Permit.

(B) Upon written notice to the Lessee by the Port Authority which may be given at any time upon any indication of non-compliance or potential non-compliance by the Lessee with the General Dewatering Permit, the Lessee shall immediately retain, at its own expense, under contract a qualified environmental consultant, independent of the Lessee's construction contractor, which qualified environmental consultant shall be subject to the approval of the Port Authority and which qualified environmental consultant shall provide liaison with the Port Authority and shall have the obligation to submit any and all reports, and any other requested information, directly to the Port Authority and to oversee installation of the dewatering wells by a licensed driller, and to monitor contractor compliance with all dewatering operations. The aforesaid Lessee Environmental Representative and/or the qualified environmental consultant of the Lessee shall promptly notify the Supervisor, Permits and Government Approvals of the Port Authority's Environmental Engineering Unit of the progress of scheduled activities, including initiation of

dewatering activities and shall provide weekly updates (by facsimile) on the activities at the Construction Work Site, including the status of dewatering activities (e.g. volumes removed, condition of waters). Anything to the contrary in the foregoing notwithstanding, the said environmental consultant shall at all times be a contractor of the Lessee. The Port Authority shall not be responsible for any act or omission or fault or neglect of the said environmental consultant nor shall the Port Authority have any liabilities or obligations of any kind to said environmental consultant nor any responsibility for any payments due or alleged to be due thereto.

(3) In addition to and without limiting sub-subdivision (5) below or any other term or provision of this Lease, the Lessee shall be solely responsible for any and all fines, penalties, assessments, or levies assessed due to deviation from or violation of the General Dewatering Permit and the requirements and conditions thereof or due to deviation from or violation of the aforesaid JFK SPDES Permit or of the Lessee's authorization to discharge stormwater during construction, mentioned above, or of any other permit, plan, authorization or permission mentioned herein. All design planning shall be in conformance with the requirements and conditions of the General Dewatering Permit, of the aforesaid JFK SPDES permit and applicable NYSDEC regulatory requirements and of any other permit, plan, authorization or permission mentioned herein. The Lessee is responsible for complete compliance with the said regulatory requirements and regulations.

(4) In the event that the projected zone of influence of planned dewatering system is found to extend into any area outside of the premises under this Lease, the Lessee shall notify the Port Authority by submitting to the Geotechnical Unit of the Port Authority the proposed dewatering design for review and approval. This proposed plan shall include the identification of potentially affected non-pile supported structures and pavements which may be impacted by drawdown effects during dewatering operations. In addition, the impact of pumped discharge (which will impact measurement of total suspended solids levels limited by the discharge permit conditions) during pumping and sumping operations shall be subject to prior review and approval by the Port Authority.

(5) The Lessee agrees to assume all risks arising out of its performance of dewatering and discharging at any portion or area of the Construction Work Site under the General Dewatering Permit the JFK SPDES Permit or any other applicable permit or of any other permit, plan, authorization or permission mentioned herein and, without limiting the generality of any other term or provision contained in this Agreement, the Lessee shall indemnify, hold harmless and reimburse the Port Authority, its Commissioners, officers, employees and representatives from and against (and shall reimburse the Port Authority for the Port Authority's costs and expenses including, without limitation, legal costs and expenses incurred in connection with the defense of) all claims and demands, penalties, fines, liabilities (including, without limitation, strict liability), settlements, attorney and consultant fees, investigation and laboratory fees, cleanup and remediation costs, court costs and litigation expenses, damages, judgements, losses, costs and expenses, including, without limitation, claims for personal injury, including death, and property damage, of

whatsoever kind or nature and whether known or unknown, contingent or otherwise, just or unjust, groundless or foreseeable or otherwise arising or alleged to arise out of, or any way related to the Lessee's performance of dewatering or any discharging at any portion of the Construction Work Site or the Airport or the use of the General Dewatering Permit or the JFK SPDES Permit by the Lessee or of any other permit, plan, authorization or permission mentioned herein. If so directed, the Lessee shall at its own expense defend any suit based upon the foregoing, and in handling such it shall not, without obtaining express advance permission from the General Counsel of the Port Authority, raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority or the provisions of any statutes respecting suits against the Port Authority.

(6) In accordance with Special Condition No. 3 of the General Dewatering Permit, the Lessee shall submit to the Supervisor, Permits and Government Approvals of the Port Authority's Environmental Engineering Division all information required by Special Condition No. 3 of the General Dewatering Permit at least forty-five (45) days prior to commencement of construction under each individual contract pursuant to which dewatering and discharge shall be performed by the Lessee. Exhibit M (the General Dewatering Permit) contains a listing of the designated requirements. The Lessee, prior to any performance of any portion of the Construction Work, shall also provide to the Port Authority copies of the Notice of Intent which the Lessee shall submit to the NYSDEC in the Lessee's application for the Construction Discharge Permit, mentioned above, under the JFK SPDES Permit.

(7) Monthly volume logs, water quality results, visual inspection logs and photographs required by the Special Conditions of the General Dewatering Permit covering each portion of the Construction Work Site are to be submitted by the Lessee to the Supervisor, Permits and Government Approvals of the Port Authority's Environmental Engineering Division by the 10th (tenth) day of the month following the month in which the foregoing are recorded or obtained. The parameters to be analyzed and reported will be specified by NYSDEC pursuant to Special Condition No. 4 of the General Dewatering Permit.

(8) The permission granted pursuant to this subdivision (i) of this subparagraph (19) for the Lessee to perform dewatering pursuant to the General Dewatering Permit and discharging pursuant to the JFK SPDES Permit, as aforesaid, and any other related matter may be revoked by the Port Authority upon twenty-four (24) hours' notice to the Lessee if the Lessee fails, within seven (7) days after receipt by the Lessee of notice of default from the Port Authority identifying the breach or breaches of this subdivision (i) of this subparagraph (19) , to cure any default of the terms and conditions of this subdivision (i) of this subparagraph (19) so identified.

(9) Not later than ten (10) days after completion by the Lessee of

dewatering activities, the Lessee shall perform and complete, a closure of the deep water wells in conformance with the NYSDEC requirements. As part of the closure of these wells. The Lessee and its contractor (s) shall notify both the Port Authority and the NYSDEC of this action.

(ii) (1) Dewatering criteria shall be developed to accommodate pile cap construction for thethe Elevated Parking Structure. The Lessee shall, at its sole cost and expense, promptly obtain from the NYSDEC and maintain in effect its own dewatering permit and its own New York State Pollution Discharge Elimination System (SPDES) construction permit covering the Elevated Parking Structure portion of the Construction Work and all other portions of the Construction Work Site not included in (i) of this subparagraph (19) (herein called 'the Lessee's Permits') for the removal of groundwater and discharge elimination in connection with all or any of the said work. Maximum flow from the dewatering systems shall not exceed permissible limits defined in the Lessee's Permits.

(2) In addition to and without limiting any of the terms or provisions of this Lease, the Lessee shall comply with all the terms and conditions of the Lessee's Permits and with any and all additional requirements of the NYSDEC. Without limiting the terms and provisions of the Lease, the Lessee hereby assumes all risks arising out of or in connection with the Lessee's performance of dewatering or discharging under the Lessee's Permits and, without limiting the generality of any other term or provision of this Lease the Lessee shall indemnify and hold harmless the Port Authority, its Commissioners, officers, agents and employees from and against (and shall reimburse the Port Authority for its costs and expenses including without limitation legal costs and expenses incurred in connection with the defense of) all claims and demands, penalties, fines, liabilities (including without limitation strict liability), settlements, attorney and consultant fees, investigation and laboratory fees, clean-up and remediation costs, court costs and litigation expenses, damages, judgements, losses, costs and expenses, including without limitation claims for personal injury, including death, and property damage, of whatsoever kind or nature and whether known or unknown, contingent or otherwise, just or unjust, groundless or foreseeable or otherwise arising or alleged to arise out of, or any related to the use of the Lessee's Permits by the Lessee or the performance of the dewatering or discharging by the Lessee. If so directed the Lessee shall at its expense defend any suit based upon any of the foregoing and in handling such it shall not without first having express advance permission from the General Counsel of the Port Authority raise any defense involving in any way the jurisdiction of the tribunal over the person of the Port Authority, the immunity of the Port Authority, its Commissioners, officers, agents or employees, the governmental nature of the Port Authority or the provisions of any statutes respecting suits against the Port Authority.

(3) In the event that the projected zone of influence of planned dewatering system is found to extend into any area outside of the premises under this Agreement, the Lessee shall notify the Port Authority by submitting to the Geotechnical Unit of the Port Authority the proposed dewatering design for review and approval.

(h) In addition to and without limiting the terms and conditions set forth in paragraph (g) above, the portion of the Construction Work representing the Eligible Construction Work (as defined in Section 84 hereof) and the Lessee LRS Work shall be done in accordance with the following further terms and conditions:

(1) In addition to the submission of the names of the architects and contractors for Port Authority approval as required by subparagraphs (2) and (3) of paragraph (g) hereof, all proposed contracts covering the portion of the Construction Work representing the Eligible Construction Work, or any portion thereof submitted and/or the Lessee LRS Work or any portion thereof for Port Authority approval shall be subject to disapproval including but not limited to the disapproval of any contract the costs of which are not acceptable to the Port Authority. The Lessee shall include in all such contracts such provisions and conditions as may be required by the Port Authority. In addition to and without limiting any other right or remedy of the Port Authority under this Lease or otherwise, the Port Authority shall have the right to audit the books of any contractor (at any tier) with respect to any contract covering the Eligible Construction Work, or any portion thereof and/or the Lessee LRS Work or any portion thereof. It is expressly understood and agreed that in the event any proposed contract covers the construction of On-Premises Area 1 Work, or any portion thereof, as well as Off-Premises Work, or any portion thereof or the Lessee LRS Work or any portion thereof, or covers both Eligible Construction Work and other portions of the construction, then the contract shall contain an allocation of costs between the On-Premises Area 1 Work and the Off-Premises Work and between the Eligible Construction Work and the Lessee LRS Work or any portion thereof and the other portions of the Construction Work, or shall set forth a method for properly determining the allocation of such costs, provided, however, that if such contract does not properly allocate said costs or set forth a method for the allocation of said costs the Port Authority shall determine the costs thereof that are applicable to the Eligible Construction Work, or any portion thereof or the Lessee LRS Work or any portion thereof. It is further understood and agreed that the Port Authority shall have as full a right to require the use of competitive bidding and award, or other basis of award, for the construction of the Eligible Construction Work, or any portion thereof and for the Lessee LRS Work or any portion thereof as if such construction were to be performed by the Port Authority. The Lessee shall not enter into any proposed contract covering the Eligible Construction Work, or any portion thereof, or the Lessee LRS Work, or any portion thereof, without the prior written approval of the Port Authority, in accordance with the foregoing, and the Port Authority shall have the right to review each such proposed contract prior to the award or execution thereof.

(2) Without limiting subparagraph (1) above or any other term or provision of this Agreement, all construction documents and bid documents and all contracts including but not limited to any and all changes, supplements or amendments or changes thereto covering the Eligible Construction Work or any portion thereof, or the Lessee LRS Work or any portion thereof, shall be subject to the prior approval of the Port Authority, and, the Lessee shall not make any such changes, supplements or amendments without the prior approval of the Port Authority. In accordance with paragraph (g) (3) hereof all bid documents and proposed contracts

shall require a cost breakdown separately detailing Eligible Construction Work and Lessee LRS Work or any portion thereof, which shall be made available to the Port Authority for its review. In addition, with respect to the Lessee LRS Work, all bid documents shall contain a bid breakdown in accordance with the construction cost estimates for the Lessee LRS Work prepared by the Lessee and submitted to the Port Authority . Further, without limiting any other term or provision of this Agreement, the Lessee shall include in said construction documents, bid documents and contracts such terms, provisions and conditions as may be required by the Port Authority (including, without limitation, the terms, provisions and conditions required under Section 84 hereof and including, without limitation, provisions permitting retainage from amounts due the contractor until final completion by the contractor of the work under such contract and acceptance thereof by the Port Authority).

(3) Port Authority Requested Change Orders to the Eligible Construction Work and/or to the Lessee LRS Work:

(a) (i) The Lessee hereby specifically agrees that notwithstanding the Port Authority's approval of the Lessee's Comprehensive Plan or the Contract Documents or any Construction Application the Lessee shall, as directed by the Port Authority, design and make such changes or modifications in the Eligible Construction Work and the Lessee LRS Work as may be required by the Port Authority (including but not limited to any further conditions which may be imposed by the General Manager of the Airport), which changes and modifications will become a part of the Construction Application and the Construction Work; (each, a 'Port Authority Requested Change').

(ii) The Port Authority shall advise the Lessee in writing of each Port Authority Requested Change, and upon its receipt of each such Port Authority Requested Change the Lessee shall within ten (10) business days provide the Port Authority with a written statement setting forth in detail the Lessee's good faith estimates and itemization of the costs of each such Port Authority Requested Change (including the costs of any changes in related work) or the cost savings which would result from each such Port Authority Requested Change and the impact of the same (either positive or negative), cumulatively with all prior Change Orders (including but not limited to Port Authority Requested Change Orders), (A) on the Cost of the Eligible Construction Work or the Cost of the Lessee LRS Work, or both, as the case may be, and (B) on the required time for the completion by the Lessee of the Construction Work.

(iii) After its receipt of the said statement from the Lessee, the Port Authority shall in writing either (A) authorize such Port Authority Requested Change and instruct the Lessee to proceed with the same, or (B) disapprove such Port Authority Requested Change and such Port Authority Requested Change shall be deemed withdrawn. If the Port Authority shall so authorize in writing any such Port Authority Requested Change (each such, a 'Port Authority Requested Change Order') , then the Lessee shall design and make such

changes or modifications in the Eligible Construction Work and the Lessee LRS Work in accordance with the Port Authority Requested Change Order , which changes and modifications will become a part of the Construction Application and the Construction Work. If the Port Authority shall disapprove any such Port Authority Requested Change, then the Lessee shall not perform such change or modification, and the plans and specifications and the Construction Application shall not be changed to reflect such approved Port Authority Requested Change.

(iv) It is expressly understood and agreed, that the Port Authority shall have the right to approve in writing any and all work or services and the cost of each item of such work or services for the implementation of a Port Authority Requested Change; it being specifically understood and agreed that any and all Change Orders affecting the Eligible Construction Work, or any portion thereof, or the Lessee LRS Work, or any portion thereof, resulting from Port Authority Requested Changes shall be subject to the prior written authorization of the Port Authority, and, further, that the Lessee shall not authorize or permit any contractor to perform any work in connection with any such Port Authority Requested Change unless such prior authorization of the Port Authority is obtained. The Lessee hereby agrees to perform all work and services in connection with any such authorized Port Authority Requested Change Order not covered by any proposed contract for the Eligible Construction Work or the Lessee LRS Work.

(v) 'Port Authority Requested Change in Scope Change Order':

(A) With respect to the Eligible Construction Work, a Port Authority Requested Change Order shall be considered a Change in Scope if it changes the size, number, configuration or materials of the major components of the Comprehensive Plan as shown on the Design Development Drawings; or significantly increases the size or number of the ancillary components of the Comprehensive Plan above the requirements cited in Attachment A (each, a 'Port Authority Requested Change in Scope Change Order'). A Port Authority Requested Change Order shall not be considered a Change in Scope if it is in response to field conditions. For the purposes of determining Change in Scope, major components of the Comprehensive Plan include at-grade roadways, roadways on-embankment, elevated roadways on-structure, open-depressed roadways, roadways in tunnels, passenger islands, canopies, at-grade parking lots, structural parking decks, parking entry and exit plazas. All other elements and components of the Comprehensive Plan, regardless of whether they are or are not specifically shown on the Design Development Drawings or cited in Attachment A, necessary for the function of the said major components shall, for the purposes of determining Change in Scope, be considered ancillary components of the Comprehensive Plan. Ancillary components of the Comprehensive Plan shall include, but are not limited to, all utility systems and their required equipment, enclosures and structures (electrical power, communications, water, storm sewer, sanitary sewer, revenue control, security, natural gas, thermal distribution, chilled water); traffic signals; static and dynamic signing; striping; landscaping; and fencing.

(B) With respect to the Lessee LRS Work, a Port Authority Requested Change Order shall be considered a Change in Scope if it changes the size, number, configuration or materials of the major components of the LRS Work as shown on Exhibit D (each, a 'Port Authority Requested Change in Scope Change Order'). A Port Authority Requested Change Order shall not be considered a Change in Scope if it is in response to field conditions. For the purposes of determining Change in Scope, major components of the Lessee LRS Work shall include foundations and columns.

(vi) The term 'Net Amount of Port Authority Requested Change in Scope Change Orders' shall mean (A) with respect to Eligible Construction Work, the total cumulative sums of all Port Authority Requested Change in Scope Change Orders applicable to the Eligible Construction Work after deducting the total amounts of all cost savings resulting from all Change Orders (including but not limited to Port Authority Requested Change Orders) applicable to the Eligible Construction Work; and (B) with respect to the Lessee LRS Work, the total cumulative sums of all Port Authority Requested Change in Scope Change Orders applicable to the Lessee LRS Work after deducting the total amounts of all cost savings resulting from all Change Orders (including but not limited to Port Authority Requested Change Orders) applicable to the Lessee LRS Work.

(vii) Failure of the Lessee to comply with the provisions hereof shall be deemed a material breach of this Agreement. Without limiting the foregoing, in the event the Lessee shall fail to provide any statement or other information required to be provided by the Lessee under this paragraph with respect to a Port Authority Requested Change, the Port Authority shall nevertheless have the right to require the Lessee to proceed with such Port Authority Requested Change based upon Port Authority established cost estimates.

(i) The Lessee hereby acknowledges its awareness that the expeditious performance by the Lessee of the Eligible Construction Work and the Lessee LRS Work including the proper staging of the components thereof is a special inducement to the Port Authority in entering into this Agreement. Accordingly, the Lessee agrees that it shall perform the Construction Work in accordance with, and in the sequence as set forth in, the exhibit attached hereto, hereby made a part hereof and marked "Exhibit I ". The Lessee understands the importance of performing such portions of the Construction Work in such a manner and at such times so that the same will be completed expeditiously. Toward the accomplishment of the foregoing, and without limiting the terms and provisions of paragraph (r) hereof, the Lessee shall submit a Construction Application or Applications and the plans and specifications forming a part thereof in connection with the aforesaid specified portions of the Construction Work for the approval of the Port Authority. The Lessee shall monitor the progress of the architect and engineer in preparing said plans and specifications and shall cause the same to be completed expeditiously and shall promptly deliver the same to the Port Authority for approval. The Lessee shall continue diligently and expeditiously to submit and resubmit such material as may be required until approval is granted. The Lessee hereby agrees to commence construction of the

aforesaid specified portions of the Construction Work promptly after the approval of its Construction Application or Applications and the plans and specifications covering the same and to continue said construction diligently to completion. The foregoing provisions of this paragraph (i) shall not prevent the Lessee from proceeding with the On-Premises Area 1 Work at the same time it is proceeding with the Off-Premises Work and the Lessee LRS Work as long as the completion of the Off-Premises Work and the Lessee LRS Work is not unduly delayed.

(j) As aforesaid, it is understood and agreed that the Off-Premises Work, the On-Premises Area 1 Work and the Lessee LRS Work and all of the various portions thereof might not be constructed concurrently. Accordingly and expressly subject to the provisions of paragraph (r)of this Section 2 and without limiting said paragraph (r) or any other terms or provisions of this Agreement, the required approval by the Port Authority of the Lessee's plans and specifications under paragraph (f) hereof may be given as said plans and specifications for each of the portions of the Construction Work specified in paragraph (i) hereof are submitted. In addition, the Lessee may wish to commence construction of portions of the Construction Work prior to the approval by the Port Authority of the Lessee's complete plans and specifications pursuant to paragraph (f) hereof, and if it does it shall submit a written request to the Port Authority setting forth the work it proposes then to do.

The Port Authority shall have full and complete discretion as to whether or not to permit the Lessee to proceed with said work. If the Port Authority has no objection to the Lessee's proceeding with the work, it shall do so by writing a letter to the Lessee to such effect. If the Lessee performs the work covered by said letter it agrees all such work shall be performed subject to and in accordance with all of the provisions of the approval letter and subject to and in accordance with the following terms and conditions:

(1) The performance by the Lessee of the work covered by any request as aforesaid will be at its sole risk and if for any reason the plans and specifications for the Construction Work are not approved by the Port Authority or if the approval thereof calls for modifications or changes in the work undertaken by the Lessee under any approval granted by the Port Authority pursuant to this paragraph (j), the Lessee will, as directed by the Port Authority, at its sole cost and expense, either restore the area affected to the condition existing prior to the commencement of any such work or make such modifications and changes in any such work as may be required by the Port Authority.

(2) Nothing contained in any approval hereunder shall constitute a determination or indication by the Port Authority that the Lessee has complied with the applicable governmental laws, ordinances, enactments, resolutions, rules and orders, including but not limited to those of the City of New York, which may pertain to the work to be performed.

(3) The approved work will be performed in accordance with and subject to the terms, indemnities and provisions of the Lease covering the Construction Work and with the terms and conditions of any Construction Application which the Port Authority may request this Lessee to submit even though such Construction Application may not have, at the time of the approval under this paragraph (j), been approved by the Port Authority.

(4) No work under any such approval shall affect or limit the obligations of the Lessee under all prior approvals with respect to its construction of the Construction Work.

(5) The Lessee shall comply with all requirements, stipulations and provisions as may be set forth in the letters of approval.

(6) In the event that the Lessee shall at any time during the construction of any portion of the Construction Work under the approval granted by the Port Authority pursuant to this paragraph (j) fail, in the opinion of the General Manager of the Airport, to comply with all of the provisions of this Lease with respect to the Construction Work, the Construction Application or the approval letter covering the same or be, in the opinion of the General Manager, in breach of any of the provisions of this Lease, the Construction Application or the approval letter covering the same, the Port Authority shall have the right, acting through said General Manager to cause the Lessee to cease all or such part of the Construction Work as is being performed in violation of this Lease, the Construction Application or the approval letter. Upon such written direction from the General Manager the Lessee shall promptly cease construction of the portion of the Construction Work specified. The Lessee shall thereupon submit to the Port Authority for its written approval the Lessee's proposal for making modifications, corrections or changes in or to the Construction Work that has been or is to be performed so that the same will comply with the provisions of this Lease, the Construction Application and the approval letter covering the Construction Work. The Lessee shall not commence construction of the portion of the Construction Work that has been halted until such written approval has been received.

(7) It is hereby expressly understood and agreed that neither the field engineer covered by paragraph (k) hereof nor the Resident Engineer of the Port Authority at the Airport has any authority to approve any plans and specifications of the Lessee with respect to the Construction Work, to approve the construction by the Lessee of any portion of the Construction Work or to agree to any variation by the Lessee from compliance with the terms of this Lease, or the Construction Application or the approval letter with respect to the Construction Work. Notwithstanding the foregoing, should the field engineer or the Resident Engineer give any directions or approvals with respect to the Lessee's performance of any portion of the Construction Work which are contrary to

the provisions of this Lease, the Construction Application or the approval letter, said directions or approvals shall not affect the obligations of the Lessee as set forth herein nor release or relieve the Lessee from the strict compliance therewith. It is hereby further understood and agreed that the Port Authority has no duty or obligation of any kind whatsoever to inspect or police the performance of the Construction Work by the Lessee and the rights granted to the Port Authority hereunder shall not create or be deemed to create such a duty or obligation. Accordingly, the fact that the General Manager has not exercised the Port Authority's right to require the Lessee to cease its construction of all or any part of the Construction Work shall not be or be deemed to be an agreement or acknowledgment on the part of the Port Authority that the Lessee has in fact performed such portion of the Construction Work in accordance with the terms of the Lease, the Construction Application or the approval letter nor shall such fact be or be deemed to be a waiver by the Port Authority from the requirement of strict compliance by the Lessee with the provisions of the Lease, the Construction Application and the approval letter with respect to the Construction Work.

(8) Without limiting the discretion of the Port Authority hereunder, the Port Authority hereby specifically advises the Lessee that even if the Port Authority hereafter in the exercise of its discretion wishes to grant approvals under this paragraph (j), it may be unable to do so, so as to permit the Lessee to continue work without interruption following its completion of the work covered by any prior approval hereunder. The Lessee hereby acknowledges that if it commences work pursuant to this paragraph (j), it shall do so with full knowledge that there may not be continuity by it in the performance of its Construction Work under the procedures of this paragraph (j).

(9) No prior approval of any work in connection with the Construction Work shall create or be deemed to create any obligation on the part of the Port Authority to permit subsequent work to be performed in connection with such Construction Work prior to the approval by the Port Authority of the Lessee's complete plans and specifications thereof. It is understood that no such prior approval shall release or relieve the Lessee from its obligation to submit complete plans and specifications for the Construction Work and to obtain the Port Authority's approval of the same as set forth in paragraph (f) hereof. It is further understood that in the event the Lessee elects not to continue to seek further approval letter(s) pursuant to this paragraph (j), the obligations of the Lessee to restore the area and to make modifications and changes as set forth in subparagraph (1) above shall be suspended until the Lessee's submission of its complete plans and specifications in accordance with paragraph (f) hereof.

(k) The Lessee will give the Port Authority fifteen (15) days' notice prior to the commencement of construction. The Port Authority will assign to the Construction Work a full time field engineer or engineers. The Lessee shall pay to the Port Authority for the services of said engineer or engineers, the sum of (2.a.)

for each day or part thereof that the engineer or engineers are so assigned during the 1998 calendar year; and for each and every calendar year thereafter, the rate that the Port Authority shall charge Aircraft Operators at the Airport for the services of such engineer or engineers during such calendar year for each day or part thereof that the engineer or engineers are so assigned for such calendar year; not to exceed the total sum of (2.a.) Notwithstanding the foregoing provision for a maximum total amount, it is agreed that in the event the Lessee shall not complete the Construction Work on or before the required completion date therefor as stated in paragraph (g) (2) (iii) above then, in addition to and without limiting any other right or remedy of the Port Authority under this Agreement or otherwise, the Lessee shall pay to the Port Authority for the services of said engineer or engineers for each day or part thereof that the engineer or engineers are so assigned during calendar year from and after April 1, 2002 and for each and every calendar year thereafter, the rate that the Port Authority shall charge Aircraft Operators at the Airport for the services of such engineer or engineers during such calendar year for each day or part thereof that the engineer or engineers are so assigned for such calendar year, without any maximum dollar limitation. Nothing contained herein shall affect any of the provisions of paragraph (r) hereof or the rights of the Port Authority hereunder. The foregoing provisions of this paragraph (j) for the services of said field engineer may be revoked at any time by either party on thirty (30) days' written notice to the other, but if revoked by the Lessee the foregoing provisions of this paragraph (k) for the services of said field engineer shall continue during the period that construction under any partial approvals pursuant to paragraph (j) hereof is performed.

(l) (1) The Construction Work shall be constructed in such a manner that there will be at all times a minimum of air pollution, water pollution or any other type of pollution and a minimum of noise emanating from, arising out of or resulting from the operation, use or maintenance thereof by the Lessee and from the operations of the Lessee under this Agreement. Accordingly, and in addition to all other obligations imposed on the Lessee under this Agreement and without diminishing, limiting, modifying or affecting any of the same, the Lessee shall be obligated to construct as part of the Construction Work hereunder such structures, fences, equipment, devices and other facilities as may be necessary or appropriate to accomplish the foregoing and each of the foregoing shall be and become a part of Construction Work it affects and all of the foregoing shall be covered under the Comprehensive Plan of the Lessee submitted under paragraph (b) hereof and shall be part of the Construction Work hereunder.

(2) Notwithstanding the provisions of subparagraph (1) above and in addition thereto, the Port Authority hereby reserves the right from time to time and at any time during the term of the Lease to require the Lessee, subsequent to the completion of the On-Premises Work to design and construct at its sole cost and expense such further reasonable structures, fences, equipment, devices and other facilities as may be necessary or appropriate to accomplish the objectives as set forth in the first sentence of said subparagraph (1). All locations, the manner, type and method of construction and the size of any of the foregoing shall be determined by the Port Authority. The Lessee shall submit for Port Authority approval its

plans and specifications covering the required work and upon receiving such approval shall proceed diligently to construct the same. All other provisions of this Section 83 with respect to the Construction Work shall apply and pertain with like effect to any work which the Lessee is obligated to perform pursuant to this paragraph (l) and upon completion of each portion of such work it shall be and become a part of the Construction Work. The obligations assumed by the Lessee under this paragraph (l) are a special inducement and consideration to the Port Authority in entering into Supplement No. 2 to the Lease.

(m) Title to all the Construction Work shall pass to the City of New York as the same or any part thereof is erected, constructed or installed, and the portion thereof representing the On-Premises Work shall be and become part of the premises if located within the premises.

(n) The Lessee acknowledges that it will be continuing its operations at the existing premises under the Lease during the period of time it is performing the Construction Work hereunder. The Lessee further acknowledges that this may involve among other things inconvenience, noise, dust, interference and disturbance to the Lessee in its operations at the premises as well as to its customers, patrons, invitees and employees and possibly other risks as well. The Lessee hereby expressly assumes all of the foregoing risks and agrees that there will be no reduction or abatement of any of the rentals, fees or charges payable by the Lessee under the Lease or otherwise on account of its performance of the Construction Work and that the performance of the Construction Work shall not constitute an eviction or constructive eviction of the Lessee nor be grounds for any abatement of rentals, fees or charges payable by the Lessee under the Lease or otherwise nor give rise to or be the basis of any claim or demand by the Lessee against the Port Authority, its Commissioners, officers, employees or agents for damages, consequential or otherwise, under this Lease or otherwise.

(o) Minimization of disruption of, and coordination with, airport operations and other Port Authority activities and other tenant activities:

(1) (i) The Lessee acknowledges that the Port Authority as well as other users, lessees, tenants, airport patrons and invitees and others will be continuing their operations in the Central Terminal Area of the Airport ('CTA') during the period of time the Lessee is performing the Construction Work hereunder and that this will involve among other things inconvenience, noise, dust, interference and disturbance to said operations and possibly other risks as well. The Lessee further acknowledges that the Construction Work hereunder will impact traffic flow and control on the roadways in the CTA as well as the Terminal frontage roads in front of the premises and Terminals 5 and 6 as well as to customers, patrons, invitees and employees. The Lessee hereby expressly assumes all of the foregoing risks. Without limiting the foregoing, the Lessee shall and expressly hereby agrees to perform, and to require each of its contractors and subcontractors to perform, the Construction Work and each portion thereof in such a manner so as to minimize the impact and any disruption resulting therefrom on

said operations and on traffic control and traffic flow in the CTA. The Lessee shall, without limiting any other term or provision hereof, communicate and cooperate (and require each of its contractors to communicate and cooperate) with the Port Authority and with each of the users, lessees, tenants, airport patrons, invitees and others in all aspects of the Construction Work, and the Lessee shall coordinate and work in harmony with all said persons, including without limitation the users and occupants of Terminals 4, 5 and 6, the cogeneration facility and KIAC and Port Authority contractors. The Lessee shall also communicate and cooperate (and require each of its contractors to communicate and cooperate) with all ground transportation operators and providers including all taxi, limousine and bus operators throughout the entire period of time of the performance of the Construction Work.

(ii) Without limiting the foregoing, the Lessee specifically recognizes the importance of minimum disruption of the operations of KIAC (as defined in Supplement No. 1 of the Lease) and its operations at the cogeneration facility and the Central Heating and Refrigeration Facility at the Airport, and the Lessee shall use its best efforts to coordinate the Construction Work with said operations and shall require each of its contractors to cooperate with KIAC.

(iii) The Lessee shall include in each of its contracts and subcontracts covering the Construction Work or any portion thereof the foregoing requirements for minimization of disruption and for contractor cooperation and coordination.

(2) The Lessee shall perform and schedule the Construction Work with a high degree of coordination with the Port Authority's plan and schedule for the LRS in the CTA and the Lessee shall at all times during the construction of the planned LRS cooperate with the Port Authority and the Port Authority's contractors and the LRS Contractor, and the Lessee shall also require each of its contractors also to cooperate with the Port Authority and the Port Authority's contractors and the LRS Contractor.

The Lessee has been advised and understands that the Lessee LRS Work as defined in paragraph (e) hereof which the Lessee is obligated to perform and complete hereunder form an integral part and important portion of the LRS which the Port Authority plans to construct and operate for the transportation of passengers and others to and from the Airport; and that the completion and operation of the LRS for the benefit of the Airport requires the timely completion of the Lessee LRS Work. From time to time, the Port Authority shall keep the Lessee apprised of the progress of the construction of the LRS. The Lessee LRS Work is expected to be completed by the Lessee in stages and by the following projected completion dates:

Completion by February 28, 1999: All LRS foundations and piers for LRS Station: OL942+ 50 to OL950+ 00*

Completion by February 28, 1999 : Departures level of the Elevated Parking Structure to support LRS Connector between grid lines 02 and LRS03*

Completion by April 30, 1999 : All LRS foundations and piers for LRS Station OL950+ 00 to OL952+ 068*

Completion by November 30, 1999: Departures level of the Elevated Parking Structure to support LRS Connector between grid lines 01 and 02*

* Exhibit I

Any Port Authority directed modification or any modification mutually agreed to by the Port Authority and the Lessee to the above-stated time frames that results from a delay of the stated start date (expected to be on or about April 15, 1998) shall result in a corresponding extension of the applicable completion date, so that the time frame duration does not decrease.

Each of the aforesaid projected completion dates shall be modified to be the actual date (the 'LRS Contractor's Commencement Date'), set forth in the contract (the 'LRS Contract') with the LRS Contractor for the LRS Contractor to commence that portion of the LRS Contractor's work (which portion is hereinafter referred to as the 'LRS Contractor's Work') at the Construction Work Site which is to be performed upon the substantial completion of the applicable stage of the Lessee LRS Work, provided the LRS Contractor's Commencement Date is later that the applicable projected completion date set forth above. The Port Authority shall endeavor to include in the LRS Contract that the LRS Contractor will commence its work at the premises in accordance with the stages (but not necessarily by the projected completion dates) set forth above. In addition, each of the aforesaid projected completion dates shall be extended for each day after the LRS Contractor's Commencement Date that the LRS Contractor shall fail, for whatever reason (other than the failure of the Lessee to substantially complete the applicable stage of the Lessee LRS Work by the projected completion dates, as the same may be modified as provided in this paragraph), to commence the LRS Contractor's Work.

In the event that any stage of the Lessee LRS Work is not substantially completed and available to the Port Authority or the LRS Contractor for the LRS Contractor to commence the LRS Contractor's Work within sixty (60) days after the projected completion date therefor, as modified and extended as aforesaid (such projected completion date as so modified and extended being hereinafter, for purposes of this paragraph (o), referred to as the 'Lessee LRS Work Projected Completion Date'), then, upon ninety (90) days prior notice from the Port Authority to the Lessee (which notice may be given prior to the occurrence of the Lessee LRS Work Completion Date if the Port Authority believes in good faith that the Lessee will not be able to substantially complete the applicable portion of the Lessee LRS Work by the Lessee LRS Work Projected Completion Date), the LRS Contractor shall have the right to enter and use that portion of the premises or the Construction Work Site as shall be reasonably necessary, in the opinion of the Port Authority, for the LRS Contractor to perform that portion of the Lessee LRS Work; provided, however, that the LRS Contractor shall not have such right if the Lessee

shall substantially complete the applicable portion of the Lessee LRS Work by the sixtieth (60) day after the applicable Lessee LRS Work Projected Completion Date. The aforesaid right of the LRS Contractor to enter and use said portion of the premises or the Construction Work Site is intended to insure continuous and timely performance of the construction of the LRS. Any performance by the LRS Contractor of the Lessee LRS Work shall be done (1) in accordance with approved Design Development Documents and contract documents prepared by the Lessee hereunder, which will be made available to the Port Authority and the LRS Contractor by the Lessee for such purpose, and (2) in such manner so as to minimize interference with other portions of the Construction Work and the continuous operation of the premises as an air terminal facility. In the event that the LRS Contractor performs any portion of the Lessee LRS Work, the Lessee will be relieved of the obligation, set forth in clauses (1) (i) and (1) (ii)of paragraph (e), to build that portion to be performed by the LRS Contractor. Such portion of the Lessee LRS Work performed by the LRS Contractor, upon completion, will be turned over to the Lessee for purposes of becoming, and will become, part of the Construction Work, subject to all of the terms and conditions hereof (except that the same shall not form a part of the Cost of the Eligible Construction Work under Section 84 hereof or of the Cost of the Lessee LRS Work under Section 84 hereof).

The Lessee shall coordinate Off-Premises Work and On-Premises Area 1 Work and Lessee LRS Work in accordance with the following requirements for LRS construction. (Exhibit K attached hereto shows the requirements of the proposed LRS Contract for the LRS DBOM Contractor to provide access to and through LRS work zones during performance of the LRS DBOM Contractor's work in Quadrant 4):

A. Station & Guideway Construction Zones

1. A fifty (50) foot wide 'LRS Construction Zone A' which provides unimpeded access at ground level on the southern side of the LRS Station and Guideway at Terminals 5 and 6 and at the premises hereunder (Terminal 7), as generally shown in diagonal hatch on Exhibit J , attached hereto and hereby made a part hereof, shall be provided by the Lessee in accordance with the following timeframes and stationings. The LRS Construction Zone A will be isolated in its entirety by the LRS DBOM Contractor and shall be dedicated for the LRS DBOM Contractor(s)' use. Access through this Construction Zone A will be provided by the LRS DBOM Contractor in accordance with Exhibit K. Access to this LRS Construction Zone A shall be provided by the Lessee seven days per week, 24 hours per day during the listed timeframe.

LOCATION: Construction Zones	TIME FRAME	STATIONING*
Terminal 7 Area	December 1998 thru December 1999	Station OL935+00 - OL942+50
Terminal 7 Station	March 1999 thru April 2000	Station OL942+50 - OL948+00
Terminal 7 Connector (GL 02-LRS03)	March 1999 thru April 2000	Station OL946+92- OL947+17
Terminal 7 Connector (GL 01 - 02)	December 1999 thru April 2000	Station OL946+92- OL947+17
Terminal 7 Area	March 1999 thru February 2000	Station OL948+00 - OL950+00
Terminal 7 Area	May 1999 thru October 1999	Station OL950+00 - OL952+68
Terminals 5 & 6 Area	April 1999 thru February 2000	Station OL952+68 - OL955+50
Terminals 5 & 6 Station	April 1999 thru September 2000	Station OL955+50 - OL959+00
Terminals 5 & 6 Connector	April 1999 thru February 2000	
Terminals 5 & 6 Area	April 1999 thru February 2000	Station OL959+00 - OL966+00

2. A twenty-five (25) foot wide 'LRS Construction Zone B' which provides unimpeded access at the departures level of the Elevated Parking Structure on the northern side of the LRS Station and Guideway in the vicinity of the Elevated Parking Structure , as generally shown in cross-hatch on Exhibit J , attached hereto and hereby made a part hereof, shall be provided in accordance with the aforementioned timeframes and stationing. ~~Access in Zone B shall be from ground level on the south side of the LRS station.~~ The elevated LRS Construction Zone B will be isolated in its entirety by the LRS DBOM Contractor and shall be dedicated for the LRS DBOM Contractor(s)' use. Access to this LRS Construction Zone B shall be provided by the Lessee seven days per week, 24 hours per day during the aforementioned timeframes. ~~Access through this LRS Construction Zone B is to be provided by the LRS DBOM Contractor in accordance with Exhibit K.~~

The Elevated Parking Structure within the LRS Construction Zone B shall be designed and constructed for a live load of 200 pounds per square foot (PSF).

3. A twenty-five (25) foot wide 'LRS Construction Zone C' which provides unimpeded access at ground level on the northern side of the Terminals 5 and 6 Station

and Guideway in the areas other than the section addressed in clause 2 above, as generally shown in wavy hatch on Exhibit J , attached hereto and hereby made a part hereof, shall be provided in accordance with the aforementioned timeframes and stationing. This LRS Construction Zone C will be isolated in its entirety by the LRS DBOM Contractor and shall be dedicated for the LRS DBOM contractor(s)' use. Access to this LRS Construction Zone C shall be provided by the Lessee, seven days per week, 24 hours per day during the aforementioned timeframe. Access through this LRS Construction Zone C is to be provided by the LRS DBOM Contractor in accordance with Exhibit K.

B. LRS Connector at Terminal 7 Construction

A twenty-five (25) foot wide 'LRS Construction Zone D' on each side of the LRS connector, taking into account skylight positions, etc., all as shown on in double-lined hatch on Exhibit J , attached hereto and hereby made a part hereof, which provides unimpeded access at the departures level of the parking structure shall be provided in accordance with the aforementioned timeframe and stationing. Access in Zone D shall be from ground-level on the south side of the LRS station. The LRS Construction Zone D will be isolated in its entirety by the LRS DBOM Contractor and shall be dedicated for the LRS DBOM Contractor(s)' use. Access to this LRS Construction Zone D shall be provided by the Lessee seven days per week, 24 hours per day during the aforementioned timeframe. Access through this LRS Construction Zone D is to be provided by the LRS DBOM Contractor in accordance with Exhibit K.

The parking structure within the LRS Construction Zone D just described shall be designed and constructed by the Lessee for a live load of 200 pounds per square foot (PSF). In addition, to allow for the weight of the LRS Connector, the Elevated Parking Structure shall be designed and constructed by the Lessee for an uniformly distributed load of three (3) kips per linear foot.

C. LRS Connector at Terminals 5 & 6 Construction

A fifty (50) foot wide 'LRS Construction Zone E' the west side and a twenty-five (25) foot wide "LRS Construction Zone F " on the east side of the LRS connector; as well as the area directly beneath the connector, as generally shown in bubble hatch and in diagonal hatch on Exhibit J , attached hereto and hereby made a part hereof, which provides unimpeded access at ground level, shall be provided in accordance with the aforementioned timeframes and stationing. The LRS Construction Zone E and LRS Construction Zone F will be isolated in their entirety by the LRS DBOM Contractor and shall be dedicated for the LRS DBOM Contractor(s)' use. Access to the LRS Construction Zone E and LRS Construction Zone F shall be provided by the Lessee, seven days per week, 24 hours per day during the aforementioned timeframe. Access through these LRS Construction Zones E and F is to be provided by the LRS DBOM

Contractor in accordance with Exhibit K.

Without limiting the generality of any other provisions of this Section, the Lessee acknowledges and agrees that it shall be responsible for coordinating the proposed column locations for the Construction Work (and any currently-contemplated future expansion thereof) with utilities located on or outside the Construction Work Site, as such utilities may be relocated by the Lessee as part of the Construction Work. The Port Authority will cause the LRS Contractor to be responsible under the LRS Contract for the coordination of the locations of the columns and other structural and mechanical elements of the LRS with the utilities located on or outside the Construction Work Site, as such utilities may be relocated by the Lessee as part of the Construction Work (such utilities as so relocated being hereinafter referred to as the 'LRS Relocated Utilities'). The parties hereto acknowledge and agree that the Design Development Documents and /or the contract documents, to the extent then available, may be used by the LRS Contractor for purposes of coordinating the locations of the columns and other structural and mechanical elements of the LRS with the LRS Relocated Utilities, and for such purpose the Design Development Documents and/or the contract documents, as the case may be, shall be considered 'as built' conditions.

(3) 'Temporary construction program': In order to ensure appropriate levels of service to the users, occupants, and Airport patrons and others using the Airport during the performance of the Construction Work, the Lessee, not less than sixty (60) days prior to the commencement of any portion of the Construction Work and the implementation of each construction stage, shall prepare and submit to the Port Authority for its prior approval a temporary construction program (including, but not limited to, drawings, sketches, schedules and narrative descriptions) which sets forth plans for the continuing provision of all patron services, for roadway frontage for Terminals 5 and 6, and Terminal 7, and landside operations. Without limiting any other term or provision hereof, any temporary construction is and shall be subject to paragraph (r) (3) below, including, but not limited to, certifications of the Lessee and the Lessee's licensed architect or engineer and the issuance of a certificate of completion therefor by the Port Authority.

(4) Without limiting any other term or provision hereof, the Lessee shall complete the design and perform the Construction Work in a manner consistent with other on-going roadway, frontage and utility improvements of the Port Authority at the Airport.

(p) In addition to and without limiting paragraphs (d) or (e) or any other term or provision of this Section 83, the Lessee understands that there may be communications and utility lines and conduits located on or under the Construction Work Site which do not, and may not in the future, serve the premises. The Lessee agrees at its sole cost and expense, if directed by the Port Authority so to do, to relocate and reinstall such communications and utility lines and conduits on the Construction Work Site or off the Construction Work Site as directed by the Port Authority and to restore all affected areas (such work being hereinafter collectively called 'the

relocation work'). The Lessee shall perform the relocation work subject to and in accordance with all the terms and provisions of this Section 83 and the relocation work shall be and become a part of the Construction Work, it being understood, however, that the relocation work shall not be or become a part of the premises hereunder.

(q) It is expressly understood and agreed that neither the provisions of this Section 83 or of Section 84 shall or shall be deemed to grant to the Lessee any right, interest or claim to any portion of the Construction Work Site located outside of the premises other than for the performance of the Construction Work pursuant hereto, and further that neither the performance of the Construction Work or any portion thereof by the Lessee nor payment by the Lessee of any costs or expenses thereof shall grant to or be deemed to grant to the Lessee any right, interest or claim whatsoever, legal or equitable, to the use or occupancy of, or any other right, claim or interest whatsoever in, the Construction Work or any portion thereof, or any facility completed thereunder, located outside of the premises hereunder or to the receipt of any revenues or income from any facility forming a part of the Construction Work or the Construction Work Site outside of the premises hereunder. Further, any and all use or occupancy of the On-Premises Area 1 Work by the Lessee shall be subject to and in accordance with this Lease. Without limiting the foregoing or any other term or provision of this Section 83 or of Section 84 hereof, the Lessee expressly understands and agrees that all use of the Elevated Parking Structure and the At-Grade Parking Areas as well as all other parking areas (other than parking areas, if any, lying within the premises hereunder) shall be within the sole and exclusive control of the Port Authority (or of the Port Authority permittees, licensees, contractors or tenants authorized by separate agreement with the Port Authority to use the same) and that the Lessee shall have no right or claim whatsoever, legal nor equitable, under this Lease or otherwise, to said Elevated Parking Structure, At-Grade Parking Areas and other parking areas or to any income or revenues therefrom. Neither this Agreement nor the Lessee's performance of or payment of costs or expenses for or relating to the Construction Work or any portion thereof, or otherwise, shall or shall be deem to grant or constitute any such right, interest or claim of the Lessee.

(r) (1) When the Construction Work is substantially completed and ready for use the Lessee shall advise the Port Authority to such effect and the Lessee shall deliver to the Port Authority a certificate signed by an authorized officer of the Lessee and also signed by the Lessee's licensed architect or engineer certifying that the same has been constructed in accordance with the approved plans and specifications (including but not limited to all Change Orders) and the provisions of this Lease and in compliance with all applicable laws, ordinances and governmental rules, regulations and orders. Thereafter, the Construction Work will be inspected by the Port Authority and if the same has been completed as certified by the Lessee and the Lessee's licensed architect or engineer, as aforesaid, a certificate to such effect shall be delivered to the Lessee, subject to the condition that all risks thereafter with respect to the Construction Work and any liability therefor for negligence or other reason shall be borne by the Lessee. The Lessee shall not use or permit the use of the Construction Work or any portion

thereof for the purposes set forth in the Lease until such certificate is received from the Port Authority and the Lessee shall not use or permit the use of the Construction Work or any portion thereof even if such certificate is received if the Port Authority states in any such certificate that the same cannot be used until other specified portions which are necessary to such use are completed. Notwithstanding anything herein to the contrary with respect to the Off-Premises Work, or any of the aforesaid portions thereof, or Lessee LRS Work or any portion thereof when the same is substantially completed and ready for use and in the event the Lessee shall fail to deliver to the Port Authority the certificate required under the provisions of this paragraph, the Port Authority shall have the right to serve on the Lessee a notice requiring the Lessee to deliver said certificate and the Lessee shall deliver its certificate and shall use its best efforts to cause its licensed architect or engineer to issue the aforesaid certificate.

(2) The term 'Completion Date' shall mean for the purposes of this Lease the date appearing on the certificate issued by the Port Authority pursuant to subparagraph (1) of this paragraph.

(3) In addition to and without affecting the obligations of the Lessee under the preceding subparagraph, when an integral and material portion of the Construction Work is substantially completed or is properly usable the Lessee may advise the Port Authority to such effect and may deliver to the Port Authority a certificate signed by an authorized officer of the Lessee and also signed by the Lessee's licensed architect or engineer certifying that such portion of the Construction Work has been constructed in accordance with the approved plans and specifications (including but not limited to all Change Orders) and the provisions of this Lease and in compliance with all applicable laws, ordinances and governmental rules, regulations and orders, and specifying that such portion of the Construction Work can be properly used even though the Construction Work has not been completed and that the Lessee desires such use. The Port Authority may in its sole discretion deliver a certificate to the Lessee with respect to each such portion of the Construction Work permitting, with respect to the On-Premises Area 1 Work or the Terminal 7 Building Expansion Work, the Lessee to use such portion thereof for the purposes set forth in the Lease, and permitting, with respect to the Off-Premises Work or the Lessee LRS Work the use of such portion thereof by the persons which may be authorized by the Port Authority to use the same. In such event such portion may be so used subject to the condition that all risks thereafter with respect to the construction and installation of the same and any liability therefor for negligence or other reason shall be borne by the Lessee, and subject to the risks as set forth in paragraph (j) hereof in the event that the Port Authority shall not have then approved the complete plans and specifications for the Construction Work. Moreover, at any time prior to the issuance of the certificate required in subparagraph (1) above for the Construction Work, the Lessee shall promptly upon receipt of a written notice from the Port Authority cease its use of such portion of the Construction Work which it had been using pursuant to permission granted in this subparagraph (3).

(s) The Lessee shall be solely and fully responsible for any and all cost

overruns and delays in connection with the Construction Work and each portion thereof and each contract and subcontract covering the Construction Work and any portion thereof, without any reimbursement or claim or right to reimbursement from the Port Authority (except as otherwise expressly provided with respect to Port Authority Requested Change in Scope Change Orders in subparagraphs (2) and (4) of paragraph (e) of Section 84 hereof), notwithstanding anything to the contrary in any other term or provision of this Lease .

"Section 83A. Security Deposit/Letter(s) of Credit

(a) (1) For purposes of this Section 83A:

(i) 'Letter of Credit Delivery Date' shall mean the earlier of (A) December 31, 1998, or (B) 'the GMP Statement Date'.

For purposes of the foregoing, the GMP Statement Date shall mean the date of the receipt by the Port Authority of a notice signed by the Lessee (' the GMP Statement'), which the Lessee shall submit to the Port Authority, setting forth the Guaranteed Maximum Price ('GMP')established by and between the Lessee and the Lessee's General Contractor, pursuant to the contract between the Lessee and Lessee's General Contractor, as the maximum cost to the Lessee of the construction of all of the Off-Premises Work and the On-Premises Area 1 Work, guaranteed to the Lessee by said Lessee's General Contractor; which said notice from the Lessee shall state the amount of the said GMP and shall also contain an itemized listing of the components thereof. The Lessee shall submit the said GMP Statement to the Port Authority not later than five (5) days after the said GMP is so established between the Lessee and the Lessee's General Contractor. In the event the said GMP is at any time increased by the Lessee and the Lessee's General Contractor after the GMP Statement Date, the Lessee shall deliver to the Port Authority, not later than five (5) days after each such increase, a notice setting forth the increased GMP and the components thereof (each, a 'GMP Increase Notice').

(ii) 'Letter of Credit Required Amount' shall mean the sum of
ubject to increase as follows: In the event the GMP established by the Lessee and the Lessee's General Contractor, as aforesaid, and set forth in the GMP Statement exceeds the amount
the Letter of Credit Required Amount shall mean the amount of
lus the amount equivalent to the amount by which the said GMP exceeds and, further, in the event of any increase in the GMP after the GMP Statement Date, the Letter of Credit Required Amount shall be increased by adding thereto the amount equivalent to the amount of such increase as set forth in each GMP Increase Notice; so that the Letter of Credit Required Amount at all times shall equal the sum of
plus the amount, in the aggregate, by which the then current GMP exceeds subject to and in accordance with the provisions of paragraph

(b) below.

As used herein, the term 'Lessee's General Contractor' shall mean the general contractor hired by the Lessee for the performance of the Construction Work in accordance with the terms and provisions of Section 83 hereof.

(2) Upon the Letter of Credit Delivery Date, the Lessee shall deliver to the Port Authority as security for the Lessee's 'Construction Work Obligations' (as hereinafter defined in paragraph (d) below) a clean irrevocable letter of credit issued to and in favor of the Port Authority, by a banking institution having its main office within the Port of New York District and acceptable to the Port Authority, payable in the Port of New York District, in the Letter of Credit Required Amount ('Letter of Credit'). The form and terms of such Letter of Credit, as well as the institution issuing it, shall be subject to the prior and continuing approval of the Port Authority. Such Letter of Credit shall provide that it shall continue until 'Final Completion' (as defined in paragraph (c) below) and for a period of not less than six (6) months thereafter; such continuance may be by provision for automatic renewal or by substitution of a subsequent satisfactory clean irrevocable Letter of Credit. Upon notice of cancellation of a Letter of Credit the Lessee agrees that unless, by a date twenty (20) days prior to the effective date of cancellation, the Letter of Credit is replaced by another clean irrevocable Letter of Credit in accordance with this Section and satisfactory to the Port Authority, the Port Authority may draw down the full amount thereof without statement of default and thereafter the Port Authority will hold the same as security under this Section. Failure to provide such a Letter of Credit at any time during the term of this Lease, valid and available to the Port Authority, including any failure of any banking institution issuing any such Letter of Credit previously accepted by the Port Authority to make one or more payments as may be provided in such Letter of Credit shall be deemed to be a breach of this Lease on the part of the Lessee. In addition to any and all other remedies available to it, the Port Authority shall have the right, at its option, at any time and from time to time, with or without notice to draw upon said Letter of Credit or any part thereof, and use the security hereunder, in whole or partial satisfaction of any of its claims or demands against the Lessee. There shall be no obligation on the Port Authority to exercise such right and neither the existence of such right nor the holding of a Letter of Credit shall cure any default or breach of the Lease on the part of the Lessee. If requested by the Port Authority, said Letter of Credit shall be accompanied by a letter expressing the opinion of counsel for the banking institution that the issuance of said clean irrevocable Letter of Credit is an appropriate and valid exercise by the banking institution of the corporate power conferred upon it by law. If the Port Authority shall at any time make any drawing under a Letter of Credit held by the Port Authority hereunder, the Lessee on demand of the Port Authority and within two (2) days thereafter, shall bring the Letter of Credit back up to its full amount. If at any time any bank shall fail to make any payment to the Port Authority in accordance with any Letter of Credit issued by any such bank in favor of the Port Authority as herein provided, the Lessee shall cause to be delivered to the Port Authority on demand another clean irrevocable Letter of Credit satisfactory to the Port Authority and issued by another banking institution in favor of the Port Authority and satisfactory to it, in an amount

equal to the original amount of the said Letter of Credit. Notwithstanding anything hereinabove provided, any failure of any banking institution issuing a Letter of Credit in favor of the Port Authority to make payments as provided in said Letter of Credit shall be deemed to be a breach of this Lease by the Lessee. No action by the Port Authority pursuant to the terms of any Letter of Credit, or receipt by the Port Authority of funds from any bank issuing any such Letter of Credit, shall be or be deemed to be a waiver of any default by the Lessee under the terms of this Lease and all remedies of this Lease and of the Port Authority consequent upon such default shall not be affected by the existence of or recourse to any such Letter of Credit. Use, in accordance with this Section, of a Letter of Credit or Letters of Credit delivered to the Port Authority hereunder shall be at the sole and complete discretion of the Port Authority.

(b) Upon the GMP Statement Date (where the same occurs subsequent to December 31, 1998 and the GMP exceeds (2.a.) nd upon the date of each GMP Increase Notice described in paragraph (a) (1) (i) above, the Lessee shall and hereby agrees to cause to be delivered to the Port Authority, a proper amendment to the Letter of Credit delivered to and accepted by the Port Authority pursuant to paragraph (a) (2) above), satisfactory to the Port Authority and issued by the same banking institution which issued the Letter of Credit in accordance with paragraph (a) (2) above, whereby the aggregate amount of the Letter of Credit is increased by the amount of the increase set forth in the GMP Increase Notice, so that the total amount of the Letter of Credit with each Letter of Credit Increase Amendment shall total in the aggregate the amount of the original Letter of Credit plus the amount of each increase set forth in each GMP Increase Notice (each such amendment, a ' Letter of Credit Increase Amendment'). The form and terms of each such Letter of Credit Increase Amendment shall be subject to the prior and continuing approval of the Port Authority. Further, each such Letter of Credit Increase Amendment shall form part of the security required hereunder; and shall be in accordance with and subject to the requirements and provisions of paragraph (a) (2) above; and shall not change any of the other terms and conditions of the Letter of Credit.

(c) For purposes hereof, the term 'Final Completion', shall mean the full completion by the Lessee of all of the Off-Premises Work and all of the On-Premises Area 1 Work in accordance with Section 83 and the other terms and provisions of this Lease, including but not limited to the completion by the Lessee of any work or punch list items remaining after the Completion Date established for the Off-Premises Work and the On-Premises Area 1 Work under and as defined in Section 83 (r) hereof, and including the submission by the Lessee of all of the items specified in paragraph (c) (5) of Section 84 hereof and the satisfaction of the other requirements stated therein.

(d) (1) 'Construction Work Obligations' as used herein shall mean any and all obligations, duties, responsibilities, liabilities and indemnities of the Lessee relating to, in connection with, resulting from or arising out of the Off-Premises Work, or any portion thereof, or the On-Premises Work, or any portion thereof, and including without limitation the Lessee's obligations under Sections 83 and 84 of the Lease.

(2) Without limiting the generality of the foregoing, it is agreed, with respect to those circumstances where the Lessee has failed to meet a particular Construction Obligation the fulfillment of which would require construction activity by the Lessee over a period of time greater than thirty (30) days, that the Port Authority may, at its option exercisable in its sole discretion, prior to its drawing against the Letter of Credit with respect to the Lessee's failure to meet such Construction Obligation, deliver to the Lessee a letter requiring the Lessee to submit to the Port Authority, within thirty (30) days of the date of said letter, a written plan, satisfactory to the Port Authority, for the Lessee's corrective actions with respect to said Construction Obligation. In the event the Port Authority delivers such letter to the Lessee, the Lessee shall within thirty (30) days of the date of said Port Authority letter, deliver to the Port Authority a written plan, satisfactory to the Port Authority, detailing corrective actions to be immediately undertaken by the Lessee to fulfill said Construction Obligation. In the event the Port Authority finds said Lessee plan to be acceptable, the Lessee shall immediately commence and diligently continue without interruption the corrective actions under the accepted plan, in accordance with the terms and provisions of this Lease and all conditions of the Port Authority's acceptance. In the event the Port Authority elects not to deliver the aforesaid letter to the Lessee, or upon the Port Authority's determination that the Lessee has failed to deliver an acceptable corrective plan in accordance with the foregoing or that the Lessee has failed to immediately commence the corrective action(s) pursuant to the accepted plan or that the Lessee has failed to diligently continue the performance of the same without interruption, Port Authority may draw upon the Letter of Credit in accordance with and as provided in subparagraph (2) of paragraph (a) above.

(3) The foregoing shall not and shall not be construed to limit, impair, restrict, diminish, reduce or affect any of the rights or remedies of Port Authority under this Lease or otherwise; and Port Authority shall at all times have all such rights and remedies, including but not limited to its rights of termination under Section 25 of this Lease.

(e) For purposes of the foregoing, the Lessee hereby certifies that its I.R.S. Employer Identification No. is: (Ex. 1)

"Section 83 B. The Lessee's Existing Premises Renovation Work

The Lessee has, prior to the execution of Supplement No. 2 of the Lease, submitted to the Port Authority the following Alteration Applications covering the Lessee's proposed work in the premises under the Lease (exclusive of Area 1):

Alteration Application No. 7000.02--proposed demolition of concorde lounge;
Alteration Application No. 7000.03--proposed concorde lounge expansion
Alteration Application No. 7000.04--proposed north roadway foundation and expansion
Alteration Application No. 7000.05--proposed shell and fitout for north roadway

expansion, lounges, new elevators and escalators
Alteration Application No. 7000.06--proposed mechanical, electrical and plumbing and fire protection for the north roadway expansion and lounges

(said Alteration Applications, including any additional Alteration Application for the Existing Premises Renovation work which the Lessee may submit hereunder to the Port Authority, hereinafter collectively called the 'Alteration Applications'). The Lessee's proposed work in the premises (exclusive of Area 1) under the Alteration Applications, including but not limited to asbestos removal, being herein called 'the Existing Premises Renovation Work'. The Lessee shall perform at its sole cost and expense the Existing Premises Renovation Work in accordance with the Lease and in accordance with the Alteration Applications if, as and when the same are approved by the Port Authority. The Lessee hereby represents to the Port Authority that the Lessee expects to expend (2.a.) with respect to the Existing Premises Renovation Work. The Port Authority may assign to the Existing Premises RenovationWork a full time field engineer or engineers. The Lessee shall pay to the Port Authority for the services of said engineer or engineers, the sum of (2.a.) for each day or part thereof that the engineer or engineers are so assigned during the 1998 calendar year; and for each and every calendar year thereafter, the rate that the Port Authority shall charge Aircraft Operators at the Airport for the services of such engineer or engineers during such calendar year for each day or part thereof that the engineer or engineers are so assigned for such calendar year. Nothing contained herein shall affect any of the provisions of the Lease or any of the Alteration Applications or the rights of the Port Authority hereunder.

"Section 84. Cost of the Eligible Construction Work// Cost of the Lessee LRS Work// Port Authority Limited Payments

(a) As used herein the terms

(1) 'Eligible Construction Work' shall mean

(i) the Off-Premises Work as defined and set forth in paragraph (d) of Section 83 hereof (excluding the Lessee LRS Work and also excluding all LRS Work performed by the LRS Contractor as described in Section 83 (n) (2) hereof); and

(ii) 'Eligible On-Premises Area 1 Work'.
'Eligible On-Premises Area 1 Work' shall mean and include (A) only the following limited portions of the On-Premises Roads (as defined in Section 83 (c) (iv) hereof) which form a part of the On-Premises Area 1 Work, but solely to the extent that each of the following is consistent with the Comprehensive Plan: (aa) the On-Premises continuation of the Off-Premises portion of the access ramp to Terminal 7, to be constructed pursuant to paragraph (d) (i) of Section 83 hereof, up to and including the last span of the elevated portion where

it engages the Departures frontage of Terminal 7, as generally shown on Exhibit B attached hereto, and hereby made a part hereof; (bb) the On-Premises continuation of the Off-Premises portion of the access ramp to Terminal 7, to be constructed pursuant to paragraph (d) (i) of Section 83 hereof, as it descends to, and including those portions of the new lower-level Arrivals frontage at Terminal 7 as generally shown on Exhibit B; and (cc) the On-Premises continuation of the Off-Premises Terminal 7 recirculation road, to be constructed pursuant to paragraph (d) (i) of Section 83 hereof, to the terminus point where it meets the HOV-connection between Terminal 6 and Terminal 7 as generally shown on Exhibit B;

(2) 'the Cost of the Eligible Construction Work' shall mean the sum of (i) amounts actually paid by the Lessee to independent contractors for work actually performed and labor and materials actually furnished in connection with the Eligible Construction Work, plus (ii) fifteen percent (15%) of the amounts in the foregoing item (i) as and for amounts actually paid by the Lessee to its General Contractor in connection with the Eligible Construction Work (without duplication and excluding any amounts included in any other item hereof) for construction site maintenance; supervision of construction; construction inspection; materials testing; construction coordination; the installation, maintenance and removal of on-site construction trailers; the preparation and maintenance of all records and files, technical support to resolve construction issues, overhead expenses and profit.

The Cost of the Eligible Construction Work shall include only Eligible Construction Work performed by the Lessee in accordance with all the terms and provisions of this Lease, including without limitation Section 83 and Section 84 hereof, and the Construction Application(s) (including the final plans and specifications forming a part thereof) as approved by the Port Authority. Further, with respect to the On-Premises Area 1 Work, the Cost of the Eligible Construction Work shall include only those portions of the On-Premises Roads as described in the foregoing subparagraph (1) of this paragraph (a).

It is specifically understood and agreed that the Cost of the Eligible Construction Work shall not include any amounts paid or incurred for or in connection with any trade fixtures or other personal property of the Lessee. It is further specifically understood and agreed that the Cost of the Eligible Construction Work shall not include any amounts paid or costs incurred by the Lessee in connection with the Eligible Construction Work, or any other portion of the Construction Work, for engineering, architectural, design, or (except as provided above) for project management, professional and consulting services and supervision. It is further specifically understood and agreed that the Cost of the Eligible Construction Work shall not include any amounts paid or costs incurred by the Lessee, nor any other cost or fee, for or in connection with the Letter of Credit or Letters of Credit (or any amendment(s) thereto) required under Section 83A hereof. No payment or payments on account of any of the foregoing or any administrative or other overhead costs shall be included in the Cost of the Eligible Construction Work whether or not allocated to the Cost of the Eligible Construction Work by the Lessee's own

accounting practices. Further, the Cost of the Eligible Construction Work shall not include any cost or item or work forming a part of the Terminal 7 Building Expansion Work or other portions of the On-Premises Area 1 Work (except for the inclusion of those limited portions of the On-Premises Roads described in the foregoing subparagraph (1) of this paragraph (a)).

Further, the Cost of the Eligible Construction Work shall not include any cost or item or work forming a part of the Lessee LRS Work or any cost or item forming a part of the Existing Premises Renovation Work.

(3) 'Port Authority's Share of the Cost of the Eligible Construction Work' shall mean the sum of amounts allowed under subparagraph (2) above with respect to the Eligible Construction Work but limited to maximum amount of (2.a.) ; provided, however, that said maximum amount shall be deemed reduced by (i) the amount equal to one-half of the 'Costs of the Area 1 Environmental Condition Survey' and (ii) the amount of the Lessee's share of the cost of replacement wells in Area 1 of the premises as called for and pursuant to Paragraph 2 (e) of Supplement No. 2 of this Agreement.

For purposes of the foregoing, the term 'Costs of the Area 1 Environmental Condition Survey' shall mean the total amount expended or incurred by the Port Authority for the Area 1 Environmental Existing Condition Survey defined in Paragraph 2 of Supplement No. 2 to this Lease; it being understood and agreed that for the purposes hereof the said Costs of the Area 1 Environmental Condition Survey equals the amount of (2.a.) and that one-half of said Costs of the Area 1 Environmental Condition Survey shall be borne by the Port Authority, and that the balance of said Costs of the Area 1 Environmental Condition Survey shall be applied to the Port Authority's Share of the Cost of the Eligible Construction Work.

(4) 'Final Date' shall mean (i) the 365th day following the Completion Date, as defined in Section 83 (r) hereof, or (ii) the 90th day following the required date for the Lessee's completion of the Construction Work as provided in paragraph (g) (1) (iii) of Section 83 hereof ; whichever shall first occur.

(5) 'Elevated Parking Structure Cost Component' shall, for purposes of the priority of reimbursement provisions in paragraph (c) (3) (ii) hereof, mean those portions of the Cost of the Eligible Construction Work (as defined above) which are paid for or allocable to the portion of the Elevated Parking Structure (as defined in Section 83 hereof) located outside of the premises hereunder.

(6) 'the Cost of the Lessee LRS Work' shall mean the sum of (i) amounts actually paid by the Lessee to independent contractors for work actually performed and labor and materials actually furnished in connection with the Lessee LRS Work; plus (ii) seven percent (7%) of the amounts in the foregoing item (i) as and for amounts actually paid by the Lessee to its

General Contractor for and in connection with the Lessee LRS Work (without duplication and excluding any amounts included in any other item hereof) for general conditions and General Contractor's fees; plus (iii) amounts actually paid by the Lessee for all required engineering and architectural services for the Lessee LRS Work, provided, however, that payments under this item (iii) shall not exceed (2.a.)

The Cost of the Lessee LRS Work shall include only Lessee LRS Work performed by the Lessee in accordance with all the terms and provisions of Section 83 and Section 84 of this Lease and the Construction Application(s) (including the final plans and specifications forming a part thereof) as approved by the Port Authority. It is specifically understood and agreed that the Cost of the Lessee LRS Work shall not include any amounts paid or costs incurred by the Lessee in connection with the Eligible Construction Work or the On-Premises Area B Work or the Terminal 7 Building Expansion Work or the Off-Premises Work or any cost or item forming a part of the Existing Premises Renovation Work.

It is further specifically understood and agreed that the Cost of the Lessee LRS Work shall not include any amounts paid or incurred for or in connection with any trade fixtures or other personal property of the Lessee. It is further specifically understood and agreed that the Cost of the Lessee LRS Work shall not include any amounts paid or costs incurred by the Lessee in connection with the Eligible Construction Work, or any other portion of the Construction Work, for engineering, architectural, design, project management, or any professional and consulting services and supervision. It is further specifically understood and agreed that the Cost of the Lessee LRS Work shall not include any amounts paid or costs incurred by the Lessee, nor any other cost or fee, for or in connection with the Letter of Credit or Letters of Credit (or any amendment(s) thereto) required under Section 83A hereof. No payment or payments on account of any of the foregoing or any administrative or other overhead costs shall be included in the Cost of the Lessee LRS Work whether or not allocated to the Cost of the Lessee LRS Work by the Lessee's own accounting practices.

(7) 'Port Authority's Share of the Cost of the Lessee LRS Work' shall mean the sum of amounts allowed under subparagraph (6) above with respect to the Lessee LRS Work but limited to the maximum amount of (2.a.)

(b) It is specifically understood and agreed that notwithstanding anything to the contrary herein, all costs and expenses of the Construction Work and the Eligible Construction Work and the Lessee LRS Work shall be borne fully and solely by the Lessee without reimbursement or payment by the Port Authority except to the extent provided for herein and properly includable in the Cost of the Eligible Construction Work and the Port Authority's Share of the Cost of the Eligible Construction Work, or in the Cost of the Lessee LRS Work and the Port Authority's Share of the Cost of the Lessee LRS Work; and also subject to the limitations set forth in subparagraphs (a) and (e) hereof.

(c) The Port Authority shall reimburse the Lessee for the Port Authority's Share of the Cost of the Eligible Construction Work, as follows:

(1) (i) The Lessee shall periodically during the performance of the Eligible Construction Work (but not more often than once per month) deliver to the Port Authority certificates which shall be signed by a responsible fiscal officer of the Lessee, sworn to before a notary public and which shall set forth a representation by the Lessee that it will apply the reimbursement payment only to the Cost of the Eligible Construction Work and for no other purpose whatsoever and shall contain and have attached thereto all of the certifications and other documentation and items required to be attached thereto as described in this Section (each such certificate being hereinafter referred to as a 'Eligible Work Certificate'). Each such Eligible Work Certificate shall contain the Lessee's certification as to each of the amounts, payments and expenses and costs contained therein and that the same constitute portions of the Cost of the Eligible Construction Work in accordance with and as described and defined in paragraph (a) above. Each such Eligible Work Certificate shall also have attached thereto reproduction copies or duplicate originals of the invoices of the independent contractors of the Lessee and for such invoices an acknowledgment by the said independent contractors of the receipt by them of such amounts and payments; contain the Lessee's certification that the work for which payment is requested is in place and has been accomplished in accordance with the terms of the applicable contract and that the amounts requested have been paid; set forth the total cumulative payments made by the Lessee as aforesaid from the commencement of the Eligible Construction Work to the date of the Eligible Work Certificate; contain a certification by the Lessee that each portion of the Eligible Construction Work covered by said Eligible Work Certificate has been performed strictly in accordance with the terms of this Lease and the Construction Application(s); have attached thereto accurate, readable and complete copies of all change estimates, change orders, extra work authorizations, design change authorizations, purchase orders in connection with the Eligible Construction Work; have attached thereto true copies of any and all reports and schedules of any type submitted or kept, or required to be submitted or kept, by the Lessee or any contractor, architect, engineer or other consultant of the Lessee; and have attached thereto true copies of the items described in and required under items (ii) and (iii) of this subparagraph (1).

(ii) Each Eligible Work Certificate shall also contain a breakdown of each of the aforesaid amounts, payments and expenses which constitute portions of the Cost of the Eligible Construction Work, as aforesaid, listed separately by contract (or other agreement) (with sufficient detail as to identification and retainage) for each contractor or other person to whom payment has been made; it being expressly understood and agreed that each Eligible Work Certificate shall be for amounts net of applicable retainage amounts with respect to each contract (as approved by the Port Authority) but each Eligible Work Certificate shall state the amounts of such retainage on a cumulative basis as to each and every such contract and subcontract.

(iii) Each Eligible Work Certificate shall also identify and contain a

breakdown of costs as between the Off- Premises Work and the On-Premises Area 1 Work and the Lessee LRS Work; and without limiting the foregoing, each Eligible Work Certificate shall also separately identify and itemize, on a cumulative basis, the 'Elevated Parking Structure Cost Component'

(iv) In addition to and without limiting any term or provision of this Agreement, it is hereby expressly agreed that the Port Authority shall have, and the Lessee shall convey or cause to be conveyed to the Port Authority, full and unrestricted ownership (and free and clear of any and all security interests, liens, or other encumbrances) and all proprietary rights and interests in and to all documents produced for the design and construction of the Eligible Construction Work and each and every portion thereof, including without limitation drawings and specifications, work product, and the like, (including such which are or are to become the property of any 'Owner' named as such in such a contract or other agreements,) upon any payment made hereunder or otherwise therefore, or upon such earlier time or times as may be provided under the applicable contract(s)or other agreement(s), by the Port Authority for any item of the Eligible Construction Work, or applicable portion thereof, and each contract, purchase order, consultant agreement, architectural agreement, or any other type of agreement entered into by or on behalf of the Lessee for the Eligible Construction Work or of any portion thereof shall reflect and or provide for the foregoing. It is further hereby expressly agreed that if the applicable contract or other agreement gives to the Lessee any such rights of ownership that the same shall be deemed given to the Port Authority automatically without the requirement for any execution of any further documentation. The Lessee shall and hereby agrees, without limiting the foregoing, to execute any and all documents which may be required by the Port Authority to transfer to or evidence such ownership and proprietary rights of the Port Authority.

(v) The Eligible Work Certificate shall also contain such further information and documentation with respect to the Cost of the Eligible Construction Work as the Port Authority from time to time may require.

In addition to and without limiting the foregoing, and in addition to any and all other information required to be submitted pursuant to the Lease, the Lessee shall furnish to the Port Authority information concerning budget, costs, costs estimates, timing and scheduling of construction of the Construction Work as may be requested by the Port Authority with respect to the Cost of the Eligible Construction Work or the Cost of the Lessee LRS Work, or both, from time to time including but not limited to the following:

(aa) Reports of the construction manager hired by the Lessee and reports of the Lessee's architect, which reports must contain reports as to activity conducted in connection with the Construction Work on a continuing basis from the commencement of the work to the date of submission;

(bb) A certification signed by the Lessee's architect or licensed

professional engineer certifying the value of work in place;

(cc) A certification signed by the Lessee's licensed architects or licensed professional engineers that the applicable portion of the Construction Work is in compliance with the plans and specifications therefor as approved by the Port Authority;

(dd) Accurate, readable and complete copies of all change estimates, change orders, extra work authorizations, design change authorizations, purchase orders in connection with the Construction Work;

(ee) True copies of any and all reports and schedules of any type submitted or kept, or required to be submitted or kept, by the Lessee or any contractor, architect, engineer or other consultant of the Lessee;

(ff) True copies of any and all of the items described in and required under item (iv) of this subparagraph (1).

(2) Each contract covering the Eligible Construction Work or portion thereof shall contain provisions requiring retainage from amounts due the contractor until final completion of the work by the contractor and acceptance thereof. Such required retainage applicable to the Eligible Construction Work or any portion thereof under the contract shall be in percentage amounts as follows: retainage of not less than ten percent (10%) until fifty percent (50%) of the said work is completed and thereafter retainage of not less than five percent (5%) until final completion of all of the said work. Each Eligible Work Certificate shall set forth the totals of the amounts so retained with specific identification as to the applicable contract.

(3) (i) Within thirty (30) days after the delivery of a duly submitted Eligible Work Certificate by the Lessee, the Port Authority shall pay to the Lessee the amounts paid by the Lessee for the Cost of the Eligible Construction Work during the period covered by such Eligible Work Certificate, as certified in such Eligible Work Certificate (but only to the extent that such amounts or any portion thereof have not theretofore been included in a prior Eligible Work Certificate) (net of retainage) subject to the maximum amount of the Port Authority's Share of the Cost of the Eligible Construction Work as stated in paragraph (a) (3) above and subject to the limitations in paragraphs (e), (f) and (g) below; provided, further, however, in the event the Lease is not in full force end effect or if the Lessee shall be under a notice of termination of the Lease or in default under any term or provision thereof, the Port Authority shall have the right, in its discretion, to withhold payment to the Lessee, provided, further, no payment or withholding of a payment shall be or be deemed to have waived any rights of the Port Authority with respect to the termination of the Lease or to a default by the Lessee under any term or provision thereof or to the withholding or payment of future payments.

(ii) Notwithstanding the foregoing or anything to the contrary herein, subject to limitations set forth in paragraphs (a) and in paragraphs (e), (f) and (g) hereof, there shall be the following priority of reimbursement as between the portion of the Cost of the Eligible Construction Work which constitutes Elevated Parking Structure Cost Component and the other portions of the Cost of the Eligible Construction Work: the Port Authority shall not reimburse the Lessee for the 'Elevated Parking Structure Cost Component' or any portion thereof unless and until the cumulative total of the payments made hereunder by the Port Authority to the Lessee for all other portions of the Cost of the Eligible Construction Work (other than the Elevated Parking Structure Cost Component), including any and all retainage, equals or exceeds the amount of (2.a.) thereafter the Lessee shall include in its Eligible Work Certificates the Elevated Parking Structure Cost Component; subject to the limitations in paragraph (a) (3) and in paragraphs (e), (f) and (g) hereof; provided, however, any such reimbursement for the Elevated Parking Structure Cost Component shall be made only if said Elevated Parking Structure Cost Component has been included in Eligible Work Certificate (s) in accordance with and subject to this Section 84 and only if such reimbursement also meets the conditions and limitations of paragraphs (a) (3), (a) (5) hereof.

(iii) It is understood that at the election of the Port Authority no payment will be made if the Port Authority's inspection or audit does not substantiate the contents of any of said Eligible Work Certificates and until such matters have been resolved to the satisfaction of the Port Authority, but the Port Authority shall have no obligation to conduct any such inspection or audit at such time.

(4) The Lessee shall set forth in its final Eligible Work Certificate its final statement of the Cost of the Eligible Construction Work and shall mark such final Eligible Work Certificate as 'Final'. After submitting said final Eligible Work Certificate, the Lessee shall submit no further Eligible Work Certificate hereunder with respect to the Cost of the Eligible Construction Work.

(5) Notwithstanding anything to the contrary above or in any other Section of this Lease, the and notwithstanding the delivery by the Lessee of is Final Eligible Work Certificate, the Letter of Credit required under Section 83A of this Lease shall be retained by and shall remain available to the Port Authority, in accordance with and in the Letter of Credit Required Amount under said Section 83A, until the Lessee has, to the satisfaction of the Port Authority, fully complied with all of the terms of this Section 84 and Section 83 hereof and all other applicable terms of this Agreement, submitted to the Port Authority all certifications, documentation and the like required under this Section 84 and Section 83; submitted to the Port Authority such evidence of title to the Eligible Construction Work in accordance with the provisions of this Agreement, including without limitation any certifications, warranties, documentation, releases or waivers the Port Authority may require in connection therewith; and obtained the acceptance of the Port Authority of the Lessee's completion of the Eligible

Construction Work, and any and all other portions of the On-Premises Area 1 Work and the Off-Premises Work. No final payment by the Port Authority of the Port Authority's Share of the Cost of the Eligible Construction Work or any subsequent release or cancellation of the Letter of Credit shall constitute any waiver of claims or release by the Port Authority against the Lessee or any of its contractors, subcontractors, construction managers, architects or others, nor any waiver of the Port Authority's rights of audit and inspection, nor any waiver of any other rights or remedies, legal or equitable, of the Port Authority.

(6) In addition to and without limiting the foregoing provisions and without limiting or impairing or waiving any other right or remedy of the Port Authority under this Lease or otherwise, the Port Authority shall have the right, in its discretion, to withhold from any of the aforesaid payments to the Lessee the amounts of any or all items contained in an Eligible Work Certificate in any one or more of the following events or upon any one or more of the following bases (and the Port Authority shall notify Lessee of the same and the reason (s) therefor):

(i) Any contractor or other person included or covered by the Eligible Work Certificate is in default or under a notice of termination with respect to its contract or agreement, or has not complied with all of the applicable terms or provisions of its contract or agreement;

(ii) The Eligible Work Certificate or any of the certifications and documentation and other items required to be contained therein, attached thereto or submitted therewith is not in accord with the terms of this Lease or the applicable contract, or is not complete or is otherwise improper or inadequate, or the same fails to include or omits required items;

(iii) Inadequate or defective work or work not in accordance with this Lease or the approved Construction Application(s) or the approved plans and specifications; or materials and equipment are not properly stored or protected;

(iv) Claims related to the Eligible Construction Work made by the Port Authority against a contractor included in such Eligible Work Certificate which are outstanding;

(v) Failure of the Lessee to make payments to the contractor in connection with the Eligible Construction Work;

(vi) Work not performed but for which a Eligible Work Certificate has been submitted; or

(vii) Materials or supplies delivered to the Construction Work Site but not incorporated in the realty.

(d) The Port Authority shall reimburse the Lessee for the Port Authority's Share of the Cost of the Lessee LRS Work, as follows:

(1) (i) The Lessee shall periodically during the performance of the Lessee LRS Work (but not more often than once per month) deliver to the Port Authority certificates which shall be signed by a responsible fiscal officer of the Lessee, sworn to before a notary public and which shall set forth a representation by the Lessee that it will apply the Lessee LRS Work reimbursement payment only to the Cost of the Lessee LRS Work and for no other purpose whatsoever and shall contain and have attached thereto all of the certifications and other documentation and items required to be attached thereto as described in this Section (each such certificate being hereinafter referred to as a 'LRS Work Certificate'). Each such LRS Work Certificate shall contain the Lessee's certification as to each of the amounts, payments and expenses and costs contained therein and that the same constitute portions of the Cost of the Lessee LRS Work in accordance with and as described and defined in paragraph (a) above. Each such LRS Work Certificate shall also have attached thereto reproduction copies or duplicate originals of the invoices of the independent contractors of the Lessee and for such invoices an acknowledgment by the said independent contractors of the receipt by them of such amounts and payments; contain the Lessee's certification that the work for which payment is requested is in place and has been accomplished in accordance with the terms of the applicable contract and that the amounts requested have been paid; set forth the total cumulative payments made by the Lessee as aforesaid from the commencement of the Lessee LRS Work to the date of the LRS Work Certificate; contain a certification by the Lessee that each portion of the Lessee LRS Work covered by said LRS Work Certificate has been performed strictly in accordance with the terms of this Lease and the Construction Application(s); have attached thereto accurate, readable and complete copies of all change estimates, change orders, extra work authorizations, design change authorizations, purchase orders in connection with the Lessee LRS Work; have attached thereto true copies of any and all reports and schedules of any type submitted or kept, or required to be submitted or kept, by the Lessee or any contractor, architect, engineer or other consultant of the Lessee; and have attached thereto true copies of the items described in and required under items (ii) and (iii) of this subparagraph (1)

(ii) Each LRS Work Certificate shall also contain a breakdown of each of the aforesaid amounts, payments and expenses which constitute portions of the Cost of the Lessee LRS Work, as aforesaid, listed separately by contract (or other agreement) (with sufficient detail as to identification and retainage) for each contractor or other person to whom payment has been made; it being expressly understood and agreed that each LRS Work Certificate shall be for amounts net of applicable retainage amounts with respect to each contract (as approved by the Port Authority) but each LRS Work Certificate shall state the amounts of such retainage on a cumulative basis as to each and every such contract.

(iii) Each LRS Work Certificate shall also identify and contain a

breakdown of costs as between the Off- Premises Work and the Eligible On-Premises Area 1 Work and the Lessee LRS Work.

(iv) In addition to and without limiting any term or provision of this Agreement, it is hereby expressly agreed that the Port Authority shall have, and the Lessee shall convey or cause to be conveyed to the Port Authority, full and unrestricted ownership (and free and clear of any and all security interests, liens, or other encumbrances) and all proprietary rights and interests in and to all documents produced for the design and construction of the Lessee LRS Work and each and every portion thereof, including without limitation drawings and specifications, work product, and the like, (including such which are or are to become the property of any 'Owner' named as such in such a contract or other agreements,) upon any payment made hereunder or otherwise therefore, or upon such earlier time or times as may be provided under the applicable contract(s)or other agreement(s), by the Port Authority for any item of the Lessee LRS Work , or applicable portion thereof, and each contract, purchase order, consultant agreement, architectural agreement, or any other type of agreement entered into by or on behalf of the Lessee for the Lessee LRS Work or of any portion thereof shall reflect and or provide for the foregoing. It is further hereby expressly agreed that if the applicable contract or other agreement gives to the Lessee any such rights of ownership that the same shall be deemed given to the Port Authority automatically without the requirement for any execution of any further documentation. The Lessee shall and hereby agrees, without limiting the foregoing, to execute any and all documents which may be required by the Port Authority to transfer to or evidence such ownership and proprietary rights of the Port Authority.

(v) The LRS Work Certificate shall also contain such further information and documentation with respect to the Cost of the Lessee LRS Work as the Port Authority from time to time may require.

In addition to and without limiting the foregoing, and in addition to any and all other information required to be submitted pursuant to the Lease, the Lessee shall furnish to the Port Authority information concerning budget, costs, costs estimates, timing and scheduling of construction of the Construction Work as may be requested by the Port Authority with respect to the Cost of the Lessee LRS Work from time to time including but not limited to the following:

(aa) Reports of the construction manager hired by the Lessee and reports of the Lessee's architect, which reports must contain reports as to activity conducted in connection with the Construction Work on a continuing basis from the commencement of the work to the date of submission;

(bb) A certification signed by the Lessee's architect or licensed professional engineer certifying the value of work in place;

(cc) A certification signed by the Lessee's licensed architects or licensed professional engineers that the applicable portion of the Construction Work is in compliance with the plans and specifications therefor as approved by the Port Authority;

(dd) Accurate, readable and complete copies of all change estimates, change orders, extra work authorizations, design change authorizations, purchase orders in connection with the Construction Work;

(ee) True copies of any and all reports and schedules of any type submitted or kept, or required to be submitted or kept, by the Lessee or any contractor, architect, engineer or other consultant of the Lessee;

(ff) True copies of any and all of the items described in and required under item (iv) of this subparagraph (1).

(2) Each contract covering the Lessee LRS Work or portion thereof shall contain provisions requiring retainage from amounts due the contractor until final completion of the work by the contractor and acceptance thereof. Such required retainage applicable to the Lessee LRS Work or any portion thereof under the contract shall be in percentage amounts as follows: retainage of not less than ten percent (10%) until fifty percent (50%) of the said work is completed and thereafter retainage of not less than five percent (5%) until final completion of all of the said work. Each Lessee LRS Work Certificate shall set forth the totals of the amounts so retained with specific identification as to the applicable contract.

(3) Within thirty (30) days after the delivery of a duly submitted LRS Work Certificate by the Lessee, the Port Authority shall pay to the Lessee the amounts paid by the Lessee for the Cost of the Lessee LRS Work during the period covered by such LRS Work Certificate, as certified in such LRS Work Certificate (but only to the extent that such amounts or any portion thereof have not theretofore been included in a prior LRS Work Certificate) (net of retainage) subject to the maximum amount of the Port Authority's Share of the Cost of the LRS Work as stated in paragraph (a) (6) above and subject to the limitations in paragraphs (e), (f) and (g) below, and subject, further, to the "Notice to Proceed", "Notice Not to Proceed", "Notice to Suspend" and "Notice to Discontinue" provisions set forth in paragraph (e) of Section 83 hereof; provided, further, however, in the event the Lease is not in full force end effect or if the Lessee shall be under a notice of termination of the Lease or in default under any term or provision thereof, the Port Authority shall have the right, in its discretion, to withhold payment to the Lessee, provided, further, no payment or withholding of a payment shall be or be deemed to have waived any rights of the Port Authority with respect to the termination of the Lease or to a default by the Lessee under any term or provision thereof or to the withholding or payment of future

payments.

It is understood that at the election of the Port Authority no payment will be made if the Port Authority's inspection or audit does not substantiate the contents of any of said LRS Work Certificates and until such matters have been resolved to the satisfaction of the Port Authority, but the Port Authority shall have no obligation to conduct any such inspection or audit at such time.

(4) The Lessee shall set forth in its final LRS Work Certificate its final statement of the Cost of the Lessee LRS Work and shall mark such final LRS Work Certificate as 'Final'. After submitting said final LRS Work Certificate, the Lessee shall submit no further LRS Work Certificate hereunder with respect to the Cost of the Lessee LRS Work .

(5) Notwithstanding anything to the contrary above, the final reimbursement payment of the Cost of the Lessee LRS Work by the Port Authority to the Lessee based on the Lessee Final LRS Work Certificate shall not become due to the Lessee unless and until the Lessee has, to the satisfaction of the Port Authority, fully complied with all of the terms of this Section and all other applicable terms of this Agreement, submitted to the Port Authority all certifications, documentation and the like required under this Section; submitted to the Port Authority such evidence of title to the Lessee LRS Work in accordance with the provisions of this Agreement, including without limitation any certifications, warranties, documentation, releases or waivers the Port Authority may require in connection therewith; and obtained the acceptance of the Port Authority of the Lessee's completion of the Lessee LRS Work . No such final payment by the Port Authority shall constitute any waiver of claims or release by the Port Authority against the Lessee or any of its contractors, subcontractors, construction managers, architects or others, nor any waiver of the Port Authority's rights of audit and inspection, nor any waiver of any other rights or remedies, legal or equitable, of the Port Authority.

(6) In addition to and without limiting the foregoing provisions and without limiting or impairing or waiving any other right or remedy of the Port Authority under this Lease or otherwise, the Port Authority shall have the right, in its discretion, to withhold from any of the aforesaid payments to the Lessee the amounts of any or all items contained in a LRS Work Certificate in any one or more of the following events or upon any one or more of the following bases (and the Port Authority shall notify Lessee of the same and the reason (s) therefor):

(i) Any contractor or other person included or covered by the LRS Work Certificate is in default or under a notice of termination with respect to its contract or agreement, or has not complied with all of the applicable terms or provision of its contract or agreement;

(ii) The LRS Work Certificate or any of the certifications and documentation and other items required to be contained therein, attached thereto or

submitted therewith is not in accord with the terms of this Lease or the applicable contract, or is not complete or is otherwise improper or inadequate, or the same fails to include or omits required items;

(iii) Inadequate or defective work or work not in accordance with this Lease or the approved Construction Application(s) or the approved plans and specifications; or materials and equipment are not properly stored or protected;

(iv) Claims related to the Lessee LRS Work made by the Port Authority against a contractor included in such LRS Work Certificate which are outstanding;

(v) Failure of the Lessee to make payments to the contractor in connection with the Lessee LRS Work ;

(vi) Work not performed but for which a LRS Work Certificate has been submitted; or

(vii) Materials or supplies delivered to the Construction Work Site but not incorporated in the realty.

(e) (1) The entire obligation of the Port Authority under this Agreement to reimburse the Lessee for the Cost of the Eligible Construction Work shall be limited in amount to the Port Authority's Share of the Cost of the Eligible Construction Work, as defined in paragraph (a) (3) above, provided, however, that such obligation shall be further limited in time to Eligible Construction Work covered by Certificates of the Lessee in accordance with paragraph (c) above properly submitted by the Lessee in accordance with and under said paragraph (c) on or prior to the Final Date as defined in paragraph (a) above.

(2) In the event that the Net Amount of Port Authority Requested Change in Scope Change Orders applicable to the Eligible Construction Work (as defined and described in paragraph (h) (3) (vi) (A) of Section 83 hereof) causes the Cost of the Eligible Construction Work to exceed (2.a.) then in such event (and only in such event), the amount equal to the Net Amount of Port Authority Requested Change in Scope Change Orders for Eligible Construction Work shall be the responsibility of the Port Authority on condition that (i) the Lessee has complied with the requirements of paragraph (h) (3) of Section 83 hereof including without limitation its submission to the Port Authority of all cost estimations and statements with respect to each such Port Authority Requested Change in Scope Change Order; (ii) each Port Authority Requested Change in Scope Change Order has been duly authorized in writing by the Port Authority in accordance with said paragraph (h) (3) of Section 83 hereof); (iii) the Lessee shall have given prior written notice to the Port Authority promptly and not later than ninety (90) days prior to the expected date that the Net Amount of Port

Authority Requested Change in Scope Change Orders applicable to the Eligible Construction Work would cause the Cost of the Eligible Construction Work to exceed (2.a.) and (iv) said amount meets all of the other conditions for Port Authority reimbursement under this Section 84.

(3) The entire obligation of the Port Authority under this Agreement to reimburse the Lessee for the Cost of the Lessee LRS Work shall be limited in amount to the Port Authority's Share of the Cost of the Lessee LRS Work, as defined in paragraph (a) (7) above, , provided, however, that such obligation shall be further limited in time to Lessee LRS Work covered by LRS Work Certificates of the Lessee in accordance with paragraph (d) above properly submitted by the Lessee in accordance with and under said paragraph (d) on or prior to the Final Date as defined in paragraph (a) above;

(4) In the event the Net Amount of Port Authority Requested Change in Scope Change Orders for the Lessee LRS Work (as defined and described in paragraph (h) (3) (vi) (B) of Section 83 hereof) causes the Cost of the Lessee LRS Work to exceed (2.a.) then in such event (and only in such event) the amount equal to the Net Amount of Port Authority Requested Change in Scope Change Orders applicable to the Lessee LRS Work shall be the responsibility of the Port Authority on condition that (i) the Lessee has complied with the requirements of paragraph (h) (3) of Section 83 hereof including without limitation its submission to the Port Authority of all cost estimations and statements with respect to each such Port Authority Requested Change in Scope Change Order; (ii) and each Port Authority Requested Change in Scope Change Order has been duly authorized in writing by the Port Authority in accordance with said paragraph (h) (3) of Section 83 hereof); (iii) the Lessee shall have given prior written notice to the Port Authority promptly and not later than ninety (90) days prior to the expected date that the Net Amount of Port Authority Requested Change in Scope Change Orders for the Lessee LRS Work would cause the Cost of the Lessee LRS Work to exceed (2.a.) , and (iv) said amount meets all of the other conditions for Port Authority reimbursement of the Cost of the Lessee LRS Work under this Section 84.

(f) It is understood and agreed that the Lessee shall be responsible without any reimbursement from the Port Authority for all costs of the Construction Work, and that the Lessee shall be responsible without any reimbursement from the Port Authority (i) for all costs of the Eligible Construction Work in excess of the maximum amount of the Port Authority's Share of the Cost of the Eligible Construction Work (defined in paragraph (a) (3) above) and subject to paragraph (e) above; and (ii) for all costs of the Lessee LRS Work in excess of the maximum amount of the Port Authority's Share of the Cost of the Lessee LRS Work (defined in paragraph (a) (6) above) and subject to paragraph (e) above.

(g) (1) Without limiting Section 34 or any other term or provision of the

Lease, the Port Authority shall have the right by its agents, employees and representatives to audit and inspect at any time and from time to time the books and records and other data of the Lessee relating to the costs of the Construction Work including but not limited to the Cost of the Eligible Construction Work and the Cost of the Lessee LRS Work and any and all invoices relating to the Construction Work or any portion thereof and any and all contracts covering each portion of the Construction Work including but not limited to the Lessee's contracts and agreements with its architects, engineers, and construction managers and other contractors; it being specifically understood that the Port Authority shall not be bound by any prior audit or inspection conducted by it. The Lessee agrees to keep such books, records and other data within the Port of New York District, but the Lessee shall not be required to maintain any such books, records and other data for more than seven (7) years after it has delivered the final Certificate called for under paragraphs (c) and (d) above; unless they are material to litigation initiated within that time, in which event they shall be preserved until the final determination of the controversy.

(2) In the event that a Port Authority audit shall disclose that amounts paid by the Port Authority exceed the Port Authority's Share of the Cost of the Eligible Construction Work or the Port Authority's Share Cost of the Lessee LRS Work based upon certificates or otherwise then, upon thirty (30) days demand, the Lessee shall immediately pay to the Port Authority an amount equal to the excess amount paid by the Port Authority; the foregoing shall not be or be deemed to be any limitation, impairment or waiver of any other right or remedy of the Port Authority under the Lease or otherwise.

(h) The parties recognize that one or more of the contracts to be entered into by the Lessee for the performance of the Construction Work may cover the construction of portions of the Construction Work the costs of which pursuant to the terms of this Lease are not to be nor to become a part of the Cost of the Eligible Construction Work or the Cost of the Lessee LRS Work. The Lessee shall at all times maintain, and each certificate submitted by the Lessee to the Port Authority hereunder shall set forth, a proper breakdown and allocation of costs and payments as between the Eligible Construction Work, the Lessee LRS Work and the other portions of the Construction Work and between the On-Premises Area 1 Work and the Off-Premises Work, and the Lessee shall ensure that each applicable contract provides for such breakdown and allocation. In submitting the statements and certificates required of the Lessee hereunder, the Lessee shall in such event specifically and separately state the amounts covered by said contracts for portions of the Construction Work the costs of which are not to be a part of the Cost of the Eligible Construction Work, and for portions of the Construction Work the costs of which are not to be a part of the Cost of the Lessee LRS Work. Moreover the Lessee shall specifically and separately set forth therein the Cost of the Eligible Construction Work as defined in paragraph (a) (2) hereof; and the Lessee shall specifically and separately set forth therein the Cost of the Lessee LRS Work as defined in paragraph (a) (6) hereof. In the event the Port Authority questions the appropriateness or correctness of the amounts set forth by the Lessee, the Port Authority shall advise the Lessee to such effect and the Port Authority and the Lessee shall meet with each other in an attempt to agree upon and resolve their differences with respect thereto.

If the Lessee has included in any portion of the Cost of the Eligible Construction Work or in any portion of the Cost of the Lessee LRS Work any item which does not represent an appropriate division of the costs of a particular contract which are required to be designated according to time of performance or delivery, and the parties have been unable to resolve their differences within ninety (90) days after Port Authority gave its notice objecting to the same, the Port Authority's decision as to the nature of the item of construction cost shall be final.

(i) Without limiting any other term or provision of this Agreement and in addition to and without limiting any other right or remedy of the Port Authority under this Agreement or otherwise, each construction contract of the Lessee covering the Eligible Construction Work or any portion thereof, or covering the Lessee LRS Work or any portion thereof, shall contain a provision, in such form and content as is satisfactory to the Port Authority, providing to the Port Authority the right (but not the obligation) to have the contractor continue its performance of the work under and in accordance with such contract and to have such contract, or portion thereof, that covers the Eligible Construction Work or the Lessee LRS Work, assigned to the Port Authority prior to any termination thereof in the event that the Lessee shall be in default or notice of termination under this Lease or in the event that the Lessee shall be in default or notice of termination under said construction contract; such right to be exercisable by the Port Authority upon written notice given by the Port Authority at its election and in its sole discretion. In the event that the Port Authority exercises such right the Lessee and the contractor shall execute all such documents and take such actions, including without limitation the legal assignment of contractual rights, as the Port Authority may require for the purpose of fully vesting in the Port Authority all rights, interests and benefits of the Lessee in the contract, and if, appropriate in the subcontracts under the contract; provided that such assignment shall be effective notwithstanding any failure or refusal of the Lessee to execute such documents. The contract shall also provide that the Port Authority shall have the right to require the contractor to execute an addendum to the contract, if the Port Authority so requests, incorporating into the contract, such additional provisions normally found in a Port Authority contract for similar type of construction work. Nothing herein shall create any obligation or liability of the Port Authority under any such contract or any third party beneficiary rights. Neither the foregoing nor any exercise of the aforesaid right by the Port Authority shall or shall be deemed to constitute any waiver or release by Port Authority of any of its rights or remedies against the Lessee hereunder or otherwise, or to release or relieve the Lessee from any obligations or liabilities.

(j) It is hereby understood and agreed that nothing herein shall or shall be deemed for the benefit of any contractor of the Lessee.

"Section 85. Off-Premises Roads--No restriction of Port Authority Right

Neither the provisions of Section 83 hereof, nor the construction thereunder by the Lessee of the Off-Premises Roads, nor any payment of costs thereof by the Lessee nor any of the provisions of Section 84 shall prevent or restrict the right of the Port Authority to designate

the Off-Premises Roads as part of the Air Terminal Highway System, upon the Lessee's completion of the construction thereof, and to make the same available to the general public for general or limited highway use; the Port Authority to make said Off-Premises Roads, after the Lessee's satisfactory completion thereof and acceptance of the same by the Port Authority, as part of the Air Terminal Highway System in accordance with and subject to its policy or policies governing or which may govern such matters.

"Section 86. General Airport Agreement Expiration

It is recognized that the General Airport Agreement, as defined in Section 53 hereof, and the principles and formula set forth therein for the calculation of flight fees, including the costs recovery accounting principles, have by agreement or policy been the basis for determining flight fees payable by various aircraft operators at the Airport in addition to the aircraft operators who are the actual signatory lessees to the General Airport Agreement. In the event of the expiration and non-extension or non-renewal of the General Airport Agreement, the same formula, accounting principles and costs recovery methodology now set forth in the General Airport Agreement for the calculation of flight fees shall continue to be utilized for the calculation of flight fees at the Airport for the Lessee until such time as the General Airport Agreement is formally replaced by a new agreement or agreements or by a new policy or policies. The Port Authority has advised the Lessee that it is the intention of the Port Authority that with respect to the formula, accounting principles and the costs recovery methodology for the calculation of flight fees upon the expiration and non-extension or non-renewal of the General Airport Agreement all aircraft operators at the Airport which are similarly situated will be treated in a similar manner.

"Section 87. Airline Service Standards.

Subject to and without limiting or affecting any other term or provision of this Lease, the Lessee agrees to provide service at the premises for the benefit of the traveling public in a manner consistent with generally accepted airline industry standards for airport terminals and will cooperate with the Port Authority and other airlines serving the traveling public at the Airport in maintaining these standards through organized airport service improvement working groups."

7. Section 75 of the Lease shall be deemed deleted therefrom and the following new Sections 75 and 75A shall be deemed inserted in the Lease in lieu thereof:

"Section 75. Future Airport Transportation Facilities and Operations and Use of Portions of the Premises

(a) The Lessee understands that the Port Authority presently is planning to construct certain ground transportation facilities at the Airport including, but not limited

to, a light rail passenger distribution system ('LRS'). It is presently contemplated that the LRS will include a rail transportation system circulating around the Central Terminal Area of the Airport (as generally shown on Exhibit S of the Lease and herein called 'the CTA'), generally aligned along the roadway frontage of the passenger terminal buildings and with stations to serve the passenger terminal buildings in the CTA at various locations. At the discretion of the Port Authority, stations may be located to serve one or more passenger terminal buildings in the CTA, Airport parking areas, Airport rent-a-car facilities, other areas of the Airport and off Airport transit systems. Pedestrian access between the LRS stations and the passenger terminal buildings will be provided as part of the LRS. Vertical circulation areas, if needed, including stairs, escalators, ramps and elevators at the passenger terminal building on the premises will be the responsibility of the Lessee and shall be appropriate to the operation of the LRS. The Port Authority expects to commence planning and design for the LRS and upon completion of such planning and design, to implement the construction of the LRS and after the completion of such construction, to maintain and operate the LRS for the accommodation and transportation of persons desiring to use the same, and their baggage. The Lessee acknowledges and agrees that the LRS will be a benefit and enhancement to the Airport and to the Lessee's operations thereon.

(b) The Lessee understands that the construction and operation of the LRS may require the location on the premises of a passenger station (including pedestrian access between it and the passenger terminal building) and, in addition, may require the use of a portion or portions of the premises for and in connection with the construction, maintenance or operation of other portions of the LRS. The Lessee agrees that it shall make available to the Port Authority upon demand such portion or portions of the premises for use for or in connection with the construction, maintenance and operation of the LRS for such purposes as may be required or be appropriate therefor and, where such portion of the LRS exclusively serves the premises, the same shall be made available by the Lessee without abatement of rental or charges hereunder or any payments by the Port Authority to the Lessee therefor. Where such portion of the LRS does not exclusively serve the premises then the rental hereunder shall be abated in accordance with the rental abatement provisions of this Lease.

Without limiting the foregoing, the Lessee shall comply with the provisions of Section 83 hereof with respect to the design and construction of the LRS Work, as defined therein and the coordination of the same with the Construction Work as set forth in said Section 83.

(c) The Lessee understands that the Port Authority considers the construction, operation and maintenance of the LRS of the utmost importance to the efficient operation of the Airport and to the fulfillment of the Port Authority's governmental function to provide, maintain, develop and operate the Airport; that the efficient use and operation of

the LRS will require that the Lessee in the operation and use of its passenger terminal facilities under this Lease shall utilize and cooperate in the operation of the LRS to the end that the LRS shall be utilized to the fullest extent possible so that its advantages and efficiencies can be fully realized; and that the Port Authority does not by this Lease Agreement intend to enter into any agreement, understanding or commitment which will interfere with, limit, restrict, hinder or prevent in any way the development, construction, maintenance, operation or efficient use of the LRS.

(d) The Lessee also understands and acknowledges that the Port Authority's cost of planning, design, construction, maintenance and operation of the LRS will be accorded the same cost recovery treatment as the similar elements of the Air Terminal Highway System is accorded in the General Airport Agreement (as defined in Section 53 of the Lease) for calculation of the flight fees under the General Airport Agreement and the same cost recovery treatment as the Air Terminal Highway System is accorded for the calculation of other fees and charges under other existing agreements and policies at the Airport, and under any agreements or policies which may be entered into or implemented in the future including agreements or policies to replace such existing agreement(s) or the General Airport Agreement.

(e) Without limiting any other provisions of this Section, the Lessee understands and agrees that changes and modifications to certain provisions of the Lease including, but not limited to ingress and egress, and ground transportation within the Central Terminal Area and related terminal and roadway frontage management may be required or appropriate to conform such provisions to the operation of the LRS and the Lessee agrees upon the presentation to it of a form of supplemental agreement to this Lease which includes such modifications it will execute and return the same to the Port Authority. The Port Authority and the Lessee agree that each will consult with the other, from time to time, and will provide information to the other, from time to time, with respect to the study, planning, design, construction, maintenance and operation of the LRS and its interconnection with the passenger terminal facilities.

Section 75A. Restrictions on Use of Passenger Terminal Frontage Roadways - Use of Airport Taxi Dispatchers - and Roadway Frontage Management

(a) The Lessee understands that the Port Authority presently has in effect and has planned various physical improvements and policies concerning and affecting the use of vehicular roadways in the CTA for the limitation and control of vehicular traffic thereon including the limitation and control of vehicular traffic on the premises and vehicular traffic moving between the Air Terminal Highways, as designated from time to time by the Port Authority in the CTA of the Airport, and the vehicular roadways on the premises connecting to the said Air Terminal Highways. These improvements and policies, both in existence and planned, generally include the following:

(1) Restrictions on the use of roadways in the Central Terminal Area as set forth in Section 74 (Ground Transportation In The Central Terminal Area) and Section 72 (Ground Transportation) of the Lease.

(2) The use of Airport Taxi Dispatching Services (as generally set forth in paragraph (b) hereof) where the Port Authority, either itself or through its contractor, utilizes at passenger terminals under the control of the Port Authority and makes available to passenger terminals at the Airport operated by others, the services of a Taxi Dispatcher to assist in the expeditious and orderly flow of taxicabs to and from passenger terminals at the Airport.

(3) The planning, development and implementation of a central taxi holding and dispatching system for the Airport to be used in conjunction with the use of Taxi Dispatchers at the passenger terminals at the Airport.

(4) The designation of specified portions of the vehicular roadways on the premises for limited use exclusively by certain types of ground transportation vehicles and/or certain types of ground transportation carriers for the loading and unloading of passengers and their baggage.

(b) The Lessee agrees to restrict from the premises during the time period or time periods, as may be specified by the Port Authority from time to time (each such period being herein referred to as a 'Taxi Dispatcher Period' or 'TDP'), all taxicabs except those taxicabs which are discharging passengers at the premises and those taxicabs which are requested by a Taxi Dispatcher stationed on the premises and dispatched through the airport central taxi holding and dispatching facility (herein called 'the Airport Central Taxi Stack') to the premises. Further, during any TDP the Lessee agrees to take and accept from the Port Authority, and permit the stationing at an appropriate location or locations on the premises, of a Taxi Dispatcher or Taxi Dispatchers and the establishment of a taxicab waiting line on the premises of such number of vehicles as shall be specified by the Port Authority from time to time. A Taxi Dispatcher or Taxi Dispatchers when located on the premises shall provide the sole and exclusive dispatch of taxicabs to the Lessee's passengers and others desiring the use of a taxicab from the premises and shall perform such other duties and functions in connection therewith as may be specified by the Port Authority from time to time. The Lessee agrees to permit the installation on the premises by the Port Authority of such fixtures, equipment and improvements including, but not limited to, a taxi dispatcher shelter, telephone, radio transceiver and transponder receiving device as may be necessary or reasonably desired by the Port Authority in connection with the activities and operations of the Taxi Dispatchers. The Lessee understands and agrees that all expenses of the Port Authority associated with the implementation and operation of the Taxi Dispatchers on the Airport including, but not limited to, the Taxi Dispatchers on the premises and the construction, maintenance and operation of the Airport Central Taxi

Stack shall be included in and payable through the aircraft flight fees at the Airport and will be accorded the same cost recovery treatment as the Air Terminal Highway System is accorded for such purposes under the General Airport Agreement and the calculation of other fees and charges under other existing agreements and policies at the Airport, and under any agreements which may be entered into and any policies which may be implemented, in the future, including agreements and policies to replace such existing agreements and policies or the General Airport Agreement.

(c) In connection with and furtherance of the Port Authority's policies concerning ground transportation on the Airport, the operation of the Ground Transportation Counter as set forth in Section 67, the operation of Taxi Dispatchers and the Airport Central Taxi Stack as set forth in this Section 75A, and the provisions governing Ground Transportation Within The Central Terminal Area as set forth in Section 74, the Lessee hereby agrees that, from time to time, the Port Authority may designate and specify areas of roadways and curbs located on the premises, for the purpose of segregated and exclusive use by separate categories of vehicles, including but not limited to buses, taxicabs, private automobiles and other vehicles, and use by separate categories of ground transportation carriers, (including but not limited to Port Authority permittees), as may be designated by the Port Authority, from time to time, for the purpose of loading and unloading passengers and their baggage. The Lessee shall prohibit the operation of all other types of vehicular traffic on the roadways on the premises used for the loading and unloading of passengers and their baggage and shall prohibit parking or stopping except in the areas designated as aforesaid. Designated areas shall be clearly indicated by the Lessee by appropriate signing and marking on the premises as shall be directed or approved from time to time by the Port Authority. The Lessee shall permit the installation on the premises by the Port Authority of such fixtures, equipment and improvements, including, but not limited to transponder receiving devices and other vehicular tracking and monitoring devices; and the Lessee shall, through the use of appropriate and sufficient means including, but not limited to, removing unauthorized parked vehicles from the premises, security guards and other personnel stationed on the premises in the area of the said roadways, require that the limitations and restrictions established hereunder by the Port Authority on the use of the said roadways are complied with and enforced on a 24-hour basis, during any TDP and at other times as may be directed by the Port Authority.

(d) The Lessee understands that the Port Authority considers the provisions of this Section 75A and the use of the Lessee's passenger terminal roadway areas of the utmost importance to the efficient operation of the Air Terminal Highway System on the Airport and to the fulfillment of the Port Authority's governmental function to provide, maintain, develop, and operate the Airport; that the efficient use and operation of the Air Terminal Highway System requires that the Lessee, in the operation and use of its passenger terminal facilities under this Lease shall utilize and cooperate fully in all

respects in the operation and implementation of the provisions of this Section 75A to the end that the Air Terminal Highway System, including ingress thereto and egress therefrom, will operate in the most efficient manner; and that the Port Authority does not by this Lease intend to enter into any agreement, understanding, or commitment which will interfere with, limit, restrict, hinder, or prevent in any way, the efficient development, implementation and operation of the Air Terminal Highway System and the rights and discretion of the Port Authority with respect thereto."

8. Subparagraph (7) of paragraph (b) of Section 11 of the Lease shall be deemed amended by adding at the end thereof the following:

"Without limiting the foregoing, the Lessee understands and agrees that the Lessee shall be responsible for all paving, lighting, signage, storm drains, culverts, cables, supporting structures, cleaning and snow removal of the ground level and elevated roadways existing and to be constructed on access roadways on Area 2 which serve the premises exclusively."

9. Paragraph (a) of Section 76 of the Lease shall be deemed amended by adding at the end thereof the following:

"The term 'terminal roadways' as hereinbefore defined shall be deemed to include the On-Premises Roads to be constructed by the Lessee pursuant to Section 83 hereof."

10. Section 29 of the Lease shall be deemed amended as follows: paragraph "(c)" thereof shall be redesignated as paragraph "(e)" and the following new paragraphs "(c)" and "(d)" shall be inserted therein immediately preceding said paragraph (e) reading as follows:

"(c) In addition to and without limiting the foregoing or any other right, claim or remedy of the Port Authority hereunder or otherwise, in the event this Lease shall be terminated pursuant to Section 25 hereof and the Lessee shall not have completed the Construction Work, as defined in Section 83 hereof, or any portion thereof within the time period(s) specified in Section 83 (f) hereof, the Lessee shall and hereby agrees to pay to the Port Authority any and all amounts, costs and expenses, of any type whatsoever, paid or incurred by the Port Authority by reason of the failure of the Lessee so to complete the said Construction Work, or any portion thereof, including without limitation all interest and other costs, damages, direct and consequential, losses and penalties, and all of the same shall also be deemed treated as survived damages hereunder in addition to the foregoing.

(d) Notwithstanding anything to the contrary herein contained, all of the obligations of the Lessee under this Lease with respect to Environmental Damages and Environmental Requirements shall survive the expiration or termination of this Agreement."

11. Paragraph (a) of Section 7 of the Lease shall be deemed amended to read as follows:

"(a) The Lessee shall promptly comply with, observe and execute all laws and ordinances and governmental rules, regulations and orders now or at any time during the term of this Agreement which as a matter of law are applicable to or which affect (i) the premises, (ii) the operations of the Lessee at the premises hereunder or the Airport, (iii) the occupancy or use of the premises or (iv) with regard to Environmental Requirements, property outside the premises as a result of the Lessee's use and occupancy of the premises or a migration of Hazardous Substances from the premises. The Lessee shall, in accordance with and subject to the provisions of Section 44 hereof, make any and all structural and non-structural improvements, alterations or repairs of the premises and perform all remediation work and clean up of Hazardous Substances required in order to fully satisfy the compliance obligations set forth herein, including without limitation, the removal, containment, control or other action with respect to asbestos-containing material."

12. Section 9 of the Lease shall be deemed amended by adding at the end thereof the following:

"(m) Without limiting any other of the Lessee's obligations under the Lease, the Lessee shall provide the General Manager of the Airport at the cost and expense of the Lessee with such information, documentation, records, correspondence, notices, reports, tests, results, and certifications and any other information as the Port Authority shall request in connection with any Environmental Requirements or Environmental Damages, and the Lessee shall promptly acknowledge, swear to, sign or otherwise fully execute the same. The Lessee agrees that any of the foregoing may be filed by the Port Authority with the appropriate governmental authority on behalf of the Lessee at the Lessee's cost and expense. Further, the Lessee agrees unless directed otherwise by the Port Authority, to provide the General Manager of the Airport with copies of all information, documentation, records, correspondence, notice, certifications, reports, test results and all other submissions provided by the Lessee to a governmental authority and by a governmental authority to the Lessee within ten (10) business days that the same are made available to or received by the Lessee with respect to any Environmental Requirements.

(n) In addition to and without limiting the generality of the obligations of the Lessee set forth above and elsewhere in the Lease, the Lessee shall at its sole cost and

expense and in accordance with and subject to the provisions of Section 44 hereof, upon notice from the Port Authority, promptly take all actions to completely remove and remediate all Hazardous Substances on the premises or the Airport which result from the Lessee's use and occupancy of the premises or which have been disposed of, released, discharged or otherwise placed on, under or about the premises during the term of the letting hereunder, and to cleanup and remediate all other Hazardous Substances on, about or under the premises or which have migrated from the premises to any adjoining property, which any federal, state or local governmental agency or political subdivision or any Environmental Requirement or any violation thereof require to be remediated, and to cleanup and remediate all Hazardous Substances necessary to mitigate Environmental Damages. The foregoing obligations of the Lessee shall include without limitation the investigation of the environmental condition of the area to be remediated, the presentation of feasibility studies, reports and remedial plans, and the performance of any cleanup, remediation, containment, operation, maintenance, monitoring or restoration work; the standard for any of the foregoing to be that standard as required under Environmental Requirements and in the event that any Environmental Requirement sets forth more than one standard, the standard to be applied shall be that which requires the lowest level of a Hazardous Substance. Any actions of the Lessee under the foregoing shall be performed in a good, safe and workmanlike manner and shall minimize any impact on activities off the premises. The Lessee shall promptly provide to the Port Authority all copies of test results and reports generated in connection with such actions. Promptly upon completion of such investigation and remediation, the Lessee shall seal or cap all monitoring wells and test holes, remove all associated equipment and restore the remediated property.

The Lessee shall not be obligated under this Lease for the remediation of any Hazardous Substance or contamination of soil and groundwater to the extent that the same is caused by (1) acts or omissions of the Port Authority or (2) the flow of ground water from outside the premises hereunder or the leaching of soil from outside the premises hereunder.

Nothing herein shall limit, modify, waive or otherwise alter the rights, claims and remedies which the Port Authority or the Lessee may have against third parties or persons, whether at law, equity or otherwise, or which the Port Authority or the Lessee may have under the General Airport Agreement."

13. (a) Section 10 of the Lease shall be deemed amended by adding at the end thereof the following:

"(o) The Lessee shall not dispose of, release or discharge nor permit anyone to dispose of, release or discharge any Hazardous Substance on the premises or at the Airport. Any Hazardous Substance disposed of, released or discharged by the Lessee (or permitted by the Lessee to be disposed of, released or discharged) on the premises or at the

Airport, shall upon notice by the Port Authority to the Lessee and subject to the provisions of Section 44 hereof and all Environmental Requirements, be completely removed, cleaned up and/or remediated by the Lessee. The obligations of the Lessee pursuant to this paragraph (o) shall survive the expiration or termination of this Agreement.

(b) Section 81 of the Lease is hereby amended by inserting at the end thereof the following new paragraphs "(w)", "(x)" and "(y)":

"(w) 'Environmental Requirements' and 'Environmental Requirement' shall mean all applicable present and future laws, statutes, enactments, resolutions, regulations, rules, ordinances, codes, licenses, permits, orders, approvals, plans, authorizations, concessions, franchises, requirements and similar items, of any and all Governmental Authority(ies), and all pollution prevention programs, 'best management plans' and other voluntary programs adopted and agreements made by the Port Authority with any and all Governmental Authority(ies) and all applicable judicial, administrative, and regulatory decrees, judgments, and orders relating to the protection of human health or the environment, and in the event that there shall be more than one compliance standard, the standard for any of the foregoing to be that which requires the lowest level of a Hazardous Substance, the foregoing to include without limitation:

(i) All requirements pertaining to reporting, licensing, permitting, investigation, and remediation of emissions, discharges, releases, or threatened releases of Hazardous Substances into the air, surface water, groundwater, or land, or relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport, or handling of Hazardous Substances; and

(ii) All requirements, pertaining to the protection of the health and safety of employees or the public.

(x) 'Hazardous Substance' and 'Hazardous Substances' shall mean and include without limitation any pollutant, contaminant, toxic or hazardous waste, dangerous substance, potentially dangerous substance, noxious substance, toxic substance, flammable, explosive, radioactive material, urea formaldehyde foam insulation, asbestos, polychlorinated biphenyls (PCBs), chemicals known to cause cancer or reproductive toxicity, petroleum and petroleum products and other substances which have been or in the future shall be declared to be hazardous or toxic, or the removal of which has or in the future shall be required, or the manufacture, preparation, production, generation, use, maintenance, treatment, storage, transfer, handling or ownership of which has or in the future shall be restricted, prohibited, regulated or penalized by any Environmental Requirement."

(y) "Environmental Damages" shall mean any one or more of the following: (i) the

presence on, about or under the premises of any Hazardous Substance and/or (ii) the disposal, release or threatened release of any Hazardous Substance from the premises, and/or (iii) the presence of any Hazardous Substance on, about or under other property at the Airport as a result of the Lessee's use and occupancy of the premises or a migration of a Hazardous Substance from the premises, and/or (iv) any personal injury (including wrongful death) or property damage arising out of or related to any such Hazardous Substance, and/or (v) the violation of any Environmental Requirements pertaining to any such Hazardous Substance, the premises and/or the activities thereon.

14. Paragraph (b) of Section 20 of the Lease shall be deemed amended by inserting on the seventh (7th) line thereof after the word "systems" the following:

> "(including without limitation the foundations, columns and support structure for the LRS and the Elevated Parking Structure (as such terms are defined in Section 83 hereof) which are or are to be located in or on the premises)".

15. Schedule E attached hereto shall be deemed to replace Schedule E attached to the Lease and from and after the effective date hereof shall be deemed to be and become a part of the Lease.

16. As hereby amended, all of the terms, covenants, provisions, conditions and agreements of the Lease shall be and remain in full force and effect.

17. The Lessee represents and warrants that no broker has been concerned in the negotiation of this Supplemental Agreement or the extension hereunder and that there is no broker who is or may be entitled to be paid a commission in connection therewith. The Lessee shall indemnify and save harmless the Port Authority of and from any and all claims for commission or brokerage made by any and all persons, firms or corporations whatsoever for services in connection with the negotiation and execution of this Supplemental Agreement or the extension hereunder.

18. No Commissioner, director, officer, agent or employee of any party to this Supplemental Agreement shall be charged personally or held contractually liable by or to any other party under any term or provision of this Supplemental Agreement or of any supplement, modification or amendment to the Lease or because of its or their execution or attempted execution or because of any breach or alleged or attempted breach thereof.

19. This Supplemental Agreement (consisting of Volume 1 which includes Paragraphs 1 through 19 and Exhibits A, B, C, D, E, F, G, H, I, J, K, L [Book 1 of 3], M and S, and Attachment A and Schedule E; Volume 2 which consists of Book 2 of Exhibit L; and Volume 3 which consists of Book 3 of Exhibit L) and the Lease which it amends constitute the entire agreement between the

Port Authority and the Lessee on the subject matter, and may not be changed, modified, discharged or extended except by instrument in writing duly executed on behalf of both the Port Authority an the Lessee. The Lessee and the Port Authority agree that no representations or warranties shall be binding upon the other unless expressed in writing in the Lease or in this Supplemental Agreement.

IN WITNESS WHEREOF, the Port Authority and the Lessee have executed these presents as of the date first above written.

ATTEST:

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

_____
Secretary

By_____

(Title)_____

Seal

ATTEST:

BRITISH AIRWAYS, Plc.

_____
Secretary

By_____

(Title)_____President

(Corporate Seal)

SCHEDULE E

AFFIRMATIVE ACTION-EQUAL OPPORTUNITY---MINORITY BUSINESS ENTERPRISES ---WOMEN-OWNED BUSINESS ENTERPRISES REQUIREMENTS

Part I. Affirmative Action Guidelines - Equal Employment Opportunity

I. As a matter of policy the Port Authority hereby requires the Lessee and the Lessee shall require the Contractor, as hereinafter defined, to comply with the provisions set forth hereinafter in this Schedule E and in Section 83 (e) (18) of Port Authority Agreement No. AYB-876 (herein called the "Lease") with BRITISH AIRWAYS, Plc. (herein and in the Lease called the "Lessee"). The provisions set forth in this Part I are similar to the conditions for bidding on federal government contract adopted by the Office of Federal Contract Compliance and effective May 8, 1978.

The Lessee as well as each bidder, contractor and subcontractor of the Lessee and each subcontractor of a contractor at any tier of construction (herein collectively referred to as "the Contractor") must fully comply with the following conditions set forth herein as to each construction trade to be used on the construction work or any portion thereof (said conditions being herein called "Bid Conditions"). The Lessee hereby commits itself to the goals for minority and female utilization set forth below and all other requirements, terms and conditions of the Bid Conditions. The Lessee shall likewise require the Contractor to commit itself to the said goals for minority and female utilization set forth below and all other requirements, terms and conditions of the Bid Conditions by submitting a properly signed bid.

II. The Lessee and the Contractor shall each appoint an executive of its company to assume the responsibility for the implementation of the requirements, terms and conditions of the following Bid Conditions:

(a) The goals for minority and female participation expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work are as follows:

(1)	Minority participation	
	Minority, except laborers	30%
	Minority, laborers	40%
(2)	Female participation	
	Female, except laborers	6.9%
	Female, laborers	6.9%

These goals are applicable to all the Contractor's construction work performed in and for the premises.

The Contractor's specific affirmative action obligations required herein of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make good faith efforts to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract. Compliance with the goals will be measured against the total work hours performed.

(b) The Contractor shall provide written notification to the Lessee and the Lessee shall provide written notification to the Manager of the Office of Business and Job Opportunity of the Port Authority within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

(c) As used in these specifications:

(1) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941:

(2) "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

(ii) Hispanic (all persons of Mexican, Puerto Rican, Dominican, Cuban, Central or South American culture or origin, regardless of race);

(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(d) Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the construction work involving any construction trade, it shall physically include in each

subcontract in excess of $10,000 those provisions which include the applicable goals for minority and female participation.

(e) The Contractor shall implement the specific affirmative action standards provided in subparagraphs (1) through (16) of Paragraph (h) hereof. The goals set forth above are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the premises. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

(f) Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations hereunder.

(g) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(h) The Contractor shall take specific affirmative actions to ensure equal employment opportunity ("EEO").

The evaluation of the Contractor's compliance with these provisions shall be based upon its good faith efforts to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

(1) Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each Phase of the construction project. The Contractor, shall specifically ensure that all foremen, superintendents, and other supervisory personnel at the premises are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at the premises.

(2) Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Maintain a current file of the names, addresses and telephone number of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

(4) Provide immediate written notification to the Lessee when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and training programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (2) above.

(6) Disseminate the Contractor's EEO Policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the Contractor's newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the Contractor's EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

(7) Review, at least every six months the Contractor's EEO policy and affirmative action obligations hereunder with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decision including specific review of these items with on-premises supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at the premises. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

(9) Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations and to State-certified minority referral agencies serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the premises and in areas of a Contractor's workforce.

(11) Tests and other selecting requirements shall comply with 41 CFR Part 60-3.

(12) Conduct, at least every six months, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

(13) Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations hereunder are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

(15) Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least every six months, of all supervisors' adherence to and performance under the Contractors' EEO policies and affirmative action obligations.

(i) Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (subparagraphs (1)-(16) of Paragraph (h) above). The efforts of a contractor association, joint contractor-union, contractor-community, or

other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under Paragraph (h) hereof provided that: the Contractor actively participates in the group, makes good faith efforts to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes good faith efforts to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's non-compliance.

(j) A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation hereof if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation hereof if a specific minority group of women is underutilized).

(k) The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

(l) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

(m) The Contractor shall carry out such sanctions and penalties for violation of this clause including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered by the Lessee. Any Contractor who fails to carry out such sanctions and penalties shall be in violation hereof.

(n) The Contractor, in fulfilling its obligations hereunder shall implement specific affirmative actions steps, at lease as extensive as those standards prescribed in paragraph (h) hereof so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of these provisions, the Lessee shall proceed accordingly.

(o) The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanical apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and location at which the work is performed. Records shall be

maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

(p) Nothing herein provided shall be construed as a limitation upon the application of any laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

(q) Without limiting any other obligation, term or provision under the Lease, the Contractor shall cooperate with all federal, state or local agencies established for the purpose of implementing affirmative action compliance programs and shall comply with all procedures and guidelines established or which may be established by the Port Authority.

PART II. MINORITY BUSINESS ENTERPRISES/WOMEN-OWNED BUSINESS ENTERPRISES

As a matter of policy the Port Authority requires the Lessee and the Lessee shall itself and shall require the general contractor or other construction supervisor and each of the Lessee's contractors to use every good faith effort to provide for meaningful participation by Minority Business Enterprises (MBEs) and Women-owned Business Enterprises (WBEs) in the construction work pursuant to the provisions of this Schedule E. For purposes hereof, "Minority Business Enterprise" "(MBE)" shall mean any business enterprise which is at least fifty-one percentum owned by, or in the case of a publicly owned business, at least fifty-one percentum of the stock of which is owned by citizens or permanent resident aliens who are minorities and such ownership is real, substantial and continuing. For the purposes hereof, "Women-owned Business Enterprise" "(WBE)" shall mean any business enterprise which is at least fifty-one percentum owned by, or in the case of a publicly owned business, at least fifty-one percentum of the stock of which is owned by women and such ownership is real, substantial and continuing. A minority shall be as defined in paragraph II(c) of Part I of this Schedule E. "Meaningful participation" shall mean that at least seventeen percent (17%) of the total dollar value of the construction contracts (including subcontracts) covering the construction work are for the participation of Minority Business Enterprises and Women-owned Business Enterprises, of which at least twelve percent (12%) are for the participation of Minority Business Enterprises. Good faith efforts to include meaningful participation by MBEs and WBEs shall include at least the following:

(a) Dividing the work to be subcontracted into smaller portions where feasible.

(b) Actively and affirmatively soliciting bids for subcontracts from MBEs and WBEs, including circulation of solicitations to minority and female contractor associations. The Contractor shall maintain records detailing the efforts made to provide for meaningful MBE and WBE participation in the work, including the names and addresses of all MBEs and WBEs contacted and,

if any such MBE or WBE is not selected as a joint venturer or subcontractor, the reason for such decision.

(c) Making plans and specifications for prospective construction work available to MBEs and WBEs in sufficient time for review.

(d) Utilizing the list of eligible MBEs and WBEs maintained by the Port Authority or seeking minorities and women from other sources for the purpose of soliciting bids for subcontractors.

(e) Encouraging the formation of joint ventures, partnerships or other similar arrangements among subcontractors, where appropriate, to insure that the Lessee and Contractor will meet their obligations hereunder.

(f) Insuring that provision is made to provide progress payments to MBEs and WBEs on a timely basis.

(g) Not requiring bonds from and/or providing bonds and insurance for MBEs and WBEs, where appropriate.

Certification of MBEs and WBEs hereunder shall be made by the Office of Business and Job Opportunity of the Port Authority. If the Contractor wishes to utilize a firm not already certified by the Port Authority, it shall submit to the Port Authority a written request for a determination that the proposed firm is eligible for certification. This shall be done by completing and forwarding such form as may be then required by the Port Authority. All such requests shall be in writing addressed to the Office of Business and Job Opportunity, the Port Authority of New York and New Jersey, One World Trade Center, 63 East, New York, New York 10048 or such other address as the Port Authority may specify by notice to the Lessee. Certification shall be effective only if made in writing the Director in charge of the Office of Business and Job Opportunity of the Port Authority. The determination of the Port Authority shall be final and binding.

The Port Authority has compiled a list of the firms that the Port Authority has determined satisfy the criteria for MBE and WBE certification. This list may be supplemented and revised from time to time by the Port Authority. Such list shall be made available to the Contractor upon request. The Port Authority makes no representation as the financial responsibility or such, firms, their technical competence to perform, or any other performance-related qualifications.

Only MBE's and WBE's certified by the Port Authority will count toward the MBE and WBE goals.

Please note that only sixty percent (60%) of expenditures to MBE or WBE suppliers will count towards meeting the MBE and WBE goals. However, expenditures to MBE or WBE

manufacturer's (i.e. suppliers that produce goods from raw materials or substantially alter them before resale) are counted dollar for dollar.

_____
For the Port Authority

Initialled:

_____
For the Lessee

ATTACHMENT A

PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TECHNICAL DESIGN CRITERIA AND ASSUMPTIONS
FOR JFK ROADWAY CONTRACT PACKAGE #5

Rev. April 2, 1998

1.0 ROADWAY DESIGN

1.0.1 Codes, Standards, and References

1.0.1.1 Traffic

The codes, specifications and guidelines (latest editions) will be used but not be limited to the following:

- Transportation Research Board Highway Capacity Manual
- USDOT Manual on Uniform Traffic Control Devices.
- Airport Signing Standard Manual
- All criteria for pavement marking, signals, concrete barrier, lane closures and signs in conformance with Port Authority "Traffic Design Standards" unless otherwise noted.

1.0.1.2 Civil

The codes, specifications and guidelines (latest editions) of the following will be used:

- AASHTO Policy on Geometric Design of Highway and Streets (1990)
- USDOT Manual on Uniform Traffic Control Devices.
- All criteria for storm drainage, sanitary sewer, and water distribution will conform the Port Authority "Civil Design Standards" unless otherwise noted.
- The water distribution system is designed to meet or exceed the New York City and National Fire Prevention Association guidelines.

1.0.1.3 Structural

- Standard Specifications for Highway Bridges, adopted by the AASHTO, 15th Edition, 1992, with interim specifications up to and including 1993 and 1994.
- Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, adopted by the AASHTO, 1985 Edition updated to 1994.
- The AASHTO Guide Specifications for Horizontally Curved Highway Bridges, 1980 Edition updated to 1993.

1.0.1.4 Electrical Codes for Entrance/Exit Plaza Canopies, Booths, and Service Building

- NYC Electrical Code
- National Electric Code

1.0.1.5 Geotechnical

Data and results of previous studies to be found in a report entitled "JFK 2000 - Geotechnical Study and Evaluation of Foundation Design Concepts", dated September 1987.

1.0.2 **Design Criteria and Assumptions:**

1.0.2.1 Traffic

1.0.2.1.1 Planning Horizon

Design Year 2015 - 45 Million Annual Air Passengers (MAAP)

Traffic generation inputs are based on the 1988 JFKIA Central Terminal Area Air Passenger Vehicle History and Forecast (revised January 1990), on the Year 2000 Travel Demand (revised final report October, 1989), and on the updated Year 2015 JFK Redevelopment Planning Parameters (June 9, 1994 draft final report).

The passenger projections updated by the Port Authority in 1993 determined that the average annual growth rate is 2.5% at JFK for the period of 1994 - 2003. This is lower than the earlier projection of 3% annual growth rate for the airport in the Year 2000. Due to various factors related to the aviation industry and more recent data available, the revised JFK Planning Parameters for the Year 2015 resulted in a lower growth rate of 2.3 %. Consequently, the planning horizon of 45 million annual passengers activity level projected by Year 2000 would be reached in the Year 2015.

Distribution of total air passengers among the unit terminals is based on available information for Year 1992 and the effects of the Terminal One reconstruction by TOGA, the IAB renovation beginning in 1997, and the relocation of Tower Air Terminal flights into the new IAB. Growth factors for each unit terminal were developed by comparing actual 1992 and projected 2015 volumes.

August Peak Month - 5.1 million air passengers
Design day - 167,500 air passengers
Orange Quadrant - 14.85 million air passengers

Terminals 5 and 6- (TWA)	9.99 MAAP
Terminal 7 - (BA)	4.86 MAAP

1.0.2.1.2 Peak Hour Demand

1.0.2.1.2.1

Orange Quadrant Unit Terminal Peak Hour Passengers:

	Arrivals	Departures
Terminal 5 (TWA)	1814	1950
Terminal 6 (TWA)	3079	2241
Terminal 7- (BA)	1874	1457

These volumes were based on the actual passenger peak hour volumes obtained in 1992 and the growth factors applied to them. The following were assumed in this methodology:

- Increase in passenger peak hour volumes is linearly proportional to the increase in annual volume.
- Growth rate can be applied throughout the entire day, including the peak period.
- Airside operations at JFK can accommodate this growth.

The actual 1992 passenger peak hour volumes represent the peak hour of the average day of the peak month or the tenth highest hour. This corresponds to the peak hour developed on Sunday, August 23, 1992. The departure passenger peak hour occurred from 2:30 PM to 3:30 PM and the arrivals peak hour occurred from 4:00 PM to 5:00 PM.

The new projected peak hour volumes for Terminals 5 and 6 (TWA) are similar to the earlier Year 2000 projections. The volumes for Terminal 7 (British Airways) are considerably higher compared to the original

forecast. This is attributed to the higher baseline condition for this terminal which experienced approximately 20% growth in the Year 1992 - 1993. This high growth rate is not predicted to continue, nevertheless, a higher projected annual volume than the Year 2000 Travel Design Parameters is marked.

1.0.2.1.3 Design Elements

Roadway Functional Requirements:

Level of service for all elements of the Orange Quadrant (previously Area 4) roadway system (roadways, signalized and unsignalized intersections, pedestrian crosswalks and walkways) shall be equal to or better than Level of Service "C" as defined in the Transportation Research Board 1994 Highway Capacity Manual. Weaving sections shall also operate at level of service "C". Level of service "C" capacity levels (mixed vehicle per hour per lane) for various roadways are described in Exhibit A.

1.0.2.1.4 Planning Parameters

The design of the roadway system will not include provisions for a separate quadrant. The Terminals 5, 6, and 7 will be served as the Orange Quadrant without variation.

The roadway system is to be designed to include the following:

- Inter-area roadway connections at the arrivals level.
- All on-airport HOVs including buses to long term parking/other terminals, courtesy vans, short haul taxis and limos shall have full access to the Orange Quadrant and use the dedicated HOV frontage.
- All mass transit buses (NYCTA) and employee buses will access the Orange Quadrant from either the Blue Quadrant (previously Area 2) or the expressways. These buses must have a dedicated curb area.
- The underpass between the parking lots of the Blue and Orange Quadrants is to be maintained in service at all times.
- Access to the Central Taxi Hold located off JFK Expressway.
- Inter-terminal pedestrian movements are to be maintained in the new scheme.

- Private Auto - Primary Movement Decision Sequence: Entering CTA via Van Wyck or JFK Expwy

- Area Decision
- Terminal Frontage/parking decision
- Specific Unit Terminal decisions

Leaving Unit Terminals
- Airport Exit - Van Wyck/JFK Expwy
- Return to Terminals
- To area parking
- To long term parking
- Rental car returns
- To other terminals

Leaving Area Parking Lots
- Airport Exit - Van Wyck/JFK Expwy
- Return to Terminals.
- Return to area parking
- To long term parking
- Rental car returns

Inter-Area Movements
- Via JFK or Van Wyck Expwy and their Recirculation loops
- Taxi - Primary Movement Decision Sequence:

Drop-off air passengers at Unit Terminals and exit airport -
- Same movement as for private automobiles

Drop-off air passengers at Unit Terminals and proceed to Central Taxi Hold -
- Inbound movement same as for private automobiles
- Access to Central Taxi Hold from CTA provided from outbound JFK Expwy and Recirculation Loop

Inbound empty taxis to Central Terminal Area -
- Inbound empty taxis on JFK Expwy will be diverted directly to Central Taxi Hold
- Inbound empty taxis on Van Wyck will be diverted to JFK Expwy and Central Taxi Hold
- Short haul taxi decision sequence:
- Via area roadways and JFK/Van Wyck Expwy Recirculation Loops

Courtesy Vehicles - Decision Sequence -
- All passenger pick-up and drop-off activity will be at designated stops along the HOV frontage.

Courtesy vehicles - Service Type -

- Bus to Long Term Parking/NYCTA Subway - schedule
- Airline Connection - schedule
- Rental Car Courtesy Van/Bus - schedule
- Hotel Courtesy Van - schedule
- NY Helicopter Van - demand only

Local Bus - Decision Sequence -
- All passenger pick-up and drop-off activity will be at designated stops along the HOV frontage.

Local Bus - Service Type -
- Q10 Greenline Bus to Queens - schedule
- Q3 NYCTA Bus to Queens - schedule
- B15 NYCTA Bus to Brooklyn - schedule
- Airport Employee Bus - schedule

Commercial Bus, Ground Transportation Permittees - Decision Sequence -
- All passenger pick-up and drop-off activity will be at designated stops along the HOV frontage

Vehicles - Service Type:
- Carey Bus (Manhattan)-schedule
- Carey Bus (LaGuardia)-schedule
- Carey Bus (Brooklyn)-schedule
- Carey Bus (Jamaica Station)-schedule
- Flight Catcher-schedule
- Connecticut Limousine-schedule
- Transport Classic-schedule
- Trans-Bridge-schedule
- Westchester Express-schedule
- Princeton Airporter-schedule
- Salem Transport-schedule
- Grayline Air shuttle-schedule
- Giraldo Limousine-schedule
- Classic Airport Share Ride-schedule
- Others-demand
- Charter Bus Activity - is assumed to be along the HOV frontage

1.0.2.1.5 Passengers Classification and Transfers

Distribution of passengers between terminating, interlining and intralining at each unit terminal is as follows:

Terminals 5 and 6 (TWA):

Arriving passengers:	
Peak hour terminating passengers	40%
Peak hour interlining terminating passengers	20%
Peak hour intralining terminating passengers	40%
Departing passengers:	
Peak hour originating passengers	40%
Peak hour interlining originating passengers	20%
Peak hour intralining originating passengers	40%

Terminal 7 (BA):

Arriving passengers:	
Peak hour terminating passengers	80%
Peak hour interlining terminating passengers	10%
Peak hour intralining terminating passengers	10%
Departing passengers:	
Peak hour originating passengers	80%
Peak hour interlining originating passengers	10%
Peak hour intralining originating passengers	10%

Modal distribution of peak hour terminating and originating passengers is as follows:

LOV: (74%)

Auto:	37%
Taxi:	18%
For-Hire:	14%
Rental Car:	3%
Long Term Park:	2%

HOV: (26%)

Limousines:	12%
Bus/Van:	8%
Mass Transit:	4%
Courtesy cars:	2%

Modal distribution of peak hour interlining passengers is as follows:

Total LOV (taxi only) 7%
Total HOV 93% (81% bus/van and 12% limo)

Meeters / Greeters:
Meeters and greeters are included in determining frontage requirements. No. of greeters = 70% of terminating passengers using autos + 10% of terminating passengers using HOVs, rental cars and long term parking.

No of meeters = 70% of originating passengers using autos + 10% of originating passengers using HOVs, rental cars and long term parking.

1.0.2.1.6 Frontages

The following is to be used in the frontage design:

- Weather protected passenger pick-up and drop-off areas along the arrival, HOV, and departure curbs.
- Minimum platform width = 20 feet
- Minimum frontage roadways requirement is to provide two 10 feet wide parking/maneuvering lanes and two 12 feet wide lanes for bypass traffic.
- Frontages will be provided for LOVs, HOVs, and taxis with right-door loading.
- Minimum overhead roadway clearance = 14'-6"
- All frontages should be at level grade.
- All inter-terminal transfer passengers go directly to frontage and use HOVs and LOVs in the proportion stated previously.
- Intra-terminal passengers do not use frontage.
- Poisson distribution is assumed for the peak hour vehicles arrival rate. It is a random distribution taking into account the peaking characteristics occurring within the hour. Frontage requirement thus calculated reflects a 90% probability for each vehicle to find an empty space.
- The frontage requirement calculated above will be reduced by 30% for level of service C criteria. It assumes that 30% of the traffic will park in the second parking lane provided along the curb.

- There is no inter-area HOV access to the Departures Roadway. Except single terminal HOVs, all departure HOVs are assigned to the HOV Frontage and therefore, included in the HOV frontage requirement.

- Taxis picking up passengers will be provided with separate frontage and taxi feed line.

- Frontage assigned to the LOVs will be shared as a common frontage by all types of LOVs. "Common" frontage analysis will be used to determine LOV frontage requirement.

- Different types of HOVs will have their own processing area. "Segmented" frontage analysis will be used to determine HOV frontage requirement.

- No HOV holding area will be provided at the site.

- HOV projection is based on demand and not "schedule oriented".

- Frontage analysis for Terminals 5, 6, and 7 is described in Exhibits B, C, and D respectively.

ROADWAY CRITERIA

CATEGORY			ACCESS	CENTRAL TERMINAL AREA		
ITEM	EXPRESS ROAD SYSTEM	COLL_ DIST_ ROAD SYSTEM	AREA ROAD SYSTEM			
Design Speed (MPH)	50	40	30	25	20	15
Minimum Radius (FT)	720	510	230	150	90	50
Maximum Super	0.06	0.06	0.06	0.04	0.04	0.04
Stopping Sight Distance (FT)	400-475	275-325	200	150	125	N/R
Maximum Grade	5%	6%	6%	6%	6%	6%
Speed Change Lanes	Yes	No	No	No	No	No
Reserve Area for Crash cushion Barrier	Yes	Yes	Yes	No	No	No
Roadway Widths	Widths shall be based on the most recent AASHTO policy for design condition B. Widths of tangent sections on structure of 20; 29; and 42' and 54' for 1, 2, 3 and 4 lanes.					
Bridge Rail	In accordance with AASHTO standards					
Roadside Objects	Objects must be located behind or atop the bridge rail so that the rail has a smooth surface that will not snag errant vehicles. On grade proper protection or sufficient clearance must be provided					
Sidewalks	None will be provided along the roadways in most cases. Pedestrian requirements for interterminal movements and parking movements will be determined separately.					
Shoulders	On Structure - None will be provided. On Grade - Asphalt block paver shoulders behind mountable curb where possible					

Clearances	Public parking under deck- 11'-0" minimum w/o utilities, 13'-6" w/utilities. Other - 14'-6" minimum bridge clearance Overhead Sign Structure 15'-6" minimum Overhead Traffic Signal 15'-6" minimum/17'-6" maximum.* * Based on Manual of Uniform Traffic Control Devices.

1.0.2.2 Civil

1.0.2.2.1 Roadway Ramp Designation

Ramps shall be designated such that the origin and the destination of that roadway are given in order.

Design Speed-- 30 MPH Desirable

The central radius of a ramp and maximum superelevation (0.04) shall be used for design speed control

CENTRAL RAMP RADIUS IN FEET	RECOMMENDATION DESIGN SPEED IN MPH
90	20
150	25
230	30

Horizontal Alignment

Desirable Minimum Radius 230 ft.

The minimum length of tangent between reverse curves is controlled by the superelevation runoff.

Ramp width vary with the horizontal radii and are as follows:

RADIUS AT LANE EDGE OF INSIDE CURVE	LANE WIDTH FOR ONE LANE RAMP	LANE WIDTH FOR TWO LANE RAMP
90'	23'	33'
150'	22'	32'
200'	22'	31'
250'	22'	31'
300'	21'	30'
400'	21'	30'
500'	21'	30'
600' or more	20'	29'

If any obstruction is encountered, sight distance shall control. In the area of horizontal transition curves, it is intended that smooth lane width transitions, controlled by the central radius, be used. Changes in pavement width shall utilize a taper rate of 1:15 or $\frac{W \times V}{60}$

1.0.2.2.2 Acceleration/Deceleration

For typical acceleration and deceleration lane treatment, see the following tables and consult with the Traffic Engineer.

Acceleration Lane (AASHTO) page 986

Deceleration Lane (AASHTO) page 991

1.0.2.2.3 Vertical Clearance

Minimum clearance between profiles is based on 14'-6" roadway clearance plus the depth of structure.

1.0.2.2.4 Vertical Alignment

Grades:
a) Maximum upgrade 6.0 percent
b) Desirable maximum upgrade 5.0 percent
c) Maximum downgrade 6.0 percent
d) Absolute minimum grade 0.5 percent

1.0.2.2.5 Vertical Curves

Minimum length determined by: L = A x K
Where: L, A, and K are defined in the "Collector Distribution Road System-Vertical Alignment", with minimum K values as follows:

DESIGN SPEED		STOPPING SIGHT	DESIRABLE		ABSOLUTE MIN.	
MPH	FPS	DISTANCE (ft)	CREST K	SAG K	CREST K	SAG K*
10	17	50	10	10	8	
15	22	75	10	10	8	
20	29	125	10	20	8.6	
25	37	150	20	30	14.4	
30	44	200	30	40	23.7	

* Because all roadways will be lighted, minimum sag curves may be based on riding comfort.

1.0.2.2.6 Superelevation

Maximum 4 percent.

The rate of change of the cross slope is not to exceed 2 percent per distance traveled in one second at the design speed.

Change in cross slope between adjacent lanes not to exceed 4 percent

Ramp superelevation shall be controlled by the central curve of the ramp. Full superelevation as indicated by the central radius of a ramp shall not be attained before that radius is reached. A smooth superelevation transition shall be provided over the length of the corresponding horizontal transition. By the use of the proper superelevation, it is intended that the driver be discouraged from "over-driving" the ramp.

Where there are no transition curves adjacent to the central radius, the approximately two-third of the transition length is to set on the approach tangent with the remaining one-third within the central curve.

Current AASHTO tables relating design speed and horizontal curvature of the central curve for a maximum superelevation of 4 percent shall be used a minimum criteria.

1.0.2.2.7 Superelevation

Recirculation Roads and Frontage Roads.

The central radius for a ramp shall be: 125 ft Absolute minimum 50 feet.

Central Angle Radius (Feet)	Recommended design Speed (MPF)
50	10
75	15
125	20

Desirable Minimum Radius

Pavement widths:

Radius	1 Lane	2 Lanes
50'	26'	38'
75'	24'	35'
125'	23'	32'

1.0.2.3 Architectural Design Criteria for Elevated Roadways and Retaining Walls

Elevated roadways shall be consistent with the JFK Redevelopment Program Standards established by the Roadway Packages.

Major Materials:

Painted Steel Railings (color to match Benjamin Moore Light Gray 1594).

Concrete Parapet (match existing profile).

Exposed recessed painted steel superstructure (color to match Benjamin Moore Dark Gray 1631).

Round concrete columns encased.

Drainage piping to be within the concrete columns.

1.0.2.4 Structural Design Criteria

1.0.2.4.1 Structural Loads for Elevated Roadways

Dead Load includes a 30 psf future Wearing Surface overlay.
Live Load: HS20-44
Seismic Load: Seismic Performance Category B.
Acceleration Coefficient A= 0.19
All other loads as per AASHTO Specifications.

1.0.2.4.1.1 Reinforced Concrete Design:

Materials:

- Reinforcing Steel shall be ASTM A615 Grade 60.
- Concrete shall be class 'B', f'c = 4000 psi except for footings and pile caps, which shall be class 'D', f'c = 3000 psi.

1.0.2.4.1.2 Structural Steel Design:

Materials:

- Unless otherwise specified, all structural steel shall be AASHTO M270 Grade 50 (ASTM A709 Grade 50).

- Structural Tubing shall be ASTM A500 Grade B.

1.0.2.4.1.4 Foundations:

Bridge Piers, Abutments and Retaining Walls shall be supported on monotube piles as per section 8.1.2.6.3.1. Retaining walls 6' high and below shall be supported on spread footings.

Light Structures: - Use 30 Ton Timber Piles

Pile Capacities:

Compression:	30 Tons
Tension:	5 Tons
Lateral Capacity:	1 Ton

Where spread footing is used, the allowable bearing pressure shall be recommended by the Geotechnical Engineering Department.

1.0.2.5 Electrical Design Criteria

100 ft. high rigid steel mast floodlight poles (see "Parking Lots") will be used for lighting of the on-grade roadways in the vicinity of the parking lots.

30 ft. high aluminum lighting poles with 5' arms will be used for on-grade roadway lighting out of the CTA. The pole spacing will be approximately 100 ft. and an average lighting level of 2 F.C will be maintained for all roadways. Cutoff (no uplight component) outdoor 250W high pressure sodium lighting fixtures with high power factor ballasts will be mounted beneath overpasses to provide lighting for on-grade roads under structures.

Roadways adjacent to terminal and canopies will be illuminated by outdoor high pressure sodium lighting fixtures with high power factor ballasts mounted on these structures.

Lighting for elevated roads will be provided by 30 ft. high aluminum lighting poles.

One 250W high pressure sodium cutoff outdoor lighting fixture with high power factor ballast will be utilized.

The pole spacing will be approximately 100 ft.

An average level of 2 FC will be maintained.

Elevated roads, power, and communication cables will be installed within rigid galvanized steel conduits mounted on roadway structures.

1.0.2.6 Geotechnical Design Criteria and Assumptions

Liquefaction analyses are to be performed for all significant structures.

Details of methods proposed to perform liquefaction analysis and incorporation of the results into foundation designs are to be submitted to Port Authority Geotechnical Unit.

A boring program is to be performed that conforms with Port Authority standards, including using safety hammer during split spoon sampling. PDA measurement is to be performed on selected borings to confirm applied energy from safety hammer.

The boring program is to be carried out utilizing hand auguring to a depth of seven feet to minimize potential risk of impacting utilities. Borings may subsequently be advanced twelve inches from the auger hole. Jetting of soil shall not be permitted.

Boring logs and cone penetration test data is to be transmitted to the Port Authority, Geotechnical Group on a daily basis to permit review of results.

1.0.2.6.1 Embankments:

Geotechnical inputs to design embankments will be based on the following investigations, studies and analyses:

Detailed evaluation of subsurface soils will be based on site investigations planned for this project. Existing subsurface data, along with additional borings to be carried out as required, will be used in foundation design of the structures.

Laboratory testing of soil samples will be performed to confirm representative engineering properties for design.

Preliminary investigations and cost comparisons of alternative methods of embankment construction should be performed with the objective of minimizing the overall length of the planned elevated roadway structure. Methods of construction will include the following:

Lightweight fill
Pile supported embankment
Preloading and surcharging

Criteria for embankment design is based on post construction differential settlement between pile supported abutment and approach embankment not exceeding 3.5 inches over a 10 year period..

Surcharging by fill or lightweight fill is to be used to minimize differential settlement if above value is exceeded. Waiting period of 3 months may be imposed between completion of embankment construction and start of paving.

1.0.2.6.2 Foundations

All piers, abutments, wingwalls and portions of retaining walls in excess of a height of six (6) feet shall be supported on piles: Retaining walls less than six (6) feet in height and other minor structures may be supported on spread footings.

1.0.2.6.2.1 Pile Types

A major comprehensive pile test program was completed in the CTA area covering a wide variety of acceptable pile types. In addition a pile test program was conducted in conjunction with the foundation contract for the Air Traffic Control Tower. Results of the load test programs were evaluated in order to recommend the optimum pile types to support the elevated roadway structures, abutments and retaining walls. Details are included in the "Pile Load Test Report dated June 1989."

1.0.2.6.3 Roadways

1.0.2.6.3.1 Elevated Structures

Provisions of AASHTO including seismic design and liquefaction analyses will be performed for elevated roadway structures including piers, abutments, wingwalls, retaining walls and embankments. Piers for elevated roadway structures outside terminal will be supported by Monotube piles (3NJ8X14) as indicated in Table B. Vertical and batter piles will be used to minimize impact of liquefaction.

TABLE B

Vertical	Uplift
100 tons	30 tons

Batter piles will be provided to resist lateral forces. The pile batter shall not exceed 1 (horizontal) to 4 (vertical)

Abutments wingwalls and retaining walls will be supported by Monotube piles (5NJ8X14)

Bearing capacity	65 tons
Length	50 feet

Monotube piles used to support abutments, wingwalls and retaining walls will be designed for the following downdrag values:
Vertical Piles 11 tons
Batter Piles
Inner Row 3 tons
Outer Row negligible

Soil parameters and seismic response coefficients for determination of earth pressures on bridge abutments and wingwalls and retaining wall will be as follows:

Unit weight of backfill: 120 pcf
Angle of internal friction of backfill material: 30°
Coefficient of active earth pressure: 0.33
Coefficient of passive earth pressure: 3.00
Friction coefficient between concrete footing and sand (fill) : 0.40

Structural design of permanent walls will be carried out using a coefficient of at rest pressure of 0.50.

1.0.2.6.3.2 Bridge Abutments

Surcharging period will be required before start of paving of approach embankments to bridge abutments. Structural approach slab supported at the abutment will be provided at each bridge location.

1.0.6.2.4 *Miscellaneous Structures*

The following structures will be supported on spread footing type foundations: Light poles, Toll plaza structures, Lighting vaults, Ground mounted signs. For temporary loading conditions, the allowable bearing pressure at the edge of the footing may be increased by 33%.

The allowable bearing pressure for spread footing type foundations will be determined as needed.

1.0.6.2.5 Settlement Monitoring

A settlement monitoring program will be employed during construction to assess the performance of the surcharging and filling and to verify the schedule for surcharge removal. Instrumentation for the program may consist of: Settlement plates to be monitored by optical survey.
Settlement markers to be installed on top of retaining walls that are not pile supported. Piezometers, to measure pore pressure dissipation.

1.0.6.2.5 Dewatering

Dewatering criteria will be developed to accommodate pile cap, utility and depressed roadway construction. British Airways will be included under the existing Port Authority General Dewatering Permit, issued by the

NYSDEC (DEC Permit Number 2-638-00019/00005-0), and is for withdrawals of groundwater from the roadway construction area. Under the Port Authority allocations, British Airways may withdraw up to 1.25 million gallons of water per day. If British Airways is not in compliance with the requirements of the permit, British Airways shall hire a qualified environmental consultant, independent of the construction contractor, to provide liaison with and serve under the direction of the Port Authority, to oversee installation of the dewatering wells by a licensed driller, and to monitor dewatering operations (e.g., provide photo-documentation of affected outfalls and timely notification to the Port Authority when dewatering activities are occurring; maintain all logs and records of activity). British Airways will be responsible for any and all fines associated with deviation from compliance with the requirements of the General Dewatering Permit. The complete terms and requirements for compliance are contained in the Tenant Lease Agreement. All design planning shall be in conformance with the applicable NYSDEC regulatory requirements.

Dewatering criteria will be developed to accommodate pile cap construction for the British Airways Terminal Building and the proposed Garage structure. Maximum flow from the dewatering systems will not exceed permissible limits defined in a separate General Dewatering Permit to be issued to British Airways by NYSDEC.

2.0 PAVEMENT

2.0.1 Design Criteria and Assumptions

2.0.1.1 General

All roadway pavement will be flexible pavement and will be based on H20-S16 loading. The typical sections for different roadways are as follows:

a. Pavement section for Access Expressways, Ramps, Recirculation Roads, and Frontage Access Roads

4" asphalt Concrete Top Course
4" Plant Mix Macadam
6" Dense Graded Aggregate Base Course

b. Pavement section for Parking Lots
2" Asphalt Concrete Top Course
6" Dense Graded Aggregate Base Course

All roadways will have 6" concrete curb (either mountable or non-mountable).

At grade roadway where shoulder is provided, a 5 foot berm will be maintained with a maximum of 2:1 side slope. This also applies for embankment area without retaining walls.

Concrete barriers and box beam guide rail will be used as per the AASHTO Roadside Design Guide. The guiderail shall conform to PA criteria used at the other terminals at JFK Airport.

A 3 foot gutter on both sides will be provided for three or more lane roadway.

The maximum slope for cut and fill for embankment is 2 on 1.

Median treatment- median with between roadways greater than 10 feet shall be topsoiled and seeded. Widths less than 10 feet shall be paved with Asphalt Block Pavers.

A three-foot wide asphalt-block-paver salt splash shall be installed immediately behind curbs in locations where the adjacent area will be landscaped. The salt splash shall be installed for the full length of the landscaped area.

3.0 UTILITIES/ DRAINAGE

3.0.1 Design Criteria and Assumptions

3.0.1.1 General

All existing pipes, electrical conduits, ductbanks, and other structures not capable of being utilized will be removed or plugged and abandoned. All electrical cables are to be pulled before abandoning any conduits or ductbanks.

3.0.1.2 Electrical

All power and communication services external to the buildings will be run inside concrete encased underground duct banks buried at a minimum depth of 30 inches. FRE(Fiber glass reinforced epoxy) and PVC-H conduits will be used for medium voltage and low voltage installations respectively. All conduits for medium voltage duct banks will be 5 inches in diameter. Main runs of low voltage power and communications duct bank conduits will be 4 inches diameter.

Sufficient number of spare conduits (a minimum of 25% or 1 whichever is greater) will be included for all duct banks.

Manhole spacing for power cables will not exceed 500 feet. A minimum separation of 20 feet will be provided between two main 5 KV duct banks.

Medium voltage power cables will be either 500 MCM or 350 MCM. Low voltage power cables will be minimum #10 AWG.

3.0.1.3 Storm Drainage:

The new storm water system is designed following the Port Authority "Civil Utility Standards". A 10- year frequency storm was used for the preliminary pipe sizing. The hydraulic grade line should not exceed the catch basin rim elevation. The new and existing storm trunk lines are connected to relieve the overloaded conditions. A 25-year frequency storm shall be used to design the drainage system for areas below the design groundwater elevation.

3.0.1.3.1 Drainage at Intersection Area

Drainage at large areas of pavements specifically at intersection areas with minimum slopes will be studied carefully to avoid sheet flow conditions and/or puddle situations. Depending on the final grading at those locations, trench drains and/or a series of catch basins may be provided.

3.0.1.3.2 Drainage at Low Points

Because of the high quantities of debris, it is recommended to use two or three inlets at the low point by placing one at the low point and the others on both sides as appropriate.

The roof drainage from the entrance/exit plazas and frontage canopies will be collected.

All pipes are circular reinforced concrete (Class V), unless otherwise noted.

Catch basins are not provided in landscaped areas.

Unless otherwise noted, the existing drainage system will be utilized.

Certain assumptions have been made regarding existing drainage structures (manholes and catch basins) such as modifying or adjusting casting elevations to suit the finished grade.

3.0.1.4 Sanitary Sewer

The sanitary sewer system will include new connections to the service building at the parking lot exit plaza.

3.0.1.5 Water Distribution

The existing low pressure water system is assume to be able to maintain a minimum peak flow pressure of 50 psi throughout the system. During a fire, the system will be able to provide minimum 30 psi of pressure at the fire and minimum 20 psi at all other locations.

New fire hydrants are provided to cover the entire parking lot and the circulation roadways.

The water distribution system will include connections to the service building at the parking lot exit plaza.

4.0 SITE PREPARATION/ DEMOLITION

4.0.1 Civil Design Criteria and Assumptions

Site preparation will include the removal of existing concrete curbs, concrete islands, asphalt or concrete pavements, fences, concrete barriers, guide rail, all cleared and grubbed items, and unsuitable excavated materials.

Utility structures (catch basins and manholes) will be demolished and removed. Sections of pipes (drainage, sanitary or water lines) may be removed or plugged and left in place.

5.0 PARKING LOTS

5.0.1 Codes, Standards, and References

5.0.1.1 Traffic Standard

USDOT Manual on Uniform Traffic Control Devices

5.0.1.2 Architectural Codes

American with Disabilities Act (ADA)

5.0.1.3 Electrical Codes

NYC Electrical Code
National Electric Code

5.0.2 Design Criteria and Assumptions

5.0.2.1 Traffic Design Criteria

The planned Light Rail System (LRS) has not been considered in projecting parking demand.

Limited vehicular egress/ingress points shall be provided to preclude evasion of parking fees. Parking Lot Entrance and Exit plazas shall be provided in all parking lots.

Peak hour potential air passenger parking demand is composed of all originating and terminating passengers who use autos and who may park. This excludes all transfer passengers. It is assumed that 44% of all O/D air passengers are auto users and use parking facilities.
The 1987 peak hour parking space demand will be utilized as the baseline demand as this information is derived from actual revenue and non-revenue parkers and represents the latest available information.

Crash gates are required in all parking lots and an escape ramp is to be provided at all parking entry plazas.

A minimum of five exit lanes are required for the British Airways Terminal parking lot.

5.0.2.2 Electrical Design Criteria

5.0.2.2.1 Parking Lot - Lighting Vault

Electrical power load not exceeding 250KVA @ 480 Volt, 3 phase, will be supplied from the existing lighting vault substation #6. A new lighting

vault, double ended substation will be required if the load exceeds 250 KVA.. The design of a new vault will contain two medium voltage incoming load interrupter switches with ground switches and automatic transfer, two 4330-480 Volt indoor dry type transformers and 480 Volt switchgear. Secondary breakers of the transformers and the tie breaker will have provision for manually selectable (closed or open transition) mode of automatic transfer. The transformers will have provisions for fan cooling, 80 degree C temperature rise and be rated such that each is capable of supplying the entire load of the substation without fans.

The lighting vault will be complete with all necessary 480/277 Volt distribution boards to supply all the types of loads. The loads will consist of parking lot entrance/exit plazas, parking lot high mast light towers, street lights, traffic lights, overhead signs, lighting for walking bridge between East Parking garage and IAB etc. Photocell controlled lighting contactors will be housed within the vault for all outdoor lighting feeders.

5.0.2.2.2 Parking Lot Lighting- High Mast Towers

100 ft., rigid steel high mast floodlight pole, complete with head assembly and lowering device, exactly duplicating those already installed in the other Central terminal Area parking lots, with five (5) 1000W Metal Halide and five (5) 1000W HPS lamps, 277V, high power factor ballast and cutoff fixtures (no uplight component) will be installed as required. An average of 5 F.C. will be maintained throughout the parking area.

Three phase, 480/277 volt power supply feeders from main feeder to lighting high mast pole will be installed in 2 inch concrete encased PVC - H conduit.

High Mast Lighting Tower foundation design criteria is included in "Structural" portion of this criteria.

6.0 PARKING LOT ENTRANCE/EXIT PLAZA CANOPIES, BOOTHS, AND SERVICE BUILDING

6.0.1 Codes, Standards, and References

6.0.1.1 Structural Codes for Plaza Canopies

- Building Officials and Code Administrators (BOCA, latest edition)
- The Building Code of the City of New York (latest edition)
- Standard Specifications for Highway Bridges (AASHTO, latest edition)

6.0.1.2 Electrical Codes for Plaza Canopies, Booths, and Service Building

- NYC Electrical Code
- National Electric Code

6.0.2 Design Criteria and Assumptions

6.0.2.1 General/Traffic Design Criteria

Entrance and exit plaza lane requirements will be finalized based on queuing analysis at entrance and exit plazas.

To maintain level of service "C" at the parking lot plazas, a service rate of 350 vehicles per hour/entrance booth and 100 vehicles per hour/exit booth is required.

Parking Lot Entrance and Exit plazas, canopies, booths and service building shall be consistent with the JFK Redevelopment Program standards established by the Roadway Packages.

6.0.2.2 Architectural Design Criteria

6.0.2.2.1. Plaza Canopies:

Major Materials: Painted Steel Canopy (color to match Benjamin Moore Dark Gray 1631).

All plaza structures shall be consistent with the JFK Redevelopment Program Standards and Design.

6.0.2.2.2. Booths

Major Materials: Stainless Steel, clad with color coded accent painted band. Color coding to be per JFK Redevelopment requirements.

6.0.2.2.3. Service Building

Major Materials: Stainless Steel clad with color coded accent painted band Color coding to be per JFK Redevelopment requirements.

6.0.2.3 Structural

6.0.2.3.1 Loads

6.0.2.3.1.1 Loads for Plaza Canopies

1. Wind Load (AASHTO)

a. Uplift = 20 PSF (applied at the windward quarter point of the transverse superstructure width)
b. Transverse direction = 50 PSF
c. Longitudinal direction = 12 PSF

2. Snow Loads (BOCA)

a. Uniform = 21 PSF
b. Drift effect (where applicable)

3. Temperature Load (AASHTO)

Temperature range = 0 to 120 deg. Fahrenheit (moderate climate)

4. Earthquake (BOCA)

SEISMIC hazard exposure Group I and effective peak velocity related acceleration = 0.15

6.0.2.3.1.2 Loads for Service Building

All loading shall be as per BOCA requirements.

6.0.2.3.2 Materials

Unless otherwise specified, all structural steel shall be ASTM A36. All structural tubing shall be ASTM A500 Grade B.

Concrete shall be Class 'D' f'c = 3 KSI.

Reinforcing steel shall be ASTM A615 Grade 60

Foundations for spread footings: The allowable bearing pressure shall be recommended by the Engineering Department, Geotechnical Design Division.

6.0.2.3.3 Load Combinations

6.0.2.3.3.1 Plaza Canopy Load Combinations

	% Overstress
1. Dead + Snow (Uniform)	100
2. Dead + Wind	125
3. Dead + Wind + Snow (Unbalanced)	133
4. Dead + Snow (Uniform) + Temp	125
5. Dead + Wind + Temp	125
6. Dead + Snow (Unbalanced) + Wind + Temp	145
7. Dead + Seismic	133
8. Dead + Snow (Uniform) + Seismic	140

6.0.2.3.3.2 Service Building Load Combinations

Service Building loading combinations shall be as per BOCA requirements.

6.0.2.3.4 Allowable Deflections

Snow Load = L/240
Wind Load = L/180

6.0.2.4 Mechanical/Plumbing Design Criteria for Plazas, Booths, and Service Building

All booths, and service buildings will be heated and cooled.

Booths will be supplied with a packaged air conditioning unit providing both heating and cooling. supplementary heating will be provided by baseboard heaters.

Service building restroom will be heated and ventilated. An exhaust fan shall be provided for ventilation of the plaza electrical room. Service building restroom will be provided with a water closet, lavatory, hot and cold water. Roof drains and interior leaders will be provided for storm water.

6.0.2.5 Electrical

6.0.2.5.1 Electrical Design Criteria for Service Building

Electrical room in the parking lot entrance/exit plaza service building will house the following equipment: 112.5KVA, 480-208/120V, 3 phase dry type transformer to feed the plazas electrical and electronic equipment.

200 amp, 208/120v, 3 phase, 4W distribution panel.

200A, 480V service entrance circuit breaker.

6.0.2.5.2 Electrical Design Criteria for Plaza

All wiring for plazas will be in rigid steel conduits. An average of 10 F.C. shall be maintained for the length and width of all lanes in each entrance and exit plaza.

6.0.2.5.3 Electronics Design Criteria for Booths

New booths will be designed to support the permanent RCS.

Assumptions:

The front counter will be provided by the RCS contractor

A cutout will be specified in the side wall of the booth for the installation of an exit ticket reader/verifier, for use in the "normal" mode and in "rapid exit" mode.

Space requirements for housing of electronic equipment will be based on the CTA Parking Lot booth design.

6.0.2.5.4 Electronics Design Criteria for Revenue Control System (RCS)

The permanent RCS will be furnished and installed by NYNEX. The lane equipment will be manufactured by Trindel.

The RCS will consist of ticket dispensers, automatic gates, cashier terminals, and other interface equipment necessary to operate in both stand-alone and central control (on-line) modes. RCS equipment will perform all required functions.

6.0.2.5.5 Electrical Design Criteria for Manual Closing Gate

Manual closing gate will be designed and positioned as not to interface with electronic equipment.

6.0.2.5.6 Electrical Design Criteria for Prepaid Only Sign

The prepaid only sign identifies lanes to be used by those who have prepaid parking fees in the RCS System.

7.0 OVERHEAD & GROUND MOUNTED TRAFFIC SIGNS AND TRAFFIC SIGNALS

7.0.1 Codes, Standards, and References

7.0.1.1 Structural Codes

Standard Specifications for Structural Supports for Highway Signs, Luminaries and traffic Signals (AASHTO), latest edition.

Standard Specifications for Highway Bridges (AASHTO), latest edition.

7.0.1.2 Traffic Standards: Motorist Information System

7.0.1.2.1 Static Information Requirement

Regulatory notice messages
Warning messages
Route Guidance messages
Information messages

7.0.1.2.2 Real-Time Motorist Advisory Information

Alternate inbound routes to the terminal
Terminal frontage status
Outbound diversion to Van Wyck or JFK Expressway
Emergency roadway conditions

7.0.1.2.3 Message Display Types

Overhead sign structures
Ground mounted sign structures
Fixed message sign panels
Changeable message sign panels

7.0.1.3 Electrical Codes

NYC Electrical Code
National Electric Code

7.0.2 **Design Criteria and Assumptions**

7.0.2.1 Traffic Design Criteria

All sign structures shall be consistent with the JFK Redevelopment Program Standards.

7.0.2.1 Structural Design Criteria

All sign structures shall be designed as per requirements of "Standard specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals" (AASHTO), latest edition.

All overhead sign structures shall be designed for temperature and seismic requirements as per "Standard Specifications for Highway Bridges" (AASHTO), latest edition.

7.0.2.2 Electrical Design Criteria

7.0.2.2.1 Static Sign

Sign lighting will be provided by installing on sign structure 250W metal halide outdoor sign lighting fixtures. An average illumination of about 30 to 40 foot-candles on the sign panel surface will be provided. Each overhead or ground mounted sign lighting will be automatically controlled by a dusk to dawn photosensor cell installed on each sign.

7.0.2.2.2 Electronics

Variable Message Sign (VMS) System will be provided as follows:

The design of the variable message sign (VMS) system will be based on the master system currently being developed by PA Engineering. All overhead sign structures shall be fully equipped with VMS including wiring and cable connections.

The hardware must be compatible with that of the existing CTA system and with NTCIP (National Transportation Council for ITS Protocol)

7.0.2.3 Traffic: Sign Placement Criteria

650 feet - minimum sign viewing distance for primary message.
450 feet - minimum sign viewing distance for secondary message.
450 feet - minimum separation between overhead sign structures.

250 feet - minimum separation between overhead and ground mount sign structures.
250 feet - minimum separation between ground mount structures when limited to two (2) adjacent locations.
450 feet - minimum separation between ground mount structures in series of more than two (2) adjacent locations.
250 feet - minimum separation between sign structures and traffic signal installations.

7.0.3 TRAFFIC SIGNALS

7.0.3.1 Codes, Standards and References

Traffic Standards

USDOT Manual on Uniform Traffic Control Devices
Port Authority's "Traffic Design Standards"

7.0.3.2 Design Criteria

The signal design including the surveillance system must follow PA standards.

Any modifications or changes to the existing to remain signal system must be coordinated with PA.

All permanent signalized intersections shall be connected and compatible to the existing centralized Traffic Signal System (JFK 2000 System).

All vehicular signal heads used within the CTA shall be 12" in diameter.

Mast arms and pedestal poles shall be generally used as permanent structures for traffic signals. Span wire shall not be acceptable.

All vehicle signal phases shall have a minimum of 1.8 seconds of all red clearance time and 3.0 seconds of yellow time.

All major vehicle phases shall have a minimum green time of 12 seconds.

All minor vehicle phases shall have a minimum green time of 7 seconds.

Pedestrian traffic signals shall use STOP HAND and WALKING PERSON symbols utilizing incandescent illumination. Each symbol shall be a minimum of 12" in height and 7" in width.

Pedestrian push buttons shall be installed at all signalized pedestrian crosswalks.

The design walking speed of pedestrians is 3.5 feet per second.

8.0 FRONTAGE CANOPIES

8.0.1 Codes, Standards, and References

8.0.1.1 Architectural/Graphics

8.0.1.1.1 Architectural

Americans with Disabilities Act (ADA)

8.0.1.1.2 Graphics

The Port Authority of New York and New Jersey Airport Signing and Graphic Standards Manual including Terminal, Curbside, Parking, and Roadway Frontage Standards.
Guidelines for Airport Signing and Graphics Terminals and Land-side, Second Edition, 1994.
Symbol Signs Reproduction Art The American Institute of Graphic Arts
JFK Area 3 Graphics Port Authority Contract JFK 584.002
Manual for Uniform Traffic Control Devices 1995

8.0.1.2 Structural Codes

Building Officials and Code Administrators (BOCA, latest edition)
The Building Code of the City of New York (latest edition)
Standard Specifications for Highway Bridges (AASHTO, latest edition)

8.0.1.3 Electrical Codes

NYC Electrical Code
National Electric Code

8.0.2 Design Criteria and Assumptions

8.0.2.1 Architectural/Graphics

8.0.2.1.1 Canopies

Passengers shall be able to travel to/ from the terminal building and frontage areas under uninterrupted cover.

Frontage canopy shall maintain 14'-6" minimum clearance above any roadways--there shall be a 3'-6" overhang beyond curb edge to provide weather protection for passengers while entering or exiting vehicles.

The design of the canopies and other frontage-related elements shall be architecturally consistent with the JFK Redevelopment Program Standards.

8.0.2.1.1.1 Major canopy materials:

Painted aluminum ceiling panels and nosing

2-ply built-up roof

Precast concrete column covers

Exterior jacketed fluorescent light fixture--surface mounted in to ceiling panel.

Windscreens and shelters major materials:

Precast concrete base.

Stainless steel tube frames and tinted glass panels.

Flip-up seats.

Infrared heating units shall be supplied in bus shelters.

8.0.2.1.2 Frontage sidewalks materials

Scored concrete with exposed aggregate concrete edging shall be used in public pick-up/drop-off areas.

Roadways under canopies shall be concrete, with exposed aggregate concrete edging..

Handicap parking spaces shall be sloped concrete surface with exposed aggregate concrete aisle areas.

8.0.2.1.2 Signage/Graphics

Directional signage, providing for pedestrian orientation, shall be illuminated signs hung from canopy structures and non-illuminated ground mounted signs and parking aisle markers.

Informational signage shall be provided for in the form of illuminated boxes similar to those shown in typical JFK wind screens.

Regulatory signage shall be kept to a minimum. Similar regulatory messages shall be formatted in the same way.

Provide ADA compliant signage as required by Federal law.

The typeface for all signage shall be Helvetica Medium and utilize the Helvetica family of fonts.

Architectural graphics shall have a consistent copy style, with recognizable terminology and utilize universally acceptable DOT symbols.

Message content shall be in language understandable by the general public.

Provide a comprehensive signing and architectural graphics plan, including but not limited to:

- Sign type elevations showing Wayfinding, Informational, and Regulatory Signs following ADA requirements.

- Sign schedule including all sign message text, arrow placement, and symbols.

- Sign location plan keyed to the sign schedule

General construction and fabrication criteria for terminal, frontage, parking signage as follows:

- Materials and construction methods shall match these used in other areas including Porcelain aisle marker enamel on steel and internally illuminated sign boxes.

- Use only the highest quality materials and method of construction.

- Visible public fasteners shall be kept to an absolute minimum and if used shall match adjacent material finish and color.

8.0.2.2 Structural Design Criteria

8.0.2.2.1 Loads

1. Wind Load: AASHTO
   a. Uplift = 20 PSF (applied at the windward quarter point of the transverse superstructure width)
   b. Transverse direction = 50 PSF
   c. Longitudinal direction = 12 PSF

2. Snow Load: BOCA
   a. Uniform = 21 PSF
   b. Drift effect (where applicable)

3. Temperature Load: AASHTO
   Temperature range = 0 to 120 deg. Fahrenheit (moderate climate)

4. Earthquake: BOCA

5.Seismic: Hazard exposure Group I, and effective peak velocity related acceleration, $A_v = 0.15$

8.0.2.2.2 Materials

Steel Fy = 36 KSI.
Concrete f'c = 3 KSI.
Reinforcing Fy = 60 KSI

8.0.2.2.3 Foundations

Piles: 14" Diam. Monotube Pile Capacity:
Compression - 100 Ton
Tension - 30 Ton
Soil Bearing capacity = 3 KSF

8.0.2.2.4 Load Combinations

	% Overstress
1. Dead + Snow (Uniform)	100
2. Dead + Wind	125
3. Dead + Wind + Snow (Unbalanced)	133
4. Dead + Snow (Uniform) + Temp	125
5. Dead + Wind + Temp	125
6. Dead + Snow (Unbalanced) + Wind + Temp	145
7. Dead + Seismic	133
8. Dead + Snow (Uniform) + Seismic	140

8.0.2.2.5 Allowable Deflections

Snow Load = L/240
Wind Load = L/180

8.0.2.2.6 Miscellaneous

Allowable stress in structural steel due to loss of support at expansion joints, induced by earthquake, is limited to yield stress.

8.0.2.3 Mechanical/Plumbing Design Criteria

Bus shelters will be heated with infrared heating which will be automatically controlled with motion detectors.

Canopy drains and leaders will be provided for storm water drainage.

8.0.2.4 Electrical Design Criteria

Pedestrian canopies will be illuminated by fluorescent lighting fixtures with outdoor high power factor ballasts.

A minimum of lighting level of 10 F.C. will be maintained. Power for lighting off the leasehold will be from the main street lighting feeders. Bus Shelters, signage etc. will be powered from separate feeders. Power for canopies within the leasehold shall be provided by Terminal 7.

8.0.2.6 Geotechnical Design Criteria

A supplementary site investigation program will be conducted to provide information on subsurface conditions for the canopy structure foundations.

Final recommendations on foundation design of canopies were prepared after the final plan location and vertical alignment of the roadways was determined.

Foundations and structures will be designed in accordance with NYC Building Codes and Port Authority policy on seismic design including potential for liquefaction.

9.0 LANDSCAPING/ HARDSCAPING

9.0.1 Codes, Standards, and References

JFK Redevelopment Program Investigation Studies: Bird Hazard, Soils, Irrigation, Hanna/Olin, Ltd. December 1988.

International JFK Airport Central Terminal Area: Parking Lot Perimeter, Port Authority Engineering Dept. , February 1993

9.0.2 General Design Criteria and Assumptions

Landscaping provides a beneficial experience for the airport patron and is critical in re-establishing a strong and attractive image for JFK International Airport.

Innovative and effective landscape design, while comprising only a small fraction of the overall cost of the entire project, can be one of the most powerful tools in the creation of a new image for the airport. The areas available for landscape treatment for the most part are residual scraps of land between the parking fields, roadways, overpasses and assorted buildings-all of which work against the possibility of creating a unified landscape in a traditional manner.

9.0.2.1 Goals

The goal of the JFK Redevelopment Landscape Program is to provide a quality landscape environment that complements the design elements serving the airport patron while providing a minimum of attractants to birds. In order to achieve this goal a successful landscape must satisfy these objectives:

A design that is approved by the FAA/USDA Wildlife Damage Control Division.

A contract that requires a two year maintenance follow up by the installing Contractor, who shall have as his superintendent over the entire installation an maintenance a New York State Certified Arborist knowledgeable and experienced in this type of Work.

9.0.2.2 Design Parameters

The frontages of the parking fields will provide an eight-foot wide collector sidewalk, and security fencing and functional decorative fencing. Security fencing will be a tubular steel construction four feet in height,

finished in black. The design, material and use of decorative functional fencing shall be consistent with the Port Authority design and installation at Terminals 8 and 9.

Small irregular islands occurring at the extreme ends of the frontage islands shall consist of seasonal flowering displays and masses of evergreen and deciduous groundcover.

Larger irregular islands will contain ornamental trees as well as a few specimen canopy trees in order to add a sense of maturity and to match the scale of the overpasses and wide expansive roads.

Salt splash shall consist of eight-inch hexagonal asphalt pavers laid out in a random pattern composed of two different color aggregates, CP-Central Park Formula and RB/B-Reading Brown with Brown sand. Salt splash shall be three feet wide.

9.0.2.3 Design Criteria for Plant Material

9.0.2.3.1 Trees

- Trees shall be selected that meet the following criteria:
- To withstand pollution and tough urban environments,
- To tolerate poor soils, wind and drought
- To tolerate excessive road de-icing salts and salt-laced prevailing winds.
- To be unattractive to birds as a food source and meet FAA approval
- To be unattractive to birds as a roosting site and meet FAA approval
- To be primarily deciduous, since evergreen trees are an ideal bird habitat.
- To have interesting flowers, fall color, size, shape or habit
- To be obtainable on the commercial market

Sample List

Gleditsia triacanthos "Halka"	Moraine Honeylocust
Koelreuteria paniculata	Golden Raintree
Metasequoia gyptostroboides	Dawn Redwood
Platanus acerifolia "Bloodgood"	Bloodgood London Plane
Pyrus calleryana "Chanticleer"	Chanticleer Pear
Quercus phellos	Willow Oak
Sophora japonica	Japanese Pagodatree

Tilia euchlora	Crimean Linden
Zelkova serrata	Japanese Zelkova

9.0.2.3.2 Shrubs and Groundcover

Shrubs and groundcover shall meet the same criteria as trees.

Sample List

Abelia x grandiflora	Glossy Abelia
Deutzia gracilis	Slender Deutzia
Euonymus alata "Compacta"	Dwarf Winged Euonymus
Forsythia suspense	Weeping Forsythia
Ilex crenata helleri	Heller's Dwarf Japanese Holly
Juniperus chinensis sargenti	Sargent's Chinese Juniper
Spiraea nipponica "Snowmound"	Snowmound Spirea
Taxus x media wardii	Ward's Yew
Weigela florida "Red Prince"	Purple Leaf Weigela

9.0.2.3.3 Lawn

Select cultivars that can thrive on low nutrient, low water availability and that are an "endophyte enhanced" variety and resistant to insects.

Select native grasses that can thrive on low nutrient and low water availability while providing varying heights, textures and colors.

A landscape design least likely to attract birds should have the following qualities: avoid plant material and design features that provide birds with a source of food, water, cover, and spatial domain. .

Canopy trees should be planted in linear rows, canopies spaced 15-20 feet apart at maturity. (Adjacent canopies should never be touching).

Shrubs and small trees should be used moderately and not be planted under or directly adjacent to canopy trees.

Shrub beds should be small in size and discontinuous.

Flowering ornamental trees should be limited in quality.

Groundcover should be well manicured, healthy, dense, moderately tall lawn, a fruitless low growing groundcover, gravel or bark mulch.

All plants should be planted at the same size and time.

9.0.2.3.4 Irrigation

Seasonal display areas and landscaped areas adjacent to pedestrian nodes should be irrigated with automatic sprinklers.

Trees, shrubs and groundcover may be irrigated with automatic sprinklers or at the very least have non freeze surface mounted box hydrants installed for 1" hose connections. Trees not handled by automatic sprinklers should be irrigated with tree graters for the first two years after installation.

Lawn, meadows and mature grass may not necessarily be irrigated after the initial six months after germination.

Water supply will be from connections to the existing water mains. The water will be metered and supplied with a backflow preventer.

9.0.2.3.5 Maintenance-The IPM Approach

The goal of the Integrated Pest Management (IPM) approach is to manage pests and the environment to balance costs, benefits, public health and environmental quality.

The contractor shall employ as supervisor for the installation and maintenance a New York State Certified Arborist (represented by an individual certified and qualified to evaluate horticulture requirements).

STANDARD SPECIFICATIONS

02520 ASPHALT BLOCK PAVER
02920 SCREENED TOPSOIL
02930 SEED
02954 TREES, SHRUBS AND GROUNDCOVER
02971 MAINTENANCE OF PERMANENT PLANTINGS
02997 GRAVEL MULCH FOR NON-LANDSCAPED AREAS.

10.0 ENVIRONMENTAL INVESTIGATIONS

10.0.1 Codes, Standards, and References

10.0.1.1 Codes

Article 15 Environmental Conservation Law
NYCRR Part 360 Solid Waste Management Facilities

10.0.1.2 Procedures:

American Society for Testing and Materials (ASTM), E 1527-93, standard practice for environmental site assessments: Phase 1 site assessment process.

Sampling guidelines & protocols, technological background and quality control/quality assurance for NYSDEC spill response program.

Stars memo #1 Petroleum-Contaminated Soil Guidance Policy prepared by New York State Department of Environmental Conservation, Division of Construction Management, Bureau of Spill Prevention and Response, August 1992.

10.0.2 Environmental Program Criteria

10.0.2.1 Asbestos Abatement Design Criteria

Site specific sampling of suspected Asbestos Containing Material (ACM) will be performed in accordance with Asbestos Hazard Response Emergency Act (AHERA).

Analysis of suspected ACM will be performed as per NESHAPS-40 CFR Part 61, NYS-12 NYCRR Part 56, and NYC-ACP Section 8101.

Design of asbestos abatement will be in accordance with Port Authority Specification 02081 and New York State Industrial Code Rule 56 (12 NYCRR Part 56).

10.0.2.2. Lead

Lead program shall be in compliance with the provisions of OSHA Interim Final Rule 29 CFR 1926.62 "Lead in Construction".

10.0.2.3 PCB Ballast

Dismantling,, removal and storage of fluorescent lighting ballast containing non-leaking PCB shall be accomplished accordance with 40CFR 761.

11.0 POWER, HVAC, AND COMMUNICATIONS SYSTEMS

11.0.1 Codes, Standards, and References

11.0.1.1 Mechanical Codes

Rerouted CHW piping, associated removal work, new piping and air conditioning installation shall conform to the following codes, Standards and Specifications:
American Iron and Steel Institute (AISI).
American National Standards Institute (ANSI).
American Society of Mechanical Engineers (ASME)
American Society for Testing and Materials (ASTM).
Manufacturers Standardization Society of the Valve and Fittings Industry (MSS).
Underwriters Laboratory Incorporated (UL)
Port Authority Specifications.
New York City Building Code.
American Society of Heating, Refrigeration and Air conditioning Engineers (ASHRAE)
Sheet Metal and Air conditioning Contractors' National Association (SMACNA).
National Fire Protection Association (NFPA)

11.0.1.2 Electrical Codes

NYC Electrical Code
National Electric Code

11.0.2 Design Criteria and Assumptions

11.0.2.1 Mechanical

11.0.2.1.1 Environmental Issues

The existing CHW and abandoned HTW piping may contain asbestos which has to be removed along with the contaminated soil.

11.0.2.1.2 Planning Factors

Establish the building demarcation lines to allow a clear definition of the extent of work.

Establish the terminal building's heating and cooling loads, and associated chilled and hot water pipe sizes.

Establish the terminal building foundation's outline coordinates.

Identify the estimated square footage intended for construction such as the parking garage.

Phased planning of chilled and hot water piping installation for existing and remaining sections of the terminal building.

11.0.2.1.3 Design Criteria

All new underground chilled water piping will be cathodically protected and will need to be coordinated with the Port Authority Electrical group.

During construction, the existing underground piping systems, consisting of Medium Temperature Hot Water and Chilled Water piping will be maintained. Rerouting and protection of the existing piping will be necessary where it conflicts with proposed structures including building foundations, canopy and elevated roadway columns. Existing abandoned piping shall be cut and capped where conflicts occur.

Chilled water piping shall be butt-welded/seamless, black steel pipe in accordance with ASTM-A53 Grade B, standard wall. Fittings shall conform to ANSI-B16.9 and ASTM A 234 Grade WEB.

Chilled Water Piping will be protected from corrosion with sacrificial anodes and shall be insulated with pre-formed cellular glass with an outer insulating jacket.

The Medium Temperature Hot Water piping will be installed in accordance with the KIAC requirements and specifications. Final determination on materials and installation will be as authorized by KIAC.

11.0.2.2 Power Design Criteria

Primary medium voltage power will be distributed at 4330 Volts AC. Sufficient number of feeders will be provided to supply full power to the terminal on a second contingency basis.

All outdoor lighting fixtures will be rated at 277 Volts AC. Motors rated 3/4 HP and above will be rated for 460 Volts 3 ph. AC. Only circuit breakers will be used for all low voltage power distribution system.

11.0.2.3 Communication Design Criteria

Provision for telephones will be made for all the toll booths, the Service Building at the toll plaza, at selected locations within the pedestrian canopies, and the lighting vault. Provision will be made for installation of Revenue Control System for the toll plazas. Necessary provisions will be made for running communication links interconnecting all Variable Message Signs for central control. Communication duct banks will normally run parallel to the roadways to facilitate installation of communication system.

12.0 LRS INTERFACE

12.0.1 Design Criteria and Assumptions:

12.0.1.1 General

To allow for construction (by others) of a LRS station.

The station will allow passengers to access other terminals, long term parking, the rental car areas, and off-airport stations.

The station will be, and will allow for, easy access for both arriving and departing passengers.

The entrance to the station shall be located such that direct access is provided for all passengers exiting.

The station design shall allow for passengers on the emergency walkway to enter the station.

The station entrance(s) shall allow for a future fare control & baggage cart storage system.

For matters of life safety, the station will comply with the National Fire Protection Association (NFPA)--as are all JFK-LRS stations.

13.0 ADDITIONAL TERMINAL DESIGN CRITERIA

13.0.1 TERMINAL GRAPHICS

13.0.1.1 Codes, Specifications and Standards:

Site-wide signage and graphics shall conform to the following standards and codes and follow PA contracts listed for sign face layout and multilingual design intent:

The Port Authority of New York and New Jersey Airport Signing and Graphic Standards

Manual including Terminal, Curbside, Parking and Roadway Frontage Standards.

Guidelines for Airport Signing and Graphics Terminals and Landside, Latest Edition

Symbol Signs Reproduction Art The American Institute of Graphic Arts.

13.0.1.2 Design Criteria and Assumptions:

13.0.1.2.1 General

The typeface for all signage shall be Helvetica Medium and utilize the Helvetica family of fonts.

Architectural graphics shall have a consistent copy style, with recognizable terminology and utilize universally acceptable DOT symbols.

Message content shall be in language understandable by the general public.

Provide a comprehensive signing and architectural graphics plan, including but not limited to:

Sign type elevations showing Directional, Informational, Regulatory and ADA signs.

Sign schedule including all sign message text, arrow placement, and symbols.

Sign location plan keyed to the sign schedule.

13.0.1.2.2. Directional signage

Directional signage shall provide for pedestrian orientation.

Informational signage shall be provided for in the form of illuminated boxes similar to those shown in JFK Area 3 wind screens.

Regulatory signage shall be kept to a minimum. Similar regulatory messages shall be formatted in the same way.

Provide ADA compliant signage as required by Federal law.

Directional messages shall be displayed in 5 languages: English, French, Spanish, German and Japanese.

For general graphic layout standards, the PA contract for the Federal Inspection Hall at Newark Airport shall be followed .

Construction, fabrication criteria:

Materials and construction methods shall match these used in Area 3 including Porcelain enamel on steel and internally illuminated sign boxes.

Use only the highest quality materials and method of construction

Visible fasteners shall be kept to an absolute minimum and if used shall match adjacent material finish and color.

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

4.2 Loadings

Design Loads are in accordance with the LRS Technical Provisions and other documents described in section 4.1. Prior to the selection of the successful DBOM contractor, certain loadings, which are system dependent, have been agreed with the Port Authority in order for foundation design to proceed. Following the award of the DBOM contract, these loadings will be reviewed with the system designer to assess if the foundation designs are adequate. These loadings are as follows:

4.2.1 Terminal 7 Station

The Port Authority has provided schedules of design forces acting on the station support bents due to loadings from the platform structure and guideways. These schedules are attached as Exhibit 1. These forces have been calculated assuming that the station supports are simple free-standing bents. The bents form part of a frame structure with the deck below (refer to the outline structural scheme shown in Figure.2.).

Directly below the platform superstructure is an intermediate level, which forms part of the parking lot deck, and also the M&E support space for the station. The Port Authority have instructed that approximately 50% of this area may be designated as machine room space for the Station. To facilitate this, the portion of this space which is enclosed by grid lines LRS 03, LRS 04, H and M (See Figure 1) will be designed with a live load of 250 psf. The remainde of this floor is been designed for a live load of 200 psf, to allow for the use of constructio vehicles during the construction of the LRS station and guideways above.

4.2.2 LRS Guideway Superstructure

The superstructure may consist of simply supported post-tensioned concrete box girders. Thes in turn support emergency walkways, parapet units, track plinths, and rails. The loads to b used for the foundation design are as follows:

- Precast Concrete Girder
- Emergency Walkway
- Parapet Units & Railings
- Concrete Track Plinths

For the purposes of calculating the Rail/Structure interaction forces, the rail section is assumed to be 115 RE continuously welded rail with an installation temperature of 90 ^{o}F

4.2.3 LRS Vehicle Live Loading

The loading diagram for foundation design has been taken from the LRS Technical Provisions document, and is attached as Figure.3. It is assumed that this will be more severe than the actual vehicle design. However, this will be reviewed with the DBOM contractor.

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

4.3 Piled Foundations

For the British Airways Quadrant 4 Roadway Contract 18" monotube piles (3NY8X18) have been selected as the most economic pile type for most heavy structural applications. These will have a cast-in-place 5000 psi concrete fill, reinforced with Grade 60 reinforcing bars to achieve the required design moment capacity or to meet the requirements of AASHTO. To achieve an effective moment connection, the reinforcement will extend into the pile cap to provide adequate anchorage and the pile will extend a minimum of 12 inches into the pilecap.

Final pile design capacities are to be determined by the pile load tests within an area of the Terminal 7 construction site that has subsurface conditions representative of those along the portion of the LRS within the scope of work and as close as practicable to the LRS alignment. However, for initial design, capacities for 18" monotube piles have been determined by theoretical analysis, and by extrapolating historical data for 14" monotube piles driven on adjacent sites.

4.4 Ground Water Levels

Normal High Water Level	+ 8.0	feet above site datum
Extreme Water Level	+11.0	feet above site datum

4.5 Geometric Control

The control monument points used for the Quadrant 4 Roadways project will also be used for the LRS elements constructed within this scheme. Details of the monument points are shown in Figure.4.

5.0 METHODS OF ANALYSIS

5.1 Liquefaction

It is recognized that the soil strata in the airport region are comprised of saturated sands that are prone to liquefaction. To determine the range within which these sands may liquefy, a series of analyses utilizing borehole logs and N values will be completed. The analysis shall be composed of two parts. The first will be the determination of the soil behavior, amplification characteristics and shear stresses using the Ove Arup & Partners program SIREN. This analysis will use the input bedrock seismic parameters as given by the PANYNJ in section 15.6.9 of the "Basic Design Criteria" as referenced in section 4.1 above. The second part of the analysis will utilize the results form SIREN in conjunction with the methodology developed by Seed et al (JGE 1985) to determine the liquefaction potential.

The methodology by Seed et al calculates the cyclic shear stress ratio (CSR) based on overburden stresses, ground acceleration and depth, and, for different magnitude earthquakes, calculates the critical N(60)-value below which liquefaction may occur. The N(field)-value at which liquefaction may occur is back-calculated for comparison with field data. A magnitude 5.75 bedrock earthquake will be assumed with an acceleration a/g=0.15.

Data obtained from test boring logs at the site including Standard Penetration Test (SPT) N-values and details of soil stratification will be compared with the calculated values from the analysis to assess the liquefaction potential at a given level. If the actual N-value recorded is less than the value calculated there is a risk of liquefaction. In this instance it may be necessary to specify longer piles that penetrate to a depth where the risk of liquefaction is minimized. Additionally, an overall assessment of the information will be made as specific areas of risk may be localized or caused by specific bands of soil.

The results of the analyses will be compared with the results of other studies undertaken at JKF Airport, in particular the work for Terminal 4 which is currently in progress and using similar types of pile foundation.

5.2 Foundations

Pile group layouts will be analyzed using a soil structure interaction model to determine the pile forces arising from the applied external loading. The effects of liquefaction will also be modeled in accordance with LRS design criteria and requirements. The results from the pilegroup analysis will be used to determine pilegroup stiffness parameters to be used for the substructure design.

5.3 Pilecaps and Columns

5.3.1 Static Analysis

Single column piers will be analyzed as free cantilevers supported on a piled foundation with the pilecap and piles structural system represented as a series of horizontal and vertical springs taking into consideration pile/soil interaction. All other substructures may be analyzed as space frames. Pilecaps will be modeled as soil springs reflecting the group effect on stiffness of the pilegroup selected for cases both with and without liquefaction as applicable.

5.3.2 Dynamic Analysis

All substructures will be analyzed for seismic loading according to the multi-mode spectral analysis method (procedure 3), as described in AASHTO. Structures will be modeled as space frames, and a dynamic analysis will be performed using analysis procedures and programs which follow the design intentions contained in the Seismic Provisions and Commentary of the AASHTO Guide Specifications.

5.4 Computer Software

5.4.1 Structural

The primary structural analysis software will be Oasys-GSA, with Oasys-GDSPEC used to determine seismic load effects. These are general structural analysis software programs, and are based on normal stiffness matrix principles. Documentation of program verification, in addition to the users' manuals required to be provided for all programs, shall be submitted to the Port Authority for review and approval prior to the commencement of final design. No specific bridge analysis software is proposed for the analysis of these structures

Oasys-GSA is a General Structural Analysis program for static and dynamic analysis of 2D and 3D skeletal frames; additionally, structures comprising combinations of skeletal elements and plate elements can be analyzed.

Oasys-GDSPEC is a post-processor to GSA to perform response spectrum analysis. Using modal data from a GSA dynamic analysis file, a response spectrum, a specified modal combination method (SRSS or CQC) and a specified number of modes the displacements and element forces can be obtained. The critical modes are identified and worst case combinations of displacements and forces for lateral and longitudinal effects calculated. The output from GDSPEC must be added to the permanent load effects obtained from GSA to obtain forces for design of elements.

5.4.2 Geotechnical

Three computer software systems are utilized. One is the TTI Pile Driving Analysis Wave Equation program. The second is the Geosoft Laterally Loaded Pile Analysis program and the third program is SIREN. A set of users' manuals for all programs to be used shall be provided for review by the Port Authority. In addition, if software developed in house is to be used, documentation of program verification, shall be submitted to the Port Authority for review and approval prior to the commencement of final design.

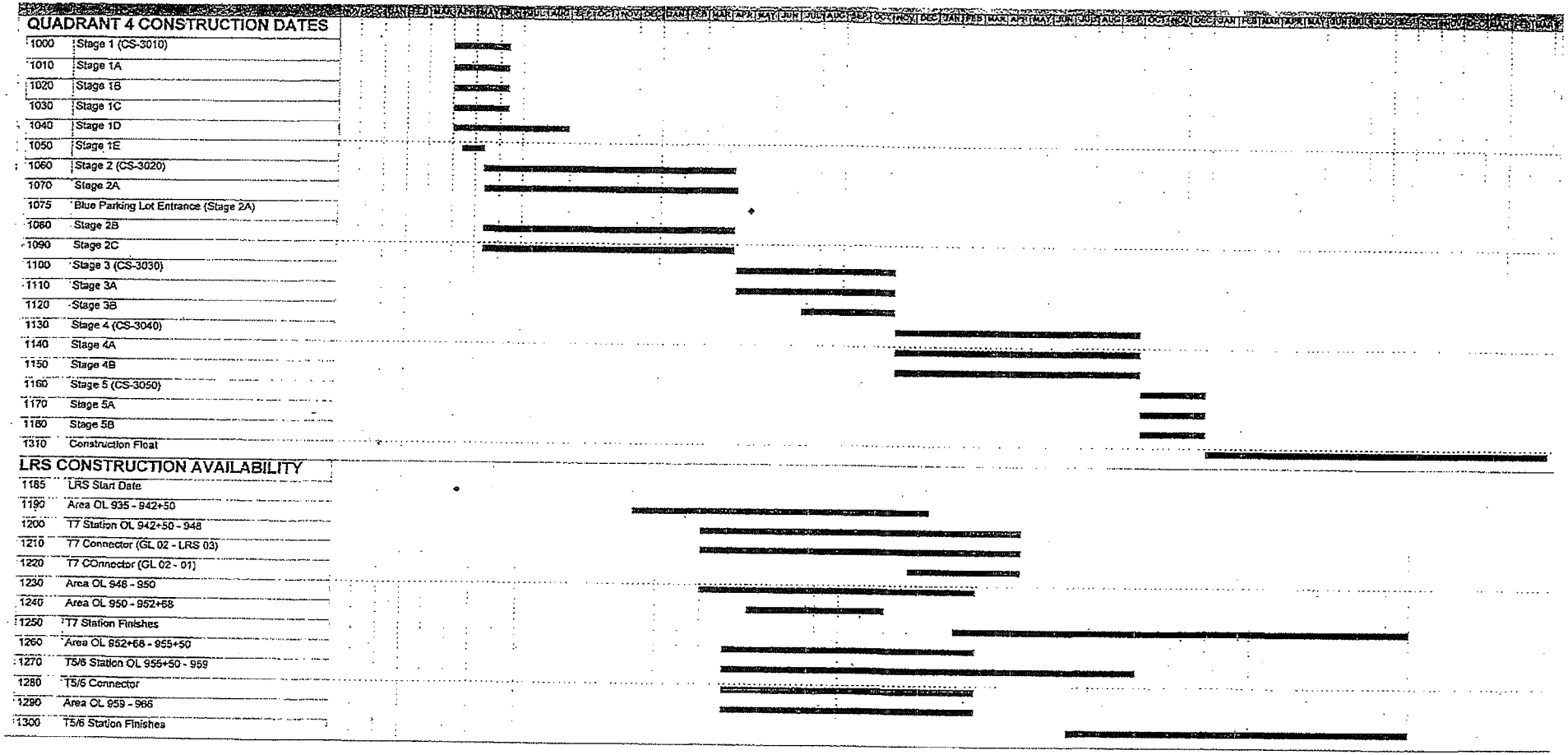
TTI Pile Driving Analysis Wave Equation is a computer program written in Fortran which utilizes finite element analysis methodology for a pile-soil-capblock system wherein the system experiences the impact of a piling hammer's ram at a specific velocity at the capblock end of the system. The analysis results include net penetration of the pile tip, driving resistance, and maximum pile stress corresponding to a specified soil resistance. This analysis is essential to the evaluation of pile types and sizes and to the selection of appropriate piling hammer sizes and energies.

Geosoft Laterally Loaded Pile Analysis is a computer program written in Basic which utilizes finite difference equation methodology for a pile-soil system wherein the top of the pile experiences a specified lateral load combined with either a specified moment or a specified rotation. The analysis results include the lateral movement and bending moment along the length of the pile. This analysis is essential to the evaluation of pile types and sizes and for calculating lateral pile springs needed for structural analysis of the superstructure.

SIREN is a seismic site response program developed by Ove Arup & Partners to analyze the response of one dimensional soil column due to earthquake motion input at its base. The soil column is modeled assuming infinite horizontal layers with vertically propagating shear waves. The soil layers are represented by the following parameters: bulk density, stiffness, strain degradation curves and damping ratios.

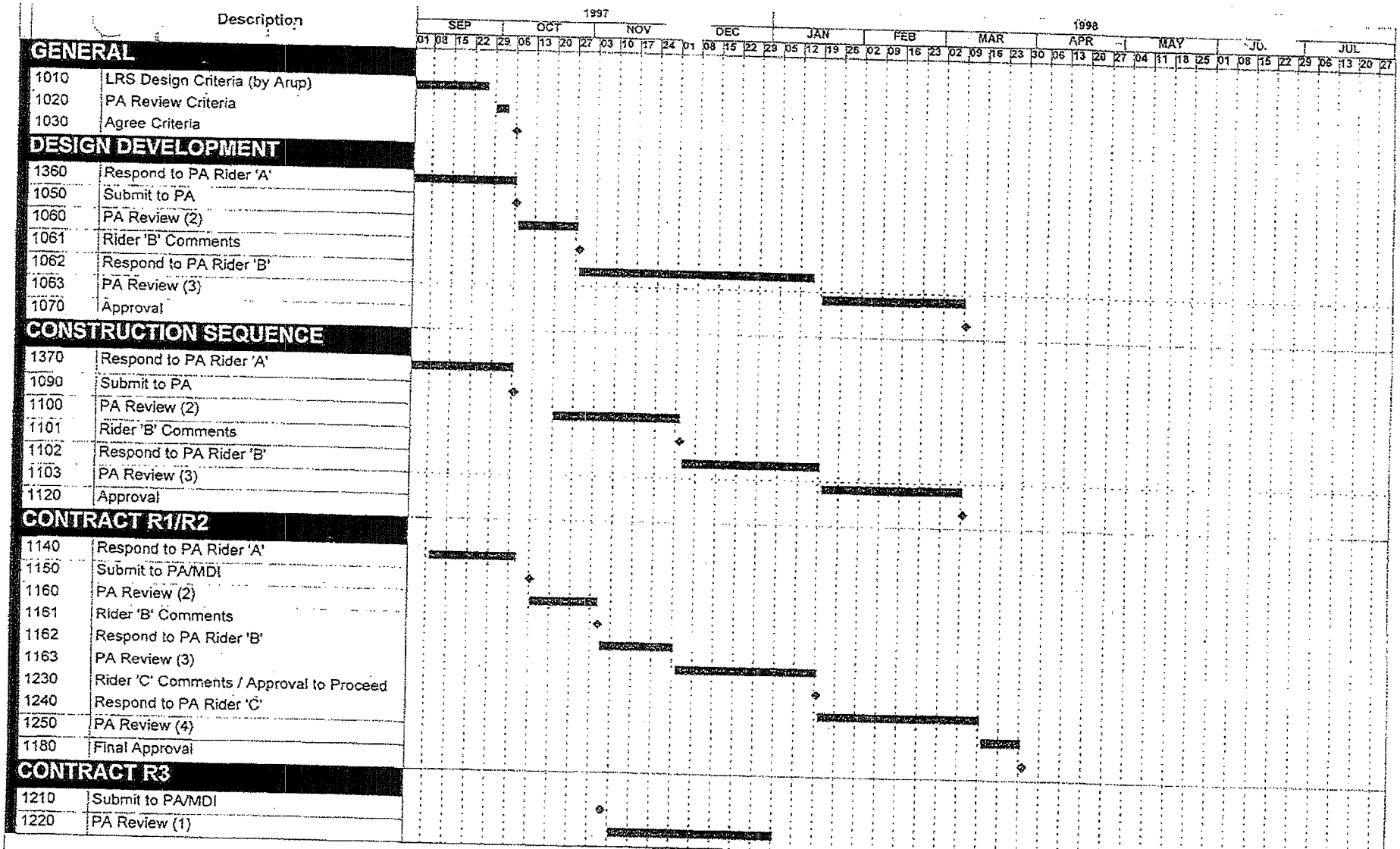
Exhibit 1

PA Station Design Forces



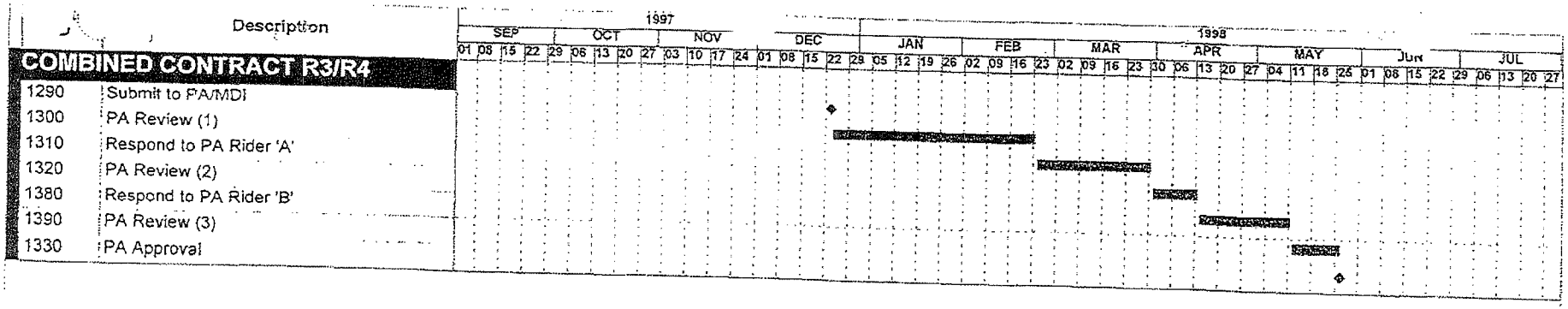
CONSTRUCTION SCHEDULE

EXHIBIT G



BRITISH AIRWAYS SUBMISSION SCHEDULE

EXHIBIT H
Sheet 1 of 2



BRITISH AIRWAYS SUBMISSION SCHEDULE

EXHIBIT H
Sheet 2 of 2

EXEMPTION (4)

DRAWINGS OF NON-PUBLIC AREAS

EXHIBIT K

Requirements for LRS DBOM Contractor at Quadrant 4 to Provide Access to and Through LRS Work Zone

Access and egress shall be provided for each of the LRS work zones from/to the Terminal roadways, and shall be maintained by the LRS Contractor during construction of the LRS guideway and stations by LRS Contractor. This will enable the delivery of construction materials and personnel to the sites. In addition, to facilitate continued functioning of Terminals 5, 6 and 7 during construction of the LRS guideway and stations, the following access and egress easements are required through the LRS construction zones:

1. Pedestrian access (ground level) shall be maintained from the parking areas to each terminal.

2. Vehicular access and egress (ground level) to the parking areas in front of Terminals 5 and 6.

3. Vehicular access and egress to the parking areas in front of Terminal 7. (This access is separate from that required for Terminals 5 and 6.)

4. Construction access, egress and through passage is required at Terminal 7 for the Quadrant 4 roadways contractor to facilitate the construction of the parking structure.

5. Where appropriate, access through the LRS corridor will be required to facilitate the diversion of utilities and to ensure the continued functioning of the adjoining terminals.

Environmental Engineering Unit
Aviation Design Division

J.F.K. International Airport British Airways Building 59 Environmental Investigation Summary Report

December 1997

Engineering Department
The Port Authority of NY & NJ

Engineering Department

THE PORT AUTHORITY OF NY & NJ

Entitled: For the Port Authority
FOR the Lessee

EXHIBIT L Book 1 of 3

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EXECUTIVE SUMMARY

The Environmental Engineering Unit of the Port Authority of New York and New Jersey has conducted an Environmental Investigation of a portion of the roadway and parking areas in front of the British Airways Terminal. This property is to be included in the new leasehold for British Airways. The property to be leased is located at John F. Kennedy International Airport (JFKIA) in Jamaica, Queens, New York. The environmental investigation included site reconnaissance, drilling, installation of nine monitoring wells, and sampling of soil and groundwater as part of this program. The location of the monitoring wells installed for this investigation are shown on the drawing ENV-1. The Port Authority Materials Engineering Division supervised the drilling of the soil borings, soil sampling, installation of nine monitoring wells, development of monitoring wells and groundwater sampling. Nine soil and nine groundwater samples were collected and submitted for laboratory analysis of volatiles, semi-volatiles, metals, pesticides, methyl-tert butyl ether (MTBE) and total petroleum hydrocarbons (TPHC).

TPHC was detected in nine soil samples and its concentration ranged from (17-93) mg/Kg. Metals were detected in nine soil samples and their concentration ranged from (6.8-26) mg/Kg. Diedrin, a pesticide was detected in soil samples from the borings of MW-3, and MW-8 with concentrations of 5.4 ug/Kg, and 21 ug/Kg respectively.. Volatiles and semi-volatiles were not detected in any of the soil samples.

Zinc was detected in three groundwater samples and its concentration ranged from (0.057 - 0.958) mg/L. Volatiles and semi-volatiles were not detected in the groundwater samples. DDT and endosulfan are pesticides which were detected in two samples with the concentrations 0.05 ug/L and 0.06 ug/L respectively.

1.0 INTRODUCTION

1.1 Site Location

The site is located in an area in front of the British Airways Terminal at JFKIA in Jamaica, Queens, New York, as shown on the drawing ENV-1. This area is south of the Terminal and consists of approximately two and half acres. The investigation included installing, developing, and sampling nine monitoring wells at the roadside and in the parking areas across the British Airways Terminal at JFK International Airport.

1.2 Geological Background

In general, the soils found beneath JFKIA consist of a top layer of fine to medium sand to a depth of approximately seven to ten feet below grade. This brown and gray sand originated from Jamaica Bay and was hydraulically placed prior to the development of the airport in the 1940's. Underlying the fill in most areas is a layer of relatively impermeable organic soils. This layer varies from two to seven feet in thickness and is made up of intermittent layers of organic peat and gray organic silt and clays. This is the original marsh soil which covered most of JFKIA prior to airport development. Beneath the organic material is a stratum of glacial outwash. In areas where the organic layer exists, a perched water table can be found at approximately six feet below grade. In other areas, the groundwater is eight to ten feet below grade and generally flows south toward Jamaica Bay.

1.3 Project Background

The Port Authority is entering into a lease agreement with British Airways for the roadway and the parking areas in front of the British Airways Terminal at JFK International Airport in Jamaica, New York. At present the portion of the roadway and parking areas which are to be included in the new leasehold are used for vehicular traffic and parking cars.

1.4 Objectives

The purpose of the investigation is to prepare an environmental baseline which is to determine the existing environmental conditions of the site. This information is to be included in the new lease agreement.

2.0 FIELD METHODS, SAMPLING PROCEDURES AND CHEMICAL TESTING

2.1 Drilling and Soil Sampling

Nine boreholes were drilled at the site between November 5 and November 10, 1997. The boring locations were chosen based on a review of site information and site reconnaissance. See Drawing ENV-1 for boring locations.

The boreholes were drilled as per ASTM standard protocols using a drill rig equipped with hollow-stem augers. A Port Authority Materials Engineering Division representative was present during drilling operations to log the lithology of the boring, note any visible indications of contamination and collect soil samples. Prior to drilling the borehole, all downhole equipment was steam cleaned. Drilling logs are contained in Appendix A.

Soils from borings were sampled at two foot intervals from ground level to the top of the groundwater which lies about 5 to 10 feet below ground surface using a 2-foot long, split-spoon sampler. A headspace test for total ionizable vapors was conducted on the split-spoon samples after they were placed in jars. An HNu model photo-ionization organic vapor detector calibrated to an isobutylene standard was used. The HNu quantifies the amount of total ionizable vapors that have partitioned from the soil into the headspace of the jar. The vapor phase concentrations varied from 0 to 220 parts per million (ppmv) VOCs in the headspace.

The soil sample from each borehole showing the highest VOC reading was saved, and delivered to the laboratory for chemical analyses. When VOC's were not detected, the sample was obtained from immediately above the groundwater and selected for analysis.

2.2 Soil and Groundwater Chemical Testing

The soil and groundwater samples were analyzed in accordance with an Environmental Protection Agency (EPA) approved methods: 624, 8260, and 9065. The soil and groundwater samples were tested for priority pollutants + 40, TPHC and MTBE.

3.0 RESULTS

3.1 Soil Quality

The soil samples were collected and analyzed in accordance with EPA methods and NYSDEC protocols. The soil sample results are summarized in Tables I - IV. Laboratory reports of soil samples are presented in Appendix B.

HNu readings were not encountered during borings. TPH was detected in nine soil samples and its concentration ranged from (17-93) mg/Kg. Zinc was detected in nine soil samples and its concentration ranged from (6.8-26) ug/Kg. Chromium with a concentration of 17 mg/Kg and cadmium with a concentration of 22 mg/Kg were detected in a soil sample # (MW-3, s-4). The volatile detected was methylene chloride. Methylene chloride was detected in nine soil samples and its concentration ranged from (8-13) ug/Kg. However, methylene chloride was also detected in field blank samples. Semi-volatiles were not detected in the soil samples. TPHC was detected in nine soil samples and its concentration ranged from (17-93) mg/Kg.

3.2 Groundwater Quality

The analytical testing results for groundwater samples are summarized in Table V-VIII. The laboratory reports of groundwater samples are presented in Appendix C.

Zinc was detected in three groundwater sample results and its concentration ranged from (0.064-0.958) mg/L. Semi-volatiles were detected in five groundwater sample results. Bis(2-Ethylhexyl)phthalate was detected in five groundwater sample results and its concentration ranged from (2-7) ug/L. However, bis(2-Ethylhexyl)phthalate was also detected in method blank sample. Endosulfan and DDT, pesticides were detected in two samples and their concentrations were 0.05 ug/L and 0.06 ug/L respectively.

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE I

SOIL SAMPLE ID #	MW-7, S-5	MW-8, S-4	MW-9, S-5	MW-10, S-5
% Solids, Total	81	85	84	80
Total Cyanide (TCN)	u	u	u	u
Total Phenol	u	u	u	u
	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Total Petroleum Hydrocarbons	37	27	29	29
METALS				
Silver	u	u	u	u
Arsenic	u	u	u	u
Beryllium	u	u	u	u
Cadmium	u	u	u	u
Chromium	u	u	u	u
Copper	u	u	u	u
Mercury	u	u	u	u
Nickel	u	u	u	u
Lead	u	u	u	u
Antimony	u	u	u	u
Selenium	u	u	u	u
Thallium	u	u	u	u
Zinc	9.6	11	9.4	7.1

Note: "u" - Not Detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

JFK INTERNATIONAL AIRPORT
Building 59, British Airways
TABLE II

SOIL SAMPLE ID #	MW-2,S-4	MW-3, S-5	MW-4, S-5	MW-5, S-4	MW-6, S-5
VOC	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
(Volatile Organics Analysis)					
Chloromethane	u	u	u	u	u
Bromomethane	u	u	u	u	u
Vinyl Chloride	u	u	u	u	u
Chloroethane	u	u	u	u	u
Trichlorofluoromethane	u	u	u	u	u
Methylene Chloride	9b	10b	13b	8b	11b
1,1-Dichloroethene	u	u	u	u	u
1,1-Dichloroethane	u	u	u	u	u
trans-1,2-Dichloroethene	u	u	u	u	u
Chloroform	u	u	u	u	u
1,2-Dichloroethane	u	u	u	u	u
1,1,1-Trichlorethane	u	u	u	u	u
Carbon Tetrachloride	u	u	u	u	u
Bromodichloromethane	u	u	u	u	u
1,2-Dichloropropane	u	u	u	u	u
Trichloroethene	u	u	u	u	u
Dibromochloromethane	u	u	u	u	u
1,1,2-Trichloroethane	u	u	u	u	u
Benzene	u	u	u	u	u
trans-1,3-Dichlorpropene	u	u	u	u	u
Bromoform	u	u	u	u	u
Tetrachloroethene	u	u	u	u	u
1,1,2,2-Tetrachlorethane	u	u	u	u	u
Toluene	u	u	u	u	u
Chlorobenzene	u	u	u	u	u
Ethylbenzene	u	u	u	u	u
Xylenes (para & meta)	u	u	u	u	u
Xylenes (ortho)	u	u	u	u	u
Methyl-tert butyl ether	u	u	u	u	u
tert-Butyl Alcohol	u	u	u	u	u
Acrlein	u	u	u	u	u
Acrylonitrile	u	u	u	u	u

Note: "u" - Not detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

JFK INTERNATIONAL AIRPORT
Building 59, British Airways
TABLE III

SOIL SAMPLE ID #	MW-2, S-5	MW-3, S-4	MW-4, S-4	MW-5, S-4	MW-6, S-4
Semivolatile	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
N-nitrosodimethylamine	u	u	u	u	u
Phenol	u	u	u	u	u
bis(2-Chlorethyl)ether	u	u	u	u	u
2-Chlorphenol	u	u	u	u	u
1,3-Dichlorobenzene	u	u	u	u	u
1,4-Dichlorobenzene	u	u	u	u	u
1,2-Dichlorobenzene	u	u	u	u	u
bis(2-chloroisopropyl)ether	u	u	u	u	u
N-Nitoroso-Di-n-propylamine	u	u	u	u	u
Hexachloroethane	u	u	u	u	u
Nitrobenzene	u	u	u	u	u
Isophorone	u	u	u	u	u
2-Nitrophenol	u	u	u	u	u
2,4-Dimethylphenol	u	u	u	u	u
Bis(2-Chloroethoxy)Methane	u	u	u	u	u
2,4-Dichlorophenol	u	u	u	u	u
1,2,4-Trichlorobenzene	u	u	u	u	u
Naphthalene	u	u	u	u	u
Hexachlorobutadiene	u	u	u	u	u
4-Chloro-3-methylphenol	u	u	u	u	u
Hexachlorocyclopentadiene	u	u	u	u	u
2,4,6-Trichlorophenol	u	u	u	u	u
2-Chloronaphthalene	u	u	u	u	u
Dimethylphthalate	u	u	u	u	u
Acenapthylene	u	u	u	u	u
2,6-Dinitrophenol	u	u	u	u	u
4-Nitrophenol	u	u	u	u	u
2,4-Dinitrotoluene	u	u	u	u	u
Acenaphthene	u	u	u	u	u
2,4-Dinitrophenol	u	u	u	u	u
4-Nitrophenol	u	u	u	u	u
2,4-Dinitrotoluene	u	u	u	u	u
Diethylphthalate	u	u	u	u	u
Fluorene	u	u	u	u	u
4-Chlorophenyl-penylether	u	u	u	u	u
4,6-Dinitro-2-methylphenol	u	u	u	u	u
n-Nitrosodiphenylamine	u	u	u	u	u
1,2-Dipheylhydrazine	u	u	u	u	u
4-Bromophenyl-phenylether	u	u	u	u	u
Hexachlorobenzene	u	u	u	u	u
Pentachlorophenol	u	u	u	u	u
Phenanthrene	u	u	u	u	u

JFK INTERNATIONAL AIRPORT
Building 59, British Airways
TABLE III

SOIL SAMPLE ID #	MW-2, S-5	MW-3, S-4	MW-4, S-4	MW-5, S-4	MW-6, S-4
Semivolatile	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Di-n-butylphthalate	u	u	u	u	u
Fluoranthene	u	u	u	u	u
Benzidine	u	u	u	u	u
Pyrene	u	u	u	u	u
Butylbenzylphthalate	u	u	u	u	u
Benzo(a)anthracene	u	u	u	u	u
3,3-Dichlorobenzidine	u	u	u	u	u
Chrysene	u	u	u	u	u
bis(2-Ethylhexyl)phthalate	u	u	u	u	u
Di-n-octylphthalate	u	u	u	u	u
Benzo(a)fluroanthene	u	u	u	u	u
Benzo(k)fluroanthene	u	u	u	u	u
Benzo(a)pyrene	u	u	u	u	u
Indeno(1,2,3-cd)pyrene	u	u	u	u	u
Dibenz(a,h)anthracene	u	u	u	u	u
Benzo(g,h,i)perylene	u	u	u	u	u

Note: "u" - Not Detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

JFK INTERNATIONAL AIRPORT
Building 59, British Airways
TABLE II

SOIL SAMPLE ID #	MW-7, S-5	MW-8, S-4	MW-9, S-4	MW-10, S-4
VOC	ug/Kg	ug/Kg	ug/Kg	ug/Kg
(Volatile Organics Analysis)				
Chloromethane	u	u	u	u
Bromomethane	u	u	u	u
Vinyl Chloride	u	u	u	u
Chloroethane	u	u	u	u
Trichlorofluoromethane	u	u	u	u
Methylene Chloride	10b	12b	10b	11b
1,1-Dichloroethene	u	u	u	u
1,1-Dichloroethane	u	u	u	u
trans-1,2-Dichloroethene	u	u	u	u
Chloroform	u	u	u	u
1,2-Dichloroethane	u	u	u	u
1,1,1-Trichlorethane	u	u	u	u
Carbon Tetrachloride	u	u	u	u
Bromodichloromethane	u	u	u	u
1,2-Dichloropropane	u	u	u	u
Trichloroethene	u	u	u	u
Dibromochloromethane	u	u	u	u
1,1,2-Trichloroethane	u	u	u	u
Benzene	u	u	u	u
trans-1,3-Dichlorpropene	u	u	u	u
Bromoform	u	u	u	u
Tetrachloroethene	u	u	u	u
1,1,2,2-Tetrachlorethane	u	u	u	u
Toluene	u	u	u	u
Chlorobenzene	u	u	u	u
Ethylbenzene	u	u	u	u
Xylenes (para & meta)	u	u	u	u
Xylenes (ortho)	u	u	u	u
Methyl-tert butyl ether	u	u	u	u
tert-Butyl Alcohol	u	u	u	u
Acrlein	u	u	u	u
Acrylonitrile	u	u	u	u

Note: "u" - Not detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

JFK INTERNATIONAL AIRPORT
Building 59, British Airways
TABLE III

SOIL SAMPLE ID #	MW-7, S-5	MW-8, S-4	MW-9, S-5	MW-10, S-5
Semivolatile	ug/Kg	ug/Kg	ug/Kg	ug/Kg
N-nitrosodimethylamine	u	u	u	u
Phenol	u	u	u	u
bis(2-Chlorethyl)ether	u	u	u	u
2-Chlorphenol	u	u	u	u
1,3-Dichlorobenzene	u	u	u	u
1,4-Dichlorobenzene	u	u	u	u
1,2-Dichlorobenzene	u	u	u	u
bis(2-chloroisopropyl)ether	u	u	u	u
N-Nitoroso-Di-n-propylamine	u	u	u	u
Hexachloroethane	u	u	u	u
Nitrobenzene	u	u	u	u
Isophorone	u	u	u	u
2-Nitrophenol	u	u	u	u
2,4-Dimethylphenol	u	u	u	u
Bis(2-Chloroethoxy)Methane	u	u	u	u
2,4-Dichlorophenol	u	u	u	u
1,2,4-Trichlorobenzene	u	u	u	u
Naphthalene	u	u	u	u
Hexachlorobutadiene	u	u	u	u
4-Chloro-3-methylphenol	u	u	u	u
Hexachlorocyclopentadiene	u	u	u	u
2,4,6-Trichlorophenol	u	u	u	u
2-Chloronaphthalene	u	u	u	u
Dimethylphthalate	u	u	u	u
Acenapthylene	u	u	u	u
2,6-Dinitrophenol	u	u	u	u
4-Nitrophenol	u	u	u	u
2,4-Dinitrotoluene	u	u	u	u
Acenaphthene	u	u	u	u
2,4-Dinitrophenol	u	u	u	u
4-Nitrophenol	u	u	u	u
2,4-Dinitrotoluene	u	u	u	u
Diethylphthalate	u	u	u	u
Fluorene	u	u	u	u
4-Chlorophenyl-penylether	u	u	u	u
4,6-Dinitro-2-methylphenol	u	u	u	u
n-Nitrosodiphenylamine	u	u	u	u
1,2-Dipheylhydrazine	u	u	u	u
4-Bromophenyl-phenylether	u	u	u	u
Hexachlorobenzene	u	u	u	u
Pentachlorophenol	u	u	u	u
Phenanthrene	u	u	u	u

JFK INTERNATIONAL AIRPORT
Building 59, British Airways
TABLE III

SOIL SAMPLE ID #	MW-7, S-5	MW-8, S-4	MW-9, S-5	MW-10, S-5
Semivolatile	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Di-n-butylphthalate	u	u	u	u
Fluoranthene	u	u	u	u
Benzidine	u	u	u	u
Pyrene	u	u	u	u
Butylbenzylphthalate	u	u	u	u
Benzo(a)anthracene	u	u	u	u
3,3-Dichlorobenzidine	u	u	u	u
Chrysene	u	u	u	u
bis(2-Ethylhexyl)phthalate	u	u	u	u
Di-n-octylphthalate	u	u	u	u
Benzo(a)fluroanthene	u	u	u	u
Benzo(k)fluroanthene	u	u	u	u
Benzo(a)pyrene	u	u	u	u
Indeno(1,2,3-cd)pyrene	u	u	u	u
Dibenz(a,h)anthracene	u	u	u	u
Benzo(g,h,l)perylene	u	u	u	u

Note: "u" - Not Detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE IV

SOIL SAMPLE ID #	MW-2, S-5	MW-3, S-4	MW-4, S-4	MW-5, S-4	MW-6, S-4	MW-7, S-5	MW-8, S-4	MW-9, S-5	MW-10, S-5
Pesticide	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
alpha-BHC	u	u	u	u	u	u	u	u	u
beta-BHC	u	u	u	u	u	u	u	u	u
delta-BHC	u	u	u	u	u	u	u	u	u
gamma-BHC	u	u	u	u	u	u	u	u	u
Heptachlor	u	u	u	u	u	u	u	u	u
Endosulfan I	u	u	u	u	u	u	u	u	u
Dieldrin	u	5.4	u	u	u	u	21	u	u
4,4'-DDE	u	u	u	u	u	u	u	u	u
Endrin	u	u	u	u	u	u	u	u	u
Endosulfan II	u	u	u	u	u	u	u	u	u
4,4'-DDD	u	u	u	u	u	u	u	u	u
Methoxychlor	u	u	u	u	u	u	u	u	u
Endrin Ketone	u	u	u	u	u	u	u	u	u
Endrin aldehyde	u	u	u	u	u	u	u	u	u
Chlordane	u	u	u	u	u	u	u	u	u
Toxaphene	u	u	u	u	u	u	u	u	u
Polychlorinated biphenyls (PCBs)									
Aroclor-1016	u	u	u	u	u	u	u	u	u
Aroclor-1221	u	u	u	u	u	u	u	u	u
Aroclor-1232	u	u	u	u	u	u	u	u	u
Aroclor-1242	u	u	u	u	u	u	u	u	u
Aroclor-1248	u	u	u	u	u	u	u	u	u
Aroclor-1254	u	u	u	u	u	u	u	u	u
Aroclor-1260	u	u	u	u	u	u	u	u	u

Note: "u" - Not Detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE V

GROUNDWATER	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-9A	MW-10
SAMPLE ID#	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Total Petroleum Hydrocarbons	u	u	no sample	u	u	u	u	u	u	u
Total Cyanide (TCN)	u	u	N/A	u	u	u	u	u	u	u
Total Phenol	u	u	N/A	u	u	u	u	u	u	u
METALS			N/A							
Silver	u	u	N/A	u	u	u	u	u	u	u
Arsenic	u	u	N/A	u	u	u	u	u	u	u
Beryllium	u	u	N/A	u	u	u	u	u	u	u
Cadmium	u	u	N/A	u	u	u	u	u	u	u
Chromium	u	u	N/A	u	u	u	u	u	u	u
Copper	u	u	N/A	u	u	u	u	u	u	u
Mercury	u	u	N/A	u	u	u	u	u	u	u
Nickel	u	u	N/A	u	u	u	u	u	u	u
Lead	u	u	N/A	u	u	u	u	u	u	u
Antimony	u	u	N/A	u	u	u	u	u	u	u
Selenium	u	u	N/A	u	u	u	u	u	u	u
Thallium	u	u	N/A	u	u	u	u	u	u	u
Zinc	u	u	N/A	0.064	u	u	u	0.958	0.057	u

Note: "u" - Not Detected.

"J" - Compound detected but below detection limit.

"b" - Compound found in method blank.

"A" - Monitoring well # with an "A" designation indicates a duplicate sample taken from that well.

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE VI

WATER SAMPLE ID #	MW-2	MW-3	MW-5	MW-6
VOC	ug/L	ug/L	ug/L	ug/L
(Volatile Organics Analysis)				
Chloromethane	u	u	u	u
Bromomethane	u	u	u	u
Vinyl Chloride	u	u	u	u
Chloroethane	u	u	u	u
Trichlorofluoromethane	u	u	u	u
Methylene Chloride	u	u	u	u
1,1-Dichloroethene	u	u	u	u
1,1-Dichloroethane	u	u	u	u
trans-1,2-Dichloroethene	u	u	u	u
Chloroform	u	u	u	u
1,2-Dichloroethane	u	u	u	u
1,1,1-Trichlorethane	u	u	u	u
Carbon Tetrachloride	u	u	u	u
Bromodichloromethane	u	u	u	u
1,2-Dichloropropane	u	u	u	u
Trichloroethene	u	u	u	u
Dibromochloromethane	u	u	u	u
1,1,2-Trichloroethane	u	u	u	u
Benzene	u	u	u	u
trans-1,3-Dichlorpropene	u	u	u	u
Bromoform	u	u	u	u
Tetrachloroethene	u	u	u	u
1,1,2,2-Tetrachlorethane	u	u	u	u
Toluene	u	u	u	u
Chlorobenzene	u	u	u	u
Ethylbenzene	u	u	u	u
Xylenes (para & meta)	u	u	u	u
Xylenes (ortho)	u	u	u	u
2-Chloroethyl vinyl ether	u	u	u	u
1,3-Dichlorobenzene	u	u	u	u
1,4 Dichlorobenzene	u	u	u	u
1,2-Dichlorbenzene	u	u	u	u
Acrolein	u	u	u	u
Acrylonitrile	u	u	u	u
Methyl-tert-butyl ether	u	u	u	u
tert-Butyl Alcohol	u	u	u	u

Note: "u" - Not detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE VI

WATER SAMPLE ID #	MW-7	MW-8	MW-9	MW-9A	MW-10
VOC	ug/L	ug/L	ug/L	ug/L	ug/L
(Volatile Organics Analysis)					
Chloromethane	u	u	u	u	u
Bromomethane	u	u	u	u	u
Vinyl Chloride	u	u	u	u	u
Chloroethane	u	u	u	u	u
Trichlorofluoromethane	u	u	u	u	u
Methylene Chloride	u	u	u	u	u
1,1-Dichloroethene	u	u	u	u	u
1,1-Dichloroethane	1	2	u	u	u
trans-1,2-Dichloroethene	u	u	u	u	u
Chloroform	u	u	u	u	u
1,2-Dichloroethane	u	u	u	u	u
1,1,1-Trichlorethane	u	u	u	u	u
Carbon Tetrachloride	u	u	u	u	u
Bromodichloromethane	u	u	u	u	u
1,2-Dichloropropane	u	u	u	u	u
Trichloroethene	u	u	u	u	u
Dibromochloromethane	u	u	u	u	u
1,1,2-Trichloroethane	u	u	u	u	u
Benzene	u	u	u	u	u
trans-1,3-Dichlorpropene	u	u	u	u	u
Bromoform	u	u	u	u	u
Tetrachloroethene	u	u	u	u	u
1,1,2,2-Tetrachlorethane	u	u	u	u	u
Toluene	u	u	u	u	u
Chlorobenzene	u	u	u	u	u
Ethylbenzene	u	u	u	u	u
Xylenes (para & meta)	u	u	u	u	u
Xylenes (ortho)	u	u	u	u	u
2-Chloroethyl vinyl ether	u	u	u	u	u
1,3-Dichlorobenzene	u	u	u	u	u
1,4 Dichlorobenzene	u	u	u	u	u
1,2-Dichlorbenzene	u	u	u	u	u
Acrolein	u	u	u	u	u
Acrylonitrile	u	u	u	u	u
Methyl-tert-butyl ether	u	u	u	u	u
tert-Butyl Alcohol	u	u	u	u	u

Note: "u" - Not detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

"A" - Monitoring well # with an "A" designation indicates a duplicate sample taken from that well.

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE VII

WATER SAMPLE ID #	MW-2	MW-3	MW-5	MW-6
Semivolatile	ug/L	ug/L	ug/L	ug/L
N-nitrosodimethylamine	u	u	u	u
Phenol	u	u	u	u
bis(2-Chlorethyl)ether	u	u	u	u
2-Chlorphenol	u	u	u	u
1,3-Dichlorobenzene	u	u	u	u
1,4-Dichlorobenzene	u	u	u	u
1,2-Dichlorobenzene	u	u	u	u
bis(2-chloroisopropyl)ether	u	u	u	u
N-Nitoroso-Di-n-propylamine	u	u	u	u
Hexachloroethane	u	u	u	u
Nitrobenzene	u	u	u	u
Isophorone	u	u	u	u
2-Nitrophenol	u	u	u	u
2,4-Dimethylphenol	u	u	u	u
Bis(2-Chloroethoxy)Methane	u	u	u	u
2,4-Dichlorophenol	u	u	u	u
1,2,4-Trichlorobenzene	u	u	u	u
Naphthalene	u	u	u	u
Hexachlorobutadiene	u	u	u	u
4-Chloro-3-methylphenol	u	u	u	u
Hexachlorocyclopentadiene	u	u	u	u
2,4,6-Trichlorophenol	u	u	u	u
2-Chloronaphthalene	u	u	u	u
Dimethylphthalate	u	u	u	u
Acenapthylene	u	u	u	u
2,6-Dinitrophenol	u	u	u	u
4-Nitrophenol	u	u	u	u
2,4-Dinitrotoluene	u	u	u	u
Acenaphthene	u	u	u	u
2,4-Dinitrophenol	u	u	u	u
4-Nitrophenol	u	u	u	u
2,4-Dinitrotoluene	u	u	u	u
Diethylphthalate	u	u	u	u
Fluorene	u	u	u	u
4-Chlorophenyl-penylether	u	u	u	u
4,6-Dinitro-2-methylphenol	u	u	u	u
n-Nitrosodiphenylamine	u	u	u	u
1,2-Dipheylhydrazine	u	u	u	u
4-Bromophenyl-phenylether	u	u	u	u
Hexachlorobenzene	u	u	u	u
Pentachlorophenol	u	u	u	u
Phenanthrene	u	u	u	u

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE VII

WATER SAMPLE ID #	MW-2	MW-3	MW-5	MW-6
Semivolatile	ug/L	ug/L	ug/L	ug/L
Benzidine	u	u	u	u
Pyrene	u	u	u	u
Butylbenzylphthalate	u	u	u	u
Benzo(a)anthracene	u	u	u	u
3,3-Dichlorobenzidine	u	u	u	u
Chrysene	u	u	u	u
bis(2-Ethylhexyl)phthalate	2b	u	u	u
Di-n-octylphthalate	u	u	u	u
Benzo(a)fluroanthene	u	u	u	u
Benzo(k)fluroanthene	u	u	u	u
Benzo(a)pyrene	u	u	u	u
Indeno(1,2,3-cd)pyrene	u	u	u	u
Dibenz(a,h)anthracene	u	u	u	u
Benzo(g,h,i)perylene	u	u	u	u

Note: "u" - Not Detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE VII

WATER SAMPLE ID #	MW-7	MW-8	MW-9	MW-9A	MW-10
Semivolatile	ug/L	ug/L	ug/L	ug/L	ug/L
N-nitrosodimethylamine	U	U	U	U	U
Phenol	U	U	U	U	U
bis(2-Chlorethyl)ether	U	U	U	U	U
2-Chlorphenol	U	U	U	U	U
1,3-Dichlorobenzene	U	U	U	U	U
1,4-Dichlorobenzene	U	U	U	U	U
1,2-Dichlorobenzene	U	U	U	U	U
bis(2-chloroisopropyl)ether	U	U	U	U	U
N-Nitoroso-Di-n-propylamine	U	U	U	U	U
Hexachloroethane	U	U	U	U	U
Nitrobenzene	U	U	U	U	U
Isophorone	U	U	U	U	U
2-Nitrophenol	U	U	U	U	U
2,4-Dimethylphenol	U	U	U	U	U
Bis(2-Chloroethoxy)Methane	U	U	U	U	U
2,4-Dichlorophenol	U	U	U	U	U
1,2,4-Trichlorobenzene	U	U	U	U	U
Naphthalene	U	U	U	U	U
Hexachlorobutadiene	U	U	U	U	U
4-Chloro-3-methylphenol	U	U	U	U	U
Hexachlorocyclopentadiene	U	U	U	U	U
2,4,6-Trichlorophenol	U	U	U	U	U
2-Chloronaphthalene	U	U	U	U	U
Dimethylphthalate	U	U	U	U	U
Acenapthylene	U	U	U	U	U
2,6-Dinitrophenol	U	U	U	U	U
4-Nitrophenol	U	U	U	U	U
2,4-Dinitrotoluene	U	U	U	U	U
Acenaphthene	U	U	U	U	U
2,4-Dinitrophenol	U	U	U	U	U
4-Nitrophenol	U	U	U	U	U
2,4-Dinitrotoluene	U	U	U	U	U
Diethylphthalate	U	U	U	U	U
Fluorene	U	U	U	U	U
4-Chlorophenyl-penylether	U	U	U	U	U
4,6-Dinitro-2-methylphenol	U	U	U	U	U
n-Nitrosodiphenylamine	U	U	U	U	U
1,2-Dipheylhydrazine	U	U	U	U	U
4-Bromophenyl-phenylether	U	U	U	U	U
Hexachlorobenzene	U	U	U	U	U
Pentachlorophenol	U	U	U	U	U
Phenanthrene	U	U	U	U	U

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE VII

WATER SAMPLE ID #	MW-7	MW-8	MW-9	MW-9A	MW-10
Semivolatile	ug/L	ug/L	ug/L	ug/L	ug/L
Benzidine	u	u	u	u	u
Pyrene	u	u	u	u	u
Butylbenzylphthalate	u	u	u	u	u
Benzo(a)anthracene	u	u	u	u	u
3,3-Dichlorobenzidine	u	u	u	u	u
Chrysene	u	u	u	u	u
bis(2-Ethylhexyl)phthalate	7b	3b	2b	u	3b
Di-n-octylphthalate	u	u	u	u	u
Benzo(a)fluroanthene	u	u	u	u	u
Benzo(k)fluroanthene	u	u	u	u	u
Benzo(a)pyrene	u	u	u	u	u
Indeno(1,2,3-cd)pyrene	u	u	u	u	u
Dibenz(a,h)anthracene	u	u	u	u	u
Benzo(g,h,I)perylene	u	u	u	u	u

Note: "u" - Not Detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

"A" - Monitoring well # with an "A" designation indicates a duplicate sample taken from that well.

JFK INTERNATIONAL AIRPORT
British Airways, Building 59
TABLE VIII

WATER SAMPLE ID #	MW-2	MW-3	MW-5	MW-6	MW-7	MW-8	MW-9	MW-9A	MW-10
Pesticide	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
alpha-BHC	u	u	u	u	u	u	u	u	u
beta-BHC	u	u	u	u	u	u	u	u	u
delta-BHC	u	u	u	u	u	u	u	u	u
gamma-BHC	u	u	u	u	u	u	u	u	u
Heptachlor	u	u	u	u	u	u	u	u	u
Endosulfan I	u	u	u	u	u	0.06	u	u	u
Dieldrin	u	u	u	u	u	u	u	u	u
4,4'-DDE	u	u	u	u	u	u	u	u	u
Endrin	u	u	u	u	u	u	u	u	u
Endosulfan II	u	u	u	u	u	u	u	u	u
4,4'-DDT	u	u	u	0.05	u	u	u	u	u
Methoxychlor	u	u	u	u	u	u	u	u	u
Endrin Ketone	u	u	u	u	u	u	u	u	u
Endrin aldehyde	u	u	u	u	u	u	u	u	u
Chlordane	u	u	u	u	u	u	u	u	u
Toxaphene	u	u	u	u	u	u	u	u	u
Polychlorinated biphenyls (PCBs)		u	u	u	u	u	u	u	u
Aroclor-1016	u	u	u	u	u	u	u	u	u
Aroclor-1221	u	u	u	u	u	u	u	u	u
Aroclor-1232	u	u	u	u	u	u	u	u	u
Aroclor-1242	u	u	u	u	u	u	u	u	u
Aroclor-1248	u	u	u	u	u	u	u	u	u
Aroclor-1254	u	u	u	u	u	u	u	u	u
Aroclor-1260	u	u	u	u	u	u	u	u	u

Note: "u" - Not Detected.

"j" - Compound detected but below detection limit.

"b" - Compound found in method blank.

"A" - Monitoring well # with an "A" designation indicates a duplicate sample taken from that well.

APPENDIX "A"

BORING LOGS AND MONITORING WELLS DEVELOPMENT DATA

PA 547
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THE PORT AUTHORITY OF NY & NJ

Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT	NAME OF CONTRACTOR	BORING NO.	SURFACE ELEV.
JFK - British Air	Craig	MW-2	
LOCATION		CONTRACT NO.	DATE
3' south of orig location (Grass area)		426-97-006	11/5/97

SPOON	CASING SIZE	HOLE TYPE
3 "O.D. 2 3/8 "I.D.	Augers	4" monitor

HAMMER	HAMMER
140 # FALL 30 "	# FALL "

DRILLER: P Pennell

INSPECTOR: T. Ryan

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/5/97	PM	9.0'	In sample # 5

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE- COV'D	SAMP. NO.	SAMPLE DESCRIPTION AND REMARKS (Grass Covered) — LINE LOCATES CHANGE OF PROFILE
	0	Hand Auger	Full		Top Soil 1.0'
			Rec	1	Fill- Br M-F Sand, little Gravel, little Asp.
				2	Same
	5			3	Fill- Br M-F Sand, tr Silt, tr Gr
Augers		4-5			
		5-5	20"	4	Same
		6-3		5	Same
	10	4-3	21"		
		4-6		6	Sand
		8-9	17"		
		5-7		7	Same w/ peat in tip of spoon
		7-8	18"		14.0'
	15				Bottom of Boring
	20				Note: Sample # 5 was saved for testing. Samples # 1-4 & 6-7 were screened w/ PID & then discarded.

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

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Engineering Department - Materials Division

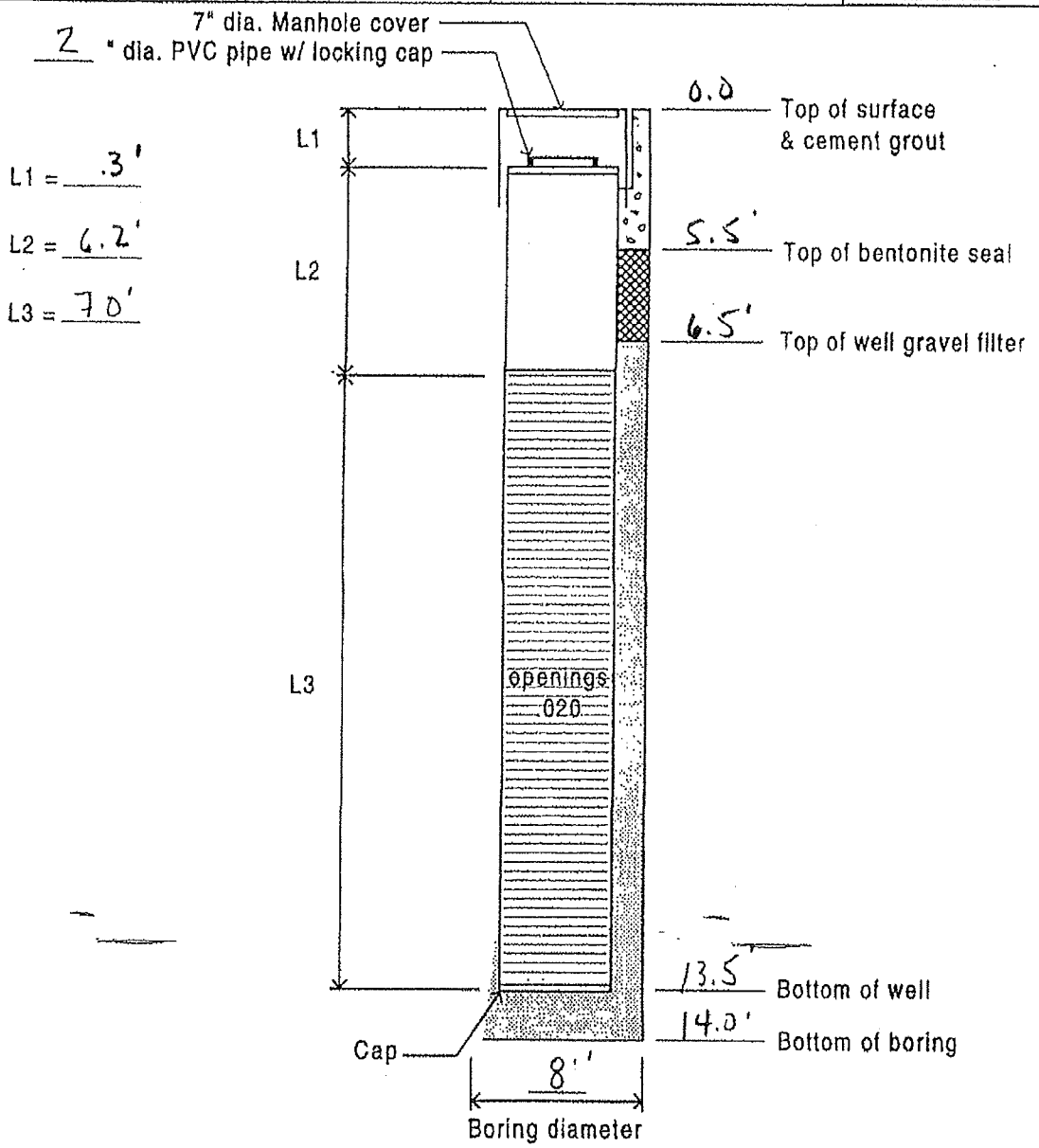
Well Installation Report

PROJECT				CONTRACT NO.
JFK- British Air				426-97-006
LOCATION				CONTRACTOR
3' south of original location				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
2	A monitor	T. Ryan	P. Pennell	11/5/97

Well Development Report

(NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE	WATER LEVEL BEFORE	WATER LEVEL AFTER	TAKEN
11/5/97	8.3'	8.5'	20 MINUTES AFTER



REMARKS: Backfilled w/ Bent from 14.0' to 13.5'

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

PROJECT: JFK - British Air

BORING No. MW-2 DATE: 11/5/97

FIELD READINGS BY: T. Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
PM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		
	5		0.0		
	6		0.0		
↓	7		0.0		

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

Sheet 4 of 4

PROJECT: JFK - British Air	
LOCATION: 3' south of orig location	DATE: 11/5/97
BORING No: MW-2	TOTAL No. OF SAMPLES: 1 + FB
SIGNATURE OF ALL PRESENT AT SAMPLING	T. Ryan

RELINQUISHED BY (SIGN)	T. Ryan	DATE 11/5/97 TIME	RECEIVED BY (SIGN)
RELINQUISHED BY (SIGN)		DATE TIME	RECEIVED BY (SIGN)
RELINQUISHED BY (SIGN)		DATE TIME	RECEIVED BY LAB

REMARKS: 1 sample in 1-16 oz jar & 1-Voa jar + 1 FB in 2-Vials

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Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 2

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Cray	BORING NO.: B-2A	SURFACE ELEV.:
LOCATION: As laid out by P.A. survey		CONTRACT NO.: 426-97-006	DATE: 11/5/97
SPOON: N/A "O.D. "I.D.	CASING SIZE:	HOLE TYPE: 1	
HAMMER: # FALL "	HAMMER: # FALL "		
DRILLER: P. Pennell			
INSPECTOR: T. Ryan			

GROUND WATER LEVEL

Date	Time	Depth	Remarks
			No water

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE-COV'D [1]	SAMP. [2] NO.	[3] SAMPLE DESCRIPTION AND REMARKS — LINE LOCATES CHANGE OF PROFILE	
	0	Hand	Full		Top Soil	1.0'
		Auger	Ref	1	Fill - Brn M-F Sand, little Gravel, little Asp.	2.0'
	5				Hit Asphalt Refusal - Bottom of Boring	
	10				Note: No samples saved.	
	15					
	20					

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

PROJECT: JFK - British Air

BORING No. B-2A DATE: 11/5/97

FIELD READINGS BY: T. Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
PM	1		0.0		

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ENGINEERING DEPARTMENT

MATERIALS ENGINEERING DIVISION

PID READINGS

PROJECT: JFK - British Air

BORING No. B-2A DATE: 11/5/97

FIELD READINGS BY: T. Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
PM	1		0.0		

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Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT	NAME OF CONTRACTOR	BORING NO.	SURFACE ELEV.
JFK-British Air	Craig	MW-3	
LOCATION: As laid out by P.A. survey		CONTRACT NO. 426-97-006	DATE 11/10/97

SPOON	CASING SIZE	HOLE TYPE
3 "O.D. 2 3/8 "I.D.	Augers	'A' monitor
HAMMER 140 # FALL 30 "	HAMMER # FALL "	
DRILLER: P. Pennell		
INSPECTOR: T Ryan		

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/10/97	AM	8.0'	In sample #4

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE-COV'D[1]	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS ___ LINE LOCATES CHANGE OF PROFILE
Boulder head	0				ASPHALT 0.5'
					SAND & GRAVEL 1.0'
		Hand Auger	Full Rec	1	Fill - Br M-F Sand, tr Silt, tr Gravel, tr Boulders (cone)
				2	Fill - Br M-F Sand, tr Silt, tr Gravel
	5			3	Same
augers		2-3		4	Same
		2-2	18"		
		4-5		5	Same
	10	5-7	19"		
		4-6		6	Same
		4-4	17"		
		5-4		7 A	Same 13.0'
		2-3	20"	7 B	Br Peat, little org clay 14.0'
	15				Bottom of Boring
	20				Note: Sample #4 was saved for testing. Samples #1-3 & 5-7B were screened w/ PID & thin discarded

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

PORT AUTHORITY OF NY & NJ

Engineering Department - Materials Division

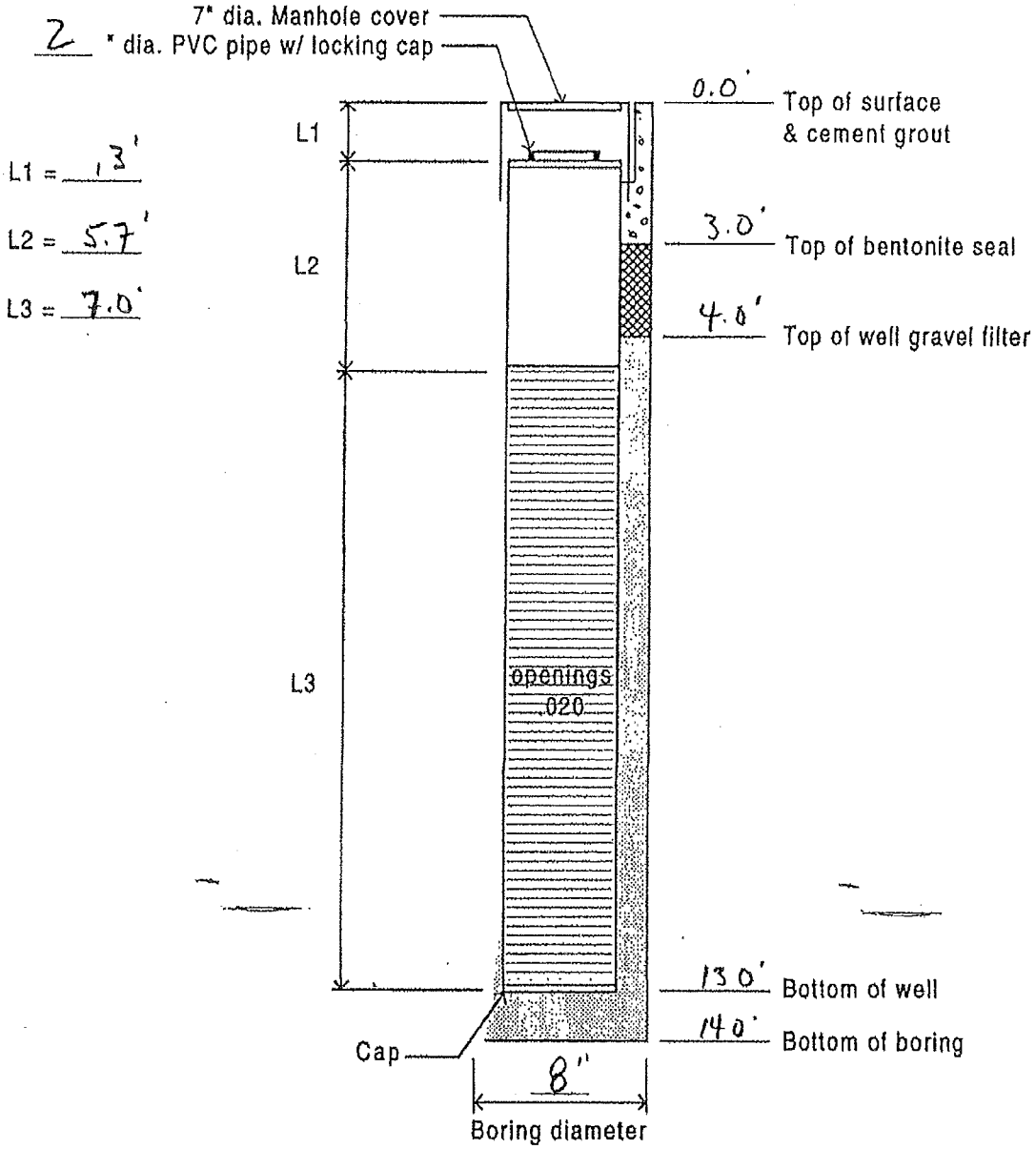
Well Installation Report

PROJECT				CONTRACT NO.
JFK - British Air				426-97-006
LOCATION				CONTRACTOR
As laid out by P.A. survey				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
3	A monitor	T. Ryan	P Bennell	11/10/97

Well Development Report

(NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE	WATER LEVEL BEFORE	WATER LEVEL AFTER	TAKEN
11/10/97	8.0'	8.0'	15 MINUTES AFTER



REMARKS: Backfilled w/ bentonite from 14.0' to 13.0'.

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

PROJECT: JFK - British Air

BORING No. MW-3 DATE: 11/10/97

FIELD READINGS BY: T Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
AM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		
	5		0.0		
	6		0.0		
	7A		0.0		
↓	7B		0.0		

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

Sheet 4 of 4

PROJECT: JFK - British Air

DATE: 11/10/97

LOCATION: As laid out by P.A. survey.

BORING No: MW-3

TOTAL No. OF SAMPLES: 1 + FB

SIGNATURE OF ALL PRESENT AT SAMPLING: T. Ryan

RELINQUISHED BY (SIGN) T. Ryan	DATE 11/10/97 TIME	RECEIVED BY (SIGN)	
RELINQUISHED BY (SIGN)	DATE TIME	RECEIVED BY (SIGN)	
RELINQUISHED BY (SIGN)	DATE TIME	RECEIVED BY LAB	

REMARKS: 1 sample in 1-16 oz jar & 1-Voa jar & 1-FB in 2 vials

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Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Craig	BORING NO.: MW-4	SURFACE ELEV.:
LOCATION: 5' east of orig location		CONTRACT NO.: 426-97-006	DATE: 11/11/97

SPOON: 3 "O.D. 2 3/8 "I.D.	CASING SIZE: Augers	HOLE TYPE: Ammonite
HAMMER: 140 # FALL 30 "	HAMMER: # FALL "	
DRILLER: P. Pennell		
INSPECTOR: T Ryan		

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/11/97	AM	8.0'	In sample # 4

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE-[1] COV'D	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS — LINE LOCATES CHANGE OF PROFILE
Bentonite Grout	0				ASPHALT 0.3'
					SAND & GRAVEL 1.0'
		Hand Auger	Full	1	Fill - Br M-F Sand, tr Silt, tr Gravel, tr Conc Boulders.
			Rec		Same
				2	
	5			3	Fill - Br M-F Sand, tr Silt, tr Gravel
Augers		6-5			Same
		6-4	18"	4	
		7-6			Same
		4-5	20"	5	
	10	4-6			Same w/ Br Peat in tip of spoon
		5-3	14"	6	12.0'
					Bottom of Boring
	15				
					Note: Sample #4 was saved for testing. Samples # 1-3 & 5-6 were screened w/ PID & then discarded.

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

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Engineering Department - Materials Division

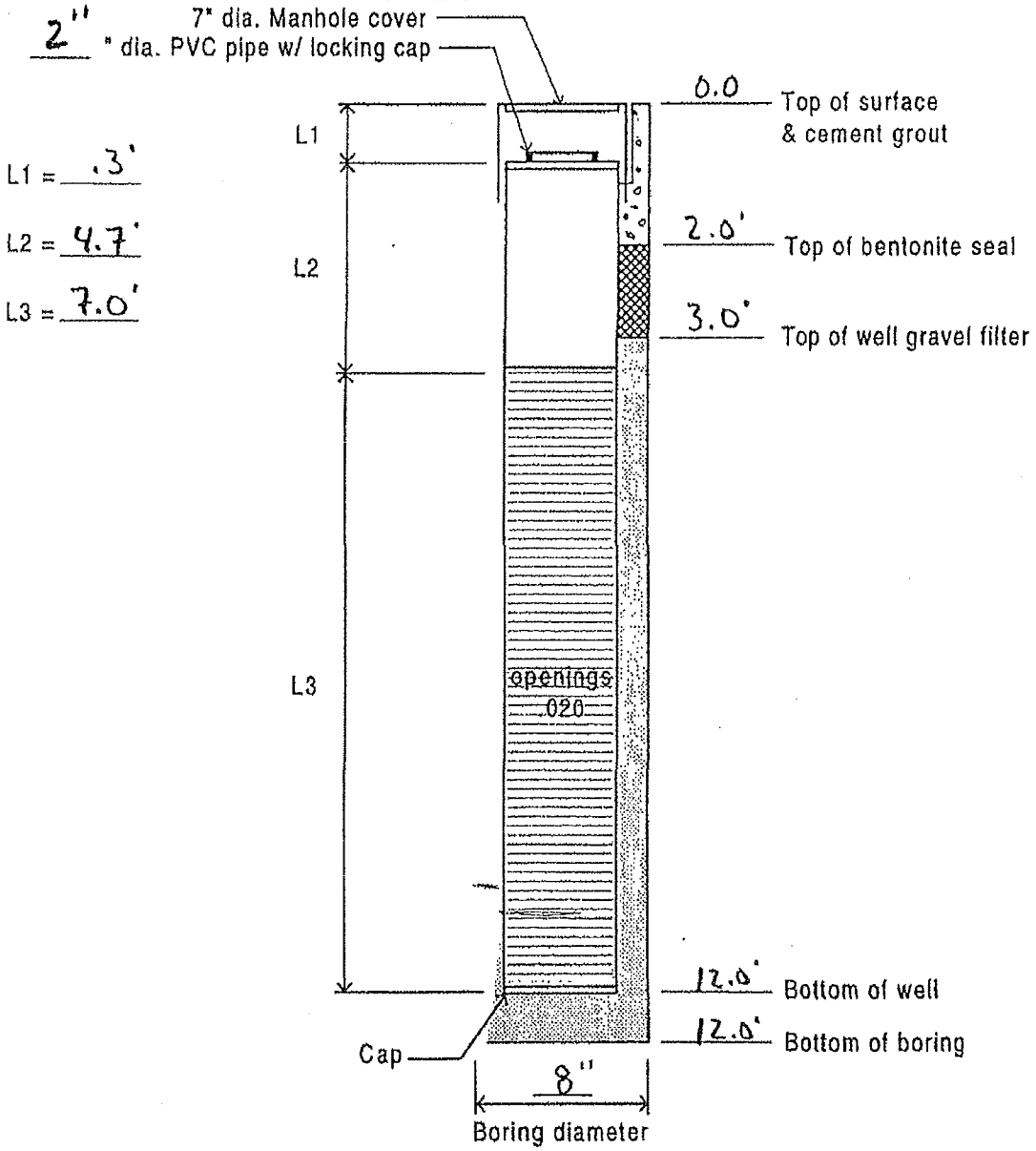
Well Installation Report

PROJECT				CONTRACT NO.
JFK - British Air				424-97-006
LOCATION				CONTRACTOR
5' east of original location				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
4	A monitor	T Ryan	P Pennell	11/11/97

Well Development Report

(NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE	WATER LEVEL BEFORE	WATER LEVEL AFTER	TAKEN
11/11/97	8.0'	8.0'	20 MINUTES AFTER



REMARKS:

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

PROJECT: JFK- British Air

BORING No. MW-4 DATE: 11/11/97

FIELD READINGS BY: T Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
AM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		
	5		0.0		
↓	6		0.0		

THE PORT AUTHORITY OF N.Y. & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

PROJECT: JFK - British Air

LOCATION: 5' east of original location | DATE: 11/11/97

BORING No: MW-4 | TOTAL No. OF SAMPLES: 1 + 1-FB

SIGNATURE OF ALL PRESENT AT SAMPLING: T. Ryan

RELINQUISHED BY (SIGN) T. Ryan	DATE 11/11/97 TIME	RECEIVED BY (SIGN)
RELINQUISHED BY (SIGN)	DATE TIME	RECEIVED BY (SIGN)
RELINQUISHED (SIGN)	DATE TIME	RECEIVED BY LAB

REMARKS: 1 sample in 1-16 oz jar & 1-Voa jar & 1-FB in 2-Vials.

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Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Craig	BORING NO.: MW-5	SURFACE ELEV.:
LOCATION: As laid out by P.A. survey		CONTRACT NO.: 426-97-006	DATE: 11/6/97

SPOON	CASING SIZE	HOLE TYPE
3 "O.D. 2 3/8 "I.D.	Augers	Ammitor

HAMMER	HAMMER
140 # FALL 30 "	# FALL "

DRILLER: P Pennell

INSPECTOR: T. Ryan

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/6/97	PM	8.0'	In sample # 4

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE-COV'D	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS — LINE LOCATES CHANGE OF PROFILE
Bullet Head	0				Asphalt 0.5'
					Sand & Gravel 1.0'
		Hand Auger	Full Rec	1	Fill - Br M-F Sand, tr Silt, tr Asp
				2	Same
	5			3	Fill - Br M-F Sand, tr Silt, tr Gravel
augers		4-5			
		5-5	18"	4	Same
		3-4			
		5-7	20"	5	Same
	10	3-3			
		3-3	17"	6	Sand
		4-3			
		2-2	19"	7	Same 13.0'
					Bl Mill Clay, some Peat 14.0'
	15				Bottom of Boring
					Note: Sample # 4 was saved for testing. Sample #s 1-3 & 5-7 were screened w/ PID & then discarded.
	20				

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

PORT AUTHORITY OF NY & NJ

Engineering Department - Materials Division

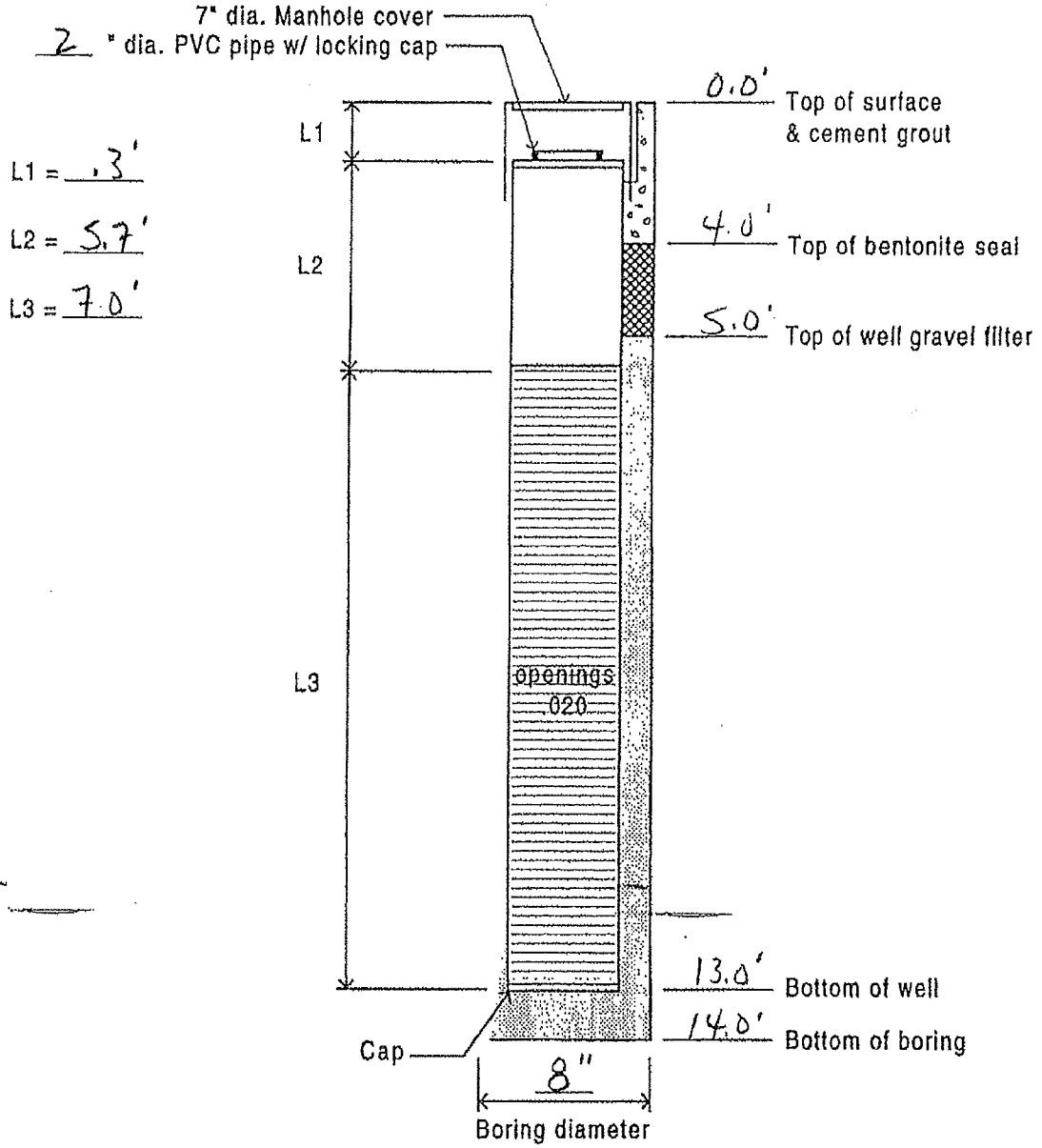
Well Installation Report

PROJECT				CONTRACT NO.
JFK - British Air				426-97-006
LOCATION				CONTRACTOR
As laid out by PA. survey				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
5	A monitor	T. Ryan	P. Bennell	11/6/97

Well Development Report

(NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE	WATER LEVEL BEFORE	WATER LEVEL AFTER	TAKEN
11/6/97	8.1	8.1	15 MINUTES AFTER



REMARKS:

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

PROJECT: JFK-British Air

BORING No. MW-5 DATE: 11/6/97

FIELD READINGS BY: T. Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
PM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		
	5		0.0		
	6		0.0		
↓	7		0.0		

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

Sheet 4 of 4

PROJECT: JFK- British Air

LOCATION: As laid out by P.A. survey | DATE: 11/6/97

BORING No: MW-5 | TOTAL No. OF SAMPLES: 1

SIGNATURE OF ALL PRESENT AT SAMPLING: T. Ryan

RELINQUISHED BY (SIGN) T. Ryan	DATE 11/6/97 TIME	RECEIVED BY (SIGN)
RELINQUISHED BY (SIGN)	DATE TIME	RECEIVED BY (SIGN)
RELINQUISHED (SIGN)	DATE TIME	RECEIVED BY LAB

REMARKS: 1 sample in 1-16oz jar & 1-Voa jar

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Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Craig	BORING NO.: MW-6	SURFACE ELEV.:
LOCATION: As laid out by P.A. survey.		CONTRACT NO.: 426-97-006	DATE: 11/10/97

SPOON: 3 "O.D. 2 3/8 "I.D. | CASING SIZE: Augers | HOLE TYPE: Amonitor

HAMMER: 140 # FALL 30 " | HAMMER: # FALL "

DRILLER: P. Pennell

INSPECTOR: T. Ryan

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/10/97	PM	7.5'	In sample # 4

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE-COV'D[1]	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS ____ LINE LOCATES CHANGE OF PROFILE
Bullet Head	0				ASPHALT 0.3'
					Sand & Gra 1.0'
		Hand Auger	Full	1	Fill - Br M-F Sand, tr Silt, tr Gravel
			Rec.	2	Same w/ tr Boulders (conc)
	5			3	Fill - Br M-F Sand, tr Silt, tr Gravel
gers		5-7		4	Same
		8-6	14"		
		4-6		5	Same
	10	7-5	17"		
		5-5		6 A	Same 11.0'
		2-2	15"	6 B	Bl org silty Clay, tr Peat 12.0'
	15				Bottom of Boring

Note: Sample # 4 was saved for testing. Samples # 1-3 & 5-6B were screened w/ PID & then discarded.

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

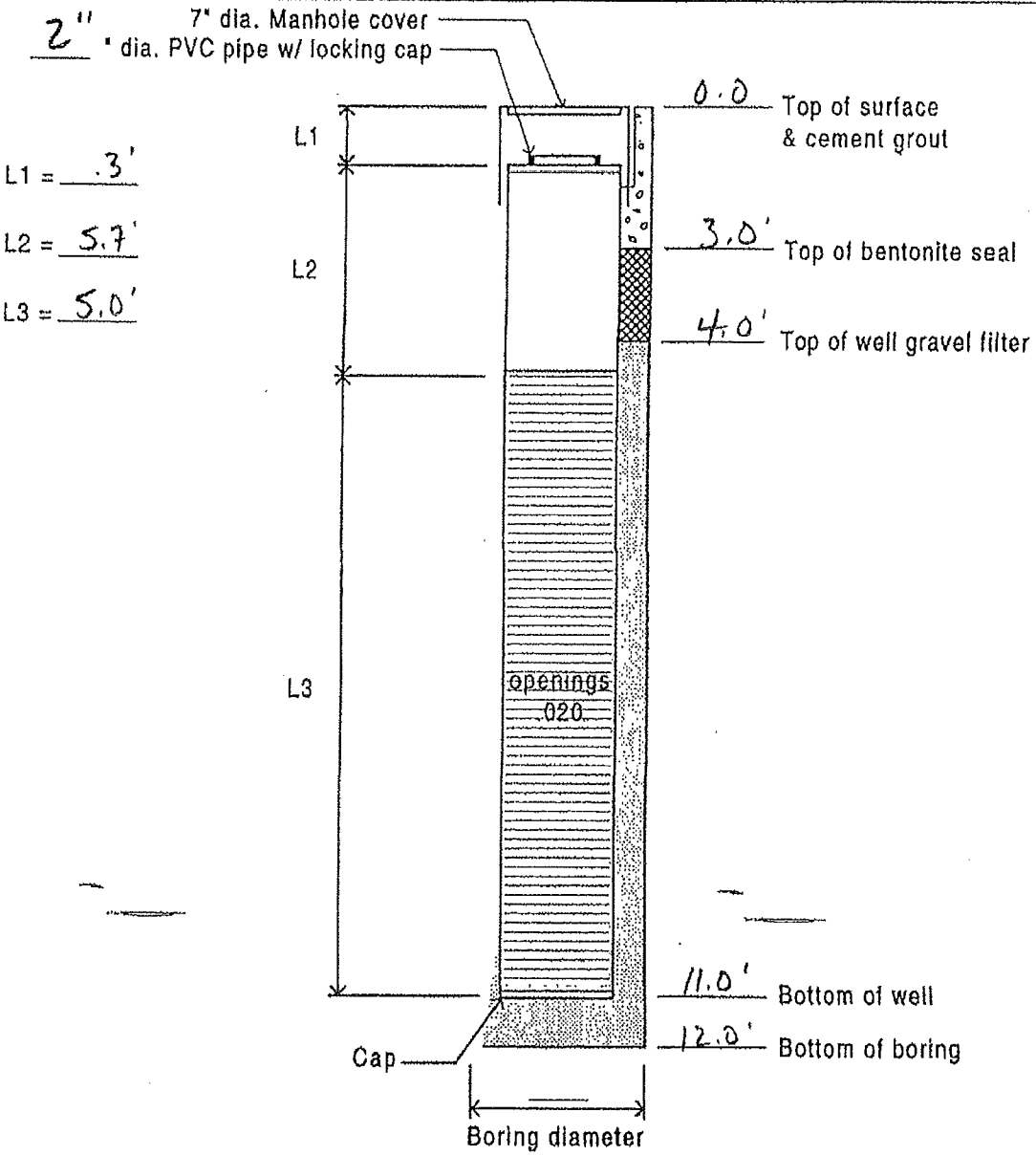
PORT AUTHORITY OF NY & NJ
Engineering Department - Materials Division

Well Installation Report

PROJECT				CONTRACT NO.
JFK - British Air				426-97-006
LOCATION				CONTRACTOR
As laid out by P.A. survey				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
6	A monitor	T. Ryan	P. Pennell	11/10/97

Well Development Report (NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE				
11/10/97	WATER LEVEL BEFORE 7.7'	WATER LEVEL AFTER 7.7'	TAKEN 20	MINUTES AFTER



REMARKS: Backfilled w/ Bent. from 12.0' – 11.0'

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ENGINEERING DEPARTMENT

MATERIALS ENGINEERING DIVISION

PID READINGS

Sheet 3 of 4

PROJECT: JFK- British Air

BORING No. MW-6 | DATE: 11/10/97

FIELD READINGS BY: T Ryan | PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
PM	1		0.0		
↓	2		0.0		
↓	3		0.0		
↓	4		0.0		
↓	5		0.0		
↓	6A		0.0		
↓	6B		0.0		

THE PORT AUTHORITY OF N.Y. & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

Sheet 4 of 4

PROJECT: JFK - British Air	
LOCATION: As laid out by P.A. survey	DATE: 11/10/97
BORING No: M.W. - 6	TOTAL No. OF SAMPLES: 1
SIGNATURE OF ALL PRESENT AT SAMPLING: T. Ryan	
RELINQUISHED BY (SIGN): T. Ryan	DATE 11/10/97 TIME — RECEIVED BY (SIGN)
RELINQUISHED BY (SIGN)	DATE — TIME — RECEIVED BY (SIGN)
RELINQUISHED (SIGN)	DATE — TIME — RECEIVED BY LAB

REMARKS: 1 sample in 1-16oz. jar & 1-Voa jar

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THE PORT AUTHORITY OF NY & NJ

Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT	NAME OF CONTRACTOR	BORING NO.	SURFACE ELEV.
JFK - British Air	Craig	MW-7	
LOCATION		CONTRACT NO.	DATE
As laid out by PA survey		426-97-006	11/6/97

SPOON	CASING SIZE	HOLE TYPE
3 "O.D. 2 3/8 "I.D.	Augers	Ammiton

HAMMER	HAMMER
140 # FALL 30 "	# FALL "

DRILLER: P Pennell

INSPECTOR: T Ryan

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/6/97	AM	10.0'	In tip of spoon of S-5

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE- [1] COV'D	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS — LINE LOCATES CHANGE OF PROFILE
Bullet Head	0				ASPHALT 0.5'
					SAND & GRAVEL 1.0'
		Hand	Full	1	Fill - Br M-F Sand, little Gravel
		Auger	Rec	2	Same
	5			3	Same
ugers		7-8		4	Same
		10-11	20"		
		12-15		5	Same
	10	15-18	19"		
		9-10		6	Same
		10-10	18"		
		12-9		7	Same
		13-15	18"		
	15	10-12		8	Same
		11-12	21"		
					16.0'
					Bottom of Boring
	20				
					Note: Sample # 5 was saved for testing. Samples # 1-4 & 6-8 were screened w/ PID & then discarded

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

PORT AUTHORITY OF NY & NJ
Engineering Department - Materials Division

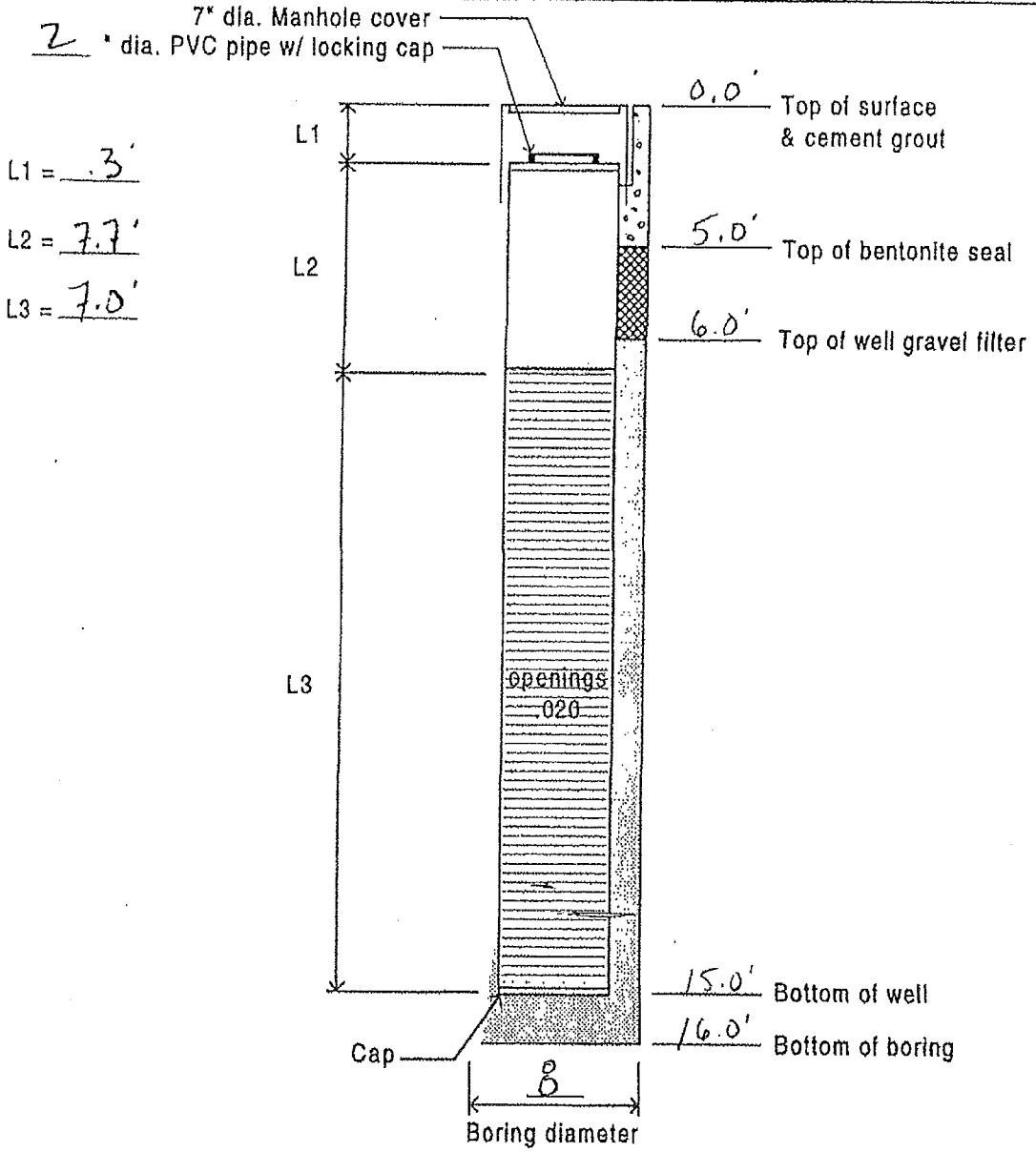
ell Installation Report

PROJECT				CONTRACT NO.
JFK - British Air				426-97-006
LOCATION				CONTRACTOR
As laid out by PA survey				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
7	A monitor	T. Ryan	P. Pennell	11/6/97

Well Development Report

(NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE	WATER LEVEL BEFORE	WATER LEVEL AFTER	TAKEN
11/6/97	9.9'	9.9'	20 MINUTES AFTER



REMARKS: Backfilled w/ sand from 16.0' to 15.0'

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

PROJECT: JFK- British Air

BORING No. MW-7 DATE: 11/6/97

FIELD READINGS BY: T. Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
AM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		
	5		0.0		
	6		0.0		
	7		0.0		
↓	8		0.0		

THE PORT AUTHORITY

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

Sheet 4 of 4

PROJECT: JFK - British Air

LOCATION: As laid out by P.A. Survey.

DATE: 11/6/97

BORING No: MW-7

TOTAL No. OF SAMPLES: 1

SIGNATURE OF ALL PRESENT AT SAMPLING: T. Ryan

RELINQUISHED BY (SIGN): T. Ryan — DATE 11/6/97 — TIME — RECEIVED BY (SIGN)

RELINQUISHED BY (SIGN) — DATE — TIME — RECEIVED BY (SIGN)

RELINQUISHED BY (SIGN) — DATE — TIME — RECEIVED BY LAB

REMARKS: 1 sample in 1-16oz jar & 1-VOA jar

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THE PORT AUTHORITY OF NY & NJ

Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT	NAME OF CONTRACTOR	BORING NO.	SURFACE ELEV.
JFK - British Air	Craig	MW-8	
LOCATION		CONTRACT NO.	DATE
5' east of orig. location		426-97-006	11/10/97

SPOON	CASING SIZE	HOLE TYPE
3 "O.D. 2 1/8 "I.D.	Auger	Monitor

HAMMER	HAMMER
140 # FALL 30 "	# FALL "

DRILLER: P. Pennell

INSPECTOR: T. Ryan

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/10/97	AM	8.0'	In sample # 4

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE-COV'D	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS _____ LINE LOCATES CHANGE OF PROFILE	
Bucket Head					ASPHALT	0.3'
					Sand & Gravel	1.0'
		Hand Auger	Full Rec	1	Fill - Br M-F Sand, tr Silt, tr Gravel	
		↓	↓	2	Same	
	5	↓	↓	3	Same w/ tr wood	
water		10-8		4	Fill - Br M-F Sand, tr Silt, tr Gravel.	
↓		7-7	19"			
		5-4		5	Same	
	10	5-5	16"			
		6-5		6	Same	
		6-7	20"			
↓		5-4		7A	Same	13.0'
		3-3	18"	7B	Br Peat, little org Clay	14.0'
	15					
					Bottom of Boring	
					Note: Sample #4 was saved for testing. Samples #1-3 & 5-7B were screened w/ PID & then discarded.	
	20					

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

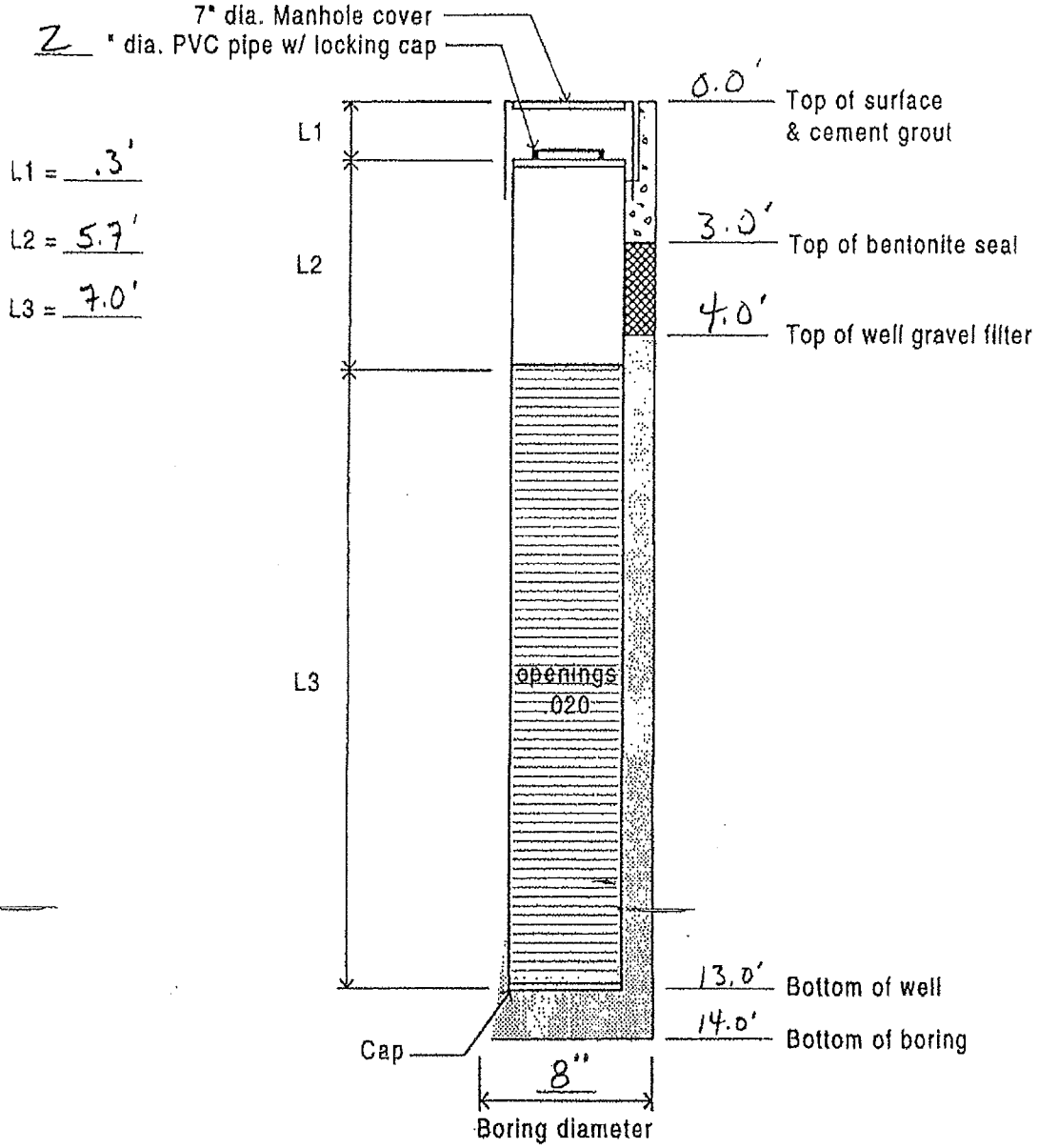
PORT AUTHORITY OF NY & NJ
Engineering Department - Materials Division

ell Installation Report Sheet 2 of 4

PROJECT				CONTRACT NO.
JFK - British Air				426-97-006
LOCATION				CONTRACTOR
5' east of original location				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
8	A monitor	T. Ryan	P. Pennell	11/10/97

Well Development Report (NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE	WATER LEVEL BEFORE	WATER LEVEL AFTER	TAKEN
11/10/97	7.9'	8.2'	15 MINUTES AFTER



REMARKS: Bore filled w/ Bentonite from 14.0' to 13.0'

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT

MATERIALS ENGINEERING DIVISION

PID READINGS

PROJECT: JFK- British

BORING No. MW-8 DATE: 11/10/97

FIELD READINGS BY: T Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
AM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		
	5		0.0		
	6		0.0		
	7A		0.0		
↓	7B		0.0		

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

PROJECT: JFK- British Air		
LOCATION: 5' east of original location		DATE: 11/10/97
BORING No: B		TOTAL No. OF SAMPLES: 1
SIGNATURE OF ALL PRESENT AT SAMPLING	T. Ryan	
RELINQUISHED BY (SIGN) T. Ryan	DATE 11/10/97 TIME	RECEIVED BY (SIGN)
RELINQUISHED BY (SIGN)	DATE TIME	RECEIVED BY (SIGN)
RELINQUISHED (SIGN)	DATE TIME	RECEIVED BY LAB

REMARKS: 1 sample in 1-16oz jar & 1-Voa jar

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THE PORT AUTHORITY OF NY & NJ

Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 1

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Craig	BORING NO.: 8-A	SURFACE ELEV.:
LOCATION: As laid out by PA survey.		CONTRACT NO.: 426-97-006	DATE: 11/10/97

SPOON: 3 "O.D. 2 3/8 "I.D.	CASING SIZE: Augers	HOLE TYPE: 1
HAMMER: 140 # FALL 30 "	HAMMER: # FALL "	
DRILLER: P. Pennell		
INSPECTOR: T. Ryan		

GROUND WATER LEVEL

Date	Time	Depth	Remarks
			No water encountered

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE- [1] COV'D	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS — LINE LOCATES CHANGE OF PROFILE
	0				ASPHALT 0.5'
					SAND & GRAVEL 1.0'
		Hand Auger	Full Rec	1	Fill - Br M-F Sand, tr Silt, tr Gravel, tr Boulders (conc)
				2	Fill - Br M-F Sand, tr Silt, tr Gravel.
	5			3	Same
		5 - 8 6 - 25/0"	14"	4	Same
					7.5'
	10				Met Obstruction - Moved Boring - Bottom of Boring
					See MW-8
					Note: No samples were saved.

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

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3-90

THE PORT AUTHORITY OF NY & NJ

Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Craig	BORING NO.: MW-9	SURFACE ELEV.:
LOCATION: As laid out by P.A survey		CONTRACT NO.: 426-97-006	DATE: 11/6/97

SPOON	CASING SIZE	HOLE TYPE
3 "O.D. 2 3/8 "I.D.	Augers	A monitor

HAMMER	HAMMER
140 # FALL 30 "	# FALL "

DRILLER: P. Pennell

INSPECTOR: T. Ryan

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/6/97	AM	10.0'	In Typspoon S-5

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE- [1] COV'D	SAMP. [2] NO.	[3] SAMPLE DESCRIPTION AND REMARKS — LINE LOCATES CHANGE OF PROFILE
Bullet Head	0				Asphalt 0.5'
					Sand & Gravel 1.0'
		Hand Auger	Full Rec	1	Fill - Fine M-F Sand to Silt
				2	Same
	5			3	Same
augers		18-17			
		18-18	20"	4	Same
		10-12			
	10	13-11	17"	5	Same
		11-12			
		14-13	19"	6	Same
		9-11			
		11-10	18"	7	Same
	15	10-13			
		11-11	19"	8	Same
					16.0' Bottom of Boring

Note: Sample # 5 was saved for testing. Samples # 1-4 and 6-8 were screened w/ PID & then discarded.

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

PORT AUTHORITY OF NY & NJ

Engineering Department - Materials Division

Well Installation Report

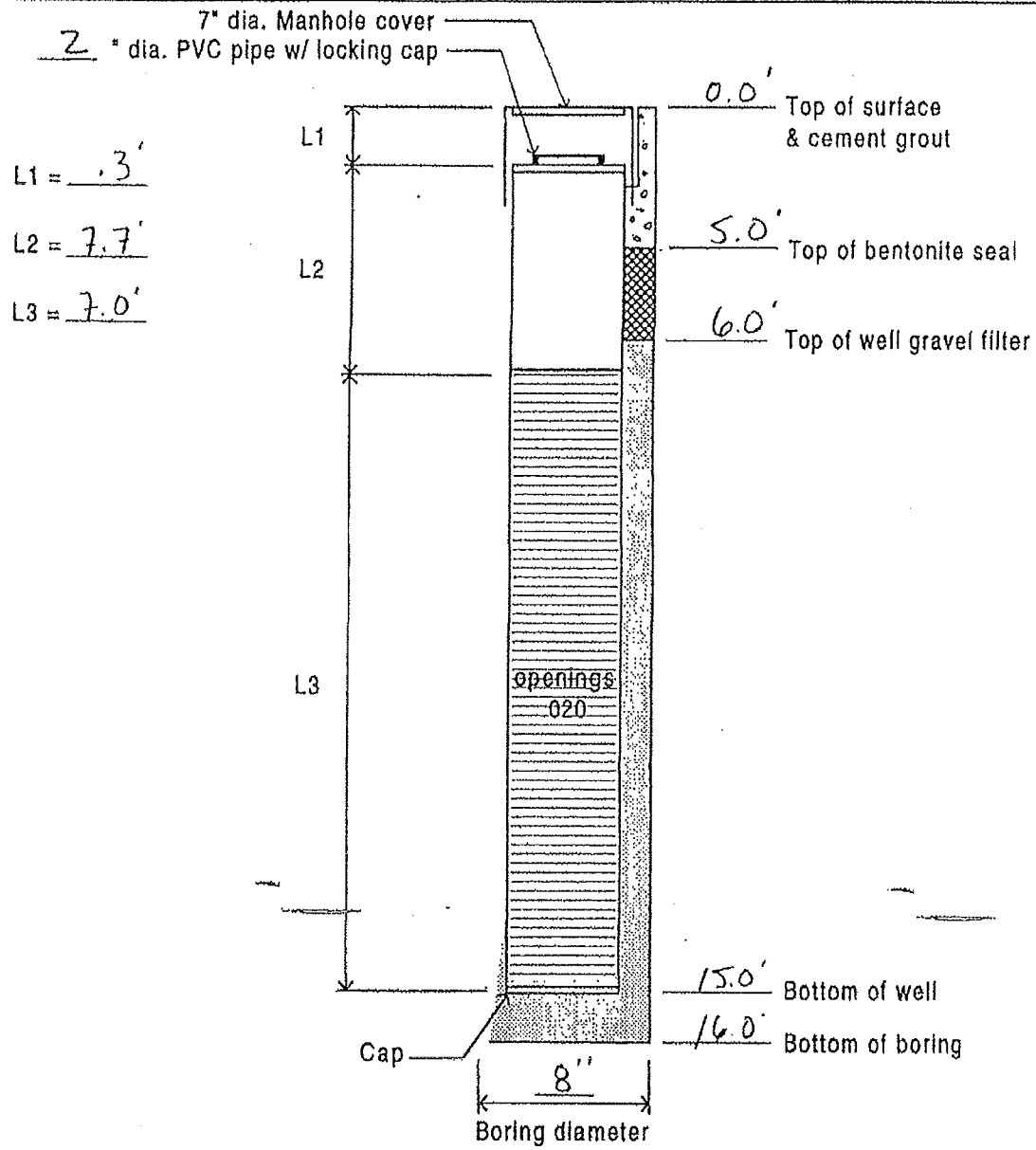
Sheet 2 of 4

PROJECT				CONTRACT NO.
JFK - British Air				426-97-006
LOCATION				CONTRACTOR
As laid out by P.A survey				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
9	A' monitor	T. Ryan	P. Bennell	11/6/97

Well Development Report

(NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE				
11/6/97	WATER LEVEL BEFORE 10.0'	WATER LEVEL AFTER 10.1'	TAKEN 20	MINUTES AFTER



REMARKS: Backfilled w/ sand from 16.0' to 15.0'

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

PROJECT: JFK- British Air

BORING No. MW-9 | DATE: 11/6/97

FIELD READINGS BY: T. Ryan | PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
AM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		
	5		0.0		
	6		0.0		
	7		0.0		
↓	8		0.0		

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

Sheet 4 of 4

PROJECT: JFK - British Air	
LOCATION: As laid out by P.A. survey	DATE: 11/6/97
BORING No: MW-9	TOTAL No. OF SAMPLES: 1 + 1 FB

SIGNATURE OF ALL PRESENT AT SAMPLING	T. Ryan	
RELINQUISHED BY (SIGN) T. Ryan	DATE 11/6/97 TIME	RECEIVED BY (SIGN)
RELINQUISHED BY (SIGN)	DATE TIME	RECEIVED BY (SIGN)
RELINQUISHED (SIGN)	DATE TIME	RECEIVED BY LAB

REMARKS: 1 sample in 1-16 oz jar & 1-Voa jar + 1 FB in 2 vials

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Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 4

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Craig	BORING NO.: MW-10	SURFACE ELEV.
LOCATION: ± 10' South of orig location (Grass Area)		CONTRACT NO.: 426-97-006	DATE: 11/5/97
SPOON: 3 "O.D. 2 3/8 "I.D.	CASING SIZE: Augers	HOLE TYPE: Monitor	
HAMMER: 140 # FALL 30 "	HAMMER: # FALL "		
DRILLER: P Pennell			
INSPECTOR: T Ryan			

GROUND WATER LEVEL

Date	Time	Depth	Remarks
11/5/97	AM	10.0'	In sample #6

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE-[1] COV'D	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS — LINE LOCATES CHANGE OF PROFILE (Grass Covered)
	0	Hand Auger	Full	1	Fill: Brn M-F Sand, little Silt, tr Gr
			Rec		
				2	Same
	5			3	Same
augers		23-20		4	Same
		22-21	19"		
		12-10		5	Same
	10	8-8	17"		
		1-3		6	Same
		3-4	14"		
		4-5		7	Same
		4-4	20"		
	15	5-5		8	Same w/ Peat in tip of spoon
		5-5	18"		
					16.0' Bottom of Boring

Note: Sample #5 was saved for testing. Samples #1-4 & 6-8 were screened w/ PID & then discarded.

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

PORT AUTHORITY OF NY & NJ
Engineering Department - Materials Division

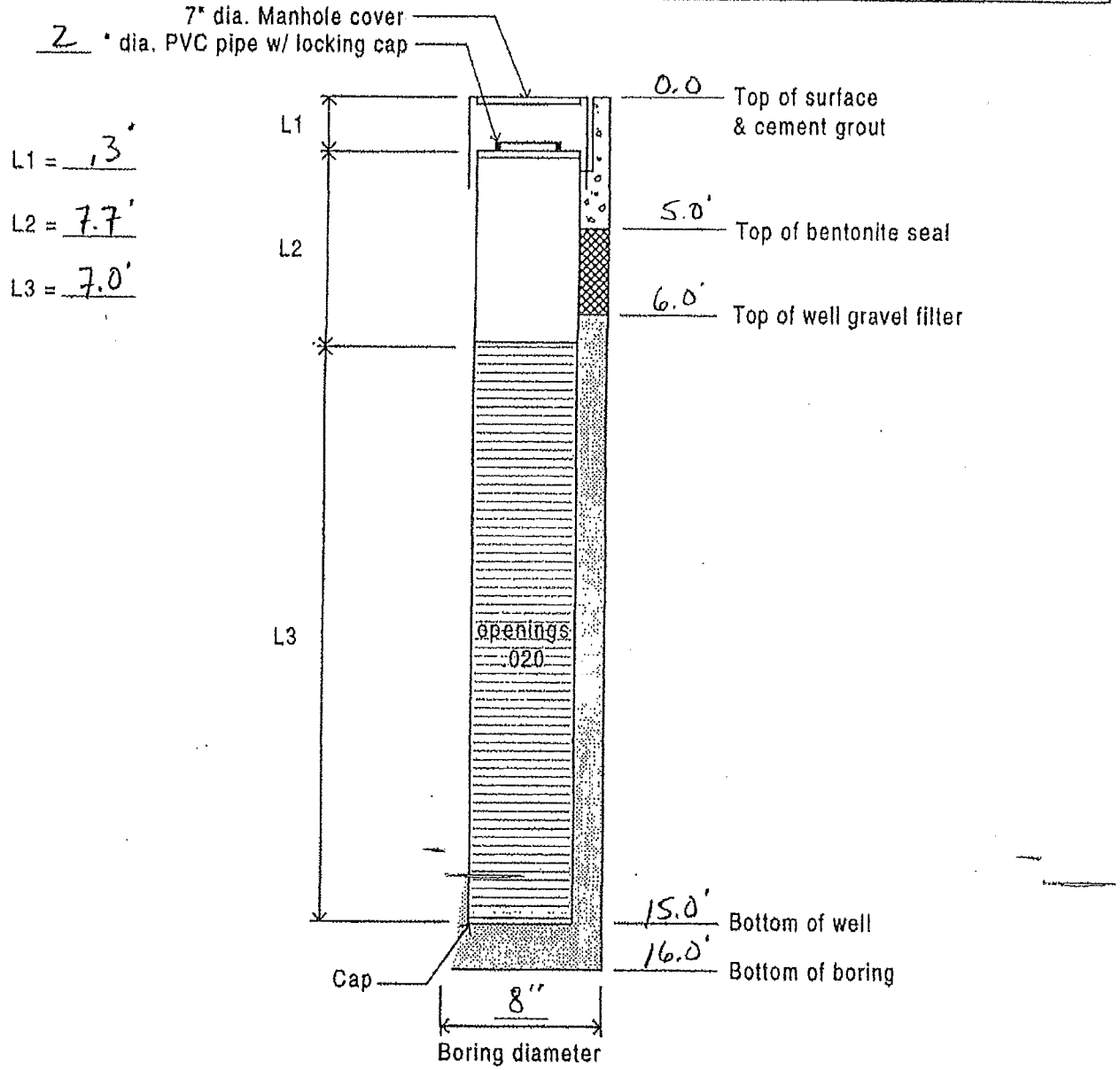
Well Installation Report

PROJECT				CONTRACT NO.
JFK - British Air				426-97-006
LOCATION				CONTRACTOR
± 10' South of original location				Craig
WELL NO.	WELL TYPE	INSPECTOR	DRILLER	DATE
10	A monitor	T Ryan	P Bennell	11/5/97

Well Development Report

(NOTE: WATER LEVEL READINGS FROM TOP OF PVC)

DATE	WATER LEVEL BEFORE	WATER LEVEL AFTER	TAKEN
11/5/97	10.0'	10.1'	15 MINUTES AFTER



REMARKS: Backfilled w/ Bent from 16.0' to 15.0'

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

PROJECT: JFK - British Air Ways

BORING No. MW-10 DATE: 11/5/97

FIELD READINGS BY: T Ryan PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
AM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		
	5		0.0		
	6		0.0		
	7		0.0		
↓	8		0.0		

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY RECORD

PROJECT: JFK - British Air ways	
LOCATION: 10' south of original location	DATE: 11/5/97
BORING No: MW-10	TOTAL No. OF SAMPLES: 1

SIGNATURE OF ALL PRESENT AT SAMPLING	T. Ryan	
RELINQUISHED	DATE 11/5/97	RECEIVED
BY (SIGN) T. Ryan	TIME	BY (SIGN)
RELINQUISHED	DATE	RECEIVED
BY (SIGN)	TIME	BY (SIGN)
RELINQUISHED	DATE	RECEIVED
(SIGN)	TIME	BY LAB

REMARKS: 1 sample in 1-16 oz jar & 1-Voa jar.

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Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 2

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Craig	BORING NO.: B-10A	SURFACE ELEV.:
LOCATION: As laid out by P.A. survey		CONTRACT NO.: 426-97-006	DATE: 11/5/97

SPOON: 3 "O.D. 2 3/8 "I.D.	CASING SIZE: Augers	HOLE TYPE: 1	
HAMMER: 140 # FALL 30 "	HAMMER: # FALL "		
DRILLER: P. Pennell			
INSPECTOR: T. Ryan			

GROUND WATER LEVEL

Date	Time	Depth	Remarks
			No water

CASING BLOWS/FT. (Pavement Break)	DEPTH	SPOON BLOWS/6"	RE-[1] COV'D	SAMP.[2] NO.	[3]SAMPLE DESCRIPTION AND REMARKS — LINE LOCATES CHANGE OF PROFILE
	0				ASPHALT 0.7'
					GRAVEL 1.0'
		Hand Auger	Full Rec	1	Fill - Br M-F Sand, little Gravel, little Asphalt
				2	Same
	5			3	Fill - Br M-F Sand, tr Silt, tr G.
		5-8-10-25/0	12"	4	Same w/ Cones on Tops of spoon
					7.5'
	10				Hit Refusal - Conc Suspected - Bottom of Boring
					See MW-10
	15				
					Note: No samples were saved. Samples were screened w/ PID & then discarded
	20				

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

Sheet 2 of 2

PROJECT: JFK - British Air			
BORING No. 10-A		DATE: 11/5/97	
FIELD READINGS BY: T. Ryan		PID Model: 14	

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
AM	1		0.0		
↓	2		0.0		
↓	3		0.0		
↓	4		0.0		

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Engineering Department
Construction Division
Materials Engineering Section

BORING REPORT

SHEET 1 OF 2

PROJECT: JFK - British Air	NAME OF CONTRACTOR: Craig	BORING NO.: B-10.B	SURFACE ELEV.:
LOCATION: 7' west of original locations		CONTRACT NO.: 426-97-006	DATE: 11/5/97

SPOON: 3 "O.D. 2 3/8 "I.D.	CASING SIZE: Augers	HOLE TYPE: 1
HAMMER: 140 # FALL 30 "	HAMMER: # FALL "	
DRILLER: P. Pennell		
INSPECTOR: T Ryan		

GROUND WATER LEVEL

Date	Time	Depth	Remarks
			No water

CASING BLOWS/FT.	DEPTH	SPOON BLOWS/6"	RE-COV'D [1]	SAMP. [2] NO.	[3] SAMPLE DESCRIPTION AND REMARKS ____ LINE LOCATES CHANGE OF PROFILE
Bullet seal	0				ASPHALT 0.7'
					GRAVEL 1.0'
		Hand Auger	Full Rec	1	Fill - Br M F Sand little Gravel little Asp.
				2	Same
	5			3	Same
		3-5		4	Fill Br M F Sand w/ Conc on top of spoon
		4-4	16"		
		10/0"			3.0'
	10				Hit Refusal - Conc Suspected - Bottom of Boring
					See MW-10
	15				
					Note: No samples were saved. Samples were screened w/ PID & then discarded
	20				

NOTES: 1 — Length recovered; 0" — Loss of Sample, T — Trap used
2 — U = undisturbed; A = auger; OER = open end rod; V = vane
3 — Log depth of change in color of wash water, loss of water, artesian water, sand heave in casing, etc.

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
PID READINGS

Sheet 2 of 2

PROJECT: JFK - British Air	
BORING No. 10-B	DATE: 11/5/97
FIELD READINGS BY: T Ryan	PID Model: 14

TIME	SAMPLE No.	IN-SITU Split Spoon Reading	HEAD-Space Reading	BREATHING Zone Reading	REMARKS
AM	1		0.0		
	2		0.0		
	3		0.0		
	4		0.0		

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
MONITOR WELL DEVELOPMENT DATA SHEET

JOB No.: A3-972.010

OJECT: JFK BA.

LL LOCATION:

DATE: 11.17.97

LLPOINT No.: MW 2

CK-UP DISTANCE: FLUSH feet

CASING DIAMETER: Inche

PTH OF WELL FROM TOP OF PIPE: 13.00 fee

ELLPOINT DEPTH:

	TIME	DISTANCE FROM TOP OF PIPE TO: WATER, feet	OIL, feet
BEFORE DEVELOPMENT	10:23AM	8.68	—
AFTER DEVELOPMENT	10:43AM	8.71	—

OLUME TO BE REMOVED:

DEPTH OF WELL	13.00	feet
DEPTH TO WATER	8.68	feet
DEPTH OF WATER COLUMN	4.32	feet
FACTOR *	X 0.618	liters / feet
VOLUME TO BE REMOVED	2.67	liters

VELL DEVELOPMENT:

UMBER OF OLUMES	TIME	pH	TEMP. degrees C	CONDUCTIVITY umohs / cm	SALINITY 0 / 00
1	10:24AM	6.50	19.8°	3140	2.3
2	10:32AM	6.59	20.4°	2870	2.3
3	10:37AM	6.50	20.4°	3210	2.35
4					
5					

GNATURES OF ALL PERSONS PRESENT:

R. [illegible]

MARKS: WELL SAMPLED AT 10:40AM

FACTOR = 0.618 FOR 2 INCH DIAMETER WELL CASING
FACTOR = 2.471 FOR 4 INCH DIAMETER WELL CASING

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
MONITOR WELL DEVELOPMENT DATA SHEET

JOB No.: A3-978-010

JECT: JFK B.A.

LL LOCATION:

LLPOINT No.: MW 3

DATE: 11-17-97

CK-UP DISTANCE: FLUSH feet

CASING DIAMETER: 2 Inche

TH OF WELL FROM TOP OF PIPE: 12.60 fee

ELLPOINT DEPTH:

	TIME	DISTANCE FROM TOP OF PIPE TO: WATER, feet	OIL, feet
BEFORE DEVELOPMENT	9:51Am	7.90	—
AFTER DEVELOPMENT	10:09Am	8.22	—

OLUME TO BE REMOVED:

DEPTH OF WELL	12.60	feet
DEPTH TO WATER	- 7.90	feet
DEPTH OF WATER COLUMN	4.70	feet
FACTOR *	X .0618	liters / feet
VOLUME TO BE REMOVED	2.9	liters

/ELL DEVELOPMENT:

JMBER OF OLUMES	TIME	pH	TEMP. degrees C	CONDUCTIVITY umohs / cm	SALINITY 0 / 00
1	9:36Am	6.48	21.2°	2850	2.0
2	9:59Am	6.46	21.0°	2800	2.2
3	10:03Am	6.52	21.0°	2300	2.1
4					
5					

GNATURES OF ALL PERSONS PRESENT:

R. [illegible]

MARKS: WELL SAMPLED AT 10:07Am

FACTOR = 0.618 FOR 2 INCH DIAMETER WELL CASING

FACTOR = 2.471 FOR 4 INCH DIAMETER WELL CASING

THE PORT AUTHORITY OF N.Y. & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
MONITOR WELL DEVELOPMENT DATA SHEET

OJECT: JFK B.A. | JOB No.: A3-479.010

ELL LOCATION:

ELLPOINT No.: MW5 | DATE: 11-17-97

ICK-UP DISTANCE: 2.94 feet | CASING DIAMETER: 2 Inche

PTH OF WELL FROM TOP OF PIPE: 17.58 fee

VELLPOINT DEPTH:

	TIME	DISTANCE FROM TOP OF PIPE TO: WATER, feet	OIL, feet
BEFORE DEVELOPMENT	9:33Am	7.82	
AFTER DEVELOPMENT	9:47Am	12.01	

'OLUME TO BE REMOVED:

DEPTH OF WELL	12.58	feet
DEPTH TO WATER	7.82	feet
DEPTH OF WATER COLUMN	4.76	feet
FACTOR *	X 0.618	liters / feet
VOLUME TO BE REMOVED	2.94	liters

WELL DEVELOPMENT:

NUMBER OF VOLUMES	TIME	pH	TEMP. degrees C	CONDUCTIVITY umohs / cm	SALINITY 0 / 00
1 *	9:37Am	6.25	22.8°	4,200	4.6
2					
3					
4					
5					

IGNATURES OF ALL PERSONS PRESENT:

EMARKS: WELL SAMPLED AT 9:45Am.
* WELL EVACUATED DURING 1ST VOLUME.

* FACTOR = 0.618 FOR 2 INCH DIAMETER WELL CASING
* FACTOR = 2.471 FOR 4 INCH DIAMETER WELL CASING

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
MONITOR WELL DEVELOPMENT DATA SHEET

JECT: JFK P.A. | JOB No.: A3-972, C10

LL LOCATION:

LLPOINT No.: MW6 | DATE: 4-17-97

CK-UP DISTANCE: FLUSH feet | CASING DIAMETER: 2 Inche

TH OF WELL FROM TOP OF PIPE: 10.45 fee

ELLPOINT DEPTH:

	TIME	DISTANCE FROM TOP OF PIPE TO: WATER, feet	OIL, feet
BEFORE DEVELOPMENT	12:03PM	6.68	—
AFTER DEVELOPMENT	12:47PM	6.70	—

OLUME TO BE REMOVED:

DEPTH OF WELL	10.45	feet
DEPTH TO WATER	- 6.68	feet
DEPTH OF WATER COLUMN	3.77	feet
FACTOR *	X 0.618	liters / feet
VOLUME TO BE REMOVED	2.33	liters

ELL DEVELOPMENT:

UMBER OF OLUMES	TIME	pH	TEMP. degrees C	CONDUCTIVITY umohs / cm	SALINITY 0 / 00
1	12:12PM	6.19	20.3°	5700	6.4
2	12:19PM	6.28	20.5°	5900	6.3
3	12:30PM	6.31	21.2°	8,900	6.4
4	12:33PM	6.32	21.3°	9,000	6.5
5					

GNATURES OF ALL PERSONS PRESENT:

P. Tuttle

MARKS: WELL SAMPLED AT 12:45PM

FACTOR = 0.618 FOR 2 INCH DIAMETER WELL CASING
FACTOR = 2.471 FOR 4 INCH DIAMETER WELL CASING

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
MONITOR WELL DEVELOPMENT DATA SHEET

JECT: JFK R.A | JOB No.: A3-972.010
L LOCATION:
LPOINT No.: MW 7 | DATE: 11-17-97
CK-UP DISTANCE: FLUSH feet | CASING DIAMETER: 2 Inche
TH OF WELL FROM TOP OF PIPE: 14.88 fee

ELLPOINT DEPTH:

	TIME	DISTANCE FROM TOP OF PIPE TO: WATER, feet	OIL, feet
BEFORE DEVELOPMENT	8:10AM	7.94	—
AFTER DEVELOPMENT	9:28Am	10.97	—

OLUME TO BE REMOVED:

DEPTH OF WELL	14.88	feet
DEPTH TO WATER	7.94	feet
DEPTH OF WATER COLUMN	6.94	feet
FACTOR *	X 0.618	liters / feet
VOLUME TO BE REMOVED	4.29	liters

ELL DEVELOPMENT:

JMBER OF OLUMES	TIME	pH	TEMP. degrees C	CONDUCTIVITY umohs / cm	SALINITY 0 / 00
1	9:12Am	6.83	21.0°	4200	3.2
2	9:15Am	6.89	21.3°	4570	3.4
3	9:19Am	6.81	22.3°	4840	3.7
4					
5					

GNATURES OF ALL PERSONS PRESENT:

R. Hill

MARKS: WELL SAMPLED AT 9:23AM

FACTOR = 0.618 FOR 2 INCH DIAMETER WELL CASING
FACTOR = 2.471 FOR 4 INCH DIAMETER WELL CASING

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
MONITOR WELL DEVELOPMENT DATA SHEET

JECT: JFK B.A. | JOB No.: A3-97E.010
L LOCATION:
LPOINT No.: MW 8 | DATE: 11.17.97
CK-UP DISTANCE: FLUSH feet | CASING DIAMETER: 2 inche
TH OF WELL FROM TOP OF PIPE: 12.18 fee

ELLPOINT DEPTH:

	TIME	DISTANCE FROM TOP OF PIPE TO: WATER, feet	OIL, feet
BEFORE DEVELOPMENT	11:25AM	7.01	—
AFTER DEVELOPMENT	11:49AM	7.03	—

OLUME TO BE REMOVED:

DEPTH OF WELL	12.18	feet
DEPTH TO WATER	7.01	feet
DEPTH OF WATER COLUMN	5.17	feet
FACTOR *	X 0.618	liters / feet
VOLUME TO BE REMOVED	3.20	liters

ELL DEVELOPMENT:

UMBER OF OLUMES	TIME	pH	TEMP. degrees C	CONDUCTIVITY umohs / cm	SALINITY 0 / 00
1	11:29AM	6.67	20.8°	4,350	3.4
2	11:33AM	6.76	21.0°	4420	3.5
3	11:38AM	6.81	21.0°	4490	3.5
4					
5					

GNATURES OF ALL PERSONS PRESENT:
R. Gill

MARKS: WELL SAMPLED AT 11:47AM

FACTOR = 0.618 FOR 2 INCH DIAMETER WELL CASING
FACTOR = 2.471 FOR 4 INCH DIAMETER WELL CASING

THE PORT AUTHORITY OF N.Y & N.J.

ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
MONITOR WELL DEVELOPMENT DATA SHEET

OJECT: JFK B.A. | JOB No.: A3-972.010
LL LOCATION:
LLPOINT No.: MW 9 | DATE: 11-17-97
CK-UP DISTANCE: FLUSH feet | CASING DIAMETER: 2 inche
PTH OF WELL FROM TOP OF PIPE: fee

ELLPOINT DEPTH:

	TIME	DISTANCE FROM TOP OF PIPE TO: WATER, feet	OIL, feet
BEFORE DEVELOPMENT	8:30AM	8.54	—
AFTER DEVELOPMENT	9:05AM	8.58	—

OLUME TO BE REMOVED:

DEPTH OF WELL	14.96	feet
DEPTH TO WATER	8.54	feet
DEPTH OF WATER COLUMN	6.42	feet
FACTOR *	X 0.618	liters / feet
VOLUME TO BE REMOVED	4.04	liters

VELL DEVELOPMENT:

UMBER OF VOLUMES	TIME	pH	TEMP. degrees C	CONDUCTIVITY umohs / cm	SALINITY 0 / 00
1	8:35Am	6.34	19.0°	5100	3.4
2	8:39Am	6.32	19.0°	4200	3.3
3	8:43Am	6.29	19.0°	3900	3.3
4					
5					

IGNATURES OF ALL PERSONS PRESENT:

[signature]

MARKS: WELL SAMPLED AT 8:55AM

MW 9A — DUP. AT 9:00AM * DUPLICATE *

FACTOR = 0.618 FOR 2 INCH DIAMETER WELL CASING
FACTOR = 2.471 FOR 4 INCH DIAMETER WELL CASING

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ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
MONITOR WELL DEVELOPMENT DATA SHEET

OJECT: JFK B.F. | JOB No.: A5-972.010
LL LOCATION:
LLPOINT No.: MW 10 | DATE: 11.17.97
CK-UP DISTANCE: FLUSH feet | CASING DIAMETER: 2 Inche
TH OF WELL FROM TOP OF PIPE: 14.80 fee

ELLPOINT DEPTH:

	TIME	DISTANCE FROM TOP OF PIPE TO: WATER, feet	OIL, feet
BEFORE DEVELOPMENT	10:45AM	9.44	—
AFTER DEVELOPMENT	11:09AM	9.49	—

OLUME TO BE REMOVED:

DEPTH OF WELL	14.80	feet
DEPTH TO WATER	9.44	feet
DEPTH OF WATER COLUMN	5.36	feet
FACTOR *	X 0.618	liters / feet
VOLUME TO BE REMOVED	3.31	liters

ELL DEVELOPMENT:

UMBER OF OLUMES	TIME	pH	TEMP. degrees C	CONDUCTIVITY umohs / cm	SALINITY 0 / 00
1	10:50Am	6.49	20.2°	5100	3.9
2	11:57Am	6.61	21.9	5000	4.0
3	11:09Am	6.63	21.8°	5050	4.1
4					
5					

GNATURES OF ALL PERSONS PRESENT:

R Hall

MARKS: WELL SAMPLED AT 11:07AM

FACTOR = 0.618 FOR 2 INCH DIAMETER WELL CASING
FACTOR = 2.471 FOR 4 INCH DIAMETER WELL CASING

DEC PERMIT NUMBER
2-6308-00019/00005-0

FACILITY/PROGRAM NUMBER(S)
3864

PERMIT

Long Island Wells
Article 15, Title 15
Environmental
Conservation Law

EFFECTIVE DATE
November 2, 1995

EXPIRATION DATE(S)
December 31, 2000

PERMIT ISSUED TO	TELEPHONE NUMBER
The Port Authority of New York and New Jersey	(212) 435-7289
ADDRESS OF PERMITTEE	
One World Trade Center, Room 4011, New York, NY 10048	
CONTACT PERSON FOR PERMITTED WORK	TELEPHONE NUMBER
Bernice R. Malione, Manager, Permits and Governmental Approvals	(212) 435-7289
NAME AND ADDRESS OF PROJECT/FACILITY	
JFK International Airport	
LOCATION OF PROJECT/FACILITY	
JFK International Airport - Central Terminal Area	

COUNTY	CITY	WATERCOURSE/WETLAND NO.	
Queens	New York City	Jamaica Bay	

DESCRIPTION OF AUTHORIZED ACTIVITY:

Installation and operation of temporary dewatering systems associated with the Central Terminal Area redevelopment program. Dewatering activities will be undertaken over a five year period through fifteen (15) separate contracts for which certain details must be filed with the Department under the terms of this permit. The average daily groundwater withdrawal rate must not exceed 1.5 million gallons per day (mgd) over the term of this permit.. The average daily withdrawal rate may be increased to a maximum of 6.25 mgd over a single six (6) continuous month period within the term of the permit . All dewatering will be discharged to storm sewers which are directed to Jamaica Bay.

SPECIAL DETERMINATIONS

In accordance with 19NYCRR Part 600.4(c), the New York State Department of Environmental Conservation certifies that this activity is consistent with the policies and purposes of the New York City Waterfront Revitalization Program to the maximum extent practicable. Furthermore, under the State Environmental Quality Review Act the Department has determined that the activities authorized in this permit will not have a significant adverse impact on the environment.

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, the General Conditions specified (see page 2) and any Special Conditions included as part of this permit.

CHIEF PERMIT ADMINISTRATOR:
GEORGE A. DANSKIN

ADDRESS 50 Wolf Road
Albany, NY 12233-1750

AUTHORIZED SIGNATURE GADanskin

DATE 11/2/95

GENERAL CONDITIONS

Inspections

1. The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71-0301 and SAPA 401(3). A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

Permit Changes and Renewals

2. The Department reserves the right to modify, suspend or revoke this permit when:
   a) the scope of the permitted activity is exceeded or a violation of any condition of the permit or provisions of the ECL and pertinent regulations is found;
   b) the permit was obtained by misrepresentation or failure to disclose relevant facts;
   c) new material information is discovered: or
   d) environmental conditions, relevant technology, or applicable law or regulation have materially changed since the permit was issued.

3. The permittee must submit a separate written application to the Department for renewal, modification or transfer of this permit. Such application must include any forms, fees or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing.

4. The permittee must submit a renewal application at least:
   a) 180 days before expiration of permits for State Pollutant Discharge Elimination System (SPDES), Hazardous Waste Management Facilities (HWMF), major Air Pollution Control (APC) and Solid Waste Management Facilities (SWMF); and
   b) 30 days before the expiration of all other permit types.

5. Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

Other Legal Obligations of Permittee

6. The permittee has accepted expressly, by the execution of the application, the full legal responsibility for all damages, direct or indirect, of whatever nature and by whomever suffered, arising out of the project described in this permit and has agreed to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from this project.

7. The permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

8. The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required for this project.

5/20/14

Special Conditions

1. Dewatering may not commence until notice of the specific contract is provided to the Department in accordance with the terms of this permit.

2. Not less than 60 days after receipt of this permit, the permittee must submit to the Regional Water Engineer a list of all contracts, briefly indicating the scope and nature of the work to be undertaken thereunder and an overall schedule of operations .

3. Prior to commencement of construction under any specific contract, the permittee must notify the Regional Water Engineer not less than 30 days prior to construction. Notification must include:

   a. A completed Notification Form (sample attached).

   b. A location map of sufficient detail to locate the project and significant cultural and natural features within the confines of the airport and the immediate vicinity.

   c. A plan drawing depicting the proposed work, dewatering system, zone of influence of dewatering systems, all known sites of storage tanks, oil spills, groundwater plumes and the locations of previous storage tanks which have since been removed.

   d. A map locating each point of dewatering discharge to Jamaica Bay and a recent color photograph of each outfall.

   e. Data on each storage tank, oil spill or underground plume or former site of storage tank, must be provided that includes: date and results of the most recent tests of tanks and groundwater samples taken, or for sites where no tests or samples have been performed, or where tests indicate the potential for release of tank contents, details of monitoring wells to be located at the affected area.

   f. Analyses of a representative screening sample(s) of the groundwater for the following parameters using methods specified:

Parameter	EPA Method
pH	150.1
Temperature	After pumping
Fecal Coliform	5 tubes - 3 dilutions
Oil and Grease	413.1
BOD_6	405.1
Total Suspended Solids	160.2
Settleable Solids	160.5
Chlorides	325.1 - 325.3
Benzene	602
Toluene	602
Xylene	602

Special Conditions

3. (Continued)

Parameter	EPA Method
PCB's	608
Pesticides	608
Priority metals (13)	200 Series
Acids/Base Neutrals	625-GC/MS
Halogenated Volitiles	601-GC
Nitrate/Nitrite	300 or 353.3
Aromatic Volitiles	602-GC
Cyanide	335.1 - 335.2

4. Upon receipt and review of the initial screening, the Regional Water Engineer will determine which of the parameters specified in Special Condition 3 must be monitored on an extended basis. Unless otherwise specified, extended monitoring will be performed monthly.

5. Any extended monitoring samples must be taken at the discharge point prior to entering the storm sewer. Methods of analysis must conform to those specified in Special Condition 3.

6. All sampling procedures to comply with US EPA protocol. All laboratory analyses to be performed by New York State Department of Health certified laboratories.

7. The volume of water pumped under each contract must be reported to the Regional Water Engineer monthly and not later than the 15th day of the month following that in which it was pumped. Results of water quality sampling and analysis must be reported to the Regional Water Engineer monthly and not later than the 15th day of the month following that in which the samples were taken.

8. Visual inspections of the shoreline must be made daily. Photographs of the outfall through which dewatering is discharged must be taken once a week at low tide and submitted to the Regional Water Engineer not later than the 15th of each month following that in which the photographs were taken.

9. The dewatering operations must be carried out by a well driller registered in accordance with Section 15-1525 of the Environmental Conservation Law.

10. No disturbance to or alteration of tidal or freshwater wetlands is authorized by this permit. The discharge of groundwater must not result in deposition of silt or sediment on tidal or freshwater wetlands, or otherwise adversely affect them.

11. The Department reserves the right to require the permittee to provide additional physical, chemical and biological analysis of the water discharged from the dewatering systems and, may require treatment of this water in order to prevent contamination of waters into which it is discharged.

END OF CONDITIONS

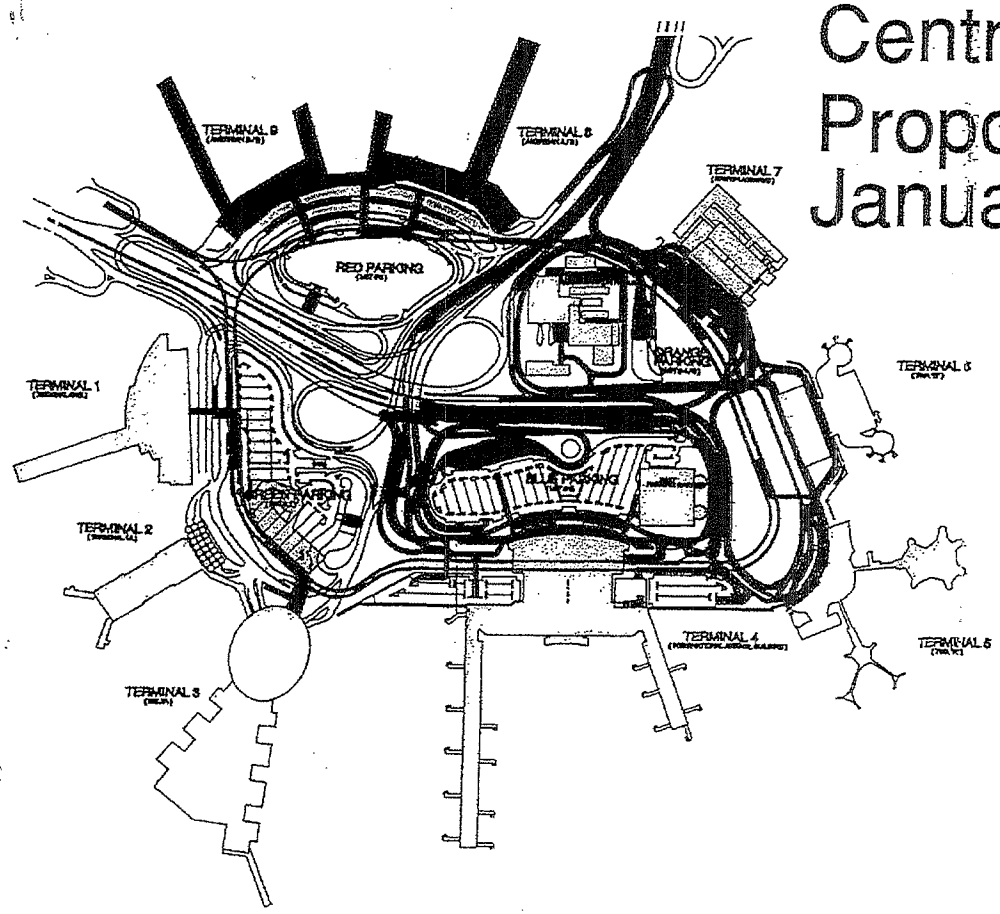
B. Roadway Construction Package #5 - This project includes road work in front of the TWA terminals (TWA) and British Airways (BA). This contract work is targeted to start August, 1996 and to be completed in December, 1999. Dewatering is expected to start in December, 1996 and end in June, 1999. The volume of dewatering is estimated to be from 1.0-1.5 mgd. Included in the scope will be the following items of work:

- Construction of all paved roadways in the designated work area, including required subsurface drainage, and associated catch basins and supporting infrastructure.
- Construction and enlargement of existing depressed roadways, adjacent to TWA and in front of the BA arrivals area.
- Relocation of all underground utilities that interfere with the contract requirements of this RWCP #5.
- Relocation of below-grade Terminal facilities, such as fresh air intakes into mechanical room basements, which conflict with the contract requirements.
- Construction of all new utilities that lie within the contract limits.
- Construction of area lighting within the contract limits.
- Construction of overhead sign structures, including below grade supporting foundations for signage that lie within this contract area.
- Construction of a passenger connector from the east parking garage to TWA. The work will include foundations and supporting structures for the connector.

L. Passenger Distribution System (PDS) - A twenty-first century Automated Guidance Transit system to facilitate the movement of passengers and visitors between terminals and parking lots at the Central Terminal Area (CTA), with a rail hook-up to LaGuardia Airport, Jamaica, and Manhattan. Conceptual planning is under way now with construction targeted to begin in October, 1997, and be completed by September, 1999. The scope of work requiring dewatering includes the following:

- Construction of foundations and footings for the PDS elevated structures which includes the guidance system, stations and connectors.
- Relocation of underground utilities which conflict with the PDS.
- Construction of terminal connection facilities and stations, including foundations, support structures, and necessary infrastructure to accommodate the PDS.
- Construction of all new below grade utilities to service the PDS terminals.
- Construction of area lighting necessary to service the PDS.

Exhibit S
Central Terminal Area and Proposed JFK Redevelopment
January 1998



THE PORT AUTHORITY OF
NEW YORK AND NEW JERSEY
JOHN F. KENNEDY
INTERNATIONAL AIRPORT

INITIALED:

FOR THE PORT AUTHORITY

FOR THE LESSEE

FORM E - Acknowledgment (N.Y. Corp.) 6/24/72

STATE OF NEW YORK)
) ss.
COUNTY OF NEW YORK)

On the day of , 1998, before me came , to me known, who, being by me duly sworn, did depose and say that he resides at that he is the of The Port Authority of New York and New Jersey, one of the corporations described in, and which executed the foregoing instrument; that he knows the seal of the said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Commissioners of the said corporation; and that he signed his name thereto by like order.

(notarial seal and stamp)

STATE OF)
) ss.
COUNTY OF)

On the day of , 1998, before me personally came to me known, who being by me duly sworn, did depose and say, that he resides at

that he is the President of BRITISH AIRWAYS, Plc. one of the corporations described in and which executed the foregoing instrument; that he knows the seal of the said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of the said corporation; and that he signed his name thereto by like order.

(notarial seal and stamp)

PORT AUTHORITY LEASE NO. LA-[illegible]

SUPPLEMENT NO. 1

PORT AUTHORITY OF NEW YORK AND NEW JERSEY

AND

BRITISH AIRWAYS, PLC

VOLUME 2

Environmental Engineering Unit
Aviation Design Division

J.F.K. International Airport British Airways Building 59 Environmental Investigation Summary Report

December 1997

Engineering Department
The Port Authority of NY & NJ

Exhibit L
Book 2 of 3

Initialed: For the Port Authority
For the Lessee

EMSL ANALYTICAL, INC.

Asbestos – Lead – Environmental – Materials

Corporate Office and Lab
108 Haddon Avenue
Westmont, NJ
609-858-4800

3 Cooper Street
Westmont, NJ
609-858-4800

San Mateo, CA
415-570-5401

S. Pasadena, CA
213-254-9960

N. Miami Beach, FL
305-650-0577

Smyrna, GA
770-333-6066

Indianapolis, IN
317-570-5892

Lexington, KY
606-293-1590

Ann Arbor, MI
313-668-6810

Piscataway, NJ
732-981-0550

New York, NY
212-290-0051

Carle Place, NY
516-997-7251

Buffalo, NY
516-997-7251

Charlotte, NC
704-567-1521

Greensboro, NC
910-297-1487

Dallas, TX
214-831-9725

Houston, TX
713-686-3635

le, WA
-233-9007

MSL France
Paris
011-33-147014805

ANALYTICAL DATA REPORT
FOR
PORT AUTHORITY OF NY & NJ
Engineering Department
241 Erie Street, Room 234
Jersey City, NJ 07310-1397

PROJECT: **JFK-B.A. Terminal**

EMSL Project: # 97122494, 97122697

Field Sample No. & Location	Laboratory Sample ID	Matrix	Date & Time of Collection	Date Received
MW-2, S-5	97-78619	Solid	11/5/97 *	11/7/97
MW-10, S-5	97-78620	Solid	11/5/97 *	11/7/97
Field Blank 11/5	97-78621	Aqueous	11/5/97 *	11/7/97
MW-5, S-4	97-78622	Solid	11/6/97 *	11/7/97
MW-7, S-5	97-78623	Solid	11/6/97 *	11/7/97
MW-9, S-5	97-78624	Solid	11/6/97 *	11/7/97
Field Blank 11/6	97-78625	Aqueous	11/6/97 *	11/7/97
MW-3, S-4	97-82199	Solid	11/10/97 *	11/12/97
MW-6, S-4	97-82200	Solid	11/10/97 *	11/12/97
MW-8, S-4	97-82201	Solid	11/10/97 *	11/12/97
MW-4, S-4	97-82202	Solid	11/11/97 *	11/12/97
Field Blank 11/10	97-82203	Aqueous	11/10/97 *	11/12/97
Field Blank 11/11	97-82204	Aqueous	11/11/97 *	11/12/97

***Time not provided on Chain of Custody.**

Laboratory Name — EMSL ANALYTICAL, INC.

Certification No. — NJDEPE No. 04653

Supervisor/Manager Signature

Printed Name — Paul V. Laraia

Date — 11-26-97

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. Sample Results	
. Surrogate Recovery Form	
. Method Blank Data	
. Matrix Spike/Matrix Spike Duplicate Data	
GC/MS Semivolatile Organic Data Package	
. Initial Calibration DFTPP Tune	272-434
. Initial Calibration Data	
. Continuing Calibration DFTPP Tune	
. Continuing Calibration Data	
. Internal Standards Area Summary	
. Sample Results	
. Surrogate Recovery Form	
. Method Blank Data	
. Matrix Spike/Matrix Spike Duplicate Data	
Pesticides & PCB Analysis Data Package	
. Standard Data	435-569
. Sample Results	
. Surrogate Recovery Form	
. Method Blank	
. Matrix Spike/Matrix Spike Duplicate Data	
Metals Analysis Data Package	
. Sample Results	570-586
. Calibrations	
. Blanks	
. Spike Recovery	
. Duplicates	
. Laboratory Control Sample	

Petroleum Hydrocarbons Analysis Data Package ---------- 587-600
- Sample Results
- Method Blank Data
- Matrix Spike Data
- Duplicate Data
- Laboratory Control Sample
- Spectra

General Chemistry Analytical Data Package ---------- 601-606
- Sample Results
- Blanks
- Quality Assurance Data

Statement of Authentication ---------- 607

SAMPLE DATA SUMMARY PACKAGE

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: MW-2,S-5

Date of Report: 11/25/97
Project Number: 97122494
Lab ID: 97-0078619
Date Collected: 11/05/97 00:00
Collected By: Client
Date Received: 11/07/97 18:20

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	17	mg/kg
Solids, Total	84	%
METALS		
Silver	<5.9	mg/kg
Arsenic	<12	mg/kg
Beryllium	<1.2	mg/kg
Cadmium	<2.4	mg/kg
Chromium	<5.9	mg/kg
Copper	<5.9	mg/kg
Mercury	<0.12	mg/kg
Nickel	<5.9	mg/kg
Lead	<24	mg/kg
Antimony	<0.59	mg/kg
Selenium	<0.59	mg/kg
Thallium	<0.59	mg/kg
Zinc	6.8	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-2, S-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78619

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E113

% Moisture: 16 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/20/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	2	U
72-55-9	4,4'-DDE	4	U
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	4	U
53494-70-5	Endrin ketone	20	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	4	U
8001-35-2	Toxaphene	20	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778619B
MW-2, 5-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778619B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7190.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	400	U
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
108-60-1	bis(2-chloroisopropyl)ether	400	U
621-64-7	N-Nitroso-Di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
91-58-7	2-Chloronaphthalene	400	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	990	U
100-02-7	4-Nitrophenol	990	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778619B
MW-2, S-5

U

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778619B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7190.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	990	U
86-30-6	n-Nitrosodiphenylamine	400	U
122-66-7	1,2-Diphenylhydrazine(as azo)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	990	U
85-01-08	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
92-87-5	Benzidine	2000	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
56-55-3	Benzo[a]anthracene	400	U
91-94-1	3,3'-Dichlorobenzidine	790	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	400	U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo[b]fluoranthene	400	U
207-08-9	Benzo[k]fluoranthene	400	U
50-32-8	Benzo[a]pyrene	400	U
193-39-5	Indeno[1,2,3-cd]pyrene	400	U
53-70-3	Dibenz[a,h]anthracene	400	U
191-24-2	Benzo[g,h,i]perylene	400	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778619B
MB-2, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778619B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7190.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778619V

MW-2, 5-5

U1(

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778619V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6476.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 16 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	9	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert Butyl Alcohol	30	U
107-02-8	Acrolein	60	U
107-13-1	Acrylonitrile	60	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778619V
MW-2 5-5
01

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778619V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6476.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 16 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 138-86-3	Limonene	19.10	7	J
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: MW-10,S-5

Date of Report: 11/25/97
Project Number: 97122494
Lab ID: 97-0078620
Date Collected: 11/05/97 00:00
Collected By: Client
Date Received: 11/07/97 18:20

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	29	mg/kg
Solids, Total	80	%
METALS		
Silver	<6.1	mg/kg
Arsenic	<12	mg/kg
Beryllium	<1.2	mg/kg
Cadmium	<2.4	mg/kg
Chromium	<6.1	mg/kg
Copper	<6.1	mg/kg
Mercury	<0.12	mg/kg
Nickel	<6.1	mg/kg
Lead	<24	mg/kg
Antimony	<0.61	mg/kg
Selenium	<0.61	mg/kg
Thallium	<0.61	mg/kg
Zinc	7.1	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-10, S-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78620

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E114

% Moisture: 20 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/20/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3	U
319-85-7	beta-BHC	3	U
319-86-8	delta-BHC	3	U
58-89-9	gamma-BHC (Lindane)	3	U
76-44-8	Heptachlor	3	U
309-00-2	Aldrin	3	U
1024-57-3	Heptachlor epoxide	3	U
959-98-8	Endosulfan I	3	U
60-57-1	Dieldrin	3	U
72-55-9	4,4'-DDE	5	U
72-20-8	Endrin	5	U
33213-65-9	Endosulfan II	5	U
72-54-8	4,4'-DDD	5	U
1031-07-8	Endosulfan sulfate	5	U
50-29-3	4,4'-DDT	5	U
72-43-5	Methoxychlor	5	U
53494-70-5	Endrin ketone	30	U
7421-36-3	Endrin aldehyde	5	U
57-74-9	Chlordane	5	U
8001-35-2	Toxaphene	30	U
12674-11-2	Aroclor-1016	60	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778620B

MW-10, S-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778620B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7191.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 20 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	420	U
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
108-60-1	bis(2-chloroisopropyl)ether	420	U
621-64-7	N-Nitroso-Di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
91-58-7	2-Chloronaphthalene	420	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
83-32-9	Acenaphthene	420	U
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
86-73-7	Fluorene	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778620B
MW-10, S-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778620B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7191.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 20 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	n-Nitrosodiphenylamine	420	U
122-66-7	1,2-Diphenylhydrazine(as azo)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-08	Phenanthrene	420	U
120-12-7	Anthracene	420	U
84-74-2	Di-n-butylphthalate	420	U
206-44-0	Fluoranthene	420	U
92-87-5	Benzidine	2100	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
56-55-3	Benzo[a]anthracene	420	U
91-94-1	3,3'-Dichlorobenzidine	830	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)phthalate	420	U
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo[b]fluoranthene	420	U
207-08-9	Benzo[k]fluoranthene	420	U
50-32-8	Benzo[a]pyrene	420	U
193-39-5	Indeno[1,2,3-cd]pyrene	420	U
53-70-3	Dibenz[a,h]anthracene	420	U
191-24-2	Benzo[g,h,i]perylene	420	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778620B
MW-10, S-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778620B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7191.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 20 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778620V

MW-16, 5-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778620V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6477.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 20 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl chloride	13	U
75-00-3	Chloroethane	13	U
75-69-4	Trichlorofluoromethane	13	U
75-09-2	Methylene chloride	11	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	31	U
107-02-8	Acrolein	63	U
107-13-1	Acrylonitrile	63	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9778620V
MW-16, S-5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778620V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6477.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 20 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: F.B. 11/5

Date of Report: 11/21/97
Project Number: 97122494
Lab ID: 97-0078631
Date Collected: 11/05/97 00:00
Collected By: Client
Date Received: 11/07/97 18:20

	Conc.	Unit
ORGANIC		
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778621V
F. B. 11/5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9778621V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6475.D

Level: (low/med) _____ Date Received: 11/7/97

% Moisture: not dec. _____ Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	12	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. 021
9778621V
E.B. 11/5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9778621V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6475.D

Level: (low/med) Date Received: 11/7/97

% Moisture: not dec. Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
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EMSL

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: MW-5,S-4

Date of Report: 11/25/97
Project Number: 97122494
Lab ID: 97-0078622
Date Collected: 11/06/97 00:00
Collected By: Client
Date Received: 11/07/97 18:20

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	20	mg/kg
Solids, Total	88	%
METALS		
Silver	<5.7	mg/kg
Arsenic	<11	mg/kg
Beryllium	<1.1	mg/kg
Cadmium	<2.3	mg/kg
Chromium	<5.7	mg/kg
Copper	<5.7	mg/kg
Mercury	<0.11	mg/kg
Nickel	<5.7	mg/kg
Lead	<23	mg/kg
Antimony	<0.57	mg/kg
Selenium	<0.57	mg/kg
Thallium	<0.57	mg/kg
Zinc	9.3	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-5, S-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78622

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E115

% Moisture: 12 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/20/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	2	U
72-55-9	4,4'-DDE	4	U
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	4	U
53494-70-5	Endrin ketone	20	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	4	U
8001-35-2	Toxaphene	20	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778622B
MW-5, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778622B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7192.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 12 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	380	U
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
108-60-1	bis(2-chloroisopropyl)ether	380	U
621-64-7	N-Nitroso-Di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
91-58-7	2-Chloronaphthalene	380	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
83-32-9	Acenaphthene	380	U
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778622B
MW-5, 5-4

025

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778622B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7192.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 12 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	n-Nitrosodiphenylamine	380	U
122-66-7	1,2-Diphenylhydrazine(as azo)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	950	U
85-01-08	Phenanthrene	380	U
120-12-7	Anthracene	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
92-87-5	Benzidine	1900	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
56-55-3	Benzo[a]anthracene	380	U
91-94-1	3,3'-Dichlorobenzidine	760	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	U
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo[b]fluoranthene	380	U
207-08-9	Benzo[k]fluoranthene	380	U
50-32-8	Benzo[a]pyrene	380	U
193-39-5	Indeno[1,2,3-cd]pyrene	380	U
53-70-3	Dibenz[a,h]anthracene	380	U
191-24-2	Benzo[g,h,i]perylene	380	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778622B
MW-5, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778622B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7192.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 12 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778622V
MW-5, S-4

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778622V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6478.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 12 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl chloride	11	U
75-00-3	Chloroethane	11	U
75-69-4	Trichlorofluoromethane	11	U
75-09-2	Methylene chloride	8	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	28	U
107-02-8	Acrolein	57	U
107-13-1	Acrylonitrile	57	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778622V
MW-5, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778622V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6478.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 12 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Date of Report: 11/25/97
Project Number: 97122494
Lab ID: 97-0078523
Date Collected: 11/06/97 00:00
Collected By: Client
Date Received: 11/07/97 18:20

Client Project: JFK-B.A.Terminal

Client Designation: MW-7,S-5

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	37	mg/kg
Solids, Total	81	%
METALS		
Silver	<6.1	mg/kg
Arsenic	<12	mg/kg
Beryllium	<1.2	mg/kg
Cadmium	<2.4	mg/kg
Chromium	<6.1	mg/kg
Copper	<6.1	mg/kg
Mercury	<0.12	mg/kg
Nickel	<6.1	mg/kg
Lead	<24	mg/kg
Antimony	<0.61	mg/kg
Selenium	<0.61	mg/kg
Thallium	<0.61	mg/kg
Zinc	9.6	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-7, S-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78623

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E116

% Moisture: 19 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/20/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3	U
319-85-7	beta-BHC	3	U
319-86-8	delta-BHC	3	U
58-89-9	gamma-BHC (Lindane)	3	U
76-44-8	Heptachlor	3	U
309-00-2	Aldrin	3	U
1024-57-3	Heptachlor epoxide	3	U
959-98-8	Endosulfan I	3	U
60-57-1	Dieldrin	5	U
72-55-9	4,4'-DDE	5	U
72-20-8	Endrin	5	U
33213-65-9	Endosulfan II	5	U
72-54-8	4,4'-DDD	5	U
1031-07-8	Endosulfan sulfate	5	U
50-29-3	4,4'-DDT	5	U
72-43-5	Methoxychlor	30	U
53494-70-5	Endrin ketone	5	U
7421-36-3	Endrin aldehyde	5	U
57-74-9	Chlordane	30	U
8001-35-2	Toxaphene	60	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778623B

MW-7, 5-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778623B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7193.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 19 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	410	U
108-95-2	Phenol	410	U
111-44-4	bis(2-Chloroethyl)ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
108-60-1	bis(2-chloroisopropyl)ether	410	U
621-64-7	N-Nitroso-Di-n-propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
111-91-1	bis(2-Chloroethoxy)methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-methylphenol	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
91-58-7	2-Chloronaphthalene	410	U
131-11-3	Dimethylphthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	410	U
83-32-9	Acenaphthene	410	U
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
86-73-7	Fluorene	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778623B

MW-7, 5-5 W32

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778623B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7193.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 19 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	n-Nitrosodiphenylamine	410	U
122-66-7	1,2-Diphenylhydrazine(as azo)	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	1000	U
85-01-08	Phenanthrene	410	U
120-12-7	Anthracene	410	U
84-74-2	Di-n-butylphthalate	410	U
206-44-0	Fluoranthene	410	U
92-87-5	Benzidine	2100	U
129-00-0	Pyrene	410	U
85-68-7	Butylbenzylphthalate	410	U
56-55-3	Benzo[a]anthracene	410	U
91-94-1	3,3'-Dichlorobenzidine	820	U
218-01-9	Chrysene	410	U
117-81-7	bis(2-Ethylhexyl)phthalate	410	U
117-84-0	Di-n-octylphthalate	410	U
205-99-2	Benzo[b]fluoranthene	410	U
207-08-9	Benzo[k]fluoranthene	410	U
50-32-8	Benzo[a]pyrene	410	U
193-39-5	Indeno[1,2,3-cd]pyrene	410	U
53-70-3	Dibenz[a,h]anthracene	410	U
191-24-2	Benzo[g,h,i]perylene	410	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778623B
MW-7, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778623B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7193.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 19 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.99	210	J
2.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778623V
MW-7, S-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778623V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6479.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 19 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	10	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	31	U
107-02-8	Acrolein	62	U
107-13-1	Acrylonitrile	62	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778623V
MW-7 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778623V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6479.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 19 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: MW-9,S-5

Date of Report: 11/25/97
Project Number: 97122494
Lab ID: 97-0078624
Date Collected: 11/06/97 00:00
Collected By: Client
Date Received: 11/07/97 18:20

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	29	mg/kg
Solids, Total	84	%
METALS		
Silver	<5.9	mg/kg
Arsenic	<12	mg/kg
Beryllium	<1.2	mg/kg
Cadmium	<2.4	mg/kg
Chromium	<5.9	mg/kg
Copper	<5.9	mg/kg
Mercury	<0.12	mg/kg
Nickel	<5.9	mg/kg
Lead	<24	mg/kg
Antimony	<0.59	mg/kg
Selenium	<0.59	mg/kg
Thallium	<0.59	mg/kg
Zinc	9.4	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-9, S-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78624

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E117

% Moisture: 16 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	4	U
72-55-9	4,4'-DDE	4	U
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	20	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778624B

MW-9, S-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778624B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7194.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	400	U
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
108-60-1	bis(2-chloroisopropyl)ether	400	U
621-64-7	N-Nitroso-Di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
91-58-7	2-Chloronaphthalene	400	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	990	U
100-02-7	4-Nitrophenol	990	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778624B

MW-9, 5-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778624B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7194.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	990	U
86-30-6	n-Nitrosodiphenylamine	400	U
122-66-7	1,2-Diphenylhydrazine(as azo)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	990	U
85-01-08	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
92-87-5	Benzidine	2000	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
56-55-3	Benzo[a]anthracene	400	U
91-94-1	3,3'-Dichlorobenzidine	790	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	400	U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo[b]fluoranthene	400	U
207-08-9	Benzo[k]fluoranthene	400	U
50-32-8	Benzo[a]pyrene	400	U
193-39-5	Indeno[1,2,3-cd]pyrene	400	U
53-70-3	Dibenz[a,h]anthracene	400	U
191-24-2	Benzo[g,h,i]perylene	400	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778624B
MW-9, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778624B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7194.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778624V

MW-9, 5-5

U41

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778624V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6480.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 16 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	10	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	30	U
107-02-8	Acrolein	60	U
107-13-1	Acrylonitrile	60	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. 9778624V MW-9, 5.5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778624V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6480.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 16 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: F.B. 11/6

Date of Report: 11/21/97
Project Number: 97122494
Lab ID: 97-0078635
Date Collected: 11/05/97 00:00
Collected By: Client
Date Received: 11/07/97 18:20

	Conc.	Unit
ORGANIC		
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778625V

F.B. 11/6

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9778625V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6474.D

Level: (low/med) Date Received: 11/7/97

% Moisture: not dec. Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	6	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778625V
F.B. 11/6

U45

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9778625V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6474.D

Level: (low/med) Date Received: 11/7/97

% Moisture: not dec. Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: MW-3,S-4

Date of Report:	11/25/97	
Project Number:	97122697	
Lab ID:	97-0082199	
Date Collected:	11/10/97 03:00	
Collected By:	Client	
Date Received:	11/12/97 17:00	

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	93	mg/kg
Solids, Total	86	%
METALS		
Silver	<5.8	mg/kg
Arsenic	<12	mg/kg
Beryllium	<1.2	mg/kg
Cadmium	<2.3	mg/kg
Chromium	17	mg/kg
Copper	22	mg/kg
Mercury	<0.12	mg/kg
Nickel	<5.8	mg/kg
Lead	<23	mg/kg
Antimony	<0.58	mg/kg
Selenium	<0.58	mg/kg
Thallium	<0.58	mg/kg
Zinc	26	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-3, 5-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-82199

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E131

% Moisture: 14 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	5.4	
72-55-9	4,4'-DDE	4	U
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	20	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782199B
MW-3, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7198.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 14 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	390	U
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
108-60-1	bis(2-chloroisopropyl)ether	390	U
621-64-7	N-Nitroso-Di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
91-58-7	2-Chloronaphthalene	390	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
83-32-9	Acenaphthene	390	U
51-28-5	2,4-Dinitrophenol	970	U
100-02-7	4-Nitrophenol	970	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
86-73-7	Fluorene	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782199B

MW-3, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7198.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 14 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	970	U
86-30-6	n-Nitrosodiphenylamine	390	U
122-66-7	1,2-Diphenylhydrazine(as azo)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	970	U
85-01-08	Phenanthrene	390	U
120-12-7	Anthracene	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
92-87-5	Benzidine	1900	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
56-55-3	Benzo[a]anthracene	390	U
91-94-1	3,3'-Dichlorobenzidine	780	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo[b]fluoranthene	390	U
207-08-9	Benzo[k]fluoranthene	390	U
50-32-8	Benzo[a]pyrene	390	U
193-39-5	Indeno[1,2,3-cd]pyrene	390	U
53-70-3	Dibenz[a,h]anthracene	390	U
191-24-2	Benzo[g,h,i]perylene	390	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782199B
MW-3, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7198.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 14 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1. 1002-84-2	Pentadecanoic acid	23.01	170	J
2.				
3.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782199V
MW-3, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8498.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 14 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	10	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	29	U
107-02-8	Acrolein	58	U
107-13-1	Acrylonitrile	58	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782199V
MW-3, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8498.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 14 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	1.89	9	J
2.	Unknown Hydrocarbon	5.99	6	J
3.				
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Date of Report: 11/25/97
Project Number: 97122697
Lab ID: 97-0082200
Date Collected: 11/10/97 00:00
Collected By: Client
Date Received: 11/12/97 17:00

Client Project: JFK-B.A.Terminal

Client Designation: MW-6,S-4

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	22	mg/kg
Solids, Total	83	%
METALS		
Silver	<5.9	mg/kg
Arsenic	<12	mg/kg
Beryllium	<1.2	mg/kg
Cadmium	<2.4	mg/kg
Chromium	<5.9	mg/kg
Copper	<5.9	mg/kg
Mercury	<0.12	mg/kg
Nickel	<5.9	mg/kg
Lead	<24	mg/kg
Antimony	<0.59	mg/kg
Selenium	<0.59	mg/kg
Thallium	<0.59	mg/kg
Zinc	7.1	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-6, S-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-82200

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E124

% Moisture: 17 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3	U
319-85-7	beta-BHC	3	U
319-86-8	delta-BHC	3	U
58-89-9	gamma-BHC (Lindane)	3	U
76-44-8	Heptachlor	3	U
309-00-2	Aldrin	3	U
1024-57-3	Heptachlor epoxide	3	U
959-98-8	Endosulfan I	3	U
60-57-1	Dieldrin	5	U
72-55-9	4,4'-DDE	5	U
72-20-8	Endrin	5	U
33213-65-9	Endosulfan II	5	U
72-54-8	4,4'-DDD	5	U
1031-07-8	Endosulfan sulfate	5	U
50-29-3	4,4'-DDT	5	U
72-43-5	Methoxychlor	30	U
53494-70-5	Endrin ketone	5	U
7421-36-3	Endrin aldehyde	5	U
57-74-9	Chlordane	30	U
8001-35-2	Toxaphene	60	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782200B

MW-6, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782200B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7199.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 17 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	400	U
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
108-60-1	bis(2-chloroisopropyl)ether	400	U
621-64-7	N-Nitroso-Di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
91-58-7	2-Chloronaphthalene	400	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782200B
MW-6, S-4

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782200B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7199.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 17 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	n-Nitrosodiphenylamine	400	U
122-66-7	1,2-Diphenylhydrazine(as azo)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-08	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
92-87-5	Benzidine	2000	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
56-55-3	Benzo[a]anthracene	400	U
91-94-1	3,3'-Dichlorobenzidine	800	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	400	U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo[b]fluoranthene	400	U
207-08-9	Benzo[k]fluoranthene	400	U
50-32-8	Benzo[a]pyrene	400	U
193-39-5	Indeno[1,2,3-cd]pyrene	400	U
53-70-3	Dibenz[a,h]anthracene	400	U
191-24-2	Benzo[g,h,i]perylene	400	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782200B
MW-6, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782200B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7199.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 17 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782200V
MW-6, S-4

050

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782200V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8499.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 17 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	11	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1;1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	30	U
107-02-8	Acrolein	60	U
107-13-1	Acrylonitrile	60	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9782200V
MW-6, S-4

J59

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782200V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8499.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 17 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	1.89	8	J
2. 138-86-3	Limonene	19.12	8	J
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: MW-8,S-4

Date of Report: 11/25/97
Project Number: 97122697
Lab ID: 97-0082201
Date Collected: 11/10/97 00:00
Collected By: Client
Date Received: 11/12/97 17:00

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	27	mg/kg
Solids, Total	85	%
METALS		
Silver	<5.9	mg/kg
Arsenic	<12	mg/kg
Beryllium	<1.2	mg/kg
Cadmium	<2.3	mg/kg
Chromium	<5.9	mg/kg
Copper	<5.9	mg/kg
Mercury	<0.12	mg/kg
Nickel	<5.9	mg/kg
Lead	<23	mg/kg
Antimony	<0.59	mg/kg
Selenium	<0.59	mg/kg
Thallium	<0.59	mg/kg
Zinc	11	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-8, S-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-82201

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E126

% Moisture: 15 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	2	U
72-55-9	4,4'-DDE	21	
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	4	U
53494-70-5	Endrin ketone	20	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	4	U
8001-35-2	Toxaphene	20	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U
		40	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782201B
MW-8, S-4

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782201B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7200.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 15 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	390	U
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
108-60-1	bis(2-chloroisopropyl)ether	390	U
621-64-7	N-Nitroso-Di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
91-58-7	2-Chloronaphthalene	390	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
83-32-9	Acenaphthene	390	U
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
86-73-7	Fluorene	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782201B
MW-8, S4

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782201B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7200.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 15 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	n-Nitrosodiphenylamine	390	U
122-66-7	1,2-Diphenylhydrazine(as azo)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	980	U
85-01-08	Phenanthrene	390	U
120-12-7	Anthracene	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
92-87-5	Benzidine	2000	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
56-55-3	Benzo[a]anthracene	390	U
91-94-1	3,3'-Dichlorobenzidine	780	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo[b]fluoranthene	390	U
207-08-9	Benzo[k]fluoranthene	390	U
50-32-8	Benzo[a]pyrene	390	U
193-39-5	Indeno[1,2,3-cd]pyrene	390	U
53-70-3	Dibenz[a,h]anthracene	390	U
191-24-2	Benzo[g,h,i]perylene	390	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782201B
MW-8, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782201B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7200.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 15 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782201V
MW-8, S-4

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782201V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8500.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 15 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	12	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	29	U
107-02-8	Acrolein	59	U
107-13-1	Acrylonitrile	59	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782201V
MW-8, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782201V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8500.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 15 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 811-97-2	Norflurane	1.88	8	J
2. 80-56-8	.alpha.-Pinene	16.82	7	J
3.				
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JPK-B.A.Terminal

Client Designation: MW-4,S-4

Date of Report: 11/25/97
Project Number: 97122697
Lab ID: 97-0082202
Date Collected: 11/11/97 09:00
Collected By: Client
Date Received: 11/12/97 17:00

	Conc.	Unit
LIMITED		
Phenolics as phenol	<1.2	mg/kg
Total Cyanide	<0.25	mg/kg
Petroleum Hydrocarbons, Total (I.R)	27	mg/kg
Solids, Total	80	%
METALS		
Silver	<6.1	mg/kg
Arsenic	<12	mg/kg
Beryllium	<1.2	mg/kg
Cadmium	<2.4	mg/kg
Chromium	<6.1	mg/kg
Copper	<6.1	mg/kg
Mercury	<0.12	mg/kg
Nickel	<6.1	mg/kg
Lead	<25	mg/kg
Antimony	<0.61	mg/kg
Selenium	<0.61	mg/kg
Thallium	<0.61	mg/kg
Zinc	12	mg/kg
ORGANIC		
Pesticides		
Pesticides and PCBs by 8080	see attached	ug/kg
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/kg
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/kg
MTBE by GC/MS(624/8260)	see attached	ug/kg
VOA by 8260 with Library Search	see attached	ug/kg

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-4, S-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-82202

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E125

% Moisture: 20 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3	U
319-85-7	beta-BHC	3	U
319-86-8	delta-BHC	3	U
58-89-9	gamma-BHC (Lindane)	3	U
76-44-8	Heptachlor	3	U
309-00-2	Aldrin	3	U
1024-57-3	Heptachlor epoxide	3	U
959-98-8	Endosulfan I	3	U
60-57-1	Dieldrin	5	U
72-55-9	4,4'-DDE	5	U
72-20-8	Endrin	5	U
33213-65-9	Endosulfan II	5	U
72-54-8	4,4'-DDD	5	U
1031-07-8	Endosulfan sulfate	5	U
50-29-3	4,4'-DDT	5	U
72-43-5	Methoxychlor	30	U
53494-70-5	Endrin ketone	5	U
7421-36-3	Endrin aldehyde	5	U
57-74-9	Chlordane	30	U
8001-35-2	Toxaphene	60	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782202B
MW-4, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7201.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 20 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	420	U
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
108-60-1	bis(2-chloroisopropyl)ether	420	U
621-64-7	N-Nitroso-Di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
91-58-7	2-Chloronaphthalene	420	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
83-32-9	Acenaphthene	420	U
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
86-73-7	Fluorene	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782202B
MW-4, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7201.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 20 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	n-Nitrosodiphenylamine	420	U
122-66-7	1,2-Diphenylhydrazine(as azo)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-08	Phenanthrene	420	U
120-12-7	Anthracene	420	U
84-74-2	Di-n-butylphthalate	420	U
206-44-0	Fluoranthene	420	U
92-87-5	Benzidine	2100	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
56-55-3	Benzo[a]anthracene	420	U
91-94-1	3,3'-Dichlorobenzidine	830	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)phthalate	420	U
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo[b]fluoranthene	420	U
207-08-9	Benzo[k]fluoranthene	420	U
50-32-8	Benzo[a]pyrene	420	U
193-39-5	Indeno[1,2,3-cd]pyrene	420	U
53-70-3	Dibenz[a,h]anthracene	420	U
191-24-2	Benzo[g,h,i]perylene	420	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782202B
MW-4, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7201.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 20 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782202V
MW-4, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8501.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 20 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl chloride	13	U
75-00-3	Chloroethane	13	U
75-69-4	Trichlorofluoromethane	13	U
75-09-2	Methylene chloride	13	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	31	U
107-02-8	Acrolein	63	U
107-13-1	Acrylonitrile	63	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782202V
MW-4, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8501.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 20 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 811-97-2	Norflurane	1.89	7	J
2.				
3.				
4.				
5.				
6.				
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29.				
30.				

EMSL

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: F.B. 11/10

Date of Report: 11/21/97
Project Number: 97122697
Lab ID: 97-0062203
Date Collected: 11/10/97 00:00
Collected By: Client
Date Received: 11/12/97 17:00

	Conc.	Unit
ORGANIC		
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/L
VOA by 8260 with Library Search	see attached	ug/l

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782203V
F.B. 11/10

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9782203V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8496.D

Level: (low/med) _____ Date Received: 11/12/97

% Moisture: not dec. _____ Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	7	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782203V
R.B 11/10

U7

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9782203V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8496.D

Level: (low/med) Date Received: 11/12/97

% Moisture: not dec. Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 3 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	17.71	27	J
2.	Unknown	21.10	9	J
3.	Unknown	21.12	12	J
4.				
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Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK-B.A.Terminal

Client Designation: F.B. 11/11

Date of Report:	11/21/97
Project Number:	97122697
Lab ID:	97-0062204
Date Collected:	11/11/97 00:00
Collected By:	Client
Date Received:	11/12/97 17:00

	Conc.	Unit
ORGANIC		
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260	see attached	ug/L
VOA by 8260 with Library Search	see attached	ug/l

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782204V

F.B. 11/11

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9782204V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8495.D

Level: (low/med) Date Received: 11/12/97

% Moisture: not dec. Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	7	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782204V
F.B. 11/11

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9782204V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8495.D

Level: (low/med) Date Received: 11/12/97

% Moisture: not dec. Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
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EMSL

LABORATORY DELIVERABLES

THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following laboratory deliverables shall be included in the data submission. All deviations from the accepted methodology and procedures, or performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The proposed "Technical Requirements for Site Remediation" rules, which appeared in the May 4, 1992 New Jersey Register, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits be included in one section of the data package and in the main body of the report.

		Check If Complete
1.	Cover Page, Title Page listing Lab Certification #, facility name, address & date of report	X
2.	Table of Contents	X
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds.	X
4.	Summary Table cross-referencing field ID #'s vs. Lab ID #'s.	X
5.	Document bound, paginated and legible.	X
6.	Chain of Custody	X
7.	Methodology Summary	X
8.	Laboratory Chronicle and Holding Time Check.	X
9.	Results submitted on a dry weight basis (if applicable).	X
10.	Method Detection Limits.	X
11.	Lab certified by NJDEP for parameters or appropriate category of parameters or a member of the USEP CLP.	X
12.	Non-Conformance Summary	X

Laboratory Manager or Environmental Consultant's Signature

12-2-97
Date

EMSL

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

A. Checklist which must be attached to the Summary

The following information must be reported in the Closure Plan Implementation Summary for all laboratory analyses performed in the compliance with the site assessment requirements:

Page #		
1	1.	Name and address of the facility.
1	2.	Name of the laboratory performing the sample analysis.
1	3.	NJDEP certification number assigned to the laboratory pursuant to N.J.A.C. 7:18.
1	4.	Laboratory sample identification number.
1	5.	Customer sample identification number corresponding to the laboratory sample identification.
1	6.	Sample Location (also on the site diagram).
1	7.	Matrix of the sample analyzed (i.e., water or sediments; including soil, sediment, and sludges). All sediment results must be reported on a dry weight basis.
93-96	8.	The reference for the method used (e.g., EPA Method 625, 40 CFR Part 136).
1	9.	The signature of the person completing the report form.
1	10.	The dates the laboratory report form was prepared, as well as the dates the sample were collected, submitted and analyzed.
97	11.	A list of all parameters (constituents and conditions) for which the analyses were performed.
4-79	12.	Sample results and corresponding units for each parameter.

CHAIN OF CUSTODY

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY REPORT

9712249683

LABORATORY DESTINATION: EMSL

PAGE OF

BILLING INFORMATION		PROJECT INFORMATION	
BILL TO:	PA NY & NJ	PROJECT:	JFK – B.A. TERMINAL
ADDRESS:	241 Erie Street	JOB#:	A3-972.010
	Jersey City, NJ 07310-1397	LOCATION:	N.Y.
ATTENTION:	V. Berndt	CONTACT:	Dorian Bailey/Angelos Zafirelis
TELEPHONE:	201-216-2963	SAMPLED BY:	Terry
FAX:	201-216-2949	ANALYTICAL PROTOCOL:	

SAMPLE ID	DATE	TIME	SAMPLE TYPE: COMPOSITE	SAMPLE TYPE: GRAB	SAMPLE MATRIX	# OF BOTTLES	ANALYSIS (METHOD): PP+40 + MTBE + Ac + Ac + Xylenes	TPHC	VOAs+15 + MTBE + Ac + Ac + Xylenes										PRESERVATIVES: H2SO4	HCL	HNO3	NAOH	NON-PRES
MW-2, S-5	11/5/97	78619			SOIL	2	✓	✓															2
MW-10, S-5	↓		20		SOIL	2	✓	✓															2
F.B. 11/5	↓		21		AQ	2			✓											2			
MW-5, S-4	11/6/97		22		SOIL	2	✓	✓															2
MW-7, S-5	↓		23		↓	2	✓	✓															2
MW-9, S-5	↓		24		↓	2	✓	✓															2
F.B. 11/6	↓		25		AQ	2			✓											2			

TURNAROUND (INDICATE IN CALENDAR DAYS): 2 weeks FAX: HARD COPY:

RELINQUISHED BY: [signature]	DATE: 11/7/97 TIME: 3:00	DELIVERABLES/ (CIRCLE ONE): DATA SUM (RED/DELIV) CLP NY/ASP OTHER:
RECEIVED BY: [signature] EMSL	DATE: 11-7-97 TIME: 3:00	
RELINQUISHED BY:	DATE: TIME:	COMMENTS: One Hardcopy report for all soil samples by 11/26/97
RECEIVED BY:	DATE: 11/7	

THE PORT AUTHORITY OF N.Y. & N.J.
ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY REPORT

97122697 v3

LABORATORY DESTINATION: EMSL

PAGE OF

BILLING INFORMATION		PROJECT INFORMATION	
BILL TO:	PA NY & NJ	PROJECT:	JFK - B.A. TERMINAL
ADDRESS:	241 Erie Street	JOB#:	A3-972.010
	Jersey City, NJ 07310-1397	LOCATION:	N.Y.
ATTENTION:	V. Berndt	CONTACT:	Dorian Bailey/Angelos Zafirelis
TELEPHONE:	201-216-2963	SAMPLED BY:	Terry
FAX:	201-216-2949	ANALYTICAL PROTOCOL:	

SAMPLE ID	DATE	TIME	SAMPLE TYPE: COMPOSITE	SAMPLE TYPE: GRAB	SAMPLE MATRIX	# OF BOTTLES	ANALYSIS (METHOD): PP+40+MTBE+Ac+Ac+Xylenes	TPHC	VOA+15+MTBE+Ac+Ac+Xylenes	PRESERVATIVES: H2SO4	HCL	HNO3	NAOH	NON-PRES
MW-3, S-4	11/10/97	821	99		SOIL	2	✓	✓						2
MW-6, S-4	↓	200			↓	2	✓	✓						2
MW-8, S-4	↓	201			↓	2	✓	✓						2
MW-4, S-4	11/11/97	202			↓	2	✓	✓						2
F.B. 11/10	11/10/97	203			AQ	2			✓		2			
F.B. 11/11	11/11/97	204			AQ	2			✓		2			

TURNAROUND (INDICATE IN CALENDAR DAYS): 2 weeks FAX: HARD COPY:

INQUISHED BY: [signature]	DATE: 11/12/97 TIME: ~~[illegible]~~ 10:55	DELIVERABLES/ (CIRCLE ONE): DATA SUM NY/ASP RED/DELIV CLP OTHER:
RECEIVED BY: Joe Flinn EMSL	DATE: 11-12-97 TIME: 10:55	
RELINQUISHED BY:	DATE: TIME:	COMMENTS: One Hardcopy report for all soil samples by 11/26/97
RECEIVED BY:	DATE: 11/12	

EMSL ANALYTICAL, INC.

INTERNAL CHAIN OF CUSTODY

PETROLEUM HYDROCARBONS

ATE	TIME	SAMPLE ID #	ANALYSIS	INITIALS	SIGNATURE
11/5/97	15:00	73398+399	TPH/S	V.W.	Velisa Walthus
↓	↓	73444-446	↓	↓	↓
		74149-150			
	↓	75568-572	↓	↓	↓
11/8/97	10:00	78291+92	TPH/S	V.W.	Velisa Walthus
11/9/97	12:00	77051-54	TPH/AQ	P.S.	Velisa Walthus
		77677			
		78588-91			
	↓	78618	↓	↓	↓
11/10/97	18:30	80893-95	TPH/S	V.W.	Velisa Walthus
↓	↓	78612-16	↓	↓	↓
		78459+60			
11/11/97	15:00	81171-84	TPH/S	V.W.	Velisa Walthus
11/12/97	12:00	78619-24 29-38-43	TPH/S	V.W.	Velisa Walthus
↓	↓	81911-913	↓	↓	↓
11/13/97	14:00	81569	TPH/AQ	P.S.	Velisa Walthus
↓	↓	82448	↓	↓	↓
	16:30	81863-69	TPH/S	V.W.	Velisa Walthus
		81908			
		82199-202			
↓		82574-76	↓	↓	↓

Organics Internal COC

Sample Number(s)	Analysis	Date	Name(Print)	Initial
78619-25	VOA+ACAC+MTBE+LS	11/12/97	S. Ostrowski	So
82199-204	VOA+ACAC+MTBE+LS	11/13/97	S. Ostrowski	So
81904	~~TCLP Benzene~~ Zhe	11/13/97	S. Ostrowski	So
81904	TCLP Benzene	11/14/97	S. Ostrowski	So
78627	BN	11/13/97	SVAnetta	SV
78285	BNA			
78426; 31-35	BNA			
77748-57; 66	BN	11/12-3/97		
78427-28	624	11/13-11/14/97	S. Hessler	SV
778431-39	624+	11/13/97		
81276	624	11/14/97		
81279-88	624	11/13-11/14/97		
81841-	624	11/14/97		
82184-87	624+	11/14/97		
82196-98	624+	11/14/97		
77758-65	BN	11/13/97	SVAnetta	SV
78626	BNW	11/15/97		
78436-8	BNAW	11/15/97		
83201 83200 83199	BTEX	11/18/97		
78618		11/14/97		
78581/5				
82574-6		11/15-18/97		
83229	BTEX	11/18/97		
82182-83	524.2+	11/17/97	S. Hessler	SV
83221-26	524.2	11/17-11/18/97		
83202-18	VOA+PAH	11/17-18/97	SVAnetta	SV
82855-60	BTEX624	11/15, 11/18/97	S. Hessler	SV
9777689	624	11/18/97		
81186-87	624	11/14, 11/18/97		
85370-1	8020	11/18/97	SVAnetta	SV
85650-53	VOA + QC	11/19/97	S. Ostrowski	So
-25, 78628-34, 82199-202	BN8070	11/17/97	SVAnetta	SV

Mercury Analysis
Post Sequence Summary Report

Methodology EPA

Operator: E.TAYLOR
Reviewer:
Data file C:\HGTALK\DATA\HGNOV14B
Samples Prepared 11/14/97

Wavelength 253.7 nm
Loop size ml
Instrument ID: AMI200
Lab. Name: EMSL
IDL : .05 ug/L
CRDL : .2 ug/L
Detector Range 1.0 Au/1 volt
Final Sample Volume 100 ml

Current
C:\HGTALK\METHOD\HGSOIL.EME
C:\HGTALK\SEQUENCE\HGNOV14B.hsq
Fri Nov 14 17:30:46 1997

Original
C:\HGTALK\METHOD\HGSOIL.EME
C:\HGTALK\SEQUENCE\HGNOV14B.hsq
Fri Nov 14 17:30:46 1997

SDG No	Inj No	Time	Vial	Sample ID	Samp Type	Calc Amt	Test Value	Result	Dil Fact
	1	17:31	1/11	RINSE	sample	0.0142 ug/L		Pass	1.00
	2	17:35	1/1	BLANK	blank	0.0 ug/L			1.00
	3	17:38	1/2	S1	standard	0.2000 ug/L			1.00
	4	17:42	1/3	S2	standard	0.5000 ug/L			1.00
	5	17:46	1/4	S3	standard	1.0000 ug/L			1.00
	6	17:49	1/5	S4	standard	2.0000 ug/L			1.00
	7	17:53	1/6	S5	standard	5.0000 ug/L			1.00
Correlation coefficient 0.999921 Passed									
Rf0 -4.5512e-002 Rf1 4.5542e-005									
Standard Error Passed									
	8	17:57	1/11	RINSE	sample	0.0046 ug/L		Pass	1.00
	9	18:00	1/7	ICV	ICV	2.0708 ug/L	103.54%	Pass	1.00
	10	18:04	1/11	RINSE	sample	0.0120 ug/L		Pass	1.00
	11	18:08	1/1	ICB	ICB	0.0052 ug/L		Pass	1.00
	12	18:12	1/1	PREP BLK	PB	0.0032 ug/L		Pass	1.00
	13	18:15	2/1	CONTROL	LCS	1.9878 ug/L	99.39%	Pass	1.00
	14	18:19	2/2	78619	sample	0.0049 mg/Kg		Pass	1.00
	15	18:23	2/3	78619 DUP	duplicate	0.0080 mg/Kg	0.00%	Fail	1.00
	16	18:26	2/4	78619 MS	sample	0.9773 mg/Kg		Pass	1.00
	17	18:30	2/5	78619 MSD	sample	0.9656 mg/Kg		Pass	1.00
	18	18:34	2/6	78620	sample	0.0002 mg/Kg		Pass	1.00
	19	18:37	2/7	78622	sample	0.0058 mg/Kg		Pass	1.00
	20	18:41	2/8	78623	sample	-0.0005 mg/Kg		Pass	1.00
	21	18:45	2/9	78624	sample	0.0004 mg/Kg		Pass	1.00
	22	18:48	1/11	RINSE	sample	0.0044 ug/L		Pass	1.00
	23	18:52	1/7	CCV1	CCV	1.9108 ug/L	95.54%	Pass	1.00
	24	18:56	1/10	RINSE	sample	0.0110 ug/L		Pass	1.00
	25	18:59	1/1	CCB1	CCB	0.0109 ug/L		Pass	1.00
Batch Passed									
	26	19:03	2/10	82199	sample	0.0018 mg/Kg		Pass	1.00
	27	19:07	2/11	82200	sample	0.0061 mg/Kg		Pass	1.00
	28	19:11	2/12	82201	sample	-0.0012 mg/Kg		Pass	1.00
	29	19:14	2/13	82202	sample	0.0001 mg/Kg		Pass	1.00
	30	19:18	2/14	81572	sample	0.0096 mg/Kg		Pass	1.00
	31	19:22	1/10	RINSE	sample	0.0104 ug/L		Pass	1.00
	32	19:25	1/7	CCV2	CCV	1.8506 ug/L	92.53%	Pass	1.00
	33	19:29	1/10	RINSE	sample	0.0095 ug/L		Pass	1.00
	34	19:33	1/9	CCB2	CCB	0.0036 ug/L		Pass	1.00
Batch Passed									

End of Report. Number of page(s) 1

EJT 11/14/97

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

USC

EMSL ANALYTICAL, INC.

INTERNAL CHAIN OF CUSTODY

ORGANIC PREP.

DATE	TIME	SAMPLE ID #	ANALYSIS	INITIALS	SIGNATURE	REC'D BY	DATE
11/17	3:00	BIK	BNA 30g	BY	Bryan Young		11/18/97
		78619					
		78620					
		78622					
		78623					
		78624					
	4:30	78628	BN 30g				
		78632					
		78634					
		82199	BNA 30g				
		82200					
		82201					
	5:30	82202					
		83202	BN 30g				
		83203					
		83204					
		83205					
		83206					

Organic Preparation Log

QC Number: 454

Fraction: P/P Soil

	Sample (EMSL No.)	A-type (bna,bn, etc.)	Amount (g or mL)	FV (final vol)	Ext. (ext. date)	By (initials)	Conc. (conc. date)	By (initials)	Clnup (clean-up)	Comments
1	81969	P/P	5.0	10	11/18	DC	11/18	DC		MB # 451-3
2	81970		↓							
3	78619		30							
4	78620									
5	78622									
6	78623									
7	78624									
8	82199									
9	82200									
10	82201									
11	82202									
12										
13										
14										
15										
16										
17										
18										
19										
20										
Blank 1										
Blank 2										
Blank 3										
LS										
LSD										

Extraction Method: SepF ____ LIQ/LIQ ____ Sonicat ____ Dilution ____

Lot Information

Surrogat	Lot#	Amount(ul)	Spike Solutions	Lot#	Amount(uL)	Solvent	Lot#
BN			BN			MeCl2	
Acid			Acid			Acetone	
Pest/PCB			Pest/PCB			Hexane	
			TPH			SodSulfate	
			Other			Other	

Sample Digestion Chain of Custody

Digestion Date Begin: 11/18/97

Tech(s): TL

Batch Number: B652

Book: 277 Page: 1 Temp (C))

Matrix:	Aqueous	Soil	Sludge	Oil	Filter	Paintchips	Cassette	TCLP	Other:
		X							

Analysis: X ICP X GFAA

Analysis Date(s) 11-19-97

#	EMSL Sample ID	Prep Amount Wt(g)/Vol(ml)	Volume(ml)	Element(s) Required	TS%	Due
S10C	78619	0.5027	50	As, Be, Cd, Cr, Cu, Pb, Ni, Ag, Zn	84	② 11/20
S11	78620	0.5115	50		80	②
S27	78622	0.5004	50		88	②
S12	78623	0.5029	50		81	②
S13	78624	0.5035	50		84	②
S14	82199	0.5003	50		86	② 11/21
S15	82200	0.5070	50		83	②
S16	82201	0.5014	50		85	②
S17	82202	0.5092	50		80	②
S18	81905	2.0013	50	Ba	8.5	① 11/19
S19	85120	0.5006	50		97	11/21
S20	85121	0.5013	50		84	
S21	85122	0.5039	50		95	
S22	85123	0.4992	50		89	
S23	85124	0.4994	50		95	
S24	85125	0.5077	50		85	
S25	85126	0.5019	50		97	
S26	85127	0.5003	50		84	
S28				① Reported 11-19-97 16:00 SMP		
S29				② Reported 11-20-97 15:30 JB		
	Ref# 97-857			~~Tier~~		
				NOV19A		

#			Batch QC Provided: Initial Wt g/Vol mL	Final Vol
S2,3	2	Prep Blank	20 ml	50
S4	1	Control #1 ICP	20ml	50
S6	1	Sample Dup	0.5067	50
S7	1	Matrix Spike #1 ICP	0.5000	50
S8	1	M.Spike DuP #1 ICP	0.5006	50
S5	1	Control #2 GFAA	20ml	50
		SampleDup #2		
S9	1	Matrix Spike#2 GFAA	0.5019	50
S10	1	M.Spike Dup#2 GFAA	0.5075	50

Digestion Method:

	SW-846 3005	X	SW-846 3051
	SW-846 3010		DIG 200 for ICP/GFAA
	SW-846 3015		NIOSH
	SW-846 3020	Other:	
	SW-846 3040		
	SW-846 3050		

Amount Spike Added (ml)	Standard Serial ID	
0.5	ICP	109-23-D
0.5	GF	257-27-G

Lot # HNO3 Lot # HCL

Lot # 1+1HNO3 Lot # 1+1HCL

Lot # H2O2

Relinquished By: John [signature] Date: 11/19/97 Received By: S M Pomeroy Date: 11-19-97

EMSL ANALYTICAL, INC.

INTERNAL CHAIN OF CUSTODY

WET CHEMISTRY

DATE	TIME	SAMPLE ID #	ANALYSIS	INITIALS	SIGNATURE
11/13/97	9 PM	81569	NH_3-N	MY	Mary Yan
↓	↓	75432-38	↓	↓	↓
11/17/97	9 AM	78458	TKN	MY	Mary Yan
↓	↓	75434-38	↓	↓	↓
11/18/97	8 AM	75431	Phenol	MY	Mary Yan
		75434-38			
		75599-78607	↓		
↓	↓	85120-29	T-CN	↓	↓
11/19/97	8 AM	78608-11	Phenol	MY	Mary Yan
		81156-87			
		81279-82			
		81252-87	↓	↓	↓
		81862	TSS	MY	Mary Yan
↓	↓	85148	↓	↓	↓
11/19/97	3 PM	85722	TDS	MY	Mary Yan
11/20/97	9 AM	85130-39	T-CN	MY	Mary Yan
		78619-24	Phenol	MY	Mary Yan
		81185			
		82199-82202			
↓	✓	83233	↓	↓	↓

092

EMSL ANALYTICAL, INC.

INTERNAL CHAIN OF CUSTODY

EMSL LAB ID NO. 78619-25, 82199-204

PROJECT NO. 97122494 97122697

SAMPLE/CONTAINERS

PARAMETERS

DATE	TIME	ANALYSIS	NAME (PRINT)	SIGNATURE
11/13-11/14/97		T. Cyanide	Paritton Singh	[signature]
11/20-11/21/97		Pest/PCB's	Jim Kelley	[signature]

METHODOLOGY SUMMARY

METHODOLOGY SUMMARY

Mercury, Solid/Aqueous

SW 846 Method 7471, a cold-vapor atomic absorption method, is based on the absorption of radiation at the 253.7-nm wavelength by mercury vapor. The mercury is reduced to the elemental state and aerated from solution in a closed system. The mercury vapor passes through a cell positioned in the light path of an atomic absorption spectrophotometer. Absorbance (peak height) is measured as a function of mercury concentration.

Metals - Solid

This is a procedure used to determine metals concentrations in soils. It involves an acidic digestion under oxidizing conditions of approximately one (1) gram of soil or material. Nitric and hydrochloric acids as well as hydrogen peroxide are employed in the digestion. The digested sample is filtered and diluted to 100 milliliters. The analysis is performed by Flame Atomic Absorption, Furnace Atomic Absorption or ICP analysis. Reference methods are SW-846 3rd Edition, September 1986, Revised July 1992 and Methods for the Determination of Metals in Environmental Samples EPA/600/4-91/010 June 1991.

Pesticide/PCB's - Solid

Method 8080 - This method covers the determination of pesticides and polychlorinated biphenyls (PCB's) in samples by extraction/concentration with organic solvents and subsequent qualification/quantification by Gas Chromatography. The gas chromatograph utilizes an electron capture detector (ECD) which is applicable for the determination of the compounds listed for this method in Test Methods for Evaluating Solid Waste, SW-846, 3rd Edition, November, 1986.

Soil samples were prepared as prescribed in Method 3550 from SW-846.

Phenolics

A portion of sample is distilled at pH 4. An aliquot of the distillate is reacted with 4-aminoantipyrene to form a dye, the intensity of which is proportional to concentration. Reference method is EPA Method 420.1.

Semivolatiles by GC/MS - Solid

Method 8270 - This is a gas chromatograph/mass spectrometer (GC/MS) method applicable to the determination of a number of organic compounds that are partitioned in an organic solvent and amenable to gas chromatography. Test Methods for Evaluating Solid Waste, SW846, 3rd Edition, November, 1986.

An HP5890/5970B GC/MS was used with a DB-5 fused silica capillary column.

Method detection limits are as stated.

Soil samples were prepared for analysis as prescribed in Method 3550 from SW846.

Aqueous samples were prepared for analysis as prescribed in Method 3510 from SW846.

Cyanide

An aliquot of sample is acidified under analysis conditions liberating cyanide as HCN. A distillation follows leaving behind interferences and scrubbing the distilled HCN in sodium hydroxide solution. An aliquot of the NaOH solution is analyzed colorimetrically for cyanide ion. Reference method is EPA Method 335.2.

Petroleum Hydrocarbons by IR - Solid

This is a soxhlet extraction and Infrared Spectrophotometer (IR) method used to determine petroleum hydrocarbon levels in solid matrices. An aliquot of the sample is soxhlet extracted with freon, the non-petroleum hydrocarbons are removed with silica gel and the extract is analyzed by IR against a series of standard mixtures. Reference Methods are EPA Methods 3540 and 418.1.

Total Solids, Percent

This is a gravimetric analytical method used to determine the moisture content present in either aqueous or solid matrices. An aliquot of the sample is weighed into a tared beaker and then dried at 103-105 deg. C. The final weight is subtracted from the initial weight and then the percent total solids present in the sample is calculated. Reference method is Standard Methods for the Examination of Water and Wastewater, 16th Edition, Method 209A.

Volatile Organics by GC/MS

Reference Method SW-846 8240/8260/624

A representative sample, typically 5.0 grams for soils and 5.0 mLs for waters, is analyzed by the purge and trap method. The purged sample components are trapped in a tube containing suitable sorbent materials. The trapped components are then introduced into the gas chromatograph and analyzed using mass spectrometry.

Sample spectra and area responses are compared to standards analyzed in an identical way using the internal standard calculation technique.

Surrogate compounds are added to monitor analytical efficiency.

If tentatively identified compounds are requested, a computer program analyzes the non-priority pollutant/HSL/TCL compounds with standard mass spectra found in the latest version of the NIH/NBS/EPA mass spectral library.

METHODOLOGY

All analyses are adapted from one or more of the following reference methods:

- "Guidelines Establishing Test Procedures for the Analysis of Pollutants", Code of Federal Regulations Vol. 40, Part 136.
- "Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.
- Code of Federal Regulations Vol. 40, Part 261, "Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)".
- "Standard Methods for the Examination of Water and Wastewater", 15th, 16th and 17th editions.
- "Methods for the Chemical Analysis of Water and Wastes", EPA 600/4-79-020, March 1983, U.S.EPA, EMSL.
- "Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM).
- "Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988.
- "Official Methods of Analysis", Association of Official Analytical Chemists AOAC 15th Edition, 1990.
- NIOSH Manual of Analytical Methods, Third Edition, 1984, Revised 8/15/90, DHHS Pub. No. 84-100.

DEFINITIONS OF ABBREVIATIONS

U:	Not Detected
E:	Estimated Concentration
NFL:	No Free Liquid
NR:	Not Reactive
NS:	Not requested
<:	Less than minimum detection limit
NC:	Not calculable
LCS:	Laboratory Control Sample
MS/MSD:	Matrix Spike/Matrix Spike Duplicate
RSD:	Relative Standard Deviation
NTU:	Nephelometric Turbidity Units; used for turbidity.
deg. C:	degrees celcius
ug:	microgram; there are 1000 ug in 1 mg.
g:	gram; there are 1000 g in 1 Kg.
ul:	microliter; there are 1000 ul in 1 ml.
L	Liter
ppb	Parts per billion = ug/Kg, ug/L
ppm	Parts per million = mg/Kg, ug/g mg/L, ug/ml; 1 ppm = 1000 ppb.
B:	Compound found in method blank
J:	Compound detected, however below reportable detection limit
NA:	Not Applicable
NI:	Not Ignitable
ND:	Not Detected
MDL:	Method detection limit. Can be a limit specified by the method or a number determined by performing an MDL study.
RPD:	Relative Percent Difference
umhos:	Conductivity units; resistance is expressed in ohms.
col/3:	Colonies per volume of sample analyzed; used for bacteriology.
deg. F:	degrees Fahrenheit
mg:	milligram; there are 1000 mg in 1 g.
Kg:	kilogram
ml:	milliliter; there are 1000 ml in 1 liter.

COMMENTS: All soil samples are calculated on a dry weight basis except as noted.

LABORATORY CHRONICLE

Lab ID: 97-78619 to 97-78625
97-82199 to 97-82204

Client: Port Authority of NY & NJ

	I DATE	II Hold Time
Date Sampled	11/5-11/11/97	
Receipt/Refrigeration	11/7-11/12/97	
Extractions		
1. Metals prep	11/18/97	—
2. Mercury prep	11/14/97	—
3. Semivolatiles	11/17/97	14 Days
4. Pesticides/PCBs	11/18/97	14 Days
Analyses		
1. Metals	11/19-11/20/97	180 Days
2. Mercury	11/14/97	28 Days
3. Semivolatiles	11/17/97-11/18/97	40 Days
4. Pesticides/PCBs	11/20-11/21/97	40 Days
5. Phenolics	11/20/97	28 Days
6. Total Cyanide	11/13-11/14/97	14 Days
7. Total Petroleum Hydrocarbons	11/12-11/19/97	14 Days
8. Volatile Organics	11/12-11/13/97	14 Days

QC Supervisor
Review & Approval

(Signature) [signature]
(Printed Name) Peter B. Panton

(Date) 11-26-97

NOTE: If fractions are re-extracted and re-analyzed because the initial endeavors failed to meet the required Quality Control Criteria, the dates of re-extraction and/or re-analysis will be entered in Column II Additionally.

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

		No	Yes
1.	Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)		X
2.	GC/MS Tune Specifications		
	a. BFB Meet Criteria		X
	b. DFTPP Meet Criteria		
3.	GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series.		X
4,	GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series.		X
5.	GC/MS Calibration - Initial Requirements		
	a. Calibration Check Compounds		X
	b. System Performance Check Compounds		
6.	Blank Contamination - If yes, list compounds and concentrations in each blank:		X
	a. VOA Fraction **Methylene Chloride 5-7 ppb.**		
	b. B/N Fraction		
	c. Acid Fraction		
7.	Surrogate Recoveries Meet Criteria		X
	If not met, list those compounds and their recoveries which fall outside the acceptable range:		
	a. VOA Fraction		
	b. B/N Fraction		
	c. Acid Fraction		
	If not met, were the calculations checked and the results qualified as "estimated"?		
8.	Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range)	X	
	a. VOA Fraction		
	b. B/N Fraction		
	c. Acid Fraction **Pentachlorophenol: 9% and 10% recovery.**		
9.	Internal Standard Area/Retention Time Shift Meet Criteria **Semivolatile MSD: Is #6 outside QC limits.**	X	

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT, cont.

		No	Yes
10.	Extraction Holding Time Met		X
	If not met, list number of days exceeded for each sample:		
11.	Analysis Holding Time Met		X
	If not met, list number of days exceeded for each sample:		

12. Definitions:
U=Not Detected. J=Detected, but below report detection limit. B=Compound found in blank. E=Estimated concentration. NA=Not Applicable

Additional Comments:

Laboratory Manager M Date: 11-26-97

GC ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	No	Yes
1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)		X
2. Standards Summary Submitted		X
3. Calibration-Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of sample analysis.		X
4. Blank Contamination - If yes, list compounds and concentrations in each blank:	X	
a. VOA Fraction		
b. B/N Fraction		
c. Acid Fraction		
d. Pesticides/PCB's		
e. Other		
5. Surrogate Recoveries Meet Criteria (If Applicable)		X
a. VOA Fraction		
b. B/N Fraction		
c. Acid Fraction		
d. Pesticides/PCB's		
e. Other		
If not Met, were the calculations checked and the results qualified (if applicable)		
6. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (if applicable)		X
(if not met, list those compounds and their recoveries which fall outside the acceptable range)		
a. VOA Fraction		
b. B/N Fraction		
c. Acid Fraction		
d. Pesticides/PCB's		
e. Other		
7. Retention Time Shift Meet Criteria (if applicable)		X

GC ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT, cont.

		No	Yes
8.	Extraction Holding Time Met If not met, list number of days exceeded for each sample:		X
9.	Analysis Holding Time Met If not met, list number of days exceeded for each sample:		X

10. Definitions:
U=Not Detected. J=Detected, but below report detection limit. B=Compound found in blank. E=Estimated concentration. NA=Not Applicable

Additional Comments:

Laboratory Manager: [signature] Date: 11-26-97

METALS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMA

		No	Yes
1.	Calibration Summary Meet Criteria		X
2.	ICP Interference Check Sample Results Summary Submitted (if applicable) Meet Criteria		X
3.	Serial Dilution Summary Submitted (if applicable) / Meet Criteria		NA
4.	Laboratory Control Sample Summary Submitted (if applicable) / Meet Criteria		X
5.	Blank Contamination - If yes, list compounds and concentrations in each blank. **Cv-prep blank=detection limit (5.00 mg/kg)**		X
6.	Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (if not met, list those compounds and their recoveries which fall outside the acceptable range) **Sb: MS/MSD outside QC limits, post-spike recovery is within limits.**	X	
7.	Extraction Holding Time Met If not met, list number of days exceeded for each sample:		X
8.	Analysis Holding Time Met If not met, list number of days exceeded for each sample:		X

9. Definitions: U=Not Detected. J=Detected, but below report detection limit. B=Compound found in blank, E=Estimated concentration. NA=Not Applicable

Additional Comments:

Laboratory Manager: [signature] Date: 11-26-97

PHC ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	No	Yes
1. Blank Contamination - If yes, list the sample and the corresponding concentration in each blank:	X	
2. Matrix Spike Duplicate Recoveries Meet Criteria (if not met, list the sample and corresponding recovery which falls outside the acceptable range) 82202 RPD=25.	X	
3. IR Spectra submitted for all standards, blanks & samples		X
4. Chromatograms submitted for all standards, blanks, & samples if GC finger-printing was conducted		NA
5. Extraction Holding Time Met		X
If not met, list number of days exceeded for each sample:		
6. Analysis Holding Time Met		X
If not met, list number of days exceeded for each sample:		

7. Definitions: U=Not Detected. J=Detected, but below report detection limit. B=Compound found in blank. E=Estimated concentration. NA=Not Applicable

Additional Comments:

Laboratory Manager: JM Date: 11-26-97

GC/MS VOLATILE ORGANIC DATA PACKAGE

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

8240

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: V8178.D BFB Injection Date: 10/22/97

Instrument ID: 5970-AVOA BFB Injection Time: 1009

GC Column: HP-624 X 75 M ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	20.6
75	30.0 - 66.0% of mass 95	50.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	86.4
175	4.0 - 9.0% of mass 174	7.3 (8.4)1
176	93.0 - 101.0% of mass 174	86.2 (99.8)1
177	5.0 - 9.0% of mass 176	6.7 (7.8)2

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

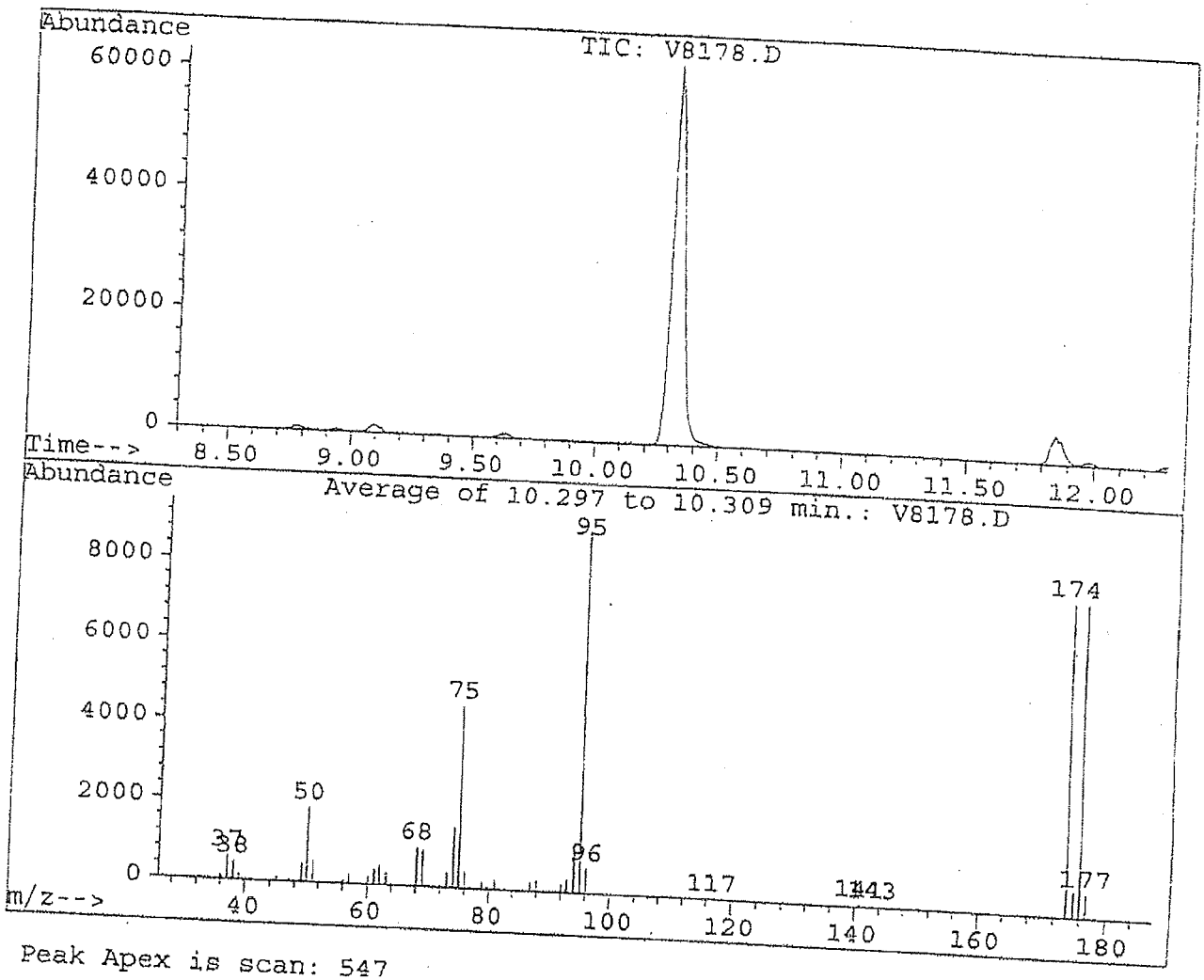
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		10 PPB STND	V8179.D	10/22/97	1049
02		20 PPB STND	V8180.D	10/22/97	1127
03		50 PPB STND	V8181.D	10/22/97	1204
04		100 PPB STND	V8182.D	10/22/97	1242
05		150 PPB STND	V8183.D	10/22/97	1320
06		200 PPB STND	V8184.D	10/22/97	1357
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

CLPBFB

Data File : C:\HPCHEM\1\DATA2\V8178.D
Acq On : 22 Oct 97 10:09 am
Sample : BFB TUNE..... Converted from RTE d
Misc : 50 NG.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration



Peak Apex is scan: 547

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.6	1860	PASS
75	95	30	60	50.2	4541	PASS
95	95	100	100	100.0	9045	PASS
96	95	5	9	6.9	627	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	86.4	7816	PASS
175	174	5	9	8.4	656	PASS
176	174	95	101	99.8	7802	PASS
177	176	5	9	7.8	605	PASS

V8178.D 8240.M Wed Oct 22 10:24:22 1997 AVOA

Average of 10.297 to 10.309 min.: V8178.D

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.00	113	54.90	35	72.05	30	88.00	275
37.05	607	55.90	41	73.05	383	90.90	29
38.05	457	56.10	85	74.05	1497	92.10	204
39.05	138	57.10	260	75.05	4541	93.05	313
45.10	117	60.10	169	76.05	421	94.10	1040
47.00	31	61.10	383	77.05	23	95.15	9045
47.20	66	62.05	480	78.95	185	96.15	627
47.90	50	63.10	312	79.90	67	116.90	18
49.10	437	68.05	978	81.00	221	140.90	69
50.05	1860	69.05	927	81.90	18	143.05	44
51.05	574	70.05	38	87.00	232	173.95	7816

Average of 10.297 to 10.309 min.: V8178.D

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
175.00	656						
176.00	7802						
176.95	605						
177.75	16						

Response Factor Report AVOA

Method : C:\HPCHEM\1\METHODS\102297H.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 22 15:13:47 1997
Response via : Initial Calibration

Calibration Files
10 =V8179.D 20 =V8180.D 50 =V8181.D
100 =V8182.D 150 =V8183.D 200 =V8184.D

		Compound	10	20	50	100	150	200	Avg	%RSD
1)	I	Bromochloromethane	----------ISTD----------							
2)	P	Chloromethane	0.550	0.509	0.680	0.865	0.932	0.844	0.730	24.19
3)	C	Vinyl chloride	0.950	0.916	1.144	1.349	1.261	1.270	1.148	15.62
4)	T	Bromomethane	0.288	0.298	0.380	0.401	0.439	0.485	0.382	20.31
5)	T	Chloroethane	0.483	0.406	0.589	0.628	0.617	0.683	0.568	18.12
6)	T	Trichlorofluorometh	2.339	2.175	2.186	2.586	2.515	2.495	2.383	7.39
7)	T	Acrolein	0.150	0.183	0.211	0.193	0.167	0.194	0.183	11.80
8)	MC	1,1-Dichloroethene	2.531	2.385	2.477	2.743	2.656	2.755	2.591	5.81
9)	T	Acetone	1.206	1.173	1.044	1.042	0.836	0.615	0.986	22.67
10)	T	Carbon disulfide	3.415	3.189	3.539	4.124	4.132	3.907	3.718	10.60
11)	T	Methylene chloride		2.312	2.270	2.297	2.170	2.302	2.270	2.56
12)	T	Acrylonitrile	0.408	0.450	0.451	0.469	0.365	0.431	0.429	8.78
13)	T	trans-1,2-Dichloroe	2.449	2.304	2.360	2.540	2.339	2.427	2.403	3.59
14)	T	Methyl-tert butyl e	4.698	4.202	4.446	4.231	3.907	4.023	4.251	6.74
15)	T	tert-Butyl Alcohol	0.291	0.305	0.296	0.292	0.247	0.278	0.285	7.24
16)	P	1,1-Dichloroethane	3.359	3.075	3.226	3.337	3.226	3.470	3.282	4.17
18)	T	cis-1,2-Dichloroeth	2.637	2.454	2.529	2.613	2.568	2.592	2.565	2.59
19)	T	2-Butanone	1.323	1.383	1.298	1.363	1.165	1.076	1.268	9.56
20)	T	Chloroform	3.162	2.844	3.153	3.142	3.078	3.170	3.092	4.06
21)	T	1,1,1-Trichloroetha	2.547	2.451	2.545	2.568	2.487	2.579	2.530	1.97
22)	T	Carbon tetrachlorid	2.376	2.169	2.238	2.279	2.270	2.379	2.285	3.56
23)	S	1,2-Dichloroethane-	1.999	2.007	2.099	2.105	2.088	2.013	2.052	2.44
24)	M	Benzene	3.940	3.781	3.801	4.251	4.122	4.402	4.049	6.21
25)	T	1,2-Dichloroethane	2.970	2.789	2.922	2.998	2.851	2.821	2.892	2.92
26)	I	1,4-Difluorobenzene	----------ISTD----------							
27)	M	Trichloroethene	0.431	0.400	0.425	0.426	0.383	0.413	0.413	4.46
28)	C	1,2-Dichloropropane	0.343	0.308	0.342	0.312	0.325	0.332	0.327	4.51
29)	T	Bromodichloromethan	0.785	0.701	0.752	0.700	0.663	0.703	0.717	6.11
30)	T	2-Chloroethyl vinyl	0.201	0.182	0.225	0.205	0.164	0.207	0.197	10.83
31)	T	trans-1,3-Dichlorop	0.590	0.538	0.605	0.575	0.551	0.570	0.571	4.31
32)	T	4-Methyl-2-pentanon	0.467	0.486	0.449	0.422	0.379	0.421	0.437	8.74
33)	S	Toluene-d8	0.963	0.953	1.028	0.977	0.940	1.052	0.986	4.52
34)	MC	Toluene	1.013	1.008	1.006	1.014	0.959	1.003	1.000	2.08
35)	T	cis-1,3-Dichloropro	0.648	0.557	0.639	0.580	0.546	0.582	0.592	7.15
36)	T	1,1,2-Trichloroetha	0.343	0.330	0.353	0.333	0.308	0.327	0.332	4.62
37)	T	2-Hexanone	0.309	0.370	0.365	0.348	0.304	0.300	0.333	9.55
38)	T	Tetrachloroethene	0.515	0.449	0.498	0.472	0.437	0.441	0.469	6.86
39)	T	Dibromochloromethan	0.663	0.615	0.667	0.603	0.537	0.535	0.603	9.61
40)	I	Chlorobenzene-d5	----------ISTD----------							
41)	MP	Chlorobenzene	0.924	0.866	0.899	0.876	0.866	0.922	0.892	3.00
42)	T	1,1,1,2-Tetrachloro	0.528	0.496	0.491	0.489	0.431	0.422	0.476	8.63
43)	C	Ethylbenzene	1.632	1.549	1.564	1.433	1.424	1.308	1.485	7.95
44)	T	Xylene (para & meta	1.454	1.380	1.360	1.235	0.971	0.871	1.212	19.66
45)	T	Xylene (ortho)	1.426	1.355	1.389	1.289	1.168	1.134	1.294	9.27
46)	T	Styrene	0.961	0.956	1.048	0.928	0.891	0.832	0.936	7.77
47)	P	Bromoform	0.619	0.610	0.617	0.594	0.564	0.528	0.589	6.17

48)	S	4-Bromofluorobenzen	0.766	0.802	0.822	0.824	0.809	0.879	0.817	4.55
49)	T	1,1,2,2-Tetrachloro	0.681	0.675	0.708	0.700	0.648	0.690	0.684	3.09
50)	T	1,3-Dichlorobenzene	0.965	0.943	1.044	0.983	0.834	0.842	0.935	8.83
51)	T	1,4-Dichlorobenzene	1.071	1.051	1.107	0.999	0.963	0.919	1.018	6.94
52)	T	1,2-Dichlorobenzene	1.012	0.934	1.064	0.922	0.903	0.882	0.953	7.39

(#) = Out of Range

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8179.D
Acq On : 22 Oct 97 10:49 am
Sample : 10 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 11:36 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.93	128	62996	50.00	ug/l	-0.08
26) 1,4-Difluorobenzene	9.90	114	275896	50.00	ug/l	-0.08
40) Chlorobenzene-d5	15.05	117	249241	50.00	ug/l	-0.11
System Monitoring Compounds						
23) 1,2-Dichloroethane-d4	9.03	65	125940	54.10	ug/l	%Recovery 108.21%
33) Toluene-d8	12.51	98	265820	52.40	ug/l	104.80%
48) 4-Bromofluorobenzene	17.18	95	190805	47.60	ug/l	95.20%
Target Compounds						
2) Chloromethane	2.23	50	6933	7.30	ug/l	Qvalue 96
3) Vinyl chloride	2.37	62	11972	10.03	ug/l	87
4) Bromomethane	2.78	94	3628	5.14	ug/l	85
5) Chloroethane	2.92	64	6086	11.62	ug/l	92
6) Trichlorofluoromethane	3.28	101	29473	7.64	ug/l	96
7) Acrolein	3.92	56	1889	14.87	ug/l	100
8) 1,1-Dichloroethene	4.04	61	31884	12.34	ug/l	95
9) Acetone	4.22	43	15200	16.45	ug/l	97
10) Carbon disulfide	4.36	76	43021	11.30	ug/l	100
11) Methylene chloride	4.91	49	67268	28.24	ug/l	93
12) Acrylonitrile	5.46	53	5143	15.86	ug/l	100
13) trans-1,2-Dichloroethene	5.46	61	30854	13.28	ug/l	85
14) Methyl-tert butyl ether	5.55	73	59191	12.75	ug/l	97
15) tert-Butyl Alcohol	5.39	59	16590	59.01	ug/l	100
16) 1,1-Dichloroethane	6.30	63	42326	13.78	ug/l	98
18) cis-1,2-Dichloroethene	7.47	61	33225	13.61	ug/l #	77
19) 2-Butanone	7.63	43	16671	14.55	ug/l	93
20) Chloroform	8.14	83	39843	10.94	ug/l	93
21) 1,1,1-Trichloroethane	8.43	97	32095	9.16	ug/l	87
22) Carbon tetrachloride	8.73	117	29934	9.10	ug/l m	89
24) Benzene	9.12	78	49636	12.52	ug/l	100
25) 1,2-Dichloroethane	9.17	62	37424	13.69	ug/l	93
27) Trichloroethene	10.33	130	23761	10.88	ug/l	97
28) 1,2-Dichloropropane	10.72	63	18908	12.33	ug/l	97
29) Bromodichloromethane	11.25	83	43320	11.92	ug/l	99
30) 2-Chloroethyl vinyl ether	11.84	63	11113	53.15	ug/l	100
31) trans-1,3-Dichloropropene	12.05	75	32542	11.25	ug/l	93
32) 4-Methyl-2-pentanone	12.39	43	25777	12.87	ug/l	97
34) Toluene	12.62	91	55908	11.08	ug/l	91
35) cis-1,3-Dichloropropene	13.06	75	35761	12.64	ug/l	89
36) 1,1,2-Trichloroethane	13.36	97	18934	10.59	ug/l	92
37) 2-Hexanone	13.88	43	17076	11.11	ug/l	93
38) Tetrachloroethene	13.59	166	28422	11.03	ug/l	87
39) Dibromochloromethane	14.04	129	36569	11.36	ug/l	90

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8179.D
Acq On : 22 Oct 97 10:49 am
Sample : 10 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 11:36 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

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Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Chlorobenzene	15.12	112	46055	10.38	ug/l	87
42) 1,1,1,2-Tetrachloroethane	15.28	131	26324	10.09	ug/l	88
43) Ethylbenzene	15.35	91	81356	10.84	ug/l	89
44) Xylene (para & meta)	15.55	91	144981	22.56	ug/l	99
45) Xylene (ortho)	16.26	91	71078	11.46	ug/l	98
46) Styrene	16.29	104	47881	10.37	ug/l	86
47) Bromoform	16.56	173	30849	9.75	ug/l	95
49) 1,1,2,2-Tetrachloroethane	17.48	83	33939	9.72	ug/l	97
50) 1,3-Dichlorobenzene	19.15	146	48124	9.56	ug/l	95
51) 1,4-Dichlorobenzene	19.31	146	53384	9.66	ug/l	94
52) 1,2-Dichlorobenzene	19.97	146	50441	9.84	ug/l	77

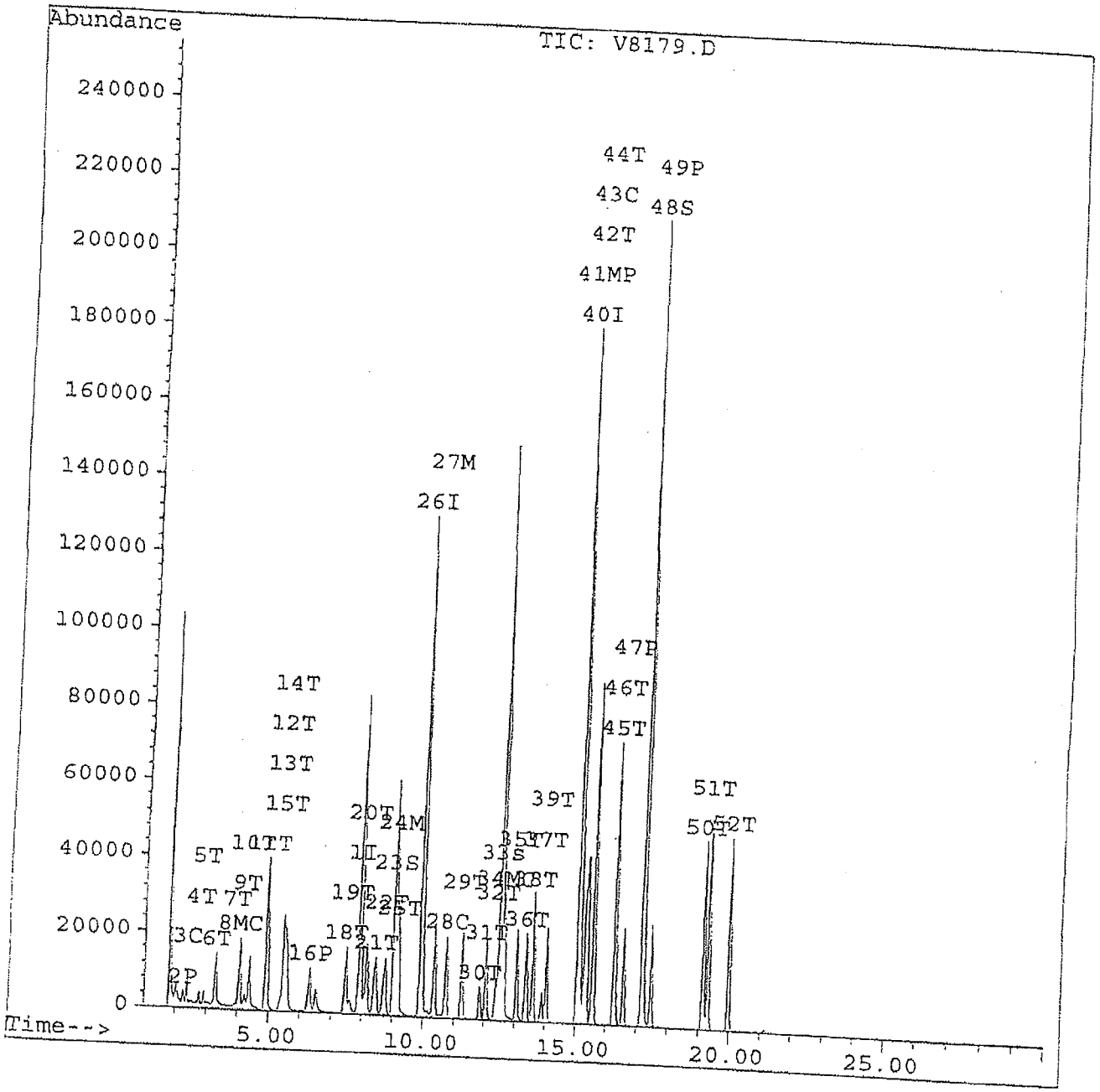
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8179.D
Acq On : 22 Oct 97 10:49 am
Sample : 10 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 11:36 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration



Quantitation Report

11

Data File : C:\HPCHEM\1\DATA2\V8180.D
Acq On : 22 Oct 97 11:27 am
Sample : 20 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 11:59 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.93	128	61369	50.00	ug/l	-0.07
26) 1,4-Difluorobenzene	9.90	114	277939	50.00	ug/l	-0.07
40) Chlorobenzene-d5	15.06	117	241517	50.00	ug/l	-0.10
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	9.03	65	123177	54.32	ug/l	108.64%
33) Toluene-d8	12.51	98	264905	51.84	ug/l	103.67%
48) 4-Bromofluorobenzene	17.19	95	193662	49.86	ug/l	99.71%
Target Compounds						Qvalue
2) Chloromethane	2.23	50	12499	13.51	ug/l	94
3) Vinyl chloride	2.37	62	22491	19.34	ug/l	94
4) Bromomethane	2.76	94	7317	10.63	ug/l	89
5) Chloroethane	2.90	64	9974	19.55	ug/l	100
6) Trichlorofluoromethane	3.26	101	53390	14.21	ug/l	95
7) Acrolein	3.93	56	4492	36.29	ug/l	100
8) 1,1-Dichloroethene	4.04	61	58535	23.25	ug/l	89
9) Acetone	4.20	43	28789	31.98	ug/l	94
10) Carbon disulfide	4.36	76	78287	21.11	ug/l	100
11) Methylene chloride	4.91	49	56746	24.45	ug/l	82
12) Acrylonitrile	5.46	53	11057	35.00	ug/l	100
13) trans-1,2-Dichloroethene	5.44	61	56550	24.99	ug/l	82
14) Methyl-tert butyl ether	5.53	73	103158	22.81	ug/l	91
15) tert-Butyl Alcohol	5.37	59	33856	123.62	ug/l	100
16) 1,1-Dichloroethane	6.29	63	75487	25.22	ug/l	95
18) cis-1,2-Dichloroethene	7.48	61	60228	25.33	ug/l #	71
19) 2-Butanone	7.61	43	33956	30.43	ug/l	97
20) Chloroform	8.14	83	69815	19.67	ug/l	88
21) 1,1,1-Trichloroethane	8.42	97	60163	17.62	ug/l	96
22) Carbon tetrachloride	8.74	117	53250	16.62	ug/l	88
24) Benzene	9.13	78	92825	24.04	ug/l	100
25) 1,2-Dichloroethane	9.17	62	68453	25.71	ug/l	96
27) Trichloroethene	10.34	130	44419	20.19	ug/l	90
28) 1,2-Dichloropropane	10.73	63	34264	22.19	ug/l	97
29) Bromodichloromethane	11.26	83	77881	21.27	ug/l	97
30) 2-Chloroethyl vinyl ether	11.85	63	20286	96.31	ug/l	100
31) trans-1,3-Dichloropropene	12.06	75	59783	20.52	ug/l	83
32) 4-Methyl-2-pentanone	12.40	43	54084	26.81	ug/l	95
34) Toluene	12.63	91	112055	22.04	ug/l	87
35) cis-1,3-Dichloropropene	13.06	75	61887	21.71	ug/l	99
36) 1,1,2-Trichloroethane	13.36	97	36675	20.37	ug/l	96
37) 2-Hexanone	13.89	43	41088	26.53	ug/l	85
38) Tetrachloroethene	13.59	166	49963	19.25	ug/l	96
39) Dibromochloromethane	14.05	129	68392	21.10	ug/l	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8180.D
Acq On : 22 Oct 97 11:27 am
Sample : 20 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 11:59 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Chlorobenzene	15.10	112	83635	19.46	ug/l	86
42) 1,1,1,2-Tetrachloroethane	15.26	131	47893	18.95	ug/l	87
43) Ethylbenzene	15.33	91	149681	20.58	ug/l	91
44) Xylene (para & meta)	15.56	91	266722	42.83	ug/l	100
45) Xylene (ortho)	16.25	91	130945	21.78	ug/l	90
46) Styrene	16.27	104	92350	20.65	ug/l	98
47) Bromoform	16.57	173	58925	19.22	ug/l	97
49) 1,1,2,2-Tetrachloroethane	17.48	83	65206	19.28	ug/l	87
50) 1,3-Dichlorobenzene	19.13	146	91130	18.69	ug/l	87
51) 1,4-Dichlorobenzene	19.31	146	101550	18.96	ug/l	89
52) 1,2-Dichlorobenzene	19.98	146	90247	18.17	ug/l	85

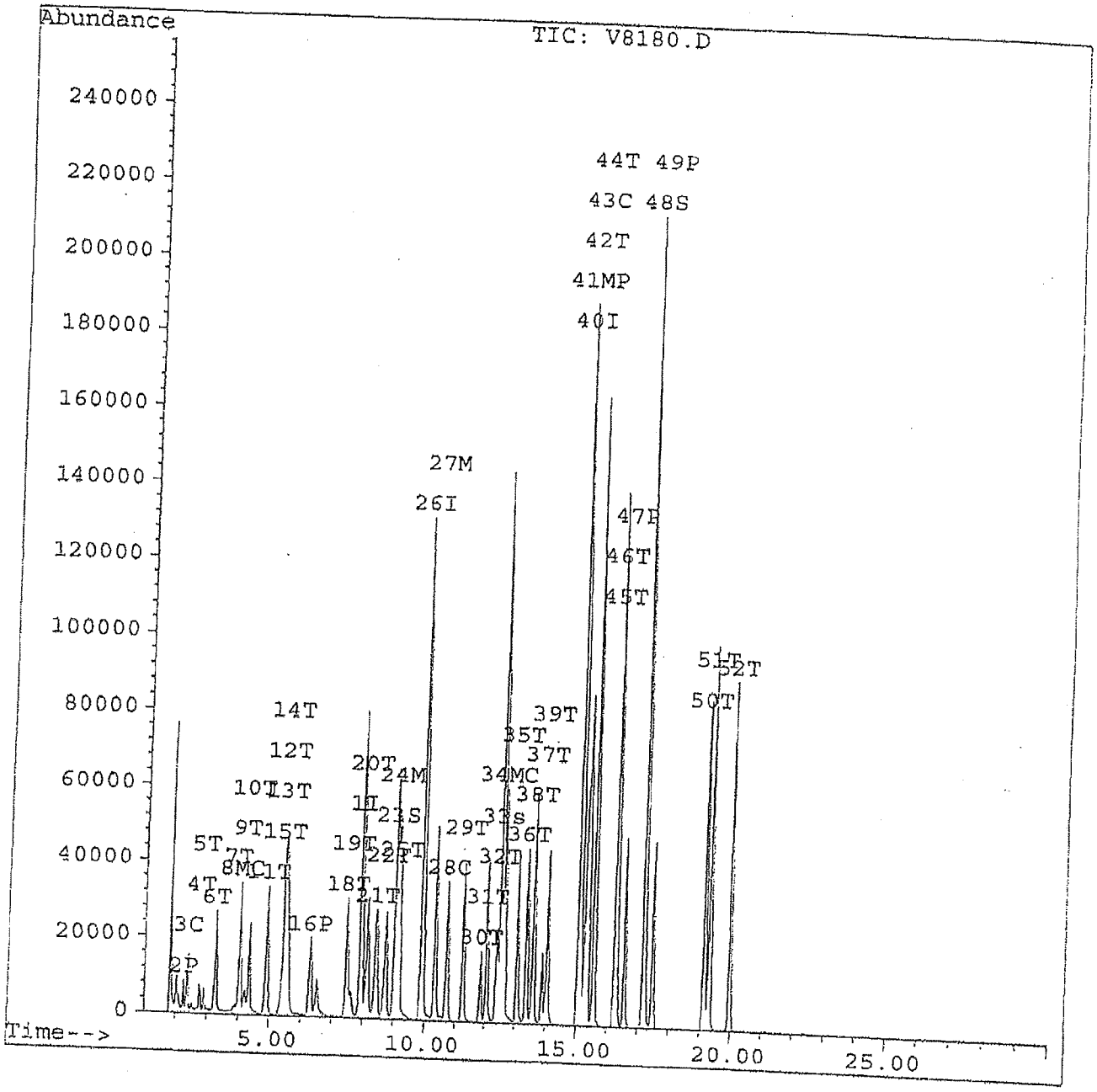
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8180.D
Acq On : 22 Oct 97 11:27 am
Sample : 20 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 11:59 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8181.D
Acq On : 22 Oct 97 12:04 pm
Sample : 50 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 12:40 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.91	128	55680	50.00	ug/l	-0.10
26) 1,4-Difluorobenzene	9.88	114	241420	50.00	ug/l	-0.10
40) Chlorobenzene-d5	15.05	117	216317	50.00	ug/l	-0.10
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	9.03	65	116854	56.80	ug/l	113.59%
33) Toluene-d8	12.51	98	248241	55.92	ug/l	111.85%
48) 4-Bromofluorobenzene	17.19	95	177892	51.13	ug/l	102.26%
Target Compounds						Qvalue
2) Chloromethane	2.23	50	37835	45.06	ug/l	97
3) Vinyl chloride	2.37	62	63711	60.39	ug/l	99
4) Bromomethane	2.76	94	21186	33.93	ug/l	97
5) Chloroethane	2.92	64	32810	70.88	ug/l	99
6) Trichlorofluoromethane	3.26	101	121737	35.70	ug/l	86
7) Acrolein	3.92	56	11730	104.44	ug/l	100
8) 1,1-Dichloroethene	4.04	61	137933	60.39	ug/l	90
9) Acetone	4.20	43	58125	71.17	ug/l	87
10) Carbon disulfide	4.36	76	197065	58.56	ug/l	100
11) Methylene chloride	4.91	49	126388	60.03	ug/l	80
12) Acrylonitrile	5.44	53	25084	87.52	ug/l	100
13) trans-1,2-Dichloroethene	5.44	61	131424	64.02	ug/l	81
14) Methyl-tert butyl ether	5.53	73	247536	60.32	ug/l	98
15) tert-Butyl Alcohol	5.37	59	74555	300.05	ug/l	100
16) 1,1-Dichloroethane	6.28	63	179603	66.14	ug/l	90
18) cis-1,2-Dichloroethene	7.47	61	140803	65.25	ug/l #	71
19) 2-Butanone	7.61	43	72291	71.40	ug/l	98
20) Chloroform	8.14	83	175540	54.52	ug/l	98
21) 1,1,1-Trichloroethane	8.41	97	141712	45.74	ug/l	94
22) Carbon tetrachloride	8.73	117	124621	42.86	ug/l	94
24) Benzene	9.12	78	211625	60.40	ug/l	100
25) 1,2-Dichloroethane	9.17	62	162682	67.35	ug/l	97
27) Trichloroethene	10.34	130	102659	53.72	ug/l	86
28) 1,2-Dichloropropane	10.73	63	82604	61.58	ug/l	99
29) Bromodichloromethane	11.25	83	181560	57.08	ug/l	95
30) 2-Chloroethyl vinyl ether	11.85	63	54240	296.46	ug/l	100
31) trans-1,3-Dichloropropene	12.05	75	146129	57.73	ug/l	87
32) 4-Methyl-2-pentanone	12.38	43	108413	61.87	ug/l m	39
34) Toluene	12.63	91	242918	55.00	ug/l	93
35) cis-1,3-Dichloropropene	13.06	75	154326	62.32	ug/l	96
36) 1,1,2-Trichloroethane	13.36	97	85116	54.42	ug/l	97
37) 2-Hexanone	13.89	43	88079	65.48	ug/l	91
38) Tetrachloroethene	13.59	166	120121	53.28	ug/l	98
39) Dibromochloromethane	14.02	129	161032	57.19	ug/l	91

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8181.D
Acq On : 22 Oct 97 12:04 pm
Sample : 50 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 12:40 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Chlorobenzene	15.10	112	194426	50.50	ug/l	84
42) 1,1,1,2-Tetrachloroethane	15.26	131	106167	46.90	ug/l	96
43) Ethylbenzene	15.33	91	338374	51.95	ug/l	91
44) Xylene (para & meta)	15.56	91	588435	105.49	ug/l	98
45) Xylene (ortho)	16.25	91	300558	55.82	ug/l	93
46) Styrene	16.29	104	226614	56.57	ug/l	98
47) Bromoform	16.57	173	133474	48.60	ug/l	90
49) 1,1,2,2-Tetrachloroethane	17.48	83	153117	50.54	ug/l	87
50) 1,3-Dichlorobenzene	19.13	146	225931	51.73	ug/l	96
51) 1,4-Dichlorobenzene	19.31	146	239519	49.93	ug/l	79
52) 1,2-Dichlorobenzene	19.98	146	230240	51.76	ug/l	100

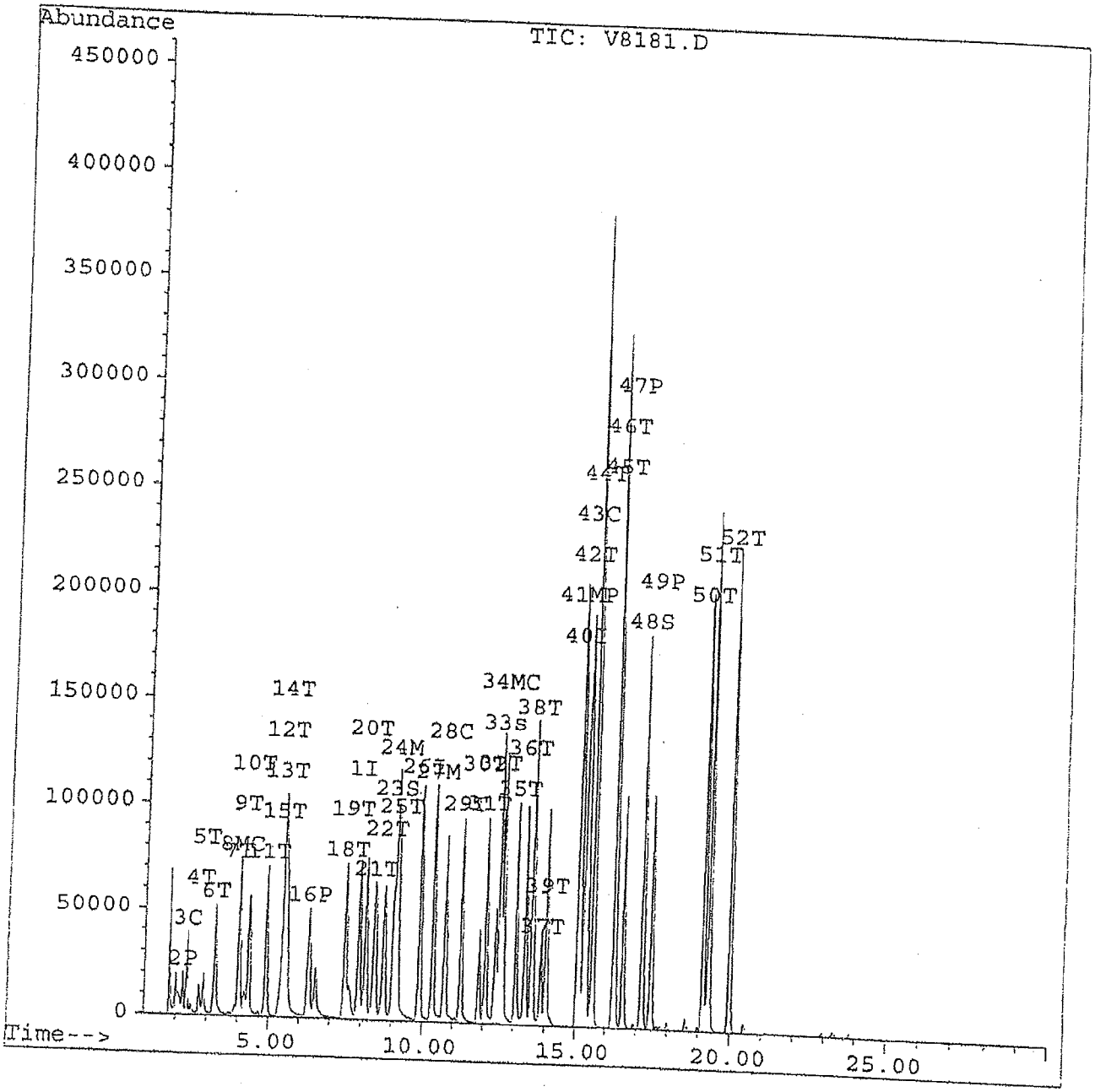
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8181.D
Acq On : 22 Oct 97 12:04 pm
Sample : 50 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 12:40 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8182.D
Acq On : 22 Oct 97 12:42 pm
Sample : 100 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 13:15 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	7.91	128	58293	50.00	ug/l		-0.10
26) 1,4-Difluorobenzene	9.90	114	278946	50.00	ug/l		-0.07
40) Chlorobenzene-d5	15.06	117	242904	50.00	ug/l		-0.10
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	9.03	65	122684	56.96	ug/l		113.92%
33) Toluene-d8	12.51	98	272446	53.12	ug/l		106.24%
48) 4-Bromofluorobenzene	17.19	95	200234	51.25	ug/l		102.51%
Target Compounds							Qvalue
2) Chloromethane	2.23	50	100870	114.76	ug/l		98
3) Vinyl chloride	2.37	62	157305	142.42	ug/l		98
4) Bromomethane	2.76	94	46800	71.59	ug/l		98
5) Chloroethane	2.89	64	73168	150.98	ug/l		95
6) Trichlorofluoromethane	3.28	101	301495	84.45	ug/l		88
7) Acrolein	3.92	56	22481	191.19	ug/l		100
8) 1,1-Dichloroethene	4.04	61	319829	133.76	ug/l		92
9) Acetone	4.20	43	121468	142.06	ug/l		98
10) Carbon disulfide	4.36	76	480800	136.47	ug/l		100
11) Methylene chloride	4.91	49	267819	121.51	ug/l		80
12) Acrylonitrile	5.44	53	54724	182.37	ug/l		100
13) trans-1,2-Dichloroethene	5.46	61	296175	137.81	ug/l	#	76
14) Methyl-tert butyl ether	5.53	73	493332	114.83	ug/l		95
15) tert-Butyl Alcohol	5.39	59	153911	591.66	ug/l		100
16) 1,1-Dichloroethane	6.31	63	389059	136.84	ug/l		96
18) cis-1,2-Dichloroethene	7.47	61	304682	134.87	ug/l	#	68
19) 2-Butanone	7.61	43	158858	149.86	ug/l		98
20) Chloroform	8.14	83	366325	108.68	ug/l		94
21) 1,1,1-Trichloroethane	8.41	97	299367	92.30	ug/l		94
22) Carbon tetrachloride	8.71	117	265711	87.30	ug/l		86
24) Benzene	9.12	78	495664	135.12	ug/l		100
25) 1,2-Dichloroethane	9.17	62	349537	138.21	ug/l		99
27) Trichloroethene	10.34	130	237478	107.54	ug/l		88
28) 1,2-Dichloropropane	10.73	63	173961	112.24	ug/l		98
29) Bromodichloromethane	11.25	83	390276	106.19	ug/l		91
30) 2-Chloroethyl vinyl ether	11.85	63	114471	541.49	ug/l		100
31) trans-1,3-Dichloropropene	12.06	75	320543	109.61	ug/l		93
32) 4-Methyl-2-pentanone	12.40	43	235262	116.21	ug/l		98
34) Toluene	12.63	91	565662	110.85	ug/l		99
35) cis-1,3-Dichloropropene	13.06	75	323601	113.09	ug/l		98
36) 1,1,2-Trichloroethane	13.36	97	185733	102.78	ug/l		92
37) 2-Hexanone	13.87	43	194060	124.85	ug/l		89
38) Tetrachloroethene	13.59	166	263197	101.03	ug/l		92
39) Dibromochloromethane	14.03	129	336442	103.41	ug/l		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8182.D
Acq On : 22 Oct 97 12:42 pm
Sample : 100 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 13:15 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Chlorobenzene	15.10	112	425706	98.48	ug/l	93
42) 1,1,1,2-Tetrachloroethane	15.26	131	237678	93.49	ug/l	84
43) Ethylbenzene	15.33	91	696276	95.20	ug/l	99
44) Xylene (para & meta)	15.56	91	1200013	191.57	ug/l	85
45) Xylene (ortho)	16.25	91	626251	103.58	ug/l	82
46) Styrene	16.27	104	450673	100.20	ug/l	100
47) Bromoform	16.57	173	288603	93.59	ug/l	99
49) 1,1,2,2-Tetrachloroethane	17.49	83	340039	99.96	ug/l	91
50) 1,3-Dichlorobenzene	19.13	146	477369	97.33	ug/l	89
51) 1,4-Dichlorobenzene	19.32	146	485287	90.09	ug/l	94
52) 1,2-Dichlorobenzene	19.98	146	448008	89.69	ug/l	85

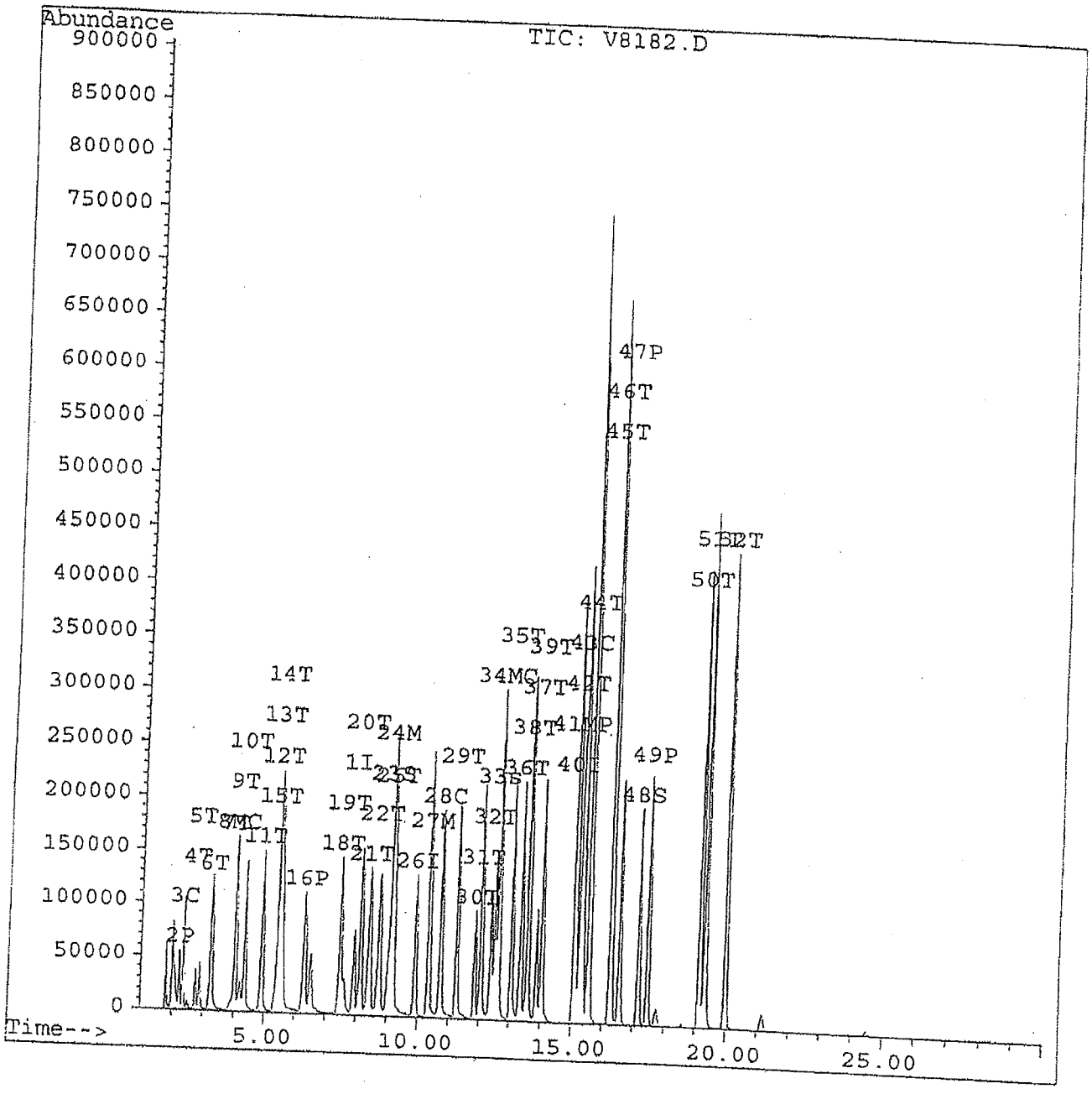
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8182.D
Acq On : 22 Oct 97 12:42 pm
Sample : 100 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 13:15 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8183.D
Acq On : 22 Oct 97 1:20 pm
Sample : 150 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 14:03 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	7.93	128	58350	50.00	ug/l		-0.07
26) 1,4-Difluorobenzene	9.90	114	284488	50.00	ug/l		-0.07
40) Chlorobenzene-d5	15.06	117	243821	50.00	ug/l		-0.10
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	9.03	65	121823	56.50	ug/l		113.01%
33) Toluene-d8	12.52	98	267388	51.12	ug/l		102.23%
48) 4-Bromofluorobenzene	17.19	95	197326	50.32	ug/l		100.64%
Target Compounds							Qvalue
2) Chloromethane	2.23	50	163216	185.50	ug/l		96
3) Vinyl chloride	2.37	62	220693	199.61	ug/l		95
4) Bromomethane	2.76	94	76801	117.37	ug/l		96
5) Chloroethane	2.92	64	107964	222.57	ug/l		97
6) Trichlorofluoromethane	3.28	101	440239	123.20	ug/l		92
7) Acrolein	3.93	56	29271	248.69	ug/l		100
8) 1,1-Dichloroethene	4.04	61	464951	194.26	ug/l		89
9) Acetone	4.20	43	146427	171.08	ug/l		96
10) Carbon disulfide	4.36	76	723321	205.11	ug/l		100
11) Methylene chloride	4.91	49	379905	172.19	ug/l		84
12) Acrylonitrile	5.44	53	63871	212.65	ug/l		100
13) trans-1,2-Dichloroethene	5.46	61	409514	190.36	ug/l		80
14) Methyl-tert butyl ether	5.53	73	683949	159.04	ug/l		95
15) tert-Butyl Alcohol	5.39	59	195489	750.76	ug/l		100
16) 1,1-Dichloroethane	6.28	63	564740	198.44	ug/l		88
18) cis-1,2-Dichloroethene	7.48	61	449521	198.80	ug/l	#	72
19) 2-Butanone	7.61	43	203989	192.24	ug/l		97
20) Chloroform	8.14	83	538757	159.68	ug/l		99
21) 1,1,1-Trichloroethane	8.44	97	435402	134.11	ug/l		98
22) Carbon tetrachloride	8.74	117	397296	130.40	ug/l		83
24) Benzene	9.13	78	721586	196.51	ug/l		100
25) 1,2-Dichloroethane	9.17	62	499017	197.13	ug/l		97
27) Trichloroethene	10.34	130	326999	145.20	ug/l		87
28) 1,2-Dichloropropane	10.73	63	277717	175.69	ug/l		98
29) Bromodichloromethane	11.26	83	565583	150.89	ug/l		97
30) 2-Chloroethyl vinyl ether	11.85	63	139581	647.41	ug/l		100
31) trans-1,3-Dichloropropene	12.06	75	470532	157.76	ug/l		95
32) 4-Methyl-2-pentanone	12.38	43	323864	156.85	ug/l		98
34) Toluene	12.63	91	818443	157.26	ug/l		96
35) cis-1,3-Dichloropropene	13.07	75	466238	159.77	ug/l		98
36) 1,1,2-Trichloroethane	13.36	97	262543	142.45	ug/l		92
37) 2-Hexanone	13.87	43	259275	163.56	ug/l		86
38) Tetrachloroethene	13.59	166	372785	140.31	ug/l		86
39) Dibromochloromethane	14.03	129	457891	138.00	ug/l	#	73

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8183.D
Acq On : 22 Oct 97 1:20 pm
Sample : 150 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 14:03 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Chlorobenzene	15.11	112	633555	146.01	ug/l	90
42) 1,1,1,2-Tetrachloroethane	15.27	131	315249	123.54	ug/l	98
43) Ethylbenzene	15.34	91	1041812	141.90	ug/l	99
44) Xylene (para & meta)	15.56	91	1421109	226.02	ug/l	74
45) Xylene (ortho)	16.25	91	854308	140.77	ug/l	91
46) Styrene	16.27	104	651656	144.34	ug/l	90
47) Bromoform	16.55	173	412879	133.38	ug/l	91
49) 1,1,2,2-Tetrachloroethane	17.49	83	474102	138.85	ug/l	87
50) 1,3-Dichlorobenzene	19.16	146	609868	123.88	ug/l	97
51) 1,4-Dichlorobenzene	19.32	146	704531	130.30	ug/l	92
52) 1,2-Dichlorobenzene	19.98	146	660282	131.69	ug/l	94

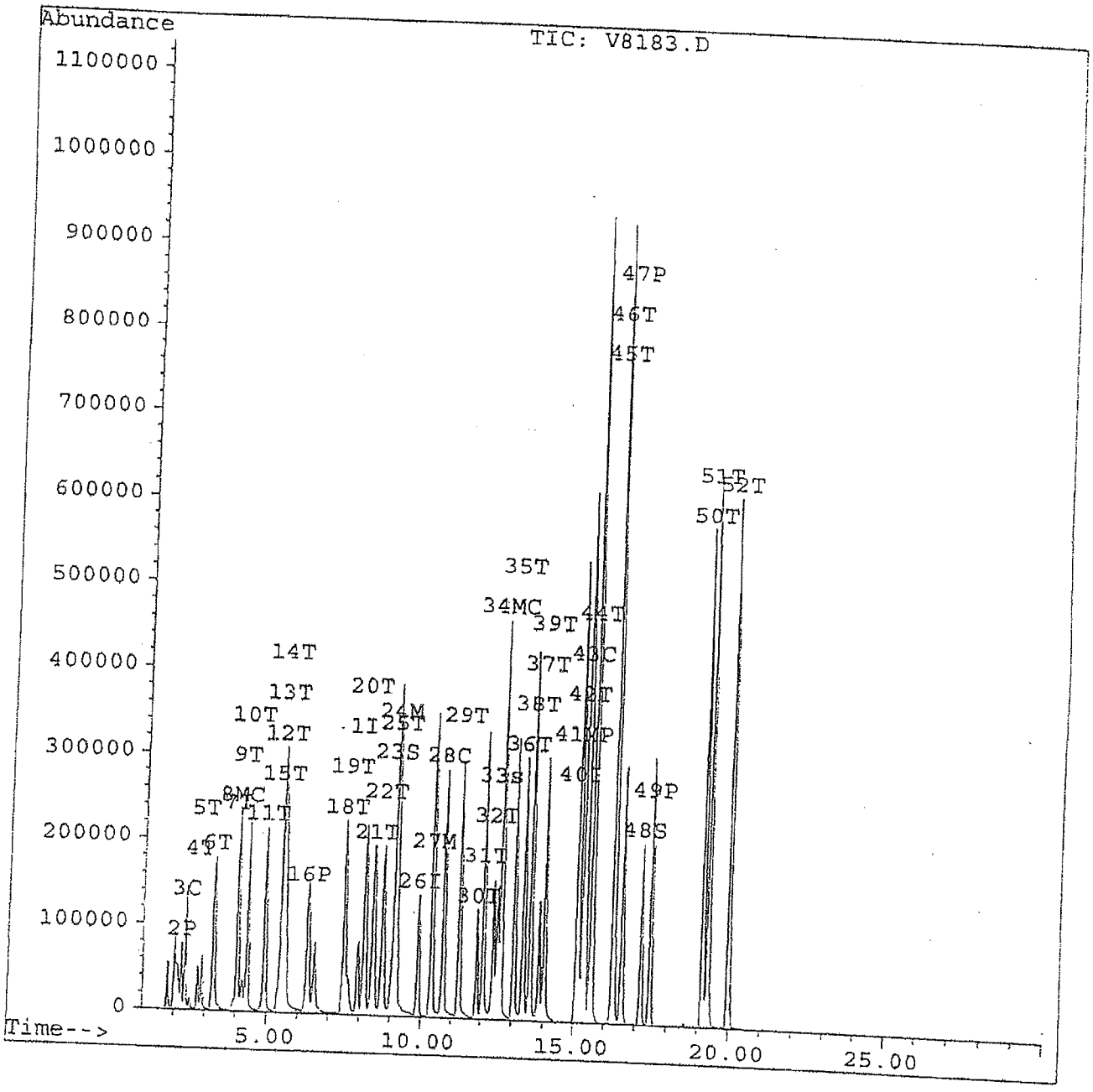
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8183.D
Acq On : 22 Oct 97 1:20 pm
Sample : 150 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 14:03 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8184.D
Acq On : 22 Oct 97 1:57 pm
Sample : 200 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 15:06 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.91	128	57473	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.91	114	280253	50.00	ug/l	-0.07
40) Chlorobenzene-d5	15.06	117	243422	50.00	ug/l	-0.09
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	9.04	65	115713	54.49	ug/l	108.98%
33) Toluene-d8	12.52	98	294803	57.21	ug/l	114.42%
48) 4-Bromofluorobenzene	17.17	95	214039	54.67	ug/l	109.34%
Target Compounds						Qvalue
2) Chloromethane	2.23	50	194083	223.95	ug/l	100
3) Vinyl chloride	2.37	62	291863	268.01	ug/l	93
4) Bromomethane	2.76	94	111505	173.00	ug/l	81
5) Chloroethane	2.92	64	156953	328.49	ug/l	99
6) Trichlorofluoromethane	3.26	101	573664	162.99	ug/l	86
7) Acrolein	3.93	56	44654	385.17	ug/l	100
8) 1,1-Dichloroethene	4.04	61	633262	268.62	ug/l	88
9) Acetone	4.20	43	141384	167.71	ug/l	96
10) Carbon disulfide	4.36	76	898276	258.61	ug/l	100
11) Methylene chloride	4.91	49	529303	243.56	ug/l	82
12) Acrylonitrile	5.44	53	99151	335.15	ug/l	100
13) trans-1,2-Dichloroethene	5.46	61	557966	263.32	ug/l	78
14) Methyl-tert butyl ether	5.53	73	924908	218.35	ug/l	92
15) tert-Butyl Alcohol	5.37	59	290661	1133.29	ug/l	100
16) 1,1-Dichloroethane	6.31	63	797738	284.59	ug/l	93
18) cis-1,2-Dichloroethene	7.48	61	595818	267.52	ug/l #	75
19) 2-Butanone	7.59	43	247429	236.74	ug/l	96
20) Chloroform	8.14	83	728846	219.31	ug/l	100
21) 1,1,1-Trichloroethane	8.44	97	592933	185.42	ug/l	97
22) Carbon tetrachloride	8.74	117	546984	182.27	ug/l m	88
24) Benzene	9.13	78	1011873	279.77	ug/l	100
25) 1,2-Dichloroethane	9.17	62	648548	260.10	ug/l	94
27) Trichloroethene	10.32	130	462791	208.60	ug/l	89
28) 1,2-Dichloropropane	10.73	63	372119	238.97	ug/l	94
29) Bromodichloromethane	11.26	83	787827	213.35	ug/l	93
30) 2-Chloroethyl vinyl ether	11.86	63	232293	1093.71	ug/l	100
31) trans-1,3-Dichloropropene	12.06	75	639029	217.49	ug/l	89
32) 4-Methyl-2-pentanone	12.38	43	471506	231.81	ug/l m	39
34) Toluene	12.64	91	1123894	219.22	ug/l	95
35) cis-1,3-Dichloropropene	13.05	75	652536	226.99	ug/l	92
36) 1,1,2-Trichloroethane	13.37	97	366135	201.66	ug/l	85
37) 2-Hexanone	13.87	43	336682	215.60	ug/l	89
38) Tetrachloroethene	13.60	166	494028	188.76	ug/l	92
39) Dibromochloromethane	14.03	129	600191	183.62	ug/l	91

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8184.D
Acq On : 22 Oct 97 1:57 pm
Sample : 200 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 15:06 1997

Vial: 0 126
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
41) Chlorobenzene	15.11	112	897793	207.24	ug/l		94
42) 1,1,1,2-Tetrachloroethane	15.27	131	410826	161.26	ug/l		99
43) Ethylbenzene	15.34	91	1273629	173.76	ug/l		82
44) Xylene (para & meta)	15.57	91	1695915	270.17	ug/l	m	98
45) Xylene (ortho)	16.26	91	1103882	182.19	ug/l		89
46) Styrene	16.30	104	809797	179.66	ug/l		86
47) Bromoform	16.55	173	513640	166.20	ug/l		100
49) 1,1,2,2-Tetrachloroethane	17.47	83	671755	197.05	ug/l		93
50) 1,3-Dichlorobenzene	19.14	146	820068	166.84	ug/l		98
51) 1,4-Dichlorobenzene	19.30	146	895112	165.82	ug/l		91
52) 1,2-Dichlorobenzene	19.99	146	858426	171.49	ug/l		80

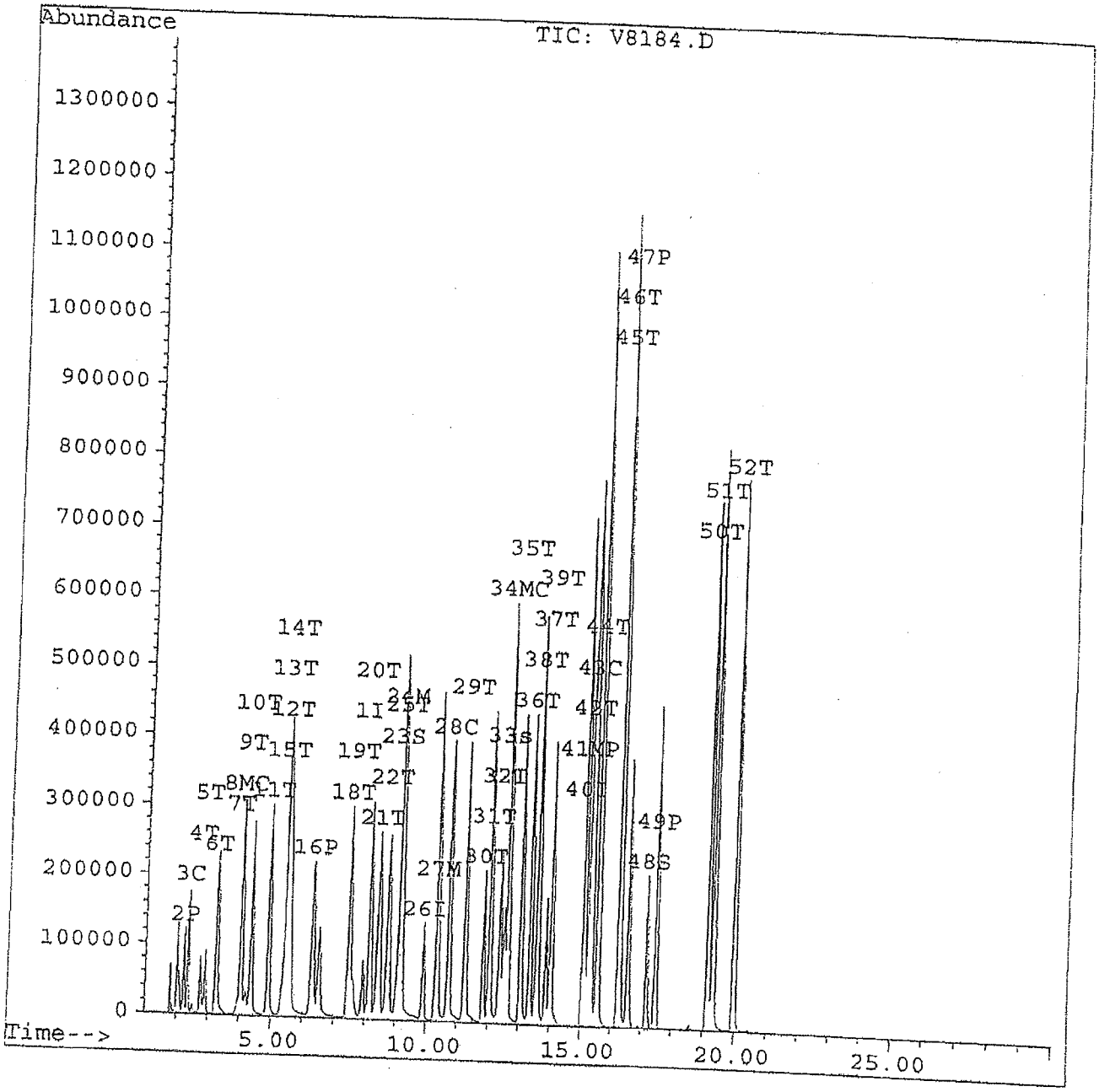
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8184.D
Acq On : 22 Oct 97 1:57 pm
Sample : 200 STANDARD..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Oct 22 15:06 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240.M
Title : VOA Standards for 5 point calibration
Last Update : Wed Oct 08 17:58:15 1997
Response via : Multiple Level Calibration



5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: V8469.D BFB Injection Date: 11/12/97

Instrument ID: 5970-AVOA BFB Injection Time: 1253

GC Column: HP-624 X 75M ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	20.2
75	30.0 - 66.0% of mass 95	49.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	78.1
175	4.0 - 9.0% of mass 174	5.9 (7.6)1
176	93.0 - 101.0% of mass 174	78.8 (100.9)1
177	5.0 - 9.0% of mass 176	4.9 (6.2)2

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

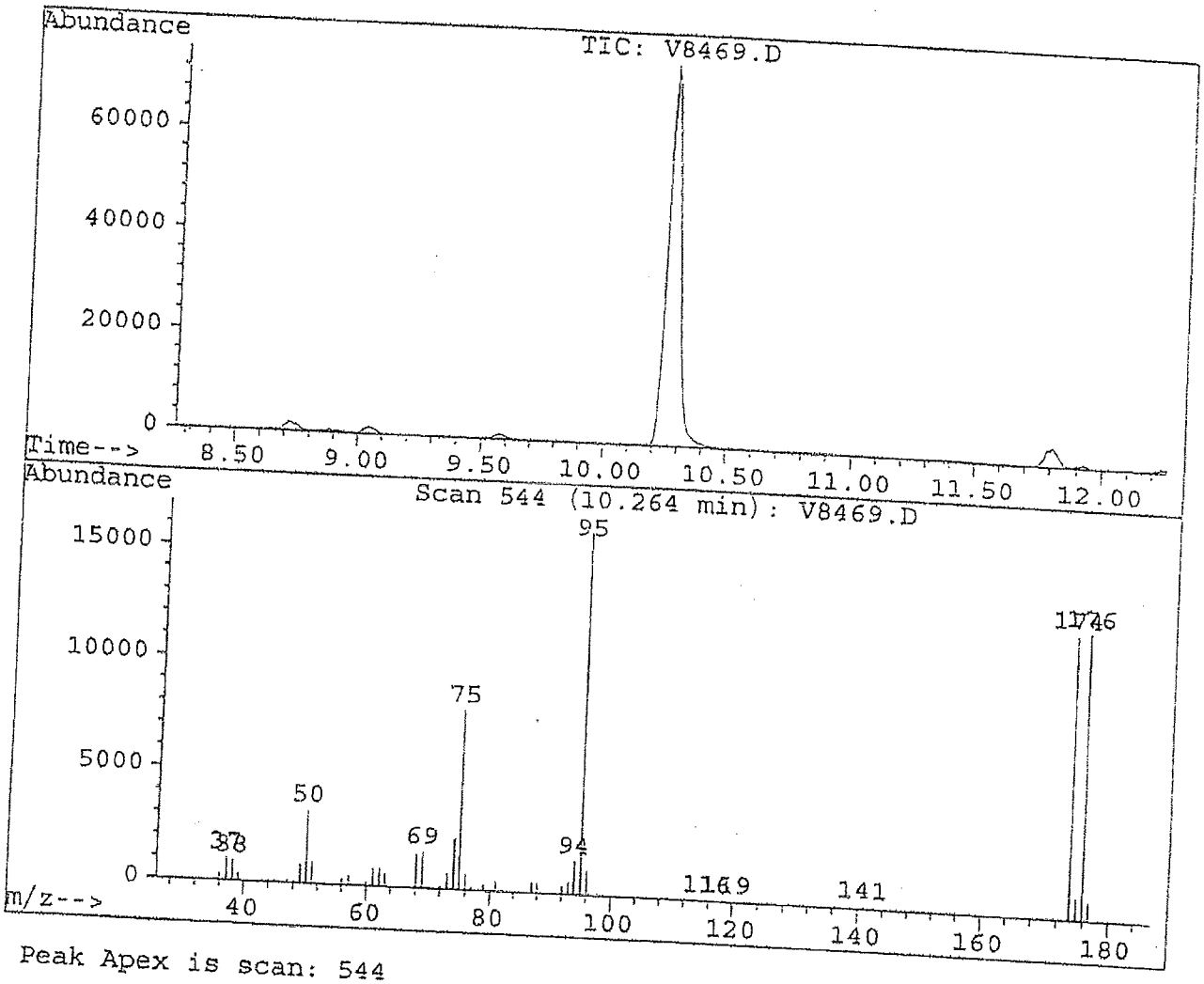
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	50 STND	V6470.D	11/12/97	1343
02	VBLK01	MEOHBLK	V6471.D	11/12/97	1420
03	VBLK02	M.BLANK	V6472.D	11/12/97	1458
04	9778293V	9778293V	V6473.D	11/12/97	1536
05	9778625V	9778625V	V6474.D	11/12/97	1613
06	9778621V	9778621V	V6475.D	11/12/97	1651
07	9778619V	9778619V	V6476.D	11/12/97	1728
08	9778620V	9778620V	V6477.D	11/12/97	1806
09	9778622V	9778622V	V6478.D	11/12/97	1843
10	9778623V	9778623V	V6479.D	11/12/97	1920
11	9778624V	9778624V	V6480.D	11/12/97	1957
12	9778619MS	78619MS	V6481.D	11/12/97	2035
13	9778619MSD	78619MSD	V6482.D	11/12/97	2112
14	20 LCS	20 LCS	V6483.D	11/12/97	2149
15	9778292V	9778292V	V6485.D	11/12/97	2304
16					
17					
18					
19					
20					
21					
22					

CLPBFB

Data File : C:\HPCHEM\1\DATA2\V8469.D
Acq On : 12 Nov 97 12:53 pm
Sample : BFB TUNE.....
Misc : 50 NG..... Converted from RTE d

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration



Peak Apex is scan: 544

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.2	3274	PASS
75	95	30	60	49.5	8004	PASS
95	95	100	100	100.0	16186	PASS
96	95	5	9	6.6	1072	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	78.1	12649	PASS
175	174	5	9	7.6	959	PASS
176	174	95	101	100.9	12762	PASS
177	176	5	9	6.2	794	PASS

V8469.D 8240H.M Wed Nov 12 13:21:10 1997 AVOA

Scan 544 (10.264 min): V8469.D
BFB TUNE..... Converted from RTE data file >V8469::D4

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
35.95	295	56.00	295	73.05	714	91.00	46
37.05	1030	57.10	460	74.05	2262	92.10	350
38.05	906	60.00	196	75.05	8004	93.10	521
39.05	341	61.05	808	76.05	708	94.00	1493
44.00	142	62.05	811	77.05	145	95.15	16186
45.00	181	63.05	599	79.00	294	96.15	1072
47.00	131	67.15	76	80.10	86	103.95	84
48.10	139	68.05	1530	81.00	443	115.90	50
49.10	846	69.05	1631	81.90	61	119.00	59
50.10	3274	70.05	102	87.00	470	140.95	137
51.10	960	72.05	122	88.00	429	142.85	116

Scan 544 (10.264 min): V8469.D
BFB TUNE..... Converted from RTE data file >V8469::D4

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
171.75	36						
173.95	12649						
174.95	959						
175.95	12762						
176.95	794						

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Instrument ID: 5970-AVOA Calibration Date: 11/12/97 Time: 1343

Lab File ID: V6470.D Init. Calib. Date(s): 10/22/97

Heated Purge: (Y/N) Y Init. Calib. Times:

GC Column: HP-624 X 75M ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Chloromethane	0.730	0.622	0.300	14.8	25.0
Bromomethane	0.382	0.295	0.100	22.8	25.0
Vinyl chloride	1.148	0.987	0.100	14.0	25.0
Chloroethane	0.568	0.484	0.100	14.8	25.0
Trichlorofluoromethane	2.383	1.922	0.100	19.3	25.0
Methylene chloride	2.270	2.369	0.100	-4.4	25.0
1,1-Dichloroethene	2.591	2.300	0.100	11.2	25.0
1,1-Dichloroethane	3.282	3.100	0.300	5.5	25.0
trans-1,2-Dichloroethene	2.403	2.309	0.100	3.9	25.0
Chloroform	3.092	2.898	0.100	6.3	25.0
1,2-Dichloroethane	2.892	2.807	0.100	2.9	25.0
1,1,1-Trichloroethane	2.530	2.212	0.100	12.6	25.0
Carbon tetrachloride	2.285	2.787	0.100	-22.0	25.0
Bromodichloromethane	0.717	0.749	0.100	-4.5	25.0
1,2-Dichloropropane	0.327	0.331	0.100	-1.2	25.0
cis-1,3-Dichloropropene	0.592	0.606	0.100	-2.4	25.0
Trichloroethene	0.413	0.447	0.100	-8.2	25.0
Dibromochloromethane	0.603	0.624	0.100	-3.5	25.0
1,1,2-Trichloroethane	0.332	0.351	0.100	-5.7	25.0
Benzene	4.049	3.932	0.100	2.9	25.0
trans-1,3-Dichloropropene	0.571	0.592	0.100	-3.7	25.0
Bromoform	0.589	0.670	0.300	-13.8	25.0
Tetrachloroethene	0.469	0.507	0.100	-8.1	25.0
1,1,2,2-Tetrachloroethane	0.684	0.731	0.300	-6.9	25.0
Toluene	1.000	1.002	0.100	-0.2	25.0
Chlorobenzene	0.892	0.933	0.300	-4.6	25.0
Ethylbenzene	1.485	1.568	0.100	-5.6	25.0
Xylene (para & meta)	1.212	1.337	0.100	-10.3	25.0
Xylene (ortho)	1.294	1.282	0.100	0.9	25.0
1,2-Dichloroethane-d4	2.052	2.161	0.100	-5.3	25.0
Toluene-d8	0.986	0.962	0.100	2.4	25.0
4-Bromofluorobenzene	0.817	0.834	0.010	-2.1	25.0

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\V6470.D
Acq On : 12 Nov 97 1:43 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Min. RRF : 0.300 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	I	Bromochloromethane	1.000	1.000	0.0	155#	-0.07
2	P	Chloromethane	0.730	0.622	14.9	142	-0.03
3	C	Vinyl chloride	1.148	0.987	14.1	134	-0.03
4	T	Bromomethane	0.382	0.295#	22.6	120	-0.03
5	T	Chloroethane	0.568	0.484	14.7	127	-0.03
6	T	Trichlorofluoromethane	2.383	1.922	19.4	136	-0.03
7	T	Acrolein	0.183	0.168#	8.2	124	-0.05
8	MC	1,1-Dichloroethene	2.591	2.300	11.2	144	-0.05
9	T	Acetone	0.986	0.986	-0.0	146	-0.05
10	T	Carbon disulfide	3.718	3.451	7.2	151#	-0.05
11	T	Methylene chloride	2.270	2.369	-4.4	162#	-0.07
12	T	Acrylonitrile	0.429	0.436	-1.6	150	-0.07
13	T	trans-1,2-Dichloroethene	2.403	2.309	3.9	152#	-0.05
14	T	Methyl-tert butyl ether	4.251	4.197	1.3	146	-0.05
15	T	tert-Butyl Alcohol	0.285	0.262#	8.1	137	-0.05
	P	1,1-Dichloroethane	3.282	3.100	5.6	149	-0.07
17		Diisopropyl ether	0.000	0.000#	0.0	0#	-0.05
18	T	cis-1,2-Dichloroethene	2.565	2.393	6.7	147	-0.05
19	T	2-Butanone	1.268	1.356	-6.9	162#	-0.07
20	T	Chloroform	3.092	2.898	6.2	142	-0.05
21	T	1,1,1-Trichloroethane	2.530	2.212	12.6	135	-0.05
22	T	Carbon tetrachloride	2.285	2.787	-22.0	193#	-0.09
23	S	1,2-Dichloroethane-d4	2.052	2.161	-5.3	160#	-0.07
24	M	Benzene	4.049	3.932	2.9	160#	-0.07
25	T	1,2-Dichloroethane	2.892	2.807	2.9	149	-0.05
26	I	1,4-Difluorobenzene	1.000	1.000	0.0	161#	-0.07
27	M	Trichloroethene	0.413	0.447	-8.3	170#	-0.07
28	C	1,2-Dichloropropane	0.327	0.331	-1.1	156#	-0.07
29	T	Bromodichloromethane	0.717	0.749	-4.5	161#	-0.07
30	T	2-Chloroethyl vinyl ether	0.197	0.209#	-5.8	150	-0.05
31	T	trans-1,3-Dichloropropene	0.571	0.592	-3.7	158#	-0.07
32	T	4-Methyl-2-pentanone	0.437	0.450	-2.9	162#	-0.07
33	S	Toluene-d8	0.986	0.962	2.4	151#	-0.07
34	MC	Toluene	1.000	1.002	-0.1	161#	-0.07
35	T	cis-1,3-Dichloropropene	0.592	0.606	-2.4	153#	-0.07
36	T	1,1,2-Trichloroethane	0.332	0.351	-5.8	161#	-0.07
37	T	2-Hexanone	0.333	0.368	-10.7	163#	-0.05
38	T	Tetrachloroethene	0.469	0.507	-8.1	164#	-0.07
39	T	Dibromochloromethane	0.603	0.624	-3.5	151#	-0.07
41	I	Chlorobenzene-d5	1.000	1.000	0.0	153#	-0.07

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\V6470.D
Acq On : 12 Nov 97 1:43 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Min. RRF : 0.300 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
41	MP	Chlorobenzene	0.892	0.933	-4.6	159#	-0.07
42	T	1,1,1,2-Tetrachloroethane	0.476	0.519	-9.0	161#	-0.07
43	C	Ethylbenzene	1.485	1.568	-5.6	153#	-0.07
44	T	Xylene (para & meta)	1.212	1.337	-10.3	150#	-0.07
45	T	Xylene (ortho)	1.294	1.282	0.9	141	-0.05
46	T	Styrene	0.936	0.981	-4.8	143	-0.07
47	P	Bromoform	0.589	0.670	-13.9	166#	-0.07
48	S	4-Bromofluorobenzene	0.817	0.834	-2.1	155#	-0.07
49	P	1,1,2,2-Tetrachloroethane	0.684	0.731	-7.0	158#	-0.07
50	T	1,3-Dichlorobenzene	0.935	1.024	-9.5	150	-0.07
51	T	1,4-Dichlorobenzene	1.018	1.157	-13.6	160#	-0.07
52	T	1,2-Dichlorobenzene	0.953	1.008	-5.8	145	-0.07
53	T	Naphthalene	1.800	0.000#	100.0#	0#	-23.39#
54		1,2-Dibromoethane	0.000	0.000#	0.0	0#	-14.10#
55		1,4-Dioxane	0.000	0.000#	0.0	0#	-10.98#
	T	n-Butyl methacrylate	0.000	0.000#	0.0	0#	-18.64#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V6470.D
Acq On : 12 Nov 97 1:43 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 12 14:17 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.86	128	86304	50.00	ug/l	-0.07
26) 1,4-Difluorobenzene	9.83	114	389201	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.99	117	330323	50.00	ug/l	-0.07
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.96	65	186502	52.66	ug/l	105.32%
33) Toluene-d8	12.45	98	374258	48.78	ug/l	97.57%
48) 4-Bromofluorobenzene	17.12	95	275514	51.04	ug/l	102.08%
Target Compounds						Qvalue
2) Chloromethane	2.21	50	53650	42.57	ug/l	94
3) Vinyl chloride	2.34	62	85159	42.96	ug/l	97
4) Bromomethane	2.73	94	25498	38.68	ug/l	100
5) Chloroethane	2.87	64	41793	42.66	ug/l	99
6) Trichlorofluoromethane	3.24	101	165834	40.32	ug/l	99
7) Acrolein	3.88	56	14489	45.88	ug/l	100
8) 1,1-Dichloroethene	3.99	61	198531	44.39	ug/l	91
9) Acetone	4.15	43	85110	50.00	ug/l	99
10) Carbon disulfide	4.31	76	297869	46.42	ug/l	100
11) Methylene chloride	4.84	49	204460	52.18	ug/l	93
12) Acrylonitrile	5.39	53	37616	50.79	ug/l	100
13) trans-1,2-Dichloroethene	5.39	61	199233	48.03	ug/l	93
14) Methyl-tert butyl ether	5.48	73	362241	49.36	ug/l	96
15) tert-Butyl Alcohol	5.32	59	102187	207.73	ug/l	100
16) 1,1-Dichloroethane	6.24	63	267514	47.22	ug/l	95
18) cis-1,2-Dichloroethene	7.43	61	206519	46.64	ug/l	100
19) 2-Butanone	7.54	43	117018	53.46	ug/l	97
20) Chloroform	8.09	83	250139	46.88	ug/l	98
21) 1,1,1-Trichloroethane	8.37	97	190916	43.72	ug/l	94
22) Carbon tetrachloride	8.67	117	240563	60.99	ug/l	97
24) Benzene	9.05	78	339380	48.55	ug/l	100
25) 1,2-Dichloroethane	9.12	62	242272	48.54	ug/l	96
27) Trichloroethene	10.27	130	174088	54.17	ug/l	91
28) 1,2-Dichloropropane	10.66	63	128660	50.54	ug/l	98
29) Bromodichloromethane	11.19	83	291604	52.24	ug/l	94
30) 2-Chloroethyl vinyl ether	11.80	63	81285	52.90	ug/l	98
31) trans-1,3-Dichloropropene	11.99	75	230534	51.83	ug/l	96
32) 4-Methyl-2-pentanone	12.33	43	175148	51.44	ug/l	90
34) Toluene	12.56	91	389911	50.07	ug/l	96
35) cis-1,3-Dichloropropene	13.00	75	236011	51.21	ug/l	99
36) 1,1,2-Trichloroethane	13.29	97	136758	52.90	ug/l	95
37) 2-Hexanone	13.82	43	143273	55.33	ug/l	97
38) Tetrachloroethene	13.52	166	197223	54.07	ug/l	88
39) Dibromochloromethane	13.98	129	242943	51.73	ug/l	82

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V6470.D
Acq On : 12 Nov 97 1:43 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 12 14:17 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Chlorobenzene	15.06	112	308251	52.30	ug/l	97
42) 1,1,1,2-Tetrachloroethane	15.19	131	171375	54.48	ug/l	99
43) Ethylbenzene	15.29	91	517856	52.78	ug/l	99
44) Xylene (para & meta)	15.49	91	883574	110.35	ug/l	96
45) Xylene (ortho)	16.20	91	423466	49.55	ug/l	94
46) Styrene	16.23	104	324032	52.42	ug/l	93
47) Bromoform	16.50	173	221438	56.94	ug/l	100
49) 1,1,2,2-Tetrachloroethane	17.42	83	241546	53.48	ug/l	89
50) 1,3-Dichlorobenzene	19.09	146	338336	54.76	ug/l	94
51) 1,4-Dichlorobenzene	19.25	146	382149	56.80	ug/l	97
52) 1,2-Dichlorobenzene	19.91	146	332947	52.89	ug/l	96

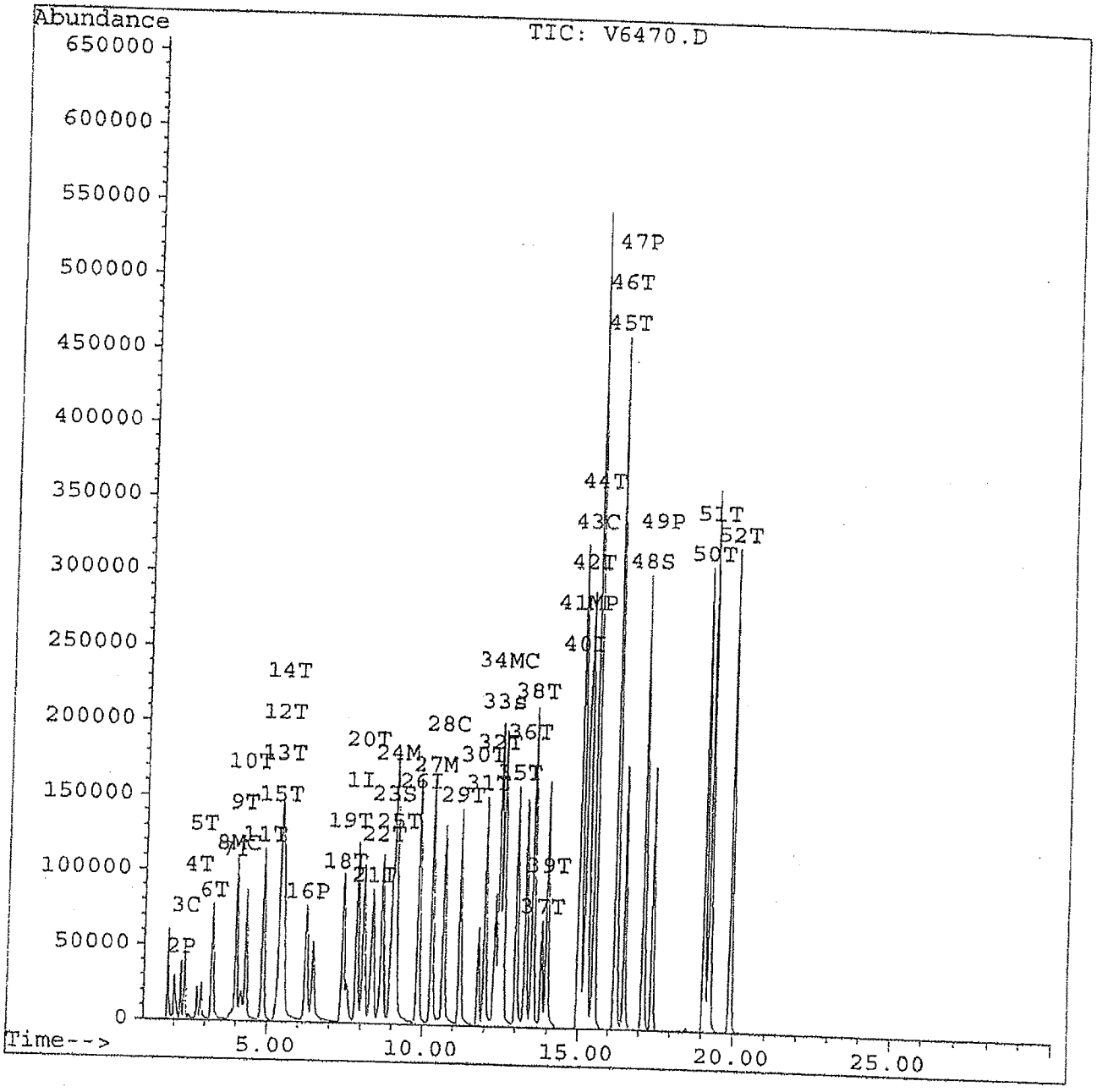
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V6470.D
Acq On : 12 Nov 97 1:43 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 12 14:17 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration



5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: V8492.D BFB Injection Date: 11/13/97

Instrument ID: 5970-AVOA BFB Injection Time: 1425

GC Column: HP-624 X 7 ID: 0.53 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.3
75	30.0 - 66.0% of mass 95	55.6
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	77.1
175	4.0 - 9.0% of mass 174	5.5 (7.2)1
176	93.0 - 101.0% of mass 174	77.0 (99.9)1
177	5.0 - 9.0% of mass 176	4.4 (5.7)2

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

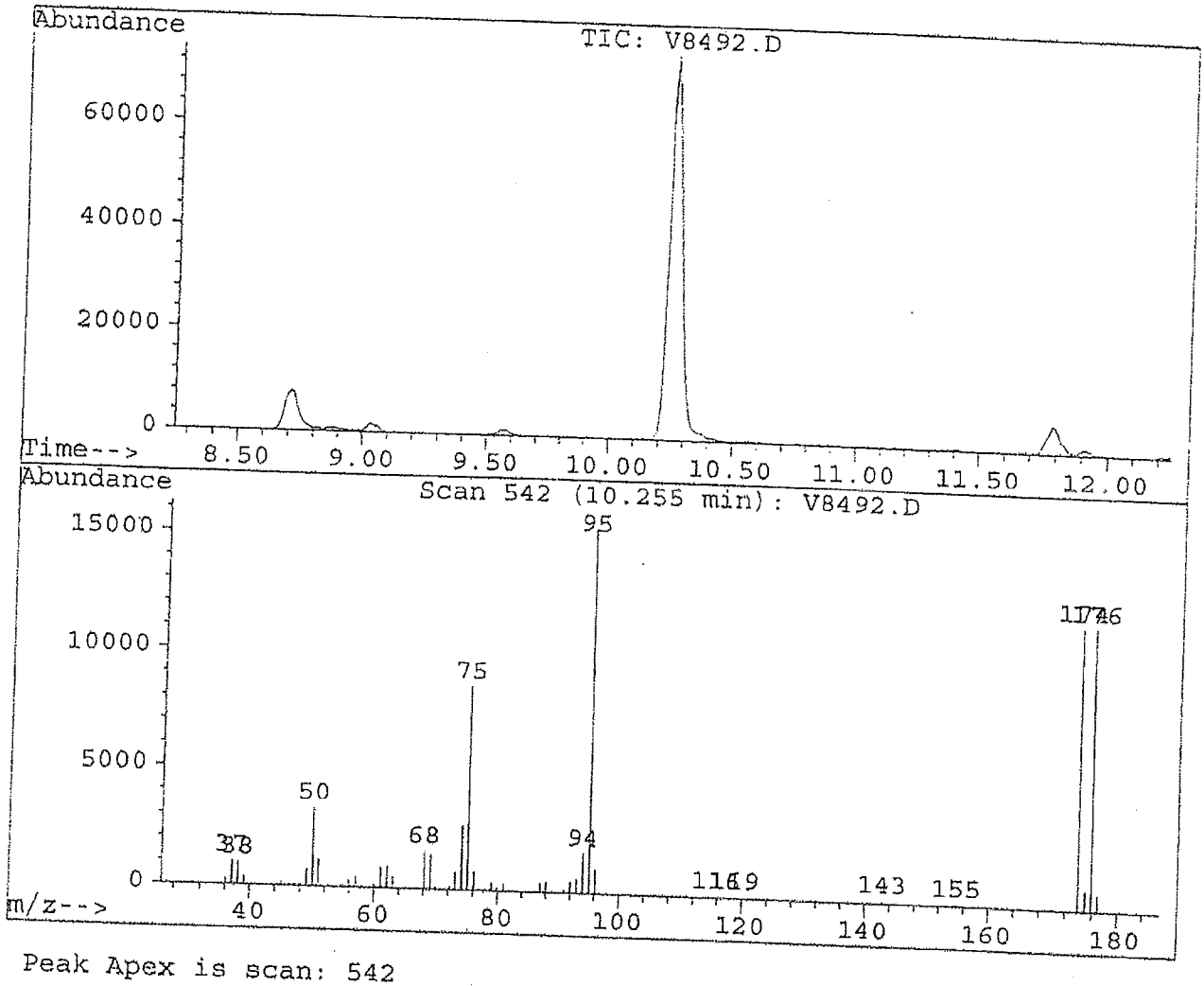
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD050	50 STND	V8493.D	11/13/97	1508
02	VBLK01	M.BLANK	V8494.D	11/13/97	1545
03	9782204V	9782204V	V8495.D ✓	11/13/97	1622
04	9782203V	9782203V	V8496.D ✓	11/13/97	1659
05	9781438V	9781438V	V8497.D	11/13/97	1736
06	9782199V	9782199V	V8498.D ✓	11/13/97	1814
07	9782200V	9782200V	V8499.D ✓	11/13/97	1851
08	9782201V	9782201V	V8500.D ✓	11/13/97	1928
09	9782202V	9782202V	V8501.D ✓	11/13/97	2006
10	9781433V	9781433V	V8502.D	11/13/97	2043
11	9781434V	9781434V	V8503.D	11/13/97	2120
12	9781435V	9781435V	V8504.D	11/13/97	2157
13	9781436V	9781436V	V8505.D	11/13/97	2235
14	9781437V	9781437V	V8506.D	11/13/97	2312
15	9782199MS	82199MS	V8507.D	11/13/97	2349
16	9782199MSD	82199MSD	V8508.D	11/14/97	0026
17					
18					
19					
20					
21					
22					

CLPBFB

Data File : C:\HPCHEM\1\DATA2\V8492.D
Acq On : 13 Nov 97 2:25 pm
Sample : BFB TUNE..... Converted from RTE d
Misc : 50 NG.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration



Peak Apex is scan: 542

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	21.3	3300	PASS
75	95	30	60	55.6	8617	PASS
95	95	100	100	100.0	15500	PASS
96	95	5	9	6.9	1075	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	77.1	11947	PASS
175	174	5	9	7.2	857	PASS
176	174	95	101	99.9	11937	PASS
177	176	5	9	5.7	675	PASS

V8492.D 8240H.M Thu Nov 13 14:45:22 1997 AVOA

Scan 542 (10.255 min): V8492.D
BFB TUNE..... Converted from RTE data file >V8492::D4

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.05	254	56.00	314	72.15	126	87.00	355
37.05	1014	57.10	418	73.05	711	88.00	467
38.05	946	60.00	144	74.05	2689	91.00	115
39.05	338	61.05	845	75.05	8617	92.00	472
45.10	169	62.05	909	76.05	779	93.10	581
47.20	103	63.05	498	77.05	105	94.10	1653
48.10	122	64.05	63	77.80	77	95.15	15500
49.10	708	67.15	44	79.00	340	96.15	1075
50.10	3300	68.05	1583	79.90	139	97.05	63
51.00	1145	69.05	1447	81.00	298	104.95	32
55.00	87	69.95	121	82.00	68	116.00	66

Scan 542 (10.255 min): V8492.D
BFB TUNE..... Converted from RTE data file >V8492::D4

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
119.00	71						
142.95	137						
155.00	90						
170.15	68						
173.95	11947						
175.05	857						
175.95	11937						
176.95	675						

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Instrument ID: 5970-AVOA Calibration Date: 11/13/97 Time: 1508

Lab File ID: V8493.D Init. Calib. Date(s): 10/22/97

Heated Purge: (Y/N) Y Init. Calib. Times:

GC Column: HP-624 X 7 ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Chloromethane	0.730	0.555	0.300	24.0	25.0
Bromomethane	0.382	0.328	0.100	14.1	25.0
Vinyl chloride	1.148	0.923	0.100	19.6	25.0
Chloroethane	0.568	0.536	0.100	5.6	25.0
Trichlorofluoromethane	2.383	2.080	0.100	12.7	25.0
Methylene chloride	2.270	2.378	0.100	-4.8	25.0
1,1-Dichloroethene	2.591	2.401	0.100	7.3	25.0
1,1-Dichloroethane	3.282	3.024	0.300	7.9	25.0
trans-1,2-Dichloroethene	2.403	2.251	0.100	6.3	25.0
Chloroform	3.092	2.938	0.100	5.0	25.0
1,2-Dichloroethane	2.892	2.867	0.100	0.9	25.0
1,1,1-Trichloroethane	2.530	2.355	0.100	6.9	25.0
Carbon tetrachloride	2.285	2.690	0.100	-17.7	25.0
Bromodichloromethane	0.717	0.745	0.100	-3.9	25.0
1,2-Dichloropropane	0.327	0.317	0.100	3.1	25.0
cis-1,3-Dichloropropene	0.592	0.594	0.100	-0.3	25.0
Trichloroethene	0.413	0.444	0.100	-7.5	25.0
Dibromochloromethane	0.603	0.626	0.100	-3.8	25.0
1,1,2-Trichloroethane	0.332	0.345	0.100	-3.9	25.0
Benzene	4.049	3.764	0.100	7.0	25.0
trans-1,3-Dichloropropene	0.571	0.585	0.100	-2.5	25.0
Bromoform	0.589	0.640	0.300	-8.7	25.0
Tetrachloroethene	0.469	0.519	0.100	-10.7	25.0
1,1,2,2-Tetrachloroethane	0.684	0.691	0.300	-1.0	25.0
Toluene	1.000	0.985	0.100	1.5	25.0
Chlorobenzene	0.892	0.903	0.300	-1.2	25.0
Ethylbenzene	1.485	1.537	0.100	-3.5	25.0
Xylene (para & meta)	1.212	1.353	0.100	-11.6	25.0
Xylene (ortho)	1.294	1.318	0.100	-1.9	25.0
Methyl-tert butyl ether	4.251	3.880	0.100	8.7	25.0
tert-Butyl Alcohol	0.285	0.237	0.100	16.8	25.0
Acrolein	0.183	0.147		19.7	40.0
Acrylonitrile	0.429	0.401		6.5	40.0
1,2-Dichloroethane-d4	2.052	2.314	0.100	-12.8	25.0
Toluene-d8	0.986	0.962	0.100	2.4	25.0
4-Bromofluorobenzene	0.817	0.832	0.010	-1.8	25.0

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\V8493.D
Acq On : 13 Nov 97 3:08 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Min. RRF : 0.300 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	I	Bromochloromethane	1.000	1.000	0.0	162#	-0.07
2	P	Chloromethane	0.730	0.555	23.9	132	-0.02
3	C	Vinyl chloride	1.148	0.923	19.6	130	-0.02
4	T	Bromomethane	0.382	0.328	14.0	140	-0.02
5	T	Chloroethane	0.568	0.536	5.6	147	-0.02
6	T	Trichlorofluoromethane	2.383	2.080	12.7	154#	-0.02
7	T	Acrolein	0.183	0.147#	19.8	113	-0.05
8	MC	1,1-Dichloroethene	2.591	2.401	7.3	157#	-0.05
9	T	Acetone	0.986	0.959	2.7	149	-0.05
10	T	Carbon disulfide	3.718	3.370	9.4	154#	-0.05
11	T	Methylene chloride	2.270	2.378	-4.8	169#	-0.07
12	T	Acrylonitrile	0.429	0.401	6.7	144	-0.07
13	T	trans-1,2-Dichloroethene	2.403	2.251	6.3	154#	-0.05
14	T	Methyl-tert butyl ether	4.251	3.880	8.7	141	-0.05
15	T	tert-Butyl Alcohol	0.285	0.237#	16.7	130	-0.07
16	P	1,1-Dichloroethane	3.282	3.024	7.9	152#	-0.07
17		Diisopropyl ether	0.000	0.000#	0.0	0#	-0.07
18	T	cis-1,2-Dichloroethene	2.565	2.396	6.6	153#	-0.07
19	T	2-Butanone	1.268	1.278	-0.7	159#	-0.07
20	T	Chloroform	3.092	2.938	5.0	151#	-0.07
21	T	1,1,1-Trichloroethane	2.530	2.355	6.9	150	-0.07
22	T	Carbon tetrachloride	2.285	2.690	-17.7	194#	-0.09
23	S	1,2-Dichloroethane-d4	2.052	2.314	-12.8	178#	-0.07
24	M	Benzene	4.049	3.764	7.1	160#	-0.07
25	T	1,2-Dichloroethane	2.892	2.867	0.8	159#	-0.04
26	I	1,4-Difluorobenzene	1.000	1.000	0.0	163#	-0.07
27	M	Trichloroethene	0.413	0.444	-7.6	170#	-0.07
28	C	1,2-Dichloropropane	0.327	0.317	3.0	151#	-0.07
29	T	Bromodichloromethane	0.717	0.745	-3.9	161#	-0.07
30	T	2-Chloroethyl vinyl ether	0.197	0.188#	4.6	136	-0.07
31	T	trans-1,3-Dichloropropene	0.571	0.585	-2.3	157#	-0.07
32	T	4-Methyl-2-pentanone	0.437	0.391	10.5	142	-0.07
33	S	Toluene-d8	0.986	0.962	2.4	152#	-0.07
34	MC	Toluene	1.000	0.985	1.5	159#	-0.07
35	T	cis-1,3-Dichloropropene	0.592	0.594	-0.4	151#	-0.07
36	T	1,1,2-Trichloroethane	0.332	0.345	-4.0	159#	-0.07
37	T	2-Hexanone	0.333	0.322	3.1	144	-0.07
38	T	Tetrachloroethene	0.469	0.519	-10.7	169#	-0.07
39	T	Dibromochloromethane	0.603	0.626	-3.7	152#	-0.07
	I	Chlorobenzene-d5	1.000	1.000	0.0	158#	-0.07

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\V8493.D
Acq On : 13 Nov 97 3:08 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Min. RRF : 0.300 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
41	MP	Chlorobenzene	0.892	0.903	-1.2	159#	-0.07
42	T	1,1,1,2-Tetrachloroethane	0.476	0.527	-10.7	170#	-0.07
43	C	Ethylbenzene	1.485	1.537	-3.5	155#	-0.09
44	T	Xylene (para & meta)	1.212	1.353	-11.7	157#	-0.07
45	T	Xylene (ortho)	1.294	1.318	-1.9	150	-0.07
46	T	Styrene	0.936	1.000	-6.9	151#	-0.07
47	P	Bromoform	0.589	0.640	-8.7	164#	-0.07
48	S	4-Bromofluorobenzene	0.817	0.832	-1.8	160#	-0.07
49	P	1,1,2,2-Tetrachloroethane	0.684	0.691	-1.1	154#	-0.07
50	T	1,3-Dichlorobenzene	0.935	1.021	-9.1	154#	-0.09
51	T	1,4-Dichlorobenzene	1.018	1.061	-4.2	151#	-0.07
52	T	1,2-Dichlorobenzene	0.953	0.974	-2.2	145	-0.07
53	T	Naphthalene	1.800	0.000#	100.0#	0#	-23.39#
54		1,2-Dibromoethane	0.000	0.000#	0.0	0#	-14.10#
55		1,4-Dioxane	0.000	0.000#	0.0	0#	-0.57#
	T	n-Butyl methacrylate	0.000	0.000#	0.0	0#	-18.64#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8493.D
Acq On : 13 Nov 97 3:08 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 13 15:46 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.87	128	90041	50.00	ug/l	-0.07
26) 1,4-Difluorobenzene	9.84	114	392553	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.99	117	341754	50.00	ug/l	-0.07
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.97	65	208341	56.39	ug/l	112.77%
33) Toluene-d8	12.45	98	377558	48.79	ug/l	97.59%
48) 4-Bromofluorobenzene	17.12	95	284295	50.90	ug/l	101.81%
Target Compounds						Qvalue
2) Chloromethane	2.21	50	50012	38.04	ug/l	97
3) Vinyl chloride	2.35	62	83094	40.18	ug/l	97
4) Bromomethane	2.74	94	29571	42.99	ug/l	99
5) Chloroethane	2.87	64	48270	47.22	ug/l	96
6) Trichlorofluoromethane	3.24	101	187317	43.65	ug/l	97
7) Acrolein	3.88	56	13208	40.08	ug/l	100
8) 1,1-Dichloroethene	4.00	61	216229	46.34	ug/l	97
9) Acetone	4.16	43	86353	48.63	ug/l	98
10) Carbon disulfide	4.32	76	303406	45.32	ug/l	100
11) Methylene chloride	4.84	49	214131	52.38	ug/l	99
12) Acrylonitrile	5.39	53	36066	46.67	ug/l	100
13) trans-1,2-Dichloroethene	5.39	61	202702	46.84	ug/l	89
14) Methyl-tert butyl ether	5.48	73	349388	45.64	ug/l	97
15) tert-Butyl Alcohol	5.30	59	96619	188.26	ug/l	100
16) 1,1-Dichloroethane	6.24	63	272239	46.06	ug/l	98
18) cis-1,2-Dichloroethene	7.41	61	215733	46.70	ug/l	92
19) 2-Butanone	7.55	43	115029	50.37	ug/l	97
20) Chloroform	8.07	83	264582	47.52	ug/l	96
21) 1,1,1-Trichloroethane	8.35	97	212077	46.56	ug/l	87
22) Carbon tetrachloride	8.67	117	242213	58.86	ug/l m	95
24) Benzene	9.06	78	338880	46.47	ug/l	100
25) 1,2-Dichloroethane	9.13	62	258176	49.58	ug/l	96
27) Trichloroethene	10.27	130	174398	53.81	ug/l	94
28) 1,2-Dichloropropane	10.66	63	124567	48.52	ug/l	99
29) Bromodichloromethane	11.19	83	292386	51.93	ug/l	99
30) 2-Chloroethyl vinyl ether	11.78	63	73919	47.69	ug/l	98
31) trans-1,3-Dichloropropene	11.99	75	229527	51.16	ug/l	99
32) 4-Methyl-2-pentanone	12.33	43	153615	44.73	ug/l m	41
34) Toluene	12.56	91	386739	49.24	ug/l	88
35) cis-1,3-Dichloropropene	13.00	75	233346	50.20	ug/l	99
36) 1,1,2-Trichloroethane	13.30	97	135542	51.98	ug/l	98
37) 2-Hexanone	13.80	43	126495	48.44	ug/l	98
38) Tetrachloroethene	13.53	166	203547	55.33	ug/l	84
39) Dibromochloromethane	13.98	129	245548	51.84	ug/l	87

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8493.D
Acq On : 13 Nov 97 3:08 pm Vial: 0
Sample : 50 PPB CHK STND... Converted from RTE d Operator: SCOTTK
Misc : 5 ML..... Inst : AVOA
Quant Time: Nov 13 15:46 1997 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
41) Chlorobenzene	15.06	112	308639	50.61	ug/l	98
42) 1,1,1,2-Tetrachloroethane	15.20	131	180207	55.37	ug/l	95
43) Ethylbenzene	15.27	91	525271	51.74	ug/l	98
44) Xylene (para & meta)	15.50	91	925078	111.67	ug/l	98
45) Xylene (ortho)	16.18	91	450425	50.94	ug/l	88
46) Styrene	16.23	104	341894	53.46	ug/l	90
47) Bromoform	16.50	173	218593	54.33	ug/l	94
49) 1,1,2,2-Tetrachloroethane	17.42	83	236210	50.55	ug/l	94
50) 1,3-Dichlorobenzene	19.07	146	348855	54.57	ug/l	99
51) 1,4-Dichlorobenzene	19.25	146	362580	52.09	ug/l	95
52) 1,2-Dichlorobenzene	19.92	146	332890	51.11	ug/l	98

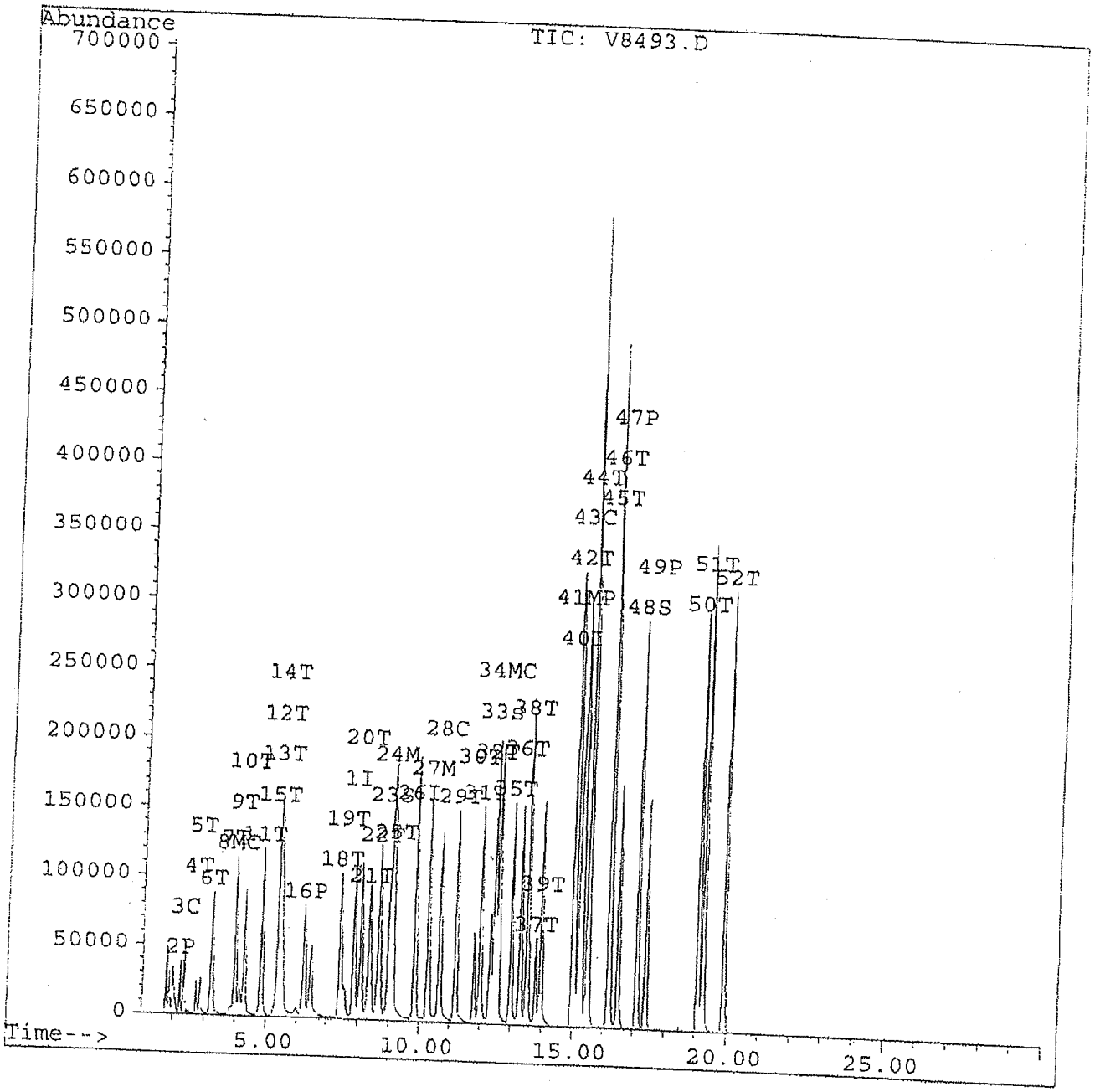
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\V8493.D
Acq On : 13 Nov 97 3:08 pm
Sample : 50 PPB CHK STND... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 13 15:46 1997

Vial: C
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration



8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Lab File ID (Standard): V6470.D Date Analyzed: 11/12/97

Instrument ID: 5970-AVOA Time Analyzed: 1343

GC Column: HP-624 X 75M ID: 0.53 (mm) Heated Purge (Y/N) Y

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	86304	7.86	389201	9.83	330323	14.99
	UPPER LIMIT	172608	8.36	778402	10.33	660646	15.49
	LOWER LIMIT	43152	7.36	194601	9.33	165162	14.49
	SAMPLE NO.						
01	VBLK01	78024	7.86	395901	9.83	350580	14.98
02	VBLK02	76618	7.84	359021	9.81	306477	14.98
03	9778293V	80269	7.84	415100	9.83	362929	14.98
04	9778625V	72665	7.84	378277	9.84	329561	14.99
05	9778621V	75761	7.84	365175	9.83	316667	14.98
06	9778619V	73027	7.84	305021	9.81	267765	14.98
07	9778620V	74028	7.84	309473	9.81	277728	14.98
08	9778622V	70000	7.82	291325	9.81	255872	14.98
09	9778623V	70649	7.84	296727	9.83	243073	14.98
10	9778624V	70841	7.84	277733	9.81	267410	14.98
11	9778619MS	65196	7.85	292527	9.82	248864	14.97
12	9778619MSD	67594	7.84	295877	9.81	245032	14.97
13	20 LCS	82787	7.84	356142	9.81	320523	14.97
14	9778292V	71293	7.84	330534	9.81	282018	14.98
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID (Standard): V8493.D Date Analyzed: 11/13/97

Instrument ID: 5970-AVOA Time Analyzed: 1508

GC Column: HP-624 X 75M ID: 0.53 (mm) Heated Purge (Y/N) Y

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	90041	7.87	392553	9.84	341754	14.99
	UPPER LIMIT	180082	8.37	785106	10.34	683508	15.49
	LOWER LIMIT	45021	7.37	196277	9.34	170877	14.49
	SAMPLE NO.						
01	VBLK01	74877	7.86	316507	9.83	286746	14.98
02	9782204V	79231	7.84	364724	9.83	315563	14.98
03	9782203V	80945	7.84	354024	9.83	321072	14.98
04	9781438V	74496	7.84	360585	9.83	310197	14.98
05	9782199V	72816	7.84	288894	9.83	247971	14.98
06	9782200V	70049	7.84	288638	9.83	247221	14.98
07	9782201V	72543	7.85	305340	9.82	242064	14.99
08	9782202V	67866	7.84	283606	9.83	258331	14.98
09	9781433V	82356	7.84	346587	9.83	306934	14.98
10	9781434V	83963	7.84	372172	9.84	334385	14.99
11	9781435V	77278	7.84	337776	9.81	309665	14.98
12	9781436V	78248	7.85	337670	9.84	307494	14.99
13	9781437V	76375	7.84	338601	9.83	301028	14.98
14	9782199MS	65468	7.84	282411	9.81	229606	14.99
15	9782199MSD	68148	7.84	287007	9.84	219201	14.99
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778619V

MW1-2, S-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778619V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6476.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 16 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	9	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert Butyl Alcohol	30	U
107-02-8	Acrolein	60	U
107-13-1	Acrylonitrile	60	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778619V
MW-2, S-5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778619V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6476.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 16 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 138-86-3	Limonene	19.10	7	J
2.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v6476.d
Acq On : 12 Nov 97 5:28 pm
Sample : 9778619V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:49 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	73027	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.81	114	305021	50.00	ug/l	-0.09
40) Chlorobenzene-d5	14.98	117	267765	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	157721	52.63	ug/l	105.26%
33) Toluene-d8	12.42	98	294976	49.06	ug/l	98.12%
48) 4-Bromofluorobenzene	17.11	95	204218	46.67	ug/l	93.34%
Target Compounds						Qvalue
11) Methylene chloride	4.84	49	25266	7.62	ug/l	94

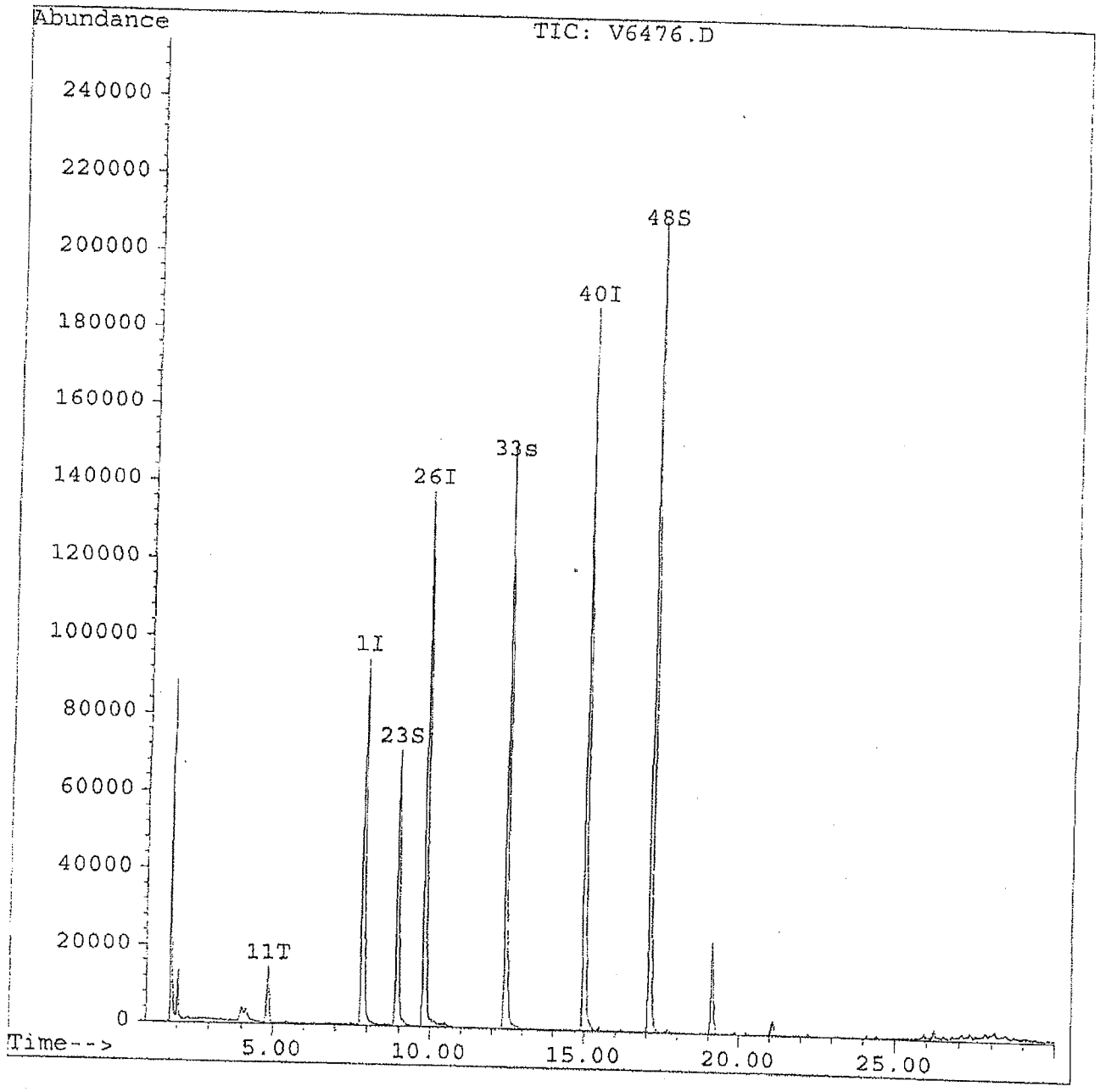
(#) = qualifier out of range (m) = manual integration

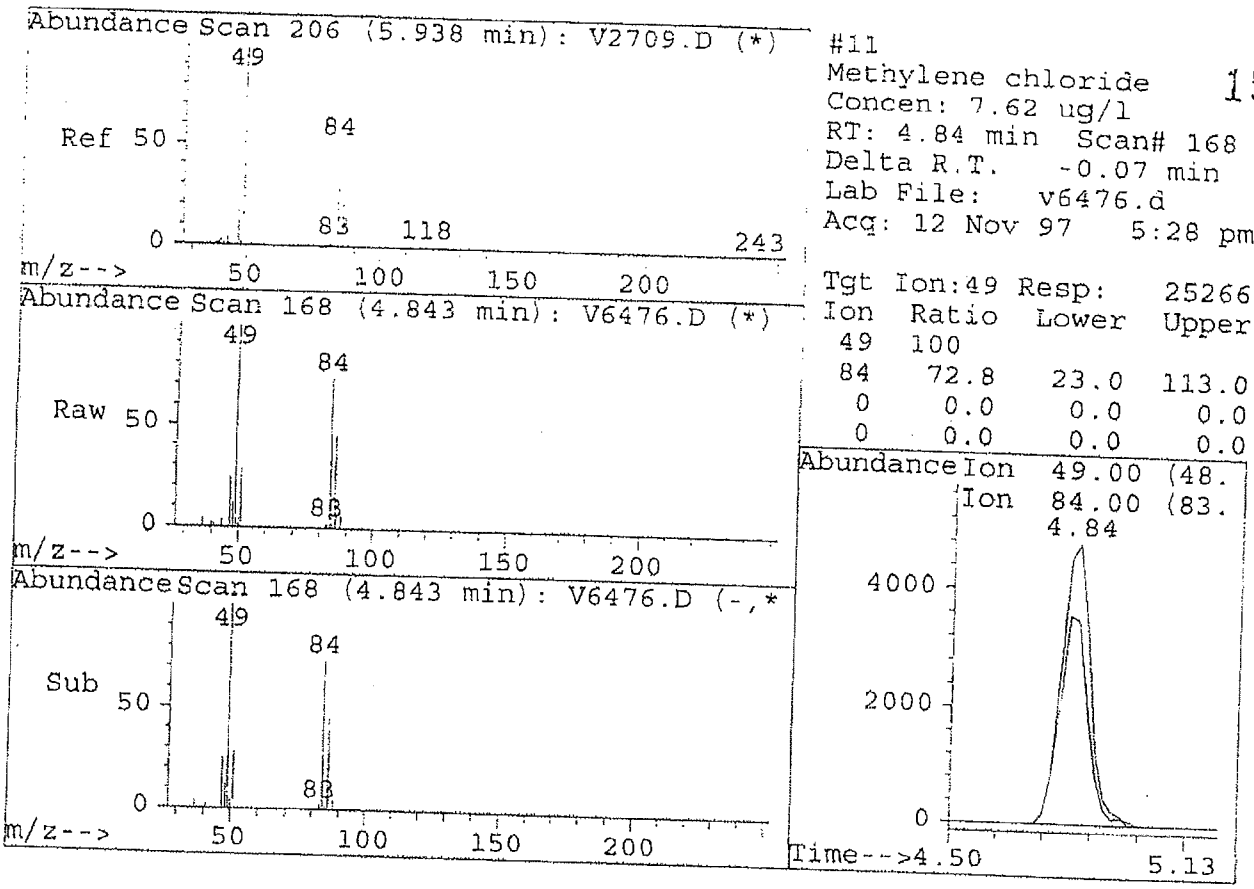
Quantitation Report

Data File : c:\hpchem\1\data2\v6476.d
Acq On : 12 Nov 97 5:28 pm
Sample : 9778619V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:49 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration





#11
Methylene chloride 152
Concen: 7.62 ug/l
RT: 4.84 min Scan# 168
Delta R.T. -0.07 min
Lab File: v6476.d
Acq: 12 Nov 97 5:28 pm

Tgt Ion:49 Resp: 25266

Ion	Ratio	Lower	Upper
49	100		
84	72.8	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0

Library Search Compound Report

153

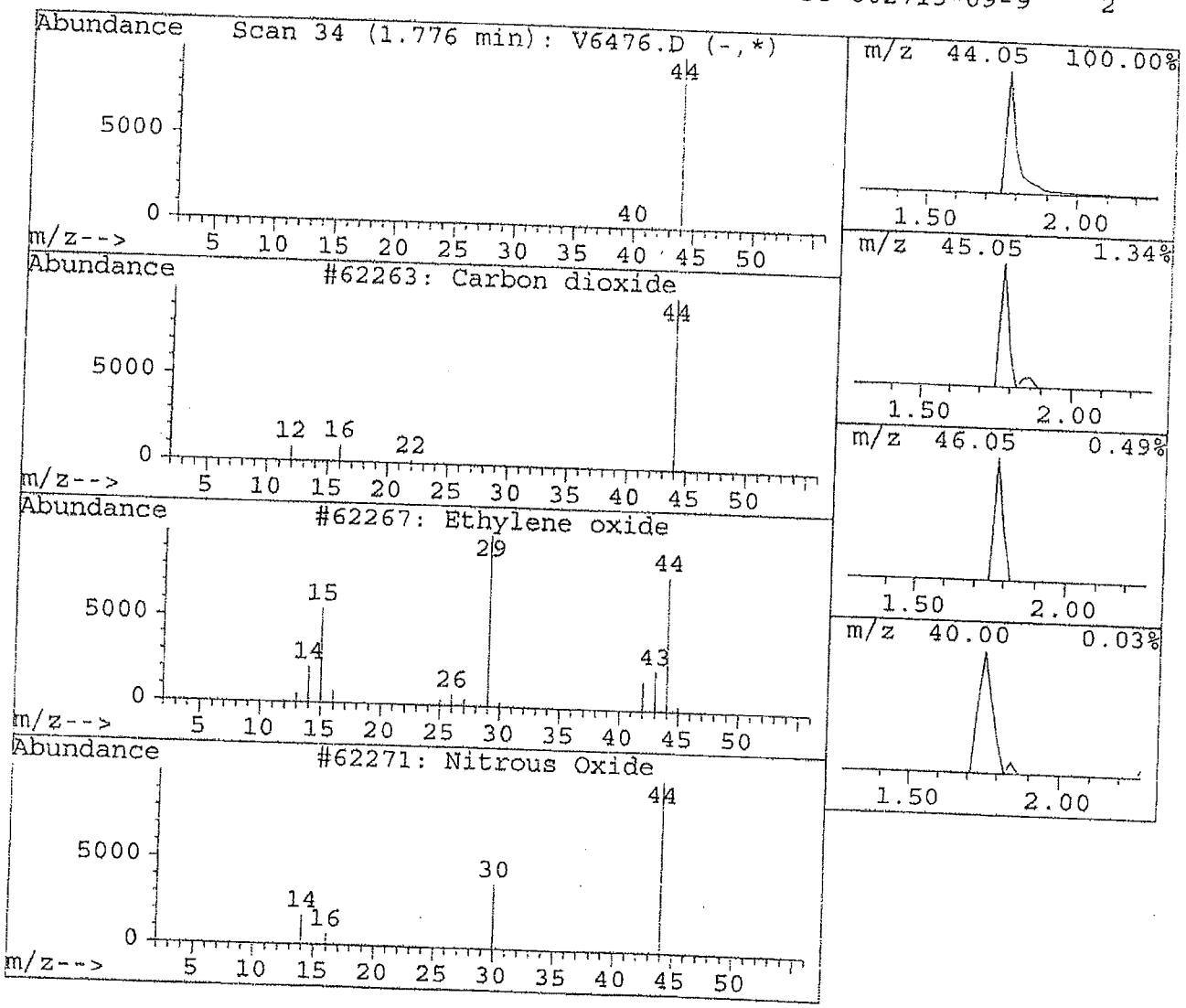
Data File : c:\hpchem\1\data2\v6476.d
Acq On : 12 Nov 97 5:28 pm
Sample : 9778619V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	19.58 ug/1	207938	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	62271	010024-97-2	3
4	Acetaldehyde	62265	000075-07-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



Library Search Compound Report

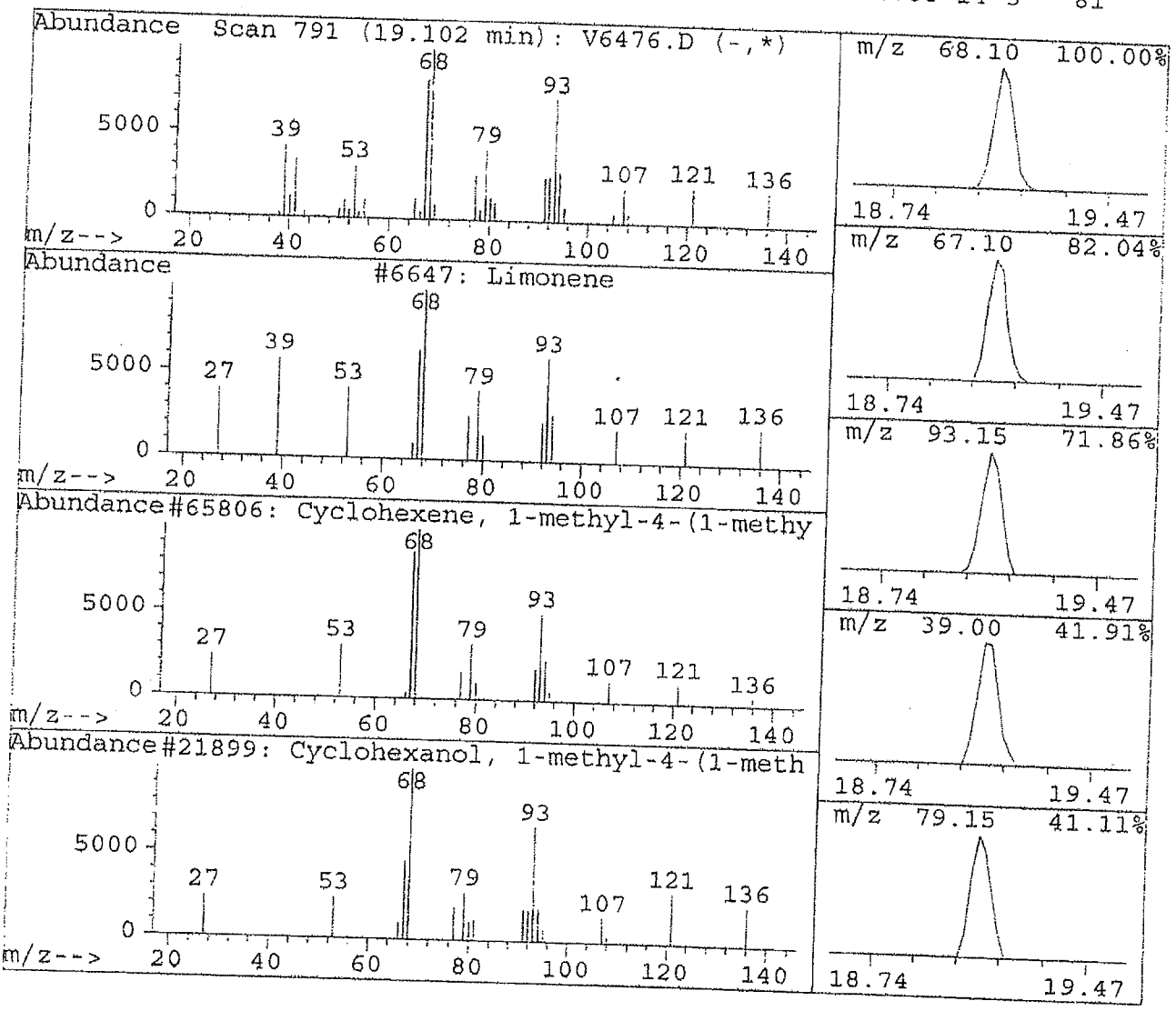
Data File : c:\hpchem\1\data2\v6476.d
Acq On : 12 Nov 97 5:28 pm
Sample : 9778619V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
19.10	5.72 ug/l	99151	Chlorobenzene-d5	14.98

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Limonene	6647	000138-86-3	94
2	Cyclohexene, 1-methyl-4-(1-methylet	65806	005989-54-8	78
3	Cyclohexanol, 1-methyl-4-(1-methyle	21899	010198-23-9	64
4	D-Limonene	6664	005989-27-5	81
5	1,5-Cyclooctadiene, 1,5-dimethyl-	65749	003760-14-3	81



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778620V

MW-10 S.S

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778620V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6477.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 20 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl chloride	13	U
75-00-3	Chloroethane	13	U
75-69-4	Trichlorofluoromethane	13	U
75-09-2	Methylene chloride	11	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	31	U
107-02-8	Acrolein	63	U
107-13-1	Acrylonitrile	63	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9778620V
MW-10 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778620V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6477.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 20 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v6477.d
Acq On : 12 Nov 97 6:06 pm
Sample : 9778620V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:49 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	74028	50.00	ug/l	-0.10
26) 1,4-Difluorobenzene	9.81	114	309473	50.00	ug/l	-0.10
40) Chlorobenzene-d5	14.98	117	277728	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	176239	58.02	ug/l	116.03%
33) Toluene-d8	12.44	98	302544	49.60	ug/l	99.19%
48) 4-Bromofluorobenzene	17.11	95	219508	48.36	ug/l	96.73%
Target Compounds						Qvalue
11) Methylene chloride	4.82	49	28791	8.57	ug/l	97

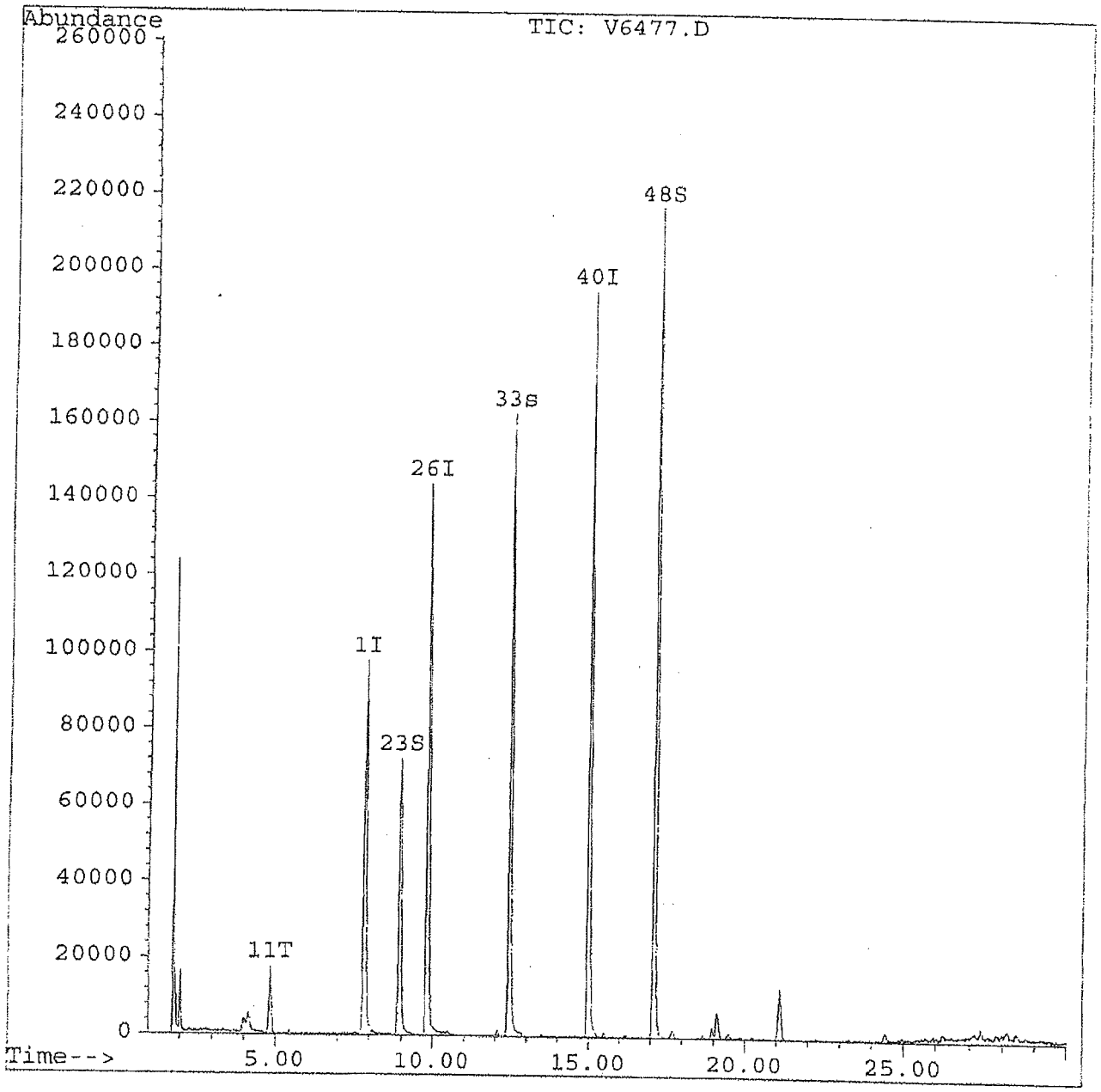
(#) = qualifier out of range (m) = manual integration

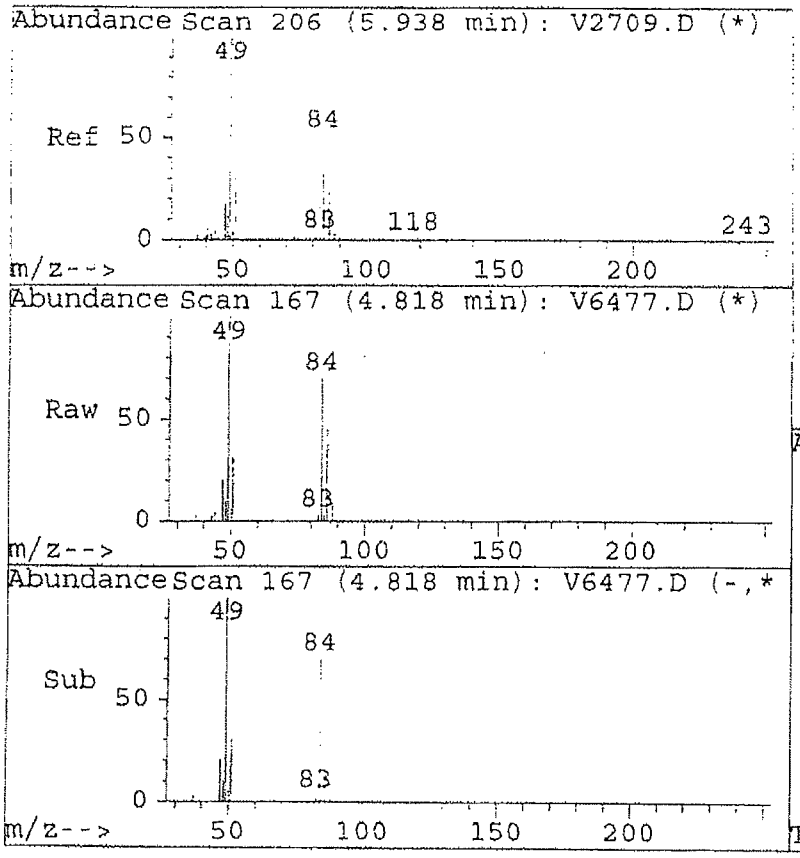
Quantitation Report

Data File : c:\hpchem\1\data2\v6477.d
Acq On : 12 Nov 97 6:06 pm
Sample : 9778620V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:49 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

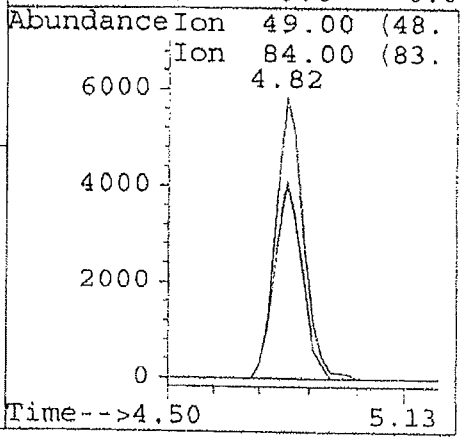




#11
Methylene chloride
Concen: 8.57 ug/l
RT: 4.82 min Scan# 167
Delta R.T. -0.09 min
Lab File: v6477.d
Acq: 12 Nov 97 6:06 pm

Tgt Ion:49 Resp: 28791

Ion	Ratio	Lower	Upper
49	100		
84	70.2	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

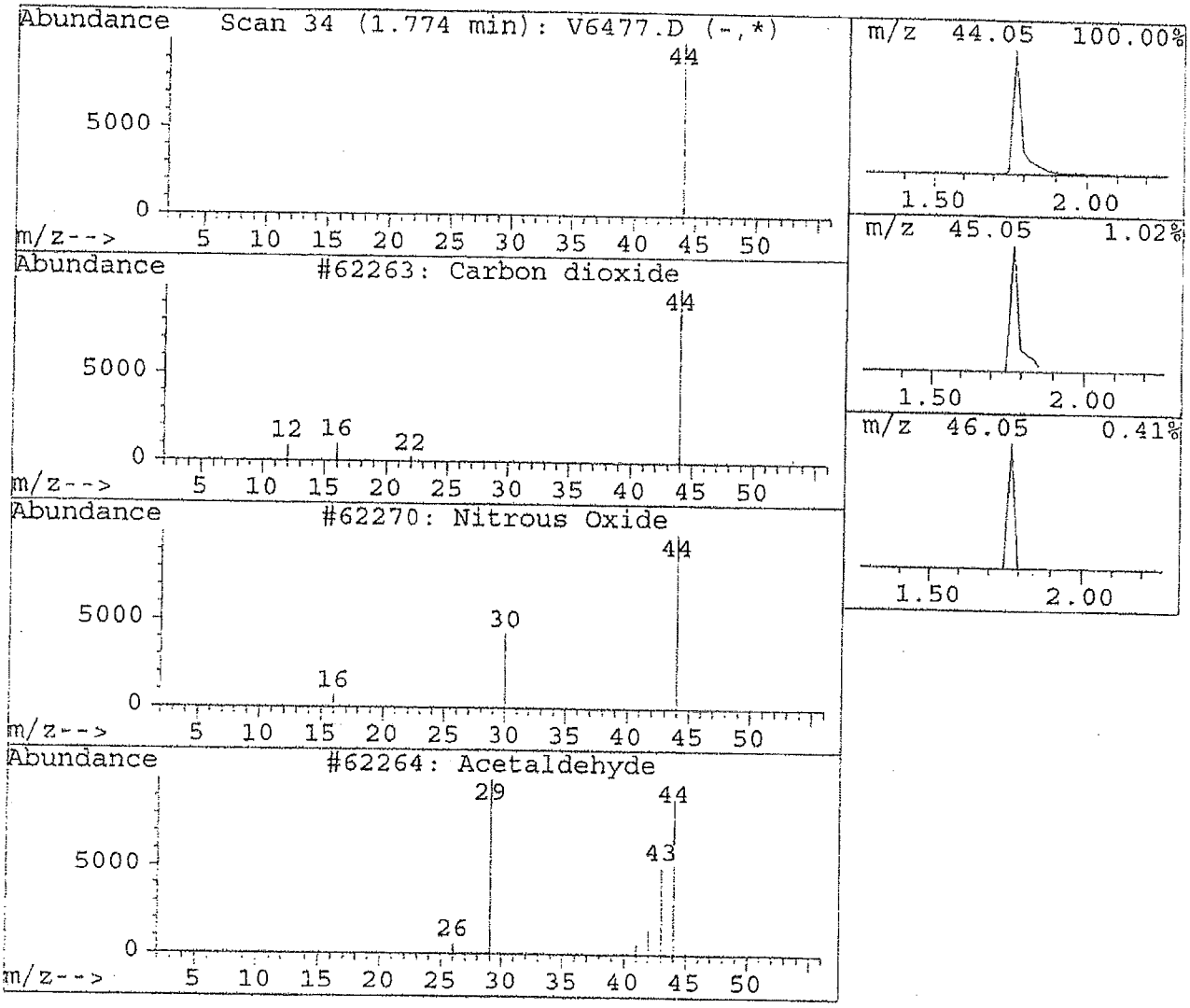
Data File : c:\hpchem\1\data2\v6477.d
Acq On : 12 Nov 97 6:06 pm
Sample : 9778620V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.77	20.65 ug/l	220000	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	62270	010024-97-2	3
3	Acetaldehyde	62264	000075-07-0	2
4	Ethylene oxide	62267	000075-21-8	2
5	Ethyne, fluoro-	35	002713-09-9	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778621V
FB 11/5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9778621V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6475.D

Level: (low/med) Date Received: 11/7/97

% Moisture: not dec. Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	12	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. 9778621V FB 11/5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9778621V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6475.D

Level: (low/med) Date Received: 11/7/97

% Moisture: not dec. Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v6475.d
Acq On : 12 Nov 97 4:51 pm
Sample : 9778621V..... Converted from RTE d
Misc : 5 ML FB.....
Quant Time: Nov 13 9:48 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	75761	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.83	114	365175	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.98	117	316667	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.96	65	176870	56.89	ug/l	113.78%
33) Toluene-d8	12.44	98	354337	49.23	ug/l	98.45%
48) 4-Bromofluorobenzene	17.11	95	240804	46.53	ug/l	93.06%
Target Compounds						Qvalue
11) Methylene chloride	4.84	49	42650	12.40	ug/l	94

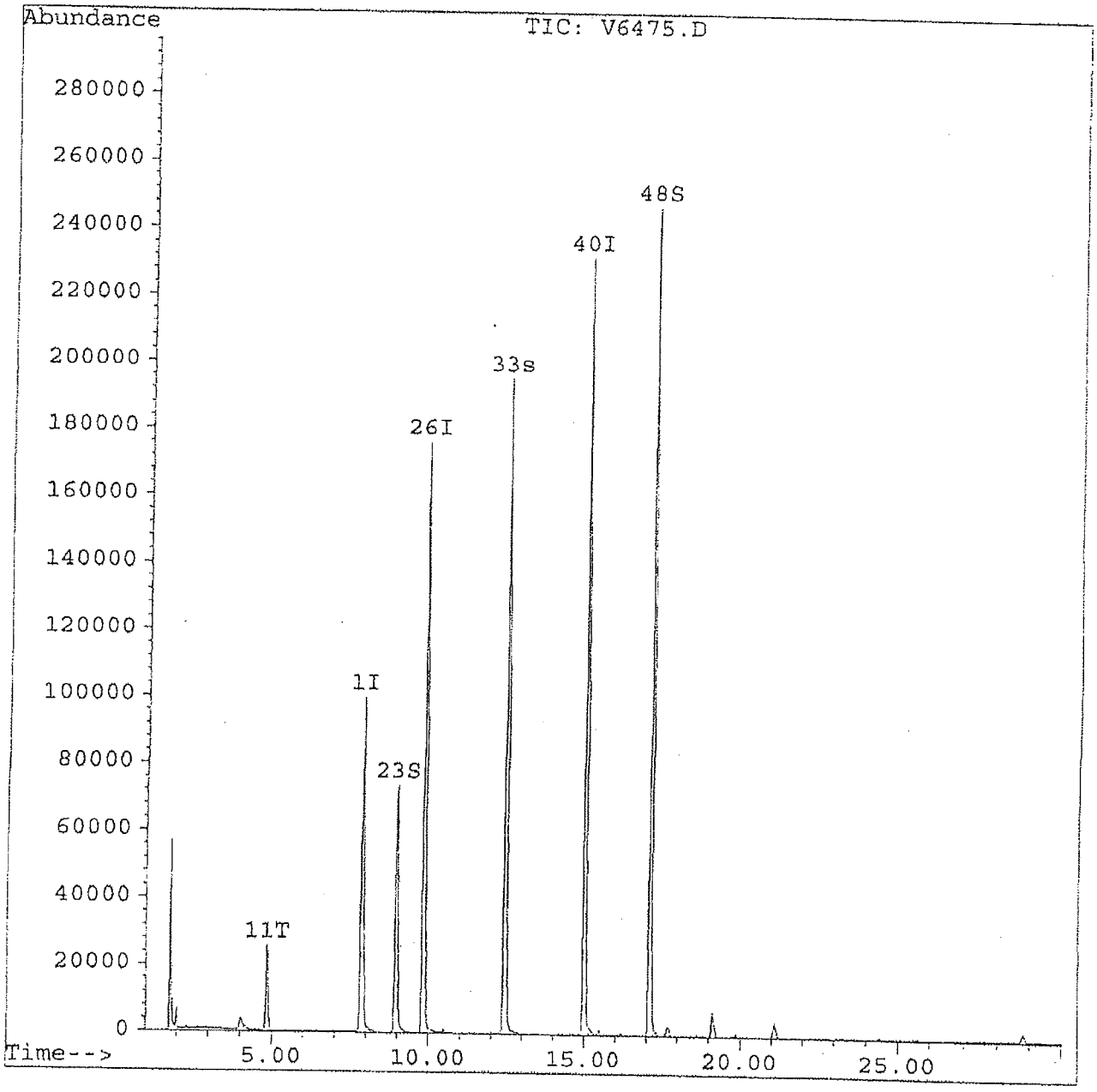
(#) = qualifier out of range (m) = manual integration

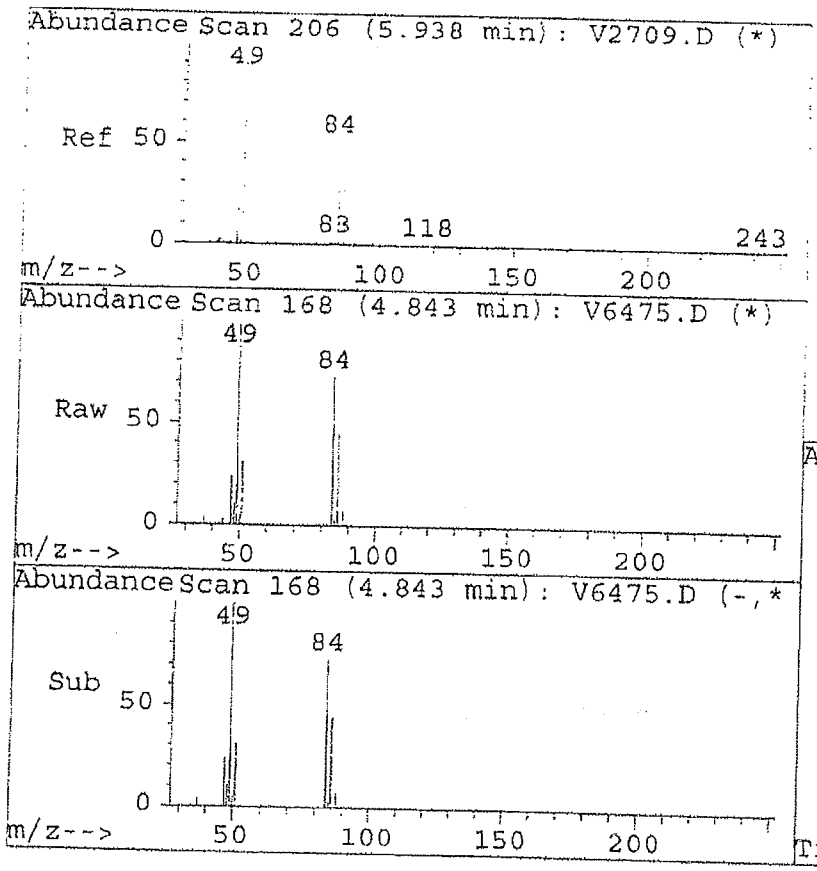
Quantitation Report

Data File : c:\hpchem\1\data2\v6475.d
Acq On : 12 Nov 97 4:51 pm
Sample : 9778621V..... Converted from RTE d
Misc : 5 ML FB.....
Quant Time: Nov 13 9:48 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

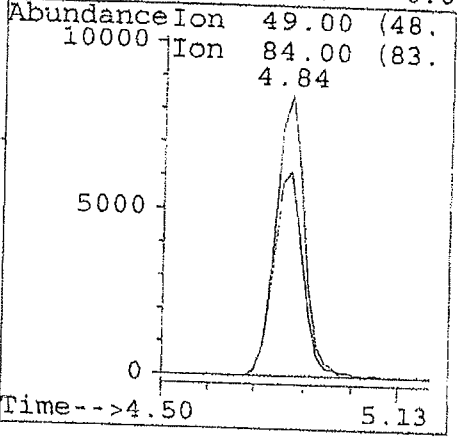




#11
Methylene chloride
Concen: 12.40 ug/l
RT: 4.84 min Scan# 168
Delta R.T. -0.07 min
Lab File: v6475.d
Acq: 12 Nov 97 4:51 pm

Tgt Ion:49 Resp: 42650

Ion	Ratio	Lower	Upper
49	100		
84	72.9	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

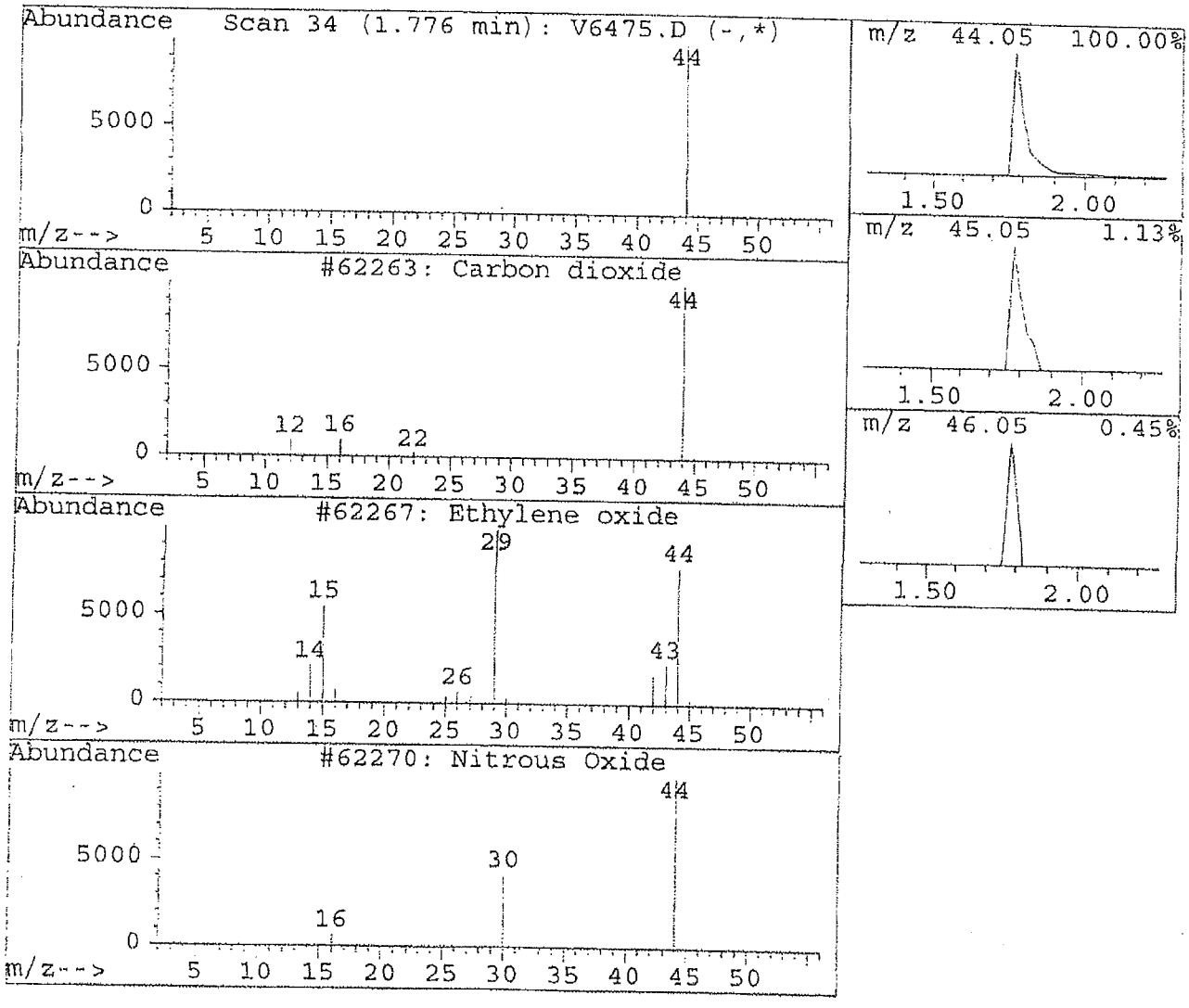
Data File : c:\hpchem\1\data2\v6475.d
Acq On : 12 Nov 97 4:51 pm
Sample : 9778621V..... Converted from RTE d
Misc : 5 ML FB.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	13.82 ug/l	151572	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	62270	010024-97-2	3
4	Acetaldehyde	62264	000075-07-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778622V

MW-5 5-4

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778622V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6478.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 12 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	11	U
74-83-9	Bromomethane	11	U
75-01-4	Vinyl chloride	11	U
75-00-3	Chloroethane	11	U
75-69-4	Trichlorofluoromethane	11	U
75-09-2	Methylene chloride	8	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	28	U
107-02-8	Acrolein	57	U
107-13-1	Acrylonitrile	57	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9778622V

1E

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778622V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6478.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 12 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v6478.d
Acq On : 12 Nov 97 6:43 pm
Sample : 9778622V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:50 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.82	128	70000	50.00	ug/l	-0.12
26) 1,4-Difluorobenzene	9.81	114	291325	50.00	ug/l	-0.10
40) Chlorobenzene-d5	14.98	117	255872	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	150627	52.44	ug/l	104.87%
33) Toluene-d8	12.44	98	281346	48.99	ug/l	97.99%
48) 4-Bromofluorobenzene	17.11	95	197089	47.13	ug/l	94.27%
Target Compounds						Qvalue
11) Methylene chloride	4.82	49	21536	6.78	ug/l	93

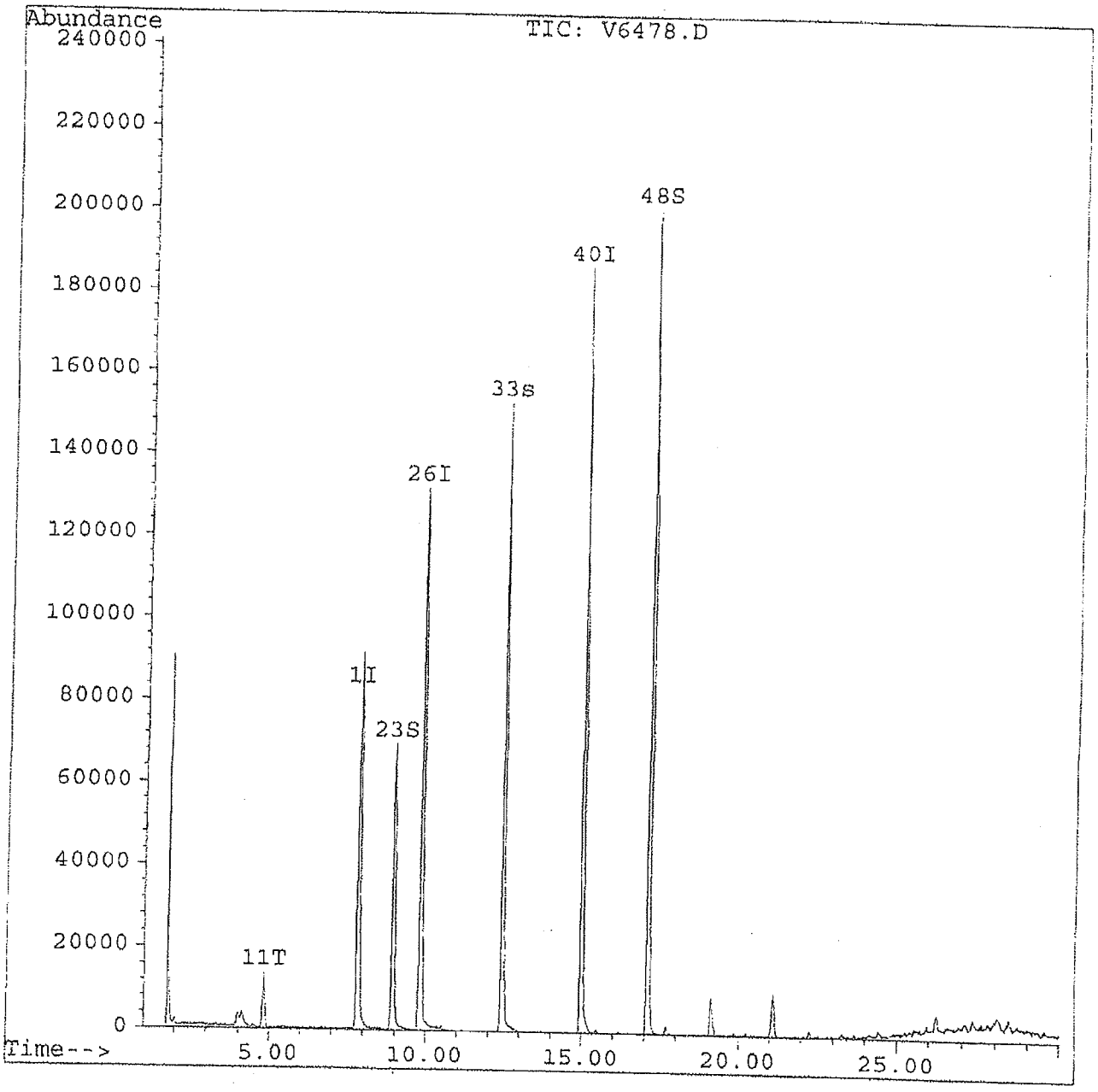
(#) = qualifier out of range (m) = manual integration

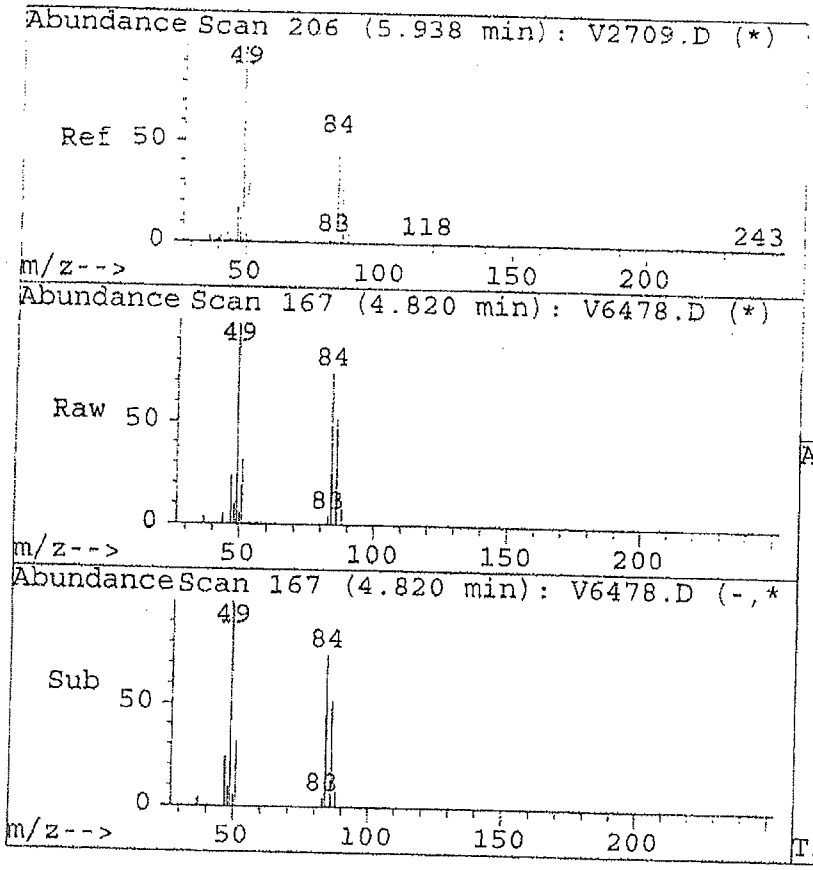
Quantitation Report

Data File : c:\hpchem\1\data2\v6478.d
Acq On : 12 Nov 97 6:43 pm
Sample : 9778622V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:50 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

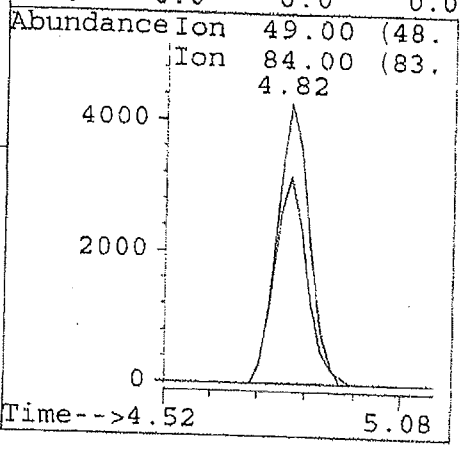




#11
Methylene chloride
Concen: 6.78 ug/l
RT: 4.82 min Scan# 167
Delta R.T. -0.09 min
Lab File: v6478.d
Acq: 12 Nov 97 6:43 pm

Tgt Ion:49 Resp: 21536

Ion	Ratio	Lower	Upper
49	100		
84	74.0	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

17

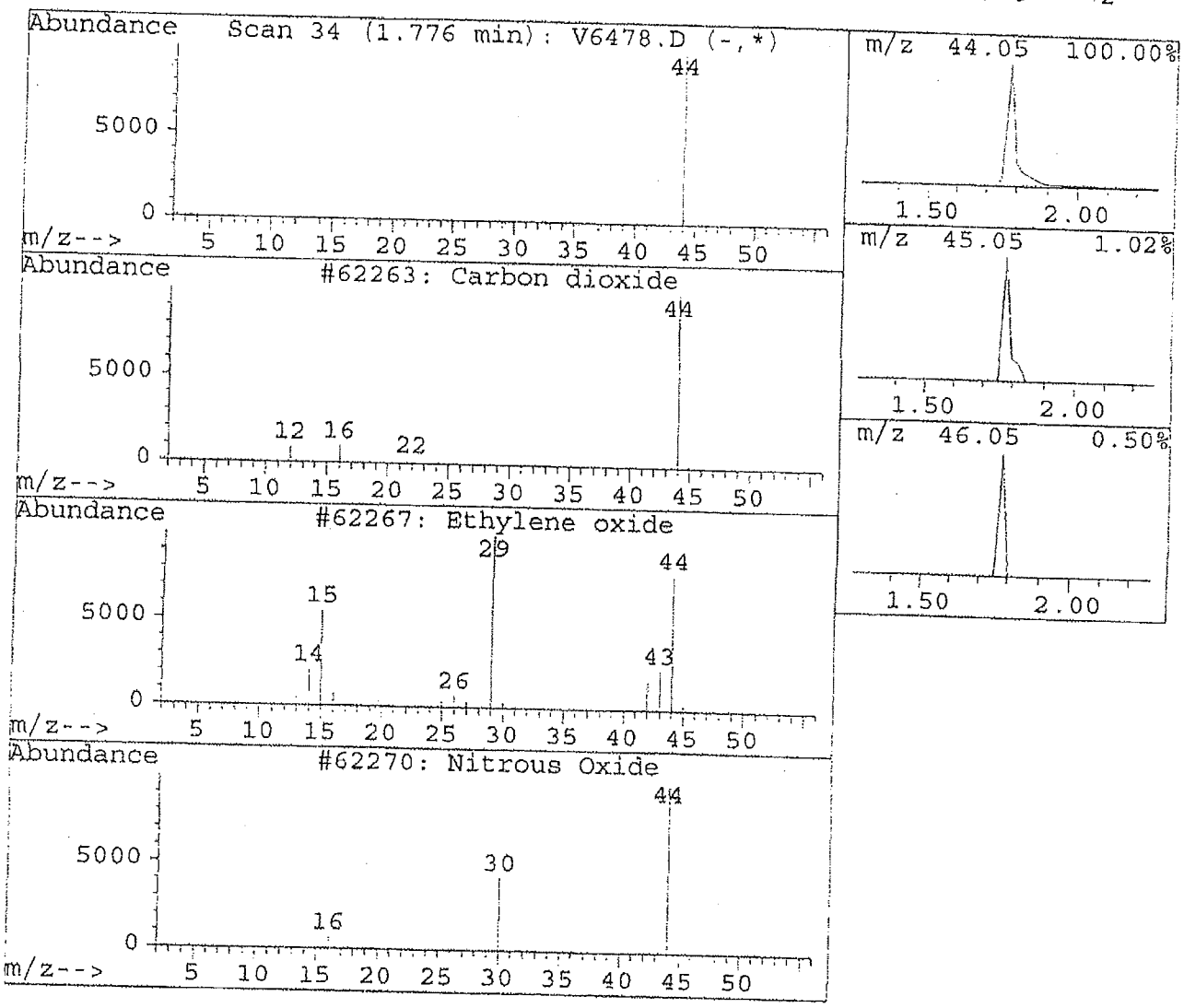
Data File : c:\hpchem\1\data2\v6478.d
Acq On : 12 Nov 97 6:43 pm
Sample : 9778622V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	15.98 ug/l	164700	Bromochloromethane	7.82

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	62270	010024-97-2	3
4	Acetaldehyde	62264	000075-07-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778623V

MW-7, 5-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778623V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6479.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 19 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	10	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	31	U
107-02-8	Acrolein	62	U
107-13-1	Acrylonitrile	62	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. 9778623V mw-7, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778623V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6479.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 19 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v6479.d
Acq On : 12 Nov 97 7:20 pm
Sample : 9778623V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:50 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	70649	50.00	ug/l	-0.10
26) 1,4-Difluorobenzene	9.83	114	296727	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.98	117	243073	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	165840	57.20	ug/l	114.41%
33) Toluene-d8	12.44	98	255021	43.60	ug/l	87.20%
48) 4-Bromofluorobenzene	17.09	95	200735	50.53	ug/l	101.07%
Target Compounds						Qvalue
11) Methylene chloride	4.82	49	25921	8.08	ug/l	88

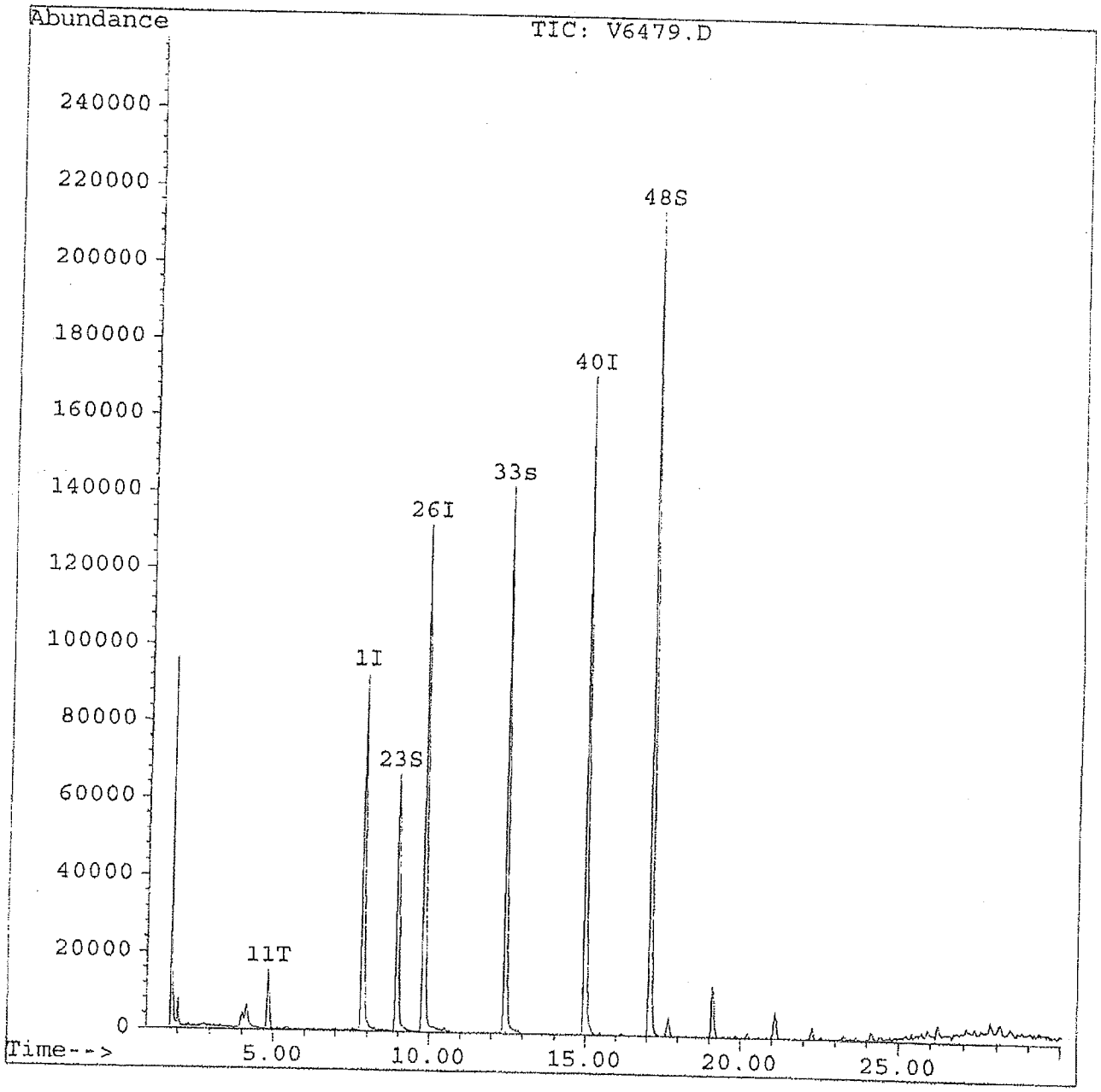
(#) = qualifier out of range (m) = manual integration

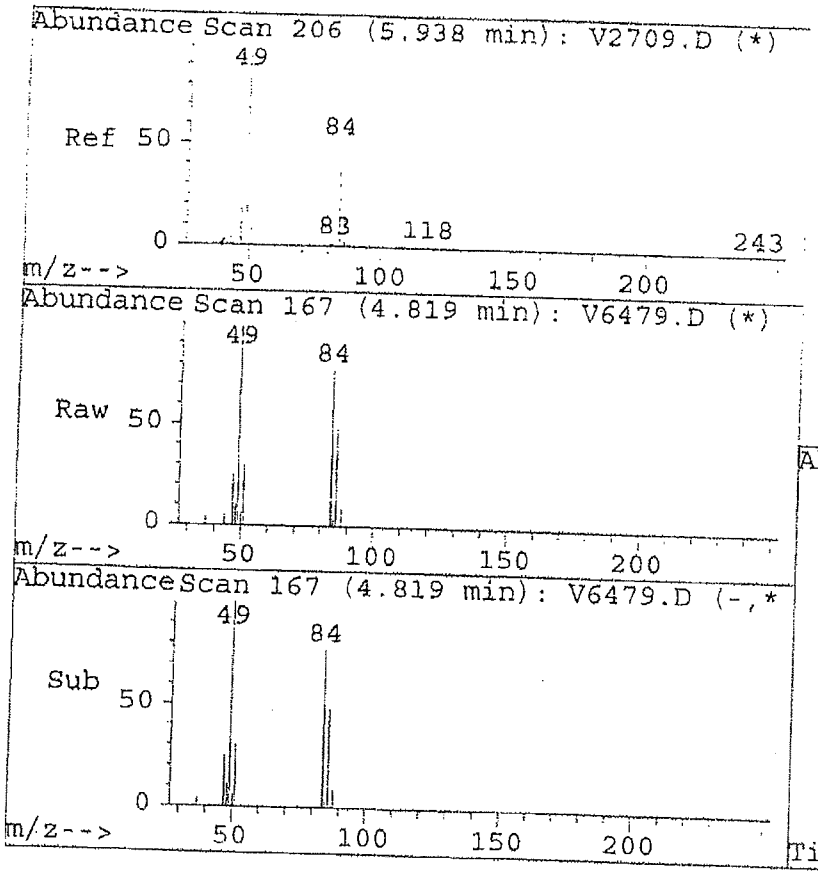
Quantitation Report

Data File : c:\hpchem\1\data2\v6479.d
Acq On : 12 Nov 97 7:20 pm
Sample : 9778623V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:50 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

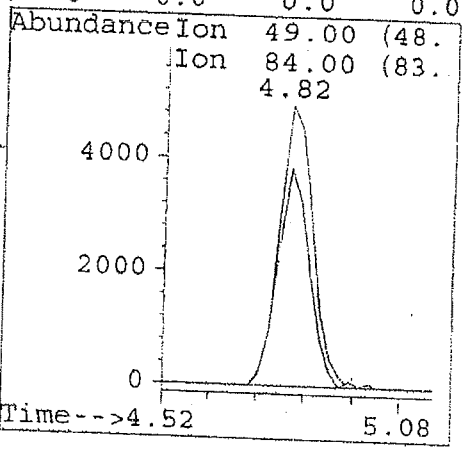




#11
Methylene chloride
Concen: 8.08 ug/l
RT: 4.82 min Scan# 167
Delta R.T. -0.09 min
Lab File: v6479.d
Acq: 12 Nov 97 7:20 pm

Tgt Ion:49 Resp: 25921

Ion	Ratio	Lower	Upper
49	100		
84	77.4	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

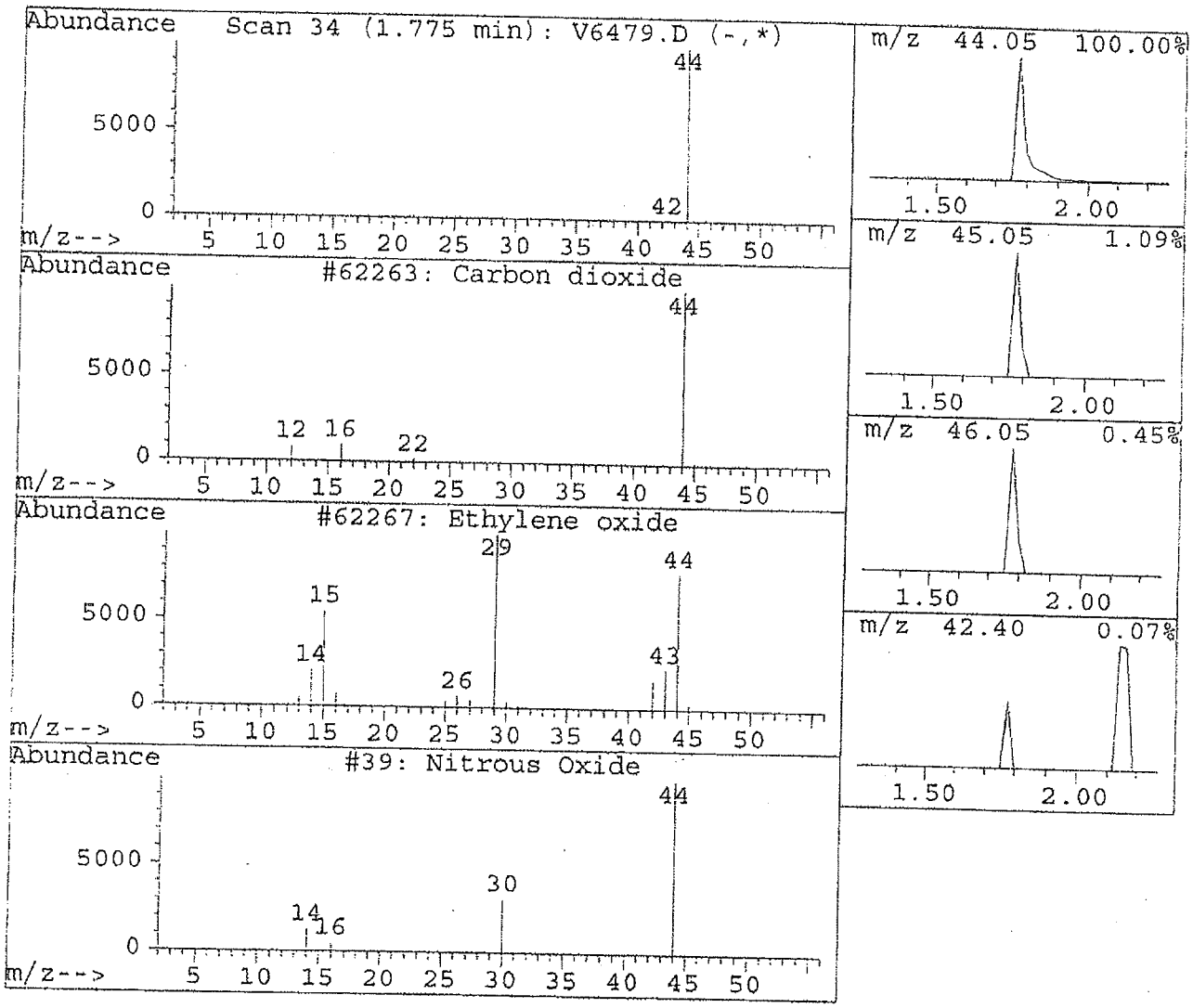
Data File : c:\hpchem\1\data2\v6479.d
Acq On : 12 Nov 97 7:20 pm
Sample : 9778623V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.77	19.59 ug/l	199316	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	39	010024-97-2	3
4	Acetaldehyde	62265	000075-07-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778624V

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778624V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6480.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 16 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	10	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	30	U
107-02-8	Acrolein	60	U
107-13-1	Acrylonitrile	60	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778624V
MW-4, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778624V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V6480.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: not dec. 16 Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v6480.d
Acq On : 12 Nov 97 7:57 pm
Sample : 9778624V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:50 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	70841	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.81	114	277733	50.00	ug/l	-0.10
40) Chlorobenzene-d5	14.98	117	267410	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	155365	53.44	ug/l	106.89%
33) Toluene-d8	12.42	98	290145	53.00	ug/l	106.00%
48) 4-Bromofluorobenzene	17.09	95	202122	46.25	ug/l	92.50%
Target Compounds						Qvalue
11) Methylene chloride	4.82	49	26203	8.15	ug/l	92

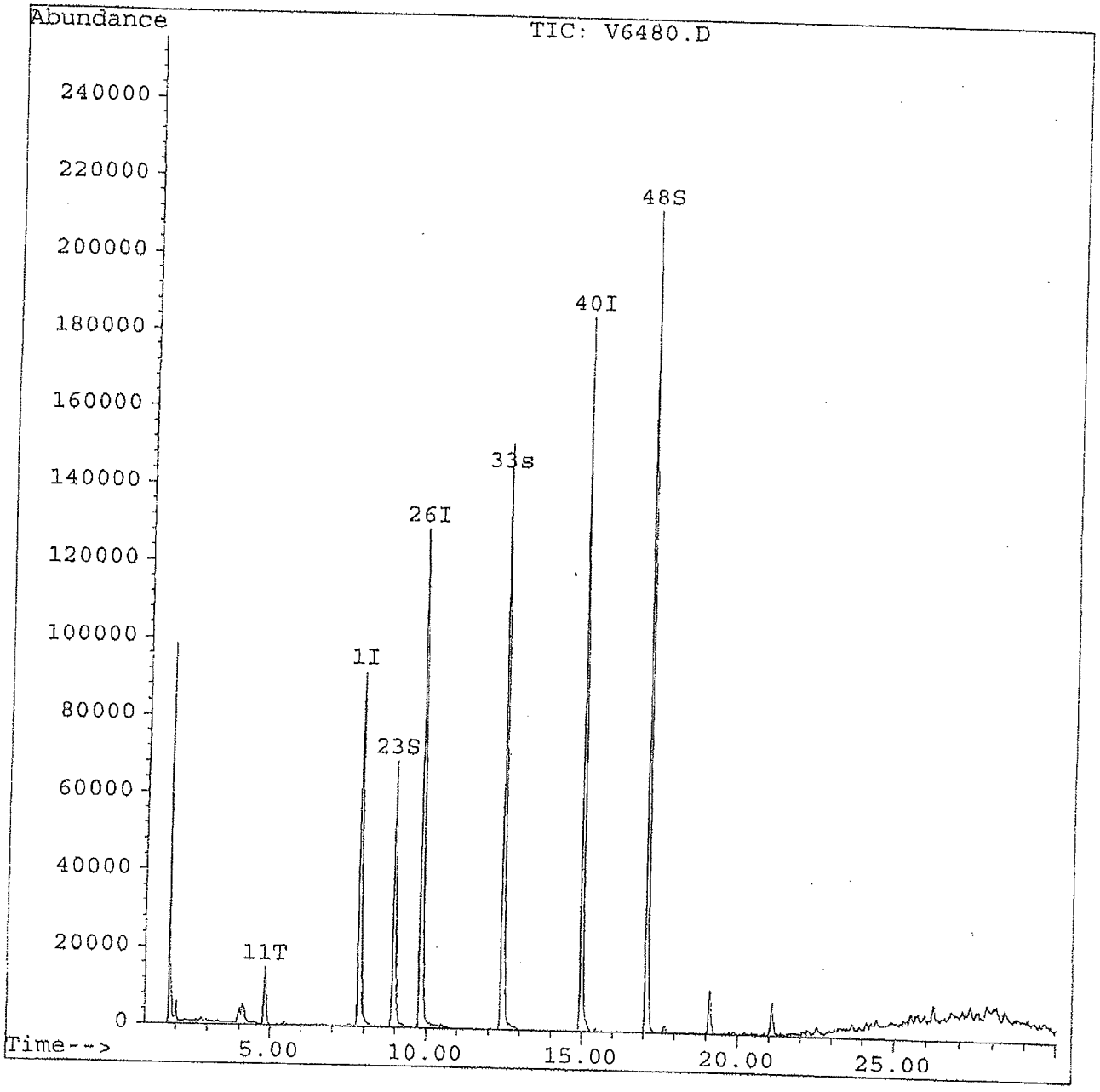
(#) = qualifier out of range (m) = manual integration

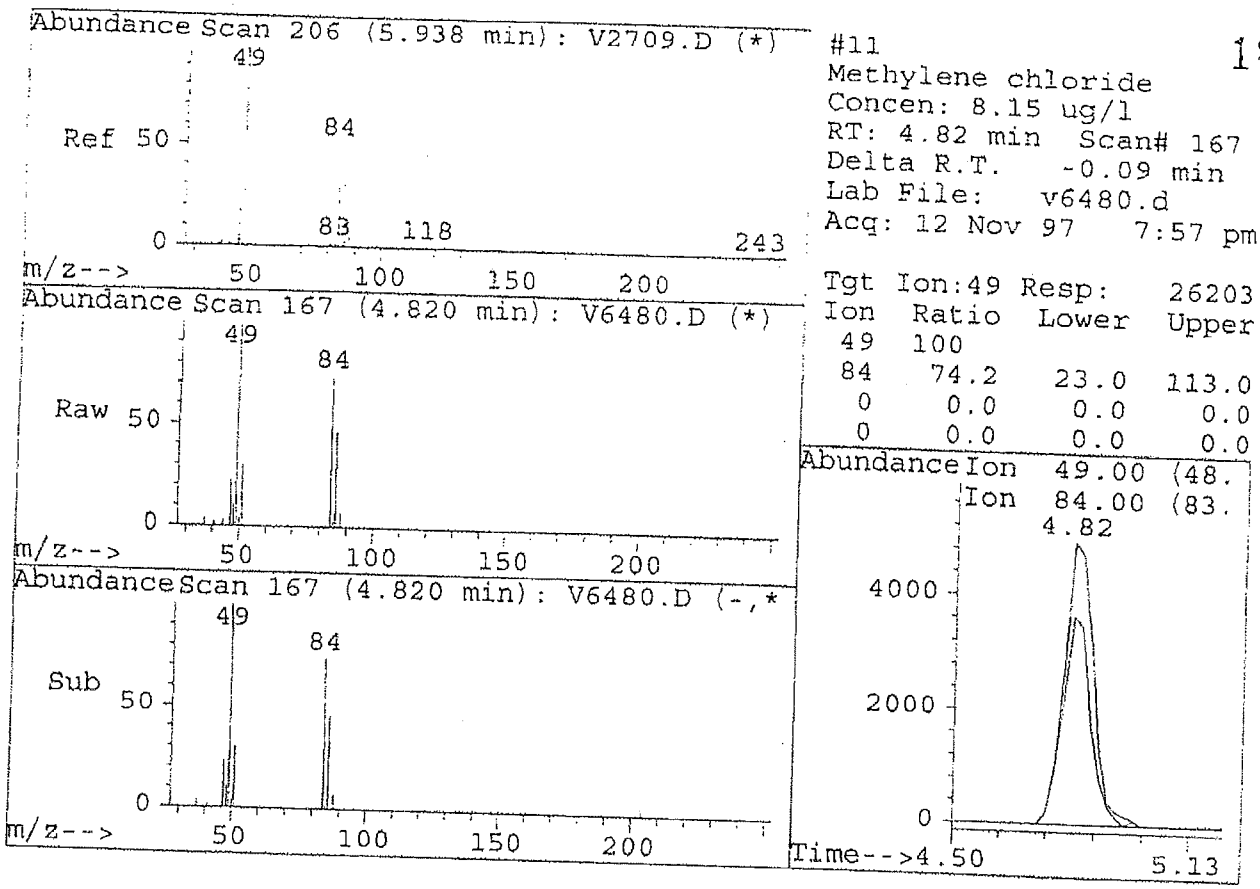
Quantitation Report

Data File : c:\hpchem\1\data2\v6480.d
Acq On : 12 Nov 97 7:57 pm
Sample : 9778624V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:50 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration





#11
Methylene chloride
Concen: 8.15 ug/l
RT: 4.82 min Scan# 167
Delta R.T. -0.09 min
Lab File: v6480.d
Acq: 12 Nov 97 7:57 pm

Tgt Ion:49 Resp: 26203

Ion	Ratio	Lower	Upper
49	100		
84	74.2	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0

Library Search Compound Report

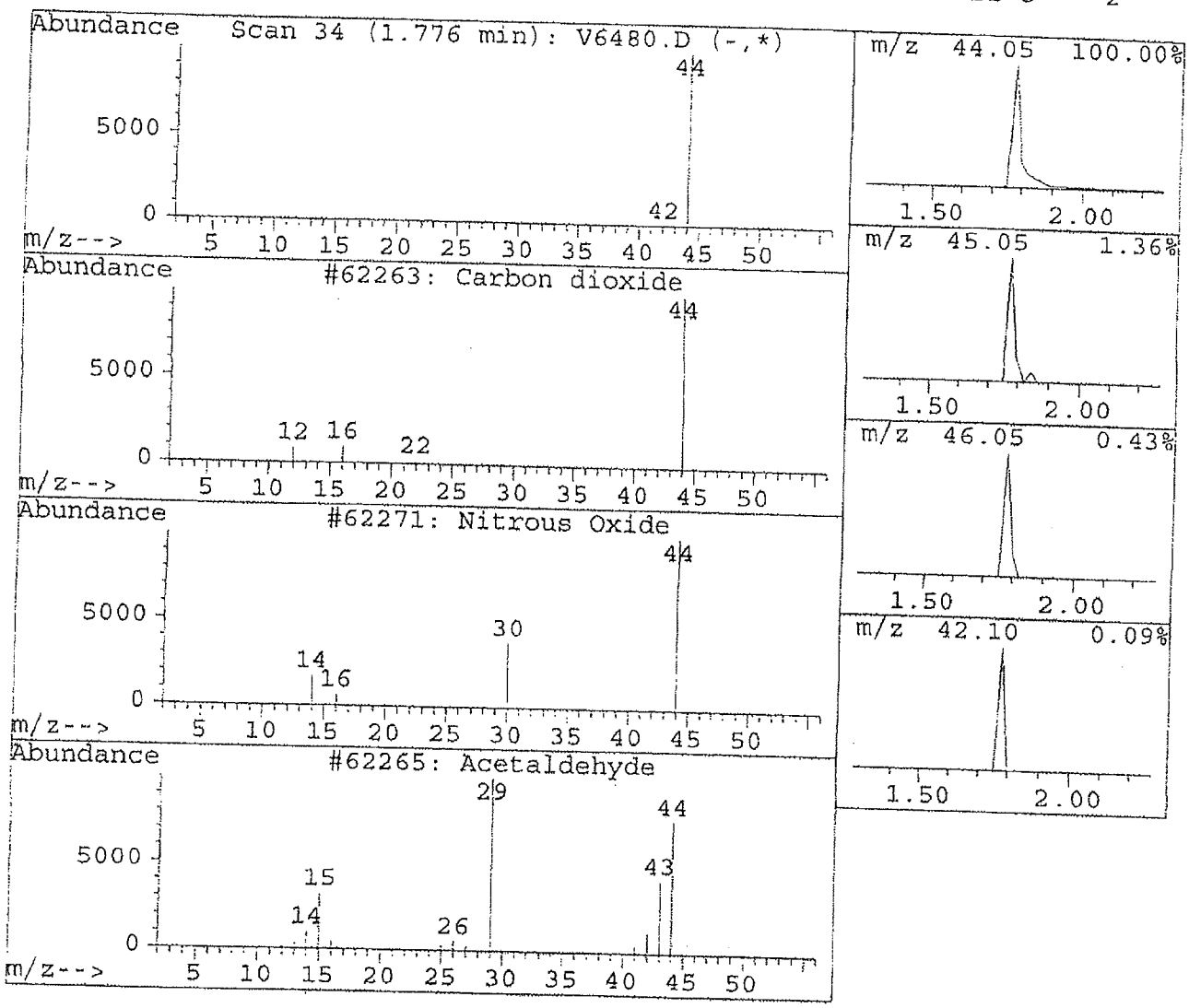
Data File : c:\hpchem\1\data2\v6480.d
Acq On : 12 Nov 97 7:57 pm
Sample : 9778624V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	19.29 ug/l	198164	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	62271	010024-97-2	3
3	Acetaldehyde	62265	000075-07-0	2
4	Ethyne, fluoro-	35	002713-09-9	2
5	Ethylene oxide	62267	000075-21-8	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778625V
FB 11/6

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9778625V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6474.D

Level: (low/med) _____ Date Received: 11/7/97

% Moisture: not dec. _____ Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	6	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778625V
FB 11/6

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9778625V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6474.D

Level: (low/med) Date Received: 11/7/97

% Moisture: not dec. Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
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22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\v6474.d
Acq On : 12 Nov 97 4:13 pm
Sample : 9778625V..... Converted from RTE d
Misc : 5 ML FB.....
Quant Time: Nov 12 16:42 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	72665	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.84	114	378277	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.99	117	329561	50.00	ug/l	-0.07
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.97	65	166246	55.75	ug/l	111.50%
33) Toluene-d8	12.44	98	361938	48.54	ug/l	97.08%
48) 4-Bromofluorobenzene	17.11	95	235718	43.77	ug/l	87.53%
Target Compounds						Qvalue
11) Methylene chloride	4.85	49	18308	5.55	ug/l	94

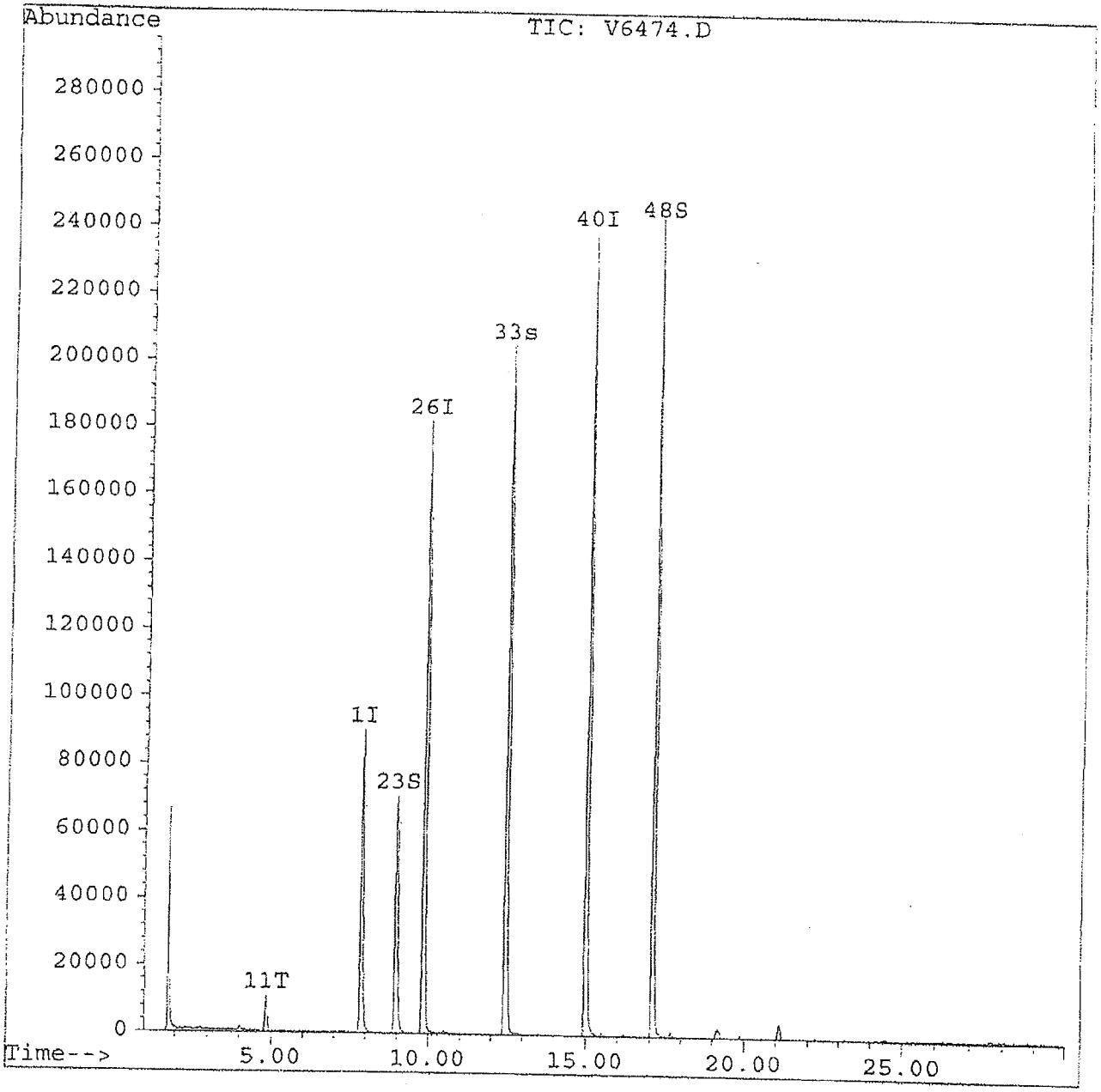
(#) = qualifier out of range (m) = manual integration

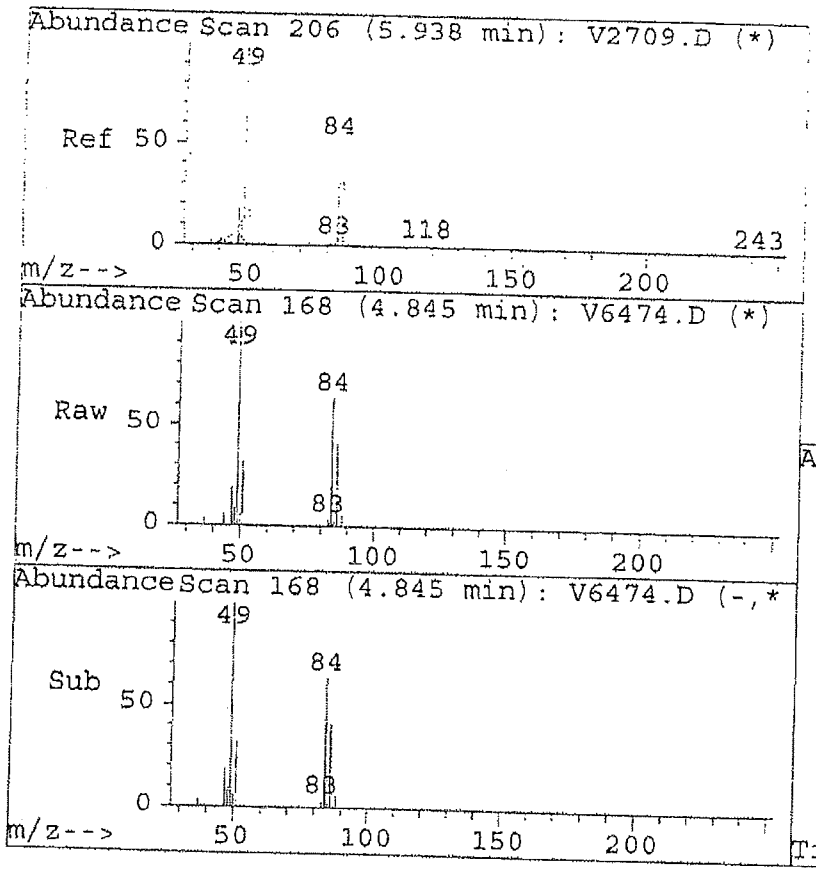
Quantitation Report

Data File : c:\hpchem\1\data2\v6474.d
Acq On : 12 Nov 97 4:13 pm
Sample : 9778625V..... Converted from RTE d
Misc : 5 ML FB.....
Quant Time: Nov 12 16:42 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

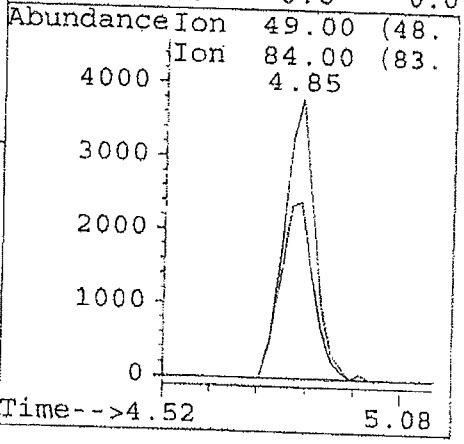




#11
Methylene chloride
Concen: 5.55 ug/l
RT: 4.85 min Scan# 168
Delta R.T. -0.07 min
Lab File: v6474.d
Acq: 12 Nov 97 4:13 pm

Tgt Ion:49 Resp: 18308

Ion	Ratio	Lower	Upper
49	100		
84	63.3	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

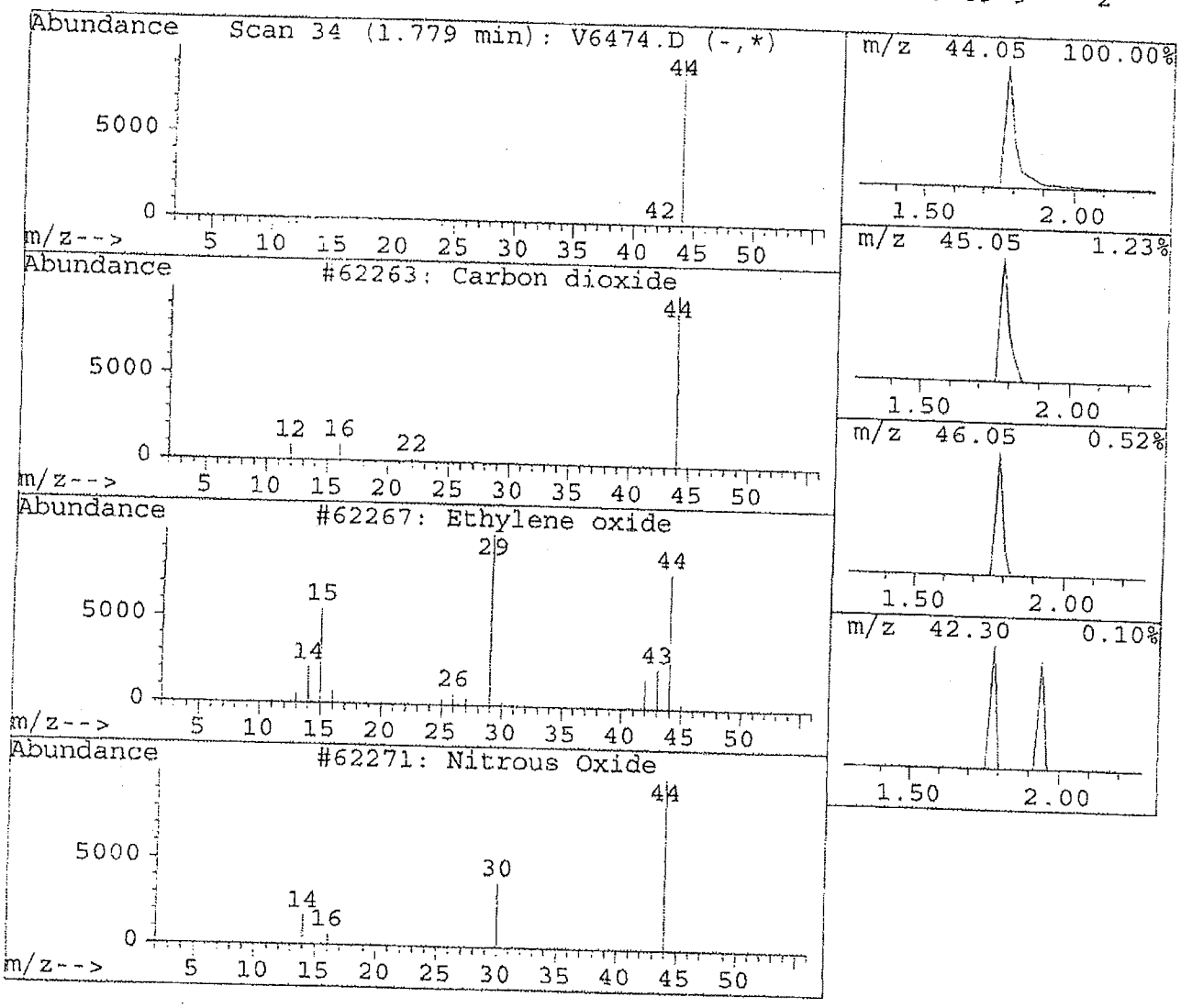
Data File : c:\hpchem\1\data2\v6474.d
Acq On : 12 Nov 97 4:13 pm
Sample : 9778625V..... Converted from RTE d
Misc : 5 ML FB.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	15.04 ug/1	154463	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	62271	010024-97-2	3
4	Acetaldehyde	62265	000075-07-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782199V

Mic-3 5-4

19

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782199V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8498.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 14 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	10	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	29	U
107-02-8	Acrolein	58	U
107-13-1	Acrylonitrile	58	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782199V
MB-3,54

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8498.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 14 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	1.89	9	J
2.	Unknown Hydrocarbon	5.99	6	J
3.				
4.				
5.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v8498.d
Acq On : 13 Nov 97 6:14 pm
Sample : 9782199V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:13 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	72816	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.83	114	288894	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.98	117	247971	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.96	65	166840	55.84	ug/l	111.67%
33) Toluene-d8	12.44	98	281929	49.51	ug/l	99.02%
48) 4-Bromofluorobenzene	17.11	95	171292	42.27	ug/l	84.54%
Target Compounds						Qvalue
11) Methylene chloride	4.82	49	27927	8.45	ug/l	99

(#) = qualifier out of range (m) = manual integration

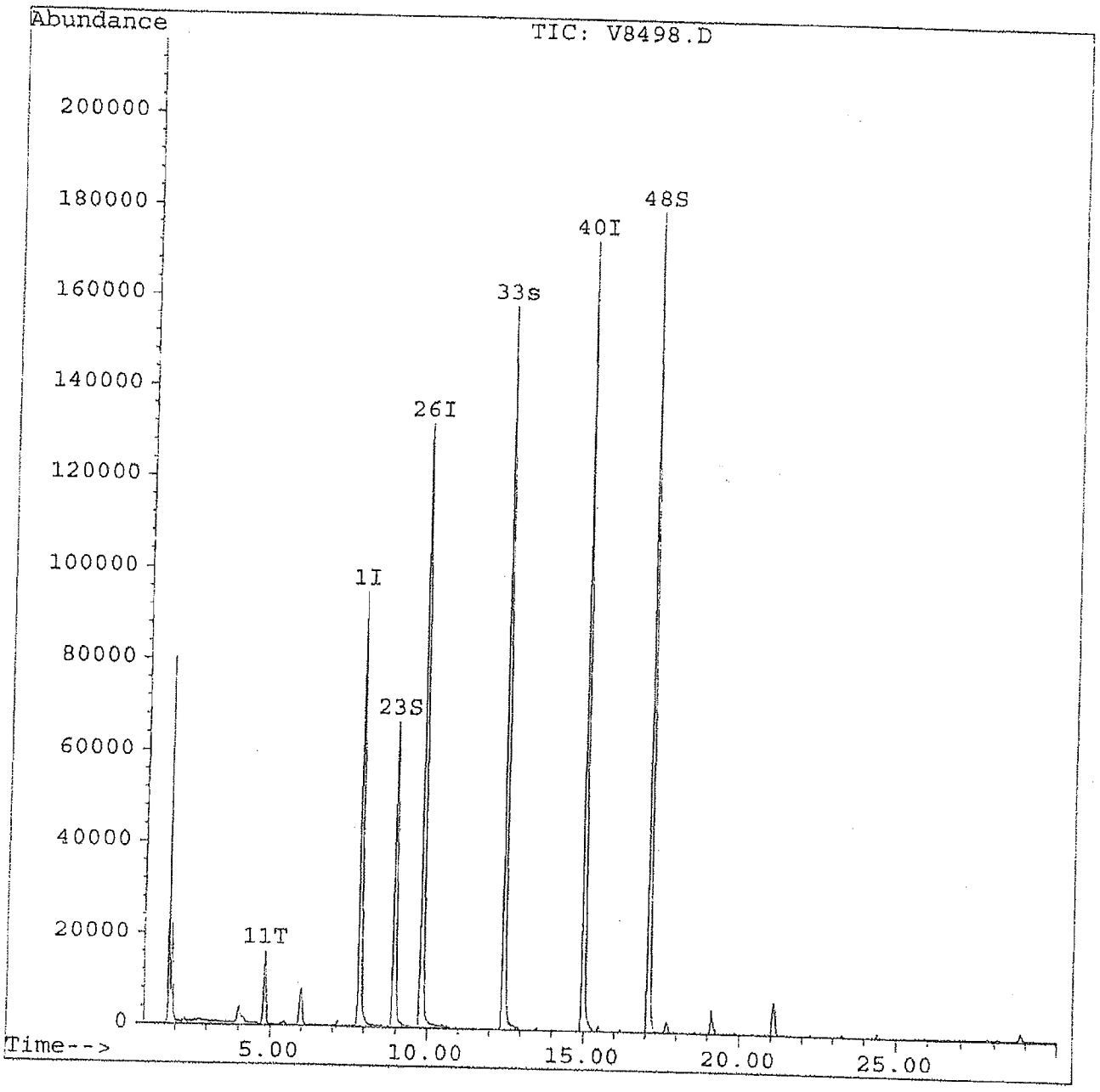
Quantitation Report

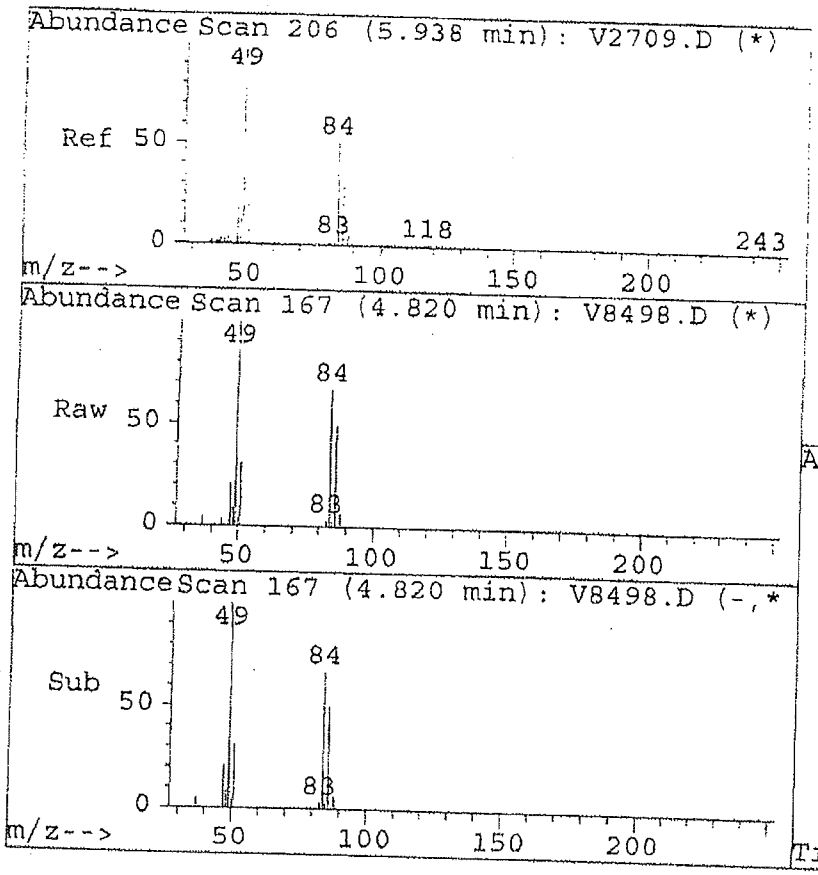
Data File : c:\hpchem\1\data2\v8498.d
Acq On : 13 Nov 97 6:14 pm
Sample : 9782199V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:13 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

19

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

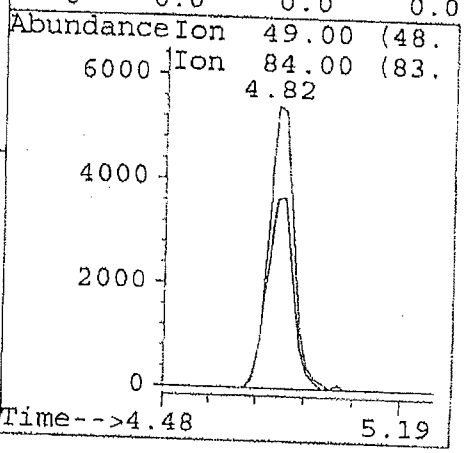




#11
Methylene chloride
Concen: 8.45 ug/l
RT: 4.82 min Scan# 167
Delta R.T. -0.09 min
Lab File: v8498.d
Acq: 13 Nov 97 6:14 pm

Tgt Ion:49 Resp: 27927

Ion	Ratio	Lower	Upper
49	100		
84	67.1	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

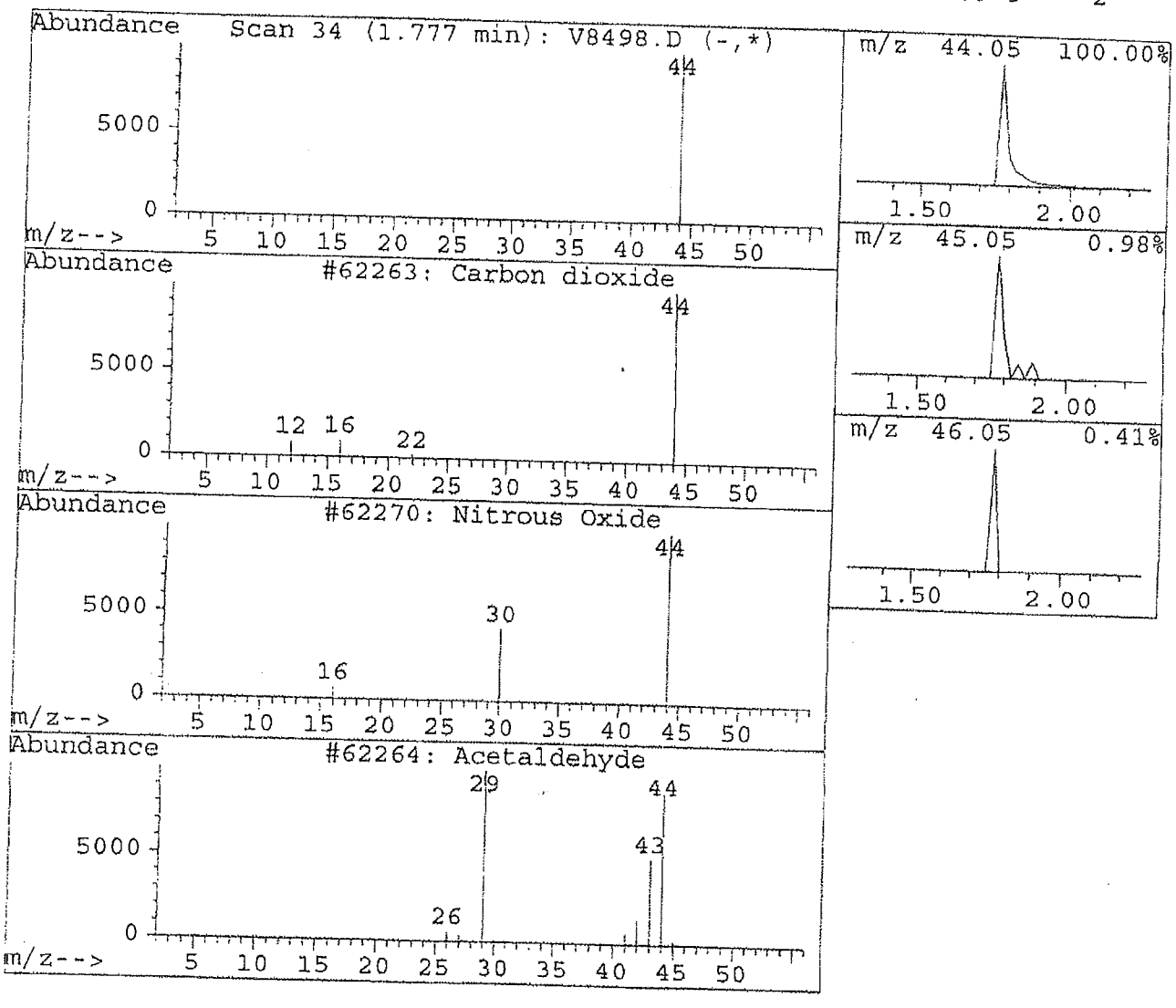
Data File : c:\hpchem\1\data2\v8498.d
Acq On : 13 Nov 97 6:14 pm
Sample : 9782199V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	14.89 ug/l	152830	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	62270	010024-97-2	3
3	Acetaldehyde	62264	000075-07-0	2
4	Ethylene oxide	62267	000075-21-8	2
5	Ethyne, fluoro-	35	002713-09-9	2



Library Search Compound Report

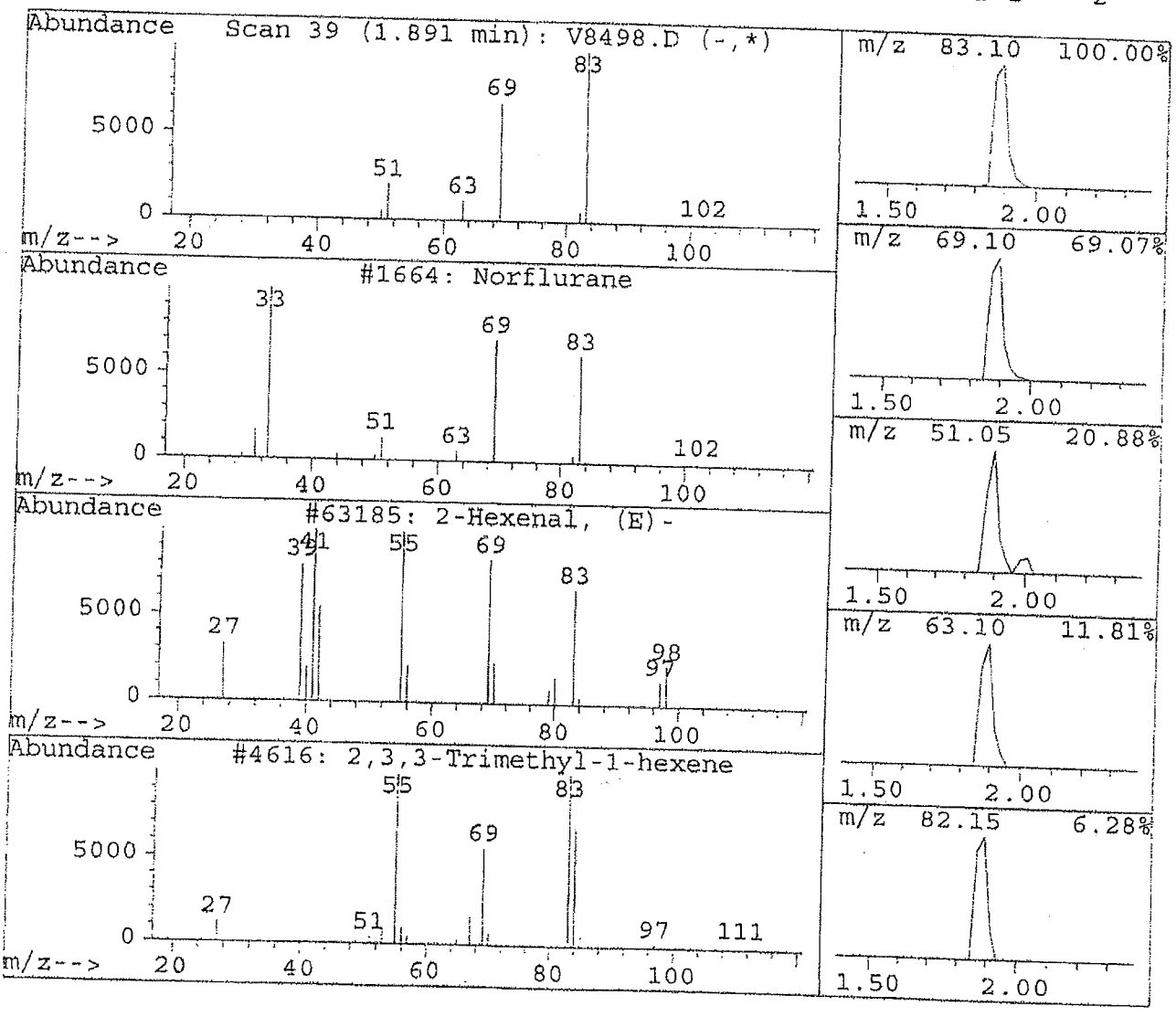
Data File : c:\hpchem\1\data2\v8498.d
Acq On : 13 Nov 97 6:14 pm
Sample : 9782199V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.89	7.34 ug/l	75360	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Norflurane	1664	000811-97-2	43
2	2-Hexenal, (E)-	63185	006728-26-3	1
3	2,3,3-Trimethyl-1-hexene	4616	000000-00-0	1
4	2-Pentene, 2,4-dimethyl-	63271	000625-65-0	1
5	1-Methyl-1H-1,2,4-triazole	62696	006086-21-1	2



Library Search Compound Report

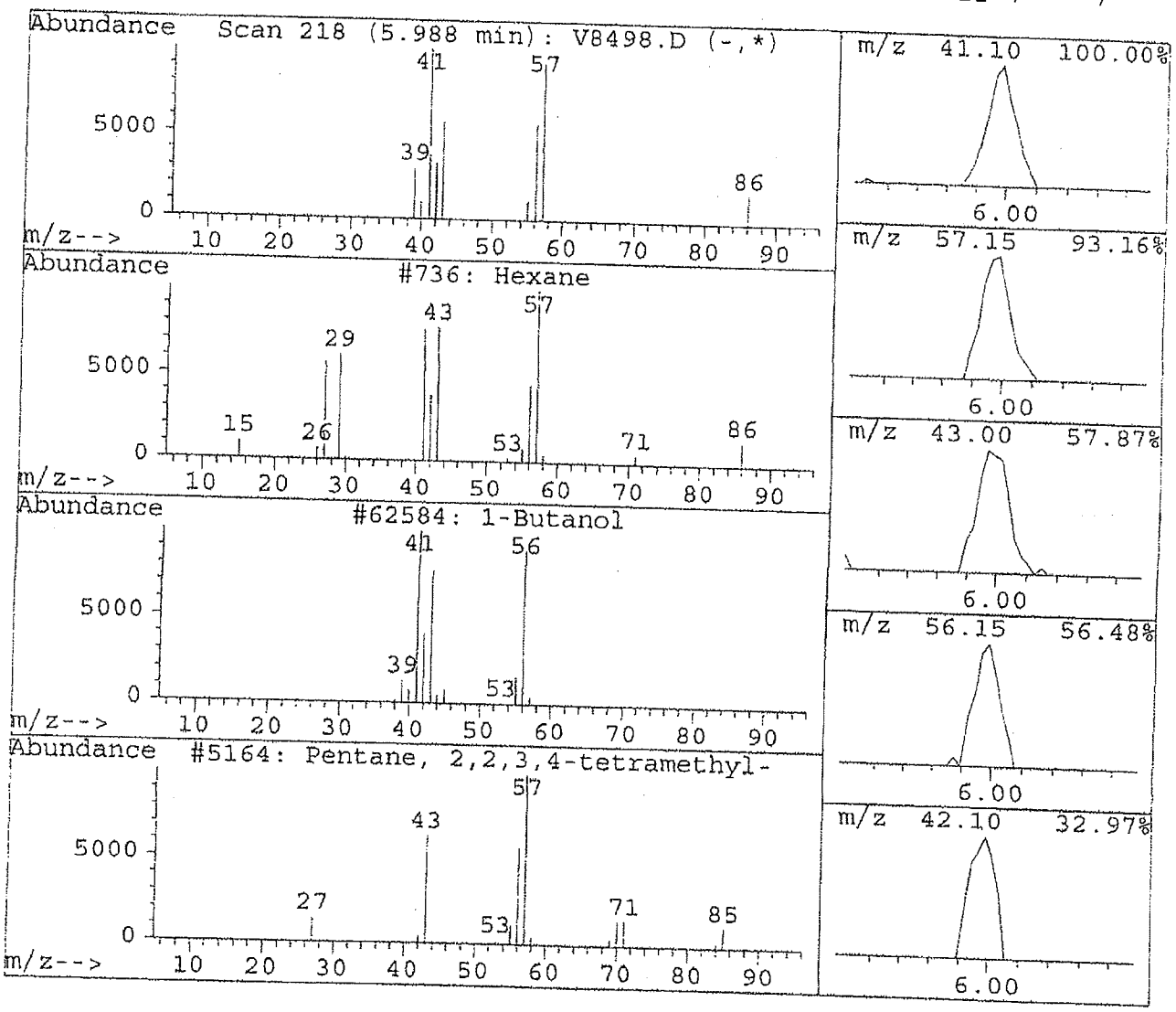
Data File : c:\hpchem\1\data2\v8498.d
Acq On : 13 Nov 97 6:14 pm
Sample : 9782199V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
5.99	5.58 ug/l	57279	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexane	736	000110-54-3	45
2	1-Butanol	62584	000071-36-3	9
3	Pentane, 2,2,3,4-tetramethyl-	5164	001186-53-4	9
4	3-Buten-1-ol, 3-methyl-	719	000763-32-6	7
5	1-Propene, 2-methyl-	62304	000115-11-7	7



1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
9782200V
MW-6, S-1

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782200V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8499.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 17 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	11	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	30	U
107-02-8	Acrolein	60	U
107-13-1	Acrylonitrile	60	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782200V
mw 6.5-1

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782200V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8499.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 17 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	1.89	8	J
2. 138-86-3	Limonene	19.12	8	J
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Quantitation Report

Data File : c:\hpchem\1\data2\v8499.d
Acq On : 13 Nov 97 6:51 pm
Sample : 9782200V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:14 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	70049	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.83	114	288638	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.98	117	247221	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	159997	55.66	ug/l	111.32%
33) Toluene-d8	12.44	98	272348	47.87	ug/l	95.74%
48) 4-Bromofluorobenzene	17.11	95	218115	53.99	ug/l	107.97%
Target Compounds						Qvalue
11) Methylene chloride	4.82	49	29985	9.43	ug/l	99

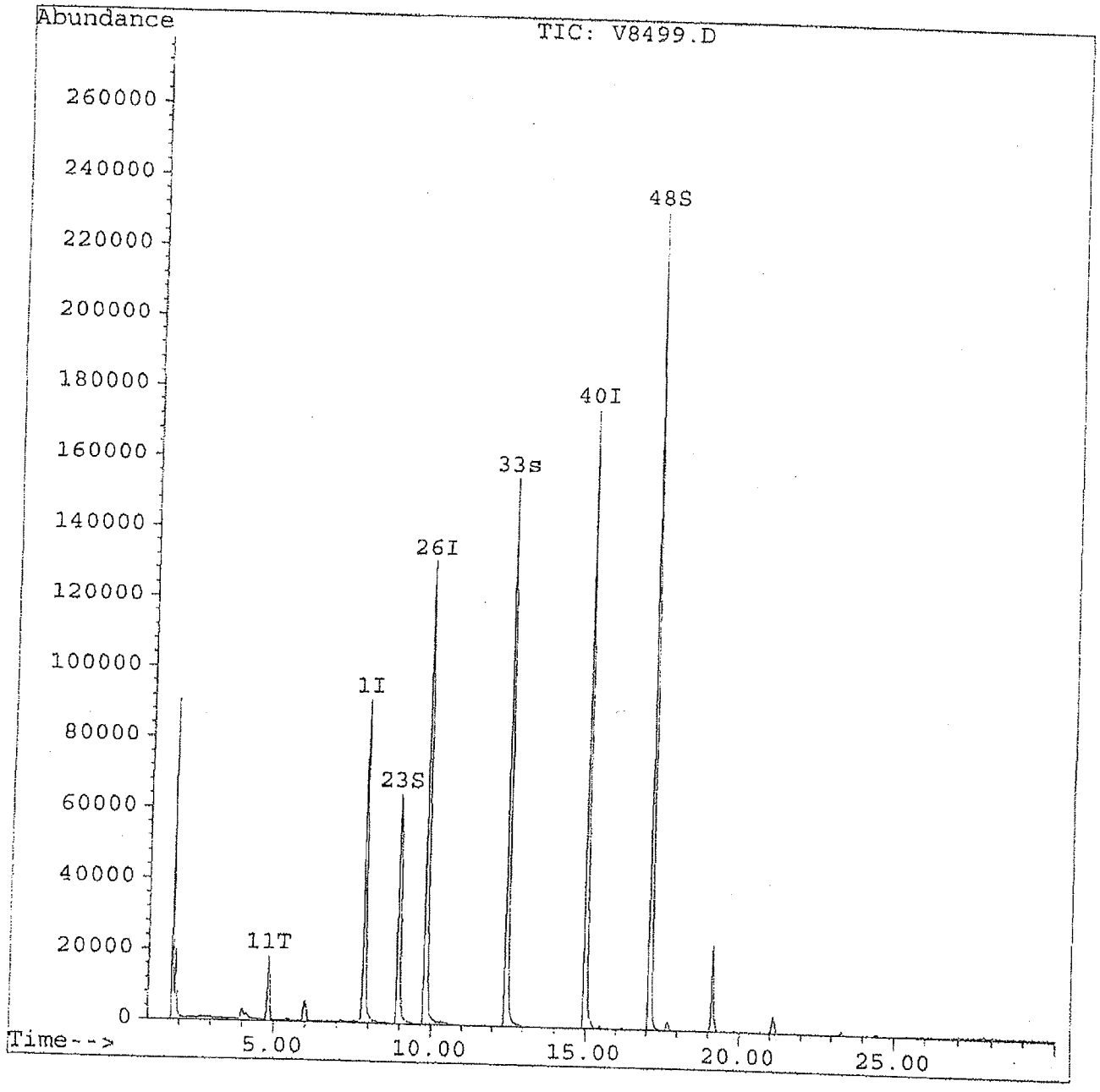
(#) = qualifier out of range (m) = manual integration

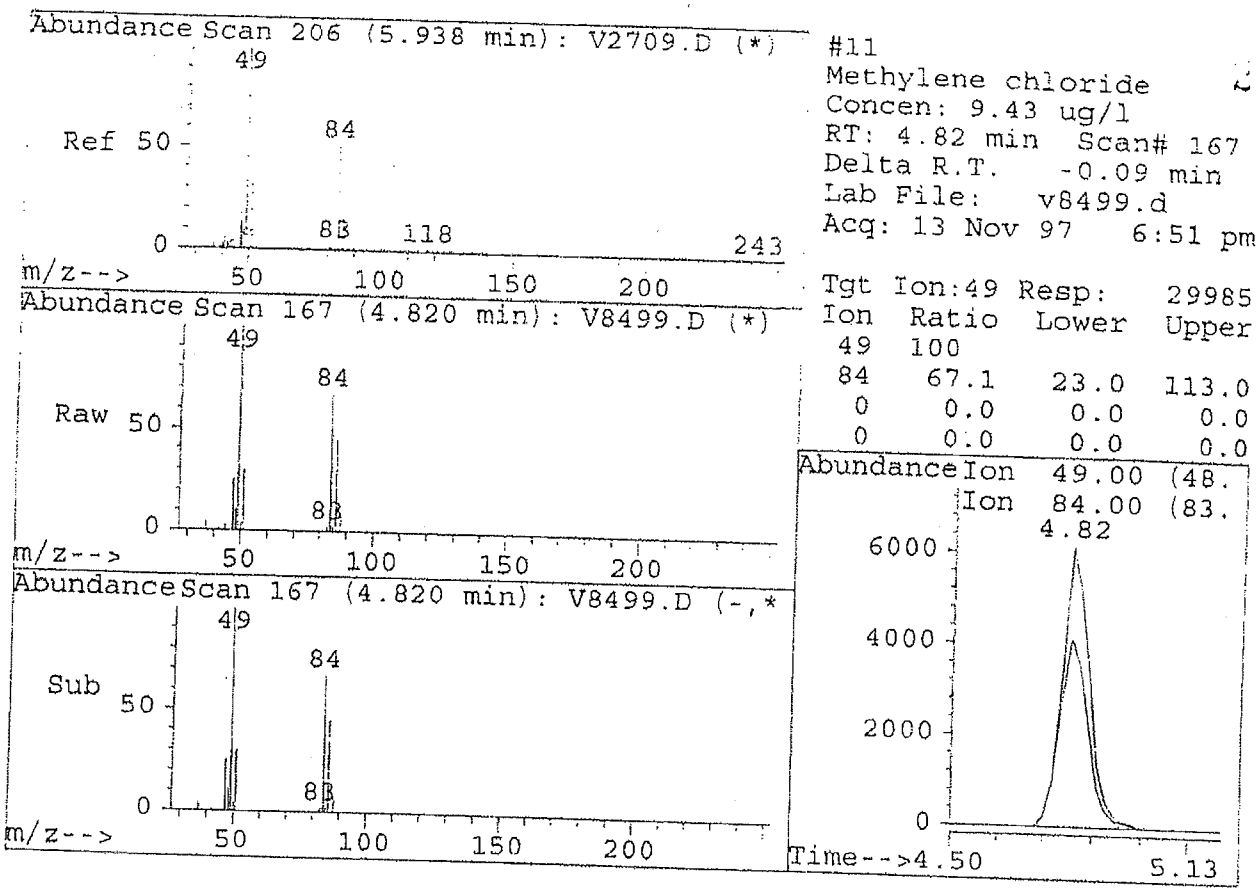
Quantitation Report

Data File : c:\hpchem\1\data2\v8499.d
Acq On : 13 Nov 97 6:51 pm
Sample : 9782200V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:14 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration





#11
Methylene chloride
Concen: 9.43 ug/l
RT: 4.82 min Scan# 167
Delta R.T. -0.09 min
Lab File: v8499.d
Acq: 13 Nov 97 6:51 pm

Tgt Ion:49 Resp: 29985

Ion	Ratio	Lower	Upper
49	100		
84	67.1	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0

Library Search Compound Report

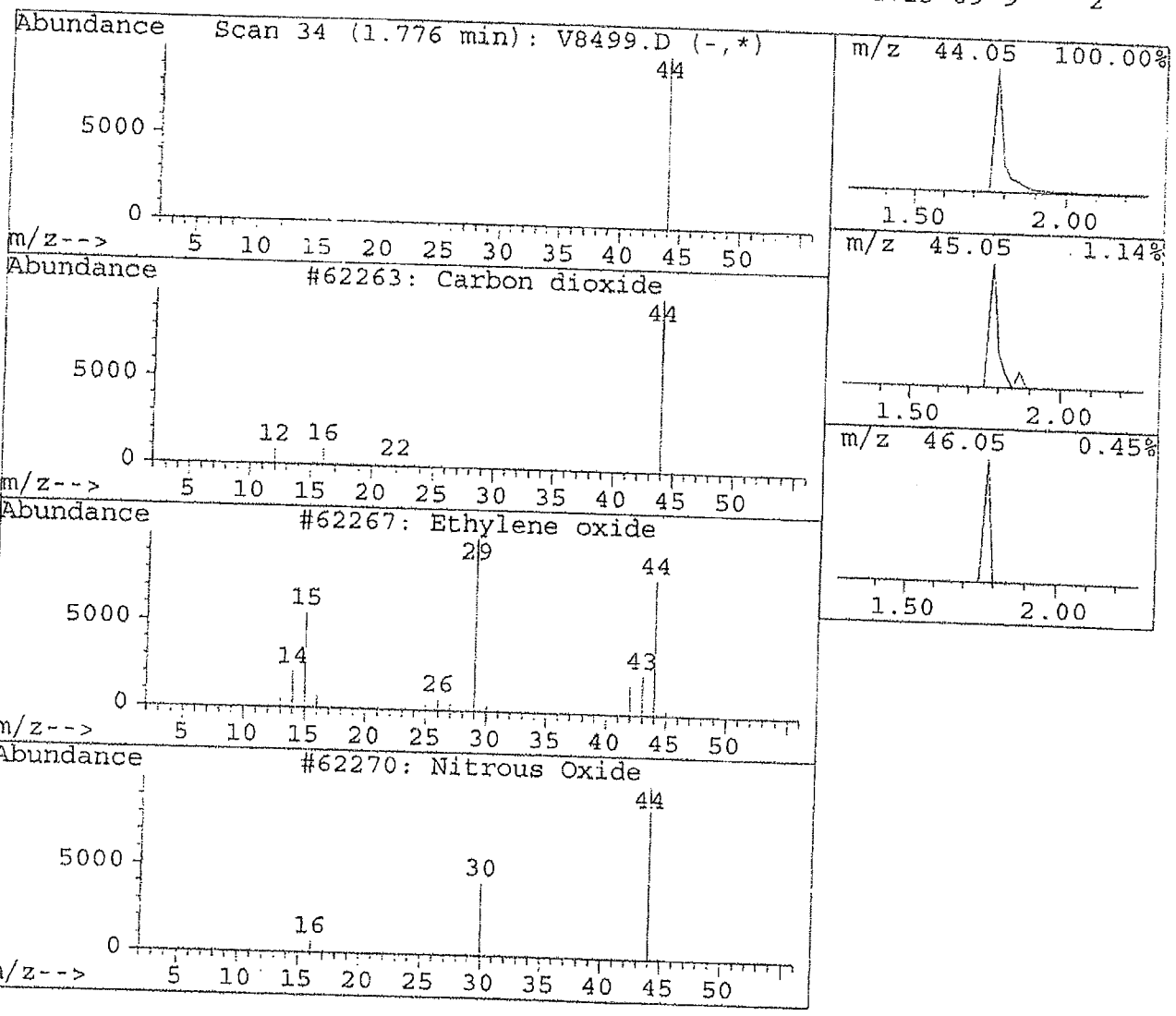
Data File : c:\hpchem\1\data2\v8499.d
Acq On : 13 Nov 97 6:51 pm
Sample : 9782200V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	17.73 ug/l	173612	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	62270	010024-97-2	3
4	Acetaldehyde	62264	000075-07-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



Library Search Compound Report

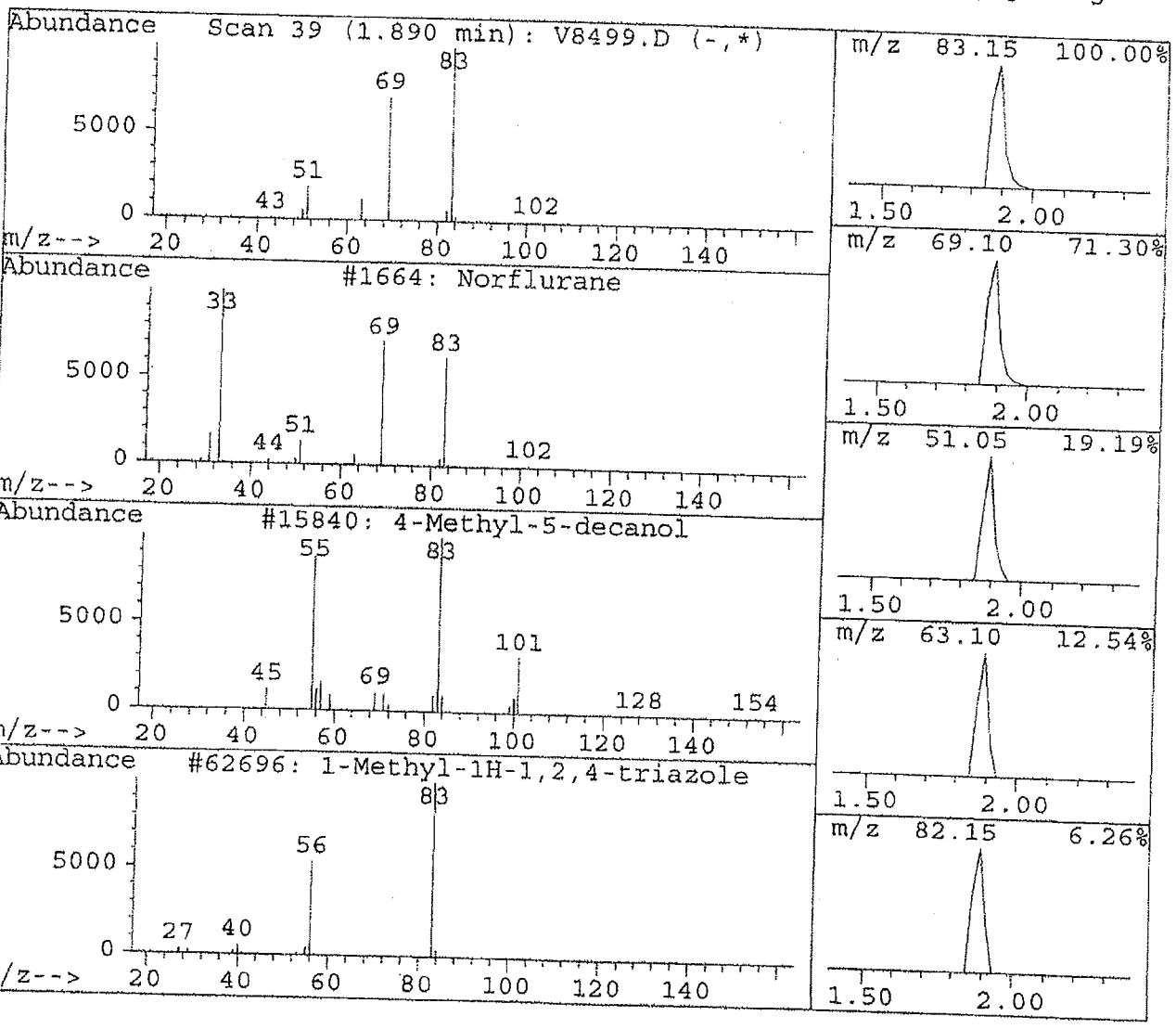
Data File : c:\hpchem\1\data2\v8499.d
Acq On : 13 Nov 97 6:51 pm
Sample : 9782200V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.89	7.01 ug/l	68641	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Norflurane	1664	000811-97-2	33
2	4-Methyl-5-decanol	15840	000000-00-0	1
3	1-Methyl-1H-1,2,4-triazole	62696	006086-21-1	2
4	1H-1,2,4-Triazole, 3-methyl-	511	007170-01-6	2
5	4H-1,2,4-Triazole, 4-methyl-	509	010570-40-8	3



Library Search Compound Report

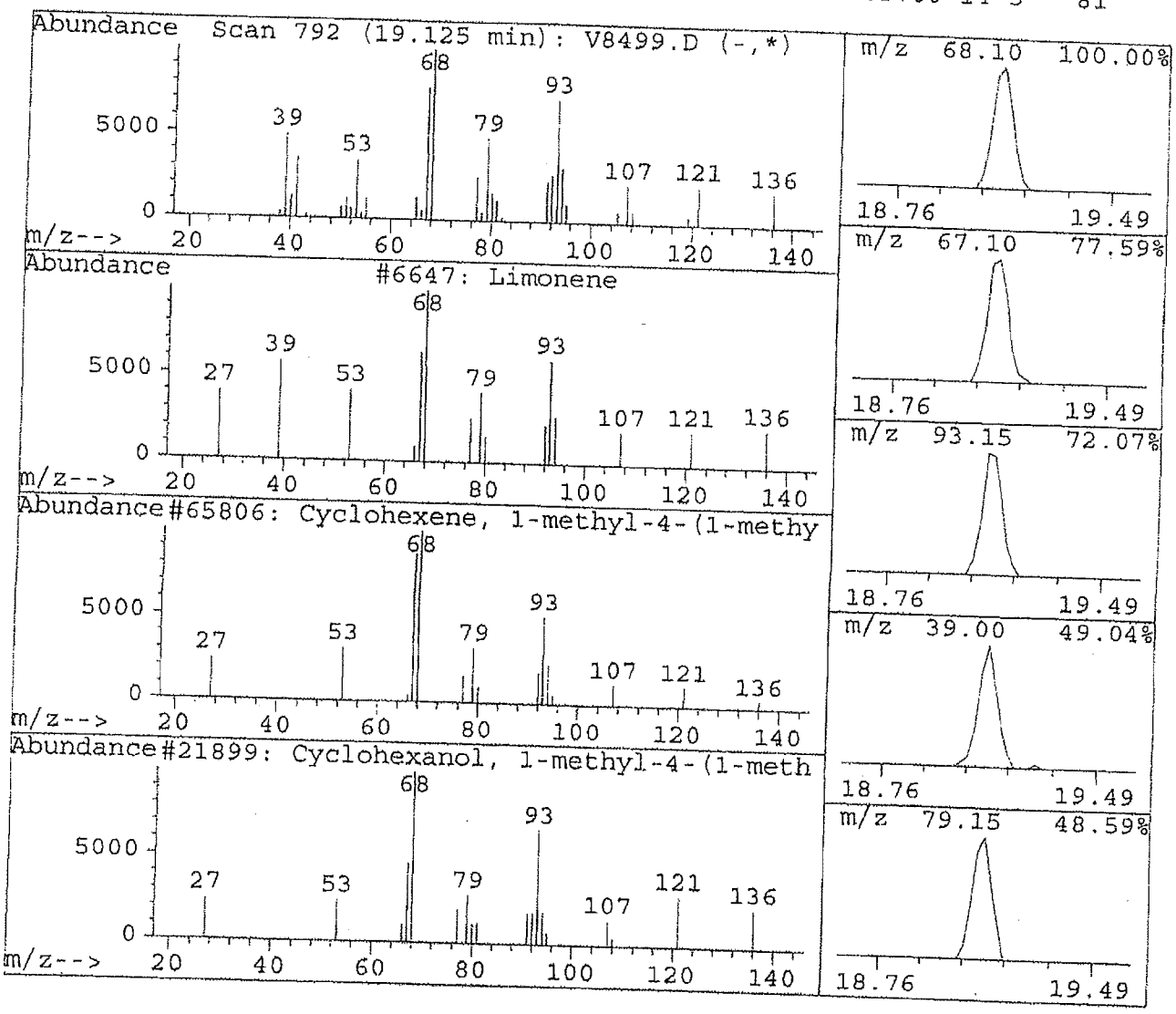
Data File : c:\hpchem\1\data2\v8499.d
Acq On : 13 Nov 97 6:51 pm
Sample : 9782200V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
19.12	6.37 ug/l	104111	Chlorobenzene-d5	14.98

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Limonene	6647	000138-86-3	94
2	Cyclohexene, 1-methyl-4-(1-methylet	65806	005989-54-8	35
3	Cyclohexanol, 1-methyl-4-(1-methyle	21899	010198-23-9	43
4	D-Limonene	65790	005989-27-5	81
5	1,5-Cyclooctadiene, 1,5-dimethyl-	65749	003760-14-3	81



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782201V

MW-8, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782201V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8500.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 15 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-69-4	Trichlorofluoromethane	12	U
75-09-2	Methylene chloride	12	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	29	U
107-02-8	Acrolein	59	U
107-13-1	Acrylonitrile	59	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782201V
MB-8, S-1

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782201V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8500.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 15 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 811-97-2	Norflurane	1.88	8	J
2. 80-56-8	.alpha.-Pinene	16.82	7	J
3.				
4.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v8500.d
Acq On : 13 Nov 97 7:28 pm
Sample : 9782201V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:14 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.85	128	72543	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.82	114	305340	50.00	ug/l	-0.09
40) Chlorobenzene-d5	14.99	117	242064	50.00	ug/l	-0.07
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.95	65	170111	57.14	ug/l	114.29%
33) Toluene-d8	12.45	98	283748	47.15	ug/l	94.29%
48) 4-Bromofluorobenzene	17.10	95	185397	46.87	ug/l	93.73%
Target Compounds						Qvalue
11) Methylene chloride	4.83	49	32991	10.02	ug/l	90

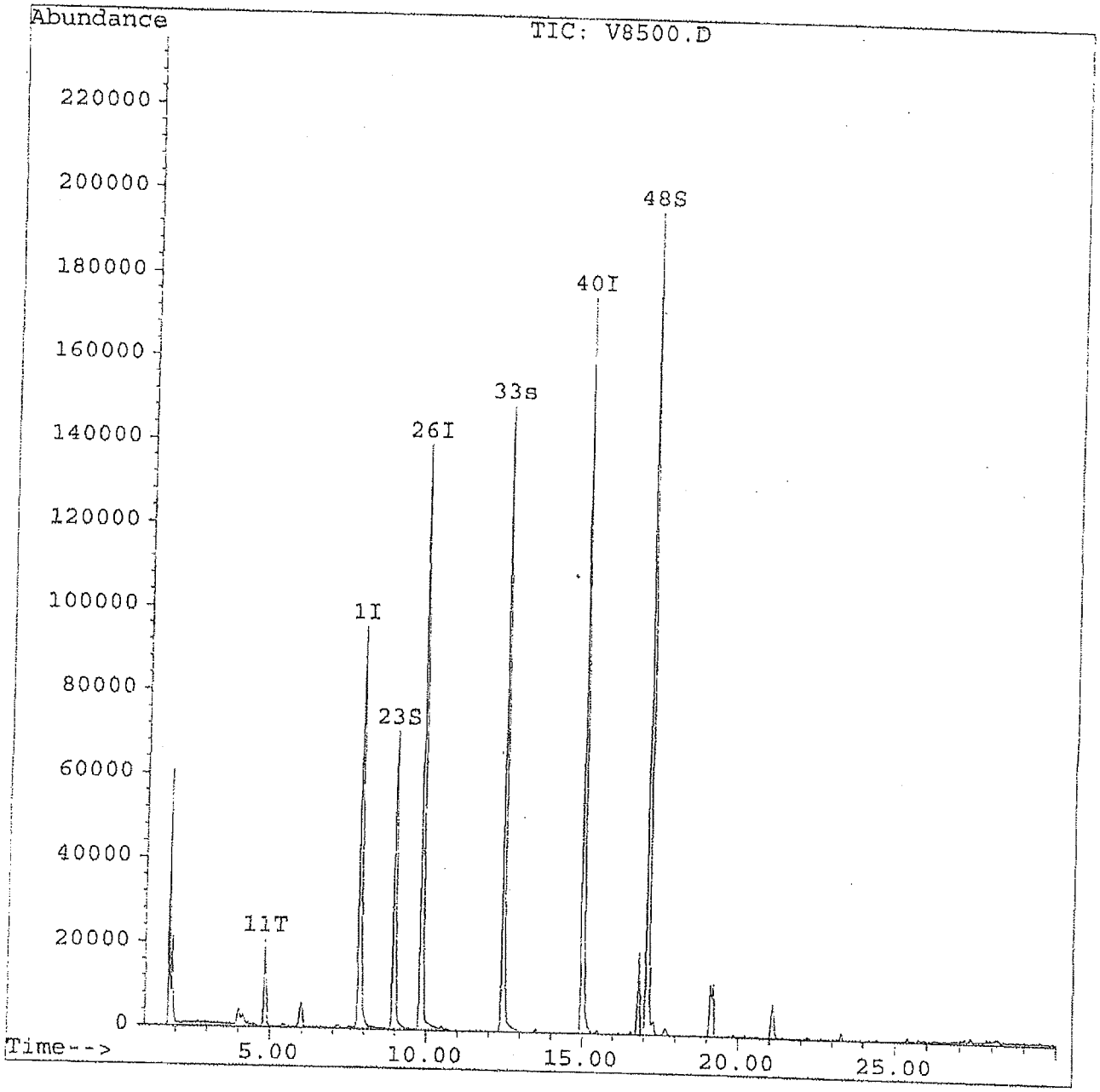
(#) = qualifier out of range (m) = manual integration

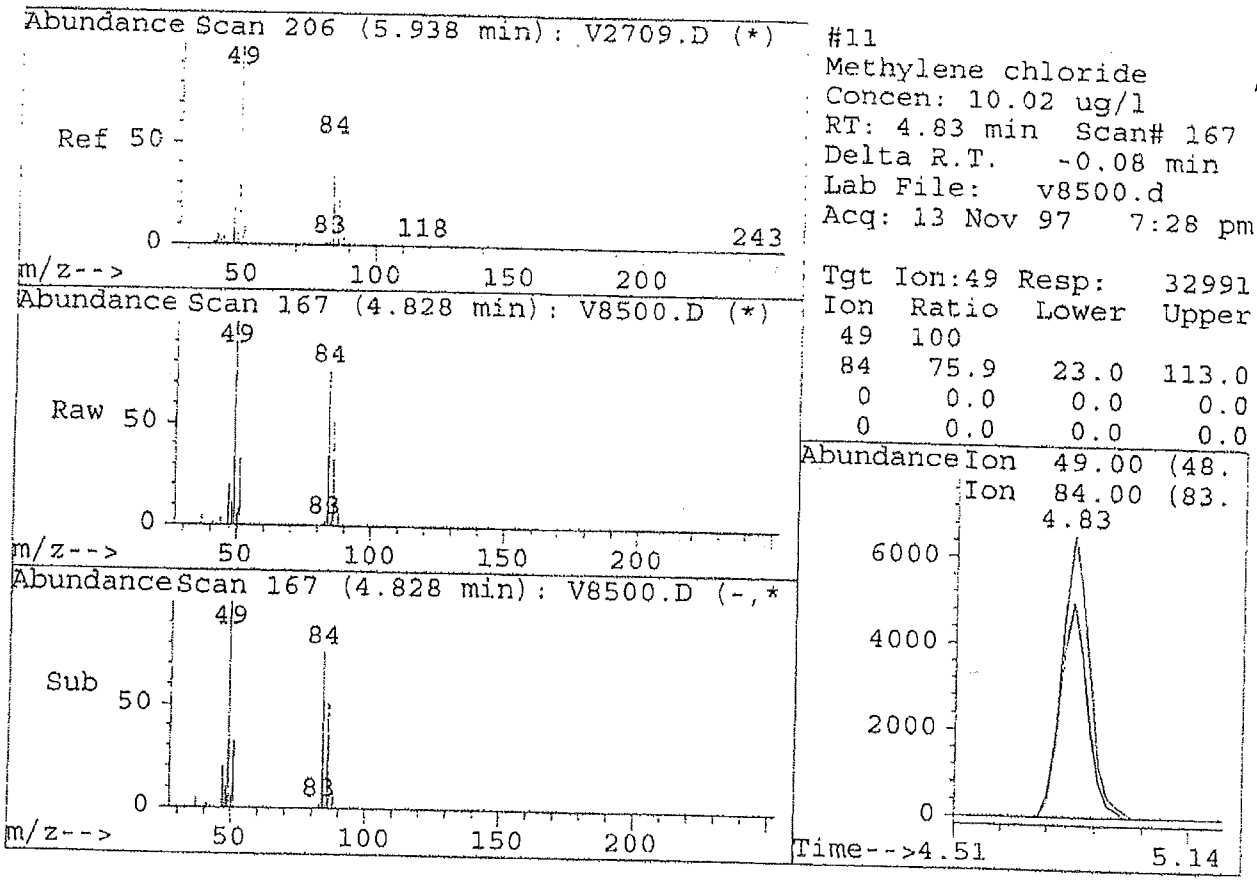
Quantitation Report

Data File : c:\hpchem\1\data2\v8500.d
Acq On : 13 Nov 97 7:28 pm
Sample : 9782201V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:14 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration




Abundance Scan 206 (5.938 min): V2709.D (*)
Ref
Abundance Scan 167 (4.828 min): V8500.D (*)
Raw
Abundance Scan 167 (4.828 min): V8500.D (-,*
Sub
m/z-->
49
84
83
118
243
50
100
150
200
#11
Methylene chloride
Concen: 10.02 ug/l
RT: 4.83 min Scan# 167
Delta R.T. -0.08 min
Lab File: v8500.d
Acq: 13 Nov 97 7:28 pm
Tgt Ion:49 Resp: 32991
Ion Ratio Lower Upper
49 100
84 75.9 23.0 113.0
0 0.0 0.0 0.0
0 0.0 0.0 0.0
Abundance
Ion 49.00 (48.
Ion 84.00 (83.
4.83
6000
4000
2000
0
Time-->4.51
5.14

Library Search Compound Report

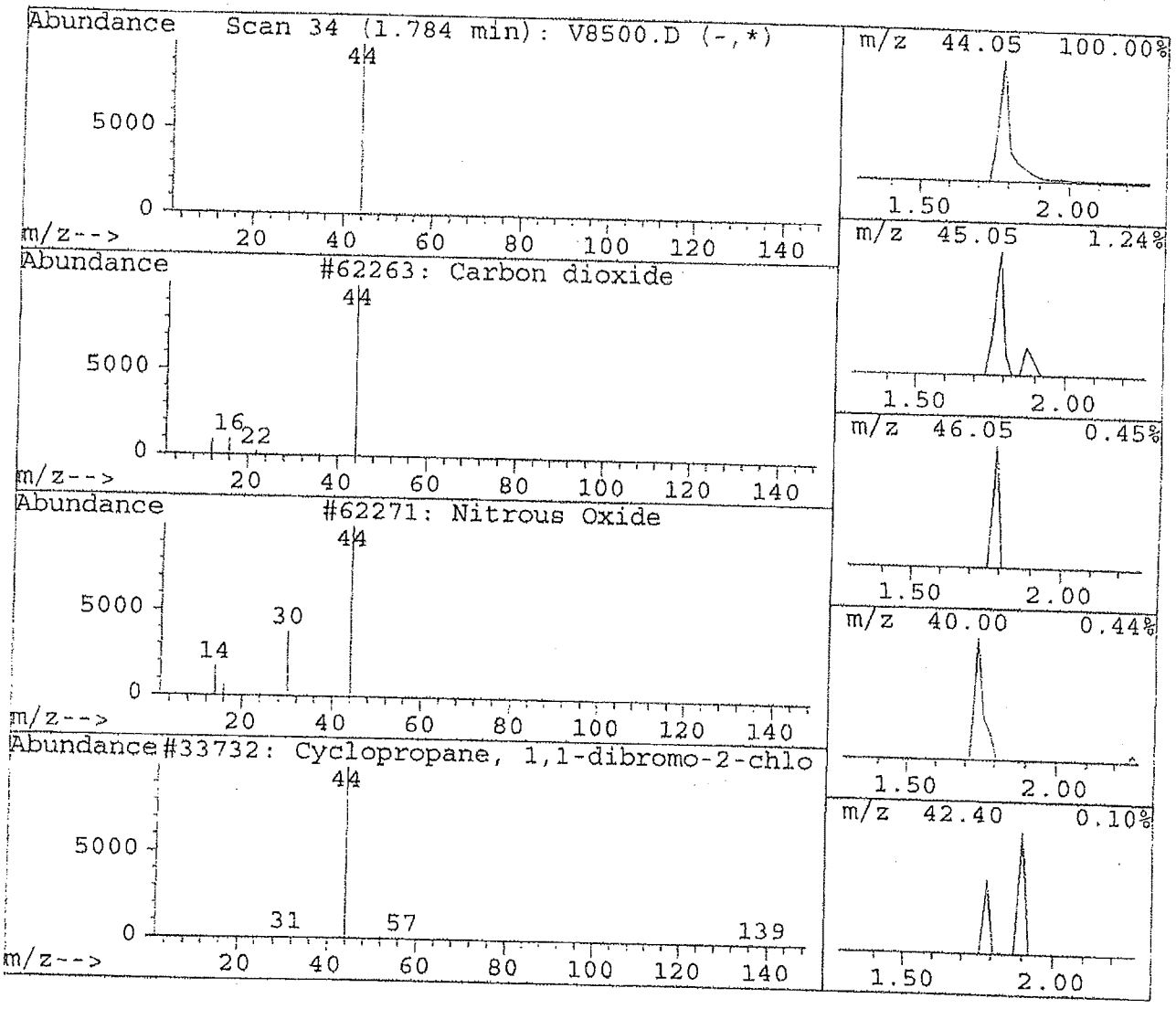
Data File : c:\hpchem\1\data2\v8500.d
Acq On : 13 Nov 97 7:28 pm
Sample : 9782201V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	14.93 ug/l	155417	Bromochloromethane	7.85

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	62271	010024-97-2	3
3	Cyclopropane, 1,1-dibromo-2-chloro-	33732	024071-57-6	2
4	Carbamic acid, monoammonium salt	391	001111-78-0	2
5	2,5-Dimethoxy-4-(methylsulfonyl)amp	38244	000000-00-0	1



Library Search Compound Report

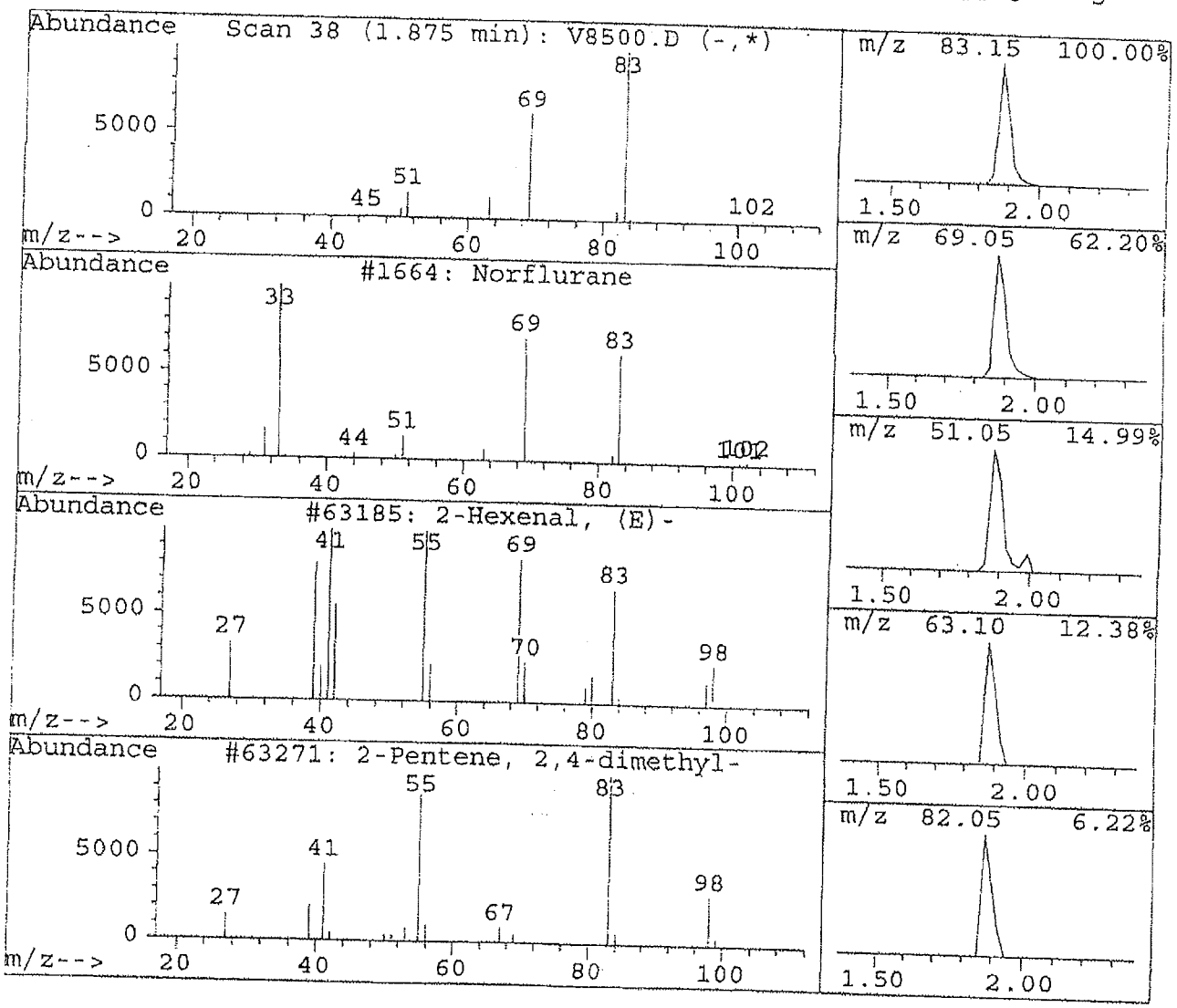
Data File : c:\hpchem\1\data2\v8500.d
Acq On : 13 Nov 97 7:28 pm
Sample : 9782201V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.88	6.48 ug/l	67439	Bromochloromethane	7.85

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Norflurane	1664	000811-97-2	78
2	2-Hexenal, (E)-	63185	006728-26-3	1
3	2-Pentene, 2,4-dimethyl-	63271	000625-65-0	1
4	2,3,3-Trimethyl-1-hexene	4616	000000-00-0	1
5	Isoxazole, 5-methyl-	512	005765-44-6	3



Library Search Compound Report

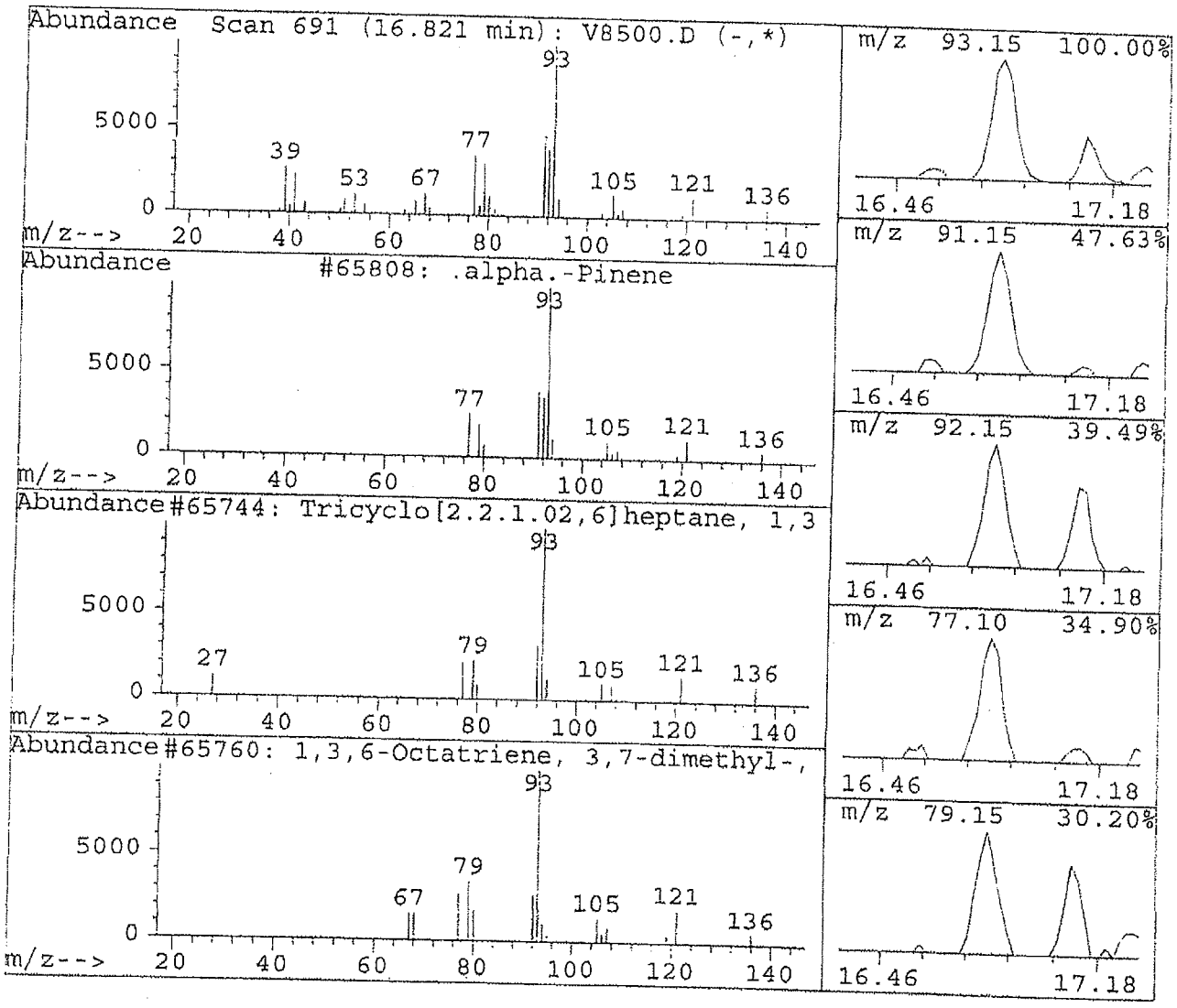
Data File : c:\hpchem\1\data2\v8500.d
Acq On : 13 Nov 97 7:28 pm
Sample : 9782201V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
16.82	6.22 ug/l	100348	Chlorobenzene-d5	14.99

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	.alpha.-Pinene	65808	000080-56-8	91
2	Tricyclo[2.2.1.02,6]heptane, 1,3,3-	65744	000488-97-1	47
3	1,3,6-Octatriene, 3,7-dimethyl-, (E	65760	003779-61-1	46
4	1,3,6-Octatriene, 3,7-dimethyl-, (Z	6632	003338-55-4	43
5	3-Carene	6667	013466-78-9	46



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 9782202V

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8501.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 20 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS No.	Compound		Q
74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl chloride	13	U
75-00-3	Chloroethane	13	U
75-69-4	Trichlorofluoromethane	13	U
75-09-2	Methylene chloride	13	B
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
156-60-65	trans-1,2-Dichloroethene	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
108-38-3	Xylene (para & meta)	6	U
75-01-4	Xylene (ortho)	6	U
75-65-0	Methyl-tert butyl ether	6	U
1634-04-4	tert-Butyl Alcohol	31	U
107-02-8	Acrolein	63	U
107-13-1	Acrylonitrile	63	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782202V

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202V

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V8501.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: not dec. 20 Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1. 811-97-2	Norflurane	1.89	7	J
2.				
3.				
4.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v8501.d
Acq On : 13 Nov 97 8:06 pm
Sample : 9782202V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:14 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	67866	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.83	114	283606	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.98	117	258331	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.96	65	159948	57.43	ug/l	114.87%
33) Toluene-d8	12.44	98	282675	50.57	ug/l	101.13%
48) 4-Bromofluorobenzene	17.11	95	203196	48.13	ug/l	96.26%
Target Compounds						Qvalue
11) Methylene chloride	4.84	49	33204	10.78	ug/l	96

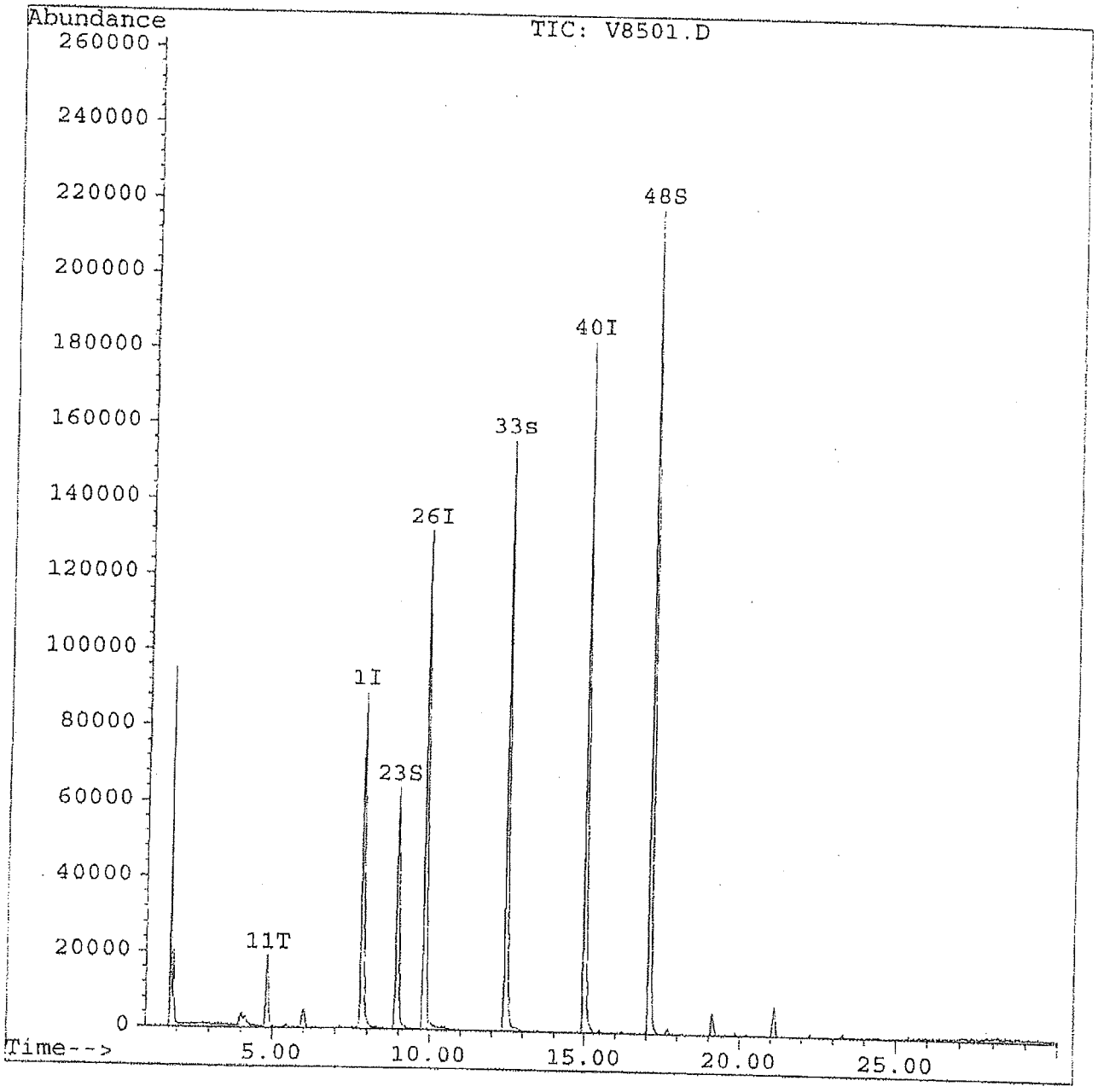
(#) = qualifier out of range (m) = manual integration

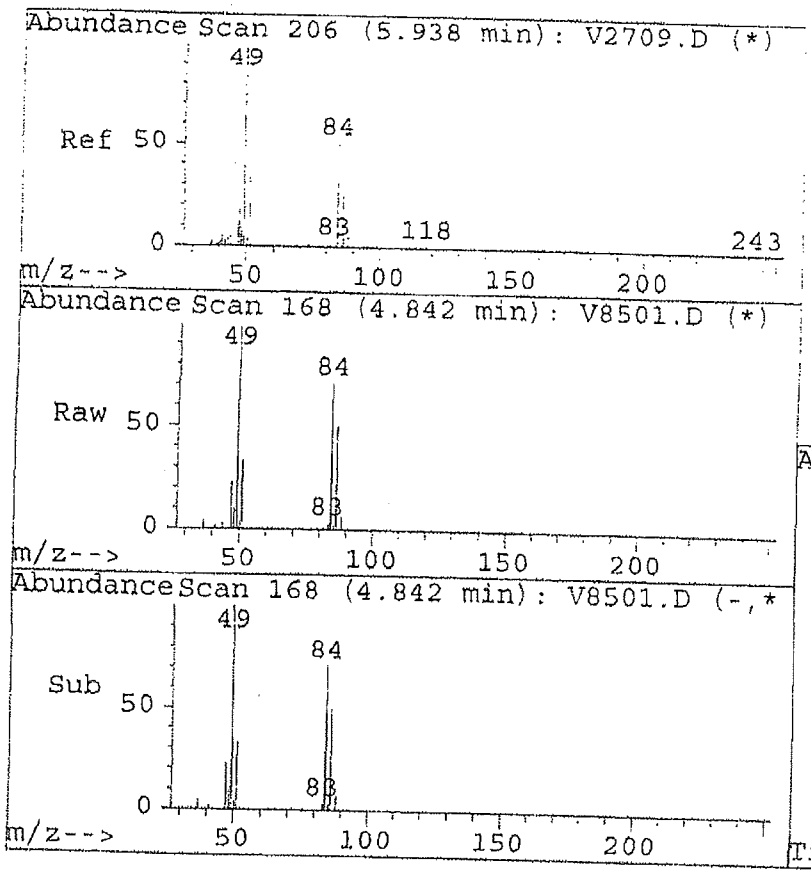
Quantitation Report

Data File : c:\hpchem\1\data2\v8501.d
Acq On : 13 Nov 97 8:06 pm
Sample : 9782202V..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:14 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

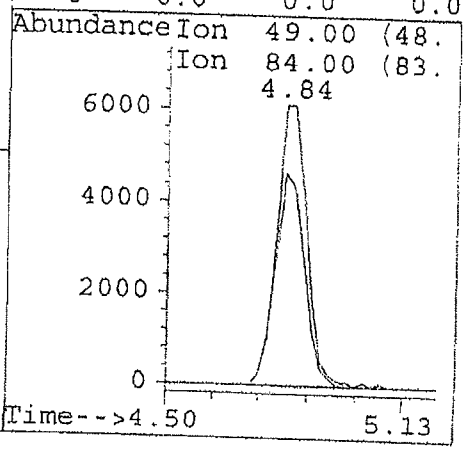




#11
Methylene chloride
Concen: 10.78 ug/l
RT: 4.84 min Scan# 168
Delta R.T. -0.07 min
Lab File: v8501.d
Acq: 13 Nov 97 8:06 pm

Tgt Ion:49 Resp: 33204

Ion	Ratio	Lower	Upper
49	100		
84	71.3	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

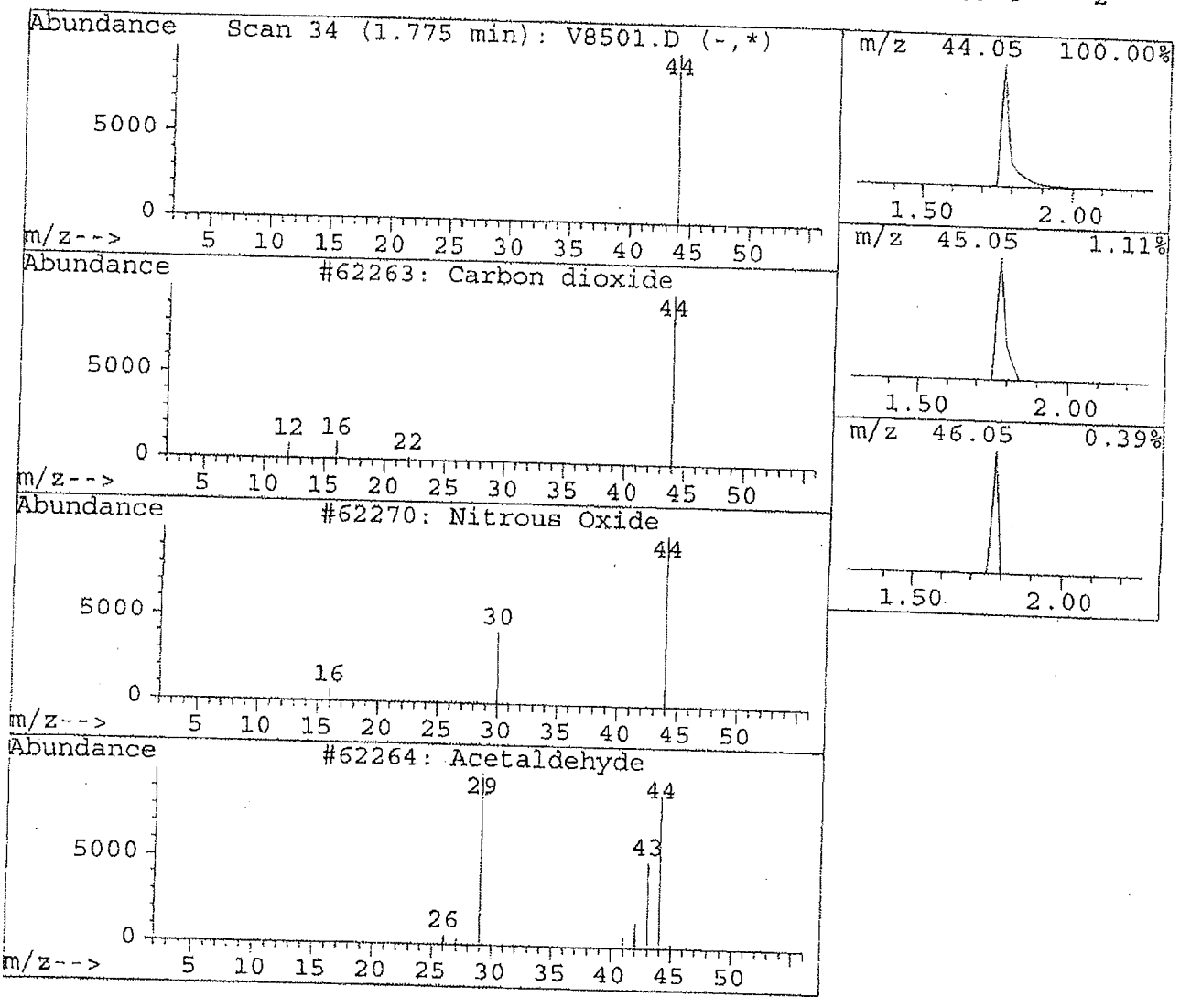
Data File : c:\hpchem\1\data2\v8501.d
Acq On : 13 Nov 97 8:06 pm
Sample : 9782202V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.77	18.21 ug/l	179709	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	62270	010024-97-2	3
3	Acetaldehyde	62264	000075-07-0	2
4	Ethylene oxide	62267	000075-21-8	2
5	Ethyne, fluoro-	35	002713-09-9	2



Library Search Compound Report

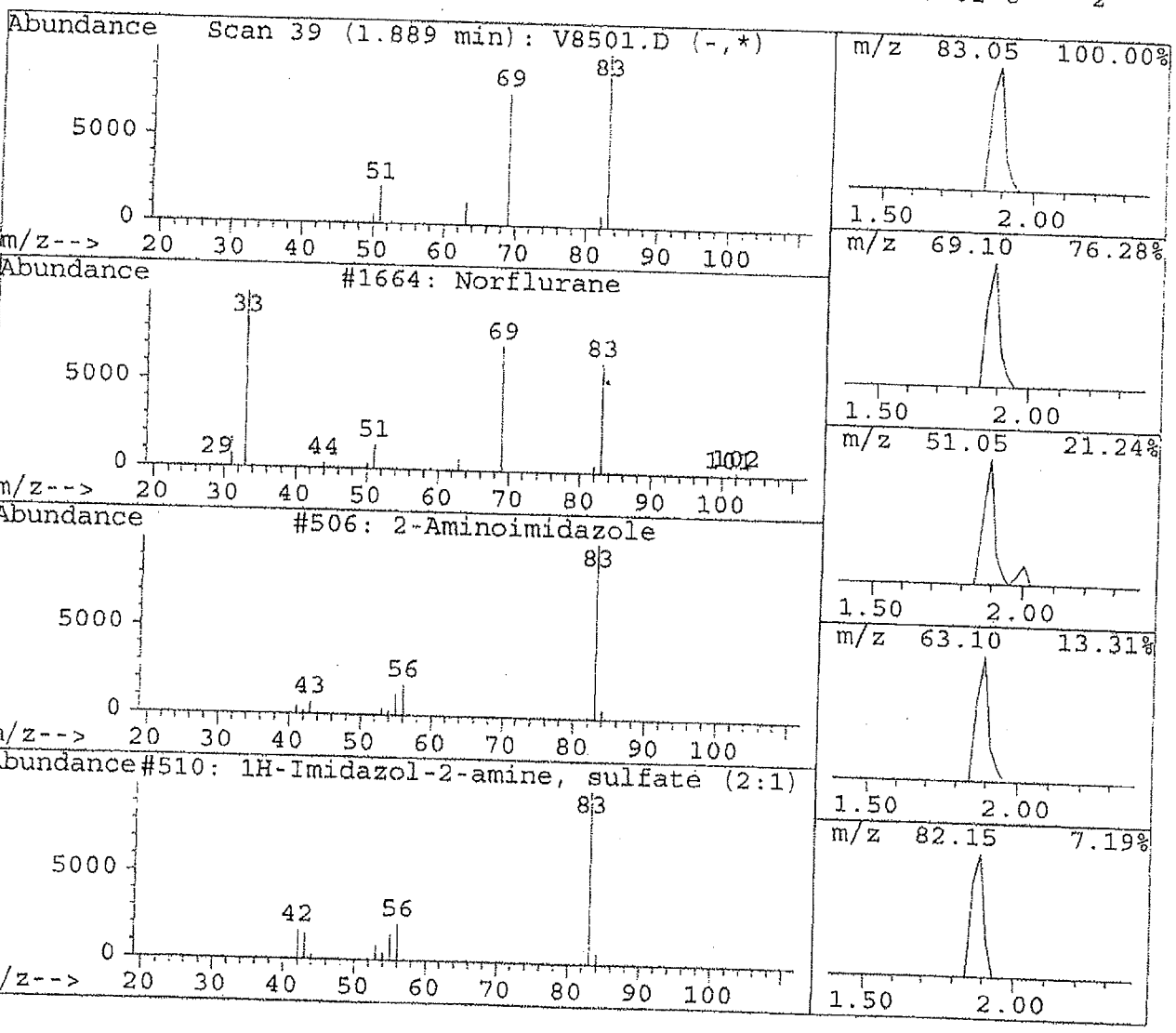
Data File : c:\hpchem\1\data2\v8501.d
Acq On : 13 Nov 97 8:06 pm
Sample : 9782202V..... Converted from RTE d
Misc : 5 G.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.89	5.91 ug/l	58302	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Norflurane	1664	000811-97-2	74
2	2-Aminoimidazole	506	000000-00-0	2
3	1H-Imidazol-2-amine, sulfate (2:1)	510	001450-93-7	2
4	1-Methyl-1H-1,2,4-triazole	507	006086-21-1	2
5	1H-1,2,4-Triazole, 3-methyl-	511	007170-01-6	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782203V
FB w/ s

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9782203V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8496.D

Level: (low/med) _____ Date Received: 11/12/97

% Moisture: not dec. _____ Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	7	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782203V

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9782203V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8496.D

Level: (low/med) Date Received: 11/12/97

% Moisture: not dec. Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 3 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	17.71	27	J
2.	Unknown	21.10	9	J
3.	Unknown	21.12	12	J
4.				
5.				
6.				
7.				
8.				
9.				
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19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\v8496.d
Acq On : 13 Nov 97 4:59 pm
Sample : 9782203V..... Converted from RTE d
Misc : 5 ML FB.....
Quant Time: Nov 13 17:28 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	80945	50.00	ug/l	-0.09
26) 1,4-Difluorobenzene	9.83	114	354024	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.98	117	321072	50.00	ug/l	-0.07
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.96	65	184891	55.66	ug/l	111.32%
33) Toluene-d8	12.44	98	354030	50.73	ug/l	101.47%
48) 4-Bromofluorobenzene	17.11	95	243796	46.46	ug/l	92.93%
Target Compounds						Qvalue
11) Methylene chloride	4.82	49	27046	7.36	ug/l	89

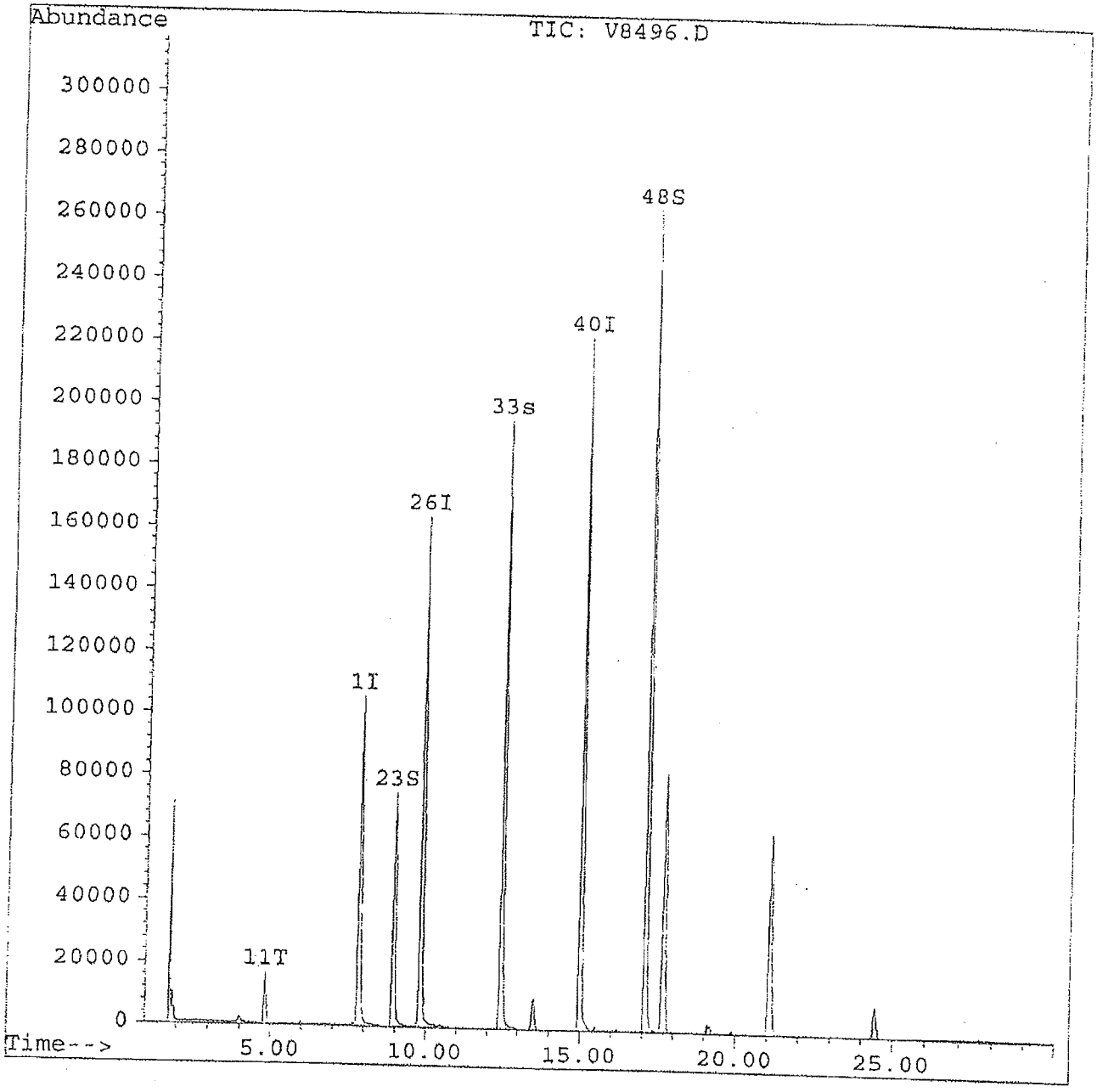
(#) = qualifier out of range (m) = manual integration

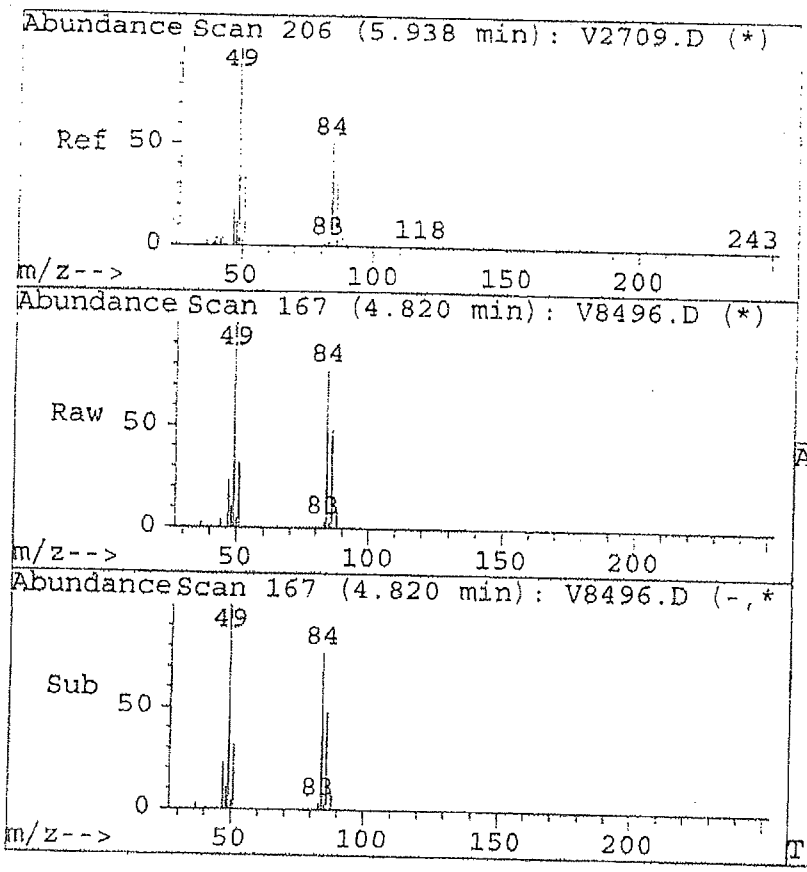
Quantitation Report

Data File : c:\hpchem\1\data2\v8496.d
Acq On : 13 Nov 97 4:59 pm
Sample : 9782203V..... Converted from RTE d
Misc : 5 ML FB.....
Quant Time: Nov 13 17:28 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

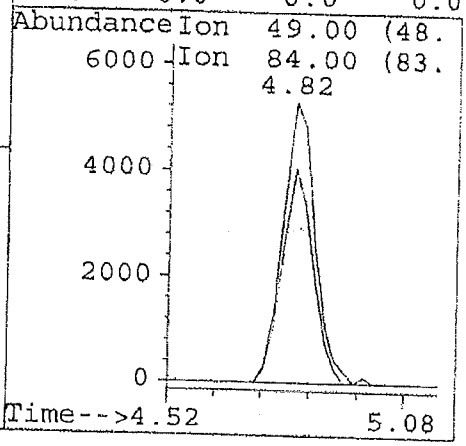




#11
Methylene chloride
Concen: 7.36 ug/l
RT: 4.82 min Scan# 167
Delta R.T. -0.09 min
Lab File: v8496.d
Acq: 13 Nov 97 4:59 pm

Tgt Ion:49 Resp: 27046

Ion	Ratio	Lower	Upper
49	100		
84	76.6	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

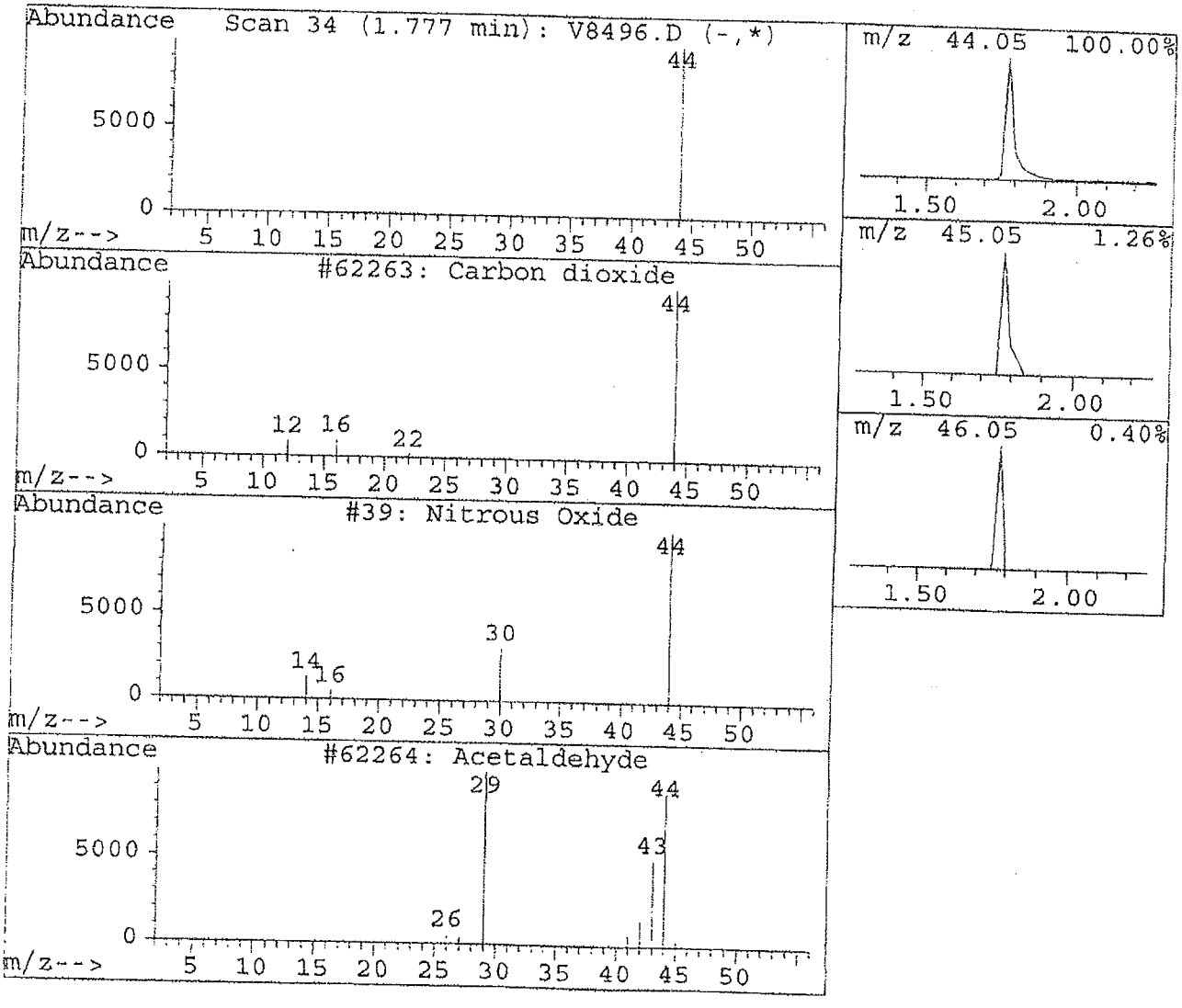
Data File : c:\hpchem\1\data2\v8496.d
Acq On : 13 Nov 97 4:59 pm
Sample : 9782203V..... Converted from RTE d
Misc : 5 ML FB.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	11.70 ug/l	132989	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	39	010024-97-2	3
3	Acetaldehyde	62264	000075-07-0	2
4	Ethyne, fluoro-	35	002713-09-9	2
5	Ethylene oxide	62267	000075-21-8	2



Library Search Compound Report

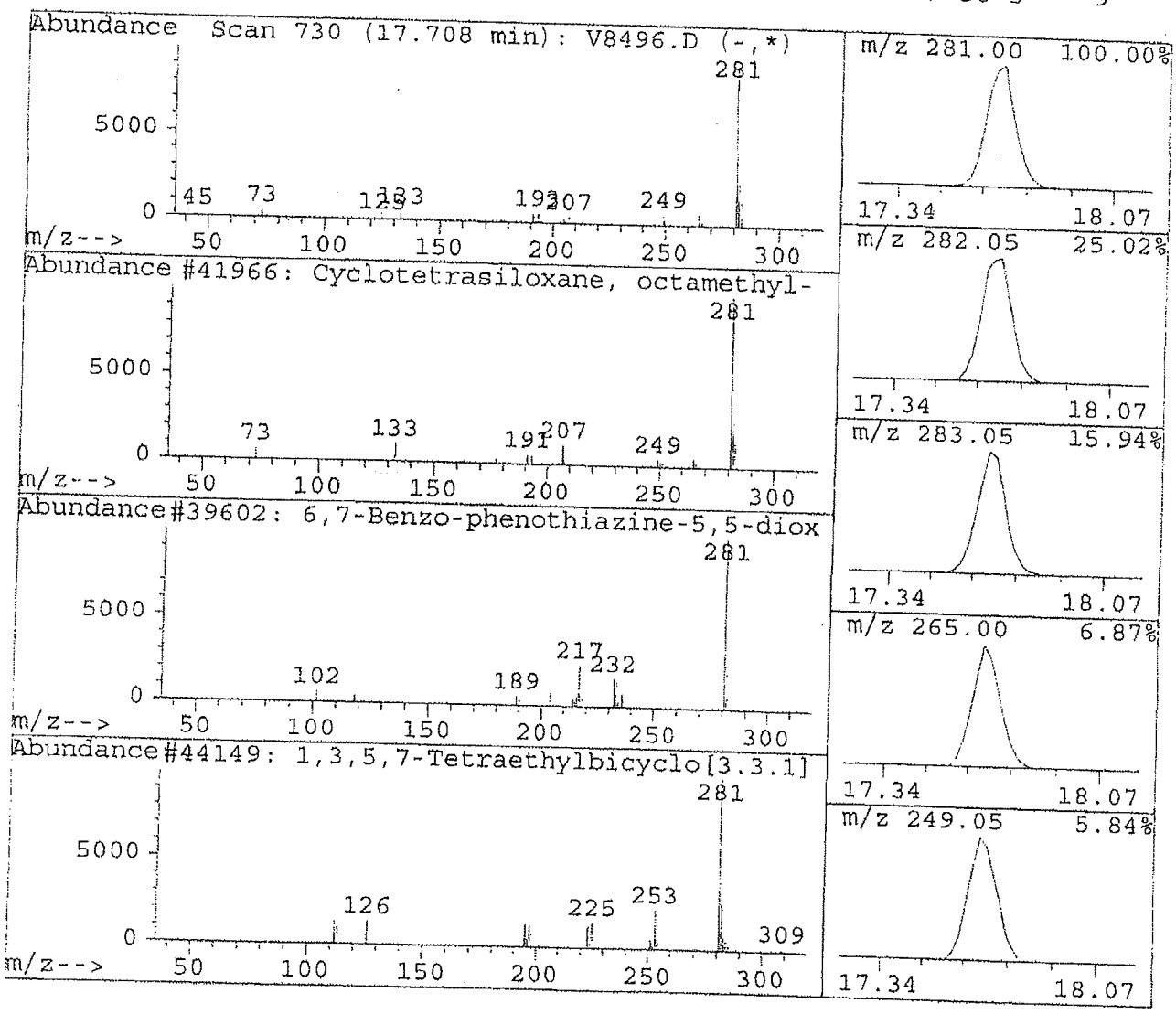
Data File : c:\hpchem\1\data2\v8496.d
Acq On : 13 Nov 97 4:59 pm
Sample : 9782203V..... Converted from RTE d
Misc : 5 ML FB.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
17.71	26.91 ug/l	558407	Chlorobenzene-d5	14.98

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Cyclotetrasiloxane, octamethyl-	41966	000556-67-2	32
2	6,7-Benzo-phenothiazine-5,5-dioxide	39602	000000-00-0	9
3	1,3,5,7-Tetraethylbicyclo[3.3.1]tet	44149	073420-21-0	2
4	Eicosane, 9-octyl-	53460	013475-77-9	1
5	Benzene, 1-phenyl-4-(2-cyano-2-phen	39643	027869-56-3	9



Library Search Compound Report

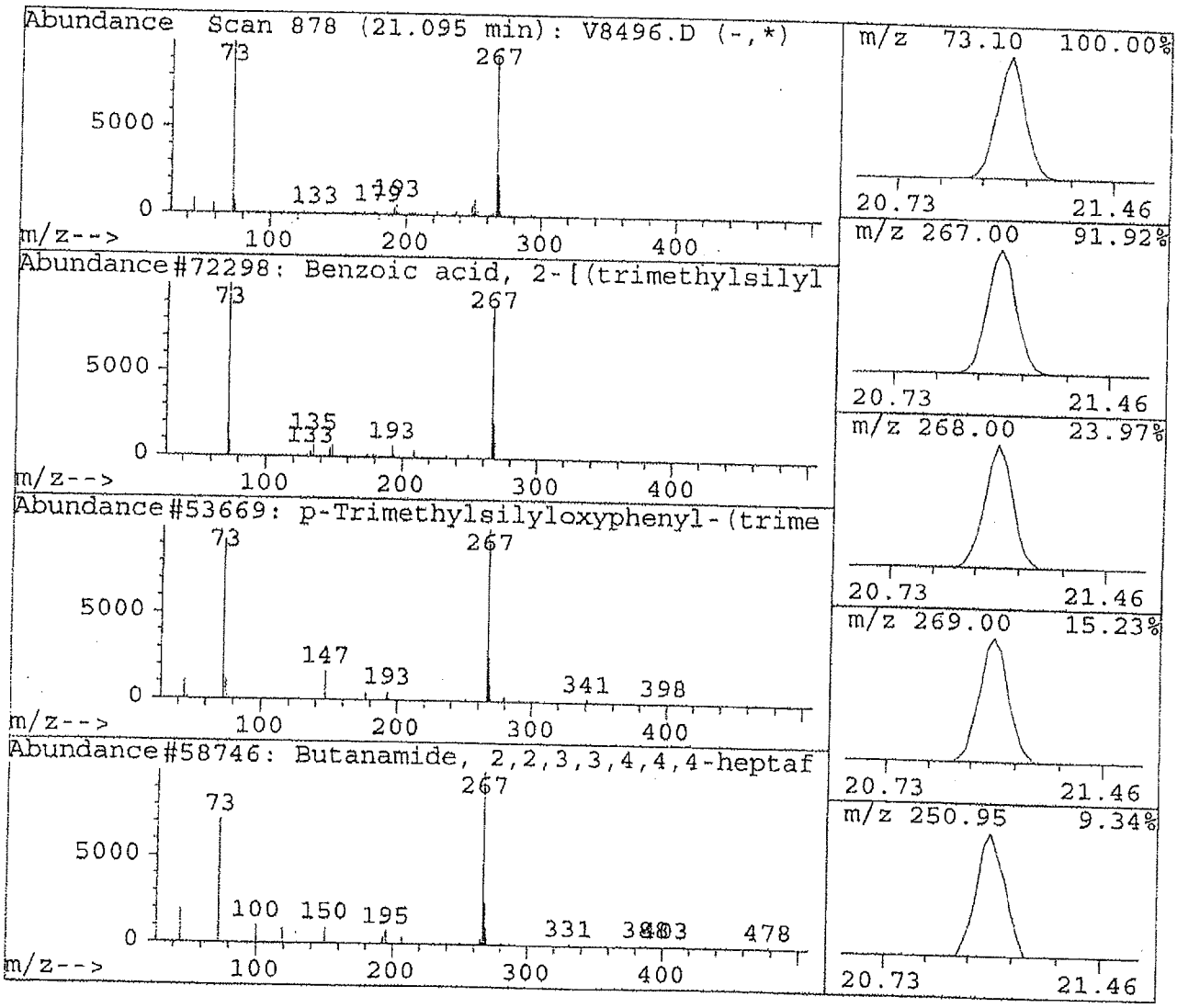
Data File : c:\hpchem\1\data2\v8496.d
Acq On : 13 Nov 97 4:59 pm
Sample : 9782203V..... Converted from RTE d
Misc : 5 ML FB.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
21.10	9.25 ug/l	191961	Chlorobenzene-d5	14.98

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Benzoic acid, 2-[(trimethylsilyl)ox	72298	003789-85-3	40
2	p-Trimethylsilyloxyphenyl-(trimethy	53669	000000-00-0	56
3	Butanamide, 2,2,3,3,4,4,4-heptafluo	58746	055471-01-7	39
4	Benzaldehyde, 2,5-bis[(trimethylsil	39706	056114-69-3	78
5	Benzaldehyde, 2,4-bis(trimethylsilo	39710	033617-38-8	40



Library Search Compound Report

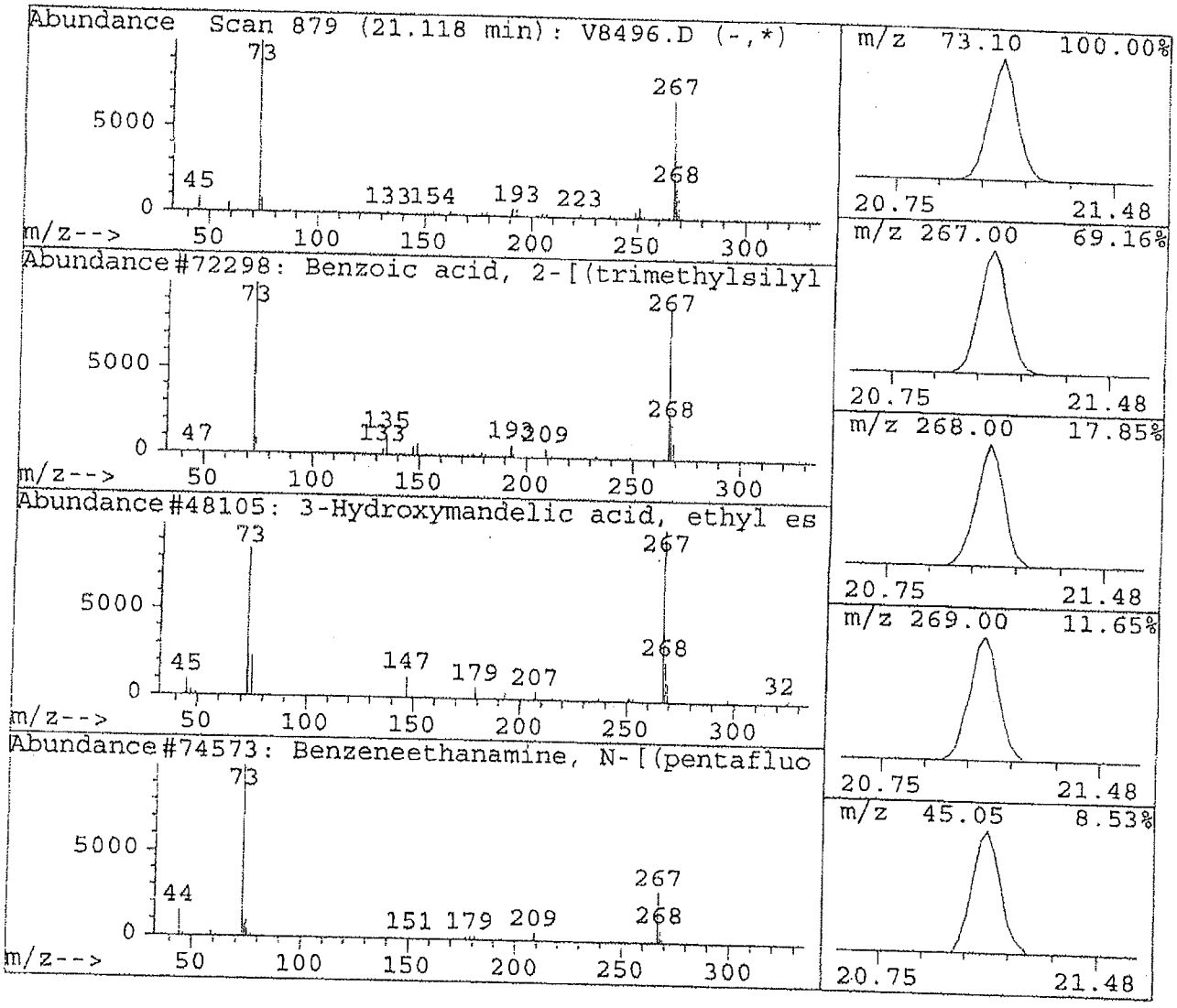
Data File : c:\hpchem\1\data2\v8496.d
Acq On : 13 Nov 97 4:59 pm
Sample : 9782203V..... Converted from RTE d
Misc : 5 ML FB.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
21.12	11.70 ug/l	242835	Chlorobenzene-d5	14.98

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Benzoic acid, 2-[(trimethylsilyl)ox	72298	003789-85-3	39
2	3-Hydroxymandelic acid, ethyl ester	48105	000000-00-0	36
3	Benzeneethanamine, N-[(pentafluorop	74573	055429-85-1	23
4	Butanamide, 2,2,3,3,4,4,4-heptafluo	58746	055471-01-7	42
5	Benzaldehyde, 2,5-bis[(trimethylsil	39706	056114-69-3	56



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782204V

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9782204V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8495.D

Level: (low/med) _____ Date Received: 11/12/97

% Moisture: not dec. _____ Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	7	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. [illegible]

9782204V

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9782204V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8495.D

Level: (low/med) Date Received: 11/12/97

% Moisture: not dec. Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\v8495.d
Acq On : 13 Nov 97 4:22 pm
Sample : 9782204V..... Converted from RTE d
Misc : 5 ML FB.....
Quant Time: Nov 13 16:51 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	79231	50.00	ug/l	-0.10
26) 1,4-Difluorobenzene	9.83	114	364724	50.00	ug/l	-0.08
40) Chlorobenzene-d5	14.98	117	315563	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.96	65	184409	56.72	ug/l	113.44%
33) Toluene-d8	12.44	98	356077	49.53	ug/l	99.06%
48) 4-Bromofluorobenzene	17.11	95	245464	47.60	ug/l	95.20%
Target Compounds						Qvalue
11) Methylene chloride	4.84	49	25711	7.15	ug/l	95

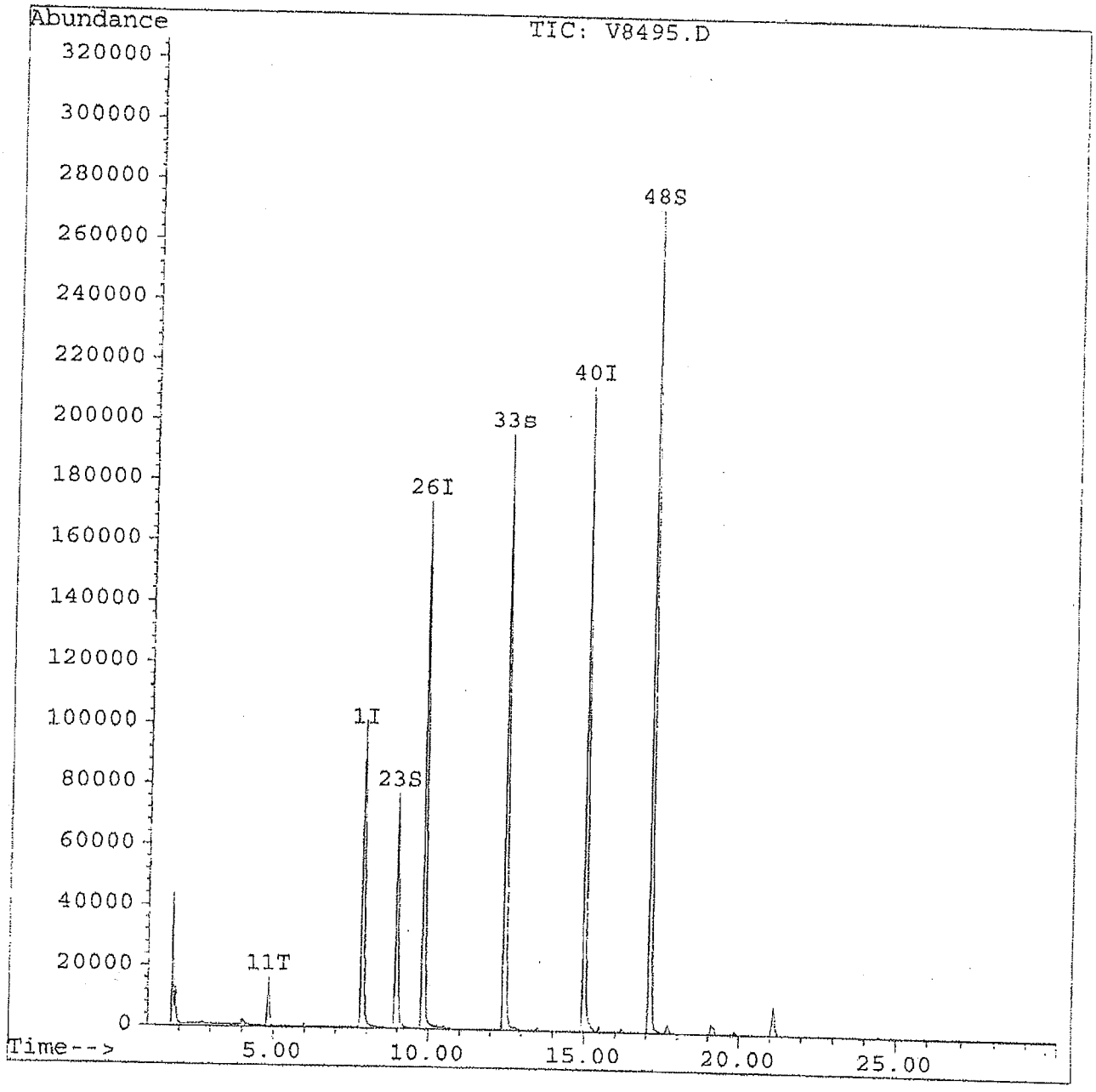
(#) = qualifier out of range (m) = manual integration

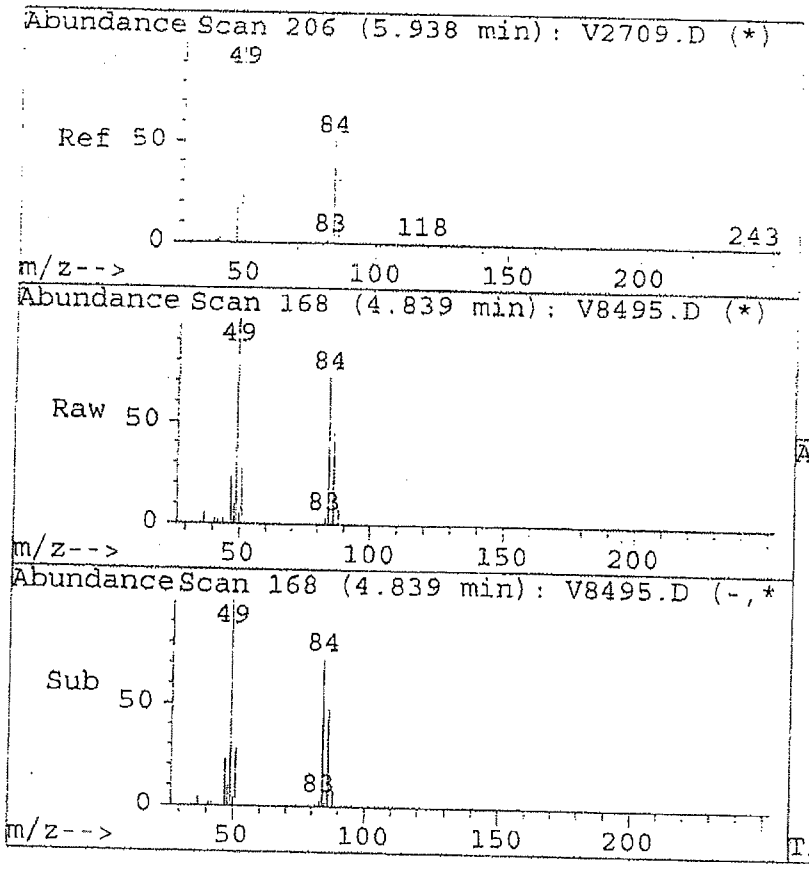
Quantitation Report

Data File : c:\hpchem\1\data2\v8495.d
Acq On : 13 Nov 97 4:22 pm
Sample : 9782204V..... Converted from RTE d
Misc : 5 ML FB.....
Quant Time: Nov 13 16:51 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

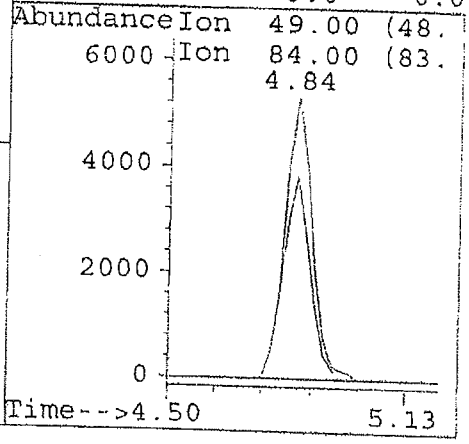




#11
Methylene chloride
Concen: 7.15 ug/l
RT: 4.84 min Scan# 168
Delta R.T. -0.07 min
Lab File: v8495.d
Acq: 13 Nov 97 4:22 pm

Tgt Ion:49 Resp: 25711

Ion	Ratio	Lower	Upper
49	100		
84	72.4	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

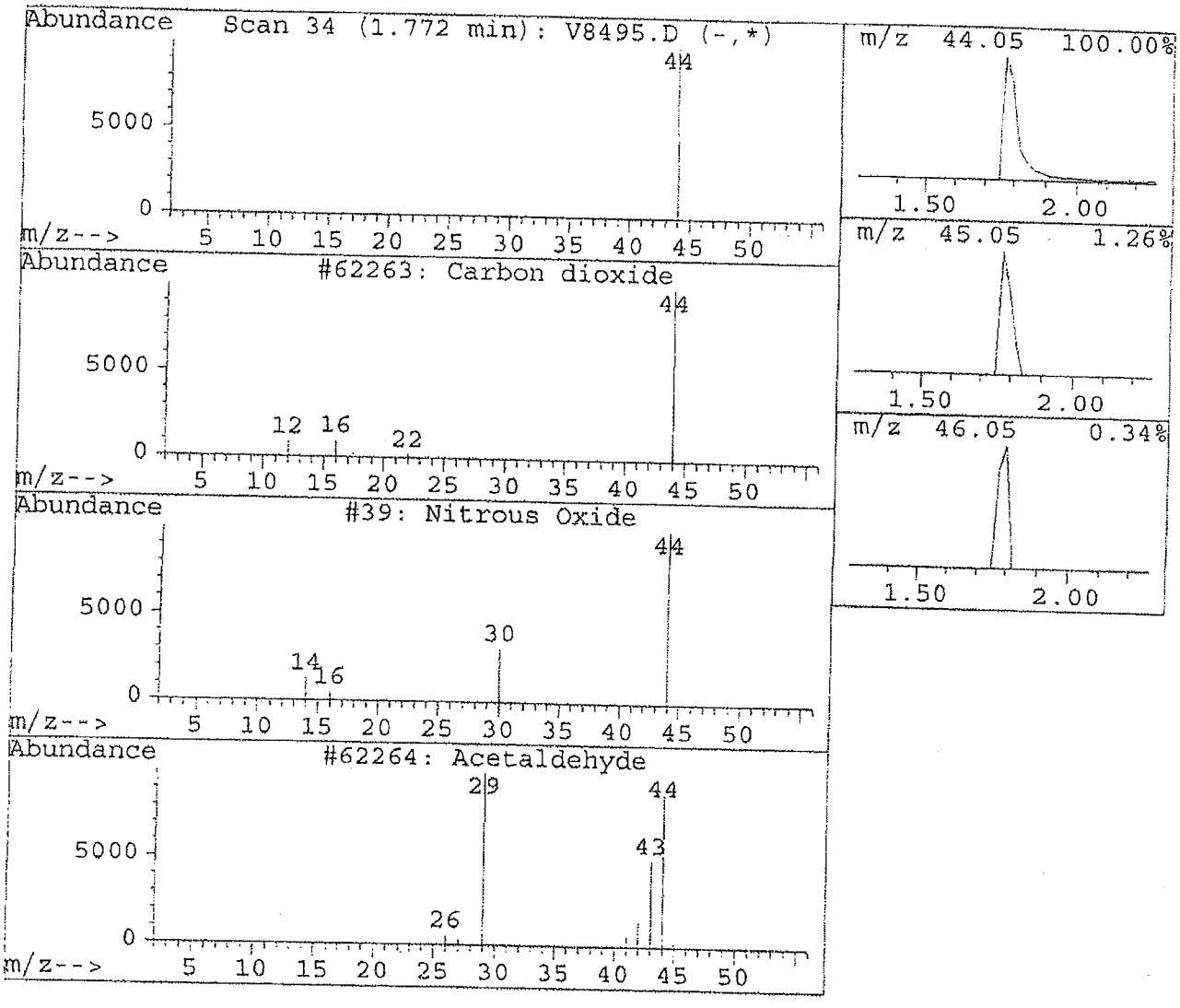
Data File : c:\hpchem\1\data2\v8495.d
Acq On : 13 Nov 97 4:22 pm
Sample : 9782204V..... Converted from RTE d
Misc : 5 ML FB.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.77	11.25 ug/l	128929	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	39	010024-97-2	3
3	Acetaldehyde	62264	000075-07-0	2
4	Ethyne, fluoro-	35	002713-09-9	2
5	Ethylene oxide	62267	000075-21-8	2



2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

	SAMPLE NO.	SMC1 (DCE) #	SMC2 (TLD8) #	SMC3 (BFB) #	OTHER #	TOT OUT
01	VBLK02	107	100	104		
02	9778625V	112	97	88		
03	9778621V	114	98	93		
04						
05						
06						
07						
08						
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SMC1 (DCE) = 1,2-Dichloroethane-d4
SMC2 (TLD8) = Toluene-d8
SMC3 (BFB) = 4-Bromofluorobenzene

QC LIMITS
(76-114)
(88-110)
(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Level: (low/med) LOW

	SAMPLE NO.	SMC1 (DCE) #	SMC2 (TLD8) #	SMC3 (BFB) #	OTHER #	TOT OUT
01	VBLK02	107	100	104		
02	9778619V	105	98	93		
03	9778620V	116	99	97		
04	9778622V	105	98	94		
05	9778623V	114	87	101		
06	9778624V	107	106	93		
07	9778619MS	106	94	99		
08	9778619MSD	103	99	107		
09	20 LCS	105	98	99		
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SMC1 (DCE) = 1,2-Dichloroethane-d4
SMC2 (TLD8) = Toluene-d8
SMC3 (BFB) = 4-Bromofluorobenzene

QC LIMITS
(70-121)
(81-138)
(59-113)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

FORM II VOA-2

3/90

2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

	SAMPLE NO.	SMC1 (DCE) #	SMC2 (TLD8) #	SMC3 (BFB) #	OTHER #	TOT OUT
01	VBLK01	113	103	95		
02	9782204V	113	99	95		
03	9782203V	111	101	93		
04	9781438V	110	97	88		
05	9781433V	112	98	99		
06	9781434V	112	99	92		
07	9781435V	108	103	93		
08	9781436V	105	104	96		
09	9781437V	106	101	95		
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SMC1 (DCE) = 1,2-Dichloroethane-d4
SMC2 (TLD8) = Toluene-d8
SMC3 (BFB) = 4-Bromofluorobenzene

QC LIMITS
(76-114)
(88-110)
(86-115)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

2B

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Level: (low/med) LOW

	SAMPLE NO.	SMC1 (DCE) #	SMC2 (TLD8) #	SMC3 (BFB) #	OTHER #	TOT OUT
01	VBLK01	113	103	95		
02	9782199V	112	99	85		
03	9782200V	111	96	108		
04	9782201V	114	94	94		
05	9782202V	115	101	96		
06	9782199MS	104	93	93		
07	9782199MSD	103	94	95		
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SMC1 (DCE) = 1,2-Dichloroethane-d4
SMC2 (TLD8) = Toluene-d8
SMC3 (BFB) = 4-Bromofluorobenzene

QC LIMITS
(70-121)
(81-138)
(59-113)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLK02

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Lab File ID: V6472.D Lab Sample ID: M.BLANK

Date Analyzed: 11/12/97 Time Analyzed: 1458

GC Column: HP-624 X 75 ID: 0.53 (mm) Heated Purge: (Y/N) Y

Instrument ID: 5970-AVO

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	9778625V	9778625V	V6474.D	1613
02	9778621V	9778621V	V6475.D	1651
03	9778619V	9778619V	V6476.D	1728
04	9778620V	9778620V	V6477.D	1806
05	9778622V	9778622V	V6478.D	1843
06	9778623V	9778623V	V6479.D	1920
07	9778624V	9778624V	V6480.D	1957
08	9778619MS	78619MS	V6481.D	2035
09	9778619MSD	78619MSD	V6482.D	2112
10	20 LCS	20 LCS	V6483.D	2149
11				
12				
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COMMENTS:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

VBLK02

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: M.BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6472.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS No.	Compound		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	5	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
95-47-6	Xylene (ortho)	5	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

VBLK02

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: M.BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V6472.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 11/12/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v6472.d
Acq On : 12 Nov 97 2:58 pm
Sample : METHOD BLANK..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 12 15:48 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.84	128	76618	50.00	ug/l	-0.10
26) 1,4-Difluorobenzene	9.81	114	359021	50.00	ug/l	-0.10
40) Chlorobenzene-d5	14.98	117	306477	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	168227	53.51	ug/l	107.01%
33) Toluene-d8	12.44	98	353755	49.99	ug/l	99.98%
48) 4-Bromofluorobenzene	17.11	95	260782	52.07	ug/l	104.13%
Target Compounds						Qvalue
11) Methylene chloride	4.82	49	18574	5.34	ug/l	97

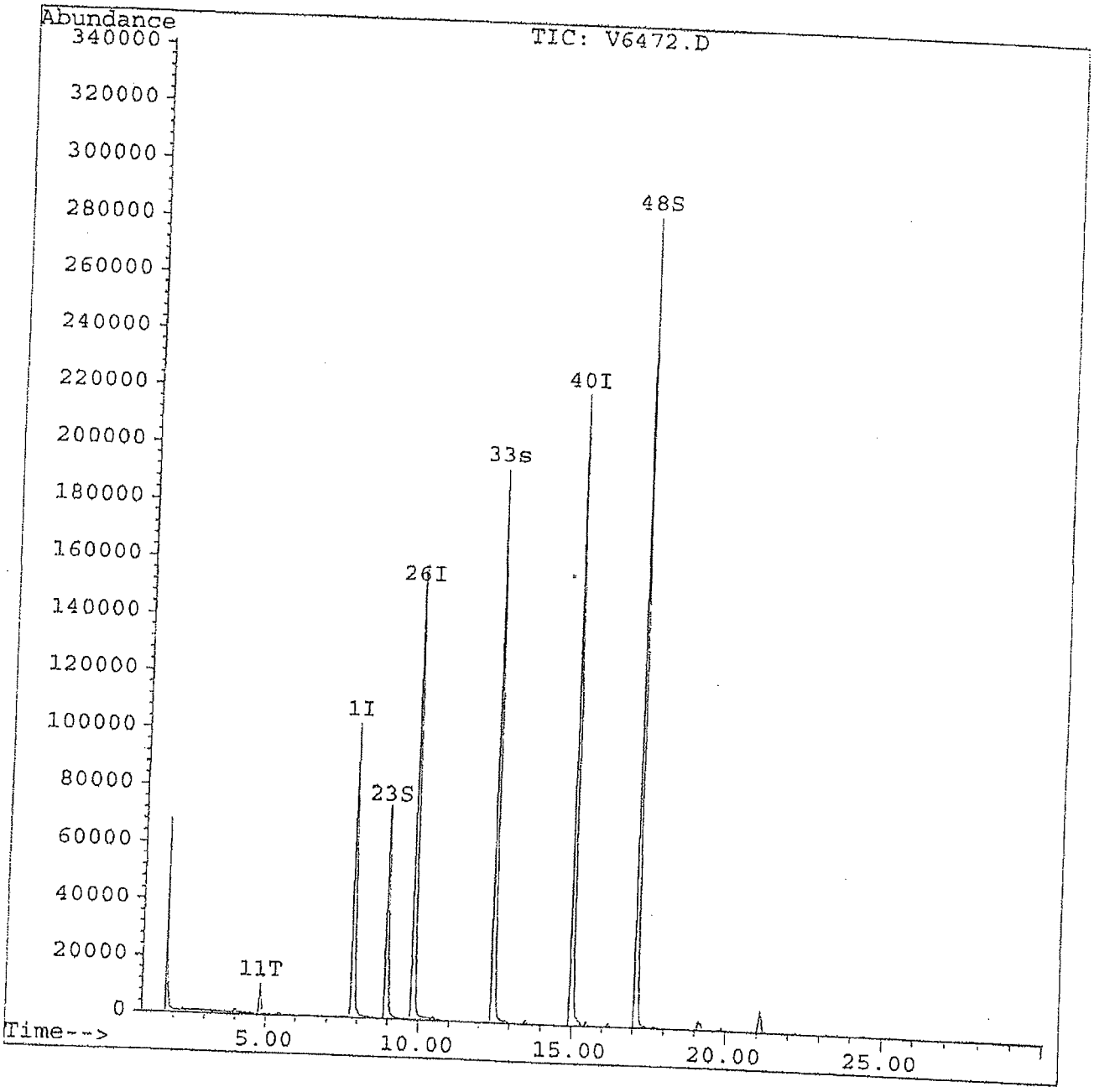
(#) = qualifier out of range (m) = manual integration

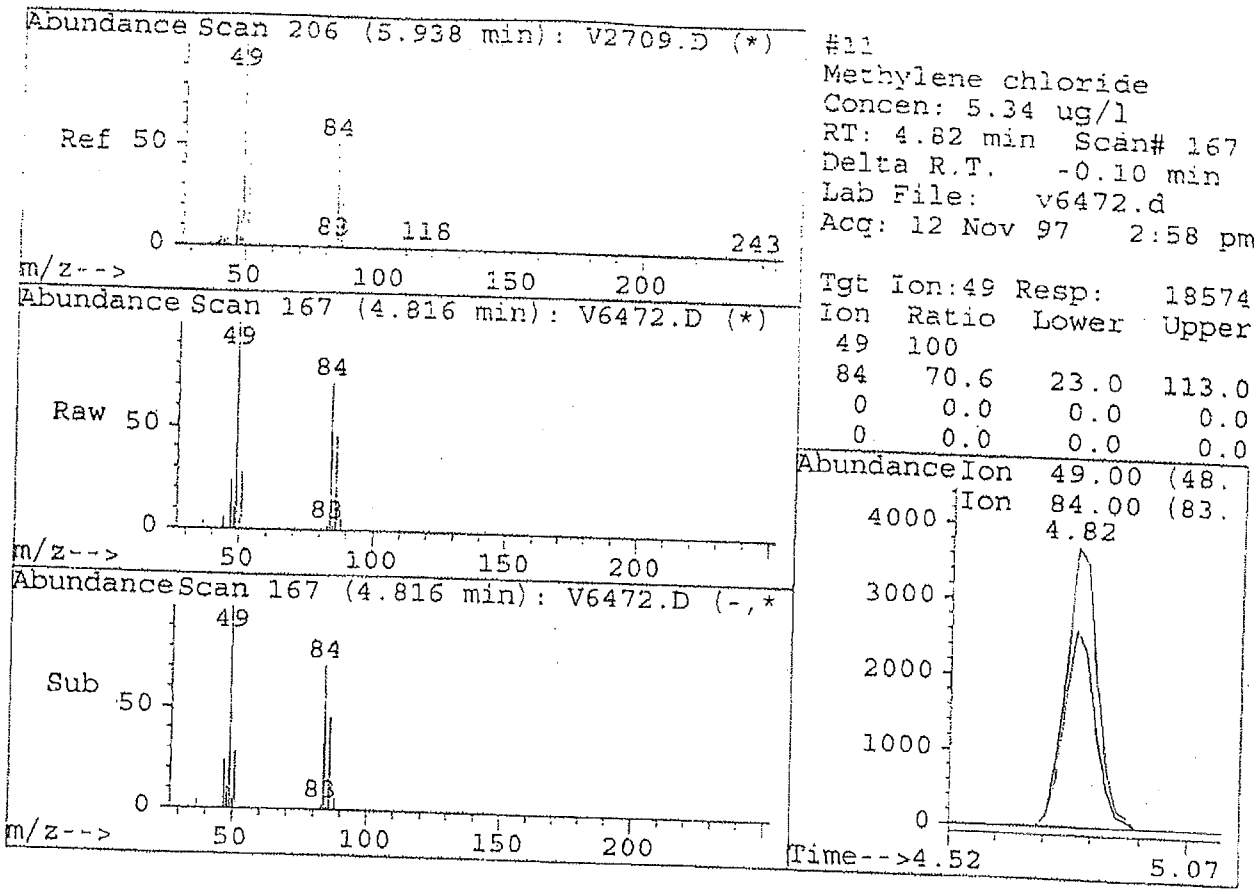
Quantitation Report

Data File : c:\hpchem\1\data2\v6472.d
Acq On : 12 Nov 97 2:58 pm
Sample : METHOD BLANK..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 12 15:48 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration




Abundance Scan 206 (5.938 min): V2709.D (*)
Ref
Abundance Scan 167 (4.816 min): V6472.D (*)
Raw
Abundance Scan 167 (4.816 min): V6472.D (-,*
Sub
m/z-->
49
84
83
118
243
50
100
150
200
0
#11
Methylene chloride
Concen: 5.34 ug/l
RT: 4.82 min Scan# 167
Delta R.T. -0.10 min
Lab File: v6472.d
Acq: 12 Nov 97 2:58 pm
Tgt Ion:49 Resp: 18574
Ion Ratio Lower Upper
49 100
84 70.6 23.0 113.0
0 0.0 0.0 0.0
0 0.0 0.0 0.0
Abundance
Ion 49.00 (48.
Ion 84.00 (83.
4.82
4000
3000
2000
1000
Time-->4.52
5.07

Library Search Compound Report

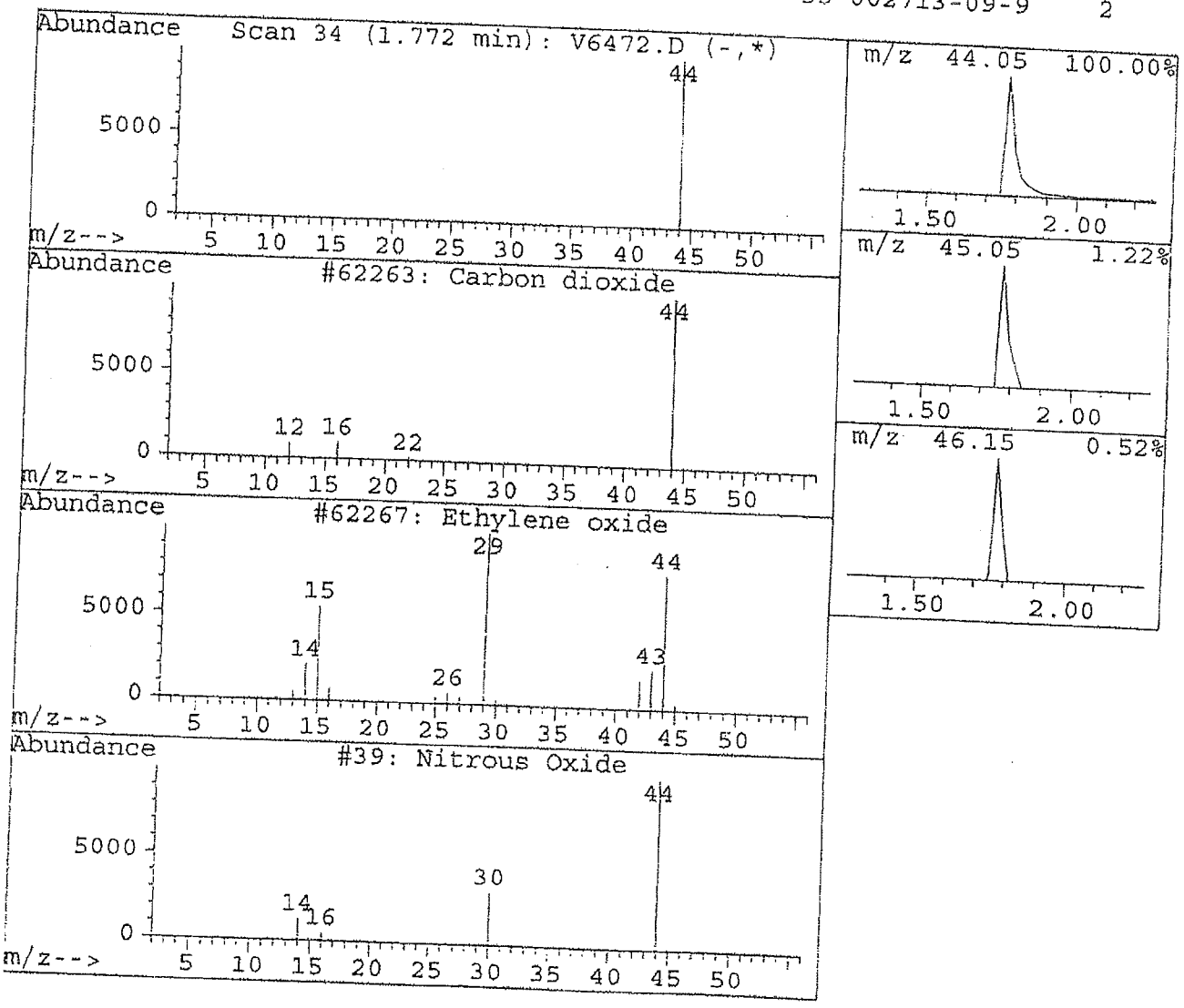
Data File : c:\hpchem\1\data2\v6472.d
Acq On : 12 Nov 97 2:58 pm
Sample : METHOD BLANK..... Converted from RTE d
Misc : 5 ML.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.77	13.97 ug/l	158554	Bromochloromethane	7.84

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	39	010024-97-2	3
4	Acetaldehyde	62264	000075-07-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



4A

VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Lab File ID: V8494.D Lab Sample ID: M.BLANK

Date Analyzed: 11/13/97 Time Analyzed: 1545

GC Column: HP-624 X 75M ID: 0.53 (mm) Heated Purge: (Y/N) Y

Instrument ID: 5970-AVOA

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	9782204V	9782204V	V8495.D	1622
02	9782203V	9782203V	V8496.D	1659
03	9781438V	9781438V	V8497.D	1736
04	9782199V	9782199V	V8498.D	1814
05	9782200V	9782200V	V8499.D	1851
06	9782201V	9782201V	V8500.D	1928
07	9782202V	9782202V	V8501.D	2006
08	9781433V	9781433V	V8502.D	2043
09	9781434V	9781434V	V8503.D	2120
10	9781435V	9781435V	V8504.D	2157
11	9781436V	9781436V	V8505.D	2235
12	9781437V	9781437V	V8506.D	2312
13	9782199MS	82199MS	V8507.D	2349
14	9782199MSD	82199MSD	V8508.D	0026
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COMMENTS:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

VBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: M.BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8494.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-09-2	Methylene chloride	7	B
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
156-60-65	trans-1,2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
108-38-3	Xylene (para & meta)	5	U
75-01-4	Xylene (ortho)	5	U
75-65-0	Methyl-tert butyl ether	5	U
1634-04-4	tert-Butyl Alcohol	25	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
VBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: M.BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V8494.D

Level: (low/med) LOW Date Received:

% Moisture: not dec. Date Analyzed: 11/13/97

GC Column: HP-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: 1 (uL) Soil Aliquot Volume: 1 (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
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Quantitation Report

Data File : c:\hpchem\1\data2\v8494.d
Acq On : 13 Nov 97 3:45 pm
Sample : METHOD BLANK..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 13 16:32 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	7.86	128	74877	50.00	ug/l	-0.07
26) 1,4-Difluorobenzene	9.83	114	316507	50.00	ug/l	-0.07
40) Chlorobenzene-d5	14.98	117	286746	50.00	ug/l	-0.08
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	8.96	65	173020	56.31	ug/l	112.62%
33) Toluene-d8	12.44	98	320367	51.35	ug/l	102.70%
48) 4-Bromofluorobenzene	17.11	95	222486	47.48	ug/l	94.96%
Target Compounds						Qvalue
11) Methylene chloride	4.84	49	23595	6.94	ug/l	91

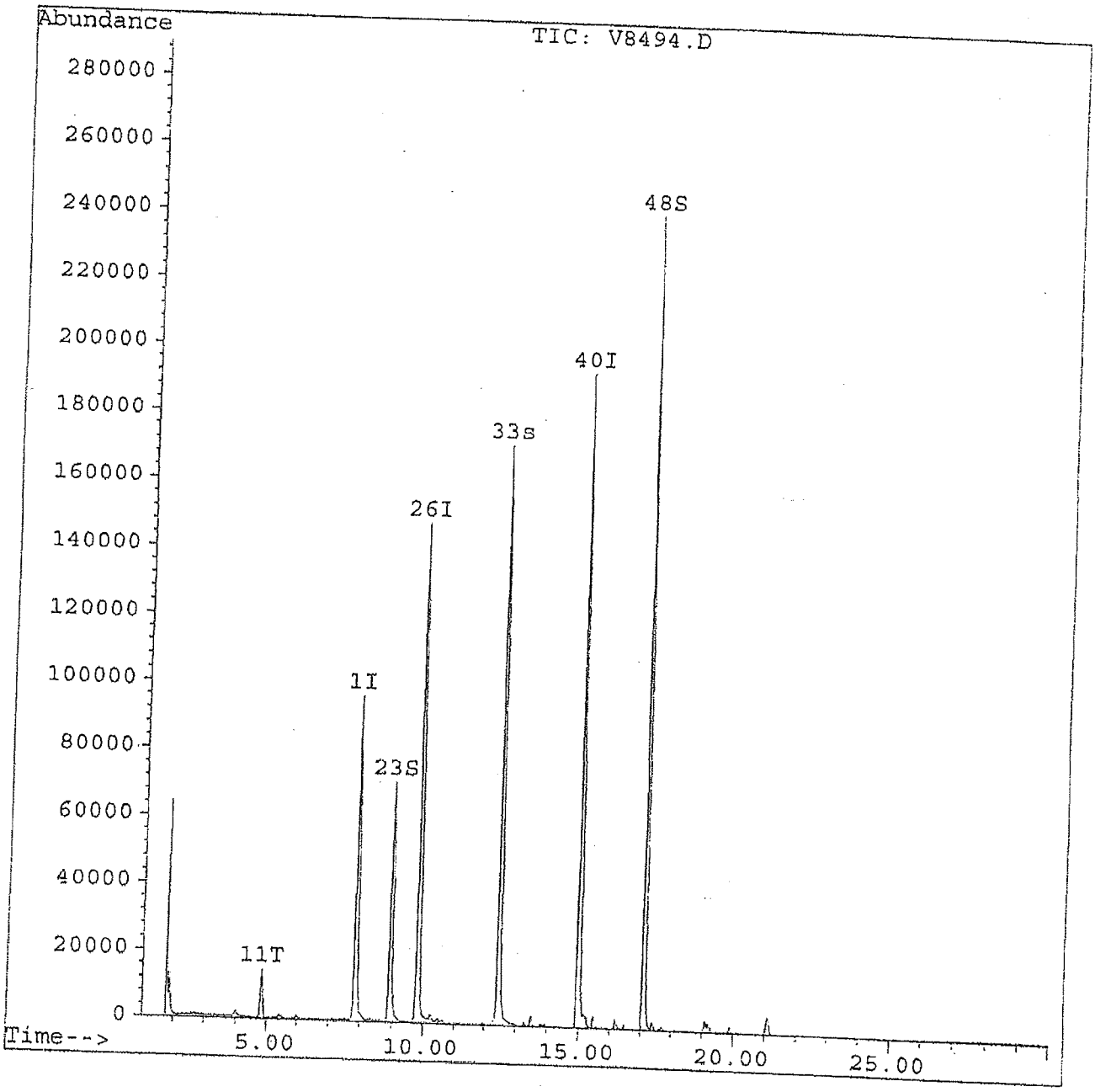
(#) = qualifier out of range (m) = manual integration

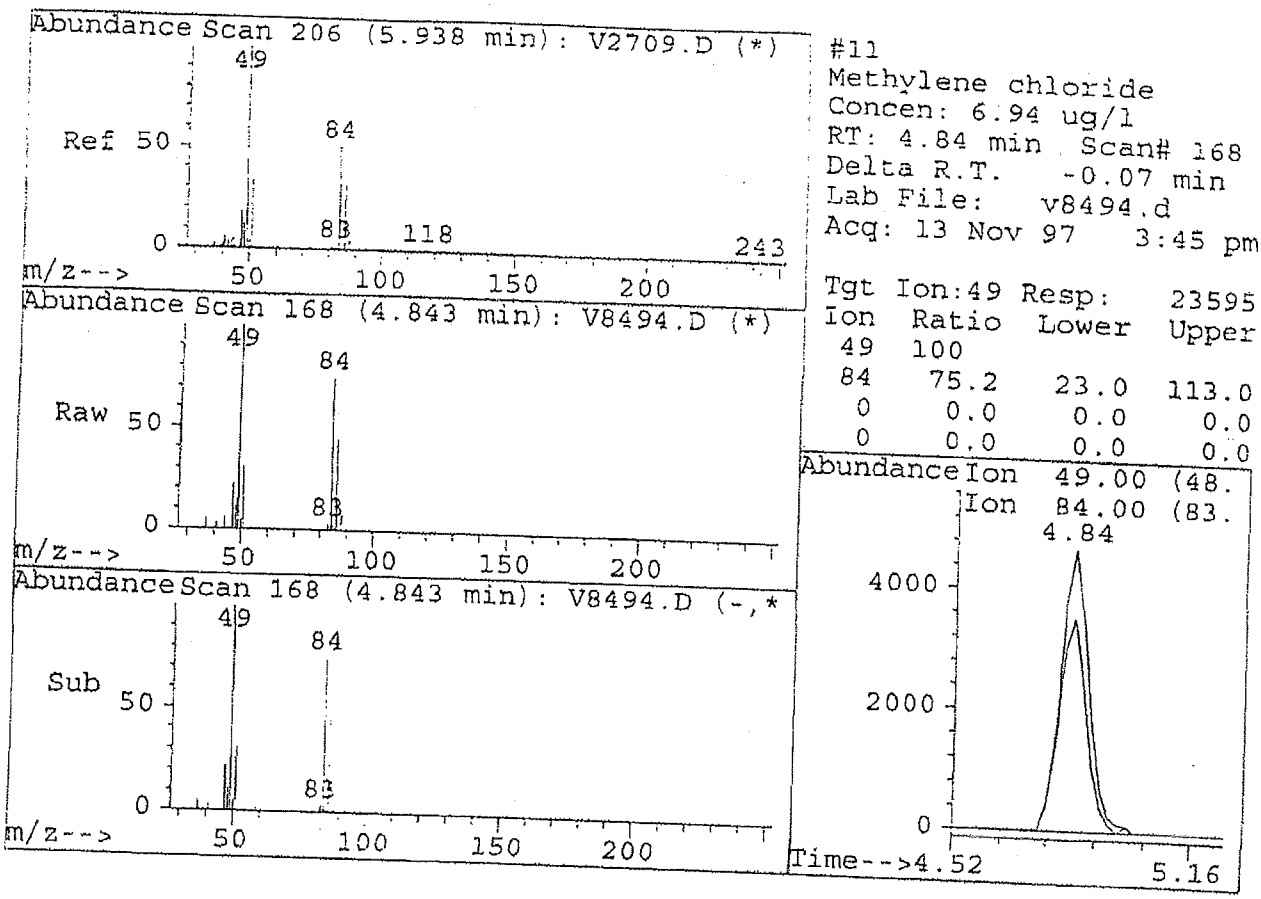
Quantitation Report

Data File : c:\hpchem\1\data2\v8494.d
Acq On : 13 Nov 97 3:45 pm
Sample : METHOD BLANK..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 13 16:32 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration





#11
Methylene chloride
Concen: 6.94 ug/l
RT: 4.84 min Scan# 168
Delta R.T. -0.07 min
Lab File: v8494.d
Acq: 13 Nov 97 3:45 pm

Tgt Ion:49 Resp: 23595

Ion	Ratio	Lower	Upper
49	100		
84	75.2	23.0	113.0
0	0.0	0.0	0.0
0	0.0	0.0	0.0

Library Search Compound Report

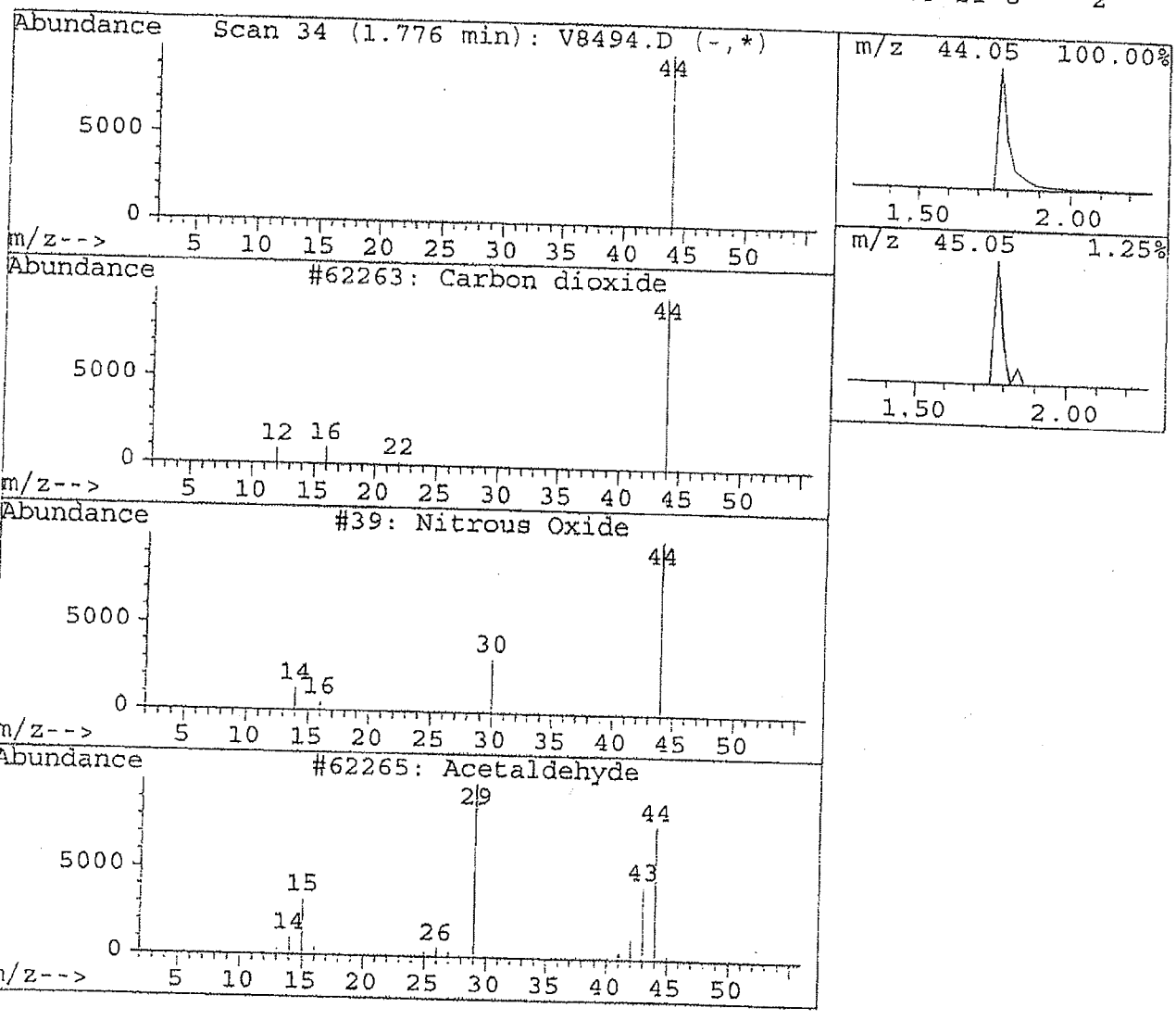
Data File : c:\hpchem\1\data2\v8494.d
Acq On : 13 Nov 97 3:45 pm
Sample : METHOD BLANK..... Converted from RTE d
Misc : 5 ML.....

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
1.78	13.27 ug/l	141403	Bromochloromethane	7.86

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	3
2	Nitrous Oxide	39	010024-97-2	3
3	Acetaldehyde	62265	000075-07-0	2
4	Ethyne, fluoro-	35	002713-09-9	2
5	Ethylene oxide	62267	000075-21-8	2



3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Nam EMSL ANALYTICAL Contract: _____

Date : 11/12/97 Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix Spike - Lab Sample 9778619V Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC. LIMITS REC.
1,1-Dichloroethe	50	0	41	81	59-172
Trichloroethene	50	0	44	88	62-137
Benzene	50	0	39	78	66-142
Toluene	50	0	42	84	59-139
Chlorobenzene	50	0	42	85	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD ONCENTRATI (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethe	50	46	91	12	22	59-172
Trichloroethene	50	52	104	17	24	62-137
Benzene	50	44	88	12	21	66-142
Toluene	50	50	99	16	21	59-139
Chlorobenzene	50	52	103	19	21	60-133

\# Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

Quantitation Report

Data File : c:\hpchem\1\data2\v6481.d
Acq On : 12 Nov 97 8:35 pm
Sample : 9778619 MS..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:53 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	7.85	128	65196	50.00	ug/l		-0.09
26) 1,4-Difluorobenzene	9.82	114	292527	50.00	ug/l		-0.09
40) Chlorobenzene-d5	14.97	117	248864	50.00	ug/l		-0.09
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	8.95	65	141847	53.02	ug/l		106.04%
33) Toluene-d8	12.43	98	270218	46.86	ug/l		93.73%
48) 4-Bromofluorobenzene	17.10	95	201705	49.60	ug/l		99.19%
Target Compounds							Qvalue
2) Chloromethane	2.19	50	39650	41.65	ug/l	m	97
3) Vinyl chloride	2.33	62	62626	41.82	ug/l	m	97
4) Bromomethane	2.72	94	21199	42.57	ug/l	m	95
5) Chloroethane	2.88	64	31987	43.22	ug/l		97
6) Trichlorofluoromethane	3.22	101	126394	40.68	ug/l		96
8) 1,1-Dichloroethene	3.98	61	137092	40.58	ug/l		98
9) Acetone	4.14	43	67291	52.34	ug/l		98
10) Carbon disulfide	4.30	76	229680	47.38	ug/l	m	100
11) Methylene chloride	4.82	49	138756	46.87	ug/l		97
12) Acrylonitrile	5.37	53	22755	40.67	ug/l		100
13) trans-1,2-Dichloroethene	5.37	61	125010	39.89	ug/l		89
14) Methyl-tert butyl ether	5.44	73	231910	41.84	ug/l		94
15) tert-Butyl Alcohol	5.28	59	65896	177.33	ug/l		100
16) 1,1-Dichloroethane	6.22	63	177174	41.40	ug/l		96
18) cis-1,2-Dichloroethene	7.39	61	136456	40.79	ug/l		97
19) 2-Butanone	7.53	43	66598	40.28	ug/l	m	98
20) Chloroform	8.05	83	169703	42.10	ug/l		99
21) 1,1,1-Trichloroethane	8.35	97	139850	42.40	ug/l		97
22) Carbon tetrachloride	8.65	117	152697	51.25	ug/l		91
24) Benzene	9.04	78	205909	39.00	ug/l		100
25) 1,2-Dichloroethane	9.08	62	165185	43.81	ug/l		99
27) Trichloroethene	10.25	130	106782	44.21	ug/l		96
28) 1,2-Dichloropropane	10.64	63	79742	41.68	ug/l		98
29) Bromodichloromethane	11.17	83	190455	45.40	ug/l		100
30) 2-Chloroethyl vinyl ether	11.79	63	50177	43.44	ug/l		100
31) trans-1,3-Dichloropropene	11.97	75	140075	41.90	ug/l		99
32) 4-Methyl-2-pentanone	12.31	43	104695	40.91	ug/l		97
34) Toluene	12.57	91	244636	41.79	ug/l		93
35) cis-1,3-Dichloropropene	12.98	75	149164	43.06	ug/l		100
36) 1,1,2-Trichloroethane	13.28	97	87221	44.89	ug/l		91
37) 2-Hexanone	13.80	43	79632	40.92	ug/l		91
38) Tetrachloroethene	13.51	166	127872	46.65	ug/l		83
39) Dibromochloromethane	13.96	129	169288	47.96	ug/l		97
41) Chlorobenzene	15.04	112	188255	42.40	ug/l		95

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v6481.d
Acq On : 12 Nov 97 8:35 pm
Sample : 9778619 MS..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:53 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
42) 1,1,1,2-Tetrachloroethane	15.18	131	112383	47.42	ug/l	98
43) Ethylbenzene	15.27	91	335683	45.41	ug/l	92
44) Xylene (para & meta)	15.48	91	604893	100.27	ug/l	99
45) Xylene (ortho)	16.19	91	301375	46.81	ug/l	95
46) Styrene	16.21	104	209864	45.06	ug/l	97
47) Bromoform	16.48	173	143502	48.98	ug/l	84
49) 1,1,2,2-Tetrachloroethane	17.40	83	148523	43.65	ug/l	92
50) 1,3-Dichlorobenzene	19.07	146	201274	43.24	ug/l	85
51) 1,4-Dichlorobenzene	19.23	146	228426	45.06	ug/l	96
52) 1,2-Dichlorobenzene	19.90	146	212004	44.70	ug/l	98

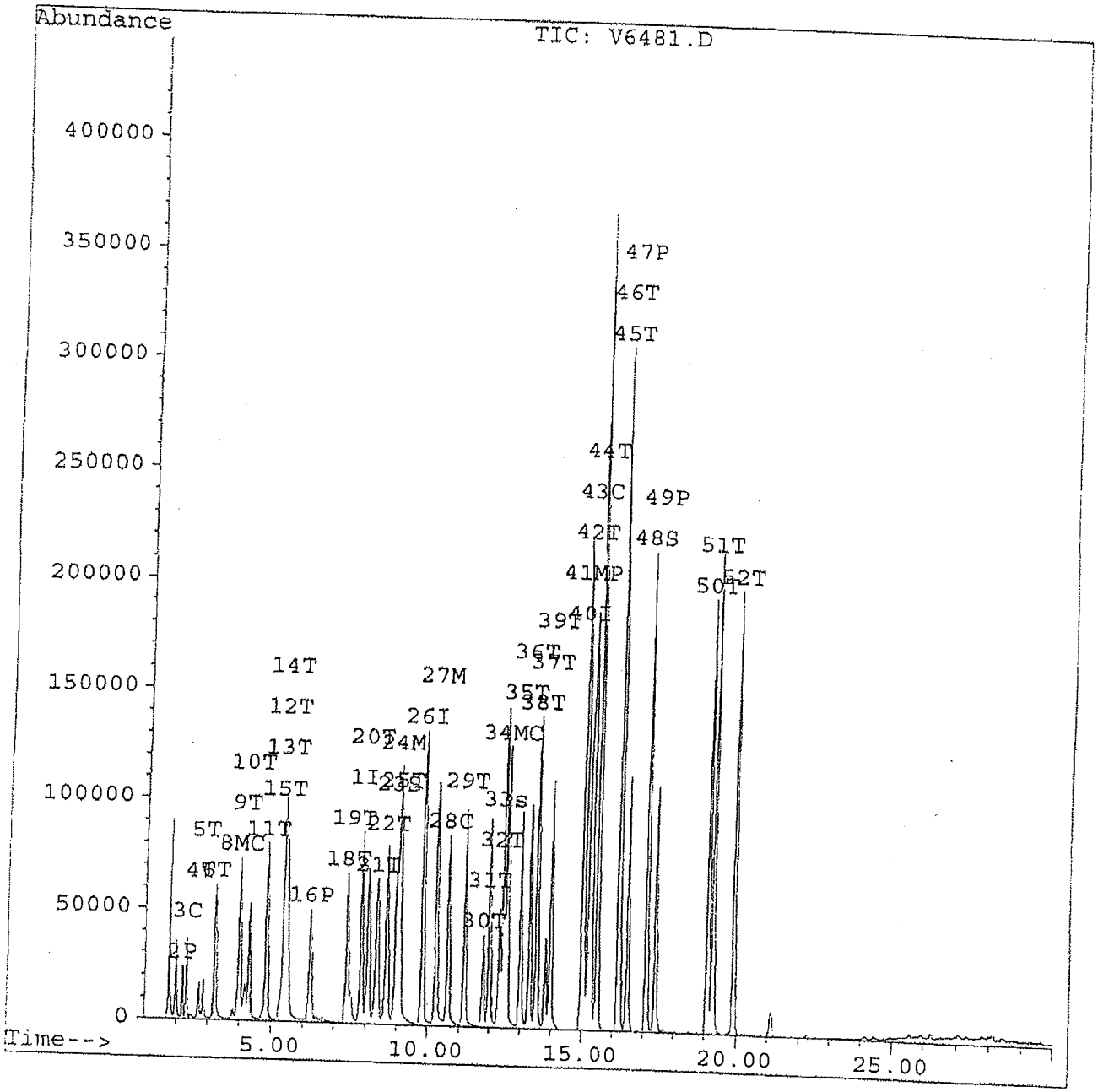
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v6481.d
Acq On : 12 Nov 97 8:35 pm
Sample : 9778619 MS..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:53 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\v6482.d
Acq On : 12 Nov 97 9:12 pm
Sample : 9778619 MSD..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:55 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	7.84	128	67594	50.00	ug/l		-0.09
26) 1,4-Difluorobenzene	9.81	114	295877	50.00	ug/l		-0.09
40) Chlorobenzene-d5	14.97	117	245032	50.00	ug/l		-0.09
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	143331	51.67	ug/l		103.35%
33) Toluene-d8	12.43	98	289442	49.63	ug/l		99.26%
48) 4-Bromofluorobenzene	17.10	95	214109	53.47	ug/l		106.94%
Target Compounds							Qvalue
2) Chloromethane	2.21	50	45483	46.08	ug/l	m	98
3) Vinyl chloride	2.33	62	61696	39.74	ug/l		100
4) Bromomethane	2.71	94	20725	40.14	ug/l		100
5) Chloroethane	2.87	64	31632	41.22	ug/l		92
6) Trichlorofluoromethane	3.22	101	141506	43.93	ug/l		95
8) 1,1-Dichloroethene	3.97	61	159651	45.58	ug/l		93
9) Acetone	4.13	43	74267	55.71	ug/l	m	99
10) Carbon disulfide	4.29	76	209630	41.71	ug/l		100
11) Methylene chloride	4.82	49	159861	52.09	ug/l		99
12) Acrylonitrile	5.37	53	31621	54.51	ug/l		100
13) trans-1,2-Dichloroethene	5.37	61	150511	46.33	ug/l		97
14) Methyl-tert butyl ether	5.44	73	276066	48.03	ug/l		96
15) tert-Butyl Alcohol	5.30	59	95998	249.17	ug/l		100
16) 1,1-Dichloroethane	6.22	63	200709	45.23	ug/l		96
18) cis-1,2-Dichloroethene	7.39	61	153444	44.24	ug/l		91
19) 2-Butanone	7.52	43	77060	44.95	ug/l		99
20) Chloroform	8.05	83	194365	46.51	ug/l		88
21) 1,1,1-Trichloroethane	8.35	97	157654	46.10	ug/l		91
22) Carbon tetrachloride	8.67	117	161191	52.18	ug/l		98
24) Benzene	9.04	78	242181	44.24	ug/l		100
25) 1,2-Dichloroethane	9.10	62	192285	49.19	ug/l		94
27) Trichloroethene	10.25	130	126978	51.98	ug/l		95
28) 1,2-Dichloropropane	10.64	63	95022	49.10	ug/l		99
29) Bromodichloromethane	11.17	83	217000	51.14	ug/l		92
30) 2-Chloroethyl vinyl ether	11.76	63	61310	52.48	ug/l		98
31) trans-1,3-Dichloropropene	11.97	75	161408	47.73	ug/l		100
32) 4-Methyl-2-pentanone	12.31	43	142707	55.13	ug/l	m	43
34) Toluene	12.54	91	293131	49.51	ug/l		96
35) cis-1,3-Dichloropropene	12.98	75	167429	47.79	ug/l		97
36) 1,1,2-Trichloroethane	13.27	97	104105	52.97	ug/l		86
37) 2-Hexanone	13.80	43	106604	54.16	ug/l		93
38) Tetrachloroethene	13.50	166	146123	52.70	ug/l		85
39) Dibromochloromethane	13.96	129	192330	53.87	ug/l		92
41) Chlorobenzene	15.01	112	225910	51.67	ug/l		99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v6482.d
Acq On : 12 Nov 97 9:12 pm
Sample : 9778619 MSD..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:55 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
42) 1,1,1,2-Tetrachloroethane	15.20	131	127930	54.83	ug/l	100
43) Ethylbenzene	15.27	91	387572	53.25	ug/l	98
44) Xylene (para & meta)	15.47	91	675222	113.68	ug/l	99
45) Xylene (ortho)	16.18	91	354397	55.90	ug/l	93
46) Styrene	16.21	104	247270	53.92	ug/l	96
47) Bromoform	16.48	173	171381	59.41	ug/l	94
49) 1,1,2,2-Tetrachloroethane	17.40	83	191609	57.19	ug/l	99
50) 1,3-Dichlorobenzene	19.07	146	254973	55.63	ug/l	98
51) 1,4-Dichlorobenzene	19.23	146	271871	54.47	ug/l	98
52) 1,2-Dichlorobenzene	19.89	146	262301	56.17	ug/l	98

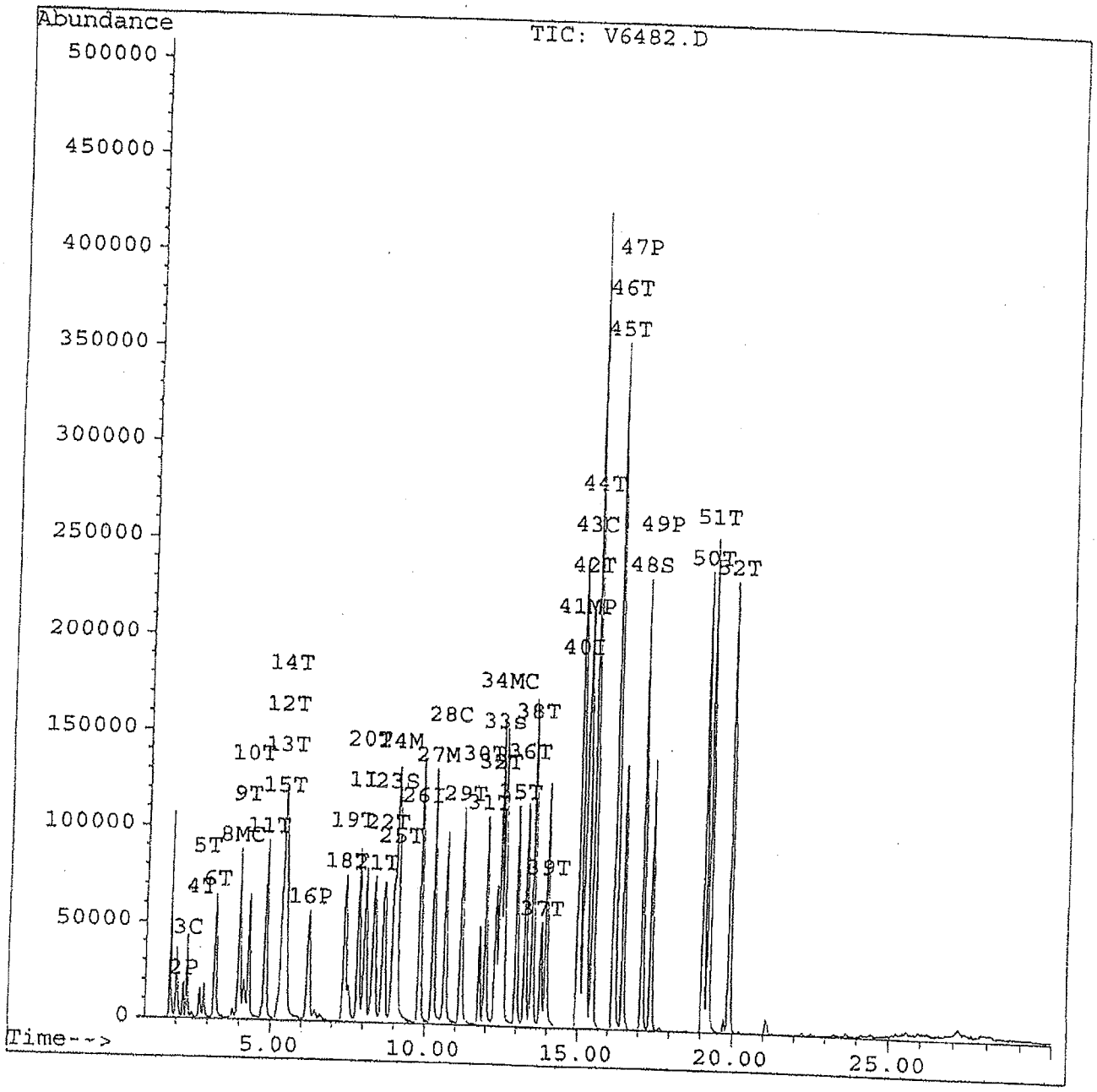
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v6482.d
Acq On : 12 Nov 97 9:12 pm
Sample : 9778619 MSD..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 13 9:55 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\v6483.d
Acq On : 12 Nov 97 9:49 pm
Sample : 20 LCS..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 13 9:56 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	7.84	128	82787	50.00	ug/l		-0.09
26) 1,4-Difluorobenzene	9.81	114	356142	50.00	ug/l		-0.09
40) Chlorobenzene-d5	14.97	117	320523	50.00	ug/l		-0.09
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	8.94	65	177856	52.35	ug/l		104.71%
33) Toluene-d8	12.42	98	344311	49.05	ug/l		98.09%
48) 4-Bromofluorobenzene	17.10	95	259333	49.51	ug/l		99.02%
Target Compounds							Qvalue
2) Chloromethane	2.21	50	18688	15.46	ug/l		95
3) Vinyl chloride	2.33	62	29315	15.42	ug/l		99
4) Bromomethane	2.71	94	12567	19.87	ug/l	m	98
5) Chloroethane	2.87	64	18534	19.72	ug/l	m	96
6) Trichlorofluoromethane	3.22	101	65297	16.55	ug/l		99
8) 1,1-Dichloroethene	3.97	61	80239	18.70	ug/l		91
9) Acetone	4.13	43	32472	19.89	ug/l		95
10) Carbon disulfide	4.29	76	105554	17.15	ug/l		100
11) Methylene chloride	4.84	49	82692	22.00	ug/l		95
12) Acrylonitrile	5.37	53	14582	20.52	ug/l		100
13) trans-1,2-Dichloroethene	5.37	61	72580	18.24	ug/l		96
14) Methyl-tert butyl ether	5.44	73	135711	19.28	ug/l		96
15) tert-Butyl Alcohol	5.30	59	13076	27.71	ug/l		100
16) 1,1-Dichloroethane	6.22	63	99208	18.26	ug/l		97
18) cis-1,2-Dichloroethene	7.38	61	76694	18.06	ug/l		100
19) 2-Butanone	7.52	43	40368	19.23	ug/l		98
20) Chloroform	8.05	83	97976	19.14	ug/l		86
21) 1,1,1-Trichloroethane	8.35	97	74077	17.69	ug/l		95
22) Carbon tetrachloride	8.64	117	70288	18.58	ug/l		99
24) Benzene	9.03	78	119880	17.88	ug/l		100
25) 1,2-Dichloroethane	9.10	62	98160	20.50	ug/l		100
27) Trichloroethene	10.25	130	57965	19.71	ug/l		93
28) 1,2-Dichloropropane	10.64	63	48497	20.82	ug/l		99
29) Bromodichloromethane	11.16	83	107995	21.14	ug/l		94
30) 2-Chloroethyl vinyl ether	11.78	63	30608	21.77	ug/l		97
31) trans-1,3-Dichloropropene	11.96	75	77565	19.06	ug/l		95
32) 4-Methyl-2-pentanone	12.31	43	66780	21.43	ug/l		94
34) Toluene	12.54	91	143355	20.12	ug/l		95
35) cis-1,3-Dichloropropene	12.97	75	79443	18.84	ug/l		97
36) 1,1,2-Trichloroethane	13.29	97	53033	22.42	ug/l		93
37) 2-Hexanone	13.80	43	52476	22.15	ug/l		98
38) Tetrachloroethene	13.50	166	73117	21.91	ug/l		84
39) Dibromochloromethane	13.96	129	97726	22.74	ug/l		98
41) Chlorobenzene	15.03	112	115493	20.19	ug/l		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v6483.d
Acq On : 12 Nov 97 9:49 pm
Sample : 20 LCS..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 13 9:56 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
42) 1,1,1,2-Tetrachloroethane	15.19	131	65342	21.41	ug/l	92
43) Ethylbenzene	15.26	91	189582	19.91	ug/l	98
44) Xylene (para & meta)	15.47	91	325559	41.90	ug/l	96
45) Xylene (ortho)	16.18	91	174132	21.00	ug/l	95
46) Styrene	16.20	104	108195	18.04	ug/l	98
47) Bromoform	16.48	173	88137	23.36	ug/l	91
49) 1,1,2,2-Tetrachloroethane	17.39	83	93902	21.43	ug/l	95
50) 1,3-Dichlorobenzene	19.06	146	124423	20.75	ug/l	84
51) 1,4-Dichlorobenzene	19.22	146	134669	20.63	ug/l	100
52) 1,2-Dichlorobenzene	19.89	146	128730	21.08	ug/l	100

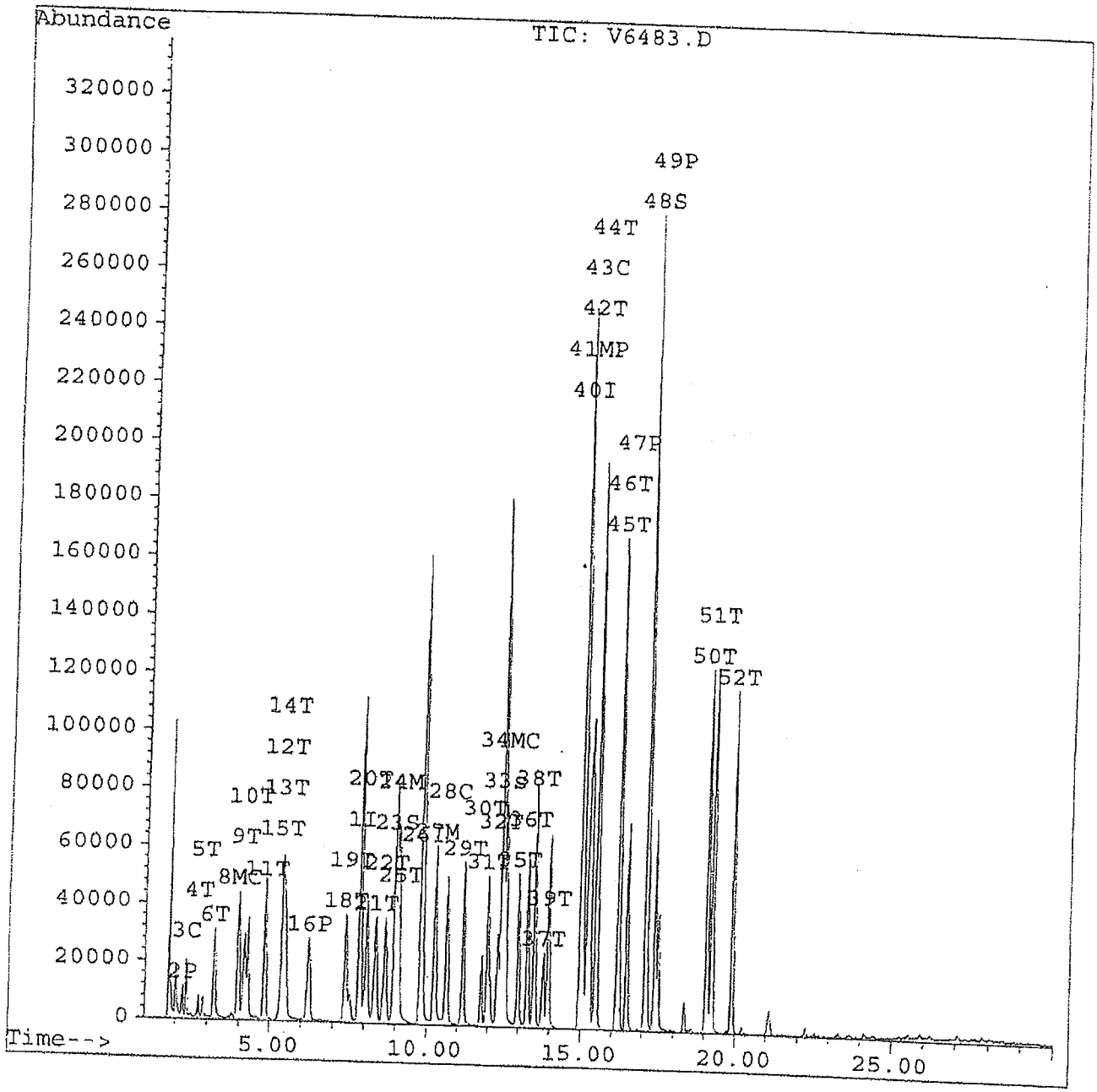
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v6483.d
Acq On : 12 Nov 97 9:49 pm
Sample : 20 LCS..... Converted from RTE d
Misc : 5 ML.....
Quant Time: Nov 13 9:56 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration



3B

SOIL VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Nam EMSL ANALYTICAL Contract: _____

Date : 11/13/97 Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix Spike - Lab Sample 9782199V Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC	QC. LIMITS REC.
1,1-Dichloroethe	50	0	41	83	59-172
Trichloroethene	50	0	42	84	62-137
Benzene	50	0	41	83	66-142
Toluene	50	0	45	91	59-139
Chlorobenzene	50	0	43	86	60-133

COMPOUND	SPIKE ADDED (ug/Kg)	MSD ONCENTRATI (ug/Kg)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC.
1,1-Dichloroethe	50	43	86	4	22	59-172
Trichloroethene	50	49	97	14	24	62-137
Benzene	50	43	87	5	21	66-142
Toluene	50	49	97	6	21	59-139
Chlorobenzene	50	51	101	16	21	60-133

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits
Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

Quantitation Report

Data File : c:\hpchem\1\data2\v8507.d
Acq On : 13 Nov 97 11:49 pm
Sample : 9782199 MS..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:09 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	7.84	128	65468	50.00	ug/l		-0.09
26) 1,4-Difluorobenzene	9.81	114	282411	50.00	ug/l		-0.09
40) Chlorobenzene-d5	14.99	117	229606	50.00	ug/l		-0.07
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	8.97	65	140054	52.13	ug/l		104.26%
33) Toluene-d8	12.45	98	259437	46.61	ug/l		93.21%
48) 4-Bromofluorobenzene	17.10	95	174955	46.63	ug/l		93.25%
Target Compounds							Qvalue
2) Chloromethane	2.21	50	41858	43.78	ug/l	m	98
3) Vinyl chloride	2.32	62	56504	37.58	ug/l	m	99
4) Bromomethane	2.74	94	18868	37.73	ug/l	m	99
5) Chloroethane	2.87	64	31289	42.10	ug/l		95
6) Trichlorofluoromethane	3.24	101	136332	43.70	ug/l		99
8) 1,1-Dichloroethene	4.00	61	140539	41.42	ug/l		93
9) Acetone	4.16	43	70588	54.67	ug/l		96
10) Carbon disulfide	4.29	76	224696	46.16	ug/l	m	100
11) Methylene chloride	4.84	49	142473	47.93	ug/l		88
12) Acrylonitrile	5.37	53	27931	49.71	ug/l		100
13) trans-1,2-Dichloroethene	5.37	61	122709	39.00	ug/l		92
14) Methyl-tert butyl ether	5.46	73	253223	45.49	ug/l		98
15) tert-Butyl Alcohol	5.30	59	95129	254.93	ug/l		100
16) 1,1-Dichloroethane	6.22	63	186772	43.46	ug/l		97
18) cis-1,2-Dichloroethene	7.41	61	143212	42.63	ug/l		98
19) 2-Butanone	7.55	43	76664	46.17	ug/l		98
20) Chloroform	8.07	83	184385	45.55	ug/l		91
21) 1,1,1-Trichloroethane	8.35	97	152109	45.92	ug/l		98
22) Carbon tetrachloride	8.64	117	170373	56.94	ug/l		98
24) Benzene	9.03	78	218721	41.25	ug/l		100
25) 1,2-Dichloroethane	9.10	62	174993	46.22	ug/l		98
27) Trichloroethene	10.25	130	97359	41.75	ug/l		98
28) 1,2-Dichloropropane	10.66	63	81156	43.94	ug/l		97
29) Bromodichloromethane	11.16	83	195472	48.26	ug/l		94
30) 2-Chloroethyl vinyl ether	11.78	63	57691	51.74	ug/l		99
31) trans-1,3-Dichloropropene	11.99	75	134798	41.76	ug/l		99
32) 4-Methyl-2-pentanone	12.31	43	123254	49.89	ug/l		98
34) Toluene	12.56	91	256627	45.41	ug/l		98
35) cis-1,3-Dichloropropene	13.00	75	137034	40.98	ug/l		100
36) 1,1,2-Trichloroethane	13.29	97	87152	46.46	ug/l		95
37) 2-Hexanone	13.80	43	83856	44.63	ug/l		93
38) Tetrachloroethene	13.52	166	121778	46.02	ug/l		87
39) Dibromochloromethane	13.96	129	173177	50.82	ug/l		98
41) Chlorobenzene	15.04	112	175546	42.85	ug/l		94

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v8507.d
Acq On : 13 Nov 97 11:49 pm
Sample : 9782199 MS..... Converted from RTE d
Misc : 5 G,.....
Quant Time: Nov 14 9:09 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
42) 1,1,1,2-Tetrachloroethane	15.20	131	114635	52.43	ug/l	94
43) Ethylbenzene	15.26	91	319149	46.79	ug/l	98
44) Xylene (para & meta)	15.49	91	576519	103.58	ug/l	96
45) Xylene (ortho)	16.18	91	290282	48.87	ug/l	96
46) Styrene	16.20	104	187679	43.68	ug/l	94
47) Bromoform	16.48	173	155218	57.42	ug/l	88
49) 1,1,2,2-Tetrachloroethane	17.39	83	168050	53.53	ug/l	94
50) 1,3-Dichlorobenzene	19.07	146	178463	41.55	ug/l	98
51) 1,4-Dichlorobenzene	19.23	146	193744	41.43	ug/l	96
52) 1,2-Dichlorobenzene	19.89	146	197627	45.17	ug/l	98

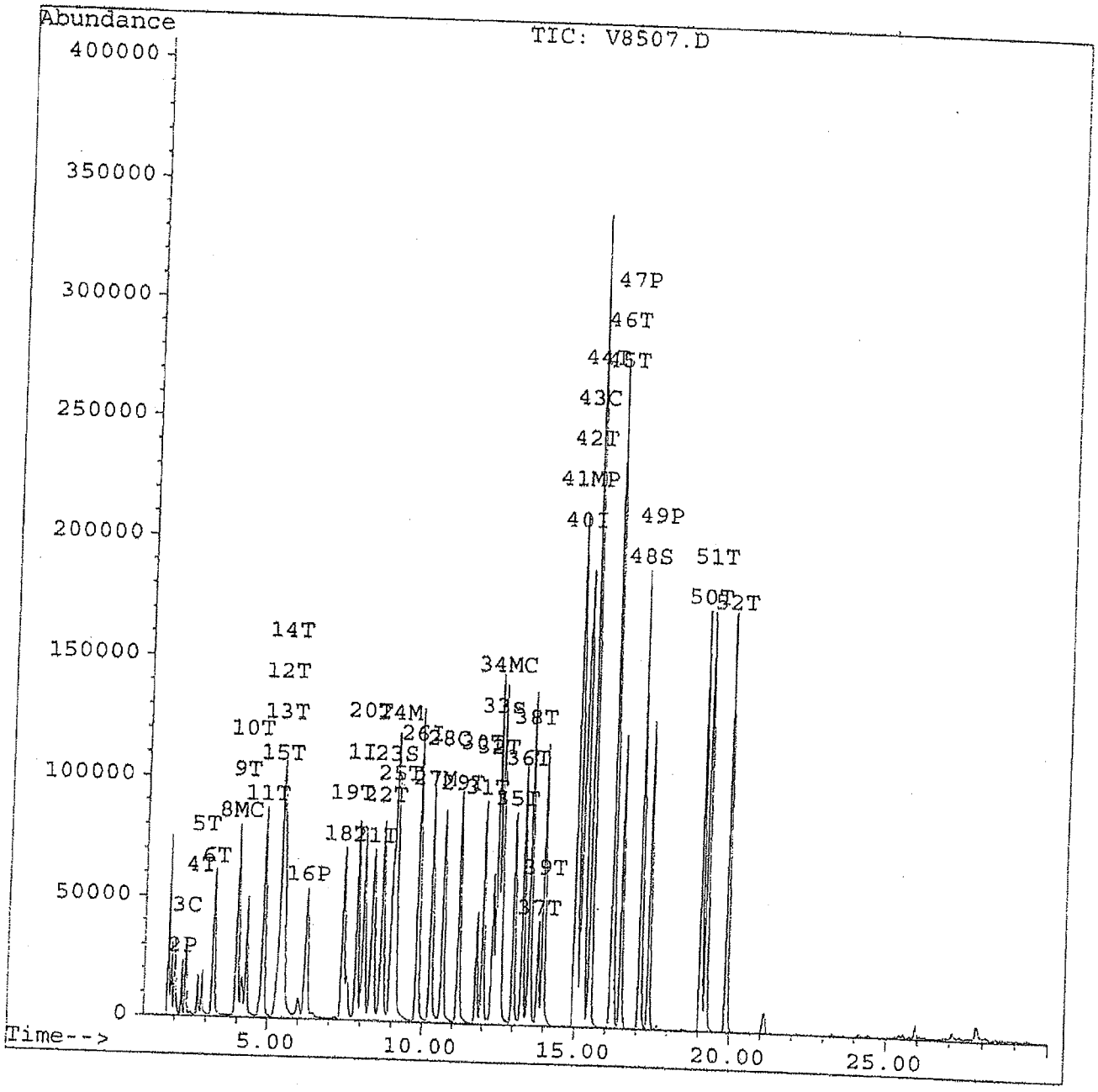
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v8507.d
Acq On : 13 Nov 97 11:49 pm
Sample : 9782199 MS..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:09 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\v8508.d
Acq On : 14 Nov 97 12:26 am
Sample : 9782199 MSD..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:10 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	7.84	128	68148	50.00	ug/l		-0.09
26) 1,4-Difluorobenzene	9.84	114	287007	50.00	ug/l		-0.07
40) Chlorobenzene-d5	14.99	117	219201	50.00	ug/l		-0.07
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	8.97	65	143909	51.46	ug/l		102.92%
33) Toluene-d8	12.45	98	266714	47.15	ug/l		94.29%
48) 4-Bromofluorobenzene	17.10	95	169900	47.43	ug/l		94.86%
Target Compounds							Qvalue
2) Chloromethane	2.21	50	46743	46.97	ug/l	m	96
3) Vinyl chloride	2.32	62	61634	39.38	ug/l		99
4) Bromomethane	2.74	94	19827	38.09	ug/l		100
5) Chloroethane	2.87	64	32618	42.16	ug/l		92
6) Trichlorofluoromethane	3.24	101	139580	42.98	ug/l		96
8) 1,1-Dichloroethene	4.00	61	151640	42.94	ug/l		93
9) Acetone	4.16	43	72992	54.31	ug/l		97
10) Carbon disulfide	4.29	76	245811	48.51	ug/l	m	100
11) Methylene chloride	4.84	49	165435	53.46	ug/l		97
12) Acrylonitrile	5.37	53	30574	52.28	ug/l		100
13) trans-1,2-Dichloroethene	5.37	61	136147	41.56	ug/l		94
14) Methyl-tert butyl ether	5.46	73	296185	51.12	ug/l		98
15) tert-Butyl Alcohol	5.32	59	111791	287.80	ug/l		100
16) 1,1-Dichloroethane	6.22	63	208443	46.59	ug/l		96
18) cis-1,2-Dichloroethene	7.41	61	156858	44.86	ug/l		93
19) 2-Butanone	7.54	43	78056	45.16	ug/l		100
20) Chloroform	8.07	83	206040	48.90	ug/l		88
21) 1,1,1-Trichloroethane	8.35	97	155228	45.02	ug/l		97
22) Carbon tetrachloride	8.64	117	183893	59.04	ug/l		96
24) Benzene	9.06	78	238713	43.25	ug/l		100
25) 1,2-Dichloroethane	9.10	62	200042	50.75	ug/l		95
27) Trichloroethene	10.27	130	115092	48.57	ug/l		98
28) 1,2-Dichloropropane	10.66	63	96643	51.48	ug/l		98
29) Bromodichloromethane	11.19	83	218519	53.09	ug/l		98
30) 2-Chloroethyl vinyl ether	11.78	63	61103	53.92	ug/l		99
31) trans-1,3-Dichloropropene	11.99	75	143810	43.84	ug/l		98
32) 4-Methyl-2-pentanone	12.31	43	144602	57.59	ug/l		96
34) Toluene	12.56	91	279844	48.73	ug/l		95
35) cis-1,3-Dichloropropene	13.00	75	149135	43.88	ug/l		97
36) 1,1,2-Trichloroethane	13.29	97	103823	54.46	ug/l		92
37) 2-Hexanone	13.80	43	98799	51.74	ug/l		91
38) Tetrachloroethene	13.52	166	118614	44.10	ug/l		88
39) Dibromochloromethane	13.96	129	190490	55.01	ug/l		95
41) Chlorobenzene	15.04	112	197958	50.61	ug/l		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v8508.d
Acq On : 14 Nov 97 12:26 am
Sample : 9782199 MSD..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:10 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
42) 1,1,1,2-Tetrachloroethane	15.20	131	128144	61.39	ug/l		94
43) Ethylbenzene	15.26	91	333918	51.28	ug/l		97
44) Xylene (para & meta)	15.49	91	588767	110.80	ug/l		94
45) Xylene (ortho)	16.18	91	299267	52.77	ug/l		86
46) Styrene	16.20	104	200946	48.98	ug/l		100
47) Bromoform	16.48	173	157161	60.90	ug/l	m	91
49) 1,1,2,2-Tetrachloroethane	17.39	83	180542	60.24	ug/l		94
50) 1,3-Dichlorobenzene	19.07	146	172243	42.01	ug/l		94
51) 1,4-Dichlorobenzene	19.23	146	187455	41.98	ug/l		100
52) 1,2-Dichlorobenzene	19.91	146	190751	45.66	ug/l		96

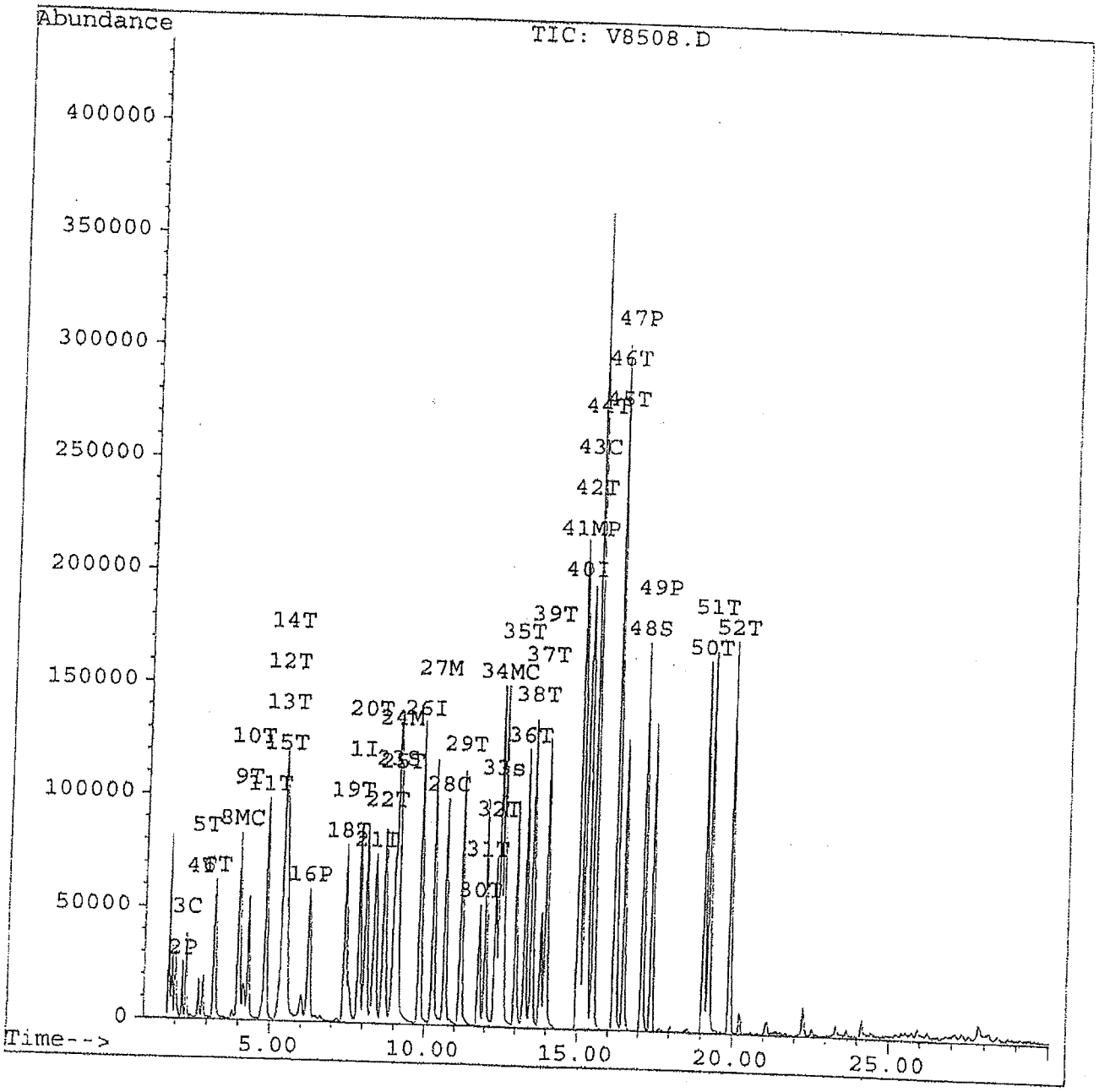
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\v8508.d
Acq On : 14 Nov 97 12:26 am
Sample : 9782199 MSD..... Converted from RTE d
Misc : 5 G.....
Quant Time: Nov 14 9:10 1997

Vial: 0
Operator: SCOTTK
Inst : AVOA
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\8240H.M
Title : VOA Standards for 5 point calibration
Last Update : Fri Oct 24 13:40:20 1997
Response via : Multiple Level Calibration



EMSL

GC/MS SEMIVOLATILE DATA PACKAGE

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

273

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: B6562.D DFTPP Injection Date: 9/29/97

Instrument ID: ABNA DFTPP Injection Time: 1114

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	37.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	77.9
70	Less than 2.0% of mass 69	0.3 (0.4)1
127	25.0 - 75.0% of mass 198	44.0
197	Less than 1.0% of mass 198	0.8
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	19.6
365	Greater than 0.75% of mass 198	3.5
441	Present, but less than mass 443	11.4
442	40.0 - 110.0% of mass 198	80.6
443	15.0 - 24.0% of mass 442	16.2 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

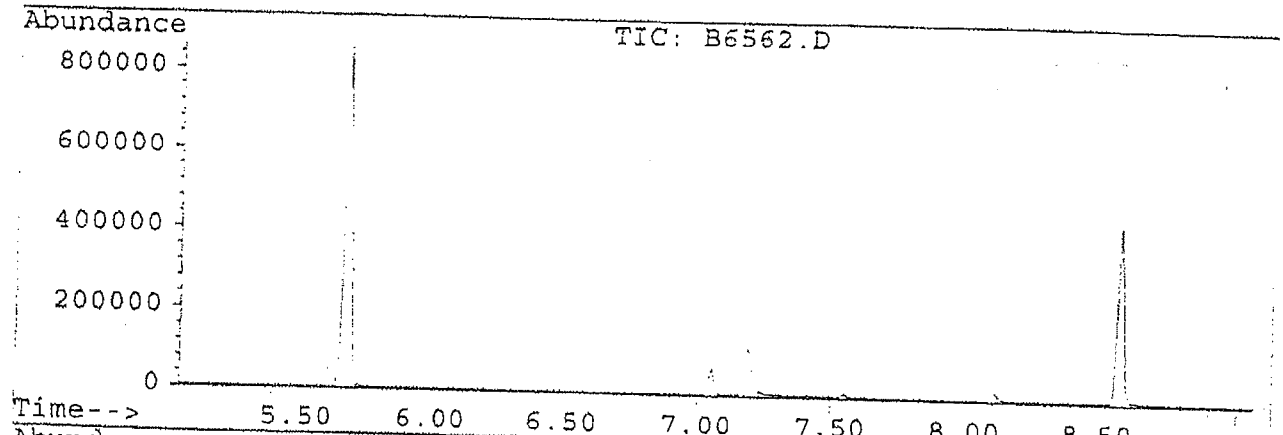
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 STD	B6563.D	9/29/97	1133
02	SSTD020	20 STD	B6564.D	9/29/97	1225
03	SSTD050	50 STD	B6565.D	9/29/97	1316
04	SSTD080	80 STD	B6566.D	9/29/97	1408
05	SSTD120	120 STD	B6567.D	9/29/97	1459
06	SSTD160	160 STD	B6568.D	9/29/97	1642
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

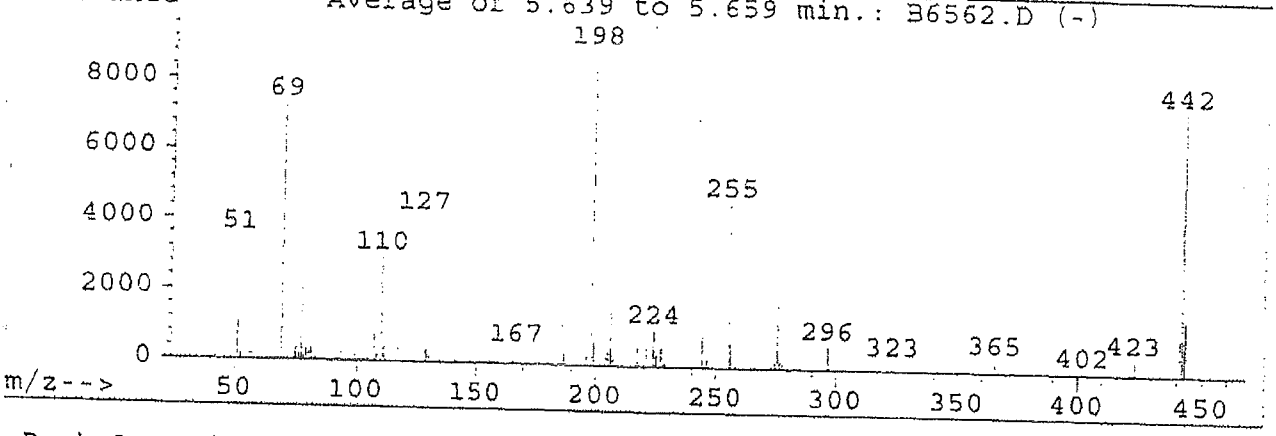
DFTPP

Data File : C:\HPCHEM\1\DATA2\B6562.D
Acq On : 29 Sep 97 11:14 am
Sample : DFTPP.....
Misc : Converted from RTE d

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration





Peak Apex is scan: 407

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	37.1	3466	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	77.9	7286	PASS
70	69	0	2	0.4	26	PASS
127	198	40	60	44.0	4113	PASS
197	198	0	1	0.8	78	PASS
198	198	100	100	100.0	9354	PASS
199	198	5	9	7.2	670	PASS
275	198	10	30	19.6	1829	PASS
365	198	1	100	3.5	328	PASS
441	443	0	100	70.5	1071	PASS
442	198	40	100	80.6	7538	PASS
443	442	17	23	20.2	1520	PASS

B6562.D BNACLP.M Tue Sep 30 15:43:00 1997 BNA

verage of 5.639 to 5.659 min.: B6562.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
37.75	8	51.75	5	62.05	22	75.00	705
39.05	254	52.05	173	62.85	7	76.05	159
40.10	48	53.05	25	63.05	249	77.05	2275
41.65	12	54.90	42	66.45	8	78.05	165
42.20	33	56.05	208	67.10	49	79.05	307
46.05	16	56.85	13	69.05	7286	80.05	255
47.75	16	57.05	444	69.75	17	80.55	5
48.55	29	58.10	21	70.05	26	81.05	401
49.75	12	60.15	10	70.55	11	81.95	76
50.05	1084	61.05	94	73.35	20	83.05	82
51.05	3466	61.35	8	74.05	262	85.05	72

verage of 5.639 to 5.659 min.: B6562.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
86.00	95	94.45	4	103.05	97	111.40	10
86.95	59	95.95	14	104.05	101	112.00	29
88.05	19	96.15	16	104.95	5	112.60	5
88.95	15	97.15	3	105.05	58	112.80	6
91.05	45	97.75	4	106.05	13	113.00	19
92.00	61	98.05	180	107.05	1282	114.00	6
92.35	11	98.45	4	108.05	195	115.30	15
93.05	414	99.05	223	108.85	5	116.00	93
93.45	6	99.80	34	110.00	2948	116.40	5
93.85	9	101.05	187	111.00	429	117.00	639
94.10	37	102.15	12	111.20	11	118.00	1

erage of 5.639 to 5.659 min.: B6562.D

-fied:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
119.80	6	129.00	1892	138.10	5	149.10	30
121.00	25	129.95	178	138.50	7	150.00	21
122.00	22	131.10	35	139.80	15	150.85	11
122.10	103	131.90	14	140.10	19	151.10	25
123.00	77	132.70	9	141.00	291	151.40	23
123.70	9	133.00	8	142.10	89	151.80	55
124.10	7	133.70	12	144.00	14	153.00	93
125.00	39	134.10	42	146.00	33	154.10	57
125.80	7	135.00	139	147.10	119	155.10	32
127.00	4113	137.05	14	147.90	48	156.05	140
128.05	342	137.80	11	148.00	104	157.00	57

erage of 5.639 to 5.659 min.: B6562.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
157.50	25	166.00	62	176.05	64	187.95	45
157.80	12	167.10	409	177.10	86	189.00	54
158.10	39	167.80	7	178.10	28	190.05	11
159.10	44	168.10	137	179.00	300	190.45	12
159.95	46	169.00	46	180.10	177	190.95	24
161.05	102	170.70	8	181.10	83	191.35	13
161.70	23	171.10	22	182.10	33	192.00	72
90	21	172.00	38	182.75	7	193.00	39
.20	5	173.05	30	185.15	151	195.15	7
54.90	9	174.00	6	186.05	1163	196.05	288
65.10	81	175.20	129	187.05	321	196.85	78

verage of 5.639 to 5.659 min.: B6562.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
198.05	9354	207.05	206	217.05	558	228.95	105
198.75	5	208.05	92	218.15	84	230.15	12
199.05	670	209.05	25	218.55	9	231.05	43
199.90	7	209.95	12	219.05	17	232.35	4
200.15	37	210.35	11	221.05	562	232.75	3
201.25	6	210.75	4	223.05	114	233.55	8
201.55	48	211.05	74	224.05	1022	234.15	35
203.10	88	213.55	12	225.05	315	234.85	4
204.05	363	214.95	29	226.05	17	235.15	35
205.05	412	215.95	8	227.05	561	235.35	5
206.05	1818	216.05	36	228.05	106	235.55	6

verage of 5.639 to 5.659 min.: B6562.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
236.15	22	245.15	98	256.90	3	270.10	6
237.05	36	246.05	225	257.15	65	270.40	4
238.15	8	246.95	33	258.05	291	273.00	174
238.90	35	247.95	12	259.20	42	274.10	452
240.05	7	249.15	28	263.30	4	275.10	1829
241.05	53	250.05	10	264.00	12	276.05	227
242.10	59	251.55	6	264.75	17	277.10	161
243.10	47	253.15	23	265.00	67	278.10	23
243.95	14	253.55	19	265.95	47	282.30	4
244.15	902	255.05	4681	267.60	5	283.00	31
244.95	33	256.00	697	268.00	18	283.60	9

verage of 5.639 to 5.659 min.: B6562.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
283.90	17	293.05	41	311.00	4	320.60	7
284.10	18	296.10	649	312.20	9	321.10	25
284.50	15	297.10	101	312.60	6	321.80	6
284.90	7	298.10	6	313.30	7	322.25	23
285.10	38	301.10	12	313.70	5	323.15	225
286.10	11	302.00	18	313.90	17	324.10	40
287.00	6	303.10	79	314.20	21	325.20	6
288.70	6	304.10	13	315.15	72	327.10	48
288.90	15	308.10	13	316.10	10	328.00	28
289.70	3	309.10	5	316.20	48	328.95	9
290.00	5	309.90	10	317.80	4	329.15	8

erage of 5.639 to 5.659 min.: B6562.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
332.05	4	350.85	6	366.00	48	382.75	9
333.15	21	351.15	4	369.55	3	383.15	28
334.15	130	352.05	50	369.75	5	384.25	3
334.55	8	352.35	4	370.05	6	385.35	5
335.15	41	353.15	35	370.35	5	390.05	15
337.05	3	354.15	50	370.65	6	390.85	10
340.85	24	358.95	5	371.25	16	391.15	8
.05	42	359.35	6	372.15	110	401.00	6
.15	15	361.85	4	373.25	35	402.10	46
349.75	8	363.05	5	375.15	6	403.00	39
350.05	6	365.05	328	379.25	5	404.10	19

erage of 5.639 to 5.659 min.: B6562.D

dified:subtracted

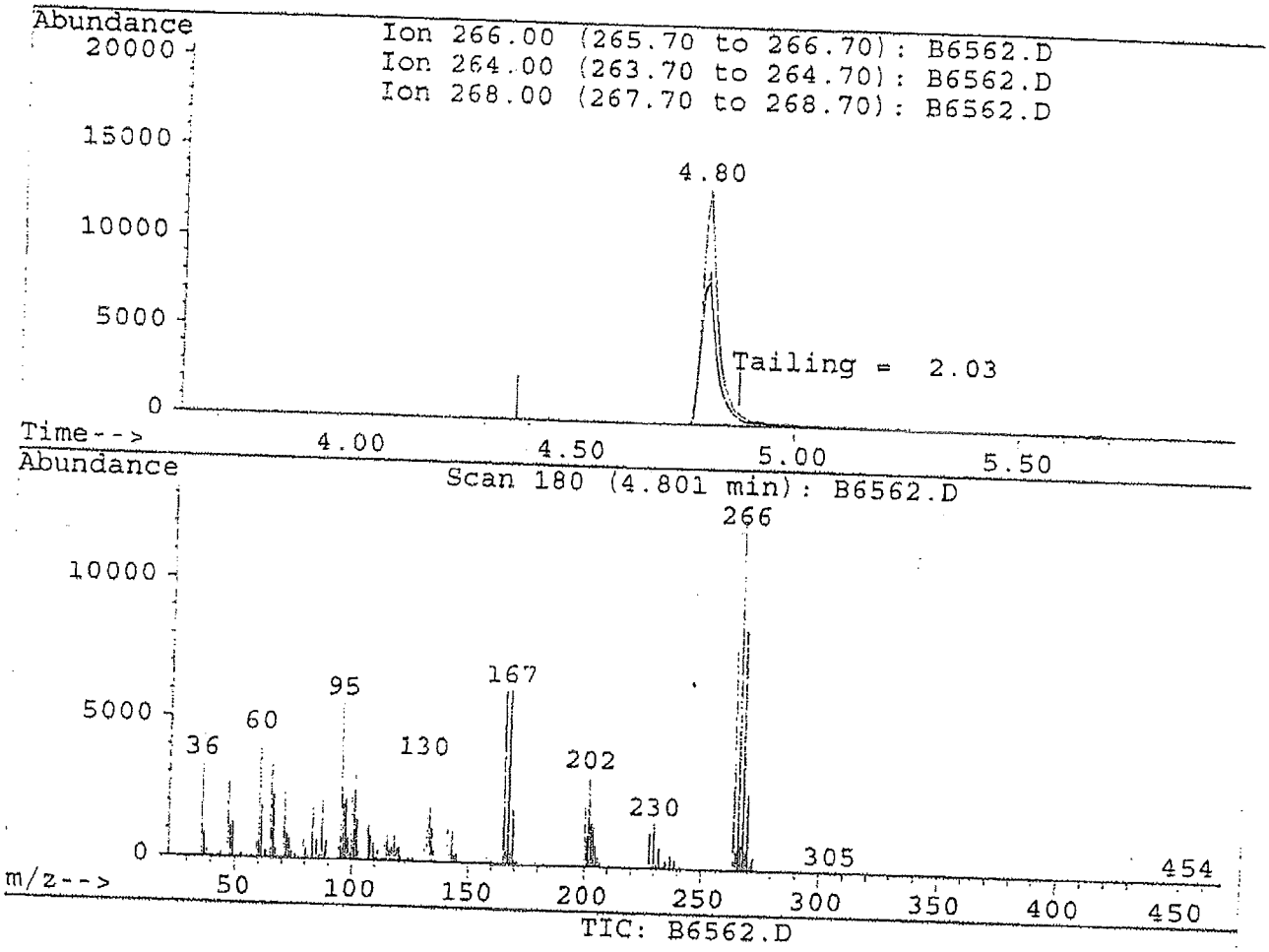
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
.00	4	441.10	1071				
7.60	4	442.10	7538				
18.50	7	443.10	1520				
421.20	65	444.10	138				
422.00	20	445.30	12				
422.20	49	451.50	5				
422.70	10	454.10	4				
423.15	420						
424.10	75						
424.90	11						
436.70	6						

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B6562.D
Acq On : 29 Sep 97 11:14 am
Sample : DFTPP..... Converted from RTE d
Misc :
Quant Time: Sep 29 11:35 1997

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Fri Sep 19 14:06:48 1997
Response via : Multiple Level Calibration



(1) Pentachlorophenol (CM)

4.80min 101.01ug/mL
response 33364

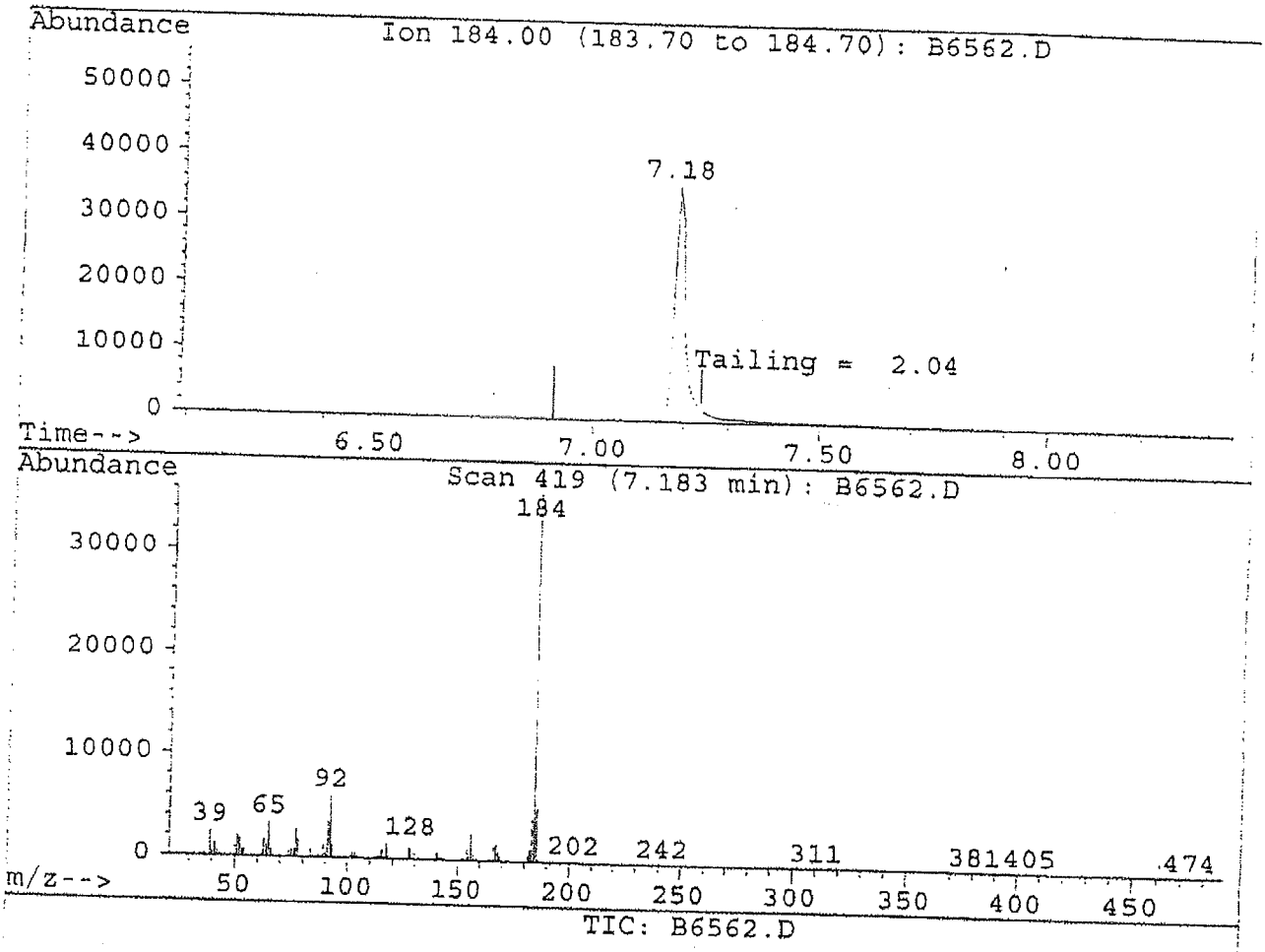
Ion	Exp%	Act%
266.00	100	100
264.00	64.30	60.55
268.00	64.70	65.03
0.00	0.00	0.00

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B6562.D
Acq On : 29 Sep 97 11:14 am
Sample : DFTPP..... Converted from RTE d
Misc :
Quant Time: Sep 29 11:35 1997

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Fri Sep 19 14:06:48 1997
Response via : Multiple Level Calibration



(2) Benzidine
7.18min 227.85ug/ml
response 69997

Ion	Exp%	Act%
184.00	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Response Factor Report ABNA

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 15:59:34 1997
Response via : Initial Calibration

Calibration Files
10 =B6563.D 20 =B6564.D 50 =B6565.D
80 =B6566.D 120 =B6567.D 160 =B6568.D

		Compound	10	20	50	80	120	160	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	ISTD							
2)	S	2-Fluorophenol	1.163	1.190	1.417	1.244	1.289	1.375	1.280	7.90
3)	S	Phenol-d5	2.120	2.149	2.549	2.425	2.174	2.549	2.327	8.73
4)	M	N-nitrosodimethylam	0.604	1.017	0.948	0.939	1.055	0.948	0.918	17.53
5)		Pyridine		0.987	1.511	1.896	1.699	1.686	1.556	22.25
6)	CM	Phenol	2.202	2.432	2.521	2.595	2.532	2.471	2.459	5.58
7)	MT	bis(2-Chloroethyl)e		1.442	1.476	1.530	1.521	1.449	1.484	2.73
8)	M	2-Chlorophenol	1.475	1.601	1.646	1.682	1.665	1.636	1.618	4.63
9)	MT	1,3-Dichlorobenzene	0.837	1.126	1.219	1.262	1.260	1.223	1.154	14.14
10)	CM	1,4-Dichlorobenzene	0.898	1.212	1.345	1.380	1.384	1.348	1.261	14.98
11)	M	1,2-Dichlorobenzene	0.919	1.215	1.350	1.397	1.377	1.343	1.267	14.36
12)	T	2-Methylphenol	1.652	1.514	1.812	1.787	1.753	1.816	1.722	6.88
13)	M	bis(2-chloroisoprop		4.242	3.636	4.948	3.898	4.555	4.256	12.22
14)	T	4-Methylphenol	1.706	1.720	1.953	1.960	1.924	2.013	1.879	7.04
15)	PM	N-Nitroso-Di-n-prop	1.442	1.624	1.800	1.959	1.893	2.029	1.791	12.36
16)	M	Hexachloroethane	0.586	0.839	0.957	0.996	0.978	0.976	0.888	17.85
17)	I	Naphthalene-d8	ISTD							
	S	Nitrobenzene-d5	0.541	0.562	0.574	0.587	0.578	0.579	0.570	2.86
	M	Nitrobenzene	0.405	0.447	0.514	0.528	0.560	0.566	0.503	12.77
20)	M	Isophorone		0.877	1.009	1.055	1.069	1.037	1.009	7.65
21)	MC	2-Nitrophenol	0.215	0.249	0.278	0.284	0.298	0.294	0.270	11.86
22)	M	2,4-Dimethylphenol	0.505	0.552	0.586	0.591	0.584	0.583	0.567	5.92
23)	M	bis(2-Chloroethoxy)	0.436	0.494	0.585	0.596	0.605	0.595	0.552	12.67
24)	MC	2,4-Dichlorophenol	0.258	0.306	0.336	0.330	0.333	0.324	0.315	9.40
25)	M	1,2,4-Trichlorobenz	0.227	0.261	0.279	0.282	0.281	0.269	0.267	7.91
26)	M	Naphthalene	0.924	1.003	1.125	1.139	1.090	1.089	1.062	7.76
27)	T	4-Chloroaniline	0.491	0.499	0.590	0.579	0.571	0.583	0.552	8.12
28)	MC	Hexachlorobutadiene	0.150	0.165	0.182	0.186	0.178	0.174	0.172	7.45
29)	MC	4-Chloro-3-methylph	0.496	0.525	0.546	0.548	0.560	0.578	0.542	5.26
30)	M	2-Chloronaphthalene	0.692	0.686	0.749	0.763	0.759	0.772	0.737	5.15
31)	T	2-Methylnaphthalene	0.780	0.734	0.851	0.836	0.831	0.849	0.813	5.75
32)	I	Acenaphthene-d10	ISTD							
33)	P	Hexachlorocyclopent		0.187	0.276	0.292	0.308	0.294	0.271	17.92
34)	MC	2,4,6-Trichlorophen	0.319	0.367	0.391	0.395	0.408	0.387	0.378	8.46
35)	T	2,4,5-Trichlorophen	0.381	0.376	0.440	0.416	0.416	0.387	0.403	6.27
36)	S	2-Fluorobiphenyl	1.051	1.129	1.107	1.108	1.099	1.072	1.094	2.56
37)	T	2-Nitroaniline	0.926	0.944	1.146	1.106	1.049	1.094	1.044	8.62
38)	M	Dimethylphthalate	1.093	1.123	1.258	1.275	1.264	1.237	1.208	6.56
39)	M	Acenaphthylene	1.476	1.667	1.867	1.875	1.853	1.805	1.757	8.97
40)	M	2,6-Dinitrotoluene	0.250	0.297	0.300	0.288	0.311	0.230	0.280	11.45
41)	T	3-Nitroaniline	0.399	0.404	0.508	0.510	0.490	0.536	0.475	12.28
	4	Acenaphthene	0.990	1.095	1.155	1.174	1.179	1.169	1.127	6.56
	AP	2,4-Dinitrophenol		0.158	0.242	0.222	0.231	0.234	0.217	15.53
	PM	4-Nitrophenol	0.200	0.258	0.310	0.275	0.295	0.331	0.278	16.59
	T	Dibenzofuran	1.763	1.691	1.837	1.792	1.813	1.831	1.788	3.06
47)	M	2 4-Dinitrotoluene	0.366	0.393	0.430	0.456	0.432	0.439	0.419	7.99
48)	M	Diethylphthalate	1.512	1.536	1.565	1.427	1.384	1.297	1.454	7.06
49)	M	Fluorene	1.205	1.337	1.465	1.484	1.486	1.484	1.410	8.23

49)	M	4-Chlorophenyl-phen	0.525	0.555	0.588	0.593	0.600	0.615	0.579	5.72	
50)		Phenanthrene-d10	----------ISTD----------								
51)	T	4-Nitroaniline	0.156	0.197	0.244	0.206	0.189	0.168	0.193	15.97	
52)	MC	4,6-Dinitro-2-methy	0.089	0.131	0.167	0.146	0.141	0.140	0.136	19.10	
	T	n-Nitrosodiphenylam	0.381	0.420	0.416	0.415	0.384	0.374	0.398	5.21	
	S	2,4,6-Tribromopheno	0.105	0.113	0.113	0.103	0.133	0.115	0.113	9.58	
55)		1,2-Diphenylhydrazi	1.447	1.580	1.745	1.795	1.888	1.816	1.712	9.69	
56)	M	4-Bromophenyl-pheny	0.158	0.168	0.196	0.185	0.220	0.221	0.191	13.73	
57)	M	Hexachlorobenzene	0.200	0.210	0.247	0.233	0.280	0.231	0.233	12.20	
58)	CM	Pentachlorophenol		0.107	0.141	0.156	0.153	0.160	0.144	14.88	
59)	M	Phenanthrene	0.941	1.022	1.116	1.245	1.237	1.251	1.136	11.60	
60)	M	Anthracene	0.934	1.016	1.077	1.104	0.991	1.022	1.024	5.94	
61)		Carbazole	0.934	1.021	1.048	1.074	1.080	1.025	1.030	5.15	
62)	M	Di-n-butylphthalate	1.595	1.679	1.807	1.863	1.644	1.566	1.692	7.01	
63)	MC	Fluoranthene	1.110	1.188	1.211	1.189	1.164	1.107	1.162	3.76	
64)	I	Chrysene-d12	----------ISTD----------								
65)		Benzidine		0.247	0.390	0.422	0.507	0.446	0.402	24.05	
66)	M	Pyrene	1.200	1.432	1.795	1.747	1.741	1.786	1.617	15.16	
67)	S	Terphenyl-d14	0.867	0.984	1.049	1.036	1.072	1.096	1.017	8.13	
68)	M	Butylbenzylphthalat	0.699	0.870	0.998	1.010	1.029	1.036	0.940	14.13	
69)	M	Benzo[a]anthracene	0.993	1.121	1.390	1.462	1.426	1.424	1.303	15.03	
70)	M	3,3'-Dichlorobenzid	0.261	0.326	0.280	0.281	0.300	0.317	0.294	8.38	
71)	M	Chrysene	0.917	0.992	1.041	1.044	0.954	1.022	0.995	5.11	
72)	M	bis(2-Ethylhexyl)ph		1.339	1.651	1.715	1.723	1.652	1.616	9.81	
73)	I	Perylene-d12	----------ISTD----------								
74)	MC	Di-n-octylphthalate		3.360	4.904	5.204	5.224	4.567	4.652	16.55	
75)	M	Benzo[b]fluoranthen		1.958	2.108	2.806	2.777	2.645	2.459	16.14	
76)	m	Benzo[k]fluoranthen		1.089	1.214	1.262	0.874	0.733	1.034	21.82	
	mc	Benzo[a]pyrene	1.188	0.981	1.133	1.188	1.175	1.124	1.132	6.96	
	m	Indeno[1,2,3-cd]pyr		0.542	0.700	0.702	0.659	0.631	0.647	10.11	
	m	Dibenz[a,h]anthrace		0.454	0.560	0.593	0.545	0.524	0.535	9.69	
80)	M	Benzo[g,h,i]perylen		0.327	0.577	0.551	0.502	0.490	0.489	19.94	

#) = Out of Range

Quantitation Report

Data File : c:\hpchem\1\data2\b6563.d
Acq On : 29 Sep 97 11:33 am
Sample : 10 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 15:48 1997

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	8.19	152	24799	40.00	ug/mL	-0.21
17) Naphthalene-d8	11.95	136	117337	40.00	ug/mL	-0.21
32) Acenaphthene-d10	17.26	164	91708	40.00	ug/mL	-0.21
50) Phenanthrene-d10	21.65	188	201275	40.00	ug/ml	-0.22
64) Chrysene-d12	29.72	240	201919	40.00	ug/mL	-0.24
73) Perylene-d12	33.74	264	85076	40.00	ug/mL	-0.25
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	5.05	112	36044	49.47	ug/mL	49.47%
3) Phenol-d5	8.07	99	65708	50.19	ug/mL	50.19%
18) Nitrobenzene-d5	10.00	82	79373	59.70	ug/mL	59.70%
36) 2-Fluorobiphenyl	15.43	172	120497	45.30	ug/mL	45.30%
54) 2,4,6-Tribromophenol	19.72	330	26309	64.39	ug/mL	64.39%
67) Terphenyl-d14	26.77	244	218827	38.73	ug/mL	38.73%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.97	74	3742	7.20	ug/mlm	100
5) Pyridine	1.97	79	3089	3.37	ug/mlm	100
6) Phenol	8.13	94	13654	9.80	ug/mLm	100
7) bis(2-Chloroethyl)ether	7.84	93	6882	8.10	ug/mLm	19
8) 2-Chlorophenol	7.88	128	9147	9.33	ug/mLm	0
9) 1,3-Dichlorobenzene	8.06	146	5188	7.14	ug/mLm	90
10) 1,4-Dichlorobenzene	8.23	146	5565	7.31	ug/mLm	91
11) 1,2-Dichlorobenzene	8.75	146	5699	7.33	ug/mLm	0
12) 2-Methylphenol	9.71	108	10241	10.72	ug/mLm	53
13) bis(2-chloroisopropyl)ethe	9.42	45	13950	8.38	ug/mLm	72
14) 4-Methylphenol	10.19	108	10576	10.09	ug/mLm	94
15) N-Nitroso-Di-n-propylamine	9.85	70	8942	10.59	ug/mLm	81
16) Hexachloroethane	9.60	117	3632	7.18	ug/mLm	0
19) Nitrobenzene	10.06	77	11880	7.16	ug/mL	94
20) Isophorone	10.79	82	24160	9.58	ug/mLm	71
21) 2-Nitrophenol	11.00	139	6315	7.76	ug/mL	98
22) 2,4-Dimethylphenol	11.60	107	14806	10.31	ug/mL	98
23) bis(2-Chloroethoxy)methane	11.69	93	12798	8.43	ug/mL	98
24) 2,4-Dichlorophenol	11.93	162	7571	7.51	ug/mL	92
25) 1,2,4-Trichlorobenzene	11.89	180	6653	8.28	ug/mL	97
26) Naphthalene	11.98	128	27105	9.35	ug/mL	100
27) 4-Chloroaniline	12.50	127	14390	8.88	ug/mL	99
28) Hexachlorobutadiene	12.66	225	4413	11.07	ug/mL	96
29) 4-Chloro-3-methylphenol	14.41	107	14558	11.31	ug/mL	94
30) 2-Chloronaphthalene	15.53	162	20307	10.02	ug/ml	99
31) 2-Methylnaphthalene	14.10	142	22883	9.61	ug/mL	95
33) Hexachlorocyclopentadiene	14.83	237	2670	5.17	ug/mL#	93
34) 2,4,6-Trichlorophenol	15.28	196	7304	7.89	ug/mLm	92

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6563.d
Acq On : 29 Sep 97 11:33 am
Sample : 10 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 15:48 1997

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
35) 2,4,5-Trichlorophenol	15.53	196	8731	11.18 ug/mL	92
37) 2-Nitroaniline	17.51	65	21240	12.13 ug/mL	80
38) Dimethylphthalate	16.97	163	25062	9.81 ug/mL#	99
39) Acenaphthylene	16.76	152	33848	8.31 ug/mL	97
40) 2,6-Dinitrotoluene	17.12	165	5743	8.22 ug/mLm	24
41) 3-Nitroaniline	17.51	138	9152	8.69 ug/mL	99
42) Acenaphthene	17.34	153	22694	8.86 ug/mL	98
43) 2,4-Dinitrophenol	17.89	184	1092	1.78 ug/mL#	87
44) 4-Nitrophenol	18.74	109	4585	11.69 ug/mL#	80
45) Dibenzofuran	17.84	168	40424	10.31 ug/mL	98
46) 2,4-Dinitrotoluene	18.28	165	8380	9.94 ug/mLm	32
47) Diethylphthalate	19.15	149	34669	12.00 ug/mL	100
48) Fluorene	18.88	166	27619	9.42 ug/mL	99
49) 4-Chlorophenyl-phenylether	19.07	204	12044	11.45 ug/mL#	84
51) 4-Nitroaniline	19.38	138	7870	6.66 ug/mL	92
52) 4,6-Dinitro-2-methylphenol	19.47	198	4476	6.26 ug/mL	100
53) n-Nitrosodiphenylamine	19.53	169	19160	7.87 ug/mL	94
55) 1,2-Diphenylhydrazine (as	19.51	77	72818	9.23 ug/ml	100
56) 4-Bromophenyl-phenylether	20.49	248	7940	10.29 ug/mL#	86
57) Hexachlorobenzene	20.76	284	10056	11.53 ug/mL#	75
58) Pentachlorophenol	21.51	266	3611	6.30 ug/mL	94
59) Phenanthrene	21.71	178	47359	8.54 ug/mL	99
60) Anthracene	21.84	178	46978	9.96 ug/mLm	98
61) Carbazole	22.57	167	46992	9.10 ug/ml	94
62) Di-n-butylphthalate	24.13	149	80248	11.21 ug/mL	99
63) Fluoranthene	25.31	202	55868	11.30 ug/mL	92
65) Benzidine	26.08	184	2980	1.14 ug/ml	100
66) Pyrene	25.92	202	60592	5.72 ug/mL	95
68) Butylbenzylphthalate	28.60	149	35298	5.67 ug/mL	99
69) Benzo[a]anthracene	29.66	228	50130	7.87 ug/mL	99
70) 3,3'-Dichlorobenzidine	29.91	252	13178	9.15 ug/mL	98
71) Chrysene	29.77	228	46302	9.92 ug/mLm	96
72) bis(2-Ethylhexyl)phthalate	32.35	149	42158	5.21 ug/mL#	53
74) Di-n-octylphthalate	32.35	149	42158	3.01 ug/mL	98
75) Benzo[b]fluoranthene	32.76	252	31658	6.22 ug/mL#	93
76) Benzo[k]fluoranthene	32.82	252	35252	16.84 ug/mLm	94
77) Benzo[a]pyrene	33.57	252	25261	10.21 ug/mL	98
78) Indeno[1,2,3-cd]pyrene	36.28	276	8500	6.34 ug/mL#	79
79) Dibenz[a,h]anthracene	36.38	278	6676	5.29 ug/mL	99
80) Benzo[g,h,i]perylene	36.84	276	5509	5.43 ug/mLm	90

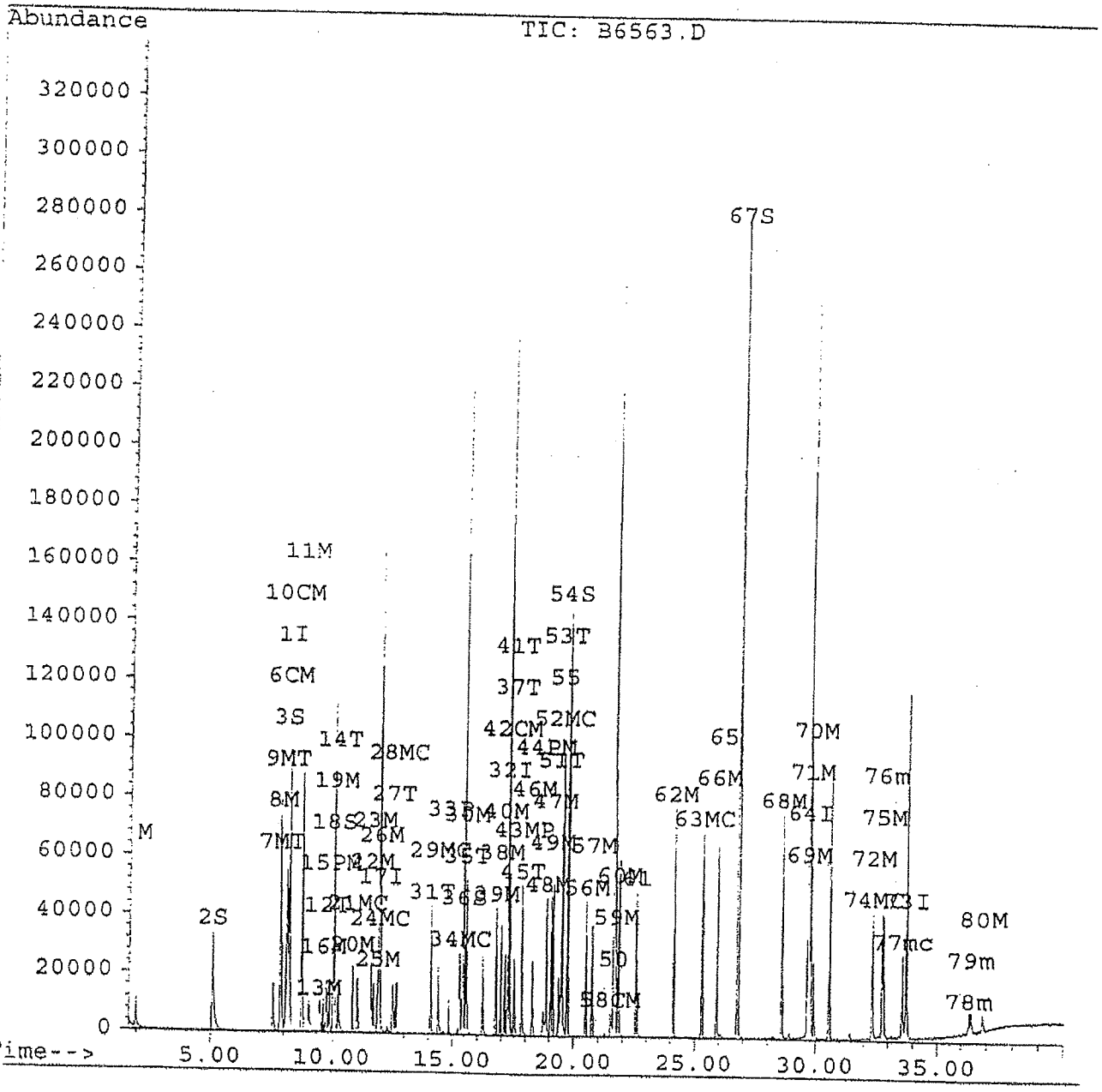
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6563.d
Acq On : 29 Sep 97 11:33 am
Sample : 10 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 15:48 1997

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\b6564.d
Acq On : 29 Sep 97 12:25 pm
Sample : 20 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 16:13 1997

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	8.19	152	30894	40.00	ug/mL	-0.20
17) Naphthalene-d8	11.95	136	147812	40.00	ug/mL	-0.21
32) Acenaphthene-d10	17.26	164	109134	40.00	ug/mL	-0.21
50) Phenanthrene-d10	21.65	188	229376	40.00	ug/ml	-0.21
64) Chrysene-d12	29.72	240	206030	40.00	ug/mL	-0.24
73) Perylene-d12	33.73	264	82127	40.00	ug/mL	-0.26
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	5.05	112	45949	50.63	ug/mL	50.63%
3) Phenol-d5	8.08	99	82978	50.88	ug/mL	50.88%
18) Nitrobenzene-d5	10.00	82	103830	62.00	ug/mL	62.00%
36) 2-Fluorobiphenyl	15.43	172	153963	48.64	ug/mL	48.64%
54) 2,4,6-Tribromophenol	19.73	330	32303	69.38	ug/mL	69.38%
67) Terphenyl-d14	26.78	244	253519	43.97	ug/mL	43.97%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.97	74	15704	24.25	ug/ml	100
5) Pyridine	1.94	79	15241	13.36	ug/mlm	100
6) Phenol	8.11	94	37567	21.65	ug/mL	100
7) bis(2-Chloroethyl)ether	7.84	93	22275	21.04	ug/mLm	17
8) 2-Chlorophenol	7.88	128	24734	20.25	ug/mL#	85
9) 1,3-Dichlorobenzene	8.06	146	17389	19.21	ug/mL	98
10) 1,4-Dichlorobenzene	8.25	146	18719	19.74	ug/mL#	97
11) 1,2-Dichlorobenzene	8.75	146	18766	19.37	ug/mL	97
12) 2-Methylphenol	9.71	108	23388	19.64	ug/mL	94
13) bis(2-chloroisopropyl)ethe	9.42	45	65521	31.59	ug/mL#	70
14) 4-Methylphenol	10.17	108	26568	20.36	ug/mL	99
15) N-Nitroso-Di-n-propylamine	9.85	70	25091	23.85	ug/mL#	72
16) Hexachloroethane	9.60	117	12960	20.56	ug/mL	92
19) Nitrobenzene	10.06	77	33033	15.80	ug/mL	92
20) Isophorone	10.81	82	64852	20.42	ug/mLm	71
21) 2-Nitrophenol	11.00	139	18375	17.91	ug/mL	90
22) 2,4-Dimethylphenol	11.60	107	40779	22.53	ug/mL	100
23) bis(2-Chloroethoxy)methane	11.72	93	36474	19.06	ug/mL	98
24) 2,4-Dichlorophenol	11.91	162	22642	17.83	ug/mL	93
25) 1,2,4-Trichlorobenzene	11.89	180	19317	19.08	ug/mL	97
26) Naphthalene	12.00	128	74096	20.30	ug/mL	99
27) 4-Chloroaniline	12.51	127	36907	18.09	ug/mL	98
28) Hexachlorobutadiene	12.66	225	12218	24.34	ug/mL	95
29) 4-Chloro-3-methylphenol	14.37	107	38809	23.94	ug/mL	89
30) 2-Chloronaphthalene	15.53	162	50681	19.85	ug/ml	98
31) 2-Methylnaphthalene	14.10	142	54235	18.09	ug/mL	95
33) Hexachlorocyclopentadiene	14.83	237	10186	16.59	ug/mL	97
34) 2,4,6-Trichlorophenol	15.28	196	20017	18.17	ug/mLm	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6564.d
Acq On : 29 Sep 97 12:25 pm
Sample : 20 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 16:13 1997

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,5-Trichlorophenol	15.51	196	20517	22.09	ug/mL	99
37) 2-Nitroaniline	17.51	65	51523	24.73	ug/mL	79
38) Dimethylphthalate	16.97	163	61263	20.15	ug/mL	99
39) Acenaphthylene	16.76	152	90985	18.77	ug/mL	98
40) 2,6-Dinitrotoluene	17.15	165	16231	19.52	ug/mL	81
41) 3-Nitroaniline	17.51	138	22072	17.61	ug/mL	96
42) Acenaphthene	17.34	153	59768	19.62	ug/mL	97
43) 2,4-Dinitrophenol	17.86	184	8638	11.84	ug/mL#	1
44) 4-Nitrophenol	18.69	109	14097	30.20	ug/mL#	70
45) Dibenzofuran	17.84	168	92262	19.77	ug/mL	96
46) 2,4-Dinitrotoluene	18.28	165	21450	21.39	ug/mLm	33
47) Diethylphthalate	19.15	149	83827	24.39	ug/mL	99
48) Fluorene	18.88	166	72933	20.91	ug/mL	97
49) 4-Chlorophenyl-phenylether	19.07	204	30262	24.18	ug/mL	87
51) 4-Nitroaniline	19.40	138	22630	16.80	ug/mL	98
52) 4,6-Dinitro-2-methylphenol	19.48	198	15066	18.48	ug/mL	100
53) n-Nitrosodiphenylamine	19.54	169	48212	17.39	ug/mL	94
55) 1,2-Diphenylhydrazine (as	19.52	77	181153	20.15	ug/ml	100
56) 4-Bromophenyl-phenylether	20.50	248	19228	21.86	ug/mL	89
57) Hexachlorobenzene	20.77	284	24052	24.19	ug/mL#	68
58) Pentachlorophenol	21.50	266	12320	18.87	ug/mL	96
59) Phenanthrene	21.71	178	117229	18.54	ug/mL	99
60) Anthracene	21.85	178	116499	21.67	ug/mLm	98
61) Carbazole	22.58	167	117110	19.89	ug/ml	95
62) Di-n-butylphthalate	24.14	149	192610	23.60	ug/mL	100
63) Fluoranthene	25.31	202	136254	24.19	ug/mL#	90
65) Benzidine	26.06	184	25458	9.58	ug/ml	100
66) Pyrene	25.93	202	147499	13.64	ug/mL	94
68) Butylbenzylphthalate	28.61	149	89609	14.12	ug/mL	96
69) Benzo[a]anthracene	29.67	228	115530	17.77	ug/mL	99
70) 3,3'-Dichlorobenzidine	29.90	252	33559	22.84	ug/mL#	94
71) Chrysene	29.78	228	102210	21.46	ug/mLm	97
72) bis(2-Ethylhexyl)phthalate	32.34	149	137972	16.72	ug/mL#	53
74) Di-n-octylphthalate	32.34	149	137972	10.22	ug/mL	99
75) Benzo[b]fluoranthene	32.75	252	80410	16.37	ug/mLm	99
76) Benzo[k]fluoranthene	32.83	252	44700	22.12	ug/mLm	98
77) Benzo[a]pyrene	33.58	252	40279	16.87	ug/mL#	92
78) Indeno[1,2,3-cd]pyrene	36.29	276	22272	17.21	ug/mLm	84
79) Dibenz[a,h]anthracene	36.37	278	18660	15.33	ug/mLm	93
80) Benzo[g,h,i]perylene	36.83	276	13425	13.70	ug/mLm	80

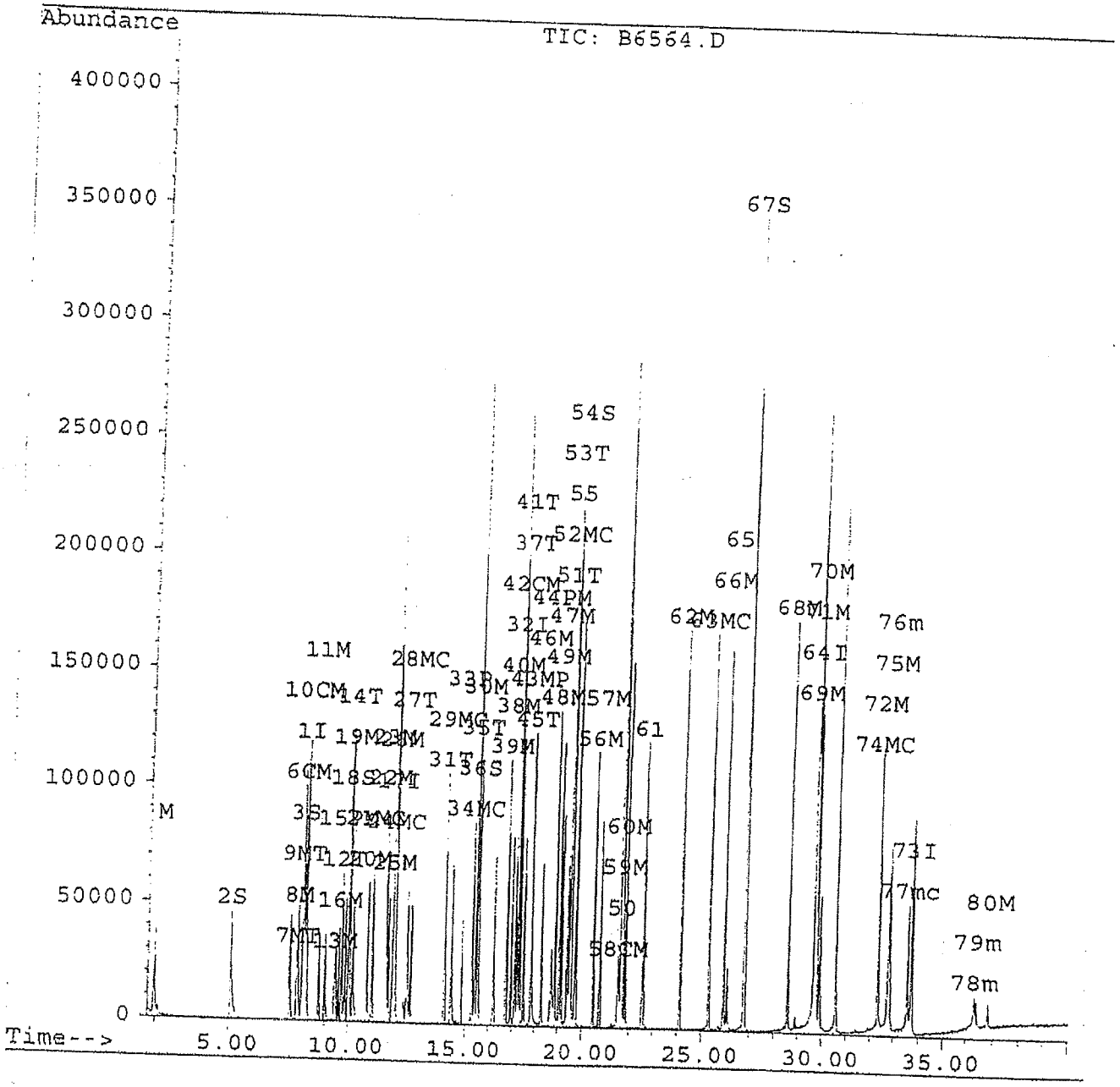
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6564.d
Acq On : 29 Sep 97 12:25 pm
Sample : 20 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 16:13 1997

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\b6565.d
Acq On : 29 Sep 97 1:16 pm
Sample : 50 STD.....
Misc :
Quant Time: Sep 30 15:53 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	8.21	152	39639	40.00	ug/mL	-0.18
17) Naphthalene-d8	11.97	136	186912	40.00	ug/mL	-0.18
32) Acenaphthene-d10	17.27	164	141905	40.00	ug/mL	-0.20
50) Phenanthrene-d10	21.67	188	277438	40.00	ug/ml	-0.20
64) Chrysene-d12	29.73	240	205982	40.00	ug/mL	-0.23
73) Perylene-d12	33.74	264	69352	40.00	ug/mL	-0.25
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	5.03	112	70227	60.31	ug/mL	60.31%
3) Phenol-d5	8.06	99	126279	60.34	ug/mL	60.34%
18) Nitrobenzene-d5	10.02	82	134036	63.29	ug/mL	63.29%
36) 2-Fluorobiphenyl	15.44	172	196375	47.71	ug/mL	47.71%
54) 2,4,6-Tribromophenol	19.76	330	39029	69.30	ug/mL	69.30%
67) Terphenyl-d14	26.78	244	270016	46.85	ug/mL	46.85%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.97	74	46966	56.53	ug/ml	100
5) Pyridine	1.92	79	74888	51.17	ug/ml	100
6) Phenol	8.10	94	124904	56.11	ug/mL	100
7) bis(2-Chloroethyl)ether	7.86	93	73139	53.83	ug/mLm	18
8) 2-Chlorophenol	7.86	128	81559	52.04	ug/mL#	85
9) 1,3-Dichlorobenzene	8.06	146	60412	52.01	ug/mLm	99
10) 1,4-Dichlorobenzene	8.25	146	66659	54.79	ug/mL	98
11) 1,2-Dichlorobenzene	8.77	146	66915	53.82	ug/mL	99
12) 2-Methylphenol	9.73	108	89771	58.76	ug/mL	92
13) bis(2-chloroisopropyl)ethe	9.42	45	180171	67.70	ug/mLm	70
14) 4-Methylphenol	10.18	108	96790	57.80	ug/mL	95
15) N-Nitroso-Di-n-propylamine	9.91	70	89168	66.06	ug/mL#	73
16) Hexachloroethane	9.60	117	47396	58.61	ug/mL#	85
19) Nitrobenzene	10.08	77	120200	45.47	ug/mL	94
20) Isophorone	10.85	82	235633	58.68	ug/mL	98
21) 2-Nitrophenol	11.02	139	64942	50.07	ug/mL#	86
22) 2,4-Dimethylphenol	11.60	107	136867	59.81	ug/mL	98
23) bis(2-Chloroethoxy)methane	11.74	93	136603	56.46	ug/mL	99
24) 2,4-Dichlorophenol	11.89	162	78485	48.87	ug/mL#	90
25) 1,2,4-Trichlorobenzene	11.91	180	65136	50.88	ug/mL	98
26) Naphthalene	12.03	128	262910	56.95	ug/mL	98
27) 4-Chloroaniline	12.53	127	137799	53.41	ug/mL	99
28) Hexachlorobutadiene	12.68	225	42414	66.82	ug/mL	98
29) 4-Chloro-3-methylphenol	14.36	107	127669	62.27	ug/mL#	87
30) 2-Chloronaphthalene	15.55	162	175016	54.21	ug/ml	100
31) 2-Methylnaphthalene	14.13	142	198884	52.46	ug/mL	96
33) Hexachlorocyclopentadiene	14.84	237	48870	61.20	ug/mL	98
34) 2,4,6-Trichlorophenol	15.28	196	69329	48.39	ug/mLm	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6565.d
Acq On : 29 Sep 97 1:16 pm
Sample : 50 STD.....
Misc :
Quant Time: Sep 30 15:53 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,5-Trichlorophenol	15.48	196	78123	64.68	ug/mL	98
37) 2-Nitroaniline	17.56	65	203206	75.02	ug/mL	74
38) Dimethylphthalate	17.00	163	223107	56.44	ug/mL	99
39) Acenaphthylene	16.79	152	331208	52.56	ug/mL	98
40) 2,6-Dinitrotoluene	17.17	165	53233	49.24	ug/mL	94
41) 3-Nitroaniline	17.54	138	90078	55.28	ug/mL	94
42) Acenaphthene	17.37	153	204886	51.72	ug/mL	96
43) 2,4-Dinitrophenol	17.87	184	42852	45.17	ug/mL#	54
44) 4-Nitrophenol	18.64	109	55063	90.72	ug/mL#	81
45) Dibenzofuran	17.87	168	325790	53.70	ug/mL	98
46) 2,4-Dinitrotoluene	18.31	165	76265	58.48	ug/mLm	30
47) Diethylphthalate	19.20	149	277616	62.11	ug/mL	100
48) Fluorene	18.89	166	259800	57.29	ug/mL	99
49) 4-Chlorophenyl-phenylether	19.08	204	104253	64.05	ug/mL#	80
51) 4-Nitroaniline	19.47	138	84638	51.94	ug/mL	98
52) 4,6-Dinitro-2-methylphenol	19.53	198	58068	58.88	ug/mL	100
53) n-Nitrosodiphenylamine	19.57	169	144164	42.98	ug/mL	95
55) 1,2-Diphenylhydrazine (as	19.55	77	605047	55.64	ug/ml	100
56) 4-Bromophenyl-phenylether	20.51	248	67896	63.83	ug/mL#	85
57) Hexachlorobenzene	20.80	284	85573	71.17	ug/mL#	82
58) Pentachlorophenol	21.53	266	49063	62.14	ug/mL	96
59) Phenanthrene	21.75	178	387084	50.61	ug/mL	99
60) Anthracene	21.88	178	373344	57.40	ug/mLm	98
61) Carbazole	22.60	167	363383	51.03	ug/ml	96
62) Di-n-butylphthalate	24.16	149	626618	63.48	ug/mL	100
63) Fluoranthene	25.33	202	420144	61.66	ug/mL	100
65) Benzidine	26.06	184	100438	37.82	ug/ml	100
66) Pyrene	25.97	202	462224	42.74	ug/mL#	81
68) Butylbenzylphthalate	28.61	149	257040	40.51	ug/mL	97
69) Benzo[a]anthracene	29.69	228	357817	55.06	ug/mL	98
70) 3,3'-Dichlorobenzidine	29.90	252	72047	49.06	ug/mL	96
71) Chrysene	29.81	228	268126	56.31	ug/mLm	97
72) bis(2-Ethylhexyl)phthalate	32.35	149	425111	51.51	ug/mL#	53
74) Di-n-octylphthalate	32.35	149	425111	37.29	ug/mL	99
75) Benzo[b]fluoranthene	32.76	252	182773	44.07	ug/mL	99
76) Benzo[k]fluoranthene	32.84	252	105232	61.65	ug/mLm	99
77) Benzo[a]pyrene	33.57	252	98244	48.73	ug/mL	99
78) Indeno[1,2,3-cd]pyrene	36.29	276	60649	55.51	ug/mL	98
79) Dibenz[a,h]anthracene	36.38	278	48509	47.19	ug/mL#	88
80) Benzo[g,h,i]perylene	36.83	276	50051	60.49	ug/mLm	91

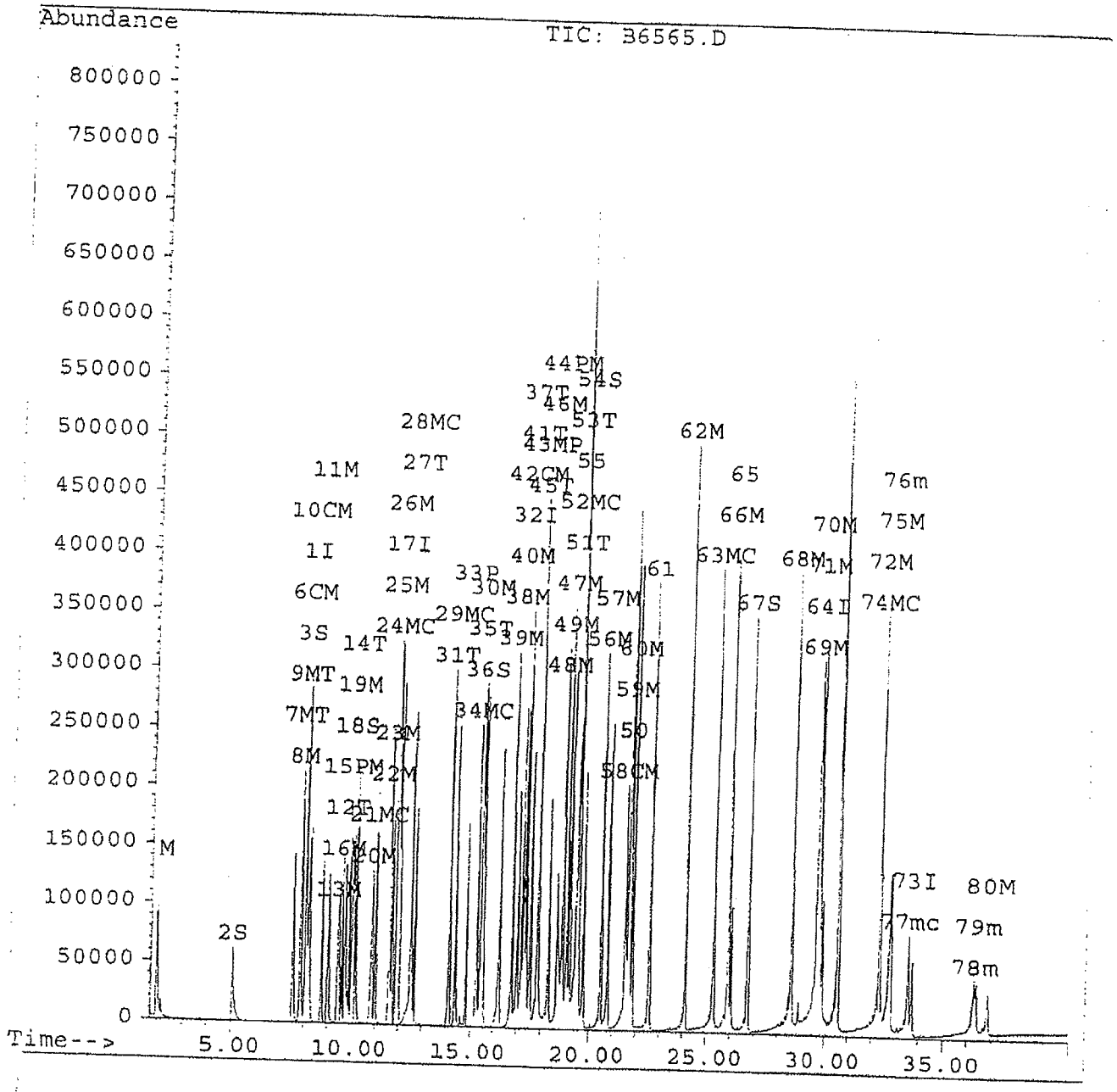
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6565.d
Acq On : 29 Sep 97 1:16 pm
Sample : 50 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 15:53 1997

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\b6566.d
Acq On : 29 Sep 97 2:08 pm
Sample : 80 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 16:13 1997

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	8.19	152	30679	40.00	ug/mL	-0.20
17) Naphthalene-d8	11.97	136	144787	40.00	ug/mL	-0.18
32) Acenaphthene-d10	17.27	164	112259	40.00	ug/mL	-0.20
50) Phenanthrene-d10	21.66	188	209619	40.00	ug/ml	-0.21
64) Chrysene-d12	29.72	240	157773	40.00	ug/mL	-0.24
73) Perylene-d12	33.74	264	52004	40.00	ug/mL	-0.26
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	5.06	112	47691	52.91	ug/mL	52.91%
3) Phenol-d5	8.06	99	92990	57.42	ug/mL	57.42%
18) Nitrobenzene-d5	10.03	82	106170	64.72	ug/mL	64.72%
36) 2-Fluorobiphenyl	15.44	172	155485	47.75	ug/mL	47.75%
54) 2,4,6-Tribromophenol	19.75	330	26865	63.14	ug/mL	63.14%
67) Terphenyl-d14	26.77	244	204395	46.30	ug/mL	46.30%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.98	74	57619	89.60	ug/ml	100
5) Pyridine	1.90	79	116346	102.72	ug/ml	100
6) Phenol	8.10	94	159204	92.41	ug/mL	100
7) bis(2-Chloroethyl)ether	7.87	93	93877	89.28	ug/mLm	18
8) 2-Chlorophenol	7.87	128	103201	85.09	ug/mL#	84
9) 1,3-Dichlorobenzene	8.06	146	77445	86.15	ug/mL	98
10) 1,4-Dichlorobenzene	8.25	146	84666	89.92	ug/mL	99
11) 1,2-Dichlorobenzene	8.77	146	85709	89.06	ug/mL	98
12) 2-Methylphenol	9.70	108	109629	92.72	ug/mL	96
13) bis(2-chloroisopropyl)ethe	9.43	45	303627	147.42	ug/mL#	69
14) 4-Methylphenol	10.18	108	120271	92.79	ug/mL	97
15) N-Nitroso-Di-n-propylamine	9.93	70	120215	115.07	ug/mL#	57
16) Hexachloroethane	9.60	117	61119	97.65	ug/mL	88
19) Nitrobenzene	10.08	77	152893	74.66	ug/mL	95
20) Isophorone	10.87	82	305571	98.23	ug/mL	96
21) 2-Nitrophenol	11.03	139	82350	81.97	ug/mL#	86
22) 2,4-Dimethylphenol	11.62	107	171277	96.62	ug/mL	99
23) bis(2-Chloroethoxy)methane	11.74	93	172489	92.03	ug/mL	99
24) 2,4-Dichlorophenol	11.89	162	95499	76.77	ug/mL	93
25) 1,2,4-Trichlorobenzene	11.91	180	81779	82.47	ug/mL	98
26) Naphthalene	12.03	128	329704	92.20	ug/mL	98
27) 4-Chloroaniline	12.53	127	167547	83.84	ug/mL	99
28) Hexachlorobutadiene	12.69	225	53722	109.26	ug/mL	98
29) 4-Chloro-3-methylphenol	14.36	107	158650	99.89	ug/mL	91
30) 2-Chloronaphthalene	15.56	162	221000	88.37	ug/ml	99
31) 2-Methylnaphthalene	14.13	142	242155	82.45	ug/mL	96
33) Hexachlorocyclopentadiene	14.84	237	65515	103.70	ug/mL	97
34) 2,4,6-Trichlorophenol	15.29	196	88587	78.15	ug/mLm	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6566.d
Acq On : 29 Sep 97 2:08 pm Vial: 5
Sample : 80 STD..... Converted from RTE d Operator: SCOTTV
Misc : Inst : ABNA
Quant Time: Sep 30 16:13 1997 BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
35) 2,4,5-Trichlorophenol	15.46	196	93332	97.68 ug/mL	99
37) 2-Nitroaniline	17.56	65	248427	115.93 ug/mL	77
38) Dimethylphthalate	17.02	163	286214	91.52 ug/mL#	99
39) Acenaphthylene	16.79	152	420911	84.44 ug/mL	98
40) 2,6-Dinitrotoluene	17.18	165	64733	75.68 ug/mL	97
41) 3-Nitroaniline	17.56	138	114555	88.87 ug/mL	89
42) Acenaphthene	17.37	153	263655	84.13 ug/mL	98
43) 2,4-Dinitrophenol	17.87	184	49879	66.46 ug/mL#	65
44) 4-Nitrophenol	18.63	109	61842	128.79 ug/mL#	80
45) Dibenzofuran	17.87	168	402411	83.85 ug/mL	98
46) 2,4-Dinitrotoluene	18.32	165	102437	99.29 ug/mL	95
47) Diethylphthalate	19.21	149	320482	90.64 ug/mL	99
48) Fluorene	18.92	166	333209	92.88 ug/mL	97
49) 4-Chlorophenyl-phenylether	19.09	204	133107	103.37 ug/mL#	80
51) 4-Nitroaniline	19.48	138	86527	70.28 ug/mL	97
52) 4,6-Dinitro-2-methylphenol	19.53	198	61137	82.05 ug/mL	100
53) n-Nitrosodiphenylamine	19.57	169	173801	68.58 ug/mL	95
55) 1,2-Diphenylhydrazine (as	19.55	77	752615	91.60 ug/ml	100
56) 4-Bromophenyl-phenylether	20.52	248	77502	96.43 ug/mL#	87
57) Hexachlorobenzene	20.81	284	97650	107.48 ug/mL	83
58) Pentachlorophenol	21.52	266	65461	109.73 ug/mL	96
59) Phenanthrene	21.75	178	522059	90.34 ug/mL	99
60) Anthracene	21.87	178	462802	94.18 ug/mLm	98
61) Carbazole	22.60	167	450166	83.66 ug/ml	96
62) Di-n-butylphthalate	24.14	149	781108	104.74 ug/mL	98
63) Fluoranthene	25.34	202	498639	96.86 ug/mL	99
65) Benzidine	26.07	184	133044	65.40 ug/ml	100
66) Pyrene	25.96	202	551237	66.55 ug/mL	96
68) Butylbenzylphthalate	28.62	149	318659	65.56 ug/mL	99
69) Benzo[a]anthracene	29.68	228	461412	92.70 ug/mL	100
70) 3,3'-Dichlorobenzidine	29.92	252	88702	78.85 ug/mL	100
71) Chrysene	29.80	228	329327	90.29 ug/mLm	97
72) bis(2-Ethylhexyl)phthalate	32.37	149	541290	85.64 ug/mL#	53
74) Di-n-octylphthalate	32.37	149	541290	63.33 ug/mL	99
75) Benzo[b]fluoranthene	32.77	252	291874	93.85 ug/mLm	96
76) Benzo[k]fluoranthene	32.83	252	131259	102.56 ug/mLm	98
77) Benzo[a]pyrene	33.58	252	123575	81.75 ug/mL	94
78) Indeno[1,2,3-cd]pyrene	36.30	276	73013	89.12 ug/mL	85
79) Dibenz[a,h]anthracene	36.38	278	61725	80.08 ug/mL	92
80) Benzo[g,h,i]perylene	36.84	276	57333	92.41 ug/mLm	82

(#) = qualifier out of range (m) = manual integration

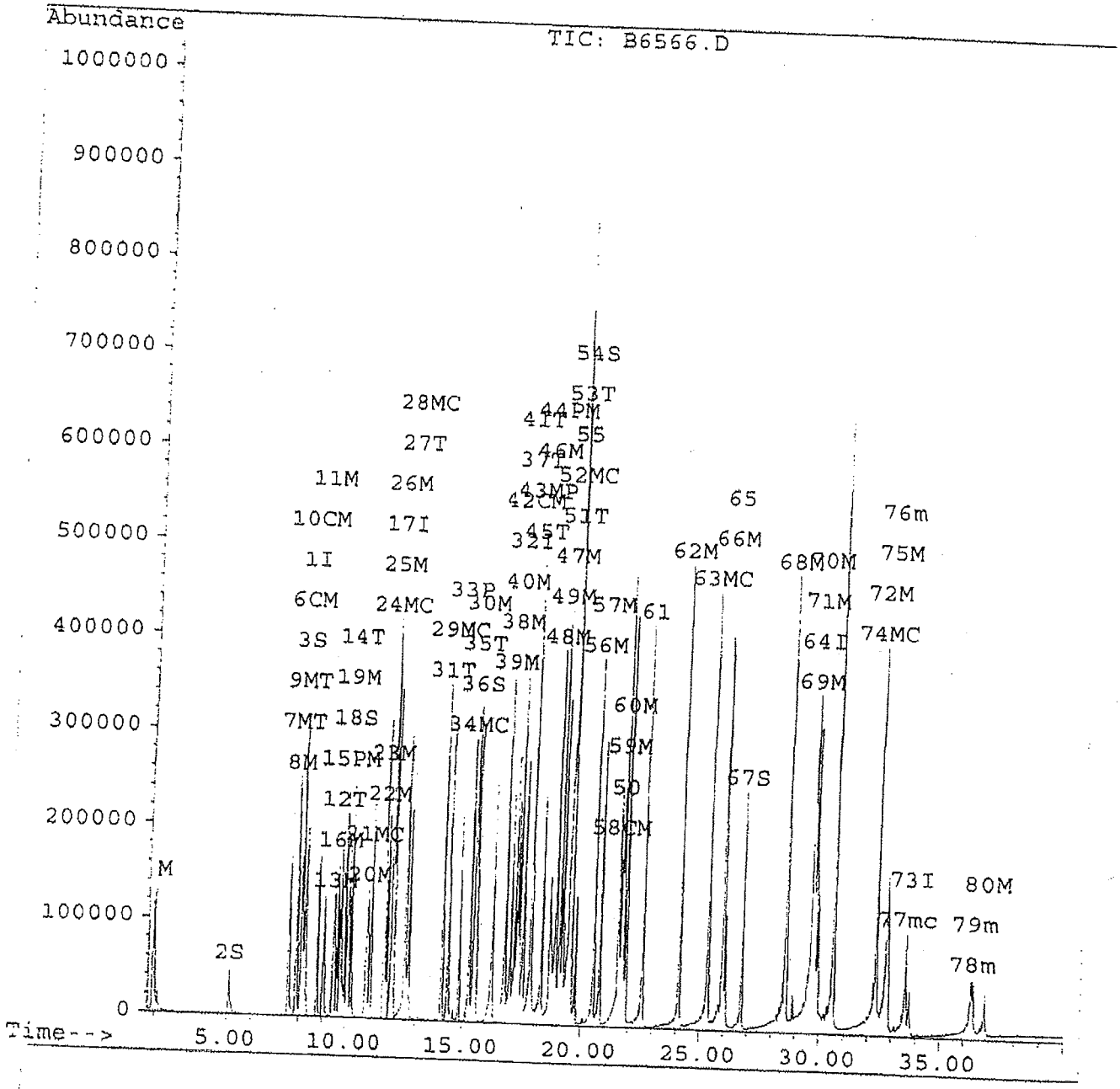
Quantitation Report

Data File : c:\hpchem\1\data2\b6566.d
Acq On : 29 Sep 97 2:08 pm
Sample : 80 STD.....
Misc :
Quant Time: Sep 30 16:13 1997

Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\b6567.d
Acq On : 29 Sep 97 2:59 pm
Sample : 120 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 15:56 1997

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	8.20	152	29843	40.00	ug/mL	-0.19
17) Naphthalene-d8	11.98	136	139901	40.00	ug/mL	-0.17
32) Acenaphthene-d10	17.28	164	107924	40.00	ug/mL	-0.19
50) Phenanthrene-d10	21.67	188	190362	40.00	ug/ml	-0.20
64) Chrysene-d12	29.74	240	131910	40.00	ug/mL	-0.22
73) Perylene-d12	33.74	264	43522	40.00	ug/mL	-0.25
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	5.07	112	48083	54.84	ug/mL	54.84%
3) Phenol-d5	8.07	99	81086	51.47	ug/mL	51.47%
18) Nitrobenzene-d5	10.03	82	101083	63.77	ug/mL	63.77%
36) 2-Fluorobiphenyl	15.45	172	148225	47.35	ug/mL	47.35%
54) 2,4,6-Tribromophenol	19.75	330	31688	82.00	ug/mL	82.00%
67) Terphenyl-d14	26.77	244	176755	47.89	ug/mL	47.89%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.99	74	94449	150.99	ug/ml	100
5) Pyridine	1.91	79	152153	138.10	ug/ml	100
6) Phenol	8.09	94	226671	135.26	ug/mL	100
7) bis(2-Chloroethyl)ether	7.88	93	136179	133.13	ug/mLm	18
8) 2-Chlorophenol	7.88	128	149104	126.38	ug/mL#	82
9) 1,3-Dichlorobenzene	8.07	146	112788	128.98	ug/mL	98
10) 1,4-Dichlorobenzene	8.26	146	123929	135.31	ug/mL	99
11) 1,2-Dichlorobenzene	8.76	146	123323	131.74	ug/mL	99
12) 2-Methylphenol	9.71	108	156976	136.49	ug/mL	95
13) bis(2-chloroisopropyl)ethe	9.44	45	349007	174.20	ug/mLm	71
14) 4-Methylphenol	10.19	108	172278	136.64	ug/mL	96
15) N-Nitroso-Di-n-propylamine	9.94	70	169496	166.79	ug/mL#	68
16) Hexachloroethane	9.61	117	87520	143.76	ug/mL	91
19) Nitrobenzene	10.09	77	234878	118.70	ug/mL	98
20) Isophorone	10.92	82	448682	149.27	ug/mLm	98
21) 2-Nitrophenol	11.04	139	125192	128.96	ug/mL#	86
22) 2,4-Dimethylphenol	11.63	107	245235	143.18	ug/mL	100
23) bis(2-Chloroethoxy)methane	11.75	93	253905	140.20	ug/mL	99
24) 2,4-Dichlorophenol	11.90	162	139616	116.16	ug/mL	93
25) 1,2,4-Trichlorobenzene	11.92	180	117902	123.05	ug/mL	97
26) Naphthalene	12.04	128	457486	132.40	ug/mL	98
27) 4-Chloroaniline	12.54	127	239855	124.21	ug/mL	99
28) Hexachlorobutadiene	12.68	225	74823	157.49	ug/mL	98
29) 4-Chloro-3-methylphenol	14.37	107	234976	153.12	ug/mL	94
30) 2-Chloronaphthalene	15.57	162	318679	131.89	ug/ml	99
31) 2-Methylnaphthalene	14.14	142	348689	122.88	ug/mL	97
33) Hexachlorocyclopentadiene	14.85	237	99582	163.96	ug/mL	97
34) 2,4,6-Trichlorophenol	15.30	196	132187	121.30	ug/mLm	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6567.d
Acq On : 29 Sep 97 2:59 pm
Sample : 120 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 15:56 1997

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
35) 2,4,5-Trichlorophenol	15.47	196	134669	146.60 ug/mL	98
37) 2-Nitroaniline	17.57	65	339682	164.88 ug/mL	77
38) Dimethylphthalate	17.03	163	409251	136.12 ug/mL	99
39) Acenaphthylene	16.80	152	599895	125.18 ug/mL	99
40) 2,6-Dinitrotoluene	17.19	165	100738	122.51 ug/mL	97
41) 3-Nitroaniline	17.57	138	158532	127.93 ug/mL	92
42) Acenaphthene	17.38	153	381710	126.69 ug/mL	98
43) 2,4-Dinitrophenol	17.90	184	74837	103.72 ug/mL	84
44) 4-Nitrophenol	18.64	109	95602	207.10 ug/mL#	77
45) Dibenzofuran	17.88	168	586999	127.22 ug/mL	98
46) 2,4-Dinitrotoluene	18.35	165	139886	141.03 ug/mL	86
47) Diethylphthalate	19.24	149	448198	131.85 ug/mL	97
48) Fluorene	18.93	166	481251	139.54 ug/mL	97
49) 4-Chlorophenyl-phenylether	19.10	204	194422	157.06 ug/mL#	83
51) 4-Nitroaniline	19.51	138	107672	96.30 ug/mL	94
52) 4,6-Dinitro-2-methylphenol	19.57	198	80555	119.05 ug/mL	100
53) n-Nitrosodiphenylamine	19.58	169	219173	95.23 ug/mL	96
55) 1,2-Diphenylhydrazine (as	19.55	77	1078352	144.52 ug/ml	100
56) 4-Bromophenyl-phenylether	20.53	248	125787	172.34 ug/mL	93
57) Hexachlorobenzene	20.82	284	159985	193.91 ug/mL	85
58) Pentachlorophenol	21.54	266	87251	161.05 ug/mL	97
59) Phenanthrene	21.75	178	706485	134.63 ug/mL	99
60) Anthracene	21.88	178	566089	126.85 ug/mLm	98
61) Carbazole	22.62	167	616697	126.21 ug/ml	97
62) Di-n-butylphthalate	24.16	149	938697	138.60 ug/mL#	94
63) Fluoranthene	25.36	202	664867	142.22 ug/mL	94
65) Benzidine	26.07	184	200584	117.94 ug/ml	100
66) Pyrene	25.97	202	689007	99.50 ug/mL	95
68) Butylbenzylphthalate	28.62	149	407064	100.17 ug/mL	99
69) Benzo[a]anthracene	29.70	228	564399	135.62 ug/mL	99
70) 3,3'-Dichlorobenzidine	29.92	252	118818	126.33 ug/mL	99
71) Chrysene	29.82	228	377673	123.85 ug/mLm	97
72) bis(2-Ethylhexyl)phthalate	32.35	149	682021	129.06 ug/mL#	53
74) Di-n-octylphthalate	32.35	149	682021	95.34 ug/mL	100
75) Benzo[b]fluoranthene	32.77	252	362611	139.32 ug/mLm	96
76) Benzo[k]fluoranthene	32.83	252	114064	106.49 ug/mLm	97
77) Benzo[a]pyrene	33.59	252	153462	121.31 ug/mL#	93
78) Indeno[1,2,3-cd]pyrene	36.30	276	85984	125.40 ug/mL#	83
79) Dibenz[a,h]anthracene	36.38	278	71215	110.39 ug/mL	94
80) Benzo[g,h,i]perylene	36.84	276	65593	126.32 ug/mLm	80

(#) = qualifier out of range (m) = manual integration

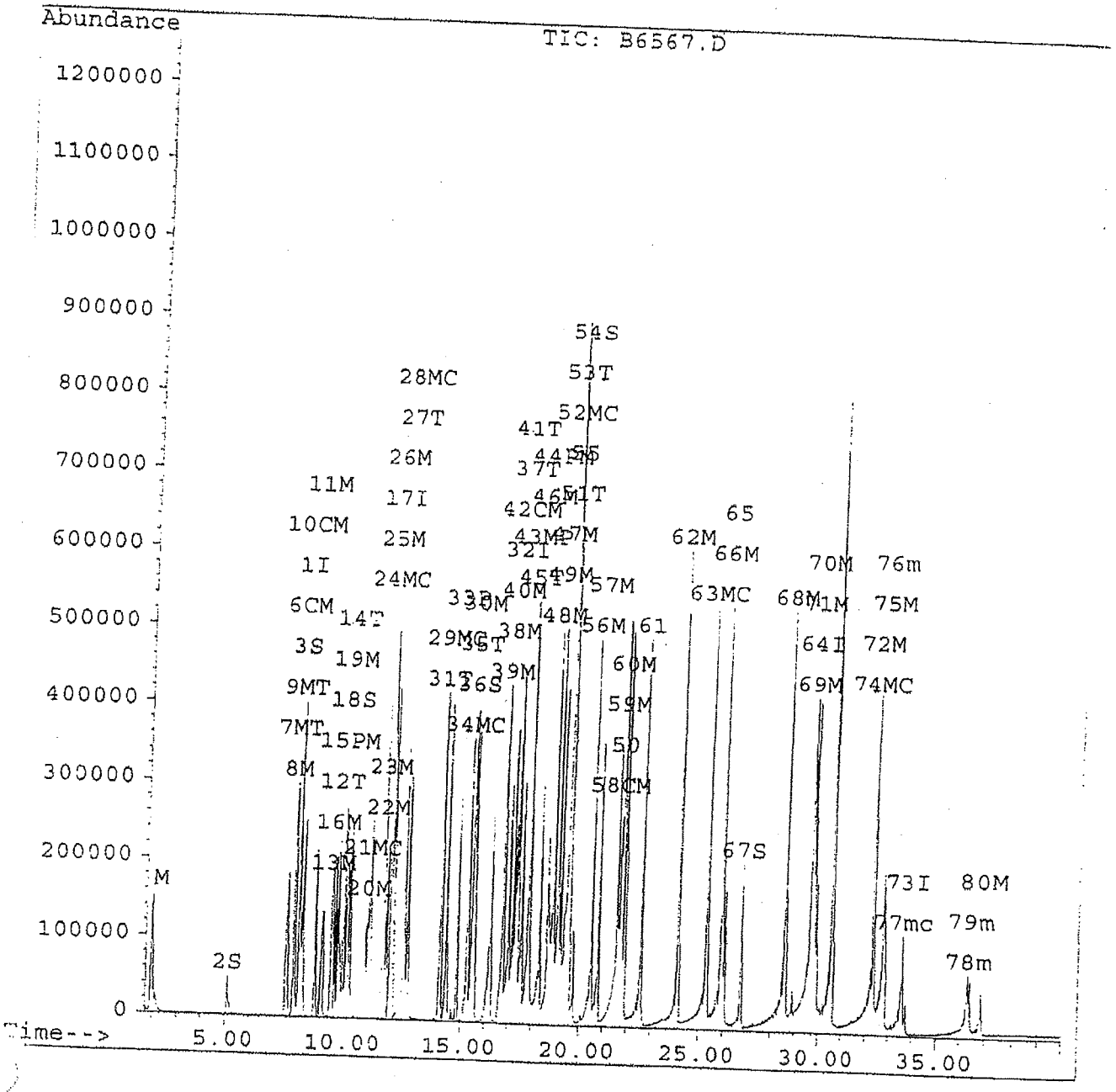
Quantitation Report

Data File : c:\hpchem\1\data2\b6567.d
Acq On : 29 Sep 97 2:59 pm
Sample : 120 STD.....
Misc :
Quant Time: Sep 30 15:56 1997

Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\b6568.d
Acq On : 29 Sep 97 4:42 pm Vial: 7
Sample : 160 STD..... Converted from RTE d Operator: SCOTTV
Misc : Inst : ABNA
Quant Time: Sep 30 16:13 1997 BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	8.22	152	24260	40.00	ug/mL	-0.18
17) Naphthalene-d8	11.99	136	117492	40.00	ug/mL	-0.16
32) Acenaphthene-d10	17.30	164	96549	40.00	ug/mL	-0.17
50) Phenanthrene-d10	21.69	188	173825	40.00	ug/ml	-0.18
64) Chrysene-d12	29.74	240	118420	40.00	ug/mL	-0.22
73) Perylene-d12	33.72	264	42823	40.00	ug/mL	-0.27
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	5.08	112	41690	58.49	ug/mL	58.49%
3) Phenol-d5	8.06	99	77299	60.36	ug/mL	60.36%
18) Nitrobenzene-d5	10.05	82	85035	63.88	ug/mL	63.88%
36) 2-Fluorobiphenyl	15.47	172	129369	46.20	ug/mL	46.20%
54) 2,4,6-Tribromophenol	19.77	330	24957	70.73	ug/mL	70.73%
67) Terphenyl-d14	26.77	244	162209	48.95	ug/mL	48.95%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.98	74	92037	181.00	ug/ml	100
5) Pyridine	1.90	79	163654	182.72	ug/ml	100
6) Phenol	8.10	94	239804	176.02	ug/mL	100
7) bis(2-Chloroethyl)ether	7.91	93	140597	169.08	ug/mLm	18
8) 2-Chlorophenol	7.89	128	158786	165.56	ug/mL#	87
9) 1,3-Dichlorobenzene	8.08	146	118634	166.88	ug/mL	99
10) 1,4-Dichlorobenzene	8.27	146	130787	175.65	ug/mL	99
11) 1,2-Dichlorobenzene	8.78	146	130371	171.32	ug/mL	100
12) 2-Methylphenol	9.72	108	176198	188.46	ug/mL	93
13) bis(2-chloroisopropyl)ethe	9.45	45	442064	271.43	ug/mLm	73
14) 4-Methylphenol	10.22	108	195358	190.60	ug/mL	95
15) N-Nitroso-Di-n-propylamine	9.97	70	196936	238.39	ug/mL#	67
16) Hexachloroethane	9.60	117	94690	191.33	ug/mL#	80
19) Nitrobenzene	10.11	77	265907	160.01	ug/mL	97
20) Isophorone	10.97	82	487415	193.09	ug/mLm	97
21) 2-Nitrophenol	11.05	139	138395	169.75	ug/mL#	82
22) 2,4-Dimethylphenol	11.65	107	274160	190.60	ug/mL	98
23) bis(2-Chloroethoxy)methane	11.78	93	279511	183.77	ug/mL	99
24) 2,4-Dichlorophenol	11.92	162	152403	150.98	ug/mL	93
25) 1,2,4-Trichlorobenzene	11.94	180	126533	157.25	ug/mL	97
26) Naphthalene	12.05	128	511878	176.39	ug/mL	99
27) 4-Chloroaniline	12.55	127	274212	169.08	ug/mL	99
28) Hexachlorobutadiene	12.69	225	81699	204.76	ug/mL	99
29) 4-Chloro-3-methylphenol	14.38	107	271835	210.92	ug/mL	95
30) 2-Chloronaphthalene	15.58	162	362899	178.83	ug/ml	99
31) 2-Methylnaphthalene	14.15	142	398883	167.37	ug/mL	96
33) Hexachlorocyclopentadiene	14.85	237	113647	209.16	ug/mL#	98
34) 2,4,6-Trichlorophenol	15.47	196	149645	153.50	ug/mL	100

(# = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6568.d
Acq On : 29 Sep 97 4:42 pm Vial: 7
Sample : 160 STD..... Converted from RTE d Operator: SCOTTV
Misc : Inst : ABNA
Quant Time: Sep 30 16:13 1997 BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:15:27 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,5-Trichlorophenol	15.47	196	149645	182.09	ug/mL	99
37) 2-Nitroaniline	17.61	65	422501	229.24	ug/mL	75
38) Dimethylphthalate	17.05	163	477623	177.58	ug/mL	98
39) Acenaphthylene	16.82	152	697219	162.62	ug/mL	99
40) 2,6-Dinitrotoluene	17.22	165	88796	120.71	ug/mL	96
41) 3-Nitroaniline	17.61	138	207010	186.73	ug/mL	83
42) Acenaphthene	17.40	153	451393	167.47	ug/mL	98
43) 2,4-Dinitrophenol	17.92	184	90289	139.88	ug/mL	96
44) 4-Nitrophenol	18.63	109	127940	309.80	ug/mL	85
45) Dibenzofuran	17.90	168	707278	171.35	ug/mL	99
46) 2,4-Dinitrotoluene	18.38	165	169536	191.06	ug/mL#	59
47) Diethylphthalate	19.25	149	500879	164.71	ug/mL	99
48) Fluorene	18.94	166	573199	185.78	ug/mL	97
49) 4-Chlorophenyl-phenylether	19.12	204	237438	214.40	ug/mL#	84
51) 4-Nitroaniline	19.54	138	116967	114.57	ug/mL	98
52) 4,6-Dinitro-2-methylphenol	19.58	198	97489	157.79	ug/mL	100
53) n-Nitrosodiphenylamine	19.60	169	260236	123.83	ug/mL	89
55) 1,2-Diphenylhydrazine (as	19.56	77	1262472	185.30	ug/ml	100
56) 4-Bromophenyl-phenylether	20.53	248	153433	230.22	ug/mL#	83
57) Hexachlorobenzene	20.82	284	160522	213.07	ug/mL#	69
58) Pentachlorophenol	21.55	266	111292	224.97	ug/mL	95
59) Phenanthrene	21.77	178	870138	181.59	ug/mL	99
60) Anthracene	21.90	178	710476	174.35	ug/mLm	99
61) Carbazole	22.62	167	712363	159.65	ug/ml	97
62) Di-n-butylphthalate	24.16	149	1088748	176.05	ug/mL#	95
63) Fluoranthene	25.36	202	769956	180.36	ug/mL	98
65) Benzidine	26.07	184	211361	138.44	ug/ml	100
66) Pyrene	25.97	202	845797	136.05	ug/mL	97
68) Butylbenzylphthalate	28.62	149	490906	134.56	ug/mL	96
69) Benzo[a]anthracene	29.71	228	674729	180.60	ug/mL	99
70) 3,3'-Dichlorobenzidine	29.92	252	150217	177.91	ug/mL	98
71) Chrysene	29.82	228	484092	176.82	ug/mLm	97
72) bis(2-Ethylhexyl)phthalate	32.35	149	782305	164.90	ug/mL#	53
74) Di-n-octylphthalate	32.35	149	782305	111.15	ug/mL	99
75) Benzo[b]fluoranthene	32.78	252	453090	176.92	ug/mLm	98
76) Benzo[k]fluoranthene	32.84	252	125524	119.10	ug/mLm	98
77) Benzo[a]pyrene	33.59	252	192612	154.74	ug/mL#	92
78) Indeno[1,2,3-cd]pyrene	36.31	276	108145	160.30	ug/mL	92
79) Dibenz[a,h]anthracene	36.38	278	89685	141.29	ug/mL	98
80) Benzo[g,h,i]perylene	36.85	276	83853	164.12	ug/mLm	87

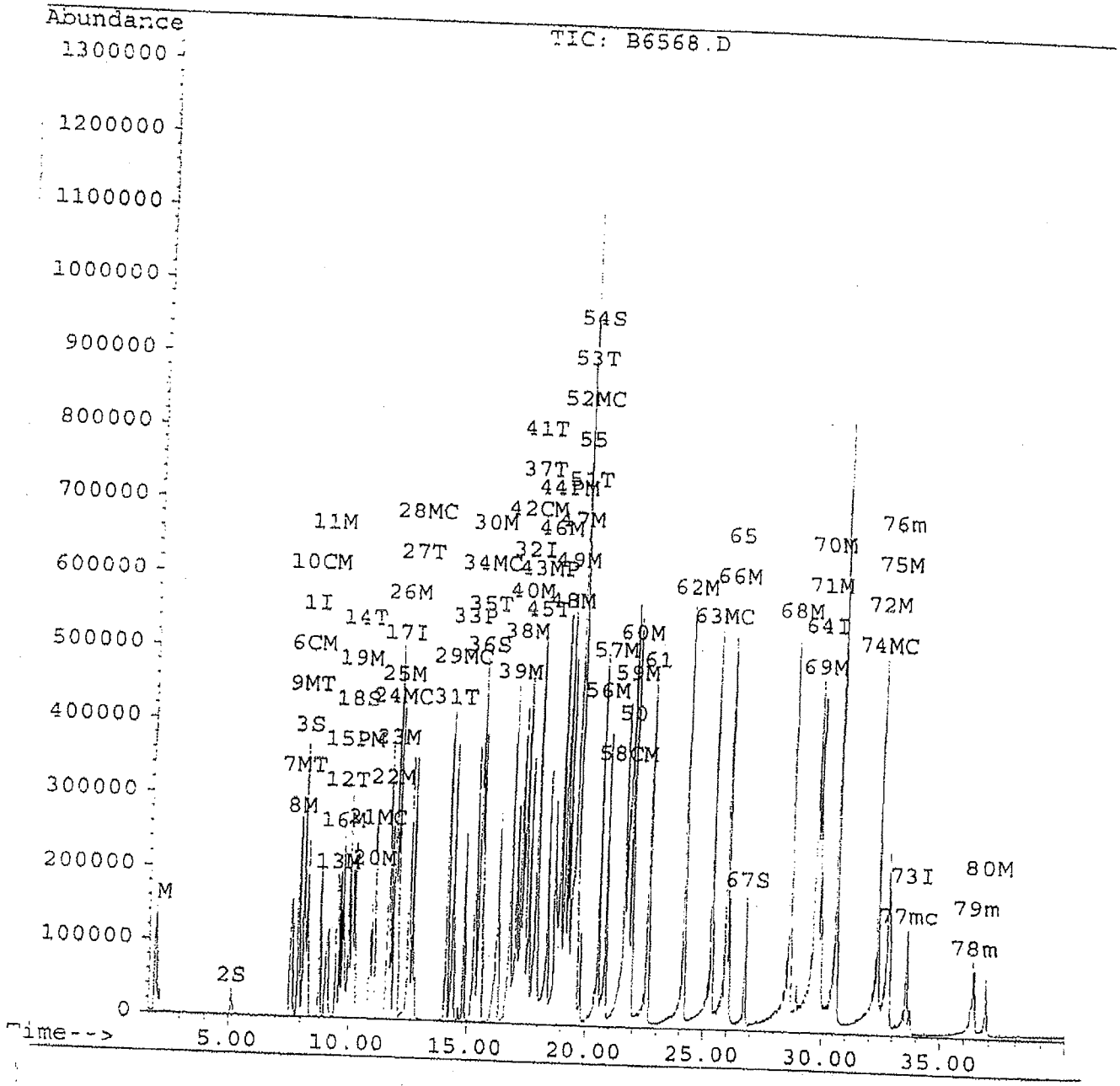
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6568.d
Acq On : 29 Sep 97 4:42 pm
Sample : 160 STD..... Converted from RTE d
Misc :
Quant Time: Sep 30 16:13 1997

Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Tue Sep 30 16:16:27 1997
Response via : Multiple Level Calibration



5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: B7063.D DFTPP Injection Date: 11/4/97

Instrument ID: ABNA DFTPP Injection Time: 1525

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	59.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	72.2
70	Less than 2.0% of mass 69	(0.7)1
127	25.0 - 75.0% of mass 198	43.2
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	5.9
275	10.0 - 30.0% of mass 198	23.0
365	Greater than 0.75% of mass 198	3.4
441	Present, but less than mass 443	1.8
442	40.0 - 110.0% of mass 198	59.8
443	15.0 - 24.0% of mass 442	(18.7)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

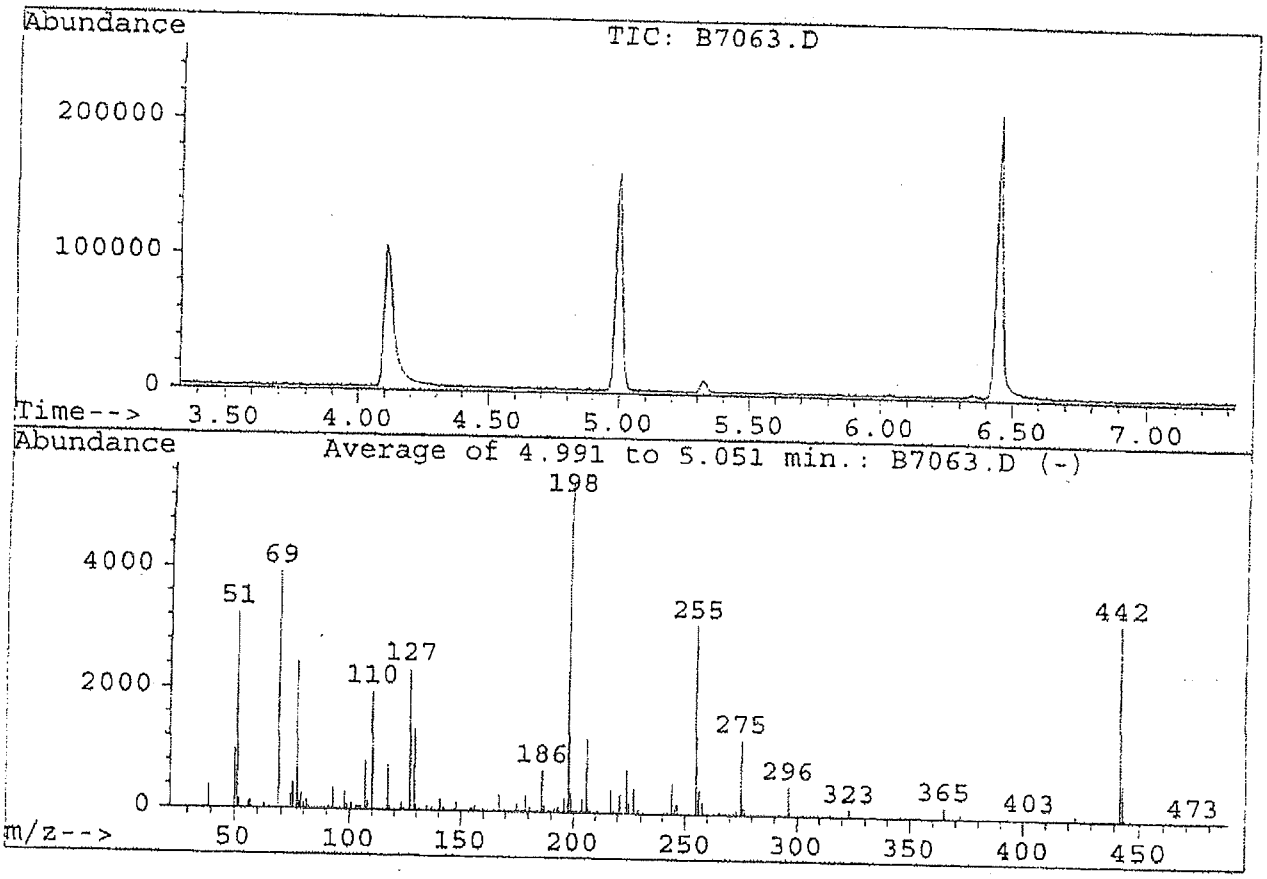
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 STD	B7065.D	11/4/97	1622
02	SSTD020	20 STD	B7066.D	11/4/97	1709
03	SSTD050	50 STD	B7067.D	11/4/97	1756
04	SSTD080	80 STD	B7068.D	11/4/97	1843
05	SSTD120	120 STD	B7069.D	11/4/97	1930
06	SSTD160	160 STD	B7070.D	11/4/97	2017
07	SBLK01	BLANK1	B7071.D	11/4/97	2103
08	9774468B	9774468B	B7072.D	11/4/97	2150
09	9774469B	9774469B	B7073.D	11/4/97	2236
10	9774470B	9774470B	B7074.D	11/4/97	2323
11	9774471B	9774471B	B7075.D	11/5/97	0009
12	9774472B	9774472B	B7076.D	11/5/97	0055
13	9774473B	9774473B	B7077.D	11/5/97	0142
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data File : C:\HPCHEM\1\DATA3\B7063.D
Acq On : 4 Nov 97 3:25 pm
Sample : DFTPP..... Converted from RTE d
Misc :

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration



Peak Apex is scan: 235

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	59.7	3251	PASS
68	69	0	2	0.2	7	PASS
69	198	0	100	72.2	3934	PASS
70	69	0	2	0.7	27	PASS
127	198	40	60	43.2	2352	PASS
197	198	0	1	0.1	4	PASS
198	198	100	100	100.0	5447	PASS
199	198	5	9	5.9	323	PASS
275	198	10	30	23.0	1253	PASS
365	198	1	100	3.4	185	PASS
441	443	0	100	1.8	11	PASS
442	198	40	100	59.8	3258	PASS
443	442	17	23	18.7	610	PASS

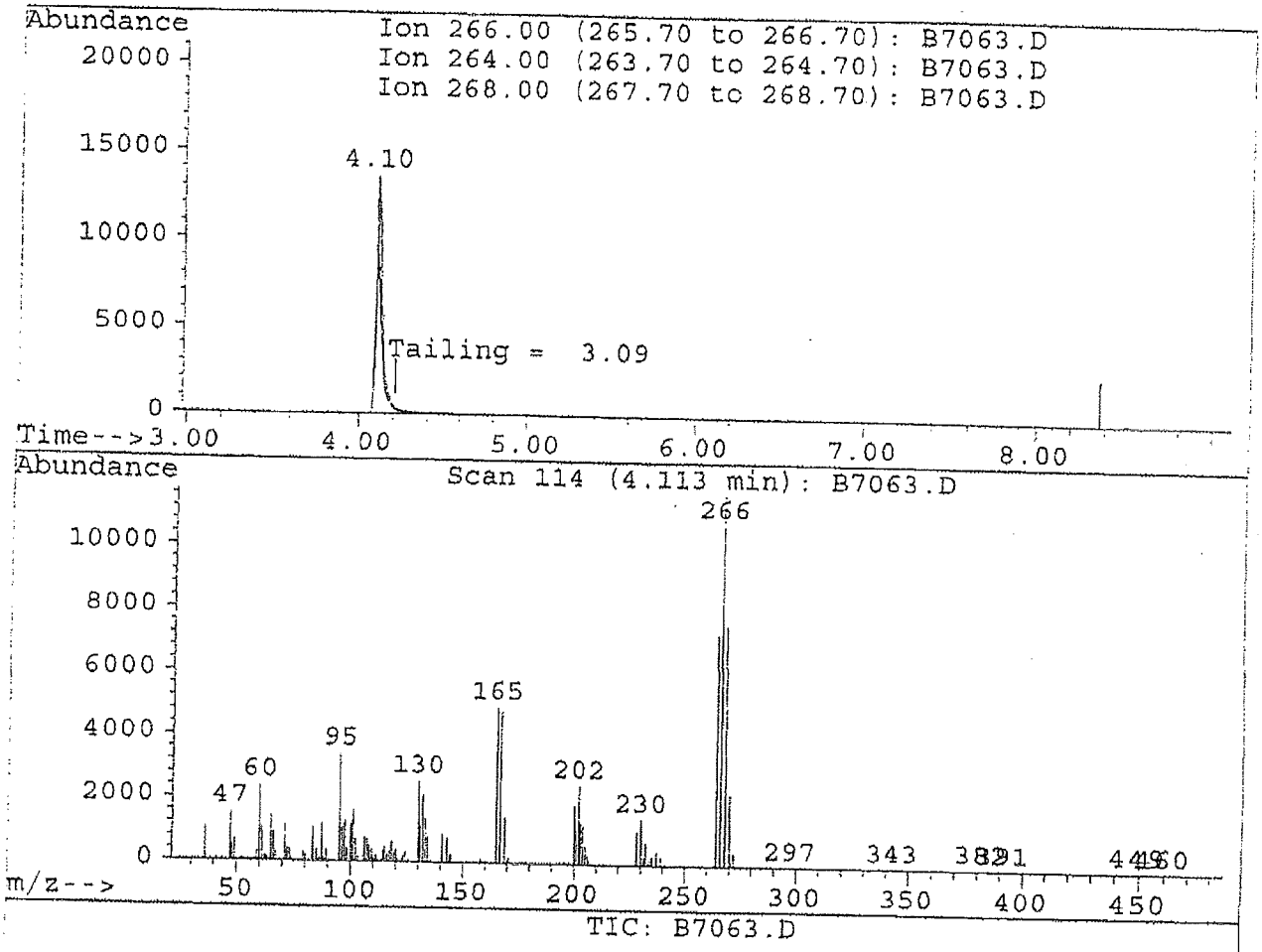
Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B7063.D
Acq On : 4 Nov 97 3:25 pm
Sample : DFTPP.....
Misc :
Quant Time: Nov 4 15:54 1997

Converted from RTE d

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 30 14:02:52 1997
Response via : Multiple Level Calibration



(1) Pentachlorophenol (CM)
5.37min 0.00ug/mL d
response 0

Ion	Exp%	Act%
266.00	100	0.00
264.00	64.30	0.00#
268.00	64.70	0.00#
0.00	0.00	0.00

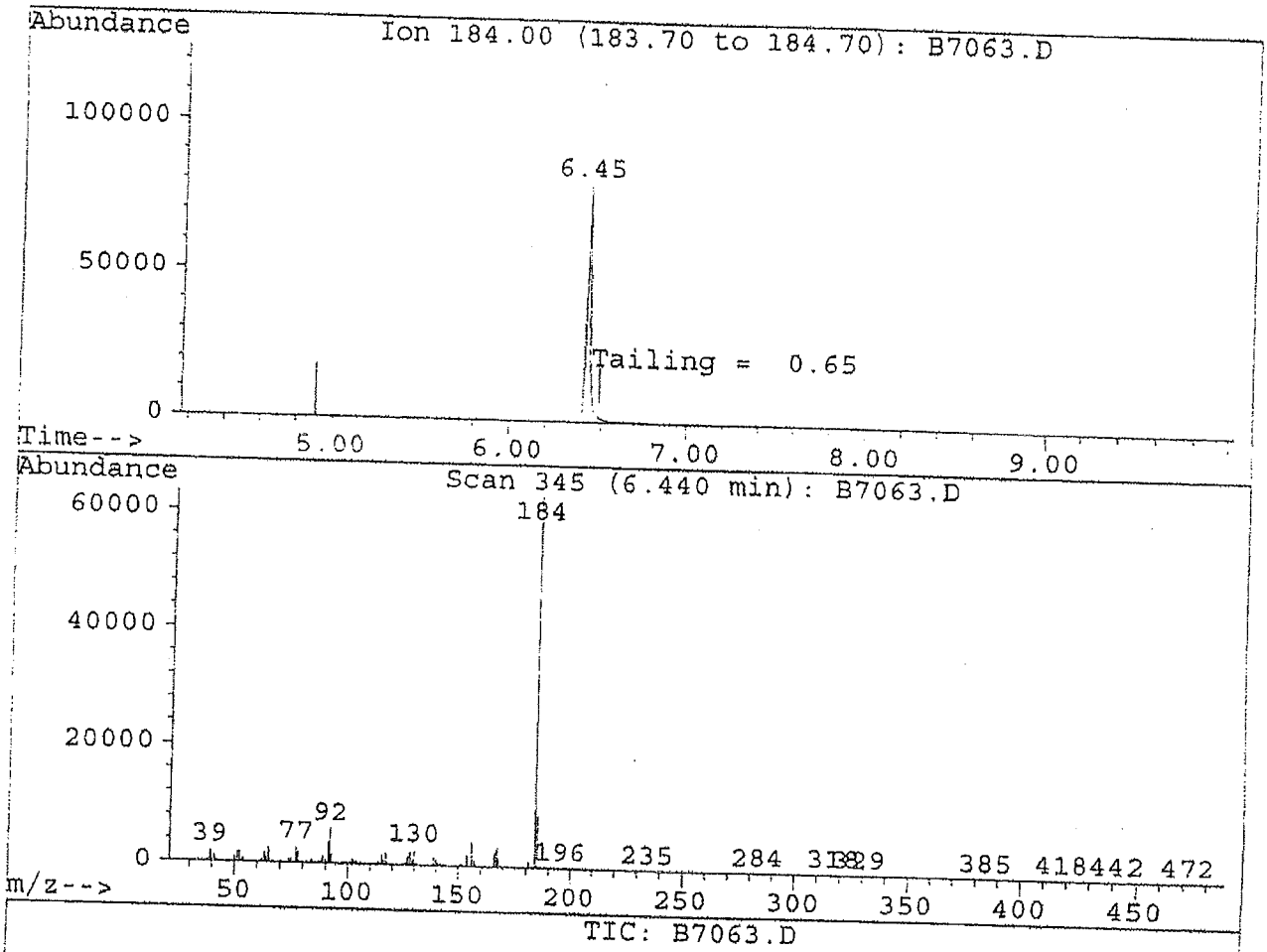
Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B7063.D
Acq On : 4 Nov 97 3:25 pm
Sample : DFTPP.....
Misc :
Quant Time: Nov 4 15:54 1997

Converted from RTE d

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 30 14:02:52 1997
Response via : Multiple Level Calibration



(2) Benzidine
7.91min 0.00ug/ml d
response 0

Ion	Exp%	Act%
184.00	100	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Response Factor Report ABNA

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Initial Calibration

Calibration Files
10 =B7065.D 20 =B7066.D 50 =B7067.D
80 =B7068.D 120 =B7069.D 160 =B7070.D

		Compound	10	20	50	80	120	160	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	ISTD							
2)	S	2-Fluorophenol	0.237	0.235	0.244	0.252	0.286	0.251	0.251	7.38
3)	S	Phenol-d5	1.675	1.521	1.514	1.465	1.442	1.381	1.500	6.66
4)	M	N-nitrosodimethylam	0.308	0.559	0.569	0.606	0.643	0.598	0.547	22.08
5)		Pyridine	0.669	1.152	1.020	0.998	1.146	1.145	1.022	18.20
6)	CM	Phenol	1.392	1.657	1.728	1.717	1.745	1.718	1.659	8.11
7)		Benzyl alcohol	0.809	1.079	1.167	1.230	1.237	1.200	1.120	14.57
8)	MT	bis(2-Chloroethyl)e	0.796	0.880	0.906	0.873	0.820	0.790	0.844	5.74
9)	M	2-Chlorophenol	1.150	1.392	1.427	1.351	1.359	1.374	1.342	7.31
10)	MT	1,3-Dichlorobenzene	1.009	1.173	1.187	1.211	1.198	1.172	1.158	6.43
11)	CM	1,4-Dichlorobenzene	1.104	1.287	1.265	1.282	1.291	1.258	1.248	5.76
12)	M	1,2-Dichlorobenzene	1.071	1.273	1.261	1.280	1.282	1.256	1.237	6.65
13)	T	2-Methylphenol	0.948	1.250	1.315	1.306	1.313	1.314	1.241	11.74
14)	M	bis(2-chloroisoprop	2.026	2.423	2.398	2.366	2.348	2.275	2.306	6.33
15)	T	4-Methylphenol	1.094	1.366	1.349	1.448	1.441	1.428	1.354	9.89
16)	PM	N-Nitroso-Di-n-prop	0.891	1.038	1.100	1.200	1.035	0.940	1.034	10.71
17)	M	Hexachloroethane	0.613	0.719	0.733	0.746	0.735	0.713	0.710	6.88
18)	I	Naphthalene-d8	ISTD							
19)	S	Nitrobenzene-d5	0.361	0.351	0.367	0.371	0.376	0.385	0.369	3.17
20)	M	Nitrobenzene	0.282	0.342	0.340	0.343	0.347	0.357	0.335	8.00
21)	M	Isophorone	0.550	0.668	0.666	0.640	0.685	0.690	0.650	7.96
22)	MC	2-Nitrophenol	0.198	0.254	0.268	0.285	0.288	0.288	0.264	13.25
23)	M	2,4-Dimethylphenol	0.371	0.452	0.489	0.482	0.489	0.499	0.463	10.36
24)	M	bis(2-Chloroethoxy)	0.328	0.380	0.412	0.412	0.412	0.411	0.393	8.71
25)	MC	2,4-Dichlorophenol	0.278	0.355	0.386	0.374	0.366	0.378	0.356	11.19
26)	M	1,2,4-Trichlorobenz	0.287	0.336	0.335	0.336	0.334	0.334	0.327	5.97
27)	M	Naphthalene	0.887	0.993	1.032	1.029	1.031	1.014	0.997	5.64
28)	T	4-Chloroaniline	0.398	0.502	0.521	0.528	0.532	0.533	0.502	10.43
29)	MC	Hexachlorobutadiene	0.210	0.251	0.244	0.244	0.248	0.250	0.241	6.35
30)	MC	4-Chloro-3-methylph	0.348	0.428	0.446	0.446	0.458	0.477	0.434	10.43
31)	M	2-Chloronaphthalene	0.724	0.833	0.817	0.828	0.832	0.877	0.819	6.18
32)	T	2-Methylnaphthalene	0.633	0.799	0.792	0.802	0.799	0.824	0.775	9.07
33)	I	Acenaphthene-d10	ISTD							
34)	P	Hexachlorocyclopent		0.258	0.315	0.362	0.392	0.417	0.349	18.14
35)	MC	2,4,6-Trichlorophen	0.327	0.405	0.428	0.430	0.396	0.404	0.398	9.47
36)	T	2,4,5-Trichlorophen	0.323	0.460	0.448	0.486	0.463	0.436	0.436	13.31
37)	S	2-Fluorobiphenyl	1.046	1.058	1.044	1.087	1.117	1.173	1.088	4.63
38)	T	2-Nitroaniline	0.323	0.455	0.474	0.518	0.530	0.585	0.481	18.65
39)	M	Dimethylphthalate	0.843	0.967	0.662	0.562	0.932	0.972	0.823	20.99
40)	M	Acenaphthylene	1.438	1.647	1.694	1.771	1.854	1.894	1.716	9.63
41)	M	2,6-Dinitrotoluene	0.235	0.302	0.190	0.270	0.287	0.314	0.266	17.46
42)	T	3-Nitroaniline	0.269	0.371	0.403	0.434	0.339	0.330	0.358	16.32
43)	CM	Acenaphthene	0.989	1.149	1.124	1.186	1.202	1.275	1.154	8.32
44)	P	2,4-Dinitrophenol		0.158	0.228	0.241	0.273	0.295	0.239	21.96
45)	M	4-Nitrophenol		0.204	0.243	0.233	0.214	0.261	0.231	9.76
46)		Dibenzofuran	1.507	1.888	1.821	1.957	1.999	2.050	1.870	10.45
47)		2,4-Dinitrotoluene	0.255	0.313	0.221	0.291	0.283	0.298	0.277	12.12

48)	M	Diethylphthalate	1.280	1.459	1.143	1.165	1.192	1.185	1.238	9.56
49)	M	Fluorene	1.178	1.372	1.387	1.469	1.162	1.188	1.293	10.24
50)	M	4-Chlorophenyl-phen	0.556	0.677	0.653	0.685	0.728	0.748	0.675	10.04
1)		Phenanthrene-d10	ISTD							
	T	4-Nitroaniline	0.128	0.158	0.171	0.151	0.128	0.115	0.142	15.04
,)	MC	4,6-Dinitro-2-methy		0.121	0.150	0.147	0.168	0.179	0.153	14.46
54)	T	n-Nitrosodiphenylam	0.352	0.414	0.416	0.381	0.382	0.333	0.380	8.67
55)	S	2,4,6-Tribromopheno	0.167	0.169	0.222	0.183	0.186	0.178	0.184	10.75
56)		1,2-Diphenylhydrazi	0.777	0.885	1.016	0.870	0.811	0.786	0.857	10.41
57)	M	4-Bromophenyl-pheny	0.176	0.215	0.232	0.224	0.222	0.214	0.214	9.25
58)	M	Hexachlorobenzene	0.265	0.312	0.395	0.323	0.325	0.312	0.322	13.05
59)	CM	Pentachlorophenol		0.118	0.185	0.204	0.209	0.211	0.185	21.15
60)	M	Phenanthrene	0.903	0.938	1.006	1.027	1.018	1.230	1.020	11.14
61)	M	Anthracene	0.750	0.787	0.831	0.882	0.878	0.868	0.833	6.53
62)		Carbazole	0.792	0.887	0.913	0.883	0.887	0.912	0.879	5.06
63)	M	Di-n-butylphthalate	1.247	1.357	1.450	1.384	1.256	1.249	1.324	6.49
64)	MC	Fluoranthene	1.120	1.126	1.224	1.193	1.118	1.168	1.158	3.80
65)	I	Chrysene-d12	ISTD							
66)		Benzidine	0.310	0.330	0.278	0.256	0.290	0.276	0.290	9.20
67)	M	Pyrene	1.224	1.537	1.663	1.534	1.344	1.351	1.442	11.25
68)	S	Terphenyl-d14	0.976	1.042	1.135	1.055	0.974	1.000	1.031	5.95
69)	M	Butylbenzylphthalat	0.515	0.632	0.606	0.592	0.580	0.593	0.586	6.72
70)	M	Benzo[a]anthracene	0.998	1.099	1.188	1.257	1.368	1.202	1.185	10.76
71)	M	3,3'-Dichlorobenzid	0.359	0.313	0.261	0.260	0.325	0.349	0.311	13.68
72)	M	Chrysene	0.646	0.710	0.673	0.789	0.732	0.518	0.678	13.68
73)	M	bis(2-Ethylhexyl)ph	0.662	0.869	0.819	0.829	0.794	0.809	0.797	8.89
74)	I	Perylene-d12	ISTD							
75)	MC	Di-n-octylphthalate	1.476	1.944	2.380	2.294	2.015	1.853	1.994	16.35
)	M	Benzo[b]fluoranthen	1.424	1.372	1.718	2.300	2.264	1.821	1.816	21.97
)	m	Benzo[k]fluoranthen	1.505	1.480	1.141	1.010	0.774	0.748	1.110	29.83
78)	mc	Benzo[a]pyrene	1.116	0.972	1.027	1.015	0.979	0.945	1.009	5.98
79)	m	Indeno[1,2,3-cd]pyr	0.603	0.611	0.691	0.777	0.806	0.805	0.715	13.16
80)	m	Dibenz[a,h]anthrace	0.443	0.532	0.572	0.650	0.689	0.693	0.597	16.64
81)	M	Benzo[g,h,i]perylen	0.377	0.444	0.653	0.689	0.656	0.645	0.577	22.80

(#) = Out of Range

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.95	27	44.60	2	51.90	162	58.10	9
37.10	3	44.75	4	52.85	16	58.70	3
37.30	4	45.70	2	53.10	3	59.60	2
37.90	24	46.65	6	53.60	2	59.80	2
39.00	399	47.05	16	54.00	5	59.95	6
41.60	1	47.50	4	54.60	4	60.30	5
42.10	5	48.40	10	55.05	1	61.55	5
42.40	5	49.60	4	55.60	1	62.00	10
42.60	5	50.00	995	56.00	110	62.30	4
42.80	5	50.20	3	57.00	139	62.90	79
43.70	23	51.00	3251	57.20	9	63.30	6

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
63.80	7	70.00	27	75.00	441	83.50	2
64.90	27	70.30	4	75.20	4	83.75	10
65.40	6	70.65	11	77.00	2463	83.80	2
65.95	6	71.25	8	78.00	129	84.55	4
66.30	3	71.60	2	78.90	256	84.85	11
66.90	12	72.70	5	79.90	113	85.15	7
67.50	2	73.00	15	80.50	2	85.65	4
68.30	7	73.60	8	81.00	157	85.85	12
68.50	4	74.00	238	81.20	4	86.15	6
68.95	3934	74.30	5	82.05	70	86.90	27
69.75	8	74.60	5	83.30	5	88.15	3

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
88.45	1	95.50	4	103.25	2	109.35	7
88.90	6	95.90	25	103.65	5	109.95	1971
89.25	5	97.45	3	103.85	61	110.65	3
89.55	4	97.65	3	104.65	3	110.95	33
90.85	59	97.95	312	104.85	66	111.95	2
91.55	1	98.15	6	105.25	6	112.15	2
92.25	5	98.95	84	105.95	3	113.85	4
92.45	2	100.95	106	106.25	2	114.20	7
92.85	362	102.15	4	106.95	820	114.40	7
93.95	36	102.65	1	107.95	132	114.75	3
94.35	3	103.00	48	108.85	6	115.20	7

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
116.95	758	124.65	2	130.05	86	137.00	56
117.75	2	124.95	4	130.95	4	137.25	2
117.85	3	125.25	18	131.50	4	137.45	3
118.00	66	125.40	23	131.85	17	138.35	9
119.30	3	125.65	2	132.45	1	138.60	7
120.55	3	125.95	3	132.80	4	139.15	11
120.75	2	126.15	3	133.15	5	139.35	2
1.95	24	126.95	2352	134.55	3	139.50	2
2.25	1	128.25	2	134.95	90	139.80	3
2.95	123	128.95	1372	135.35	2	140.90	202
.95	61	129.15	4	136.00	9	141.95	68

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
142.30	2	149.95	15	155.00	76	161.95	17
142.85	45	150.20	3	155.60	4	162.20	8
143.80	5	150.50	2	156.00	93	163.90	3
144.10	7	150.70	1	156.20	2	164.10	2
144.50	1	151.00	26	156.90	9	164.60	3
145.00	15	151.65	6	157.50	19	164.90	29
145.95	33	151.90	1	157.95	39	165.10	5
146.55	3	152.80	3	159.95	64	165.70	2
146.80	16	153.10	4	160.85	21	166.30	1
147.30	40	153.95	46	161.20	1	166.65	9
147.90	153	154.40	15	161.70	2	166.80	6

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
166.95	284	171.95	19	181.00	82	191.10	11
167.30	2	172.90	19	181.90	14	191.35	31
167.90	27	173.05	21	182.80	3	192.05	74
169.05	29	173.80	4	183.15	9	192.60	4
169.30	2	174.05	23	184.00	26	193.05	98
169.50	2	174.45	3	184.40	3	193.80	5
169.80	8	175.00	126	186.00	701	194.10	23
170.55	12	176.05	43	187.00	119	194.55	9
170.80	3	176.95	35	188.90	40	195.15	2
171.10	11	178.00	1	190.05	14	195.95	222
171.30	6	179.00	274	190.40	10	196.15	2

Average of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
196.95	4	202.95	25	211.35	2	216.85	392
197.25	2	203.90	212	212.45	1	217.95	53
197.85	5447	204.30	4	212.75	4	218.85	2
198.95	323	205.10	26	213.35	2	220.50	11
199.95	26	205.95	1251	213.65	2	220.95	317
200.25	8	206.25	3	214.95	25	221.35	1
200.85	2	206.85	114	215.25	1	221.75	2
201.15	2	207.65	2	215.65	3	222.75	2
201.40	37	207.90	58	216.05	2	223.35	1
202.30	3	210.20	24	216.30	3	223.95	739
202.55	4	210.95	60	216.55	1	224.55	1

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
224.95	170	232.00	12	239.05	21	245.65	2
225.60	5	232.25	4	239.45	2	245.95	161
226.15	2	232.55	1	240.50	3	246.95	29
226.45	2	232.90	5	240.90	29	247.15	4
226.65	1	233.50	7	241.35	8	247.65	1
226.95	420	233.90	10	241.65	1	248.30	8
227.45	1	234.95	25	242.00	37	248.55	1
27.90	12	235.65	1	242.55	6	249.00	21
28.95	82	236.00	22	243.25	1	249.50	3
29.40	4	237.75	1	243.95	526	250.05	3
1.00	33	238.75	4	245.10	99	250.70	3

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
250.95	4	255.95	396	265.55	9	272.20	4
251.20	3	257.30	12	265.90	44	272.90	77
251.50	7	257.90	197	267.15	5	273.20	22
251.80	10	258.40	3	267.50	8	273.90	5
252.00	10	258.95	37	268.50	1	275.00	1253
252.30	3	259.90	3	269.95	7	275.50	1
252.85	1	261.00	6	270.40	2	275.90	121
254.10	2	262.20	3	270.60	2	276.30	5
254.90	3141	262.55	5	271.00	13	277.00	136
255.10	2	263.15	6	271.30	1	277.40	2
255.30	3	264.95	86	271.95	9	278.50	1

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
281.30	3	288.20	1	292.15	7	300.20	2
281.80	2	288.50	1	292.90	34	300.80	2
282.40	7	288.90	3	293.10	1	301.05	5
283.05	20	289.40	2	293.40	2	301.30	3
283.95	6	289.65	3	294.00	5	301.80	7
284.25	8	289.90	5	294.30	8	302.00	2
284.50	2	290.25	4	296.00	481	302.30	4
284.90	25	290.50	1	296.95	66	302.60	1
285.50	1	290.90	1	297.50	1	303.00	48
285.70	1	291.20	1	299.10	1	303.70	2
286.20	1	291.90	4	299.70	1	303.95	15

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
304.30	2	314.00	32	321.05	9	328.00	13
306.75	1	314.60	2	321.45	1	328.75	6
307.70	4	314.90	47	322.65	2	330.90	2
308.05	3	316.00	26	322.95	127	331.30	5
308.75	3	317.05	3	324.00	28	331.55	3
309.75	2	317.95	1	325.05	1	331.75	6
309.85	2	318.15	2	325.40	2	332.20	9
310.00	8	318.55	3	326.25	8	332.55	4
311.55	3	320.10	3	326.95	23	332.80	4
312.20	6	320.45	1	327.25	1	333.35	16
313.00	8	320.85	12	327.75	4	333.75	10

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
334.00	34	344.95	2	353.75	4	359.55	1
334.25	4	345.60	7	354.05	37	360.05	4
337.20	3	346.00	26	355.35	2	360.95	1
338.20	2	346.85	3	355.65	3	362.05	2
338.85	1	347.35	3	356.85	1	362.35	3
340.55	8	349.85	2	357.25	3	363.55	4
341.35	1	350.45	5	357.95	2	364.65	7
343.05	1	351.55	6	358.40	4	364.95	185
343.35	1	351.90	24	358.75	3	365.95	29
343.75	1	352.35	1	359.05	2	366.90	2
344.50	3	353.05	5	359.35	3	367.20	1

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
367.50	1	372.80	3	382.80	12	390.00	3
368.40	1	373.05	14	383.00	11	390.30	3
368.60	1	374.10	2	383.50	2	390.60	2
369.00	3	375.30	2	383.85	5	390.80	1
370.00	2	376.30	3	384.10	2	391.10	9
370.20	3	377.10	1	384.80	4	391.90	9
370.40	5	377.70	2	385.65	5	392.60	1
370.90	13	377.90	4	386.10	1	392.90	5
371.40	3	378.70	1	386.60	2	393.30	2
371.70	1	381.90	2	387.60	1	394.55	3
372.05	77	382.20	3	389.65	8	395.00	1

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
395.30	4	401.70	1	406.80	2	416.70	1
396.30	3	402.10	28	407.30	1	416.95	2
396.80	1	402.80	5	407.60	2	417.35	2
398.10	1	403.05	33	407.95	5	417.75	1
398.70	2	403.40	2	408.70	3	418.25	1
398.95	2	403.95	12	409.00	1	418.55	1
399.55	4	405.25	3	410.60	2	418.95	3
399.80	1	405.50	2	410.90	1	419.25	1
400.50	2	405.70	2	412.80	4	419.50	3
400.75	4	406.25	3	414.05	4	420.75	3
401.00	2	406.50	1	415.00	1	421.00	24

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
421.30	3	429.95	1	438.00	7	444.00	55
421.75	5	430.40	3	438.30	4	444.95	2
422.95	97	430.80	6	438.95	12	445.45	2
424.65	4	433.25	1	439.45	6	445.75	1
425.55	1	434.40	5	441.10	11	446.05	3
427.45	3	434.75	2	441.55	2	446.65	2
428.05	1	434.90	2	441.75	3	446.85	2
428.35	3	436.60	3	442.05	3258	447.15	2
428.55	3	436.95	2	442.75	2	447.85	1
428.90	2	437.35	2	442.95	610	448.05	2
429.15	1	437.65	10	443.35	2	448.55	2

Average of 4.991 to 5.051 min.: B7063.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
450.95	4	462.25	2	470.15	4		
451.55	1	462.45	2	471.10	4		
453.60	5	462.95	1	471.35	1		
454.85	2	463.70	3	472.50	1		
456.35	2	464.15	2	473.00	4		
457.25	1	465.85	1	473.60	3		
457.65	1	467.45	3	473.90	1		
457.95	1	468.45	2				
459.15	1	468.75	1				
459.75	1	469.25	2				
460.15	4	469.55	3				

Quantitation Report

Data File : c:\hpchem\1\data3\b7066.d
Acq On : 4 Nov 97 5:09 pm
Sample : 20 STD.....
Misc :
Quant Time: Nov 5 12:08 1997

Converted from RTE d

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.13	152	12269	40.00	ug/mL	0.00
18) Naphthalene-d8	10.91	136	52621	40.00	ug/mL	0.00
33) Acenaphthene-d10	16.16	164	41636	40.00	ug/mL	0.00
51) Phenanthrene-d10	20.49	188	98645	40.00	ug/ml	0.00
65) Chrysene-d12	28.44	240	78584	40.00	ug/mL	0.01
74) Perylene-d12	32.41	264	37898	40.00	ug/mL	0.00
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.83	112	3610	10.04	ug/mL	10.04%
3) Phenol-d5	7.06	99	23331	38.72	ug/mL	38.72%
19) Nitrobenzene-d5	8.98	82	23112	36.61	ug/mL	36.61%
37) 2-Fluorobiphenyl	14.39	172	55089	45.24	ug/mL	45.24%
55) 2,4,6-Tribromophenol	18.62	330	20898	34.39	ug/mL	34.39%
68) Terphenyl-d14	25.57	244	102390	50.20	ug/mL	50.20%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.45	74	3428	14.03	ug/ml	100
5) Pyridine	1.41	79	7069	17.23	ug/ml	100
6) Phenol	7.11	94	10163	15.85	ug/mL	100
7) Benzyl alcohol	8.00	79	6621	21.58	ug/ml	95
8) bis(2-Chloroethyl)ether	6.82	93	5400	13.99	ug/mL	89
9) 2-Chlorophenol	6.82	128	8540	18.49	ug/mL	96
10) 1,3-Dichlorobenzene	6.98	146	7193	20.66	ug/mL	98
11) 1,4-Dichlorobenzene	7.19	146	7894	20.44	ug/mL	97
12) 1,2-Dichlorobenzene	7.69	146	7812	20.99	ug/mL	97
13) 2-Methylphenol	8.75	108	7670	17.33	ug/mL	93
14) bis(2-chloroisopropyl)ethe	8.43	45	14862	27.70	ug/mL	99
15) 4-Methylphenol	9.22	108	8382	17.70	ug/mL	97
16) N-Nitroso-Di-n-propylamine	8.87	70	6365	16.53	ug/mL	98
17) Hexachloroethane	8.55	117	4411	15.33	ug/mL#	76
20) Nitrobenzene	9.04	77	8989	16.28	ug/mL	94
21) Isophorone	9.79	82	17569	21.77	ug/mL	100
22) 2-Nitrophenol	9.99	139	6695	19.07	ug/mL	98
23) 2,4-Dimethylphenol	10.62	107	11886	17.58	ug/mL	98
24) bis(2-Chloroethoxy)methane	10.75	93	10006	16.53	ug/mL	99
25) 2,4-Dichlorophenol	10.89	162	9353	20.68	ug/mL	96
26) 1,2,4-Trichlorobenzene	10.87	180	8834	20.87	ug/mL	98
27) Naphthalene	10.95	128	26119	18.89	ug/mL	98
28) 4-Chloroaniline	11.50	127	13217	20.11	ug/mL	98
29) Hexachlorobutadiene	11.64	225	6603	19.40	ug/mL	97
30) 4-Chloro-3-methylphenol	13.39	107	11263	18.70	ug/mL	98
31) 2-Chloronaphthalene	14.47	162	21928	21.11	ug/ml	97
32) 2-Methylnaphthalene	13.06	142	21017	20.98	ug/mL	98
34) Hexachlorocyclopentadiene	13.80	237	5380	11.61	ug/mL	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7066.d
Acq On : 4 Nov 97 5:09 pm
Sample : 20 STD.....
Misc :
Quant Time: Nov 5 12:08 1997

Converted from RTE d

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
35) 2,4,6-Trichlorophenol	14.22	196	8426	18.21 ug/mL	97
36) 2,4,5-Trichlorophenol	14.47	196	9582	20.44 ug/mL	99
38) 2-Nitroaniline	15.16	65	9462	15.11 ug/mL	87
39) Dimethylphthalate	15.95	163	20136	17.38 ug/mL	100
40) Acenaphthylene	15.67	152	34279	19.62 ug/mL#	99
41) 2,6-Dinitrotoluene	16.10	165	6295	18.24 ug/mL	98
42) 3-Nitroaniline	16.46	138	7722	19.69 ug/mL	93
43) Acenaphthene	16.24	153	23910	20.42 ug/mL	98
44) 2,4-Dinitrophenol	16.81	184	3283	10.85 ug/mL	86
45) 4-Nitrophenol	17.66	109	4255	14.70 ug/mL	94
46) Dibenzofuran	16.75	168	39295	20.79 ug/mL	98
47) 2,4-Dinitrotoluene	17.23	165	6519	13.71 ug/mL	91
48) Diethylphthalate	18.13	149	30381	19.34 ug/mL	96
49) Fluorene	17.76	166	28565	20.66 ug/mL	99
50) 4-Chlorophenyl-phenylether	17.99	204	14099	20.58 ug/mL	99
52) 4-Nitroaniline	18.31	138	7804	18.28 ug/mL	96
53) 4,6-Dinitro-2-methylphenol	18.41	198	5976	13.98 ug/mL	100
54) n-Nitrosodiphenylamine	18.46	169	20428	21.66 ug/mL	100
56) 1,2-Diphenylhydrazine (as	18.41	77	43634	17.90 ug/ml	100
57) 4-Bromophenyl-phenylether	19.39	248	10589	18.62 ug/mL	98
58) Hexachlorobenzene	19.62	284	15405	17.20 ug/mL#	88
59) Pentachlorophenol	20.37	266	5811	10.83 ug/mL	98
60) Phenanthrene	20.55	178	46271	18.24 ug/mL	99
61) Anthracene	20.67	178	38833	16.53 ug/mL	99
62) Carbazole	21.43	167	43726	19.95 ug/ml	99
63) Di-n-butylphthalate	23.03	149	66939	19.08 ug/mL	99
64) Fluoranthene	24.09	202	55545	18.39 ug/mL	94
66) Benzidine	24.88	184	12981	28.06 ug/ml	100
67) Pyrene	24.70	202	60401	23.73 ug/mL	95
69) Butylbenzylphthalate	27.45	149	24851	20.10 ug/mL#	85
70) Benzo[a]anthracene	28.38	228	43188	20.44 ug/mL	100
71) 3,3'-Dichlorobenzidine	28.67	252	12290	16.07 ug/mL#	93
72) Chrysene	28.50	228	27904	15.15 ug/mL	99
73) bis(2-Ethylhexyl)phthalate	29.42	149	34159	16.27 ug/mL#	36
75) Di-n-octylphthalate	31.19	149	36835	21.37 ug/mL	99
76) Benzo[b]fluoranthene	31.43	252	25999	13.89 ug/mL	96
77) Benzo[k]fluoranthene	31.51	252	28039	34.76 ug/mLm	98
78) Benzo[a]pyrene	32.25	252	18418	20.35 ug/mL#	97
79) Indeno[1,2,3-cd]pyrene	34.93	276	11570	16.29 ug/mLm	96
80) Dibenz[a,h]anthracene	35.03	278	10087	16.11 ug/mLm	96
81) Benzo[g,h,i]perylene	35.46	276	8411	16.38 ug/mLm	98

(#) = qualifier out of range (m) = manual integration

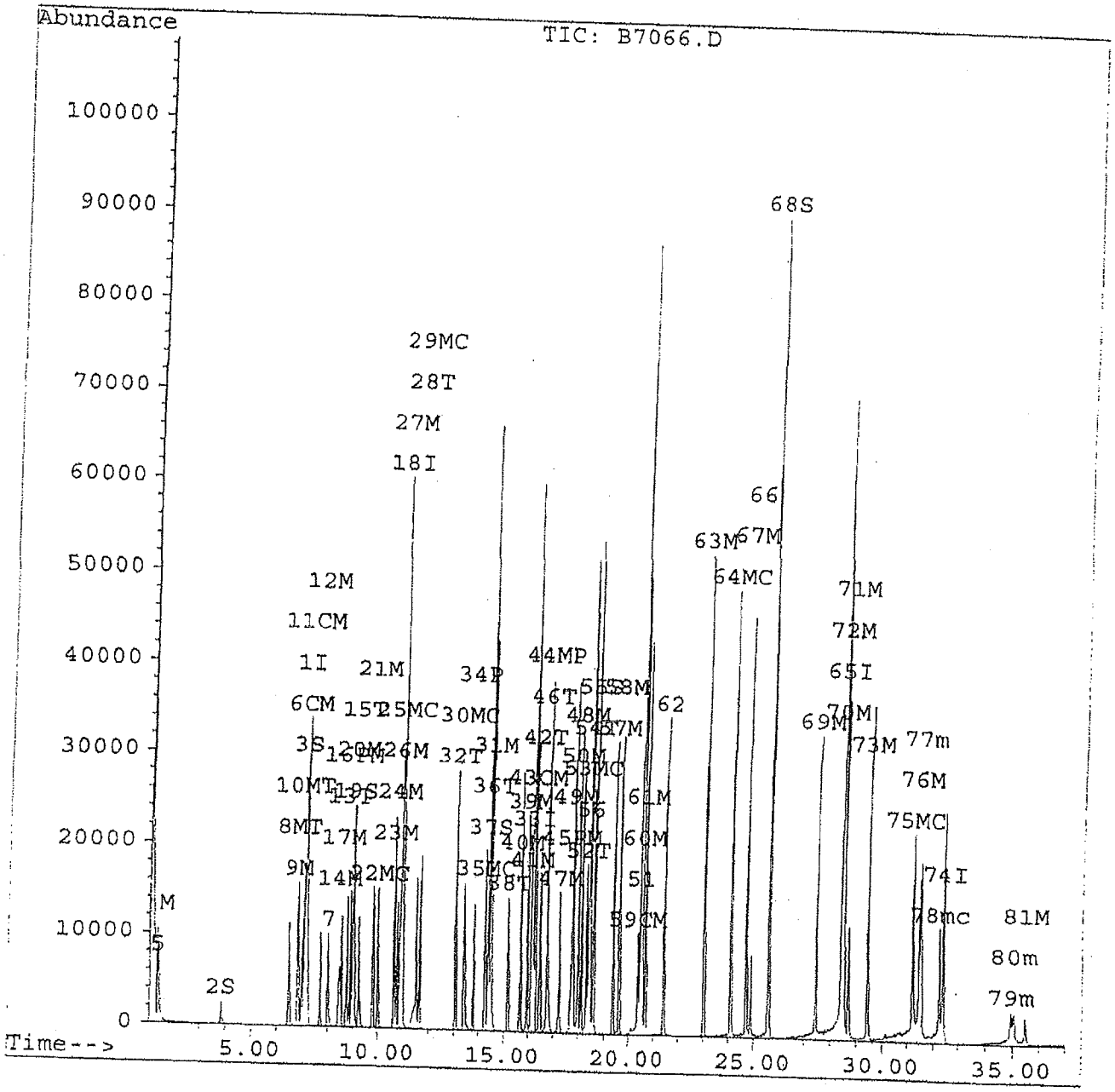
Quantitation Report

Data File : c:\hpchem\1\data3\b7066.d
Acq On : 4 Nov 97 5:09 pm
Sample : 20 STD.....
Misc :
Quant Time: Nov 5 12:08 1997

Converted from RTE d

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data3\b7067.d
Acq On : 4 Nov 97 5:56 pm
Sample : 50 STD.....
Misc :
Quant Time: Nov 5 11:52 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.13	152	12591	40.00	ug/mL	0.00
18) Naphthalene-d8	10.91	136	53219	40.00	ug/mL	0.00
33) Acenaphthene-d10	16.16	164	44781	40.00	ug/mL	0.00
51) Phenanthrene-d10	20.50	188	83157	40.00	ug/ml	0.00
65) Chrysene-d12	28.43	240	64621	40.00	ug/mL	0.00
74) Perylene-d12	32.40	264	27266	40.00	ug/mL	0.00
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.83	112	3846	10.43	ug/mL	10.43%
3) Phenol-d5	7.04	99	23829	38.53	ug/mL	38.53%
19) Nitrobenzene-d5	9.00	82	24384	38.19	ug/mL	38.19%
37) 2-Fluorobiphenyl	14.39	172	58444	44.62	ug/mL	44.62%
55) 2,4,6-Tribromophenol	18.62	330	23077	45.05	ug/mL	45.05%
68) Terphenyl-d14	25.58	244	91716	54.68	ug/mL	54.68%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.45	74	8960	35.73	ug/ml	100
5) Pyridine	1.41	79	16046	38.11	ug/ml	100
6) Phenol	7.08	94	27204	41.34	ug/mL	100
7) Benzyl alcohol	8.02	79	18367	58.34	ug/ml	100
8) bis(2-Chloroethyl)ether	6.82	93	14260	36.00	ug/mL	100
9) 2-Chlorophenol	6.80	128	22452	47.36	ug/mL	100
10) 1,3-Dichlorobenzene	6.98	146	18685	52.30	ug/mL	100
11) 1,4-Dichlorobenzene	7.19	146	19914	50.25	ug/mL	100
12) 1,2-Dichlorobenzene	7.69	146	19841	51.95	ug/mL	100
13) 2-Methylphenol	8.71	108	20695	45.55	ug/mL	100
14) bis(2-chloroisopropyl)ethe	8.43	45	37734	68.52	ug/mL	100
15) 4-Methylphenol	9.20	108	21225	43.66	ug/mL	100
16) N-Nitroso-Di-n-propylamine	8.89	70	17310	43.79	ug/mL	100
17) Hexachloroethane	8.53	117	11540	39.09	ug/mL	100
20) Nitrobenzene	9.04	77	22594	40.47	ug/mL	100
21) Isophorone	9.83	82	44324	54.31	ug/mL	100
22) 2-Nitrophenol	9.99	139	17850	50.29	ug/mL	100
23) 2,4-Dimethylphenol	10.62	107	32521	47.56	ug/mL	100
24) bis(2-Chloroethoxy)methane	10.77	93	27379	44.73	ug/mL	100
25) 2,4-Dichlorophenol	10.87	162	25686	56.15	ug/mL	100
26) 1,2,4-Trichlorobenzene	10.87	180	22318	52.14	ug/mL	100
27) Naphthalene	10.97	128	68625	49.08	ug/mL	100
28) 4-Chloroaniline	11.50	127	34647	52.13	ug/mL	100
29) Hexachlorobutadiene	11.66	225	16217	47.11	ug/mL	100
30) 4-Chloro-3-methylphenol	13.37	107	29641	48.66	ug/mL	100
31) 2-Chloronaphthalene	14.47	162	54376	51.76	ug/ml	100
32) 2-Methylnaphthalene	13.07	142	52666	51.99	ug/mL	100
34) Hexachlorocyclopentadiene	13.80	237	17634	35.39	ug/mL	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7067.d
Acq On : 4 Nov 97 5:56 pm
Sample : 50 STD.....
Misc :
Quant Time: Nov 5 11:52 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,6-Trichlorophenol	14.22	196	23973	48.18	ug/mL	100
36) 2,4,5-Trichlorophenol	14.43	196	25067	49.72	ug/mL	100
38) 2-Nitroaniline	15.18	65	26511	39.37	ug/mL	100
39) Dimethylphthalate	15.98	163	37038	29.73	ug/mL	99
40) Acenaphthylene	15.67	152	94812	50.46	ug/mL#	100
41) 2,6-Dinitrotoluene	16.12	165	10617	28.60	ug/mL	100
42) 3-Nitroaniline	16.46	138	22549	53.46	ug/mL	98
43) Acenaphthene	16.26	153	62915	49.96	ug/mL	100
44) 2,4-Dinitrophenol	16.79	184	12777	39.27	ug/mL	91
45) 4-Nitrophenol	17.62	109	13583	43.62	ug/mL	90
46) Dibenzofuran	16.75	168	101953	50.15	ug/mL	100
47) 2,4-Dinitrotoluene	17.24	165	12363	24.17	ug/mL	97
48) Diethylphthalate	18.13	149	63976	37.87	ug/mL	100
49) Fluorene	17.77	166	77628	52.20	ug/mL	100
50) 4-Chlorophenyl-phenylether	17.99	204	36576	49.64	ug/mL	100
52) 4-Nitroaniline	18.34	138	17743	49.29	ug/mL	100
53) 4,6-Dinitro-2-methylphenol	18.44	198	15547	43.15	ug/mL	100
54) n-Nitrosodiphenylamine	18.46	169	43254	54.39	ug/mL	100
56) 1,2-Diphenylhydrazine (as	18.42	77	105640	51.40	ug/ml	100
57) 4-Bromophenyl-phenylether	19.40	248	24164	50.41	ug/mL	100
58) Hexachlorobenzene	19.64	284	41054	54.36	ug/mL	100
59) Pentachlorophenol	20.37	266	19202	42.46	ug/mL	100
60) Phenanthrene	20.56	178	104592	48.90	ug/mL	100
61) Anthracene	20.68	178	86372	43.60	ug/mL	100
62) Carbazole	21.43	167	94913	51.38	ug/ml	100
63) Di-n-butylphthalate	23.04	149	150770	50.97	ug/mL	100
64) Fluoranthene	24.10	202	127219	49.97	ug/mL	100
66) Benzidine	24.87	184	22464	59.04	ug/ml	100
67) Pyrene	24.71	202	134292	64.17	ug/mL	100
69) Butylbenzylphthalate	27.43	149	48943	48.15	ug/mL	100
70) Benzo[a]anthracene	28.39	228	95939	55.22	ug/mL	100
71) 3,3'-Dichlorobenzidine	28.68	252	21097	33.54	ug/mL	96
72) Chrysene	28.51	228	54401	35.93	ug/mL	100
73) bis(2-Ethylhexyl)phthalate	29.43	149	66174	38.32	ug/mL#	34
75) Di-n-octylphthalate	31.18	149	81128	65.41	ug/mL	100
76) Benzo[b]fluoranthene	31.44	252	58547	43.48	ug/mL	100
77) Benzo[k]fluoranthene	31.51	252	38876	66.99	ug/mLm	99
78) Benzo[a]pyrene	32.24	252	35012	53.76	ug/mL	99
79) Indeno[1,2,3-cd]pyrene	34.92	276	23545	46.08	ug/mL	97
80) Dibenz[a,h]anthracene	35.02	278	19484	43.25	ug/mL	98
81) Benzo[g,h,i]perylene	35.45	276	22245	60.20	ug/mLm	98

(#) = qualifier out of range (m) = manual integration

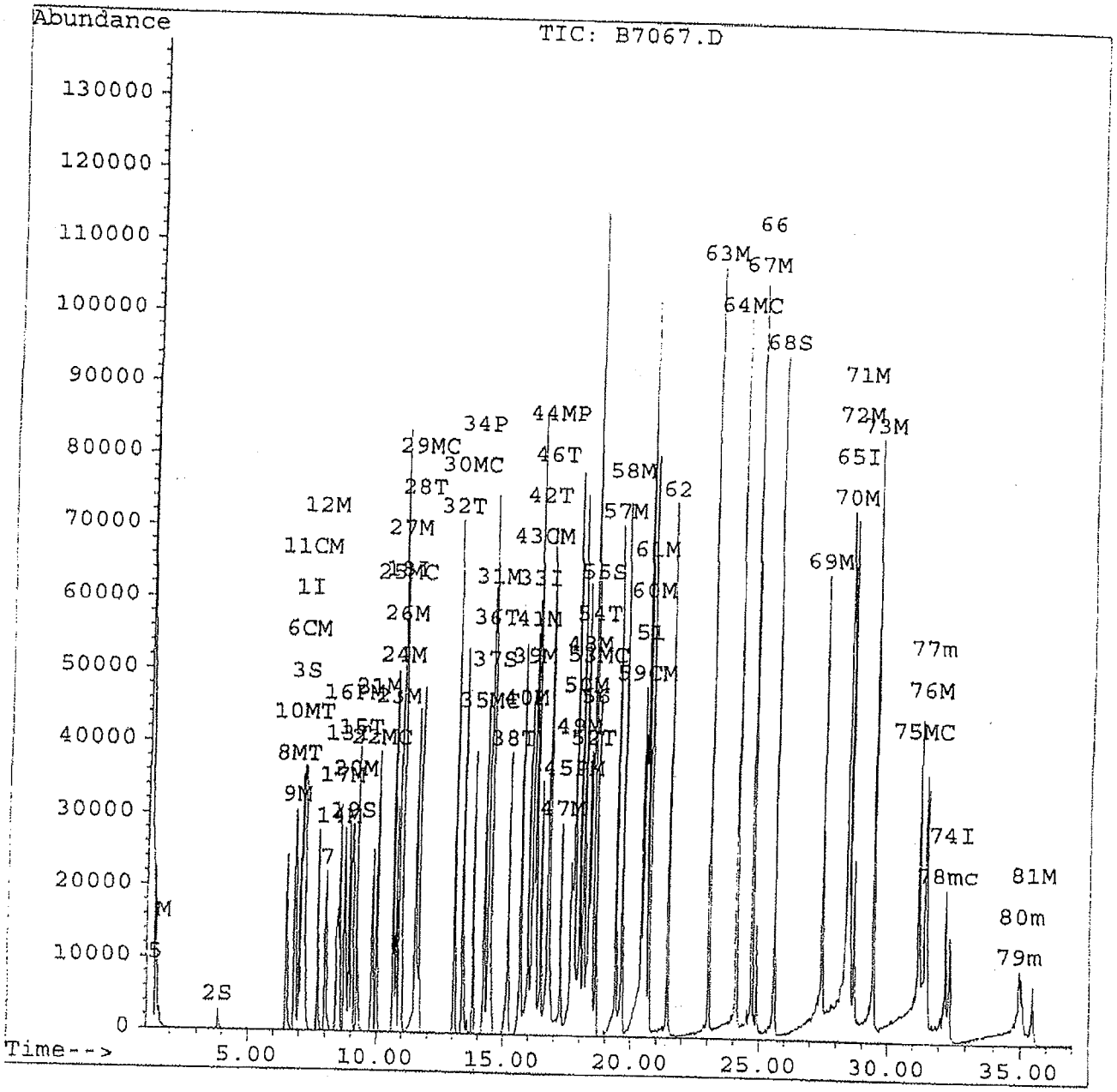
Quantitation Report

Data File : c:\hpchem\1\data3\b7067.d
Acq On : 4 Nov 97 5:56 pm
Sample : 50 STD.....
Misc :
Quant Time: Nov 5 11:52 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data3\b7068.d
Acq On : 4 Nov 97 6:43 pm
Sample : 80 STD.....
Misc :
Quant Time: Nov 5 12:09 1997

Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.13	152	12515	40.00	ug/mL	0.00
18) Naphthalene-d8	10.93	136	53129	40.00	ug/mL	0.02
33) Acenaphthene-d10	16.18	164	42933	40.00	ug/mL	0.02
51) Phenanthrene-d10	20.50	188	80359	40.00	ug/ml	0.00
65) Chrysene-d12	28.44	240	64139	40.00	ug/mL	0.01
74) Perylene-d12	32.39	264	27867	40.00	ug/mL	0.00
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.83	112	3943	10.76	ug/mL	10.76%
3) Phenol-d5	7.04	99	22922	37.29	ug/mL	37.29%
19) Nitrobenzene-d5	9.00	82	24667	38.70	ug/mL	38.70%
37) 2-Fluorobiphenyl	14.41	172	58335	46.45	ug/mL	46.45%
55) 2,4,6-Tribromophenol	18.63	330	18409	37.19	ug/mL	37.19%
68) Terphenyl-d14	25.57	244	84584	50.81	ug/mL	50.81%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.45	74	15164	60.84	ug/ml	100
5) Pyridine	1.41	79	24971	59.67	ug/ml	100
6) Phenol	7.06	94	42973	65.70	ug/mL	100
7) Benzyl alcohol	8.02	79	30799	98.41	ug/ml	93
8) bis(2-Chloroethyl)ether	6.82	93	21839	55.47	ug/mL	99
9) 2-Chlorophenol	6.78	128	33820	71.77	ug/mL	94
10) 1,3-Dichlorobenzene	6.98	146	30305	85.35	ug/mL	97
11) 1,4-Dichlorobenzene	7.19	146	32089	81.47	ug/mL	99
12) 1,2-Dichlorobenzene	7.70	146	32050	84.43	ug/mL	99
13) 2-Methylphenol	8.71	108	32699	72.41	ug/mL	97
14) bis(2-chloroisopropyl)ethe	8.43	45	59215	108.19	ug/mL	98
15) 4-Methylphenol	9.20	108	36254	75.03	ug/mL	98
16) N-Nitroso-Di-n-propylamine	8.92	70	30048	76.48	ug/mL	98
17) Hexachloroethane	8.53	117	18676	63.64	ug/mL	98
20) Nitrobenzene	9.06	77	36400	65.31	ug/mL	94
21) Isophorone	9.87	82	67961	83.41	ug/mL	100
22) 2-Nitrophenol	10.02	139	30305	85.52	ug/mL	92
23) 2,4-Dimethylphenol	10.65	107	51165	74.96	ug/mL	100
24) bis(2-Chloroethoxy)methane	10.77	93	43765	71.63	ug/mL	99
25) 2,4-Dichlorophenol	10.87	162	39776	87.10	ug/mL	98
26) 1,2,4-Trichlorobenzene	10.89	180	35717	83.58	ug/mL	99
27) Naphthalene	10.97	128	109370	78.35	ug/mL	98
28) 4-Chloroaniline	11.52	127	56087	84.53	ug/mL	99
29) Hexachlorobutadiene	11.66	225	25915	75.42	ug/mL	99
30) 4-Chloro-3-methylphenol	13.37	107	47370	77.89	ug/mL	98
31) 2-Chloronaphthalene	14.49	162	87993	83.90	ug/ml	94
32) 2-Methylnaphthalene	13.07	142	85204	84.25	ug/mL	100
34) Hexachlorocyclopentadiene	13.80	237	31109	65.12	ug/mL	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7068.d
Acq On : 4 Nov 97 6:43 pm
Sample : 80 STD.....
Misc :
Quant Time: Nov 5 12:09 1997

Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,6-Trichlorophenol	14.25	196	36922	77.39	ug/mL	98
36) 2,4,5-Trichlorophenol	14.41	196	41772	86.42	ug/mL	98
38) 2-Nitroaniline	15.20	65	44514	68.95	ug/mL	92
39) Dimethylphthalate	15.98	163	48284	40.42	ug/mL	99
40) Acenaphthylene	15.69	152	152107	84.44	ug/mL#	99
41) 2,6-Dinitrotoluene	16.14	165	23178	65.12	ug/mLm	0
42) 3-Nitroaniline	16.49	138	37308	92.26	ug/mL	97
43) Acenaphthene	16.26	153	101837	84.35	ug/mL	100
44) 2,4-Dinitrophenol	16.81	184	20716	66.40	ug/mL	96
45) 4-Nitrophenol	17.61	109	20023	67.07	ug/mL	89
46) Dibenzofuran	16.77	168	168024	86.20	ug/mL	96
47) 2,4-Dinitrotoluene	17.26	165	25026	51.02	ug/mLm	0
48) Diethylphthalate	18.16	149	100070	61.78	ug/mL	99
49) Fluorene	17.79	166	126152	88.48	ug/mL	99
50) 4-Chlorophenyl-phenylether	18.00	204	58807	83.25	ug/mL	99
52) 4-Nitroaniline	18.38	138	24208	69.60	ug/mL	95
53) 4,6-Dinitro-2-methylphenol	18.44	198	23688	68.04	ug/mL	100
54) n-Nitrosodiphenylamine	18.49	169	61306	79.78	ug/mL	99
56) 1,2-Diphenylhydrazine (as	18.44	77	139779	70.38	ug/ml	100
57) 4-Bromophenyl-phenylether	19.40	248	36071	77.87	ug/mL	96
58) Hexachlorobenzene	19.65	284	51918	71.14	ug/mL	97
59) Pentachlorophenol	20.38	266	32803	75.05	ug/mL	98
60) Phenanthrene	20.56	178	164982	79.82	ug/mL	100
61) Anthracene	20.71	178	141795	74.07	ug/mLm	0
62) Carbazole	21.44	167	141950	79.52	ug/ml	99
63) Di-n-butylphthalate	23.05	149	222482	77.84	ug/mL	99
64) Fluoranthene	24.10	202	191798	77.96	ug/mL	98
66) Benzidine	24.88	184	32788	86.82	ug/ml	100
67) Pyrene	24.72	202	196824	94.76	ug/mL	98
69) Butylbenzylphthalate	27.44	149	75898	75.22	ug/mL	96
70) Benzo[a]anthracene	28.40	228	161209	93.49	ug/mL	99
71) 3,3'-Dichlorobenzidine	28.67	252	33293	53.33	ug/mL#	96
72) Chrysene	28.50	228	101248	67.36	ug/mLm	99
73) bis(2-Ethylhexyl)phthalate	29.42	149	106379	62.07	ug/mL#	33
75) Di-n-octylphthalate	31.19	149	127876	100.88	ug/mL	99
76) Benzo[b]fluoranthene	31.44	252	128205	93.15	ug/mLm	97
77) Benzo[k]fluoranthene	31.52	252	56264	94.86	ug/mLm	98
78) Benzo[a]pyrene	32.23	252	56555	84.97	ug/mL	99
79) Indeno[1,2,3-cd]pyrene	34.94	276	43278	82.88	ug/mL	94
80) Dibenz[a,h]anthracene	35.02	278	36241	78.71	ug/mL	99
81) Benzo[g,h,i]perylene	35.44	276	38394	101.66	ug/mLm	98

(#) = qualifier out of range (m) = manual integration

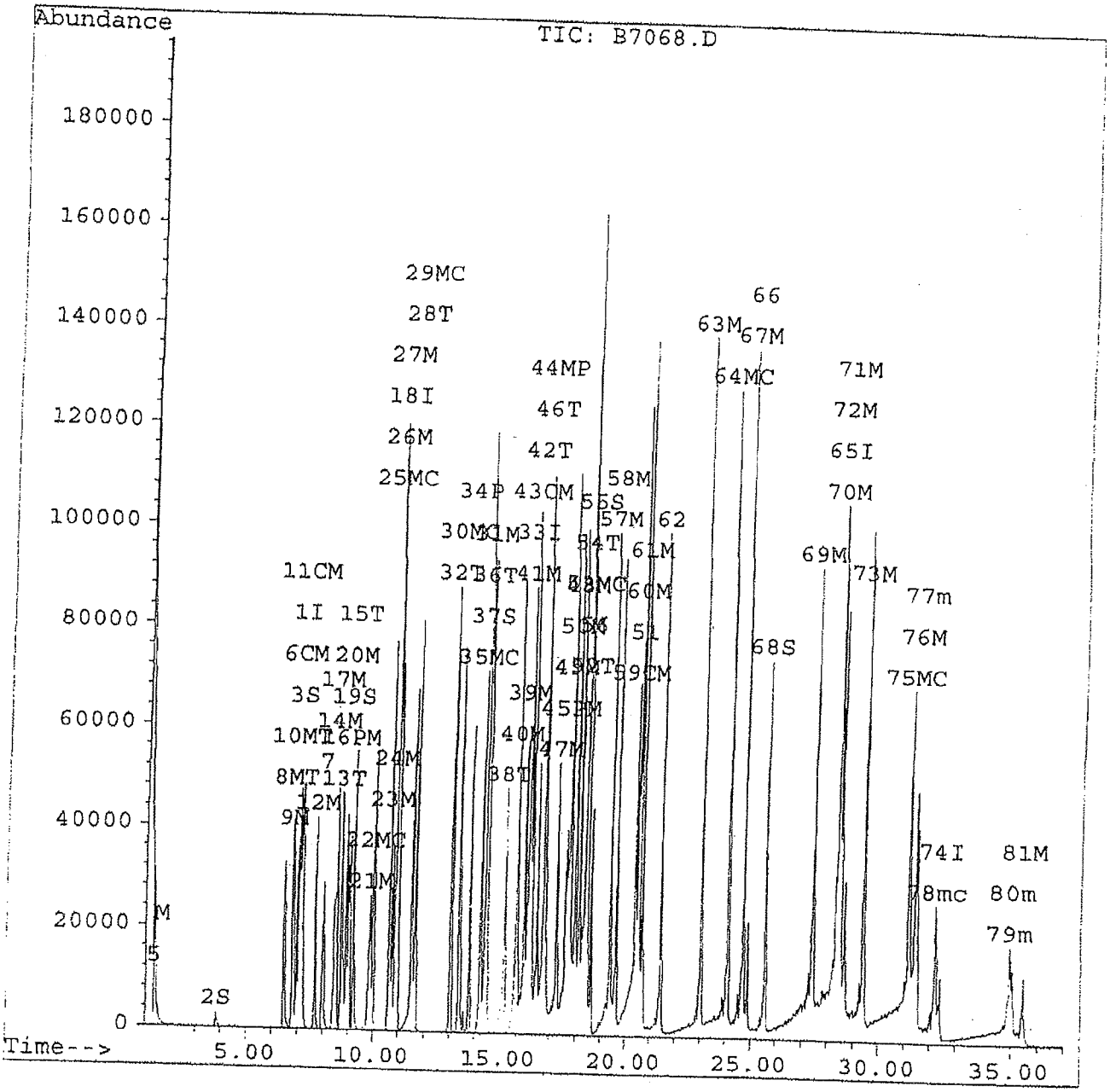
Quantitation Report

Data File : c:\hpchem\1\data3\b7068.d
Acq On : 4 Nov 97 6:43 pm
Sample : 80 STD.....
Misc :
Quant Time: Nov 5 12:09 1997

Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data3\b7069.d
Acq On : 4 Nov 97 7:30 pm
Sample : 120 STD.....
Misc :
Quant Time: Nov 5 12:11 1997

Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.14	152	14123	40.00	ug/mL	0.02
18) Naphthalene-d8	10.95	136	59497	40.00	ug/mL	0.04
33) Acenaphthene-d10	16.18	164	47603	40.00	ug/mL	0.02
51) Phenanthrene-d10	20.51	188	91651	40.00	ug/ml	0.01
65) Chrysene-d12	28.45	240	76941	40.00	ug/mL	0.02
74) Perylene-d12	32.39	264	39927	40.00	ug/mL	-0.02
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.85	112	5051	12.21	ug/mL	12.21%
3) Phenol-d5	7.04	99	25456	36.70	ug/mL	36.70%
19) Nitrobenzene-d5	9.02	82	27985	39.21	ug/mL	39.21%
37) 2-Fluorobiphenyl	14.41	172	66487	47.75	ug/mL	47.75%
55) 2,4,6-Tribromophenol	18.63	330	21252	37.64	ug/mL	37.64%
68) Terphenyl-d14	25.58	244	93719	46.93	ug/mL	46.93%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.47	74	27223	96.79	ug/ml	100
5) Pyridine	1.41	79	48554	102.82	ug/ml	100
6) Phenol	7.06	94	73934	100.17	ug/mL	100
7) Benzyl alcohol	8.08	79	52423	148.44	ug/ml	98
8) bis(2-Chloroethyl)ether	6.86	93	34730	78.17	ug/mL	95
9) 2-Chlorophenol	6.80	128	57584	108.28	ug/mL	96
10) 1,3-Dichlorobenzene	7.00	146	50776	126.72	ug/mL	97
11) 1,4-Dichlorobenzene	7.19	146	54708	123.08	ug/mL	99
12) 1,2-Dichlorobenzene	7.71	146	54316	126.80	ug/mL	99
13) 2-Methylphenol	8.73	108	55637	109.18	ug/mL	96
14) bis(2-chloroisopropyl)ethe	8.45	45	99481	161.06	ug/mL#	94
15) 4-Methylphenol	9.22	108	61074	112.01	ug/mL	97
16) N-Nitroso-Di-n-propylamine	8.96	70	43847	98.90	ug/mL	94
17) Hexachloroethane	8.55	117	31159	94.09	ug/mL	90
20) Nitrobenzene	9.08	77	61962	99.28	ug/mL	95
21) Isophorone	9.95	82	122291	134.02	ug/mLm	99
22) 2-Nitrophenol	10.03	139	51357	129.41	ug/mL	95
23) 2,4-Dimethylphenol	10.67	107	87302	114.21	ug/mL	99
24) bis(2-Chloroethoxy)methane	10.79	93	73610	107.58	ug/mL	99
25) 2,4-Dichlorophenol	10.89	162	65377	127.84	ug/mL#	94
26) 1,2,4-Trichlorobenzene	10.89	180	59683	124.71	ug/mL	99
27) Naphthalene	10.99	128	183957	117.68	ug/mL	99
28) 4-Chloroaniline	11.54	127	94913	127.74	ug/mL	97
29) Hexachlorobutadiene	11.66	225	44206	114.88	ug/mL	98
30) 4-Chloro-3-methylphenol	13.37	107	81762	120.05	ug/mL	99
31) 2-Chloronaphthalene	14.49	162	148585	126.51	ug/ml	100
32) 2-Methylnaphthalene	13.09	142	142547	125.86	ug/mL	100
34) Hexachlorocyclopentadiene	13.80	237	56010	105.75	ug/mL	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7069.d
Acq On : 4 Nov 97 7:30 pm
Sample : 120 STD.....
Misc :
Quant Time: Nov 5 12:11 1997

Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,6-Trichlorophenol	14.25	196	56543	106.89	ug/mL	98
36) 2,4,5-Trichlorophenol	14.41	196	66127	123.39	ug/mL	99
38) 2-Nitroaniline	15.23	65	75618	105.64	ug/mL	96
39) Dimethylphthalate	16.02	163	133049	100.46	ug/mLm	0
40) Acenaphthylene	15.71	152	264705	132.53	ug/mL#	97
41) 2,6-Dinitrotoluene	16.16	165	41027	103.96	ug/mLm	0
42) 3-Nitroaniline	16.51	138	48477	108.11	ug/mL	94
43) Acenaphthene	16.29	153	171601	128.19	ug/mL	99
44) 2,4-Dinitrophenol	16.84	184	39004	112.76	ug/mL#	83
45) 4-Nitrophenol	17.59	109	30518	92.20	ug/mL	92
46) Dibenzofuran	16.80	168	285506	132.10	ug/mL	93
47) 2,4-Dinitrotoluene	17.30	165	40367	74.23	ug/mLm	0
48) Diethylphthalate	18.18	149	170268	94.81	ug/mL	100
49) Fluorene	17.79	166	165984	105.00	ug/mL	99
50) 4-Chlorophenyl-phenylether	18.02	204	104023	132.81	ug/mL	96
52) 4-Nitroaniline	18.43	138	35234	88.81	ug/mL	94
53) 4,6-Dinitro-2-methylphenol	18.49	198	46252	116.48	ug/mL	100
54) n-Nitrosodiphenylamine	18.51	169	104957	119.75	ug/mL	99
56) 1,2-Diphenylhydrazine (as	18.47	77	223095	98.50	ug/ml	100
57) 4-Bromophenyl-phenylether	19.41	248	60960	115.39	ug/mL	94
58) Hexachlorobenzene	19.67	284	89267	107.25	ug/mL	99
59) Pentachlorophenol	20.41	266	57529	115.41	ug/mL	96
60) Phenanthrene	20.59	178	279773	118.68	ug/mL	99
61) Anthracene	20.71	178	241503	110.61	ug/mLm	0
62) Carbazole	21.44	167	243789	119.75	ug/ml	99
63) Di-n-butylphthalate	23.05	149	345368	105.95	ug/mL	99
64) Fluoranthene	24.11	202	307479	109.58	ug/mL	99
66) Benzidine	24.89	184	66833	147.53	ug/ml	100
67) Pyrene	24.72	202	310170	124.49	ug/mL	97
69) Butylbenzylphthalate	27.45	149	133840	110.58	ug/mL	94
70) Benzo[a]anthracene	28.41	228	315726	152.63	ug/mL	99
71) 3,3'-Dichlorobenzidine	28.68	252	75023	100.18	ug/mL	96
72) Chrysene	28.51	228	169059	93.77	ug/mLm	99
73) bis(2-Ethylhexyl)phthalate	29.43	149	183213	89.11	ug/mL#	36
75) Di-n-octylphthalate	31.18	149	241325	132.88	ug/mL	100
76) Benzo[b]fluoranthene	31.45	252	271161	137.52	ug/mLm	98
77) Benzo[k]fluoranthene	31.51	252	92736	109.13	ug/mLm	99
78) Benzo[a]pyrene	32.24	252	117256	122.95	ug/mL	98
79) Indeno[1,2,3-cd]pyrene	34.93	276	96546	129.04	ug/mL	98
80) Dibenz[a,h]anthracene	35.03	278	82578	125.18	ug/mL	98
81) Benzo[g,h,i]perylene	35.46	276	78556	145.18	ug/mLm	0

(#) = qualifier out of range (m) = manual integration

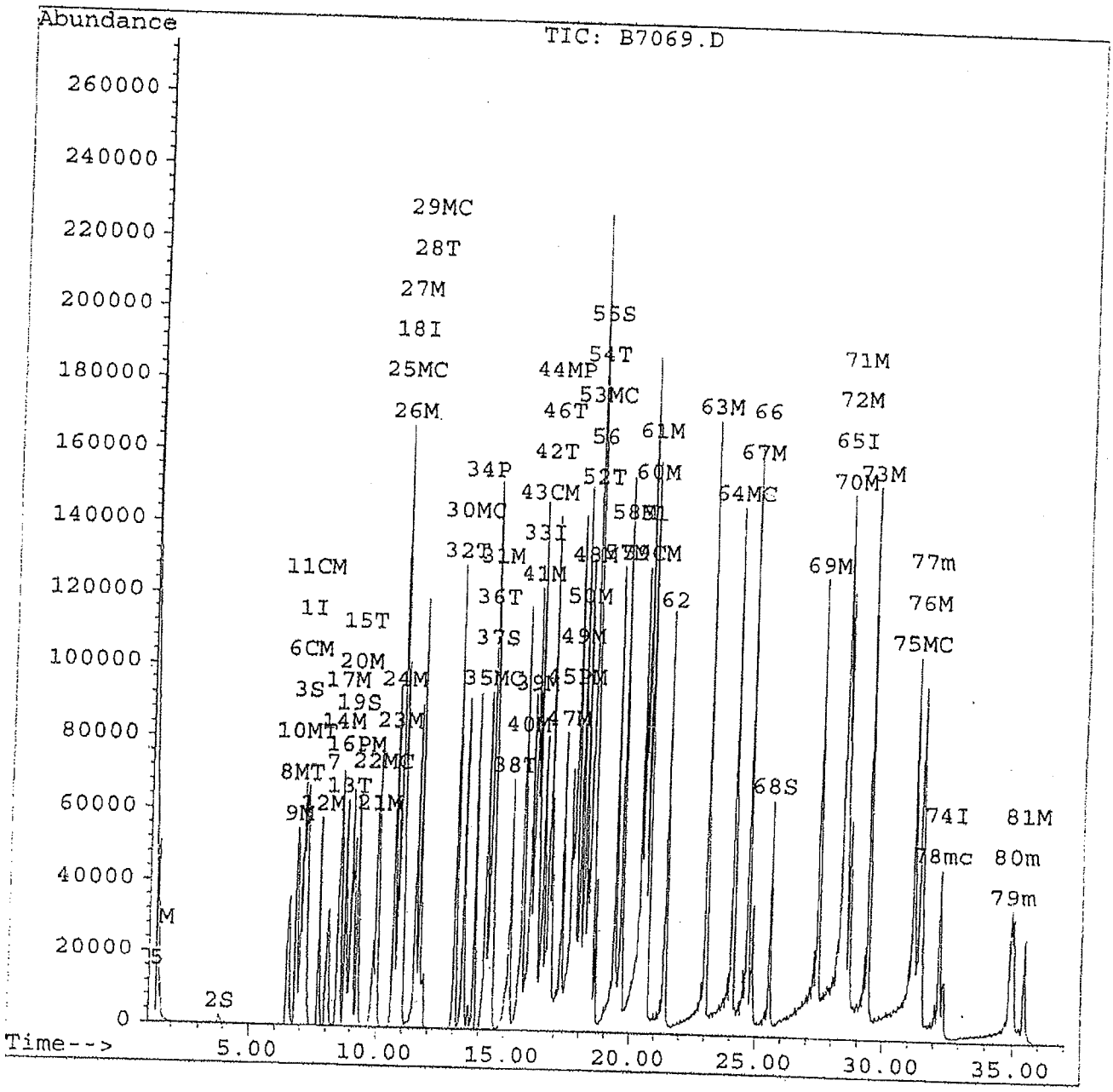
Quantitation Report

Data File : c:\hpchem\1\data3\b7069.d
Acq On : 4 Nov 97 7:30 pm
Sample : 120 STD.....
Misc :
Quant Time: Nov 5 12:11 1997

Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data3\b7070.d
Acq On : 4 Nov 97 8:17 pm
Sample : 160 STD.....
Misc :
Quant Time: Nov 5 12:14 1997

Converted from RTE d

Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.15	152	13448	40.00	ug/mL	0.02
18) Naphthalene-d8	10.95	136	54814	40.00	ug/mL	0.04
33) Acenaphthene-d10	16.21	164	42984	40.00	ug/mL	0.05
51) Phenanthrene-d10	20.51	188	86796	40.00	ug/ml	0.02
65) Chrysene-d12	28.44	240	77058	40.00	ug/mL	0.01
74) Perylene-d12	32.36	264	43988	40.00	ug/mL	-0.05
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.85	112	4215	10.70	ug/mL	10.70%
3) Phenol-d5	7.04	99	23220	35.16	ug/mL	35.16%
19) Nitrobenzene-d5	9.04	82	26370	40.10	ug/mL	40.10%
37) 2-Fluorobiphenyl	14.44	172	63032	50.13	ug/mL	50.13%
55) 2,4,6-Tribromophenol	18.64	330	19337	36.17	ug/mL	36.17%
68) Terphenyl-d14	25.57	244	96367	48.18	ug/mL	48.18%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.47	74	32166	120.10	ug/ml	100
5) Pyridine	1.41	79	61598	136.98	ug/ml	100
6) Phenol	7.09	94	92417	131.50	ug/mL	100
7) Benzyl alcohol	8.10	79	64548	191.94	ug/ml	93
8) bis(2-Chloroethyl)ether	6.86	93	42519	100.50	ug/mL	93
9) 2-Chlorophenol	6.80	128	73917	145.97	ug/mL	96
10) 1,3-Dichlorobenzene	7.00	146	63048	165.24	ug/mL	97
11) 1,4-Dichlorobenzene	7.21	146	67678	159.90	ug/mL	100
12) 1,2-Dichlorobenzene	7.72	146	67555	165.62	ug/mL	99
13) 2-Methylphenol	8.75	108	70665	145.63	ug/mL	97
14) bis(2-chloroisopropyl)ethe	8.47	45	122364	208.05	ug/mL#	91
15) 4-Methylphenol	9.24	108	76813	147.94	ug/mL	98
16) N-Nitroso-Di-n-propylamine	8.96	70	50563	119.77	ug/mL	96
17) Hexachloroethane	8.55	117	38339	121.58	ug/mL	91
20) Nitrobenzene	9.08	77	78384	136.32	ug/mL	97
21) Isophorone	10.00	82	151189	179.85	ug/mLm	97
22) 2-Nitrophenol	10.04	139	63114	172.63	ug/mL	99
23) 2,4-Dimethylphenol	10.69	107	109315	155.22	ug/mL	99
24) bis(2-Chloroethoxy)methane	10.81	93	90222	143.12	ug/mL	100
25) 2,4-Dichlorophenol	10.91	162	82823	175.80	ug/mL#	93
26) 1,2,4-Trichlorobenzene	10.91	180	73310	166.27	ug/mL	99
27) Naphthalene	11.02	128	222329	154.38	ug/mL	99
28) 4-Chloroaniline	11.54	127	116770	170.59	ug/mL	98
29) Hexachlorobutadiene	11.67	225	54752	154.44	ug/mL	99
30) 4-Chloro-3-methylphenol	13.40	107	104682	166.84	ug/mL	91
31) 2-Chloronaphthalene	14.52	162	192300	177.72	ug/ml	97
32) 2-Methylnaphthalene	13.09	142	180714	173.20	ug/mL	100
34) Hexachlorocyclopentadiene	13.80	237	71714	149.94	ug/mL	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7070.d
Acq On : 4 Nov 97 8:17 pm
Sample : 160 STD.....
Misc :
Quant Time: Nov 5 12:14 1997

Converted from RTE d

Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,6-Trichlorophenol	14.27	196	69468	145.44	ug/mL	99
36) 2,4,5-Trichlorophenol	14.42	196	74941	154.86	ug/mL	99
38) 2-Nitroaniline	15.25	65	100530	155.53	ug/mL	91
39) Dimethylphthalate	16.05	163	167169	139.79	ug/mLm	0
40) Acenaphthylene	15.72	152	325699	180.59	ug/mL#	98
41) 2,6-Dinitrotoluene	16.19	165	53931	151.34	ug/mLm	0
42) 3-Nitroaniline	16.53	138	56794	140.27	ug/mL	96
43) Acenaphthene	16.31	153	219300	181.43	ug/mL	100
44) 2,4-Dinitrophenol	16.86	184	50708	162.35	ug/mL#	82
45) 4-Nitrophenol	17.60	109	44835	150.00	ug/mL	96
46) Dibenzofuran	16.80	168	352500	180.63	ug/mL	97
47) 2,4-Dinitrotoluene	17.31	165	51280	104.43	ug/mLm	0
48) Diethylphthalate	18.21	149	203755	125.65	ug/mL	99
49) Fluorene	17.82	166	204200	143.06	ug/mL	99
50) 4-Chlorophenyl-phenylether	18.02	204	128659	181.92	ug/mL	98
52) 4-Nitroaniline	18.45	138	40026	106.54	ug/mL	94
53) 4,6-Dinitro-2-methylphenol	18.51	198	62119	165.18	ug/mL	100
54) n-Nitrosodiphenylamine	18.49	169	115782	139.49	ug/mL	92
56) 1,2-Diphenylhydrazine (as	18.47	77	272905	127.23	ug/ml	100
57) 4-Bromophenyl-phenylether	19.41	248	74348	148.60	ug/mL	94
58) Hexachlorobenzene	19.68	284	108365	137.48	ug/mL	96
59) Pentachlorophenol	20.41	266	73326	155.33	ug/mL	98
60) Phenanthrene	20.60	178	426945	191.24	ug/mL	99
61) Anthracene	20.74	178	301514	145.82	ug/mLm	0
62) Carbazole	21.47	167	316501	164.16	ug/ml	99
63) Di-n-butylphthalate	23.06	149	433500	140.42	ug/mL	99
64) Fluoranthene	24.12	202	405341	152.53	ug/mL	99
66) Benzidine	24.87	184	85114	187.60	ug/ml	100
67) Pyrene	24.73	202	416516	166.91	ug/mL	97
69) Butylbenzylphthalate	27.44	149	182685	150.71	ug/mL	97
70) Benzo[a]anthracene	28.42	228	370480	178.83	ug/mL	99
71) 3,3'-Dichlorobenzidine	28.67	252	107457	143.27	ug/mL	96
72) Chrysene	28.52	228	159666	88.42	ug/mLm	0
73) bis(2-Ethylhexyl)phthalate	29.42	149	249255	121.04	ug/mL#	35
75) Di-n-octylphthalate	31.17	149	325996	162.93	ug/mL	99
76) Benzo[b]fluoranthene	31.46	252	320354	147.46	ug/mLm	99
77) Benzo[k]fluoranthene	31.48	252	131605	140.57	ug/mLm	100
78) Benzo[a]pyrene	32.23	252	166216	158.20	ug/mL	98
79) Indeno[1,2,3-cd]pyrene	34.94	276	141725	171.94	ug/mL	99
80) Dibenz[a,h]anthracene	35.02	278	122005	167.87	ug/mL	98
81) Benzo[g,h,i]perylene	35.45	276	113480	190.36	ug/mLm	0

(#) = qualifier out of range (m) = manual integration

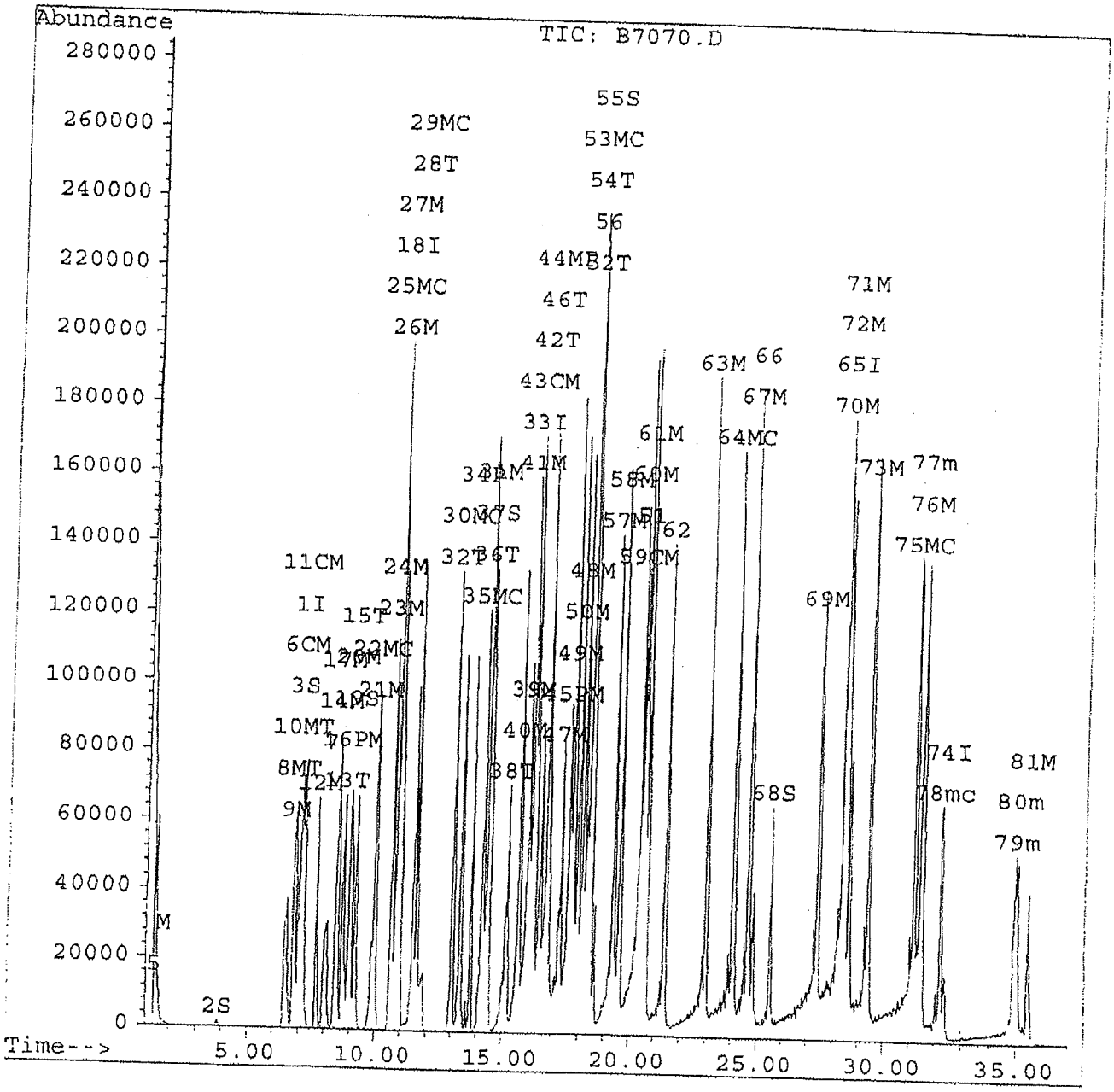
Quantitation Report

Data File : c:\hpchem\1\data3\b7070.d
Acq On : 4 Nov 97 8:17 pm
Sample : 160 STD.....
Misc :
Quant Time: Nov 5 12:14 1997

Converted from RTE d

Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: B6889.D DFTPP Injection Date: 10/21/97

Instrument ID: ABNA DFTPP Injection Time: 1846

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	36.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	97.7
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	25.0 - 75.0% of mass 198	51.7
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.4
275	10.0 - 30.0% of mass 198	13.0
365	Greater than 0.75% of mass 198	3.0
441	Present, but less than mass 443	13.3
442	40.0 - 110.0% of mass 198	85.9
443	15.0 - 24.0% of mass 442	17.0 (19.8)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

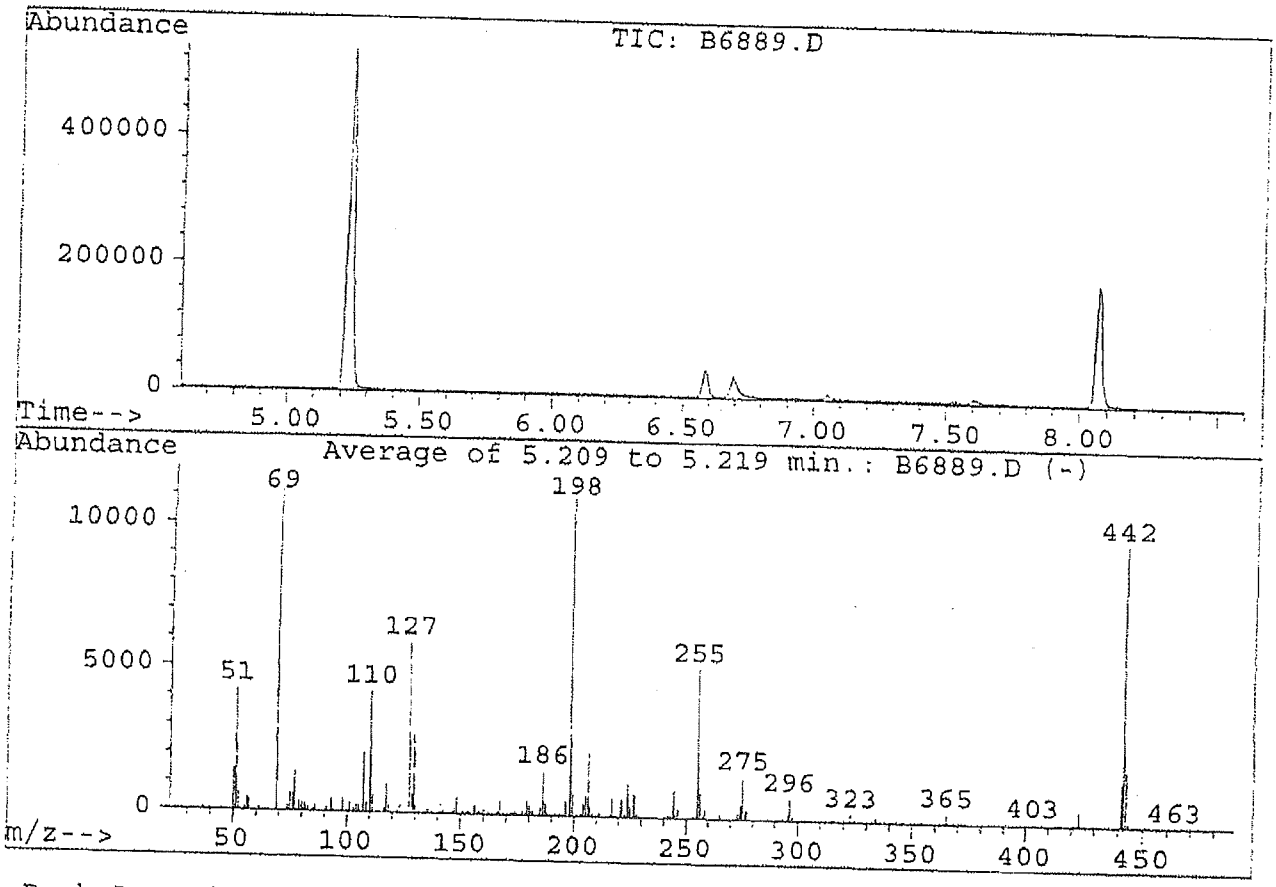
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	50 STD	B6890.D	10/21/97	1906
02	SBLK01	BLANK1	B6891.D	10/21/97	1957
03	9765050B	9765050B	B6896.D	10/22/97	0011
04	63065MS	63065MS	B6899.D	10/22/97	0244
05	63065MSD	63065MSD	B6900.D	10/22/97	0334
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data File : C:\HPCHEM\1\DATA2\B6889.D
Acq On : 21 Oct 97 6:46 pm
Sample : DFTPP..... Converted from RTE d
Misc :

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration



Peak Apex is scan: 366

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	36.8	4204	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	97.7	11155	PASS
70	69	0	2	0.0	0	PASS
127	198	40	60	51.7	5904	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	11420	PASS
199	198	5	9	7.4	841	PASS
275	198	10	30	13.0	1480	PASS
365	198	1	100	3.0	338	PASS
441	443	0	100	78.1	1517	PASS
442	198	40	100	85.9	9809	PASS
443	442	17	23	19.8	1943	PASS

B6889.D BNACLP.M Thu Oct 23 10:48:37 1997 BNA

Average of 5.209 to 5.219 min.: B6889.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
37.10	87	55.05	116	75.05	643	86.05	226
39.05	13	56.05	451	76.10	625	89.35	19
39.95	84	56.95	398	77.05	1379	90.35	15
42.85	22	57.85	13	78.05	56	91.05	142
43.05	29	58.05	50	79.05	350	92.95	515
46.25	5	60.05	23	79.95	284	94.00	68
50.05	1479	61.05	152	80.95	295	95.15	20
51.05	4204	69.05	11155	82.05	201	96.05	35
52.05	638	71.55	18	83.05	173	97.95	461
52.95	41	71.85	23	84.65	28	100.05	58
54.05	23	74.05	205	85.00	111	101.05	331

Average of 5.209 to 5.219 min.: B6889.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
103.05	122	115.00	9	129.00	2700	137.80	19
104.05	259	115.50	14	130.00	256	139.10	11
105.05	249	116.10	172	130.80	15	140.05	72
105.75	54	117.00	1007	131.00	41	140.40	23
107.05	2030	118.05	232	131.70	15	141.00	348
108.15	338	119.00	38	133.95	102	142.00	132
110.00	4185	119.90	17	135.10	254	142.20	27
111.00	563	122.00	155	136.50	29	142.60	18
112.90	18	123.05	324	136.70	25	145.10	56
114.40	16	127.00	5904	137.10	127	146.15	64
114.70	11	128.10	661	137.50	12	146.40	58

verage of 5.209 to 5.219 min.: B6889.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
147.00	216	160.05	171	171.00	22	180.10	305
148.10	568	160.90	24	172.10	56	181.10	162
151.05	60	162.10	61	173.05	80	182.10	23
151.90	14	162.80	14	173.50	27	182.95	11
152.15	25	165.00	43	174.05	153	183.25	10
153.05	134	166.00	111	175.10	49	184.05	41
154.05	92	166.30	77	176.10	45	185.05	287
156.05	302	167.00	494	177.10	131	185.95	1535
157.15	88	169.05	55	177.90	22	187.05	419
158.10	104	170.10	17	178.10	35	188.05	78
159.05	45	170.80	23	179.00	505	188.95	82

erage of 5.209 to 5.219 min.: B6889.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
190.05	25	203.00	124	218.05	79	230.20	16
191.10	52	204.05	448	219.05	30	231.05	62
192.10	36	205.05	705	221.05	623	231.95	10
193.85	38	206.05	2192	223.05	124	234.70	31
195.05	36	207.05	355	224.05	1152	234.95	17
196.05	497	208.05	127	225.10	380	235.15	25
198.05	11420	210.20	68	225.85	16	236.00	57
3.95	841	210.95	158	226.05	40	236.90	51
00.15	46	214.65	9	227.05	837	237.95	11
01.00	42	215.95	89	228.05	119	239.95	27
201.65	58	216.85	683	229.05	138	240.25	7

Average of 5.209 to 5.219 min.: B6889.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
241.05	45	253.10	100	273.05	216	285.15	56
242.15	109	255.05	5193	274.10	483	286.20	9
243.10	93	256.00	904	275.00	1480	288.00	6
244.15	982	256.90	26	276.10	327	290.10	12
245.20	157	257.10	76	277.05	316	291.60	9
246.10	305	257.90	308	278.00	32	291.90	16
248.45	28	258.95	68	278.90	23	292.10	16
249.00	37	260.30	12	283.00	36	293.05	80
250.65	7	261.00	11	283.90	7	294.00	23
252.10	33	265.00	181	284.20	8	294.70	10
252.55	26	268.30	8	285.00	12	296.00	758

Average of 5.209 to 5.219 min.: B6889.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
297.10	142	310.00	19	327.00	51	346.15	44
297.90	14	312.00	7	328.05	32	346.85	12
299.80	15	313.60	13	331.05	8	347.55	5
300.50	10	315.05	90	332.15	24	350.25	10
300.80	11	316.05	69	334.15	199	350.65	8
302.20	13	317.10	15	335.15	47	350.95	14
303.10	100	319.70	6	341.05	9	351.95	29
304.15	37	321.20	18	341.25	32	353.10	58
307.50	11	323.20	272	342.75	9	354.15	84
308.10	20	324.15	70	343.95	7	355.15	19
309.20	14	325.20	14	345.90	55	361.85	6

Average of 5.209 to 5.219 min.: B6889.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
363.55	7	377.25	10	401.80	11	425.20	17
365.05	338	381.55	8	403.15	76	426.60	9
366.05	77	383.00	39	404.20	46	436.85	24
366.55	11	383.55	14	405.00	10	437.50	9
369.95	8	384.05	8	411.30	24	441.20	1517
371.05	14	384.45	8	415.00	14	442.15	9809
372.15	144	387.65	8	421.10	75	443.10	1943
372.85	12	390.15	19	422.20	27	444.10	184
373.10	54	391.05	8	423.10	524	444.60	12
374.85	7	391.25	26	424.10	105	445.00	10
376.85	7	401.00	12	425.00	18	446.90	12

Average of 5.209 to 5.219 min.: B6889.D

Modified:subtracted

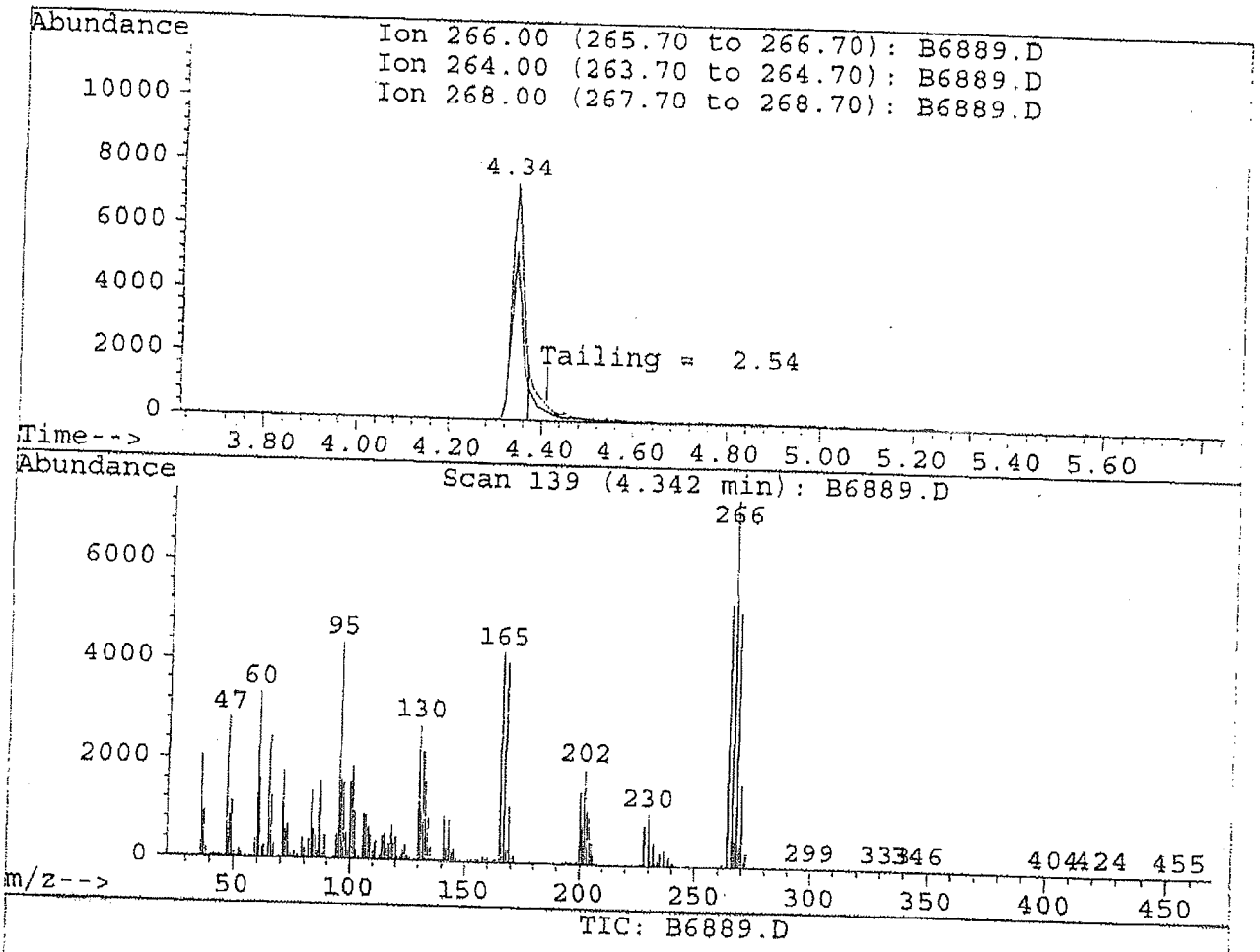
m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
453.90	7						
454.10	7						
456.50	9						
457.20	7						
457.70	8						
461.40	14						
463.50	15						
474.30	5						
474.45	9						

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B6889.D
Acq On : 21 Oct 97 6:46 pm
Sample : DFTPP..... Converted from RTE d
Misc :
Quant Time: Oct 21 19:07 1997

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Oct 08 17:57:09 1997
Response via : Multiple Level Calibration



(1) Pentachlorophenol (CM)
4.76min 0.72ug/mL
response 239

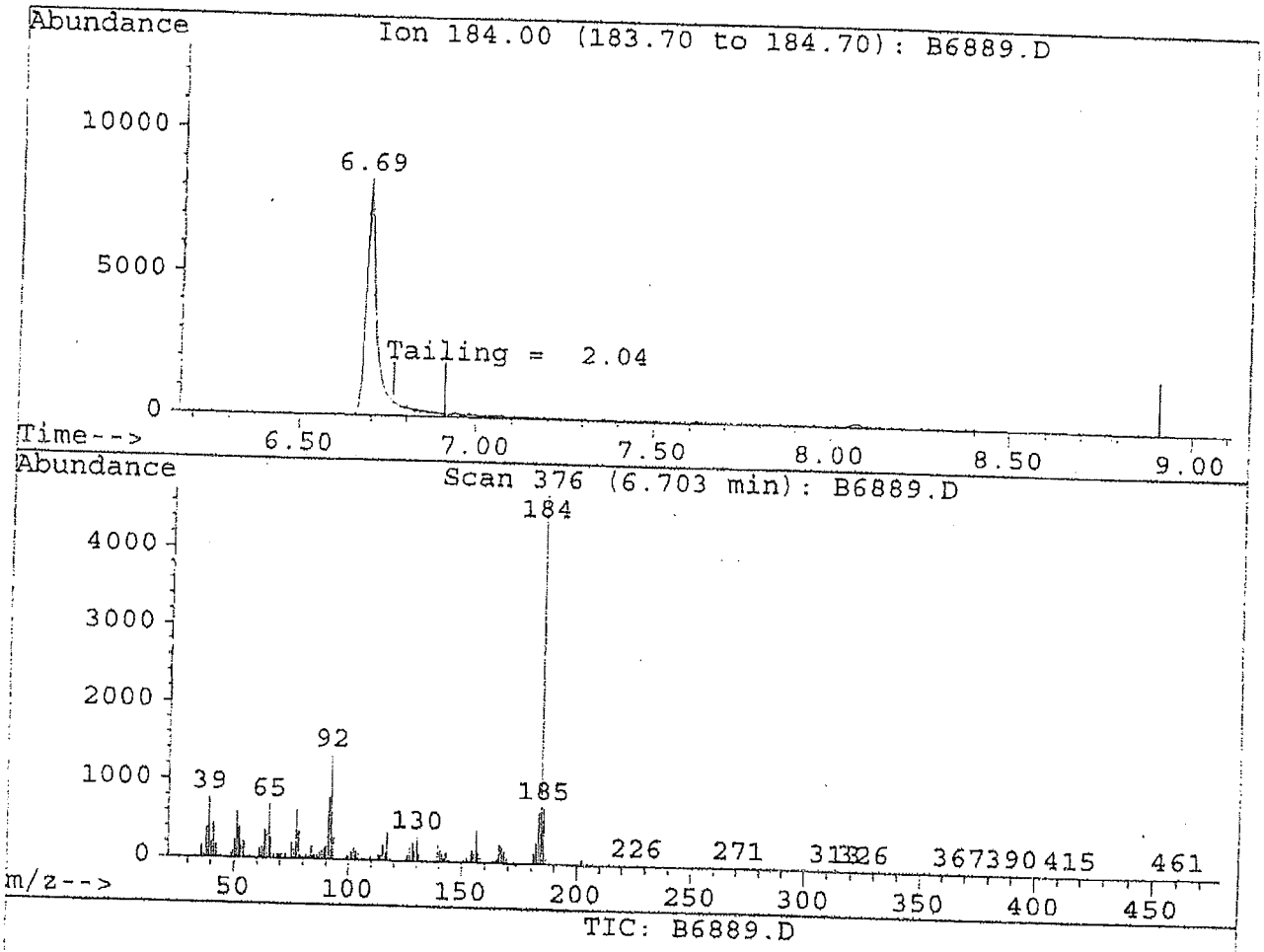
Ion	Exp%	Act%
266.00	100	100
264.00	64.30	23.94#
268.00	64.70	39.44#
0.00	0.00	0.00

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B6889.D
Acq On : 21 Oct 97 6:46 pm
Sample : DFTPP..... Converted from RTE d
Misc :
Quant Time: Oct 21 19:07 1997

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Oct 08 17:57:09 1997
Response via : Multiple Level Calibration



(2) Benzidine
8.08min 0.87ug/ml
response 266

Ion	Exp%	Act%
184.00	100	100
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Instrument ID: ABNA Calibration Date: #### Time: 1906

Lab File ID: B6890.D Init. Calib. Date(s): #### 1/0/00

Init. Calib. Times: 1906 0000

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
N-nitrosodimethylamine	0.918	0.944		-2.8	
Phenol	2.459	2.514		-2.2	30.0
bis(2-Chloroethyl)ether	1.484	1.371		7.6	
2-Chlorophenol	1.618	1.695		-4.8	
1,3-Dichlorobenzene	1.154	1.254		-8.7	
1,4-Dichlorobenzene	1.261	1.378		-9.3	30.0
1,2-Dichlorobenzene	1.267	1.320		-4.2	
bis(2-chloroisopropyl)ether	4.256	4.629		-8.8	
N-Nitroso-Di-n-propylamine	1.791	1.739	0.050	2.9	
Hexachloroethane	0.888	1.003		-13.0	
Nitrobenzene	0.503	0.509		-1.2	
Isophorone	1.009	0.959		5.0	
2-Nitrophenol	0.270	0.271		-0.4	30.0
2,4-Dimethylphenol	0.567	0.578		-1.9	
bis(2-Chloroethoxy)methane	0.552	0.552		0.0	
2,4-Dichlorophenol	0.315	0.339		-7.6	30.0
1,2,4-Trichlorobenzene	0.267	0.268		-0.4	
Naphthalene	1.062	1.104		-4.0	
Hexachlorobutadiene	0.172	0.159		7.6	30.0
4-Chloro-3-methylphenol	0.542	0.554		-2.2	30.0
Hexachlorocyclopentadiene	0.271	0.223	0.050	17.7	
2,4,6-Trichlorophenol	0.378	0.358		5.3	30.0
2-Chloronaphthalene	.0.737	0.714		3.1	
Dimethylphthalate	1.208	1.201		0.6	
Acenaphthylene	1.757	1.857		-5.7	
2,6-Dinitrotoluene	0.280	0.270		3.6	
Acenaphthene	1.127	1.237		-9.8	30.0
2,4-Dinitrophenol	0.217	0.196	0.050	9.7	
4-Nitrophenol	0.278	0.273	0.050	1.8	
2,4-Dinitrotoluene	0.419	0.428		-2.1	
Diethylphthalate	1.454	1.615		-11.1	
Fluorene	1.410	1.446		-2.6	
4-Chlorophenyl-phenylether	0.579	0.566		2.2	
4,6-Dinitro-2-methylphenol	0.136	0.137		-0.7	30.0
n-Nitrosodiphenylamine	0.398	0.395		0.8	
1,2-Diphenylhydrazine(as azo)	0.000	0.000			
4-Bromophenyl-phenylether	0.191	0.177		7.3	

All other compounds must meet a minimum RRF of 0.010.

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Instrument ID: ABNA Calibration Date: #### Time: 1906

Lab File ID: B6890.D Init. Calib. Date(s): #### 1/0/00

Init. Calib. Times: 1906 0000

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Hexachlorobenzene	0.233	0.236		-1.3	
Pentachlorophenol	0.144	0.124		13.9	30.0
Phenanthrene	1.136	1.166		-2.6	
Anthracene	1.024	1.024		0.0	
Di-n-butylphthalate	1.692	1.843		-8.9	
Fluoranthene	1.162	1.144		1.5	30.0
Benzidine	0.402	0.333		17.2	
Pyrene	1.617	1.419		12.2	
Butylbenzylphthalate	0.940	0.953		-1.4	
Benzo[a]anthracene	1.303	1.536		-17.9	
3,3'-Dichlorobenzidine	0.294	0.328		-11.6	
Chrysene	0.995	0.918		7.7	
bis(2-Ethylhexyl)phthalate	1.616	1.800		-11.4	
Di-n-octylphthalate	4.652	4.134		11.1	30.0
Benzo[b]fluoranthene	2.459	2.434		1.0	
Benzo[k]fluoranthene	1.034	1.074		-3.9	
Benzo[a]pyrene	1.132	1.063		6.1	30.0
Indeno[1,2,3-cd]pyrene	0.647	0.582		10.0	
Dibenz[a,h]anthracene	0.535	0.446		16.6	
Benzo[g,h,i]perylene	0.489	0.409		16.4	
2-Fluorophenol	1.280	1.313		-2.6	
Phenol-d5	2.327	2.648		-13.8	
Nitrobenzene-d5	0.570	0.566		0.7	
2-Fluorobiphenyl	1.094	1.094		0.0	
2,4,6-Tribromophenol	0.113	0.129		-14.2	
Terphenyl-d14	1.017	0.947		6.9	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\B6890.D
Acq On : 21 Oct 97 7:06 pm
Sample : 50 STD..... Converted from RTE d
Misc :

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	45#	-0.46
2	S	2-Fluorophenol	1.280	1.313	-2.6	42#	-0.48
3	S	Phenol-d5	2.327	2.648	-13.8	47#	-0.40
4	M	N-nitrosodimethylamine	0.918	0.944	-2.7	45#	-0.25
5		Pyridine	1.556	1.392	10.5	42#	-0.21
6	CM	Phenol	2.459	2.514	-2.2	45#	-0.38
7	MT	bis(2-Chloroethyl)ether	1.484	1.371	7.6	42#	-0.42
8	M	2-Chlorophenol	1.618	1.695	-4.7	47#	-0.42
9	MT	1,3-Dichlorobenzene	1.154	1.254	-8.6	47#	-0.46
10	CM	1,4-Dichlorobenzene	1.261	1.378	-9.2	46#	-0.46
11	M	1,2-Dichlorobenzene	1.267	1.320	-4.2	44#	-0.46
12	T	2-Methylphenol	1.722	1.736	-0.8	43#	-0.36
13	M	bis(2-chloroisopropyl)ether	4.256	4.629	-8.8	58	-0.42
14	T	4-Methylphenol	1.879	1.982	-5.5	46#	-0.36
	PM	N-Nitroso-Di-n-propylamine	1.791	1.739	2.9	44#	-0.42
[illegible]	M	Hexachloroethane	0.888	1.003	-12.9	47#	-0.44
17	I	Naphthalene-d8	1.000	1.000	0.0	46#	-0.44
18	S	Nitrobenzene-d5	0.570	0.566	0.7	45#	-0.44
19	M	Nitrobenzene	0.503	0.509	-1.2	46#	-0.44
20	M	Isophorone	1.009	0.959	5.0	44#	-0.40
21	MC	2-Nitrophenol	0.270	0.271	-0.3	45#	-0.44
22	M	2,4-Dimethylphenol	0.567	0.578	-1.9	45#	-0.38
23	M	bis(2-Chloroethoxy)methane	0.552	0.552	-0.0	43#	-0.40
24	MC	2,4-Dichlorophenol	0.315	0.339	-7.8	46#	-0.40
25	M	1,2,4-Trichlorobenzene	0.267	0.268	-0.5	44#	-0.42
26	M	Naphthalene	1.062	1.104	-4.0	45#	-0.44
27	T	4-Chloroaniline	0.552	0.583	-5.5	45#	-0.42
28	MC	Hexachlorobutadiene	0.172	0.159	8.0	40#	-0.42
29	MC	4-Chloro-3-methylphenol	0.542	0.554	-2.1	47#	-0.36
30	M	2-Chloronaphthalene	0.737	0.714	3.1	44#	-0.46
31	T	2-Methylnaphthalene	0.813	0.820	-0.8	44#	-0.44
32	I	Acenaphthene-d10	1.000	1.000	0.0	43#	-0.46
33	P	Hexachlorocyclopentadiene	0.271	0.223	17.7	35#	-0.44
34	MC	2,4,6-Trichlorophenol	0.378	0.358	5.3	40#	-0.60#
35	T	2,4,5-Trichlorophenol	0.403	0.404	-0.2	40#	-0.38
36	S	2-Fluorobiphenyl	1.094	1.094	-0.0	43#	-0.44
37	T	2-Nitroaniline	1.044	1.182	-13.2	45#	-0.46
[illegible]	I	Dimethylphthalate	1.208	1.201	0.6	41#	-0.44
[illegible]	M	Acenaphthylene	1.757	1.857	-5.7	43#	-0.46
[illegible]	M	2,6-Dinitrotoluene	0.280	0.270	3.5	39#	-0.44

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\B6890.D
Acq On : 21 Oct 97 7:06 pm
Sample : 50 STD.....
Misc : Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
41	T	3-Nitroaniline	0.475	0.484	-2.0	41#	-0.46
42	CM	Acenaphthene	1.127	1.237	-9.8	46#	-0.48
43	MP	2,4-Dinitrophenol	0.217	0.196	9.8	35#	-0.44
44	PM	4-Nitrophenol	0.278	0.273	2.0	38#	-0.32
45	T	Dibenzofuran	1.788	1.857	-3.8	44#	-0.48
46	M	2,4-Dinitrotoluene	0.419	0.428	-2.0	43#	-0.46
47	M	Diethylphthalate	1.454	1.615	-11.1	45#	-0.46
48	M	Fluorene	1.410	1.446	-2.5	43#	-0.48
49	M	4-Chlorophenyl-phenylether	0.579	0.566	2.3	42#	-0.46
50		Phenanthrene-d10	1.000	1.000	0.0	45#	-0.50
51	T	4-Nitroaniline	0.193	0.198	-2.3	36#	-0.48
52	MC	4,6-Dinitro-2-methylphenol	0.136	0.137	-1.0	36#	-0.48
53	T	n-Nitrosodiphenylamine	0.398	0.395	0.9	42#	-0.46
	S	2,4,6-Tribromophenol	0.113	0.129	-14.0	51	-0.48
		1,2-Diphenylhydrazine (as a	1.712	1.996	-16.6	51	-0.46
56	M	4-Bromophenyl-phenylether	0.191	0.177	7.5	40#	-0.48
57	M	Hexachlorobenzene	0.233	0.236	-1.3	43#	-0.50
58	CM	Pentachlorophenol	0.144	0.124	13.3	39#	-0.48
59	M	Phenanthrene	1.156	1.166	-2.7	46#	-0.50
60	M	Anthracene	1.024	1.024	0.0	42#	-0.52#
61		Carbazole	1.030	1.031	-0.1	44#	-0.50
62	M	Di-n-butylphthalate	1.692	1.843	-8.9	45#	-0.48
63	MC	Fluoranthene	1.162	1.144	1.5	42#	-0.54#
64	I	Chrysene-d12	1.000	1.000	0.0	52	-0.55#
65		Benzidine	0.402	0.333	17.3	44#	-4.87#
66	M	Pyrene	1.617	1.419	12.2	41#	-0.53#
67	S	Terphenyl-d14	1.017	0.947	6.9	47#	-0.52#
68	M	Butylbenzylphthalate	0.940	0.953	-1.4	49#	-0.52#
69	M	Benzo[a]anthracene	1.303	1.536	-17.9	57	-0.55#
70	M	3,3'-Dichlorobenzidine	0.294	0.328	-11.5	60	-0.53#
71	M	Chrysene	0.995	0.918	7.8	45#	-0.55#
72	M	bis(2-Ethylhexyl)phthalate	1.616	1.800	-11.4	56	-0.51#
73	I	Perylene-d12	1.000	1.000	0.0	67	-0.57#
74	MC	Di-n-octylphthalate	4.652	4.134	11.1	56	-0.51#
75	M	Benzo[b]fluoranthene	2.459	2.434	1.0	77	-0.55#
76	m	Benzo[k]fluoranthene	1.034	1.074	-3.8	59	-0.57#
	ıc	Benzo[a]pyrene	1.132	1.063	6.1	62	-0.57#
	m	Indeno[1,2,3-cd]pyrene	0.647	0.582	10.0	55	-0.57#
	m	Dibenz[a,h]anthracene	0.535	0.446	16.7	53	-0.57#

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\B6890.D
Acq On : 21 Oct 97 7:06 pm
Sample : 50 STD..... Converted from RTE d
Misc :

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
80 M	Benzo[g,h,i]perylene	0.489	0.409	16.4	47#	-0.57#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report

Data File : c:\hpchem\1\data2\b6890.d
Acq On : 21 Oct 97 7:06 pm
Sample : 50 STD.....
Misc :
Quant Time: Oct 23 14:13 1997

Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.51	152	17951	40.00	ug/mL	-0.46
17) Naphthalene-d8	11.28	136	85911	40.00	ug/mL	-0.44
32) Acenaphthene-d10	16.56	164	61247	40.00	ug/mL	-0.46
50) Phenanthrene-d10	20.90	188	123510	40.00	ug/ml	-0.50
64) Chrysene-d12	28.88	240	106179	40.00	ug/mL	-0.55
73) Perylene-d12	32.85	264	46220	40.00	ug/mL	-0.57
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	4.25	112	29469	51.32	ug/mL	51.32%
3) Phenol-d5	7.41	99	59427	56.90	ug/mL	56.90%
18) Nitrobenzene-d5	9.36	82	60764	49.63	ug/mL	49.63%
36) 2-Fluorobiphenyl	14.77	172	83780	50.00	ug/mL	50.00%
54) 2,4,6-Tribromophenol	19.01	330	19955	57.00	ug/mL	57.00%
67) Terphenyl-d14	25.99	244	125736	46.56	ug/mL	46.56%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.60	74	21175	51.37	ug/mlm	100
5) Pyridine	1.56	79	31233	44.73	ug/ml	100
6) Phenol	7.45	94	56408	51.12	ug/mL	100
7) bis(2-Chloroethyl)ether	7.20	93	30763	46.20	ug/mLm	18
8) 2-Chlorophenol	7.18	128	38023	52.37	ug/mL	92
9) 1,3-Dichlorobenzene	7.35	146	28139	54.32	ug/mL	99
10) 1,4-Dichlorobenzene	7.54	146	30913	54.62	ug/mL	99
11) 1,2-Dichlorobenzene	8.06	146	29614	52.08	ug/mL	99
12) 2-Methylphenol	9.09	108	38951	50.40	ug/mL	94
13) bis(2-chloroisopropyl)ethe	8.78	45	103858	54.38	ug/mL#	70
14) 4-Methylphenol	9.57	108	44484	52.74	ug/mL	97
15) N-Nitroso-Di-n-propylamine	9.26	70	39027	48.55	ug/mL#	62
16) Hexachloroethane	8.91	117	22499	56.43	ug/mL	97
19) Nitrobenzene	9.41	77	54707	50.61	ug/mL	95
20) Isophorone	10.20	82	103036	47.52	ug/mL	95
21) 2-Nitrophenol	10.36	139	29058	50.14	ug/mL#	82
22) 2,4-Dimethylphenol	10.99	107	62062	50.97	ug/mL	99
23) bis(2-Chloroethoxy)methane	11.11	93	59252	50.01	ug/mL	98
24) 2,4-Dichlorophenol	11.24	162	36413	53.90	ug/mL#	86
25) 1,2,4-Trichlorobenzene	11.24	180	28770	50.25	ug/mL	98
26) Naphthalene	11.34	128	118560	52.00	ug/mL	100
27) 4-Chloroaniline	11.86	127	62561	52.75	ug/mL	99
28) Hexachlorobutadiene	12.01	225	17037	45.99	ug/mL	97
29) 4-Chloro-3-methylphenol	13.75	107	59489	51.07	ug/mL	95
30) 2-Chloronaphthalene	14.85	162	76694	48.45	ug/ml	96
31) 2-Methylnaphthalene	13.44	142	88043	50.39	ug/mL	94
33) Hexachlorocyclopentadiene	14.15	237	17079	41.13	ug/mL	100
34) 2,4,6-Trichlorophenol	14.61	196	27400	47.37	ug/mLm	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6890.d
Acq On : 21 Oct 97 7:06 pm
Sample : 50 STD.....
Misc :
Quant Time: Oct 23 14:13 1997

Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,5-Trichlorophenol	14.83	196	30895	50.10	ug/mL	97
37) 2-Nitroaniline	16.85	65	90479	56.58	ug/mL	77
38) Dimethylphthalate	16.33	163	91985	49.72	ug/mL#	97
39) Acenaphthylene	16.06	152	142141	52.83	ug/mL	95
40) 2,6-Dinitrotoluene	16.48	165	20656	48.25	ug/mL	93
41) 3-Nitroaniline	16.85	138	37056	51.00	ug/mL	91
42) Acenaphthene	16.64	153	94720	54.89	ug/mL	95
43) 2,4-Dinitrophenol	17.18	184	15013	45.10	ug/mL	94
44) 4-Nitrophenol	18.05	109	20888	48.99	ug/mLm	80
45) Dibenzofuran	17.14	168	142145	51.92	ug/mL	98
46) 2,4-Dinitrotoluene	17.62	165	32757	51.02	ug/mLm	35
47) Diethylphthalate	18.51	149	123644	55.55	ug/mL	97
48) Fluorene	18.16	166	110705	51.27	ug/mL	96
49) 4-Chlorophenyl-phenylether	18.37	204	43319	48.84	ug/mL	94
51) 4-Nitroaniline	18.74	138	30566	51.16	ug/mL	92
52) 4,6-Dinitro-2-methylphenol	18.82	198	21177	50.50	ug/mL	100
53) n-Nitrosodiphenylamine	18.86	169	60934	49.55	ug/mLm	93
55) 1,2-Diphenylhydrazine (as	18.82	77	308215	58.31	ug/ml	100
56) 4-Bromophenyl-phenylether	19.78	248	27314	46.27	ug/mL	97
57) Hexachlorobenzene	20.03	284	36505	50.66	ug/mL#	75
58) Pentachlorophenol	20.78	266	19211	43.33	ug/mL	98
59) Phenanthrene	20.98	178	179968	51.33	ug/mL	98
60) Anthracene	21.09	178	158051	50.00	ug/mLm	97
61) Carbazole	21.83	167	159199	50.05	ug/ml	99
62) Di-n-butylphthalate	23.42	149	284530	54.45	ug/mL	99
63) Fluoranthene	24.52	202	176633	49.24	ug/mL	91
65) Benzidine	20.90	184	44157	41.34	ug/mlm	100
66) Pyrene	25.14	202	188329	43.88	ug/mL#	80
68) Butylbenzylphthalate	27.83	149	126529	50.69	ug/mL	93
69) Benzo[a]anthracene	28.84	228	203868	58.95	ug/mL	98
70) 3,3'-Dichlorobenzidine	29.09	252	43545	55.76	ug/mL	98
71) Chrysene	28.95	228	121796	46.11	ug/mLm	98
72) bis(2-Ethylhexyl)phthalate	31.58	149	238860	55.68	ug/mL#	53
74) Di-n-octylphthalate	31.58	149	238860	44.44	ug/mL	99
75) Benzo[b]fluoranthene	31.90	252	140611	49.49	ug/mLm	96
76) Benzo[k]fluoranthene	31.96	252	62047	51.92	ug/mLm	97
77) Benzo[a]pyrene	32.69	252	61390	46.95	ug/mL	99
78) Indeno[1,2,3-cd]pyrene	35.39	276	33633	45.00	ug/mL#	83
79) Dibenz[a,h]anthracene	35.49	278	25755	41.64	ug/mL	92
80) Benzo[g,h,i]perylene	35.93	276	23630	41.78	ug/mLm	94

(#) = qualifier out of range (m) = manual integration

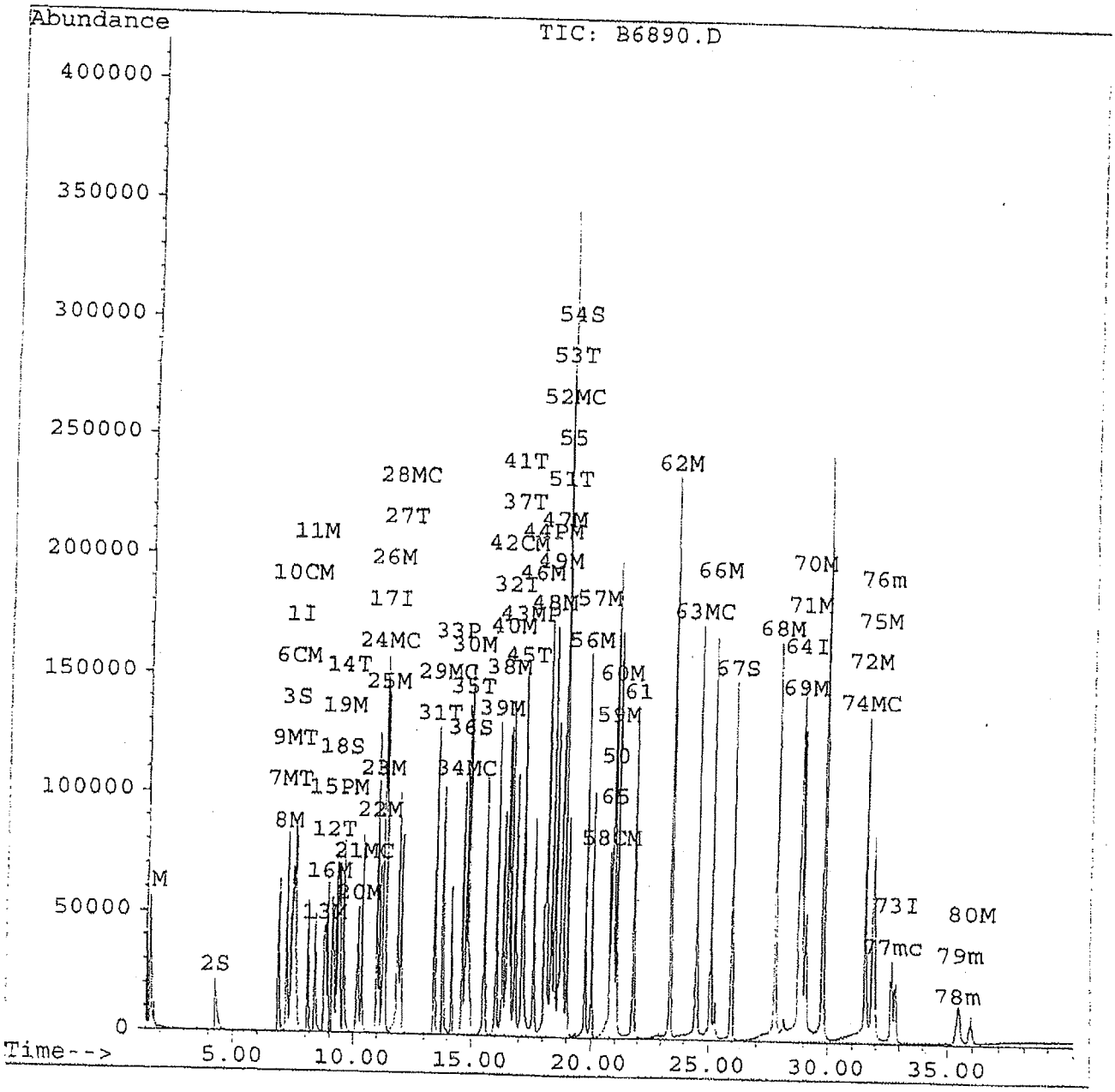
Quantitation Report

Data File : c:\hpchem\1\data2\b6890.d
Acq On : 21 Oct 97 7:06 pm
Sample : 50 STD.....
Misc :
Quant Time: Oct 23 14:13 1997

Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration



5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: B7187.D DFTPP Injection Date: 11/17/97

Instrument ID: ABNA DFTPP Injection Time: 1702

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	59.2
68	Less than 2.0% of mass 69	0.1 (0.2)1
69	Mass 69 relative abundance	74.5
70	Less than 2.0% of mass 69	0.1 (0.1)1
127	25.0 - 75.0% of mass 198	48.2
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.2
275	10.0 - 30.0% of mass 198	24.3
365	Greater than 0.75% of mass 198	5.0
441	Present, but less than mass 443	0.2
442	40.0 - 110.0% of mass 198	95.4
443	15.0 - 24.0% of mass 442	18.0 (18.8)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

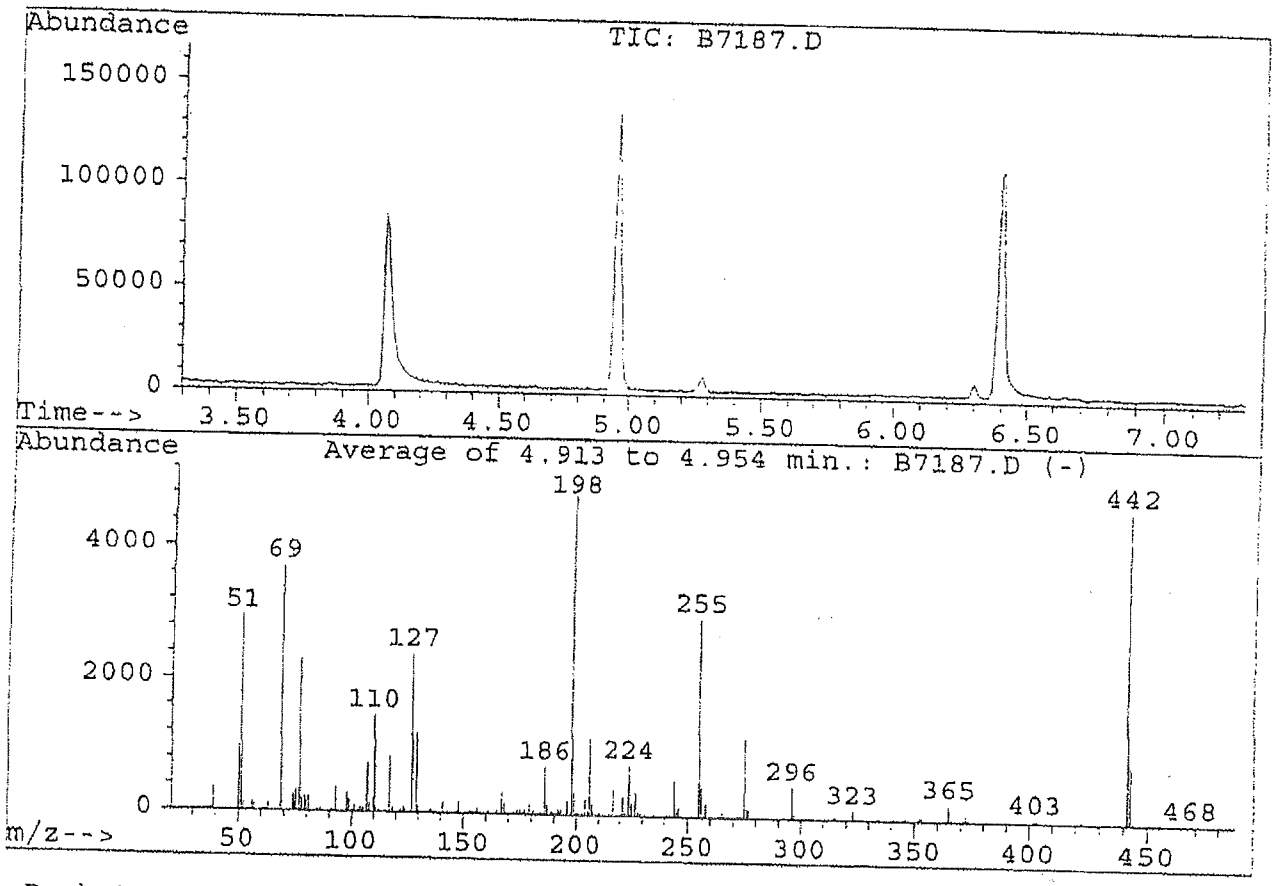
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	50 STD	B7188.D	11/17/97	1721
02	SBLK01	BLANK1	B7189.D	11/17/97	1809
03	9778619B	9778619B	B7190.D	11/17/97	1857
04	9778620B	9778620B	B7191.D	11/17/97	1944
05	9778622B	9778622B	B7192.D	11/17/97	2032
06	9778623B	9778623B	B7193.D	11/17/97	2120
07	9778624B	9778624B	B7194.D	11/17/97	2208
08	9782199B	9782199B	B7198.D	11/18/97	0116
09	9782200B	9782200B	B7199.D	11/18/97	0204
10	9782201B	9782201B	B7200.D	11/18/97	0251
11	9782202B	9782202B	B7201.D	11/18/97	0339
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data File : C:\HPCHEM\1\DATA2\B7187.D
Acq On : 17 Nov 97 5:02 pm
Sample : DFTPP..... Converted from RTE d
Misc :

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration



Peak Apex is scan: 231

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	59.2	2941	PASS
68	69	0	2	0.2	6	PASS
69	198	0	100	74.5	3700	PASS
70	69	0	2	0.1	4	PASS
127	198	40	60	48.2	2395	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	4966	PASS
199	198	5	9	7.2	357	PASS
275	198	10	30	24.3	1209	PASS
365	198	1	100	5.0	250	PASS
441	443	0	100	1.0	9	PASS
442	198	40	100	95.4	4736	PASS
443	442	17	23	18.8	892	PASS

B7187.D BNACLP.M Tue Nov 18 10:35:07 1997 BNA

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
35.60	2	40.00	14	48.15	6	57.15	15
35.90	16	40.35	4	48.40	2	59.10	4
36.10	9	42.05	10	50.00	990	59.90	8
36.70	10	43.30	6	50.90	5	60.80	19
37.00	29	43.75	13	51.00	2941	61.00	30
38.00	54	45.40	3	51.80	9	61.30	3
38.15	29	45.90	1	52.00	127	61.45	7
38.75	14	46.10	5	54.35	9	62.00	50
39.00	356	46.95	14	54.55	17	63.00	120
39.35	10	47.30	2	55.90	134	63.40	6
39.60	3	47.85	14	56.90	118	64.20	3

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
64.60	4	74.00	262	79.00	240	86.85	25
65.00	2	74.30	3	79.95	165	87.05	15
65.55	14	74.75	140	80.90	232	87.45	4
66.60	5	75.00	321	81.20	6	87.75	2
67.05	13	75.80	14	83.85	17	87.95	9
67.80	6	76.40	5	84.65	6	88.85	2
68.60	1	76.90	2306	84.90	65	89.10	5
68.90	3700	77.40	5	85.35	3	89.55	1
70.30	4	77.80	15	85.95	47	89.75	2
71.90	3	78.00	214	86.35	3	90.45	4
73.00	22	78.30	4	86.55	2	90.85	24

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
90.95	41	102.10	5	107.95	132	114.70	6
91.95	36	102.85	32	108.75	2	115.05	6
92.95	384	103.10	23	109.85	1465	115.55	6
93.90	23	103.45	4	110.65	4	115.90	11
94.25	5	103.90	80	110.95	74	116.95	859
97.00	5	104.25	6	111.35	4	118.00	69
97.90	299	104.60	9	112.00	37	119.45	4
98.95	201	104.95	76	112.90	5	119.70	7
99.65	4	105.95	4	113.05	7	120.00	10
99.85	26	106.85	748	113.25	1	120.80	11
100.95	104	107.60	6	114.05	4	121.90	33

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
122.05	35	128.95	1207	134.45	1	140.20	3
123.00	96	129.90	108	134.65	6	140.40	3
123.25	5	130.25	1	135.05	83	140.90	162
123.60	9	130.85	27	135.95	53	141.75	8
123.95	53	131.35	3	136.75	5	142.95	30
124.55	2	132.00	21	136.95	42	143.70	1
124.95	6	132.25	8	137.55	8	144.00	5
125.95	3	132.40	8	137.85	15	144.50	4
126.15	3	132.85	8	138.55	3	144.85	15
126.95	2395	133.15	2	139.00	8	145.35	7
128.75	10	134.15	15	139.95	20	146.10	4

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
147.10	34	154.00	48	159.20	6	166.70	7
147.90	195	154.60	2	159.70	5	166.90	336
148.95	20	155.10	50	159.90	18	167.95	155
150.80	3	156.00	100	161.00	60	168.85	28
151.05	24	156.30	3	162.90	3	169.10	14
151.60	6	157.20	31	163.50	4	169.50	3
151.90	3	157.85	31	163.75	11	170.10	14
152.40	10	158.20	3	164.00	7	170.60	7
152.70	6	158.40	3	164.60	7	171.00	6
153.00	48	158.85	10	164.90	60	171.30	6
153.40	4	159.00	13	165.20	7	171.50	9

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
171.95	35	179.90	41	186.90	162	192.40	14
172.20	5	180.70	5	188.05	30	192.80	6
172.50	5	180.95	61	188.40	2	193.00	73
172.80	28	181.80	4	188.80	11	193.50	3
173.30	11	181.90	9	189.00	55	193.80	4
173.95	66	182.20	5	189.90	10	194.00	8
175.00	62	182.95	18	190.05	8	194.80	3
176.00	19	183.90	4	190.90	31	195.95	220
176.25	40	184.15	25	191.40	5	197.85	4966
176.90	64	185.60	6	191.80	85	198.85	357
178.90	187	185.90	729	192.15	11	199.65	4

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
199.80	28	205.05	56	211.95	12	220.45	25
200.05	19	205.45	12	212.70	7	221.00	301
200.85	31	205.85	1172	213.70	7	221.75	43
201.35	16	207.00	186	214.85	4	222.05	45
201.55	27	207.95	56	215.10	28	222.35	36
202.35	2	208.85	6	215.35	11	223.35	2
202.65	8	209.05	9	215.85	6	223.65	8
202.85	29	209.80	9	216.25	3	223.85	8
203.55	2	210.05	2	216.90	404	223.95	760
204.05	242	210.30	38	218.95	16	224.90	195
204.35	4	210.85	43	219.45	7	226.75	7

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
226.95	378	235.25	12	243.05	2	249.85	3
227.95	60	235.90	18	243.85	9	250.30	9
228.80	57	238.25	10	244.00	567	251.05	13
229.75	3	238.65	2	244.35	8	251.90	17
230.05	7	239.10	8	244.85	17	252.10	8
231.00	24	240.10	19	245.05	71	252.60	7
231.35	3	240.55	3	245.95	137	254.90	2997
231.75	2	240.90	24	247.00	29	255.90	460
234.00	31	241.15	11	248.65	3	256.80	3
234.85	9	241.75	6	248.95	10	257.10	29
235.05	10	242.00	51	249.15	11	257.90	226

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
258.60	5	264.80	14	271.80	14	282.85	16
258.80	11	264.95	80	273.20	26	283.90	2
260.00	6	265.40	4	274.30	9	284.05	10
260.80	7	267.20	3	274.90	1209	284.40	1
261.00	2	267.50	3	275.90	27	285.05	25
261.60	2	267.80	11	276.00	152	285.45	4
262.75	3	268.85	7	276.80	22	285.85	6
263.30	12	269.20	3	276.90	132	286.50	2
263.60	9	269.90	16	278.80	3	286.70	2
263.85	14	270.40	1	280.80	2	287.50	2
264.60	2	270.95	13	281.40	4	288.10	1

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
289.00	2	293.80	7	303.00	56	308.75	2
289.50	2	294.00	7	303.70	2	309.05	5
289.85	6	294.30	4	304.05	19	309.80	13
291.00	3	295.95	482	304.50	2	310.55	2
291.70	5	296.95	78	304.80	1	311.15	2
291.85	8	298.00	2	305.00	2	311.35	2
292.10	4	299.70	2	305.85	4	311.75	1
292.45	12	300.30	2	307.35	2	312.60	7
292.95	31	300.70	4	307.75	3	313.35	11
293.20	5	301.65	7	307.95	5	314.25	18
293.50	9	302.40	4	308.45	11	314.85	58

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
315.90	25	323.00	145	330.30	5	335.05	22
316.65	3	324.00	31	330.65	6	336.00	6
317.95	3	325.20	4	330.95	4	336.25	3
318.75	4	325.60	6	331.55	4	337.05	1
319.05	1	325.95	1	332.30	1	338.20	6
319.50	2	326.15	4	332.65	7	338.70	7
320.95	9	326.85	40	332.80	4	339.05	2
321.25	5	327.75	20	333.05	2	339.40	7
321.65	5	328.85	2	333.35	2	340.30	15
322.05	2	329.25	2	334.00	98	340.85	8
322.45	1	329.95	2	334.80	13	341.05	19

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
342.05	21	351.65	8	360.30	4	368.40	1
342.50	6	352.00	53	361.50	2	369.30	1
344.40	7	353.10	64	361.80	3	369.90	9
345.05	3	353.95	18	362.10	2	370.60	7
345.95	42	354.95	6	362.90	6	371.30	20
346.85	3	357.15	2	364.40	8	371.60	3
348.10	4	358.15	2	364.90	250	372.00	82
349.40	6	358.65	2	365.70	2	372.70	4
350.10	4	358.85	2	365.90	32	373.00	26
350.55	2	359.05	2	366.80	4	373.90	3
351.35	2	359.55	3	367.60	1	374.60	2

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
376.70	1	383.95	11	391.10	16	402.70	1
377.10	3	384.60	1	391.95	10	402.95	50
377.80	4	384.80	4	393.50	4	403.70	4
378.20	1	386.90	3	393.70	3	403.90	8
379.10	2	388.20	3	394.10	1	404.10	8
379.60	4	388.70	2	399.10	3	404.50	5
382.15	3	389.15	6	400.35	6	404.75	3
382.40	3	389.75	12	400.80	3	405.55	3
382.65	15	390.05	10	401.50	12	406.55	4
383.10	8	390.50	3	401.90	44	407.70	2
383.50	1	390.70	4	402.40	3	409.20	1

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
409.80	3	416.85	2	427.95	2	436.55	17
410.50	2	417.20	3	428.35	2	437.60	4
410.90	3	418.75	4	428.65	3	438.10	11
413.10	2	419.55	1	432.15	4	438.40	19
413.70	2	420.35	12	432.55	2	438.75	9
413.85	6	420.75	2	432.85	6	439.45	23
414.20	3	420.95	51	433.25	3	441.55	9
414.90	5	422.85	141	434.15	6	441.95	4736
415.50	5	424.60	8	435.05	3	442.25	7
416.10	2	425.65	3	435.55	1	442.95	892
416.60	3	426.15	3	435.95	5	443.25	4

Average of 4.913 to 4.954 min.: B7187.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
443.95	92	454.95	3	465.45	1	472.70	2
444.75	1	455.85	2	465.65	1	473.20	4
445.15	12	456.25	3	467.05	2		
445.70	4	457.25	3	468.10	10		
446.05	3	457.55	1	468.75	3		
446.35	3	458.90	9	470.35	4		
448.70	5	459.30	5	470.85	1		
450.40	7	459.65	2	471.15	1		
451.85	2	460.85	4	471.40	3		
453.85	3	464.05	2	471.95	1		
454.35	2	465.25	2	472.50	2		

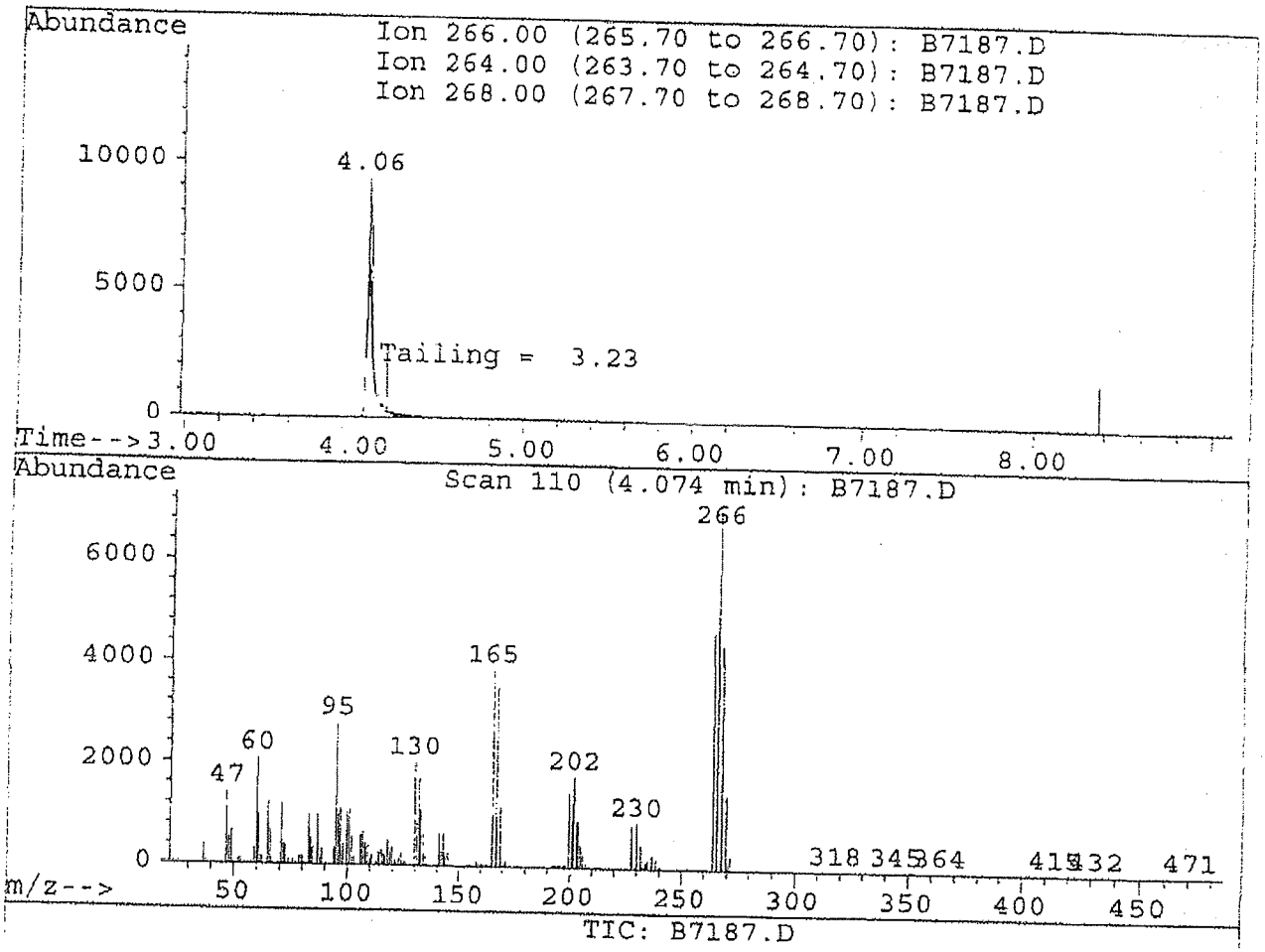
Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B7187.D
Acq On : 17 Nov 97 5:02 pm
Sample : DFTPP.....
Misc :
Quant Time: Nov 17 17:32 1997

Converted from RTE d

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



(1) Pentachlorophenol (CM)

5.37min 0.00ug/mL d

response 0

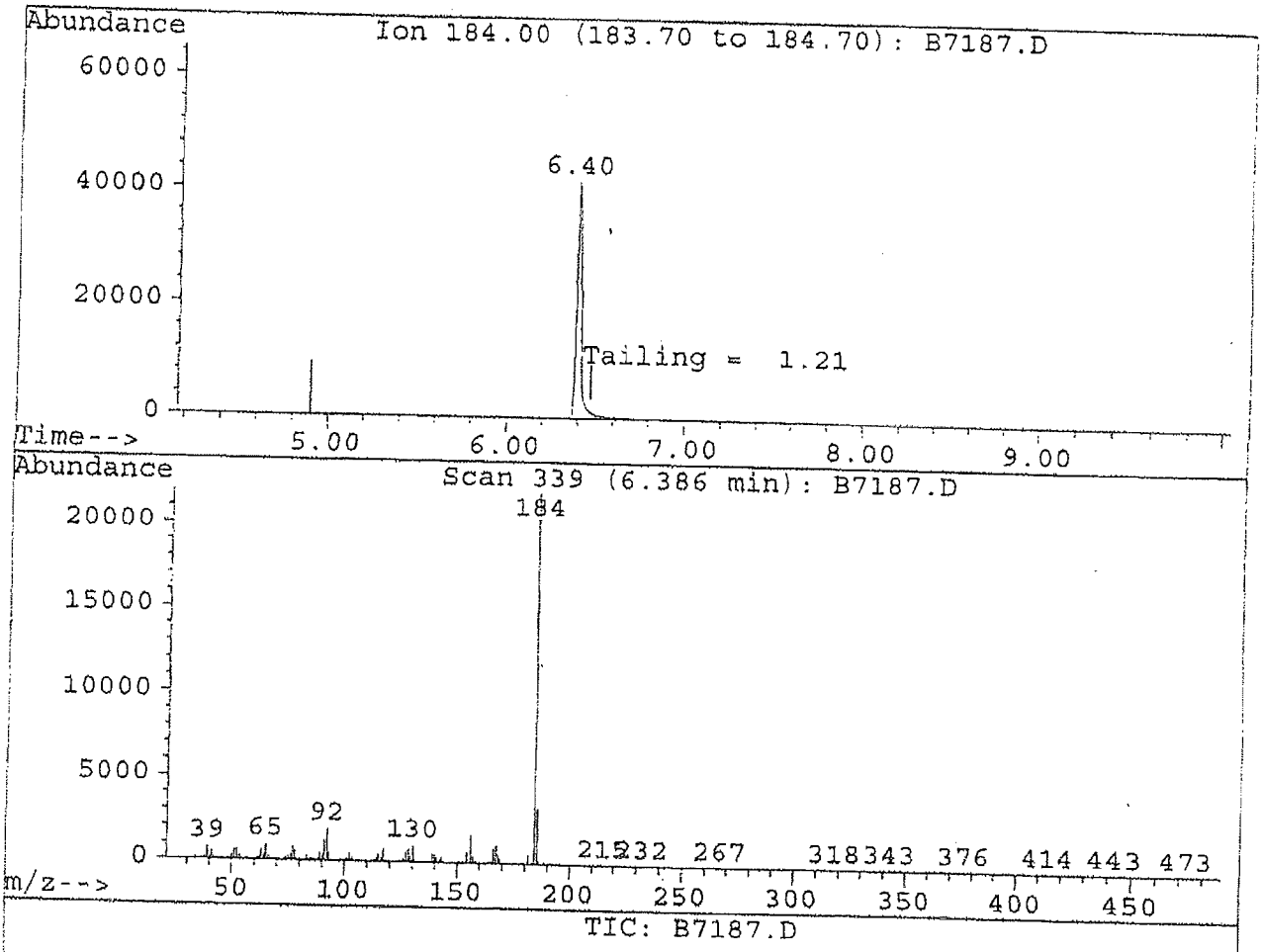
Ion	Exp%	Act%
266.00	100	0.00
264.00	64.30	0.00#
268.00	64.70	0.00#
0.00	0.00	0.00

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B7187.D
Acq On : 17 Nov 97 5:02 pm
Sample : DFTPP..... Converted from RTE d
Misc :
Quant Time: Nov 17 17:32 1997

Vial: 1
Operator: SCOTTV
Inst : ARNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



(2) Benzidine
7.91min 0.00ug/ml d
response 0

Ion	Exp%	Act%
184.00	100	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Instrument ID: ABNA Calibration Date: #### Time: 1721

Lab File ID: B7188.D Init. Calib. Date(s): #### 1/0/00

Init. Calib. Times: 1721 0000

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
N-nitrosodimethylamine	0.547	0.590		-7.9	
Phenol	1.659	1.837		-10.7	30.0
bis(2-Chloroethyl)ether	0.844	0.979		-16.0	
2-Chlorophenol	1.342	1.450		-8.0	
1,3-Dichlorobenzene	1.158	1.241		-7.2	
1,4-Dichlorobenzene	1.248	1.281		-2.6	30.0
1,2-Dichlorobenzene	1.237	1.276		-3.2	
bis(2-chloroisopropyl)ether	2.306	2.427		-5.2	
N-Nitroso-Di-n-propylamine	1.034	1.142	0.050	-10.4	
Hexachloroethane	0.710	0.767		-8.0	
Nitrobenzene	0.335	0.353		-5.4	
Isophorone	0.650	0.692		-6.5	
2-Nitrophenol	0.264	0.267		-1.1	30.0
2,4-Dimethylphenol	0.463	0.488		-5.4	
bis(2-Chloroethoxy)methane	0.393	0.414		-5.3	
2,4-Dichlorophenol	0.356	0.372		-4.5	30.0
1,2,4-Trichlorobenzene	0.327	0.331		-1.2	
Naphthalene	0.997	1.042		-4.5	
Hexachlorobutadiene	0.241	0.224		7.1	30.0
4-Chloro-3-methylphenol	0.434	0.446		-2.8	30.0
Hexachlorocyclopentadiene	0.349	0.294	0.050	15.8	
2,4,6-Trichlorophenol	0.398	0.380		4.5	30.0
2-Chloronaphthalene	0.819	0.809		1.2	
Dimethylphthalate	0.823	0.839		-1.9	
Acenaphthylene	1.716	1.645		4.1	
2,6-Dinitrotoluene	0.266	0.308		-15.8	
Acenaphthene	1.154	1.109		3.9	30.0
2,4-Dinitrophenol	0.239	0.252	0.050	-5.4	
4-Nitrophenol	0.231	0.243	0.050	-5.2	
2,4-Dinitrotoluene	0.277	0.241		13.0	
Diethylphthalate	1.238	1.378		-11.3	
Fluorene	1.293	1.334		-3.2	
4-Chlorophenyl-phenylether	0.675	0.614		9.0	
4,6-Dinitro-2-methylphenol	0.153	0.149		2.6	30.0
n-Nitrosodiphenylamine	0.380	0.388		-2.1	
1,2-Diphenylhydrazine(as azo)	0.000	0.000			
4-Bromophenyl-phenylether	0.214	0.196		8.4	

All other compounds must meet a minimum RRF of 0.010.

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Instrument ID: ABNA Calibration Date: #### Time: 1721

Lab File ID: B7188.D Init. Calib. Date(s): #### 1/0/00

Init. Calib. Times: 1721 0000

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Hexachlorobenzene	0.322	0.276		14.3	
Pentachlorophenol	0.185	0.153		17.3	30.0
Phenanthrene	1.020	0.941		7.7	
Anthracene	0.833	0.963		-15.6	
Di-n-butylphthalate	1.324	1.310		1.1	
Fluoranthene	1.158	1.057		8.7	30.0
Benzidine	0.290	0.244		15.9	
Pyrene	1.442	1.165		19.2	
Butylbenzylphthalate	0.586	0.614		-4.8	
Benzo[a]anthracene	1.185	1.083		8.6	
3,3'-Dichlorobenzidine	0.311	0.340		-9.3	
Chrysene	0.678	0.729		-7.5	
bis(2-Ethylhexyl)phthalate	0.797	0.926		-16.2	
Di-n-octylphthalate	1.994	2.009		-0.8	30.0
Benzo[b]fluoranthene	1.816	1.479		18.6	
Benzo[k]fluoranthene	1.110	1.066		4.0	
Benzo[a]pyrene	1.009	1.006		0.3	30.0
Indeno[1,2,3-cd]pyrene	0.715	0.728		-1.8	
Dibenz[a,h]anthracene	0.597	0.611		-2.3	
Benzo[g,h,i]perylene	0.577	0.529		8.3	
2-Fluorophenol	0.251	0.237		5.6	
Phenol-d5	1.500	1.377		8.2	
Nitrobenzene-d5	0.369	0.386		-4.6	
2-Fluorobiphenyl	1.088	0.992		8.8	
2,4,6-Tribromophenol	0.184	0.153		16.8	
Terphenyl-d14	1.031	0.851		17.5	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\B7188.D
Acq On : 17 Nov 97 5:21 pm
Sample : 50 STD.....
Misc : Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	74	-0.08
2	S	2-Fluorophenol	0.251	0.237	5.6	72	-0.12
3	S	Phenol-d5	1.500	1.377	8.2	68	-0.10
4	M	N-nitrosodimethylamine	0.547	0.590	-7.9	77	-0.04
5		Pyridine	1.022	1.039	-1.7	76	-0.04
6	CM	Phenol	1.659	1.837	-10.7	79	-0.10
7		Benzyl alcohol	1.120	1.188	-6.1	76	-0.08
8	MT	bis(2-Chloroethyl)ether	0.844	0.979	-16.0	80	-0.08
9	M	2-Chlorophenol	1.342	1.450	-8.0	75	-0.10
10	MT	1,3-Dichlorobenzene	1.158	1.241	-7.1	78	-0.10
11	CM	1,4-Dichlorobenzene	1.248	1.281	-2.7	75	-0.10
12	M	1,2-Dichlorobenzene	1.237	1.276	-3.1	75	-0.08
13	T	2-Methylphenol	1.241	1.331	-7.3	75	-0.08
14	M	bis(2-chloroisopropyl)ether	2.306	2.427	-5.2	75	-0.08
	T	4-Methylphenol	1.354	1.441	-6.4	79	-0.08
	PM	N-Nitroso-Di-n-propylamine	1.034	1.142	-10.4	77	-0.08
17	M	Hexachloroethane	0.710	0.767	-8.0	78	-0.08
18	I	Naphthalene-d8	1.000	1.000	0.0	78	-0.08
19	S	Nitrobenzene-d5	0.369	0.386	-4.8	82	-0.08
20	M	Nitrobenzene	0.335	0.353	-5.2	80	-0.08
21	M	Isophorone	0.650	0.692	-6.4	80	-0.08
22	MC	2-Nitrophenol	0.264	0.267	-1.2	77	-0.08
23	M	2,4-Dimethylphenol	0.463	0.488	-5.2	77	-0.06
24	M	bis(2-Chloroethoxy)methane	0.393	0.414	-5.4	78	-0.08
25	MC	2,4-Dichlorophenol	0.356	0.372	-4.4	75	-0.08
26	M	1,2,4-Trichlorobenzene	0.327	0.331	-1.1	76	-0.08
27	M	Naphthalene	0.997	1.042	-4.4	78	-0.08
28	T	4-Chloroaniline	0.502	0.509	-1.3	76	-0.08
29	MC	Hexachlorobutadiene	0.241	0.224	6.9	71	-0.10
30	MC	4-Chloro-3-methylphenol	0.434	0.446	-2.9	78	-0.08
31	M	2-Chloronaphthalene	0.819	0.809	1.2	77	-0.08
32	T	2-Methylnaphthalene	0.775	0.800	-3.2	78	-0.08
33	I	Acenaphthene-d10	1.000	1.000	0.0	79	-0.08
34	P	Hexachlorocyclopentadiene	0.349	0.294	15.9	73	-0.10
35	MC	2,4,6-Trichlorophenol	0.398	0.380	4.6	70	-0.08
36	T	2,4,5-Trichlorophenol	0.436	0.435	0.3	77	-0.08
37	S	2-Fluorobiphenyl	1.088	0.992	8.8	75	-0.08
		2-Nitroaniline	0.481	0.482	-0.3	80	-0.08
	M	Dimethylphthalate	0.823	0.839	-1.9	100	-0.08
	M	Acenaphthylene	1.716	1.645	4.2	77	-0.08

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\B7188.D
Acq On : 17 Nov 97 5:21 pm
Sample : 50 STD..... Converted from RTE d
Misc :

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
41	M	2,6-Dinitrotoluene	0.266	0.308	-15.7	128	-0.08
42	T	3-Nitroaniline	0.358	0.398	-11.3	78	-0.06
43	CM	Acenaphthene	1.154	1.109	3.9	78	-0.08
44	MP	2,4-Dinitrophenol	0.239	0.252	-5.2	87	-0.06
45	PM	4-Nitrophenol	0.231	0.243	-5.3	79	-0.10
46	T	Dibenzofuran	1.870	1.758	6.0	76	-0.08
47	M	2,4-Dinitrotoluene	0.277	0.241	12.9	86	-0.06
48	M	Diethylphthalate	1.238	1.378	-11.4	95	-0.08
49	M	Fluorene	1.293	1.334	-3.2	76	-0.08
50	M	4-Chlorophenyl-phenylether	0.675	0.614	9.0	74	-0.08
51		Phenanthrene-d10	1.000	1.000	0.0	93	-0.08
52	T	4-Nitroaniline	0.142	0.167	-18.1	91	-0.06
53	MC	4,6-Dinitro-2-methylphenol	0.153	0.149	2.7	93	-0.06
	T	n-Nitrosodiphenylamine	0.380	0.388	-2.1	87	-0.06
	S	2,4,6-Tribromophenol	0.184	0.153	17.0	64	-0.08
56		1,2-Diphenylhydrazine (as a	0.857	0.967	-12.8	89	-0.08
57	M	4-Bromophenyl-phenylether	0.214	0.196	8.2	79	-0.08
58	M	Hexachlorobenzene	0.322	0.276	14.3	65	-0.08
59	CM	Pentachlorophenol	0.185	0.153	17.5	77	-0.08
60	M	Phenanthrene	1.020	0.941	7.8	87	-0.08
61	M	Anthracene	0.833	0.963	-15.7	108	-0.06
62		Carbazole	0.879	0.847	3.6	86	-0.08
63	M	Di-n-butylphthalate	1.324	1.310	1.1	84	-0.08
64	MC	Fluoranthene	1.158	1.057	8.7	81	-0.08
65	I	Chrysene-d12	1.000	1.000	0.0	124	-0.06
66		Benzidine	0.290	0.244	15.7	109	-0.08
67	M	Pyrene	1.442	1.165	19.2	87	-0.08
68	S	Terphenyl-d14	1.031	0.851	17.5	93	-0.08
69	M	Butylbenzylphthalate	0.586	0.614	-4.7	126	-0.08
70	M	Benzo[a]anthracene	1.185	1.083	8.6	113	-0.06
71	M	3,3'-Dichlorobenzidine	0.311	0.340	-9.2	162#	-0.08
72	M	Chrysene	0.678	0.729	-7.5	134	-0.08
73	M	bis(2-Ethylhexyl)phthalate	0.797	0.926	-16.2	140	-0.01
74	I	Perylene-d12	1.000	1.000	0.0	205#	-0.08
75	MC	Di-n-octylphthalate	1.994	2.009	-0.8	173#	-0.06
76	M	Benzo[b]fluoranthene	1.816	1.479	18.6	176#	-0.06
	1	Benzo[k]fluoranthene	1.110	1.066	3.9	191#	-0.06
	mc	Benzo[a]pyrene	1.009	1.006	0.3	200#	-0.06
	m	Indeno[1,2,3-cd]pyrene	0.715	0.728	-1.8	216#	-0.08

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\B7188.D
Acq On : 17 Nov 97 5:21 pm
Sample : 50 STD..... Converted from RTE d
Misc :

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
80 m	Dibenz[a,h]anthracene	0.597	0.611	-2.4	219#	-0.08
81 M	Benzo[g,h,i]perylene	0.577	0.529	8.4	166#	-0.08

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report

Data File : c:\hpchem\1\data2\b7188.d
Acq On : 17 Nov 97 5:21 pm
Sample : 50 STD.....
Misc :
Quant Time: Nov 20 13:32 1997

Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.05	152	9353	40.00	ug/mL	-0.08
18) Naphthalene-d8	10.83	136	41268	40.00	ug/mL	-0.08
33) Acenaphthene-d10	16.08	164	35301	40.00	ug/mL	-0.08
51) Phenanthrene-d10	20.42	188	77529	40.00	ug/ml	-0.08
65) Chrysene-d12	28.37	240	80244	40.00	ug/mL	-0.06
74) Perylene-d12	32.32	264	55790	40.00	ug/mL	-0.08
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.71	112	2769	47.19	ug/mL	47.19%
3) Phenol-d5	6.95	99	16097	45.90	ug/mL	45.90%
19) Nitrobenzene-d5	8.92	82	19923	52.38	ug/mL	52.38%
37) 2-Fluorobiphenyl	14.31	172	43767	45.60	ug/mL	45.60%
55) 2,4,6-Tribromophenol	18.54	330	14818	41.48	ug/mL	41.48%
68) Terphenyl-d14	25.50	244	85313	41.26	ug/mL	41.26%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.41	74	6900	53.94	ug/ml	100
5) Pyridine	1.37	79	12147	50.85	ug/mlm	100
6) Phenol	6.99	94	21480	55.36	ug/mL	100
7) Benzyl alcohol	7.94	79	13893	53.03	ug/ml	95
8) bis(2-Chloroethyl)ether	6.74	93	11448	58.00	ug/mL	93
9) 2-Chlorophenol	6.70	128	16947	54.00	ug/mL	99
10) 1,3-Dichlorobenzene	6.88	146	14508	53.56	ug/mL	94
11) 1,4-Dichlorobenzene	7.09	146	14981	51.34	ug/mL	96
12) 1,2-Dichlorobenzene	7.62	146	14913	51.55	ug/mL#	98
13) 2-Methylphenol	8.63	108	15563	53.63	ug/mL	94
14) bis(2-chloroisopropyl)ethe	8.35	45	28369	52.62	ug/mL	99
15) 4-Methylphenol	9.12	108	16848	53.20	ug/mL	96
16) N-Nitroso-Di-n-propylamine	8.82	70	13348	55.21	ug/mL	97
17) Hexachloroethane	8.45	117	8962	53.98	ug/mL#	79
20) Nitrobenzene	8.96	77	18187	52.61	ug/mL	95
21) Isophorone	9.75	82	35679	53.22	ug/mL	96
22) 2-Nitrophenol	9.92	139	13755	50.59	ug/mL	95
23) 2,4-Dimethylphenol	10.57	107	25148	52.59	ug/mL	94
24) bis(2-Chloroethoxy)methane	10.69	93	21334	52.68	ug/mL	98
25) 2,4-Dichlorophenol	10.79	162	19185	52.19	ug/mL#	94
26) 1,2,4-Trichlorobenzene	10.79	180	17073	50.57	ug/mL	99
27) Naphthalene	10.89	128	53737	52.22	ug/mL	98
28) 4-Chloroaniline	11.42	127	26250	50.67	ug/mL	99
29) Hexachlorobutadiene	11.56	225	11579	46.56	ug/mL	96
30) 4-Chloro-3-methylphenol	13.29	107	23019	51.44	ug/mL	94
31) 2-Chloronaphthalene	14.39	162	41744	49.42	ug/ml	98
32) 2-Methylnaphthalene	12.99	142	41252	51.61	ug/mL	100
34) Hexachlorocyclopentadiene	13.70	237	12954	42.06	ug/mLm	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7188.d
Acq On : 17 Nov 97 5:21 pm
Sample : 50 STD.....
Misc :
Quant Time: Nov 20 13:32 1997

Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,6-Trichlorophenol	14.15	196	16759	47.68	ug/mL	97
36) 2,4,5-Trichlorophenol	14.35	196	19177	49.83	ug/mL	99
38) 2-Nitroaniline	15.10	65	21281	50.17	ug/mL	98
39) Dimethylphthalate	15.90	163	37009	50.96	ug/mLm	0
40) Acenaphthylene	15.59	152	72587	47.92	ug/mL#	99
41) 2,6-Dinitrotoluene	16.04	165	13606	57.87	ug/mLm	0
42) 3-Nitroaniline	16.41	138	17582	55.67	ug/mL	96
43) Acenaphthene	16.18	153	48924	48.03	ug/mL	99
44) 2,4-Dinitrophenol	16.73	184	11101	52.62	ug/mL	97
45) 4-Nitrophenol	17.53	109	10727	52.63	ug/mL	93
46) Dibenzofuran	16.67	168	77558	46.99	ug/mL	96
47) 2,4-Dinitrotoluene	17.18	165	10647	43.57	ug/mLm	0
48) Diethylphthalate	18.06	149	60808	55.68	ug/mL	98
49) Fluorene	17.69	166	58861	51.60	ug/mL	100
50) 4-Chlorophenyl-phenylether	17.91	204	27083	45.48	ug/mL	93
52) 4-Nitroaniline	18.28	138	16231	59.07	ug/mL	90
53) 4,6-Dinitro-2-methylphenol	18.38	198	14427	48.63	ug/mL	100
54) n-Nitrosodiphenylamine	18.40	169	37593	51.07	ug/mL	97
56) 1,2-Diphenylhydrazine (as	18.34	77	93698	56.38	ug/ml	100
57) 4-Bromophenyl-phenylether	19.32	248	19031	45.90	ug/mL#	91
58) Hexachlorobenzene	19.56	284	26750	42.87	ug/mL	91
59) Pentachlorophenol	20.29	266	14818	41.23	ug/mL	97
60) Phenanthrene	20.48	178	91196	46.12	ug/mL	100
61) Anthracene	20.62	178	93346	57.83	ug/mLm	0
62) Carbazole	21.35	167	82098	48.19	ug/ml	98
63) Di-n-butylphthalate	22.96	149	126944	49.47	ug/mL	99
64) Fluoranthene	24.02	202	102444	45.63	ug/mL	97
66) Benzidine	24.79	184	24521	42.15	ug/ml	100
67) Pyrene	24.63	202	116896	40.40	ug/mLm	97
69) Butylbenzylphthalate	27.35	149	61544	52.33	ug/mL	93
70) Benzo[a]anthracene	28.33	228	108599	45.68	ug/mL	99
71) 3,3'-Dichlorobenzidine	28.59	252	34073	54.61	ug/mLm	97
72) Chrysene	28.43	228	73102	53.73	ug/mLm	98
73) bis(2-Ethylhexyl)phthalate	29.35	149	92900	58.10	ug/mL#	40
75) Di-n-octylphthalate	31.12	149	140100	50.39	ug/mL	99
76) Benzo[b]fluoranthene	31.38	252	103153	40.72	ug/mLm	98
77) Benzo[k]fluoranthene	31.44	252	74329	48.03	ug/mLm	98
78) Benzo[a]pyrene	32.18	252	70139	49.84	ug/mL#	95
79) Indeno[1,2,3-cd]pyrene	34.84	276	50769	50.88	ug/mL	100
80) Dibenz[a,h]anthracene	34.94	278	42614	51.21	ug/mL	98
81) Benzo[g,h,i]perylene	35.37	276	36860	45.78	ug/mLm	0

(#) = qualifier out of range (m) = manual integration

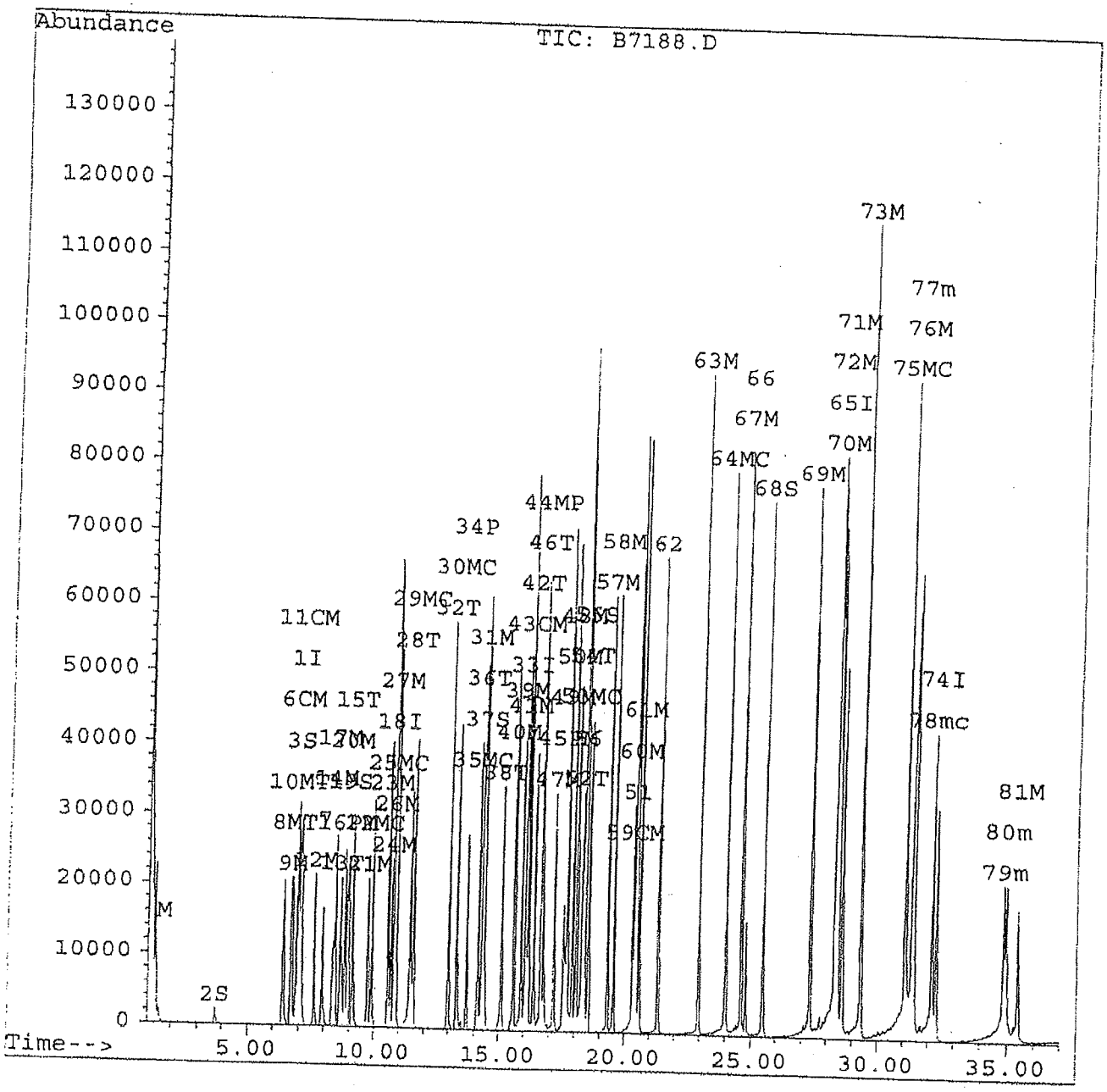
Quantitation Report

Data File : c:\hpchem\1\data2\b7188.d
Acq On : 17 Nov 97 5:21 pm
Sample : 50 STD.....
Misc :
Quant Time: Nov 20 13:32 1997

Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

355

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID (Standard): B6890.D Date Analyzed: 10/21/97

Instrument ID: ABNA Time Analyzed: 1906

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	17951	7.51	85911	11.28	61247	16.56
	UPPER LIMIT	35902	8.01	171822	11.78	122494	17.06
	LOWER LIMIT	8976	7.01	42956	10.78	30624	16.06
	SAMPLE NO.						
01	SBLK01	15702	7.50	71087	11.26	53275	16.53
02	9765050B	20558	7.53	103685	11.33	72383	16.65
03	63065MS	16889	7.52	83679	11.29	59367	16.55
04	63065MSD	15376	7.52	72039	11.29	50416	16.55
05							
06							
07							
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17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID (Standard): B6890.D Date Analyzed: 10/21/97

Instrument ID: ABNA Time Analyzed: 1906

		IS4 (PHN) AREA	#	RT	#	IS5 (CRY) AREA	#	RT	#	IS6 (PRY) AREA	#	RT	#
	12 HOUR STD	123510		20.90		106179		28.88		46220		32.85	
	UPPER LIMIT	247020		21.40		212358		29.38		92440		33.35	
	LOWER LIMIT	61755		20.40		53090		28.38		23110		32.35	
	SAMPLE NO.												
01	SBLK01	107103		20.88		101709		28.87		42958		32.85	
02	9765050B	105391		21.10		61087		28.97		39854		32.93	
03	63065MS	117316		20.91		71936		28.89		23812		32.86	
04	63065MSD	102762		20.91		60147		28.90		19439	*	32.88	
05													
06													
07													
08													
09													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													
21													
22													

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID (Standard): B7188.D Date Analyzed: 11/17/97

Instrument ID: ABNA Time Analyzed: 1721

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	9353	7.05	41268	10.83	35301	16.08
	UPPER LIMIT	18706	7.55	82536	11.33	70602	16.58
	LOWER LIMIT	4677	6.55	20634	10.33	17651	15.58
	SAMPLE NO.						
01	SBLK01	8222	7.04	35582	10.81	28410	16.07
02	9778619B	7924	7.04	35586	10.80	27632	16.07
03	9778620B	6952	7.04	30895	10.82	24557	16.06
04	9778622B	7386	7.02	32472	10.81	26676	16.07
05	9778623B	8007	7.02	33980	10.81	27827	16.07
06	9778624B	7531	7.02	32740	10.80	26803	16.07
07	9782199B	10225	7.04	44367	10.80	36325	16.07
08	9782200B	9479	7.04	42502	10.82	34163	16.07
09	9782201B	8819	7.04	39906	10.82	31783	16.07
10	9782202B	9093	7.04	40421	10.82	31961	16.07
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID (Standard): B7188.D Date Analyzed: 11/17/97

Instrument ID: ABNA Time Analyzed: 1721

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	77529	20.42	80244	28.37	55790	32.32
	UPPER LIMIT	155058	20.92	160488	28.87	111580	32.82
	LOWER LIMIT	38765	19.92	40122	27.87	27895	31.82
	SAMPLE NO.						
01	SBLK01	66696	20.38	85950	28.36	74800	32.32
02	9778619B	64858	20.38	83548	28.35	72717	32.32
03	9778620B	55918	20.40	62189	28.35	38505	32.31
04	9778622B	60630	20.38	69203	28.33	47562	32.32
05	9778623B	62443	20.38	78132	28.34	56598	32.32
06	9778624B	60992	20.38	80161	28.33	57702	32.32
07	9782199B	86030	20.40	108562	28.35	78411	32.34
08	9782200B	78949	20.40	103743	28.35	76831	32.34
09	9782201B	72501	20.40	97193	28.35	70549	32.34
10	9782202B	74832	20.40	102059	28.37	73651	32.33
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778619B
MW2, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778619B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7190.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	400	U
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
108-60-1	bis(2-chloroisopropyl)ether	400	U
621-64-7	N-Nitroso-Di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
91-58-7	2-Chloronaphthalene	400	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	990	U
100-02-7	4-Nitrophenol	990	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778619B
MW3, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778619B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7190.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	990	U
86-30-6	n-Nitrosodiphenylamine	400	U
122-66-7	1,2-Diphenylhydrazine(as azo)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	990	U
85-01-08	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
92-87-5	Benzidine	2000	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
56-55-3	Benzo[a]anthracene	400	U
91-94-1	3,3'-Dichlorobenzidine	790	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	400	U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo[b]fluoranthene	400	U
207-08-9	Benzo[k]fluoranthene	400	U
50-32-8	Benzo[a]pyrene	400	U
193-39-5	Indeno[1,2,3-cd]pyrene	400	U
53-70-3	Dibenz[a,h]anthracene	400	U
191-24-2	Benzo[g,h,i]perylene	400	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778619B MW2, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778619B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7190.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
3.				
4.				
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Quantitation Report

Data File : c:\hpchem\1\data2\b7190.d
Acq On : 17 Nov 97 6:57 pm
Sample : 78619.....
Misc :
Quant Time: Nov 20 14:06 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.04	152	7924	40.00	ug/mL	-0.08
18) Naphthalene-d8	10.80	136	35586	40.00	ug/mL	-0.10
33) Acenaphthene-d10	16.07	164	27632	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.38	188	64858	40.00	ug/ml	-0.11
65) Chrysene-d12	28.35	240	83548	40.00	ug/mL	-0.08
74) Perylene-d12	32.32	264	72717	40.00	ug/mL	-0.08
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.69	112	4410	88.70	ug/mL	88.70%
3) Phenol-d5	6.96	99	29875	100.55	ug/mL	100.55%
19) Nitrobenzene-d5	8.89	82	15219	46.40	ug/mL	46.40%
37) 2-Fluorobiphenyl	14.30	172	39060	51.99	ug/mL	51.99%
55) 2,4,6-Tribromophenol	18.53	330	37255	124.65	ug/mL	124.65%
68) Terphenyl-d14	25.51	244	131046	60.88	ug/mL	60.88%
Target Compounds						Qvalue

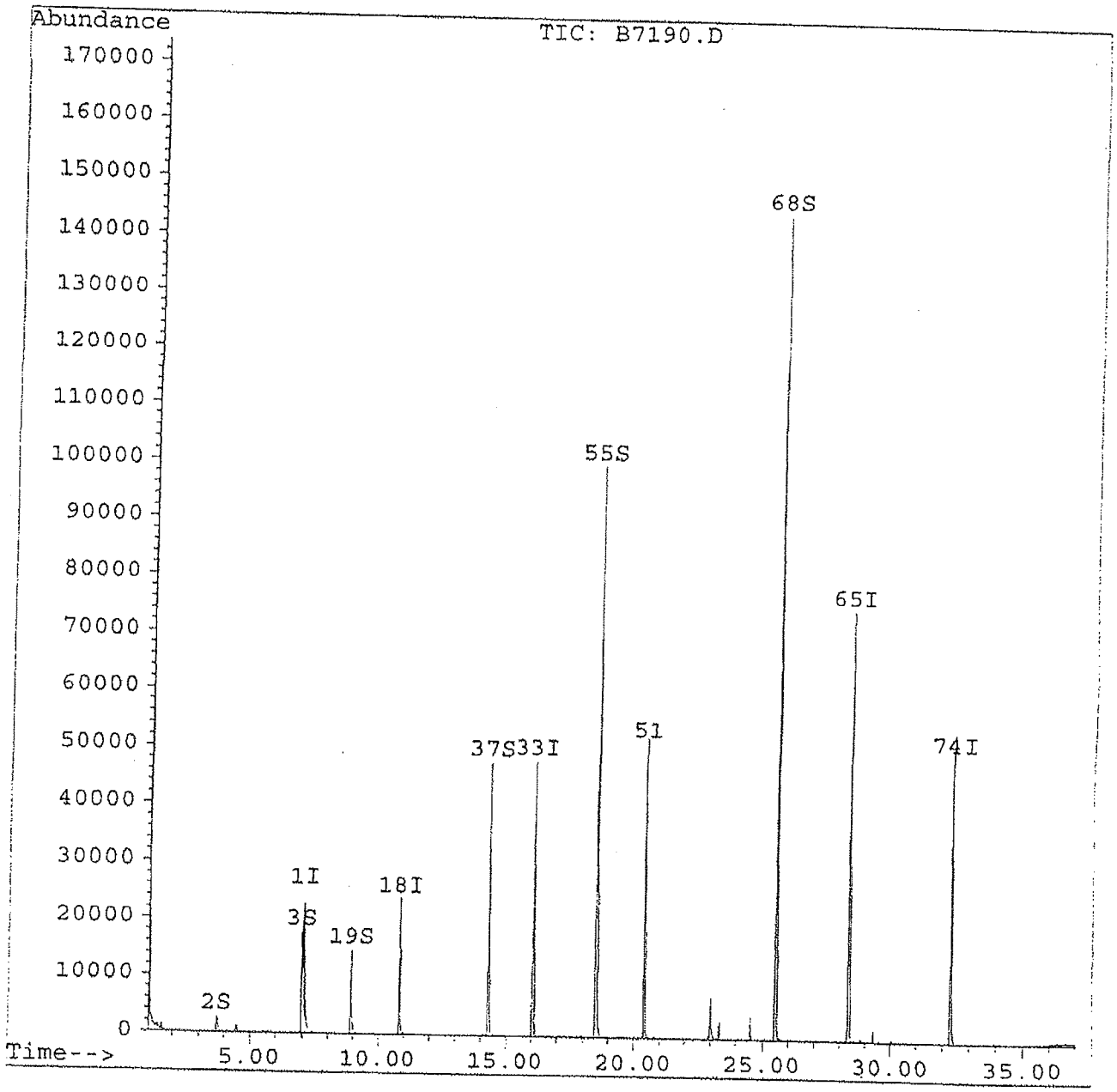
Quantitation Report

Data File : c:\hpchem\1\data2\b7190.d
Acq On : 17 Nov 97 6:57 pm
Sample : 78619.....
Misc :
Quant Time: Nov 20 14:06 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7190.d
Acq On : 17 Nov 97 6:57 pm
Sample : 78619..... Converted from RTE d
Misc :

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778620B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778620B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7191.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 20 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	420	U
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
108-60-1	bis(2-chloroisopropyl)ether	420	U
621-64-7	N-Nitroso-Di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
91-58-7	2-Chloronaphthalene	420	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
83-32-9	Acenaphthene	420	U
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
86-73-7	Fluorene	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778620B

mw-10 S-S

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778620B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7191.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 20 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	n-Nitrosodiphenylamine	420	U
122-66-7	1,2-Diphenylhydrazine(as azo)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-08	Phenanthrene	420	U
120-12-7	Anthracene	420	U
84-74-2	Di-n-butylphthalate	420	U
206-44-0	Fluoranthene	420	U
92-87-5	Benzidine	2100	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
56-55-3	Benzo[a]anthracene	420	U
91-94-1	3,3'-Dichlorobenzidine	830	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)phthalate	420	U
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo[b]fluoranthene	420	U
207-08-9	Benzo[k]fluoranthene	420	U
50-32-8	Benzo[a]pyrene	420	U
193-39-5	Indeno[1,2,3-cd]pyrene	420	U
53-70-3	Dibenz[a,h]anthracene	420	U
191-24-2	Benzo[g,h,i]perylene	420	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778620B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778620B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7191.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 20 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
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Quantitation Report

Data File : c:\hpchem\1\data2\b7191.d
Acq On : 17 Nov 97 7:44 pm
Sample : 78620..... Converted from RTE d
Misc :
Quant Time: Nov 20 14:07 1997

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.04	152	6952	40.00	ug/mL	-0.09
18) Naphthalene-d8	10.82	136	30895	40.00	ug/mL	-0.09
33) Acenaphthene-d10	16.06	164	24557	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.40	188	55918	40.00	ug/ml	-0.10
65) Chrysene-d12	28.35	240	62189	40.00	ug/mL	-0.09
74) Perylene-d12	32.31	264	38505	40.00	ug/mL	-0.09
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.68	112	3587	82.24	ug/mL	82.24%
3) Phenol-d5	6.97	99	25849	99.17	ug/mL	99.17%
19) Nitrobenzene-d5	8.89	82	11452	40.22	ug/mL	40.22%
37) 2-Fluorobiphenyl	14.30	172	30969	46.38	ug/mL	46.38%
55) 2,4,6-Tribromophenol	18.53	330	31022	120.39	ug/mL	120.39%
68) Terphenyl-d14	25.50	244	103089	64.34	ug/mL	64.34%
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration

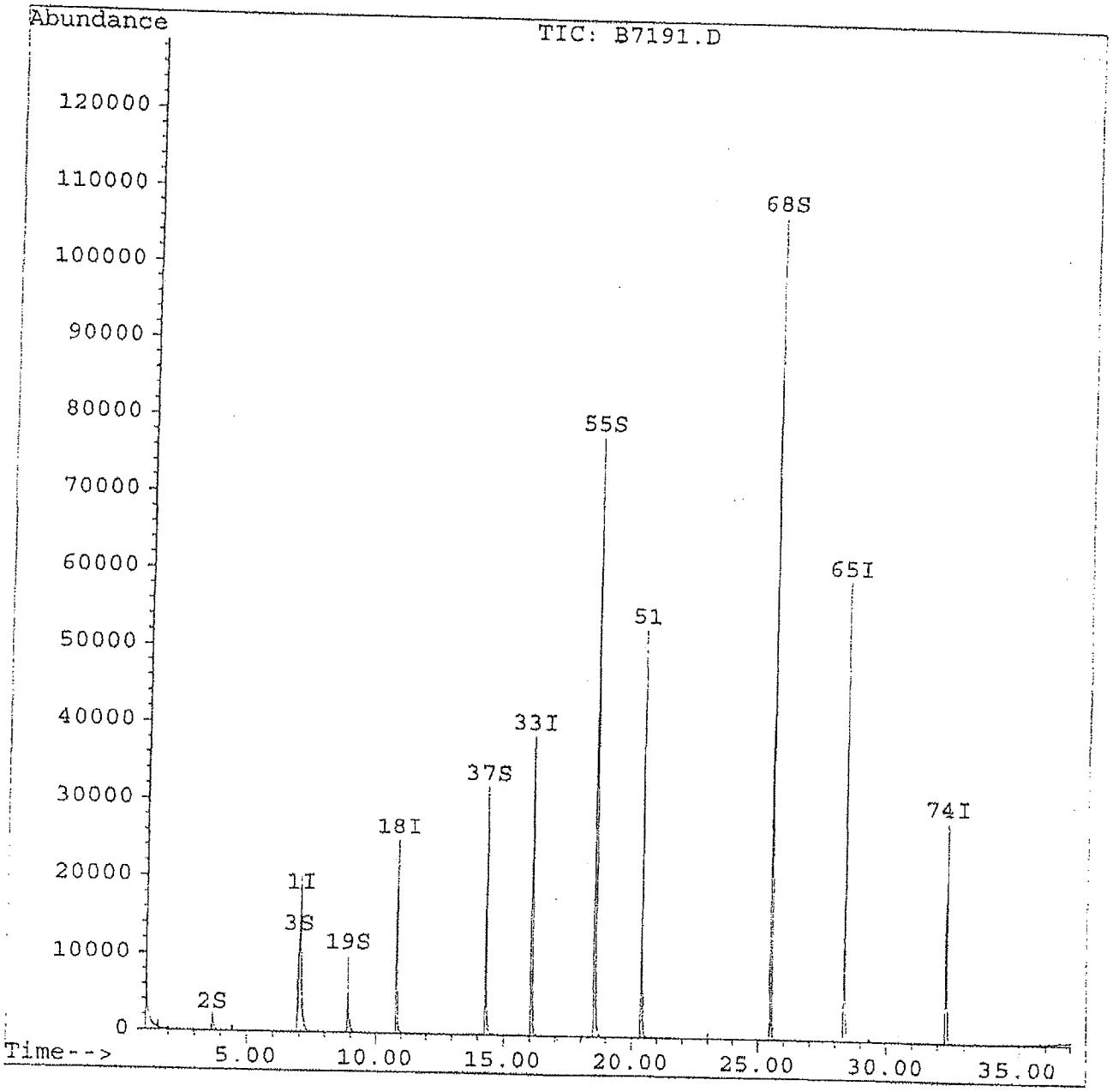
Quantitation Report

Data File : c:\hpchem\1\data2\b7191.d
Acq On : 17 Nov 97 7:44 pm
Sample : 78620.....
Misc :
Quant Time: Nov 20 14:07 1997

Vial: 5
Operator: SCOTTV
Inst : ABN2
BT Multiplr: 1.00

Converted from RTE d

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7191.d
Acq On : 17 Nov 97 7:44 pm
Sample : 78620.....
Misc : Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778622B

MW-5, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778622B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7192.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 12 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	380	U
108-95-2	Phenol	380	U
111-44-4	bis(2-Chloroethyl)ether	380	U
95-57-8	2-Chlorophenol	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
108-60-1	bis(2-chloroisopropyl)ether	380	U
621-64-7	N-Nitroso-Di-n-propylamine	380	U
67-72-1	Hexachloroethane	380	U
98-95-3	Nitrobenzene	380	U
78-59-1	Isophorone	380	U
88-75-5	2-Nitrophenol	380	U
105-67-9	2,4-Dimethylphenol	380	U
111-91-1	bis(2-Chloroethoxy)methane	380	U
120-83-2	2,4-Dichlorophenol	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
91-20-3	Naphthalene	380	U
87-68-3	Hexachlorobutadiene	380	U
59-50-7	4-Chloro-3-methylphenol	380	U
77-47-4	Hexachlorocyclopentadiene	380	U
88-06-2	2,4,6-Trichlorophenol	380	U
91-58-7	2-Chloronaphthalene	380	U
131-11-3	Dimethylphthalate	380	U
208-96-8	Acenaphthylene	380	U
606-20-2	2,6-Dinitrotoluene	380	U
83-32-9	Acenaphthene	380	U
51-28-5	2,4-Dinitrophenol	950	U
100-02-7	4-Nitrophenol	950	U
121-14-2	2,4-Dinitrotoluene	380	U
84-66-2	Diethylphthalate	380	U
86-73-7	Fluorene	380	U
7005-72-3	4-Chlorophenyl-phenylether	380	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778622B

MW-5, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778622B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7192.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 12 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	950	U
86-30-6	n-Nitrosodiphenylamine	380	U
122-66-7	1,2-Diphenylhydrazine(as azo)	380	U
101-55-3	4-Bromophenyl-phenylether	380	U
118-74-1	Hexachlorobenzene	380	U
87-86-5	Pentachlorophenol	950	U
85-01-08	Phenanthrene	380	U
120-12-7	Anthracene	380	U
84-74-2	Di-n-butylphthalate	380	U
206-44-0	Fluoranthene	380	U
92-87-5	Benzidine	1900	U
129-00-0	Pyrene	380	U
85-68-7	Butylbenzylphthalate	380	U
56-55-3	Benzo[a]anthracene	380	U
91-94-1	3,3'-Dichlorobenzidine	760	U
218-01-9	Chrysene	380	U
117-81-7	bis(2-Ethylhexyl)phthalate	380	U
117-84-0	Di-n-octylphthalate	380	U
205-99-2	Benzo[b]fluoranthene	380	U
207-08-9	Benzo[k]fluoranthene	380	U
50-32-8	Benzo[a]pyrene	380	U
193-39-5	Indeno[1,2,3-cd]pyrene	380	U
53-70-3	Dibenz[a,h]anthracene	380	U
191-24-2	Benzo[g,h,i]perylene	380	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9778622B
MW-5, 5-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778622B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7192.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 12 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
3.				
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Quantitation Report

Data File : c:\hpchem\1\data2\b7192.d
Acq On : 17 Nov 97 8:32 pm
Sample : 78622.....
Misc :
Quant Time: Nov 20 14:10 1997

Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.02	152	7386	40.00	ug/mL	-0.10
18) Naphthalene-d8	10.81	136	32472	40.00	ug/mL	-0.10
33) Acenaphthene-d10	16.07	164	26676	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.38	188	60630	40.00	ug/ml	-0.11
65) Chrysene-d12	28.33	240	69203	40.00	ug/mL	-0.10
74) Perylene-d12	32.32	264	47562	40.00	ug/mL	-0.08
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.67	112	5505	118.79	ug/mL	118.79%
3) Phenol-d5	6.92	99	39385	142.22	ug/mL	142.22%
19) Nitrobenzene-d5	8.89	82	18456	61.67	ug/mL	61.67%
37) 2-Fluorobiphenyl	14.30	172	46772	64.48	ug/mL	64.48%
55) 2,4,6-Tribromophenol	18.53	330	40949	146.56	ug/mL	146.56%
68) Terphenyl-d14	25.51	244	125378	70.32	ug/mL	70.32%

Target Compounds

Qvalue

(#) = qualifier out of range (m) = manual integration

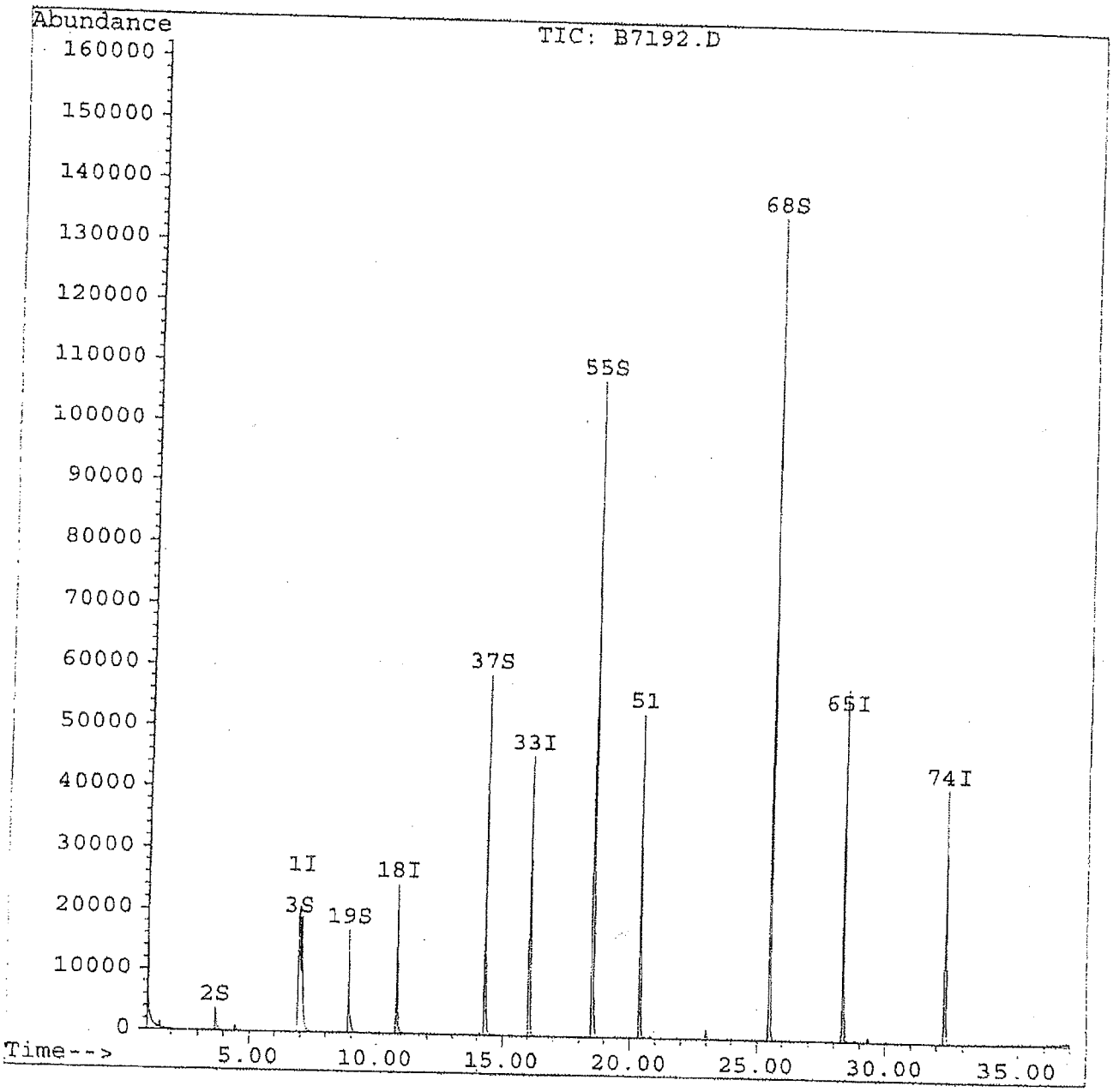
Quantitation Report

Data File : c:\hpchem\1\data2\b7192.d
Acq On : 17 Nov 97 8:32 pm
Sample : 78622.....
Misc :
Quant Time: Nov 20 14:10 1997

Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7192.d
Acq On : 17 Nov 97 8:32 pm
Sample : 78622..... Converted from RTE d
Misc :

Vial: 6
Operator: SCOTTV
Inst : AENA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778623B
MW-7, S-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778623B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7193.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 19 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	410	U
108-95-2	Phenol	410	U
111-44-4	bis(2-Chloroethyl)ether	410	U
95-57-8	2-Chlorophenol	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
108-60-1	bis(2-chloroisopropyl)ether	410	U
621-64-7	N-Nitroso-Di-n-propylamine	410	U
67-72-1	Hexachloroethane	410	U
98-95-3	Nitrobenzene	410	U
78-59-1	Isophorone	410	U
88-75-5	2-Nitrophenol	410	U
105-67-9	2,4-Dimethylphenol	410	U
111-91-1	bis(2-Chloroethoxy)methane	410	U
120-83-2	2,4-Dichlorophenol	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
91-20-3	Naphthalene	410	U
87-68-3	Hexachlorobutadiene	410	U
59-50-7	4-Chloro-3-methylphenol	410	U
77-47-4	Hexachlorocyclopentadiene	410	U
88-06-2	2,4,6-Trichlorophenol	410	U
91-58-7	2-Chloronaphthalene	410	U
131-11-3	Dimethylphthalate	410	U
208-96-8	Acenaphthylene	410	U
606-20-2	2,6-Dinitrotoluene	410	U
83-32-9	Acenaphthene	410	U
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
121-14-2	2,4-Dinitrotoluene	410	U
84-66-2	Diethylphthalate	410	U
86-73-7	Fluorene	410	U
7005-72-3	4-Chlorophenyl-phenylether	410	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778623B

MW-7, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778623B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7193.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 19 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	n-Nitrosodiphenylamine	410	U
122-66-7	1,2-Diphenylhydrazine(as azo)	410	U
101-55-3	4-Bromophenyl-phenylether	410	U
118-74-1	Hexachlorobenzene	410	U
87-86-5	Pentachlorophenol	1000	U
85-01-08	Phenanthrene	410	U
120-12-7	Anthracene	410	U
84-74-2	Di-n-butylphthalate	410	U
206-44-0	Fluoranthene	410	U
92-87-5	Benzidine	2100	U
129-00-0	Pyrene	410	U
85-68-7	Butylbenzylphthalate	410	U
56-55-3	Benzo[a]anthracene	410	U
91-94-1	3,3'-Dichlorobenzidine	820	U
218-01-9	Chrysene	410	U
117-81-7	bis(2-Ethylhexyl)phthalate	410	U
117-84-0	Di-n-octylphthalate	410	U
205-99-2	Benzo[b]fluoranthene	410	U
207-08-9	Benzo[k]fluoranthene	410	U
50-32-8	Benzo[a]pyrene	410	U
193-39-5	Indeno[1,2,3-cd]pyrene	410	U
53-70-3	Dibenz[a,h]anthracene	410	U
191-24-2	Benzo[g,h,i]perylene	410	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. 9778623B

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9778623B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7193.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 19 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.99	210	J
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Quantitation Report

Data File : c:\hpchem\1\data2\b7193.d
Acq On : 17 Nov 97 9:20 pm
Sample : 78623..... Converted from RTE d
Misc :
Quant Time: Nov 20 14:11 1997

Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.02	152	8007	40.00	ug/mL	-0.10
18) Naphthalene-d8	10.81	136	33980	40.00	ug/mL	-0.10
33) Acenaphthene-d10	16.07	164	27827	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.38	188	62443	40.00	ug/ml	-0.11
65) Chrysene-d12	28.34	240	78132	40.00	ug/mL	-0.10
74) Perylene-d12	32.32	264	56598	40.00	ug/mL	-0.08
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.67	112	5854	116.53	ug/mL	116.53%
3) Phenol-d5	6.92	99	42521	141.63	ug/mL	141.63%
19) Nitrobenzene-d5	8.90	82	19188	61.27	ug/mL	61.27%
37) 2-Fluorobiphenyl	14.30	172	48781	64.47	ug/mL	64.47%
55) 2,4,6-Tribromophenol	18.53	330	39580	137.55	ug/mL	137.55%
68) Terphenyl-d14	25.51	244	133028	66.08	ug/mL	66.08%
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration

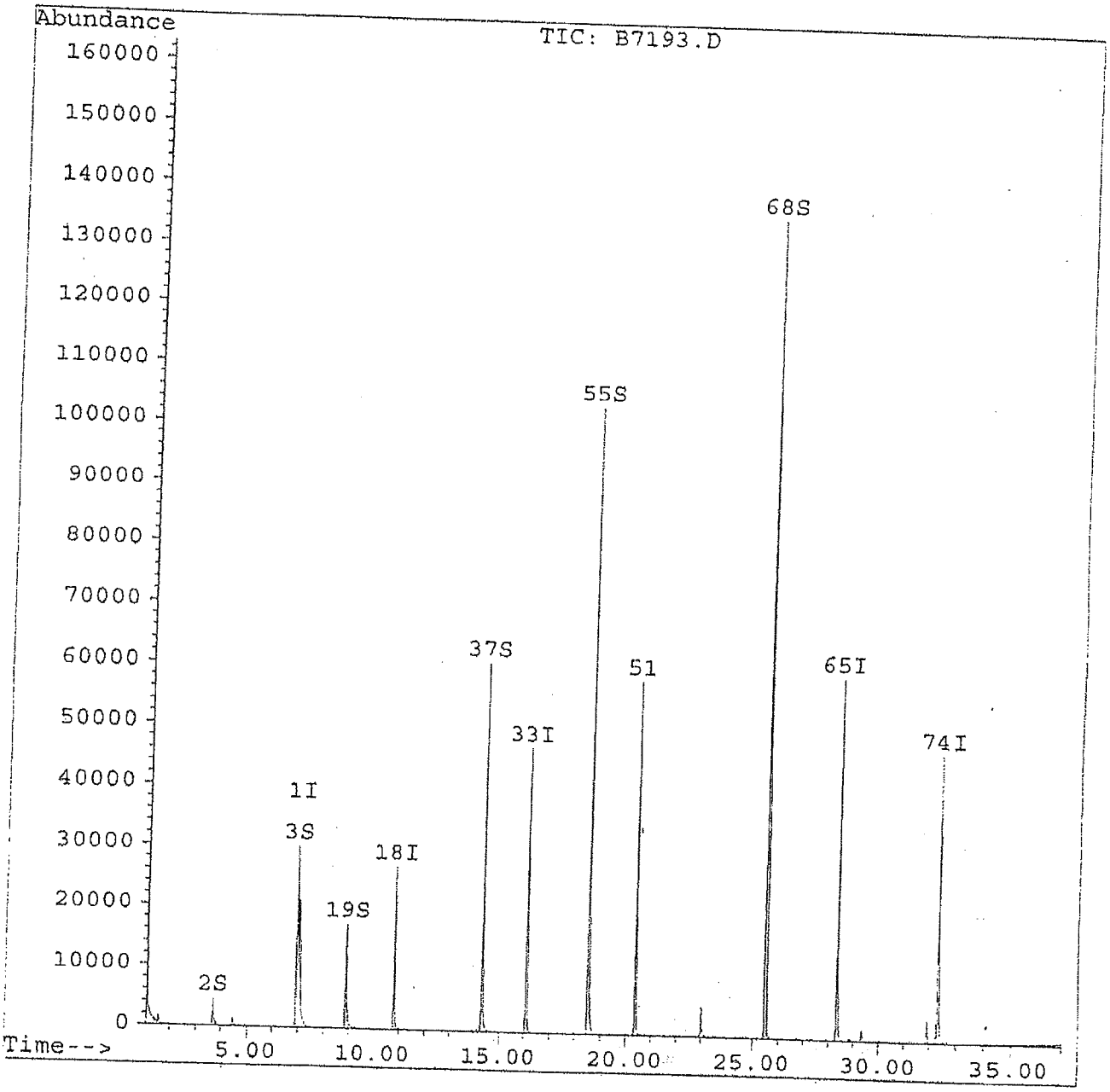
Quantitation Report

Data File : c:\hpchem\1\data2\b7193.d
Acq On : 17 Nov 97 9:20 pm
Sample : 78623.....
Misc :
Quant Time: Nov 20 14:11 1997

Converted from RTE d

Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

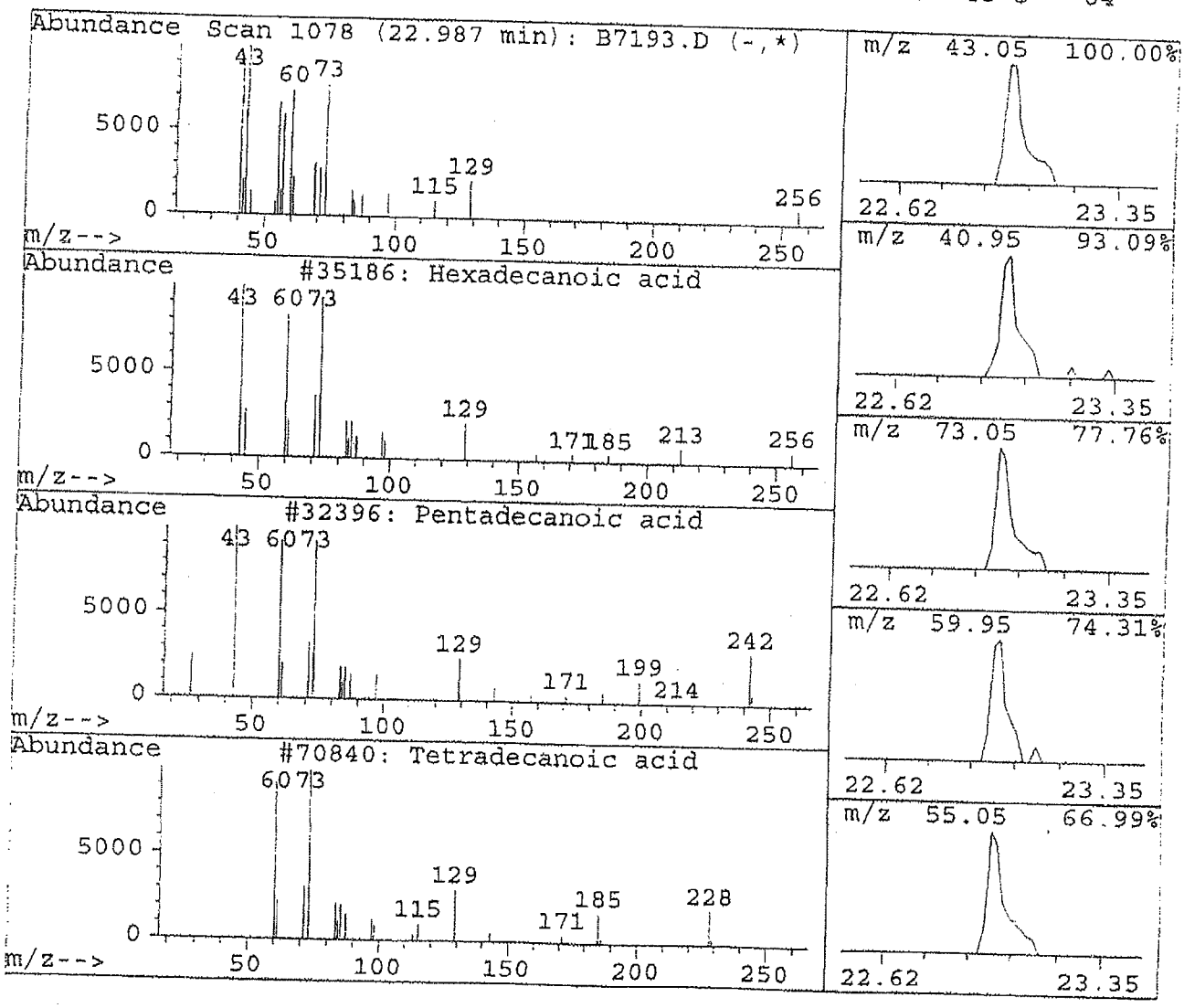
Data File : c:\hpchem\1\data2\b7193.d
Acq On : 17 Nov 97 9:20 pm
Sample : 78623.....
Misc :

Vial: 7
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.99	5.15 ug/mL	20182	Phenanthrene-d10	20.38

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	35186	000057-10-3	93
2	Pentadecanoic acid	32396	001002-84-2	80
3	Tetradecanoic acid	70840	000544-63-8	80
4	Tridecanoic acid	70343	000638-53-9	64
5	Decanoic acid	68357	000334-48-5	64



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778624B
MW-9, 5-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778624B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7194.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	400	U
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
108-60-1	bis(2-chloroisopropyl)ether	400	U
621-64-7	N-Nitroso-Di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
91-58-7	2-Chloronaphthalene	400	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	990	U
100-02-7	4-Nitrophenol	990	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9778624B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778624B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7194.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	990	U
86-30-6	n-Nitrosodiphenylamine	400	U
122-66-7	1,2-Diphenylhydrazine(as azo)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	990	U
85-01-08	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
92-87-5	Benzidine	2000	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
56-55-3	Benzo[a]anthracene	400	U
91-94-1	3,3'-Dichlorobenzidine	790	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	400	U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo[b]fluoranthene	400	U
207-08-9	Benzo[k]fluoranthene	400	U
50-32-8	Benzo[a]pyrene	400	U
193-39-5	Indeno[1,2,3-cd]pyrene	400	U
53-70-3	Dibenz[a,h]anthracene	400	U
191-24-2	Benzo[g,h,i]perylene	400	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9778624B
MW2-S1.5-S

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9778624B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7194.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 16 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
3.				
4.				
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Quantitation Report

Data File : c:\hpchem\1\data2\b7194.d
Acq On : 17 Nov 97 10:08 pm
Sample : 78624.....
Misc :
Quant Time: Nov 20 14:11 1997

Converted from RTE d

Vial: 8
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.02	152	7531	40.00	ug/mL	-0.10
18) Naphthalene-d8	10.80	136	32740	40.00	ug/mL	-0.10
33) Acenaphthene-d10	16.07	164	26803	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.38	188	60992	40.00	ug/ml	-0.11
65) Chrysene-d12	28.33	240	80161	40.00	ug/mL	-0.10
74) Perylene-d12	32.32	264	57702	40.00	ug/mL	-0.08
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.69	112	4324	91.51	ug/mL	91.51%
3) Phenol-d5	6.94	99	29343	103.92	ug/mL	103.92%
19) Nitrobenzene-d5	8.89	82	15959	52.89	ug/mL	52.89%
37) 2-Fluorobiphenyl	14.30	172	42858	58.80	ug/mL	58.80%
55) 2,4,6-Tribromophenol	18.53	330	36610	130.26	ug/mL	130.26%
68) Terphenyl-d14	25.51	244	133478	64.63	ug/mL	64.63%

Target Compounds

Qvalue

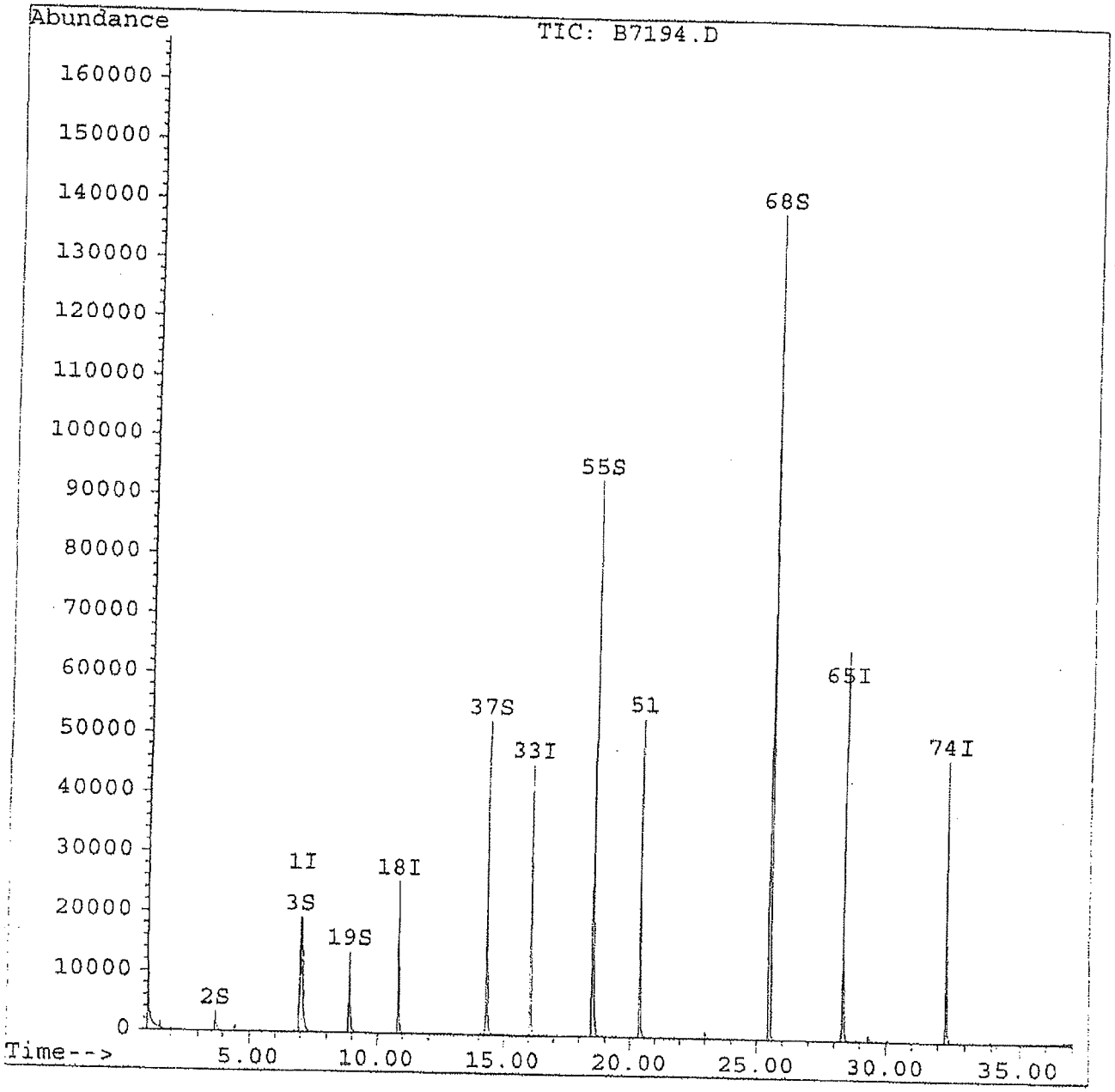
Quantitation Report

Data File : c:\hpchem\1\data2\b7194.d
Acq On : 17 Nov 97 10:08 pm
Sample : 78624.....
Misc :
Quant Time: Nov 20 14:11 1997

Converted from RTE d

Vial: 8
Operator: SCOTTV
Inst : AENA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7194.d
Acq On : 17 Nov 97 10:08 pm
Sample : 78624..... Converted from RTE d
Misc :

Vial: 8
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782199B

MW-3 S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7198.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 14 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	390	U
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
108-60-1	bis(2-chloroisopropyl)ether	390	U
621-64-7	N-Nitroso-Di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
91-58-7	2-Chloronaphthalene	390	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
83-32-9	Acenaphthene	390	U
51-28-5	2,4-Dinitrophenol	970	U
100-02-7	4-Nitrophenol	970	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
86-73-7	Fluorene	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782199B

Mix -3,5-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7198.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 14 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	970	U
86-30-6	n-Nitrosodiphenylamine	390	U
122-66-7	1,2-Diphenylhydrazine(as azo)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	970	U
85-01-08	Phenanthrene	390	U
120-12-7	Anthracene	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
92-87-5	Benzidine	1900	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
56-55-3	Benzo[a]anthracene	390	U
91-94-1	3,3'-Dichlorobenzidine	780	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo[b]fluoranthene	390	U
207-08-9	Benzo[k]fluoranthene	390	U
50-32-8	Benzo[a]pyrene,	390	U
193-39-5	Indeno[1,2,3-cd]pyrene	390	U
53-70-3	Dibenz[a,h]anthracene	390	U
191-24-2	Benzo[g,h,i]perylene	390	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782199B
MB-3, 5-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782199B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7198.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 14 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1. 1002-84-2	Pentadecanoic acid	23.01	170	J
2.				
3.				
4.				
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27.				
28.				
29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7198.d
Acq On : 18 Nov 97 1:16 am
Sample : 82199.....
Misc :
Quant Time: Nov 20 14:12 1997

Converted from RTE d

Vial: 12
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.04	152	10225	40.00	ug/mL	-0.08
18) Naphthalene-d8	10.80	136	44367	40.00	ug/mL	-0.10
33) Acenaphthene-d10	16.07	164	36325	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.40	188	86030	40.00	ug/ml	-0.09
65) Chrysene-d12	28.35	240	108562	40.00	ug/mL	-0.08
74) Perylene-d12	32.34	264	78411	40.00	ug/mL	-0.06
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.69	112	5004	78.00	ug/mL	78.00%
3) Phenol-d5	6.94	99	35187	91.78	ug/mL	91.78%
19) Nitrobenzene-d5	8.89	82	18534	45.33	ug/mL	45.33%
37) 2-Fluorobiphenyl	14.30	172	54203	54.88	ug/mL	54.88%
55) 2,4,6-Tribromophenol	18.53	330	51236	129.24	ug/mL	129.24%
68) Terphenyl-d14	25.51	244	159055	56.86	ug/mL	56.86%

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration

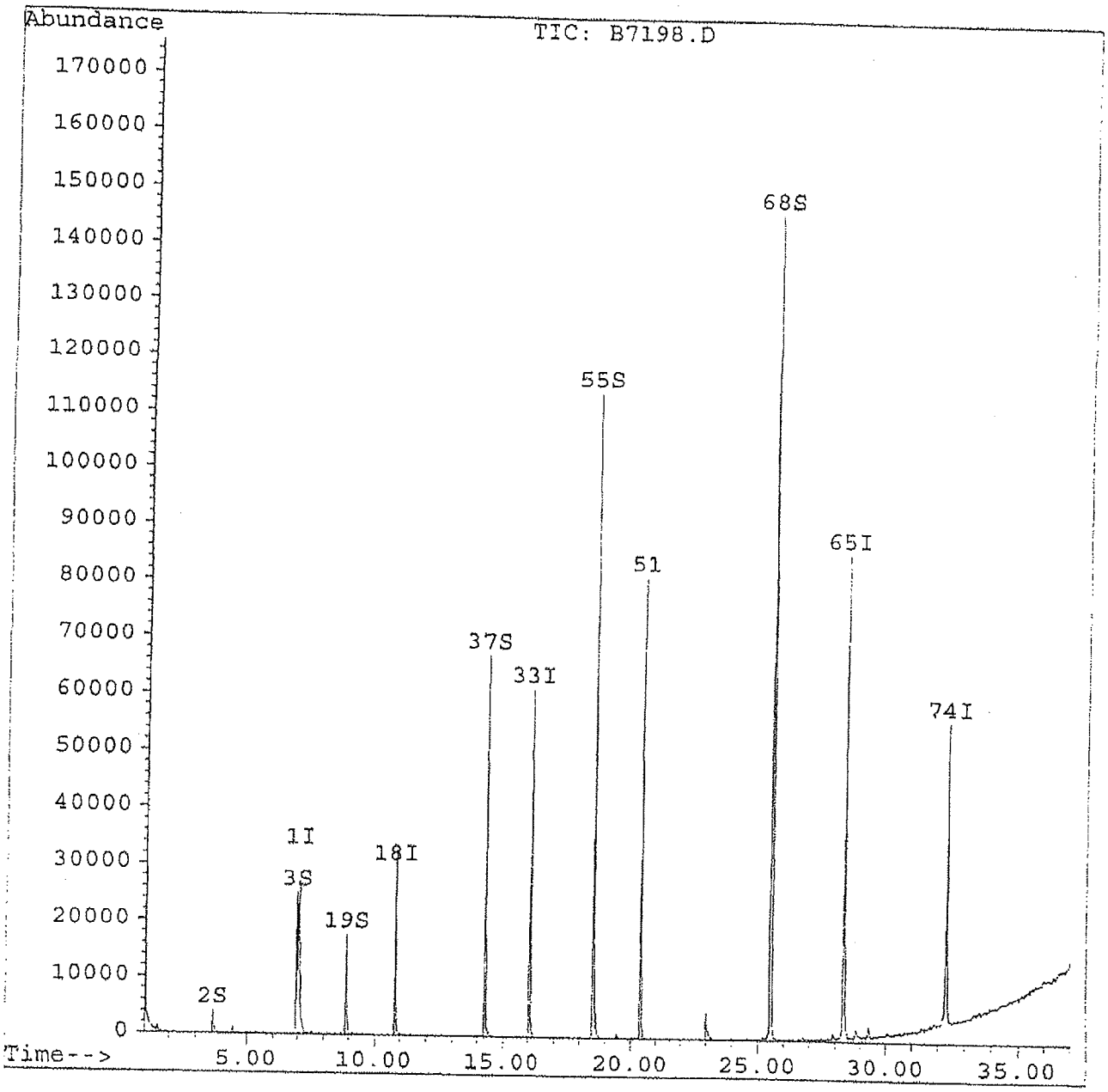
Quantitation Report

Data File : c:\hpchem\1\data2\b7198.d
Acq On : 18 Nov 97 1:16 am
Sample : 82199.....
Misc :
Quant Time: Nov 20 14:12 1997

Converted from RTE d

Vial: 12
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

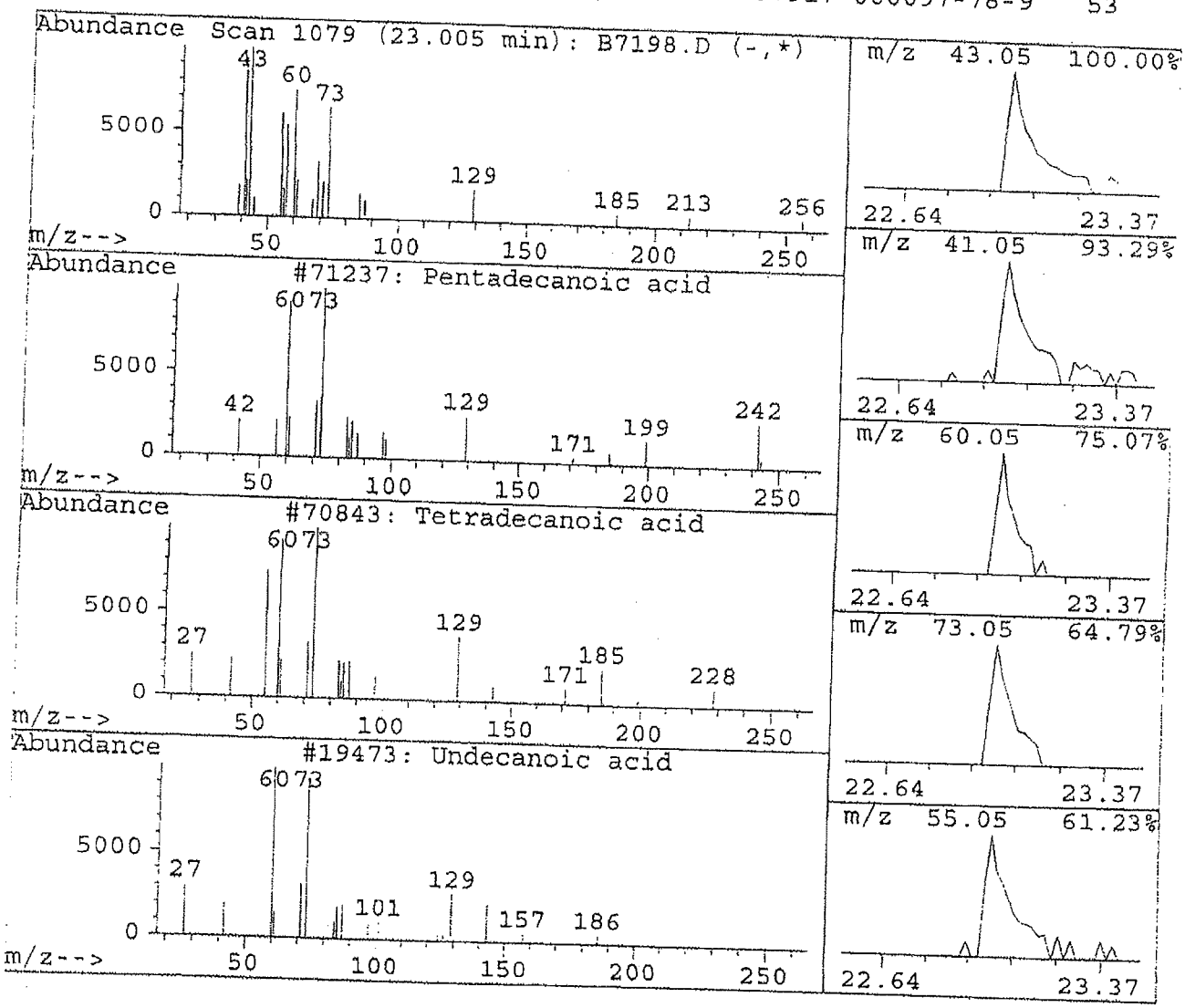
Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
23.01	4.37 ug/mL	23049	Phenanthrene-d10	20.40

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Pentadecanoic acid	71237	001002-84-2	86
2	Tetradecanoic acid	70843	000544-63-8	72
3	Undecanoic acid	19473	000112-37-8	59
4	Hexadecanoic acid	71609	000057-10-3	59
5	Glycine, N-methyl-N-(1-oxododecyl)-	37917	000097-78-9	53



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782200B
MW-6, S-4

397

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782200B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7199.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 17 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	400	U
108-95-2	Phenol	400	U
111-44-4	bis(2-Chloroethyl)ether	400	U
95-57-8	2-Chlorophenol	400	U
541-73-1	1,3-Dichlorobenzene	400	U
106-46-7	1,4-Dichlorobenzene	400	U
95-50-1	1,2-Dichlorobenzene	400	U
108-60-1	bis(2-chloroisopropyl)ether	400	U
621-64-7	N-Nitroso-Di-n-propylamine	400	U
67-72-1	Hexachloroethane	400	U
98-95-3	Nitrobenzene	400	U
78-59-1	Isophorone	400	U
88-75-5	2-Nitrophenol	400	U
105-67-9	2,4-Dimethylphenol	400	U
111-91-1	bis(2-Chloroethoxy)methane	400	U
120-83-2	2,4-Dichlorophenol	400	U
120-82-1	1,2,4-Trichlorobenzene	400	U
91-20-3	Naphthalene	400	U
87-68-3	Hexachlorobutadiene	400	U
59-50-7	4-Chloro-3-methylphenol	400	U
77-47-4	Hexachlorocyclopentadiene	400	U
88-06-2	2,4,6-Trichlorophenol	400	U
91-58-7	2-Chloronaphthalene	400	U
131-11-3	Dimethylphthalate	400	U
208-96-8	Acenaphthylene	400	U
606-20-2	2,6-Dinitrotoluene	400	U
83-32-9	Acenaphthene	400	U
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
121-14-2	2,4-Dinitrotoluene	400	U
84-66-2	Diethylphthalate	400	U
86-73-7	Fluorene	400	U
7005-72-3	4-Chlorophenyl-phenylether	400	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782200B

MW-6, S-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782200B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7199.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 17 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	n-Nitrosodiphenylamine	400	U
122-66-7	1,2-Diphenylhydrazine(as azo)	400	U
101-55-3	4-Bromophenyl-phenylether	400	U
118-74-1	Hexachlorobenzene	400	U
87-86-5	Pentachlorophenol	1000	U
85-01-08	Phenanthrene	400	U
120-12-7	Anthracene	400	U
84-74-2	Di-n-butylphthalate	400	U
206-44-0	Fluoranthene	400	U
92-87-5	Benzidine	2000	U
129-00-0	Pyrene	400	U
85-68-7	Butylbenzylphthalate	400	U
56-55-3	Benzo[a]anthracene	400	U
91-94-1	3,3'-Dichlorobenzidine	800	U
218-01-9	Chrysene	400	U
117-81-7	bis(2-Ethylhexyl)phthalate	400	U
117-84-0	Di-n-octylphthalate	400	U
205-99-2	Benzo[b]fluoranthene	400	U
207-08-9	Benzo[k]fluoranthene	400	U
50-32-8	Benzo[a]pyrene	400	U
193-39-5	Indeno[1,2,3-cd]pyrene	400	U
53-70-3	Dibenz[a,h]anthracene	400	U
191-24-2	Benzo[g,h,i]perylene	400	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782200B
MB-16,5-V

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782200B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7199.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 17 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
3.				
4.				
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27.				
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29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7199.d
Acq On : 18 Nov 97 2:04 am
Sample : 82200.....
Misc :
Quant Time: Nov 20 14:12 1997

Converted from RTE d

Vial: 13
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.04	152	9479	40.00	ug/mL	-0.09
18) Naphthalene-d8	10.82	136	42502	40.00	ug/mL	-0.09
33) Acenaphthene-d10	16.07	164	34163	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.40	188	78949	40.00	ug/ml	-0.10
65) Chrysene-d12	28.35	240	103743	40.00	ug/mL	-0.08
74) Perylene-d12	32.34	264	76831	40.00	ug/mL	-0.07
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.70	112	4604	77.41	ug/mL	77.41%
3) Phenol-d5	6.94	99	33545	94.38	ug/mL	94.38%
19) Nitrobenzene-d5	8.89	82	16027	40.92	ug/mL	40.92%
37) 2-Fluorobiphenyl	14.30	172	43490	46.82	ug/mL	46.82%
55) 2,4,6-Tribromophenol	18.53	330	41984	115.40	ug/mL	115.40%
68) Terphenyl-d14	25.50	244	159688	59.74	ug/mL	59.74%

Target Compounds

Qvalue

(#) = qualifier out of range (m) = manual integration

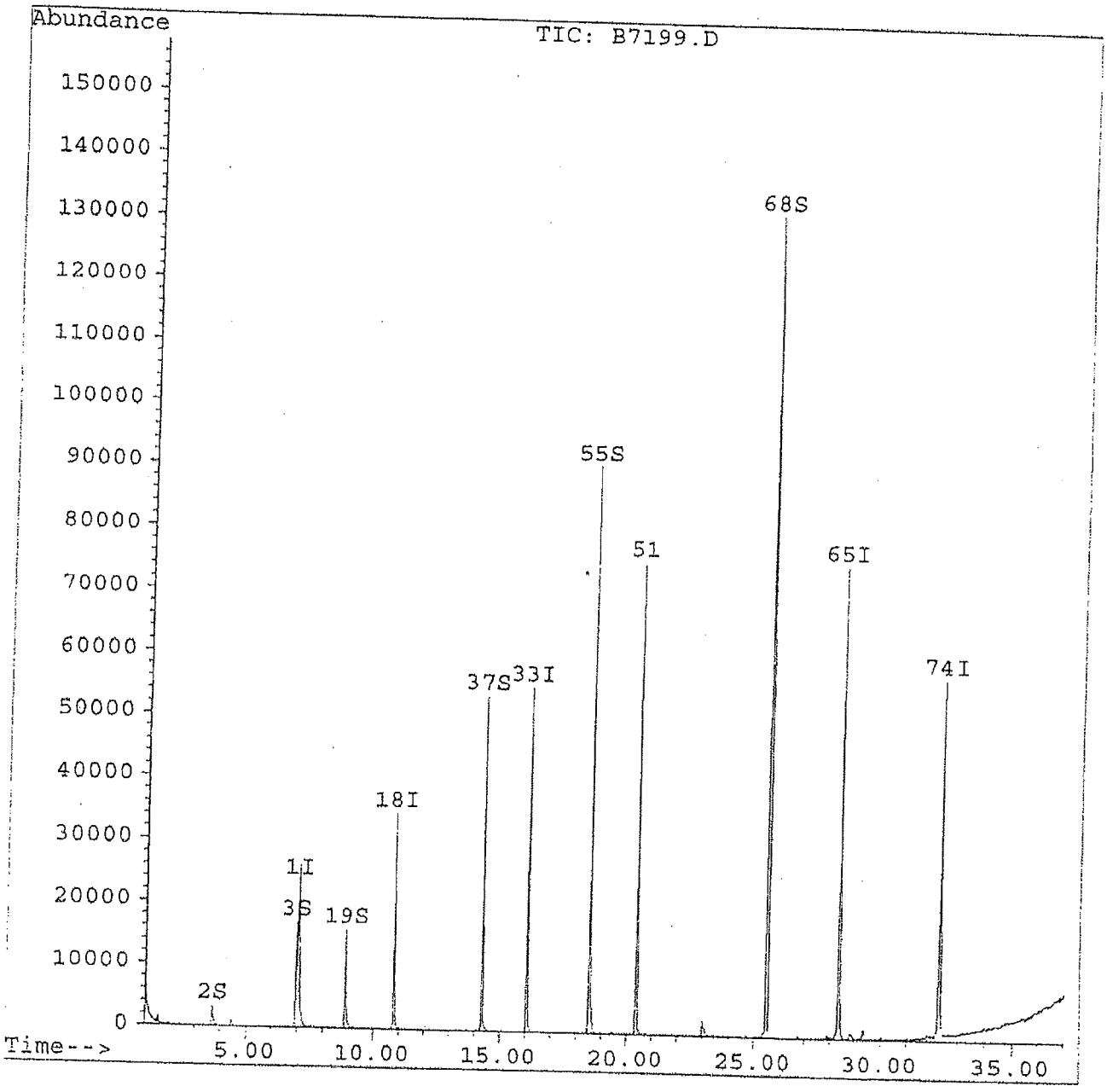
Quantitation Report

Data File : c:\hpchem\1\data2\b7199.d
Acq On : 18 Nov 97 2:04 am
Sample : 82200.....
Misc :
Quant Time: Nov 20 14:12 1997

Converted from RTE d

Vial: 13
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7199.d
Acq On : 18 Nov 97 2:04 am
Sample : 82200.....
Misc : Converted from RTE d

Vial: 15
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782201B

MW-5 S-4

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782201B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7200.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 15 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	390	U
108-95-2	Phenol	390	U
111-44-4	bis(2-Chloroethyl)ether	390	U
95-57-8	2-Chlorophenol	390	U
541-73-1	1,3-Dichlorobenzene	390	U
106-46-7	1,4-Dichlorobenzene	390	U
95-50-1	1,2-Dichlorobenzene	390	U
108-60-1	bis(2-chloroisopropyl)ether	390	U
621-64-7	N-Nitroso-Di-n-propylamine	390	U
67-72-1	Hexachloroethane	390	U
98-95-3	Nitrobenzene	390	U
78-59-1	Isophorone	390	U
88-75-5	2-Nitrophenol	390	U
105-67-9	2,4-Dimethylphenol	390	U
111-91-1	bis(2-Chloroethoxy)methane	390	U
120-83-2	2,4-Dichlorophenol	390	U
120-82-1	1,2,4-Trichlorobenzene	390	U
91-20-3	Naphthalene	390	U
87-68-3	Hexachlorobutadiene	390	U
59-50-7	4-Chloro-3-methylphenol	390	U
77-47-4	Hexachlorocyclopentadiene	390	U
88-06-2	2,4,6-Trichlorophenol	390	U
91-58-7	2-Chloronaphthalene	390	U
131-11-3	Dimethylphthalate	390	U
208-96-8	Acenaphthylene	390	U
606-20-2	2,6-Dinitrotoluene	390	U
83-32-9	Acenaphthene	390	U
51-28-5	2,4-Dinitrophenol	980	U
100-02-7	4-Nitrophenol	980	U
121-14-2	2,4-Dinitrotoluene	390	U
84-66-2	Diethylphthalate	390	U
86-73-7	Fluorene	390	U
7005-72-3	4-Chlorophenyl-phenylether	390	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782201B 4
MW-8, S-1

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782201B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7200.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 15 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	980	U
86-30-6	n-Nitrosodiphenylamine	390	U
122-66-7	1,2-Diphenylhydrazine(as azo)	390	U
101-55-3	4-Bromophenyl-phenylether	390	U
118-74-1	Hexachlorobenzene	390	U
87-86-5	Pentachlorophenol	980	U
85-01-08	Phenanthrene	390	U
120-12-7	Anthracene	390	U
84-74-2	Di-n-butylphthalate	390	U
206-44-0	Fluoranthene	390	U
92-87-5	Benzidine	2000	U
129-00-0	Pyrene	390	U
85-68-7	Butylbenzylphthalate	390	U
56-55-3	Benzo[a]anthracene	390	U
91-94-1	3,3'-Dichlorobenzidine	780	U
218-01-9	Chrysene	390	U
117-81-7	bis(2-Ethylhexyl)phthalate	390	U
117-84-0	Di-n-octylphthalate	390	U
205-99-2	Benzo[b]fluoranthene	390	U
207-08-9	Benzo[k]fluoranthene	390	U
50-32-8	Benzo[a]pyrene	390	U
193-39-5	Indeno[1,2,3-cd]pyrene	390	U
53-70-3	Dibenz[a,h]anthracene	390	U
191-24-2	Benzo[g,h,i]perylene	390	U

IF

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9782201B

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782201B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7200.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 15 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
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24.				
25.				
26.				
27.				
28.				
29.				
30.				

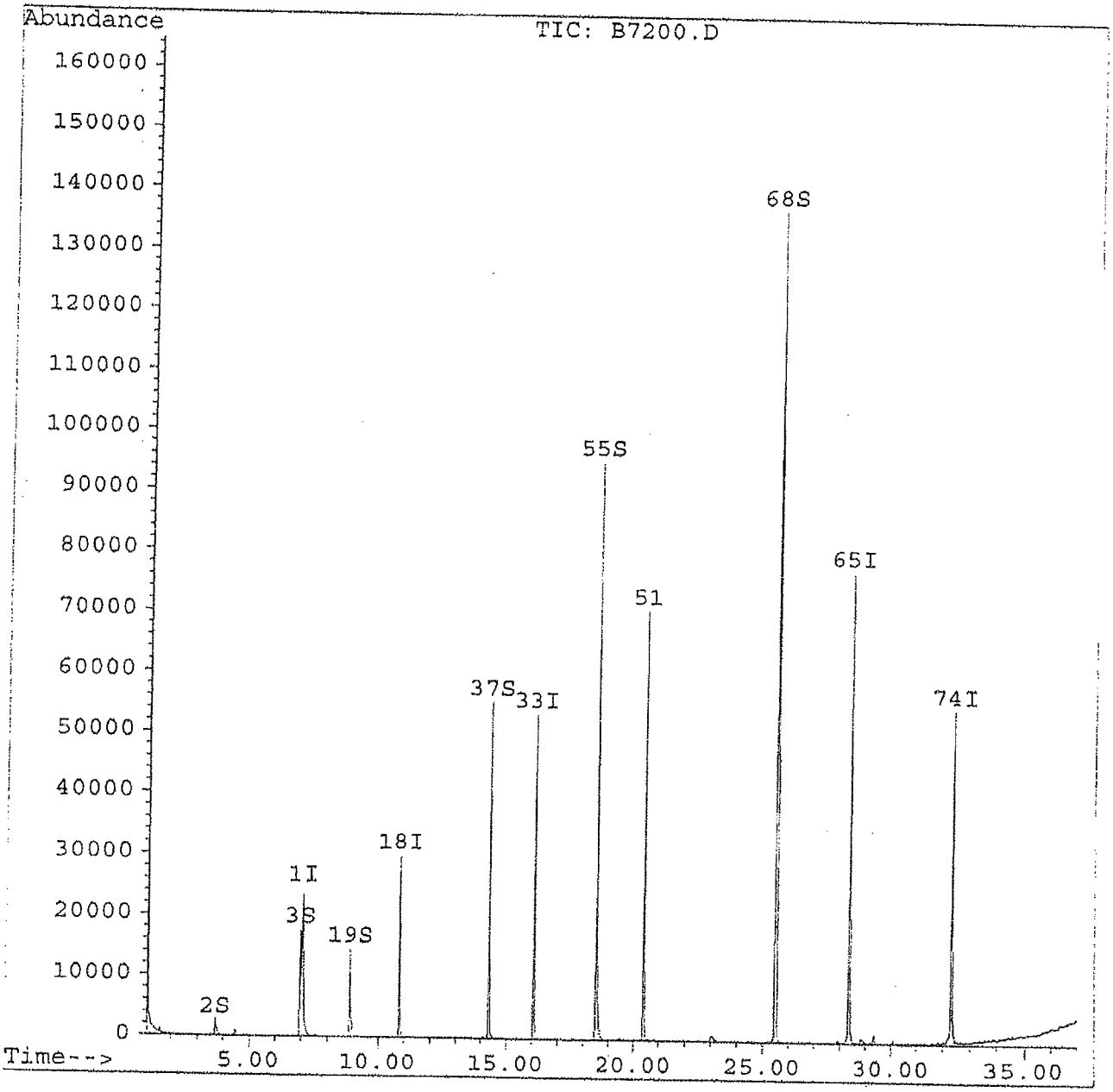
Quantitation Report

Data File : c:\hpchem\1\data2\b7200.d
Acq On : 18 Nov 97 2:51 am
Sample : 82201.....
Misc :
Quant Time: Nov 20 14:13 1997

Converted from RTE d

Vial: 14
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7200.d
Acq On : 18 Nov 97 2:51 am
Sample : 82201..... Converted from RTE d
Misc :

Vial: 14
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9782202B
MW-4, 5-4

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7201.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 20 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	420	U
108-95-2	Phenol	420	U
111-44-4	bis(2-Chloroethyl)ether	420	U
95-57-8	2-Chlorophenol	420	U
541-73-1	1,3-Dichlorobenzene	420	U
106-46-7	1,4-Dichlorobenzene	420	U
95-50-1	1,2-Dichlorobenzene	420	U
108-60-1	bis(2-chloroisopropyl)ether	420	U
621-64-7	N-Nitroso-Di-n-propylamine	420	U
67-72-1	Hexachloroethane	420	U
98-95-3	Nitrobenzene	420	U
78-59-1	Isophorone	420	U
88-75-5	2-Nitrophenol	420	U
105-67-9	2,4-Dimethylphenol	420	U
111-91-1	bis(2-Chloroethoxy)methane	420	U
120-83-2	2,4-Dichlorophenol	420	U
120-82-1	1,2,4-Trichlorobenzene	420	U
91-20-3	Naphthalene	420	U
87-68-3	Hexachlorobutadiene	420	U
59-50-7	4-Chloro-3-methylphenol	420	U
77-47-4	Hexachlorocyclopentadiene	420	U
88-06-2	2,4,6-Trichlorophenol	420	U
91-58-7	2-Chloronaphthalene	420	U
131-11-3	Dimethylphthalate	420	U
208-96-8	Acenaphthylene	420	U
606-20-2	2,6-Dinitrotoluene	420	U
83-32-9	Acenaphthene	420	U
51-28-5	2,4-Dinitrophenol	1000	U
100-02-7	4-Nitrophenol	1000	U
121-14-2	2,4-Dinitrotoluene	420	U
84-66-2	Diethylphthalate	420	U
86-73-7	Fluorene	420	U
7005-72-3	4-Chlorophenyl-phenylether	420	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 9782202B mw-4, 5-4

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9782202B

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7201.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 20 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____ Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	1000	U
86-30-6	n-Nitrosodiphenylamine	420	U
122-66-7	1,2-Diphenylhydrazine(as azo)	420	U
101-55-3	4-Bromophenyl-phenylether	420	U
118-74-1	Hexachlorobenzene	420	U
87-86-5	Pentachlorophenol	1000	U
85-01-08	Phenanthrene	420	U
120-12-7	Anthracene	420	U
84-74-2	Di-n-butylphthalate	420	U
206-44-0	Fluoranthene	420	U
92-87-5	Benzidine	2100	U
129-00-0	Pyrene	420	U
85-68-7	Butylbenzylphthalate	420	U
56-55-3	Benzo[a]anthracene	420	U
91-94-1	3,3'-Dichlorobenzidine	830	U
218-01-9	Chrysene	420	U
117-81-7	bis(2-Ethylhexyl)phthalate	420	U
117-84-0	Di-n-octylphthalate	420	U
205-99-2	Benzo[b]fluoranthene	420	U
207-08-9	Benzo[k]fluoranthene	420	U
50-32-8	Benzo[a]pyrene	420	U
193-39-5	Indeno[1,2,3-cd]pyrene	420	U
53-70-3	Dibenz[a,h]anthracene	420	U
191-24-2	Benzo[g,h,i]perylene	420	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9782202B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: 9782202B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7201.D

Level: (low/med) LOW Date Received: 11/12/97

% Moisture: 20 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/18/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
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30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7201.d
Acq On : 18 Nov 97 3:39 am
Sample : 82202..... Converted from RTE d
Misc :
Quant Time: Nov 20 14:15 1997

Vial: 15
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.04	152	9093	40.00	ug/mL	-0.09
18) Naphthalene-d8	10.82	136	40421	40.00	ug/mL	-0.09
33) Acenaphthene-d10	16.07	164	31961	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.40	188	74832	40.00	ug/ml	-0.10
65) Chrysene-d12	28.37	240	102059	40.00	ug/mL	-0.06
74) Perylene-d12	32.33	264	73651	40.00	ug/mL	-0.07
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.68	112	5371	94.14	ug/mL	94.14%
3) Phenol-d5	6.94	99	37486	109.95	ug/mL	109.95%
19) Nitrobenzene-d5	8.89	82	17958	48.21	ug/mL	48.21%
37) 2-Fluorobiphenyl	14.30	172	48687	56.02	ug/mL	56.02%
55) 2,4,6-Tribromophenol	18.53	330	46755	135.58	ug/mL	135.58%
68) Terphenyl-d14	25.50	244	167515	63.71	ug/mL	63.71%

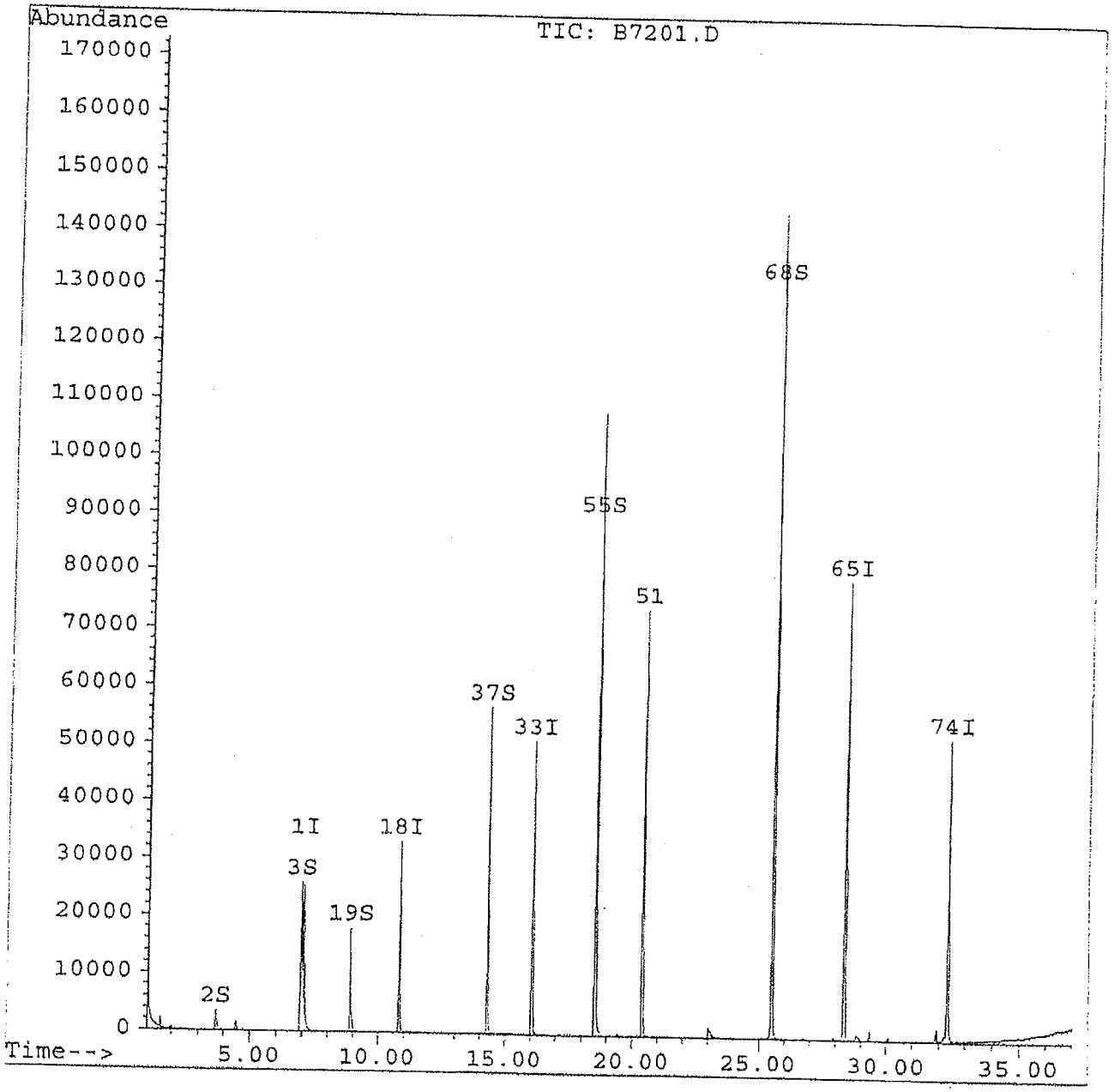
Target Compounds Qvalue

Quantitation Report

Data File : c:\hpchem\1\data2\b7201.d
Acq On : 18 Nov 97 3:39 am
Sample : 82202..... Converted from RTE d
Misc :
Quant Time: Nov 20 14:15 1997

Vial: 15
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7201.d
Acq On : 18 Nov 97 3:39 am
Sample : 82202..... Converted from RTE d
Misc :

Vial: 15
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Level: (low/med) LOW

	SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	#	#	TOT OUT
01	SBLK01	37	35	45	47	58	66			
02	9765050B			42	44		34			
03	63065MS	31	40	43	38	61	90			
04	63065MSD	45	45	58	42	63	100			
05										
06										
07										
08										
09										
10										
11										
12										
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26										
27										
28										
29										
30										

	QC LIMITS
S1 (2FP) = 2-Fluorophenol	(25-121)
S2 (PHL) = Phenol-d5	(24-113)
S3 (NBZ) = Nitrobenzene-d5	(23-120)
S4 (FBP) = 2-Fluorobiphenyl	(30-115)
S5 (TBP) = 2,4,6-Tribromophenol	(19-122)
S6 (TPH) = Terphenyl-d14	(18-137)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

2D

SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Level: (low/med) LOW

	SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	#	#	TOT OUT
01	SBLK01	51	56	59	66	71	66			
02	9778619B	44	50	46	52	62	61			
03	9778620B	41	50	40	46	60	64			
04	9778622B	59	71	62	64	73	70			
05	9778623B	58	71	61	64	69	66			
06	9778624B	46	52	53	59	65	65			
07	9782199B	39	46	45	55	65	57			
08	9782200B	39	47	41	47	58	60			
09	9782201B	41	49	42	50	65	60			
10	9782202B	47	55	48	56	68	64			
11										
12										
13										
14										
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16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

	QC LIMITS
S1 (2FP) = 2-Fluorophenol	(25-121)
S2 (PHL) = Phenol-d5	(24-113)
S3 (NBZ) = Nitrobenzene-d5	(23-120)
S4 (FBP) = 2-Fluorobiphenyl	(30-115)
S5 (TBP) = 2,4,6-Tribromophenol	(19-122)
S6 (TPH) = Terphenyl-d14	(18-137)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

4B

SEMIVOLATILE METHOD BLANK SUMMARY

SAMPLE NO. SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Lab File ID: B6891.D Lab Sample ID: BLANK1

Instrument ID: ABNA Date Extracted: 10/17/97

Matrix: (soil/water) SOIL Date Analyzed: 10/21/97

Level: (low/med) LOW Time Analyzed: 1957

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9765050B	9765050B	B6896.D	10/22/97
02	63065MS	63065MS	B6899.D	10/22/97
03	63065MSD	63065MSD	B6900.D	10/22/97
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
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25				
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27				
28				
29				
30				

COMMENTS:

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: BLANK1

Sample wt/vol: 30.0 (g/mL G Lab File ID: B6891.D

Level: (low/med) LOW Date Received: 10/16/97

% Moisture: 0 decanted: (Y/N): N Date Extracted: 10/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/21/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	330	U
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
108-60-1	bis(2-chloroisopropyl)ether	330	U
621-64-7	N-Nitroso-Di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
91-58-7	2-Chloronaphthalene	330	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: BLANK1

Sample wt/vol: 30.0 (g/mL G Lab File ID: B6891.D

Level: (low/med) LOW Date Received: 10/16/97

% Moisture: 0 decanted: (Y/N): N Date Extracted: 10/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/21/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	830	U
86-30-6	n-Nitrosodiphenylamine	330	U
122-66-7	1,2-Diphenylhydrazine(as azo)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	830	U
85-01-08	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
92-87-5	Benzidine	1700	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
56-55-3	Benzo[a]anthracene	330	U
91-94-1	3,3'-Dichlorobenzidine	670	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	330	U
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo[b]fluoranthene	330	U
207-08-9	Benzo[k]fluoranthene	330	U
50-32-8	Benzo[a]pyrene	330	U
193-39-5	Indeno[1,2,3-cd]pyrene	330	U
53-70-3	Dibenz[a,h]anthracene	330	U
191-24-2	Benzo[g,h,i]perylene	330	U

Quantitation Report

Data File : c:\hpchem\1\data2\b6891.d
Acq On : 21 Oct 97 7:57 pm
Sample : BLANK..... Converted from RTE d
Misc :
Quant Time: Oct 23 14:16 1997

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.50	152	15702	40.00	ug/mL	-0.46
17) Naphthalene-d8	11.26	136	71087	40.00	ug/mL	-0.47
32) Acenaphthene-d10	16.53	164	53275	40.00	ug/mL	-0.49
50) Phenanthrene-d10	20.88	188	107103	40.00	ug/ml	-0.52
64) Chrysene-d12	28.87	240	101709	40.00	ug/mL	-0.56
73) Perylene-d12	32.85	264	42958	40.00	ug/mL	-0.57
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	4.23	112	37266	74.19	ug/mL	74.19%
3) Phenol-d5	7.45	99	64546	70.65	ug/mL	70.65%
18) Nitrobenzene-d5	9.33	82	45331	44.74	ug/mL	44.74%
36) 2-Fluorobiphenyl	14.74	172	68713	47.15	ug/mL	47.15%
54) 2,4,6-Tribromophenol	18.99	330	35091	115.58	ug/mL	115.58%
67) Terphenyl-d14	26.00	244	169552	65.54	ug/mL	65.54%
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration

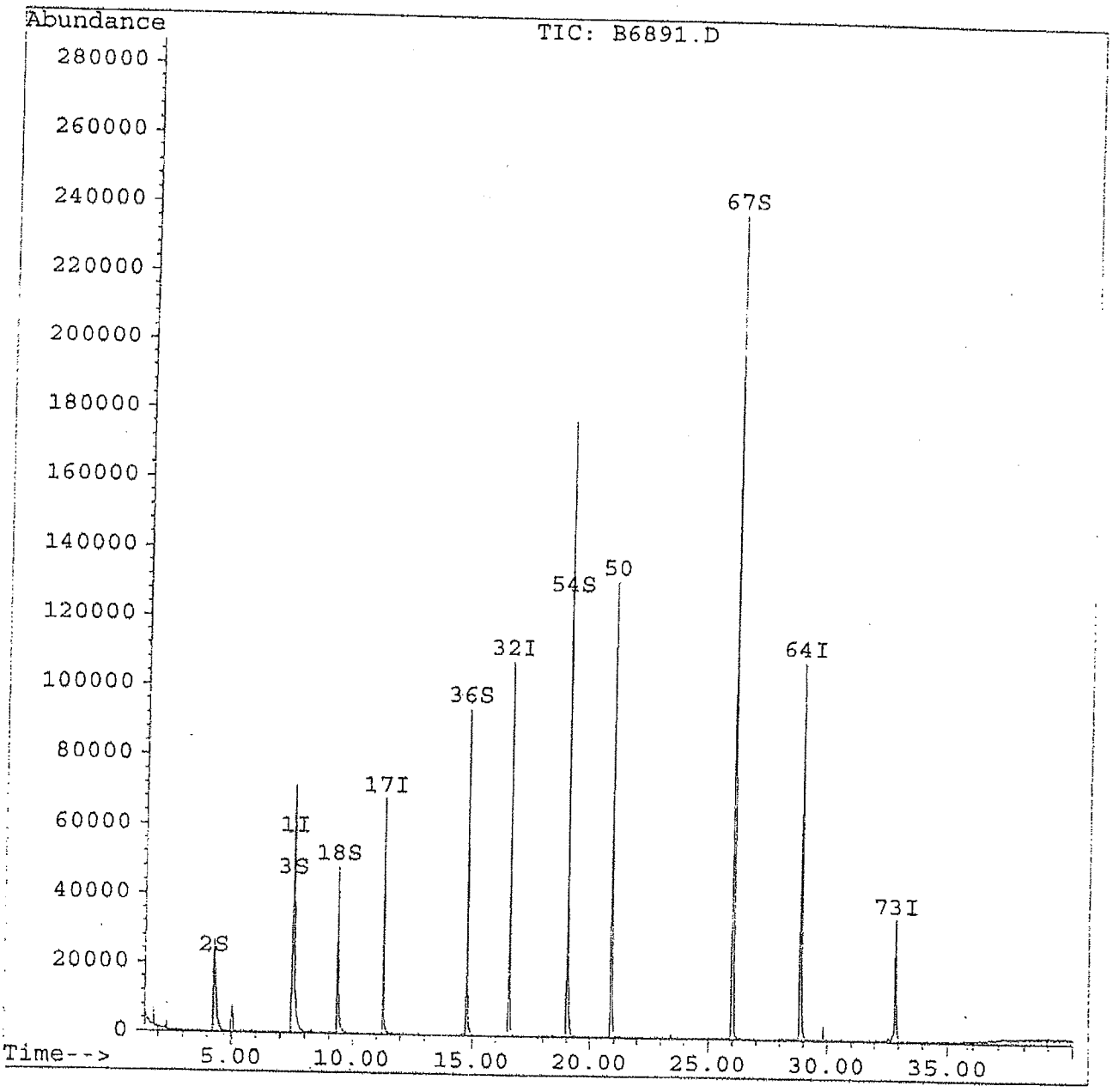
Quantitation Report

Data File : c:\hpchem\1\data2\b6891.d
Acq On : 21 Oct 97 7:57 pm
Sample : BLANK.....
Misc :
Quant Time: Oct 23 14:16 1997

Converted from RTE d

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration



4B

SEMIVOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Lab File ID: B7189.D Lab Sample ID: BLANK1

Instrument ID: ABNA Date Extracted: 11/17/97

Matrix: (soil/water) SOIL Date Analyzed: 11/17/97

Level: (low/med) LOW Time Analyzed: 1809

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9778619B	9778619B	B7190.D	11/17/97
02	9778620B	9778620B	B7191.D	11/17/97
03	9778622B	9778622B	B7192.D	11/17/97
04	9778623B	9778623B	B7193.D	11/17/97
05	9778624B	9778624B	B7194.D	11/17/97
06	9782199B	9782199B	B7198.D	11/18/97
07	9782200B	9782200B	B7199.D	11/18/97
08	9782201B	9782201B	B7200.D	11/18/97
09	9782202B	9782202B	B7201.D	11/18/97
10				
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COMMENTS:

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: BLANK1

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7189.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 0 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column=DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
62-75-9	N-nitrosodimethylamine	330	U
108-95-2	Phenol	330	U
111-44-4	bis(2-Chloroethyl)ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1,3-Dichlorobenzene	330	U
106-46-7	1,4-Dichlorobenzene	330	U
95-50-1	1,2-Dichlorobenzene	330	U
108-60-1	bis(2-chloroisopropyl)ether	330	U
621-64-7	N-Nitroso-Di-n-propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2,4-Dimethylphenol	330	U
111-91-1	bis(2-Chloroethoxy)methane	330	U
120-83-2	2,4-Dichlorophenol	330	U
120-82-1	1,2,4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-methylphenol	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2,4,6-Trichlorophenol	330	U
91-58-7	2-Chloronaphthalene	330	U
131-11-3	Dimethylphthalate	330	U
208-96-8	Acenaphthylene	330	U
606-20-2	2,6-Dinitrotoluene	330	U
83-32-9	Acenaphthene	330	U
51-28-5	2,4-Dinitrophenol	830	U
100-02-7	4-Nitrophenol	830	U
121-14-2	2,4-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
86-73-7	Fluorene	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: BLANK1

Sample wt/vol: 30.0 (g/mL G Lab File ID: B7189.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 0 decanted: (Y/N): N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: Column = DB-5 30m

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/Kg	Q
534-52-1	4,6-Dinitro-2-methylphenol	830	U
86-30-6	n-Nitrosodiphenylamine	330	U
122-66-7	1,2-Diphenylhydrazine(as azo)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	830	U
85-01-08	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-butylphthalate	330	U
206-44-0	Fluoranthene	330	U
92-87-5	Benzidine	1700	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
56-55-3	Benzo[a]anthracene	330	U
91-94-1	3,3'-Dichlorobenzidine	670	U
218-01-9	Chrysene	330	U
117-81-7	bis(2-Ethylhexyl)phthalate	330	U
117-84-0	Di-n-octylphthalate	330	U
205-99-2	Benzo[b]fluoranthene	330	U
207-08-9	Benzo[k]fluoranthene	330	U
50-32-8	Benzo[a]pyrene	330	U
193-39-5	Indeno[1,2,3-cd]pyrene	330	U
53-70-3	Dibenz[a,h]anthracene	330	U
191-24-2	Benzo[g,h,i]perylene	330	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) SOIL Lab Sample ID: BLANK1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: B7189.D

Level: (low/med) LOW Date Received: 11/7/97

% Moisture: 0 decanted: (Y/N) N Date Extracted: 11/17/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/17/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/Kg

CAS Number	Compound Name	RT	Est. Conc	Q
1.				
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Quantitation Report

Data File : c:\hpchem\1\data2\b7189.d
Acq On : 17 Nov 97 6:09 pm
Sample : BLANK.....
Misc :
Quant Time: Nov 20 14:06 1997

Converted from RTE d

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.04	152	8222	40.00	ug/mL	-0.08
18) Naphthalene-d8	10.81	136	35582	40.00	ug/mL	-0.10
33) Acenaphthene-d10	16.07	164	28410	40.00	ug/mL	-0.09
51) Phenanthrene-d10	20.38	188	66696	40.00	ug/ml	-0.11
65) Chrysene-d12	28.36	240	85950	40.00	ug/mL	-0.08
74) Perylene-d12	32.32	264	74800	40.00	ug/mL	-0.08
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.69	112	5238	101.54	ug/mL	101.54%
3) Phenol-d5	6.94	99	34469	111.81	ug/mL	111.81%
19) Nitrobenzene-d5	8.89	82	19489	59.43	ug/mL	59.43%
37) 2-Fluorobiphenyl	14.30	172	50862	65.84	ug/mL	65.84%
55) 2,4,6-Tribromophenol	18.53	330	43631	141.96	ug/mL	141.96%
68) Terphenyl-d14	25.51	244	145540	65.72	ug/mL	65.72%

Target Compounds

Qvalue

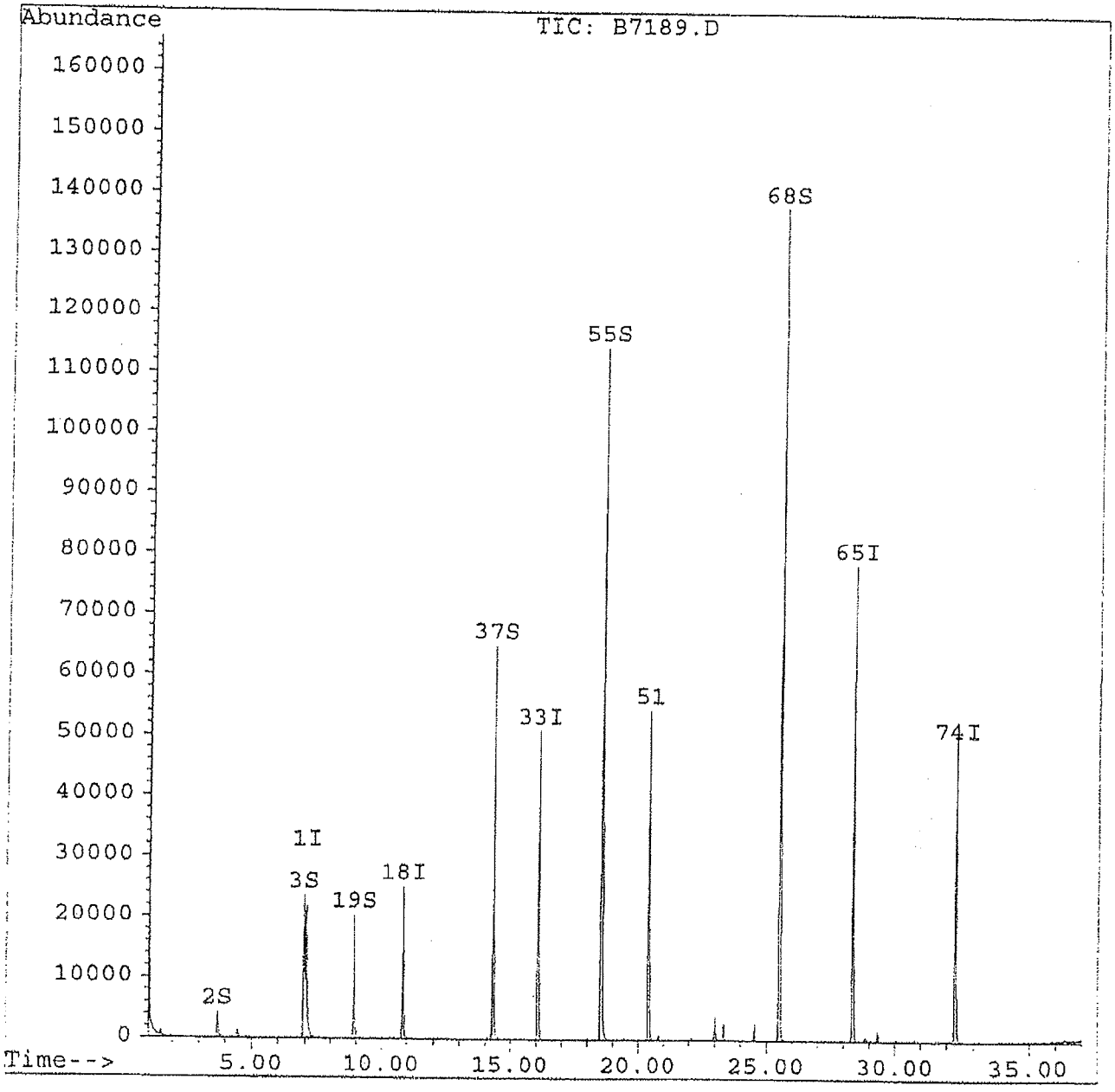
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7189.d
Acq On : 17 Nov 97 6:09 pm
Sample : BLANK..... Converted from RTE d
Misc :
Quant Time: Nov 20 14:06 1997

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7189.d
Acq On : 17 Nov 97 6:09 pm
Sample : BLANK..... Converted from RTE d
Misc :

Vial: 3 4
Operator: SCOTTV
Inst : AENA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

Spike Recovery and RPD Summary Report - SOIL 10/23/97

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
st Update : Thu Oct 23 13:55:29 1997
sponse via : Initial Calibration

Non-Spiked Sample: B6803.D

	Spike Sample	Spike Duplicate Sample
File ID :	B6899.D	B6900.D
Sample :	63065MS.....	Converted from RTE data file >B6899::D5

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
N-nitrosodimethylami	0.0	100	59	67	59	67	13	100	1-300
Phenol	0.0	100	40	41	40	41	1	23	5-112
bis(2-Chloroethyl)et	0.0	100	42	58	42	58	32	55	12-158
2-Chlorophenol	0.0	100	37	48	37	48	27	29	23-134
1,3-Dichlorobenzene	0.0	100	47	65	47	65	32	42	1-172
1,4-Dichlorobenzene	0.0	100	46	59	46	59	25	32	20-124
1,2-Dichlorobenzene	0.0	100	44	60	44	60	31	31	32-129
bis(2-chloroisopropy	0.0	100	54	74	54	74	32	46	36-166
N-Nitroso-Di-n-propy	0.0	100	52	64	52	64	21	55	1-230
Hexachloroethane	0.0	100	41	48	41	48	16	25	40-113
Nitrobenzene	0.2	100	47	64	47	64	31	39	35-180
sophorone	0.0	100	50	62	50	62	20	63	21-196
-Nitrophenol	0.0	100	31	41	31	41	29	35	29-182
2,4-Dimethylphenol	1.0	100	39	40	38	39	3	26	32-119
bis(2-Chloroethoxy)m	0.0	100	52	66	52	66	23	35	33-184
2,4-Dichlorophenol	0.0	100	48	52	48	52	9	26	39-135
1,2,4-Trichlorobenze	0.0	100	47	58	47	58	22	28	44-142
Naphthalene	0.3	100	43	55	43	55	24	30	21-133
Hexachlorobutadiene	0.0	100	40	51	40	51	24	26	24-116
4-Chloro-3-methylphe	0.0	100	57	60	57	60	4	37	22-147
2-Chloronaphthalene	0.0	100	66	68	66	68	3	13	60-118
2,4,6-Trichloropheno	0.0	100	53	55	53	55	3	32	37-144
Dimethylphthalate	0.0	100	76	82	76	82	9	23	1-112
Acenaphthylene	0.0	100	66	68	66	68	3	40	33-145
2,6-Dinitrotoluene	0.0	100	77	84	77	84	9	30	50-158
Acenaphthene	0.1	100	68	71	68	71	4	28	47-145
2,4-Dinitrophenol	0.0	100	1	2	1	2	16	50	1-191
4-Nitrophenol	0.0	100	27	36	27	36	27	47	1-132
2,4-Dinitrotoluene	0.5	100	81	88	80	87	8	22	39-139
Diethylphthalate	0.0	100	85	94	85	94	10	27	1-114
Fluorene	0.3	100	64	67	64	67	5	21	59-121
4-Chlorophenyl-pheny	0.0	100	70	73	70	73	4	33	25-158
4,6-Dinitro-2-methyl	0.0	100	7	12	7	12	44	93	1-181
4-Bromophenyl-phenyl	0.0	100	69	70	69	70	1	23	53-127
Hexachlorobenzene	0.0	100	69	73	69	73	5	25	1-152
Pentachlorophenol	0.0	100	9	10	9#	10#	12	49	14-176
henanthrene	3.0	100	73	74	70	71	2	21	54-120
hracene	0.8	100	72	76	71	75	5	32	52-115
-n-butylphthalate	0.7	100	89	94	89	93	5	17	1-118
Fluoranthene	5.4	100	75	76	69	71	2	33	26-137
Pyrene	3.7	100	88	94	85	91	7	25	52-115
Butylbenzylphthalate	0.0	100	104	129	104	129	21	23	1-152
Benzo[a]anthracene	2.5	100	82	90	80	88	10	28	33-143
3,3'-Dichlorobenzidi	0.0	100	92	98	92	98	6	71	1-262

Chrysene	2.8	100	76	72	73	70	4	48	17-168
bis(2-Ethylhexyl)pht	0.3	100	107	103	106	103	3	41	8-158
Di-n-octylphthalate	0.2	100	99	111	99	111	11	31	4-146
Benzo[b]fluoranthene	1.4	100	56	60	54	58	7	39	24-159
nzo[k]fluoranthene	1.9	100	85	71	83	69	18	32	11-162
nzo[a]pyrene	2.1	100	68	63	65	61	7	39	17-163
Indeno[1,2,3-cd]pyre	0.5	100	80	77	79	76	4	45	1-171
Dibenz[a,h]anthracen	0.0	100	74	70	74	70	5	70	1-227
Benzo[g,h,i]perylene	0.7	100	85	84	84	83	1	59	1-219

Quantitation Report

Data File : c:\hpchem\1\data2\b6899.d
Acq On : 22 Oct 97 2:44 am
Sample : 63065MS..... Converted from RTE d
Misc :
Quant Time: Oct 23 14:30 1997

Vial: 11
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.52	152	16889	40.00	ug/mL	-0.45
17) Naphthalene-d8	11.29	136	83679	40.00	ug/mL	-0.43
32) Acenaphthene-d10	16.55	164	59367	40.00	ug/mL	-0.47
50) Phenanthrene-d10	20.91	188	117316	40.00	ug/ml	-0.48
64) Chrysene-d12	28.89	240	71936	40.00	ug/mL	-0.54
73) Perylene-d12	32.86	264	23812	40.00	ug/mL	-0.56
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	4.27	112	33739	62.45	ug/mL	62.45%
3) Phenol-d5	7.42	99	79060	80.45	ug/mL	80.45%
18) Nitrobenzene-d5	9.35	82	51042	42.80	ug/mL	42.80%
36) 2-Fluorobiphenyl	14.76	172	61751	38.02	ug/mL	38.02%
54) 2,4,6-Tribromophenol	19.04	330	40333	121.28	ug/mL	121.28%
67) Terphenyl-d14	26.01	244	164438	89.87	ug/mL	89.87%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.61	74	22913	59.09	ug/ml	100
6) Phenol	7.48	94	41630	40.10	ug/mL	100
7) bis(2-Chloroethyl)ether	7.19	93	26498	42.30	ug/mL#	50
8) 2-Chlorophenol	7.21	128	25246	36.96	ug/mL#	82
9) 1,3-Dichlorobenzene	7.36	146	23004	47.20	ug/mL	98
10) 1,4-Dichlorobenzene	7.56	146	24396	45.82	ug/mL	98
11) 1,2-Dichlorobenzene	8.08	146	23503	43.93	ug/mL	100
12) 2-Methylphenol	9.12	108	30357	41.75	ug/mL	93
13) bis(2-chloroisopropyl)ethe	8.77	45	96166	53.51	ug/mL#	70
14) 4-Methylphenol	9.58	108	36725	46.28	ug/mL	95
15) N-Nitroso-Di-n-propylamine	9.25	70	39106	51.70	ug/mL#	58
16) Hexachloroethane	8.91	117	15331	40.87	ug/mL#	83
19) Nitrobenzene	9.41	77	49296	46.82	ug/mL	93
20) Isophorone	10.18	82	106452	50.41	ug/mL#	94
21) 2-Nitrophenol	10.37	139	17315	30.67	ug/mL#	70
22) 2,4-Dimethylphenol	10.99	107	46022	38.81	ug/mL	97
23) bis(2-Chloroethoxy)methane	11.10	93	60195	52.16	ug/mL	100
24) 2,4-Dichlorophenol	11.28	162	31393	47.71	ug/mL#	90
25) 1,2,4-Trichlorobenzene	11.24	180	26082	46.77	ug/mL	99
26) Naphthalene	11.33	128	96188	43.31	ug/mL	100
27) 4-Chloroaniline	11.87	127	48292	41.80	ug/mL	98
28) Hexachlorobutadiene	12.01	225	14436	40.01	ug/mL	98
29) 4-Chloro-3-methylphenol	13.76	107	65137	57.41	ug/mL	99
30) 2-Chloronaphthalene	14.86	162	101439	65.80	ug/mlm	95
31) 2-Methylnaphthalene	13.43	142	74443	43.74	ug/mL	93
33) Hexachlorocyclopentadiene	14.16	237	3074	7.64	ug/mL	99
34) 2,4,6-Trichlorophenol	14.63	196	29713	53.00	ug/mLm	98
35) 2,4,5-Trichlorophenol	14.86	196	32779	54.84	ug/mL	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b6899.d
Acq On : 22 Oct 97 2:44 am
Sample : 63065MS..... Converted from RTE d
Misc :
Quant Time: Oct 23 14:30 1997

Vial: 11
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
37) 2-Nitroaniline	16.86	65	113417	73.18	ug/mL	76
38) Dimethylphthalate	16.34	163	135601	75.62	ug/mL#	98
39) Acenaphthylene	16.07	152	171324	65.69	ug/mL	97
40) 2,6-Dinitrotoluene	16.50	165	31759	76.54	ug/mL	93
41) 3-Nitroaniline	16.86	138	42018	59.66	ug/mL	87
42) Acenaphthene	16.65	153	114074	68.20	ug/mL	96
43) 2,4-Dinitrophenol	20.53	184	445	1.38	ug/mLm	0
44) 4-Nitrophenol	18.14	109	11342	27.44	ug/mL#	72
45) Dibenzofuran	17.15	168	157624	59.40	ug/mL	95
46) 2,4-Dinitrotoluene	17.63	165	50311	80.84	ug/mLm	36
47) Diethylphthalate	18.50	149	182675	84.67	ug/mL	98
48) Fluorene	18.17	166	134413	64.23	ug/mL	96
49) 4-Chlorophenyl-phenylether	18.39	204	60242	70.07	ug/mL	96
51) 4-Nitroaniline	18.75	138	50616	89.19	ug/mL	83
52) 4,6-Dinitro-2-methylphenol	18.83	198	2940	7.38	ug/mL	100
53) n-Nitrosodiphenylamine	18.87	169	89428	76.56	ug/mL	92
55) 1,2-Diphenylhydrazine (as	18.39	77	67261	13.40	ug/ml	100
56) 4-Bromophenyl-phenylether	19.80	248	38845	69.28	ug/mL	97
57) Hexachlorobenzene	20.07	284	47356	69.19	ug/mL	97
58) Pentachlorophenol	20.82	266	3623	8.60	ug/mL	93
59) Phenanthrene	20.99	178	241532	72.52	ug/mL	98
60) Anthracene	21.11	178	215262	71.69	ug/mLm	98
61) Carbazole	21.86	167	232117	76.82	ug/ml	99
62) Di-n-butylphthalate	23.44	149	443735	89.40	ug/mL	98
63) Fluoranthene	24.54	202	254203	74.60	ug/mL#	90
65) Benzidine	25.31	184	4445	6.14	ug/ml	100
66) Pyrene	25.16	202	257203	88.46	ug/mL#	83
68) Butylbenzylphthalate	27.86	149	176677	104.47	ug/mLm	82
69) Benzo[a]anthracene	28.87	228	192991	82.37	ug/mL	97
70) 3,3'-Dichlorobenzidine	29.12	252	48631	91.92	ug/mL	94
71) Chrysene	28.96	228	135189	75.54	ug/mLm	98
72) bis(2-Ethylhexyl)phthalate	31.59	149	309927	106.63	ug/mL#	53
74) Di-n-octylphthalate	31.59	149	274576	99.15	ug/mLm	99
75) Benzo[b]fluoranthene	31.92	252	81701	55.81	ug/mLm	94
76) Benzo[k]fluoranthene	31.97	252	52116	84.65	ug/mLm	95
77) Benzo[a]pyrene	32.71	252	45535	67.59	ug/mLm	95
78) Indeno[1,2,3-cd]pyrene	35.43	276	30774	79.93	ug/mLm	100
79) Dibenz[a,h]anthracene	35.50	278	23498	73.74	ug/mLm	94
80) Benzo[g,h,i]perylene	35.95	276	24742	84.91	ug/mLm	92

(#) = qualifier out of range (m) = manual integration

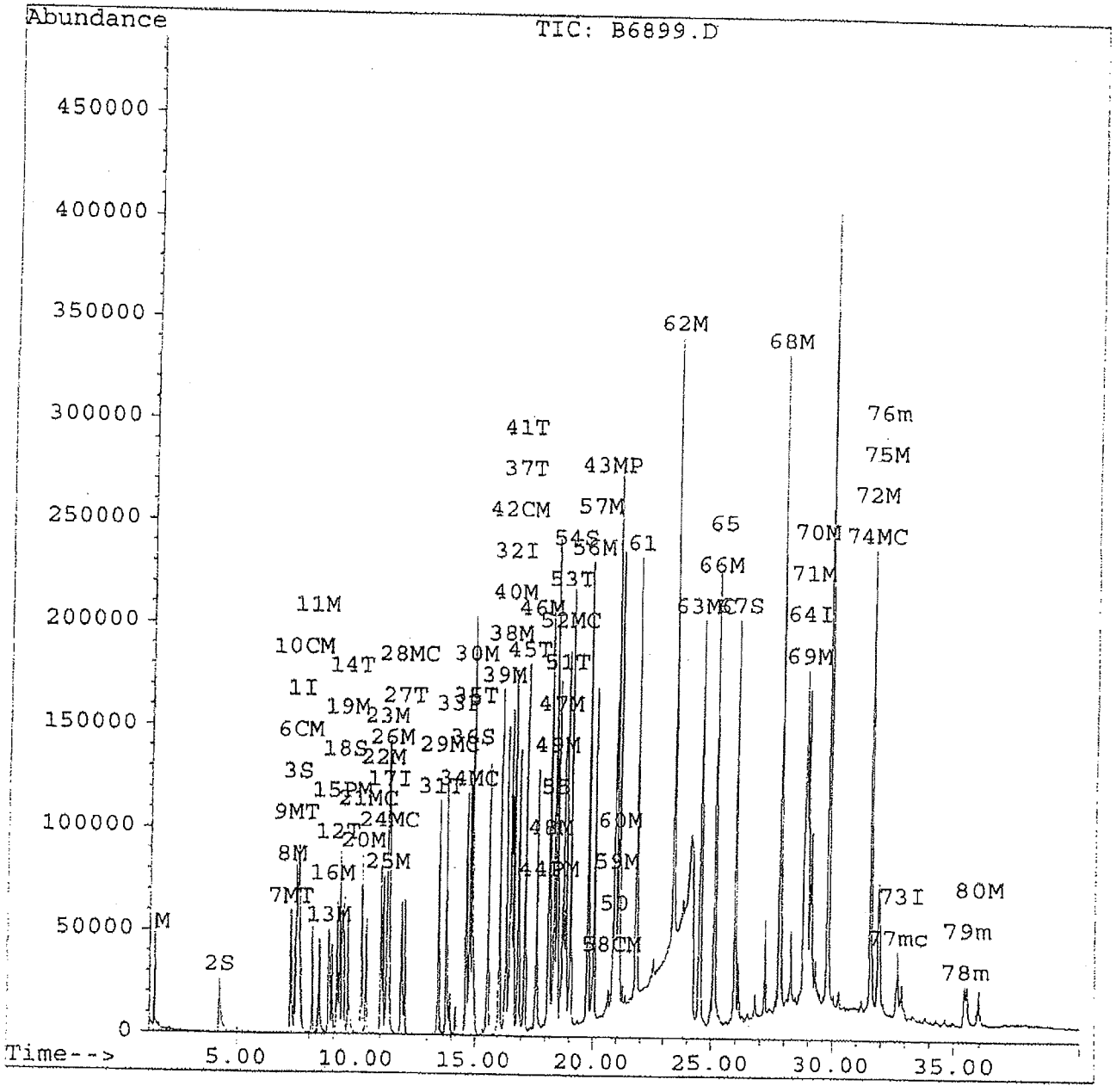
Quantitation Report

Data File : c:\hpchem\1\data2\b6899.d
Acq On : 22 Oct 97 2:44 am
Sample : 63065MS.....
Misc :
Quant Time: Oct 23 14:30 1997

Converted from RTE d

Vial: 11
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\b6900.d
Acq On : 22 Oct 97 3:34 am
Sample : 63065MSD.....
Misc :
Quant Time: Oct 23 14:31 1997

Converted from RTE d

Vial: 12
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
37) 2-Nitroaniline	16.86	65	107301	81.52	ug/mL	75
38) Dimethylphthalate	16.34	163	125543	82.44	ug/mL#	98
39) Acenaphthylene	16.07	152	150641	68.01	ug/mL	97
40) 2,6-Dinitrotoluene	16.50	165	29430	83.52	ug/mL	94
41) 3-Nitroaniline	16.86	138	39711	66.39	ug/mL	82
42) Acenaphthene	16.65	153	101042	71.13	ug/mL	94
43) 2,4-Dinitrophenol	20.55	184	445	1.62	ug/mLm	27
44) 4-Nitrophenol	18.12	109	12642	36.02	ug/mL#	71
45) Dibenzofuran	17.15	168	138542	61.48	ug/mL	93
46) 2,4-Dinitrotoluene	17.63	165	46285	87.58	ug/mLm	35
47) Diethylphthalate	18.50	149	171853	93.79	ug/mL	98
48) Fluorene	18.17	166	119521	67.25	ug/mL	96
49) 4-Chlorophenyl-phenylether	18.39	204	53283	72.98	ug/mL	94
51) 4-Nitroaniline	18.75	138	44802	90.13	ug/mL	84
52) 4,6-Dinitro-2-methylphenol	18.85	198	4022	11.53	ug/mL	100
53) n-Nitrosodiphenylamine	18.87	169	81842	79.99	ug/mL	90
55) 1,2-Diphenylhydrazine (as	18.39	77	63767	14.50	ug/ml	100
56) 4-Bromophenyl-phenylether	19.79	248	34335	69.91	ug/mL	96
57) Hexachlorobenzene	20.06	284	43643	72.79	ug/mL	94
58) Pentachlorophenol	20.82	266	3583	9.71	ug/mLm	95
59) Phenanthrene	20.99	178	215306	73.80	ug/mL	97
60) Anthracene	21.13	178	198903	75.62	ug/mLm	97
61) Carbazole	21.86	167	208052	78.61	ug/ml	98
62) Di-n-butylphthalate	23.44	149	407858	93.81	ug/mL	98
63) Fluoranthene	24.56	202	226806	75.99	ug/mL#	82
65) Benzidine	25.31	184	3774	6.24	ug/ml	100
66) Pyrene	25.16	202	229570	94.43	ug/mL#	85
68) Butylbenzylphthalate	27.86	149	182707	129.21	ug/mL#	79
69) Benzo[a]anthracene	28.86	228	177166	90.43	ug/mL	96
70) 3,3'-Dichlorobenzidine	29.11	252	43207	97.67	ug/mL	98
71) Chrysene	28.98	228	108394	72.44	ug/mLm	98
72) bis(2-Ethylhexyl)phthalate	31.58	149	250371	103.03	ug/mL#	53
74) Di-n-octylphthalate	31.58	149	250371	110.75	ug/mLm	99
75) Benzo[b]fluoranthene	31.91	252	71401	59.75	ug/mLm	95
76) Benzo[k]fluoranthene	31.97	252	35590	70.81	ug/mLm	96
77) Benzo[a]pyrene	32.72	252	34772	63.23	ug/mLm	92
78) Indeno[1,2,3-cd]pyrene	35.42	276	24150	76.83	ug/mLm	97
79) Dibenz[a,h]anthracene	35.52	278	18254	70.17	ug/mLm	98
80) Benzo[g,h,i]perylene	35.96	276	19965	83.93	ug/mLm	95

(#) = qualifier out of range (m) = manual integration

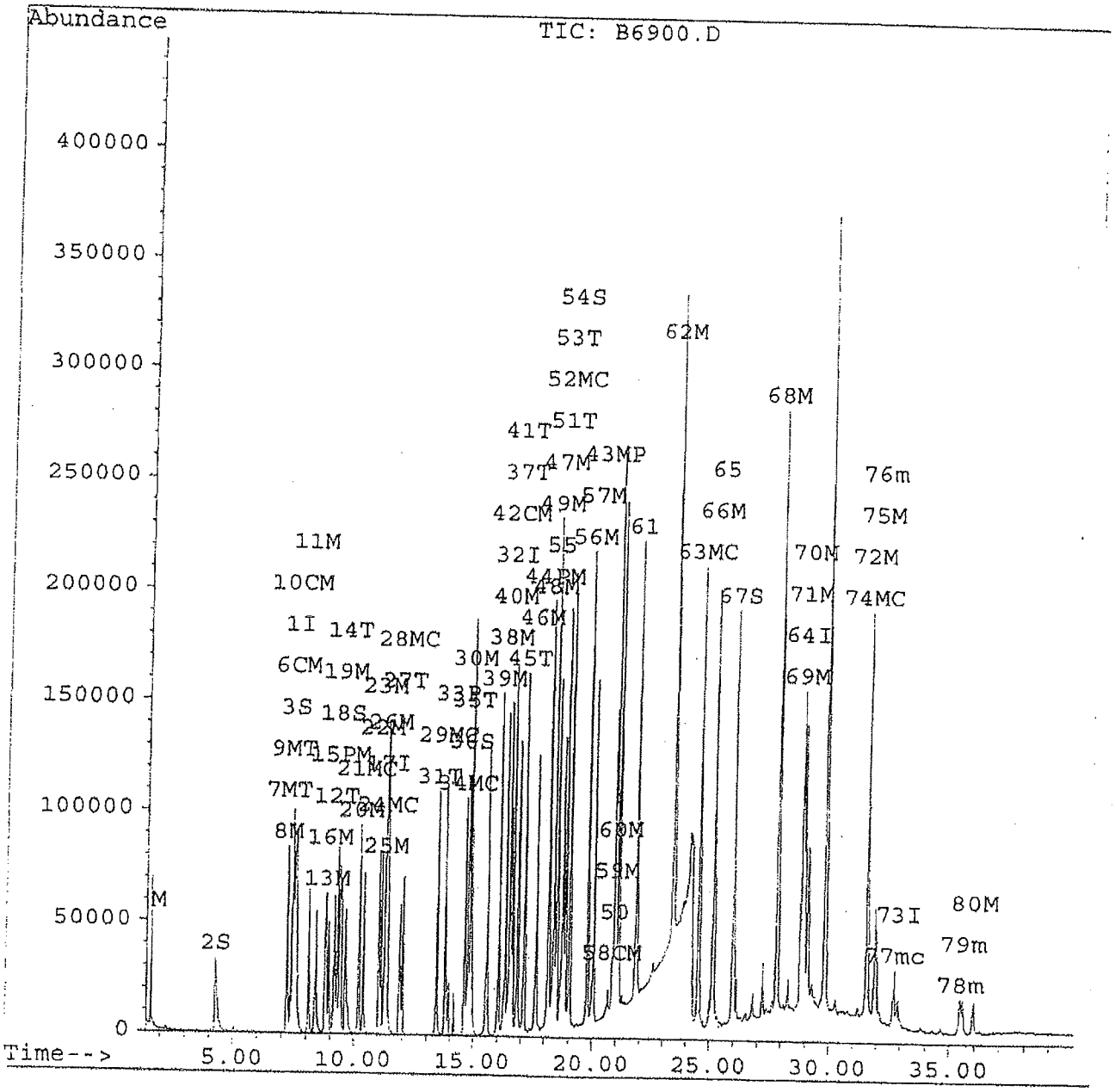
Quantitation Report

Data File : c:\hpchem\1\data2\b6900.d
Acq On : 22 Oct 97 3:34 am
Sample : 63065MSD.....
Misc :
Quant Time: Oct 23 14:31 1997

Converted from RTE d

Vial: 12
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 23 13:55:29 1997
Response via : Multiple Level Calibration



PESTICIDE/PCB ORGANIC DATA PACKAGE

6E

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: EMSL
Instrument ID: HP 5890
GC Column:DB-5 ID: 0.32 Date(s) Analyzed:11/18/97-11/19/97

CALIBRATION FACTORS

COMPOUND	1	2	3	4	5	MEAN	%RSD
alpha-BHC	2789.6	2716	2905	3254.275	3575.417	3048	12
beta-BHC	2495.2	2518.6	2532.5	2625.25	2728.2	2580	4
delta-BHC	2167.4	2212.8	2215.8	2405.35	2709.267	2342	10
gamma-BHC (Lindane)	2924.8	2857.6	3067.4	3447.825	3868.533	3233	13
Heptachlor	3844.8	3755.4	3792.6	3937.525	4000.15	3866	3
Aldrin	3855	3898.5	4162.25	4960.025	5602.367	4496	17
Heptachlor epoxide	3829	3780.2	3842.3	4280.25	4636.533	4074	9
Endosulfan I	3439.8	3313.8	3518.45	3888.95	4116.783	3656	9
Dieldrin	3413.8	3433.05	4053.05	4909.05	5231.117	4208	20
4,4'-DDE	4304.5	4504.4	4990.7	5798.275	6162.667	5152	16
Endrin	2774.9	2683.8	2816.35	3135.025	3235.333	2929	8
Endosulfan II	3029.3	2995.55	2996.425	3218.2	3363.1	3121	5
4,4'-DDD	2717.6	2732.6	2931.025	3175.088	3252.25	2962	8
Endosulfan sulfate	2502.8	2588.55	2627.775	2830.2	3088.4	2728	9
4,4'-DDT	2818.7	2759.95	3045.95	3463.65	3720.925	3162	13
Methoxychlor	1625.74	1566.28	1572.42	1532.318	1486.895	1557	3
Endrin ketone	2772	2875.65	2840.175	2897.013	2937.35	2864	2
Endrin aldehyde	2985.6	2967.45	2926.775	2968.263	3150.117	3000	3
alpha-Chlordane	4625.8	4622.2	4894.05	5571.825	6022.717	5147	12
gamma-Chlordane	4621.2	4606.4	4769.55	5337.275	5763	5019	10
Tetrachloro-m-xylene	4131.2	3970.1	4365.35	4753.475	4897.667	4424	9
Decachlorobiphenyl	5004	4880.75	4997.875	5384.925	5568.875	5167	6

6E

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: EMSL
Instrument ID: HP 5890
GC Column:DB-1701 ID: 0.32 Date(s) Analyzed:11/18/97-11/19/97

CALIBRATION FACTORS

COMPOUND	1	2	3	4	5	MEAN	%RSD
alpha-BHC	25326.8	19152.7	20956.25	21802.3	22189.48	21886	10
beta-BHC	11683.2	11531.3	11424.3	11241.7	11222.37	11421	2
delta-BHC	14177.6	14814.1	15605.35	16619.08	18069.3	15857	10
gamma-BHC (Lindane)	22779.2	18567	20309.8	21112.38	21401.38	20834	7
Heptachlor	28037.2	22873.3	23865.3	23580.65	22921.48	24256	9
Aldrin	22949.6	21944.4	21751.3	21762.55	22233.67	22128	2
Heptachlor epoxide	22370.8	21475.3	21010.55	20661.13	20331.68	21170	4
Endosulfan I	22208.6	19305.2	19926.15	19662.65	19142.13	20049	6
Dieldrin	19068.2	16693.55	17638.78	17614.9	17160.67	17635	5
4,4'-DDE	18164.8	17622.8	17709.85	17859.3	17708	17813	1
Endrin	16290.7	14221.35	14262.98	14101.36	13585	14492	7
Endosulfan II	16182.1	16403.4	16094.6	15845.13	15641.13	16033	2
4,4'-DDD	12165.2	11405.45	11729.75	12006.34	11905.73	11842	2
Endosulfan sulfate	10382.7	11604.1	11115.6	11494.38	11638.84	11247	5
4,4'-DDT	11109	10176.9	10875.33	11469.83	11748.71	11076	5
Methoxychlor	6183.1	5527.82	5458.215	5149.038	4915.78	5447	9
Endrin ketone	11161.8	12004.5	12176.53	12265.54	12334.85	11989	4
Endrin aldehyde	9692.4	9791.4	9780.375	10004.61	10945.62	10043	5
alpha-Chlordane	23249.4	22220.8	22505.45	21971.53	22216.13	22433	2
gamma-Chlordane	22271.8	21621.5	21564.85	21389.88	21458.02	21661	2
Tetrachloro-m-xylene	18334.4	14333.2	15666.55	15346.43	14889.28	15714	10
Decachlorobiphenyl	22615.8	20939.85	20391.43	19674.45	18666.88	20458	7

EXTERNAL STANDARD TABLE

11-21-1997 21:42:25 Version 5.1.5

* Sample Name: INDA 5-50 UG/L
* Date: 11-18-1997 21:50:33 Method: M:APES-E 11-21-1997 21:15:10 # 396
* Interface: 2 Cycle#: 68 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Data File: D:NV14E68

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

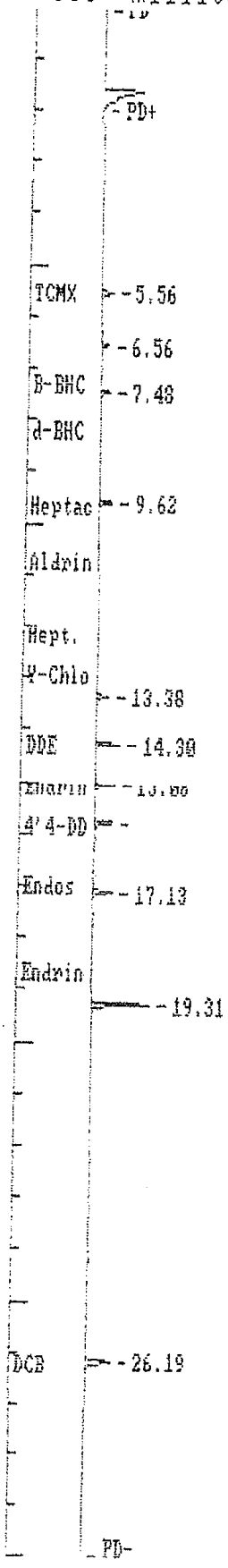
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.561	TCMX	4.6691	4.0618%	20656	4442	4.7	1	0	0	2.2594E-04
2	6.563	α-BHC	0.0000	0.0000%	13948	3339	4.2	1			1.0000E-09
3	7.482	Y-BHC	4.5834	3.9351%	14624	3710	3.9	1	0	-.3187	3.0931E-04
4	9.619	Heptachlor	4.9727	4.3259%	19224	5127	3.7	1	0	-.1743	2.5867E-04
5	13.377	Endosulfan I	4.7045	4.0924%	17199	4907	3.5	1	0	-.1217	2.7352E-04
6	14.295	~~DDE~~ Dieldrin	6.6251	5.7643%	34138	9444	3.6	1	0	-.1173	1.9410E-04
7	15.080	Endrin	9.4736	8.2416%	27749	7655	3.6	1	0	-.1119	3.4141E-04
8	15.798	4'4-DDD	9.1750	7.9816%	27176	6957	3.9	1	0	-.2134	3.3761E-04
9	17.134	DDT	8.9144	7.7549%	28187	7393	3.8	1	0	-.1968	3.1626E-04
10	19.305	Methoxychlor	52.2075	45.4173%	81287	22507	3.6	1	0	0	6.4226E-04
11	26.186	DCB	9.6846	8.4250%	50040	9659	5.2	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 114.9510

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E68.PTS Printed on 11-21-1997 at 21:42:29
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:43:08 Version 5.1.5

* Sample Name: INDB 5-10 UG/L
* Date: 11-18-1997 22:23:16 Method: M:APES-E 11-21-1997 21:15:10 # 396
* Interface: 2 Cycle#: 69 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Data File: D:NV14E69

* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

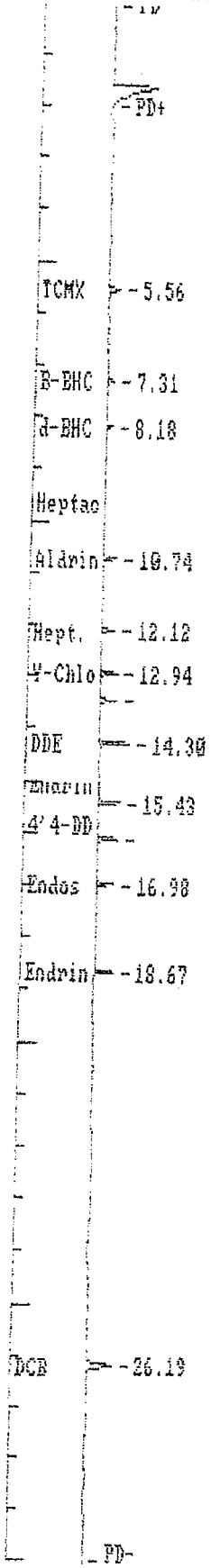
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.561	TCMX	4.8604	5.4505%	21502	4585	4.7	1	0	0	2.2604E-04
2	7.315	B-BHC	4.8356	5.4227%	12476	2984	4.2	1	0	-.2237	3.8760E-04
3	8.183	d-BHC	4.6271	5.1889%	10837	2683	4.0	1	0	-.2073	4.2699E-04
4	10.738	Aldrin	4.2871	4.8077%	19275	5369	3.6	1	0	-.1571	2.2242E-04
5	12.124	Hept. epox.	4.6992	5.2698%	19145	5336	3.6	1	0	-.1383	2.4546E-04
6	12.943	Y-Chlordane	4.6037	5.1627%	23106	6403	3.6	1	0	-.1273	1.9924E-04
7	13.477	a-Chlordane	4.4937	5.0393%	23129	6480	3.6	1	0	-.2450	1.9429E-04
8	14.295	DDE	8.3550	9.3694%	43045	11781	3.7	1	0	-.1173	1.9410E-04
9	15.431	Endosif II	9.7063	10.8848%	30293	8547	3.5	1	0	-.1048	3.2041E-04
10	16.132	Endrin ald	9.9519	11.1602%	29856	8031	3.7	1	0	-.1040	3.3333E-04
11	16.984	Endos sulf	9.1745	10.2884%	25028	6924	3.6	1	0	-.1005	3.6657E-04
12	18.671	Endrin ket.	9.6787	10.8539%	27720	7473	3.7	1	0	0	3.4916E-04
13	26.186	DCB	9.8997	11.1016%	51152	9729	5.3	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 89.1730

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E69.PTS Printed on 11-21-1997 at 21:43:20
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:44:11 Version 5.1.5

* Sample Name: INDA 10-100 UG/L
* Date: 11-18-1997 22:55:56 Method: M:APES-E 11-21-1997 21:15:10 # 396
* Interface: 2 Cycle#: 70 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Data File: D:NV14E70

* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

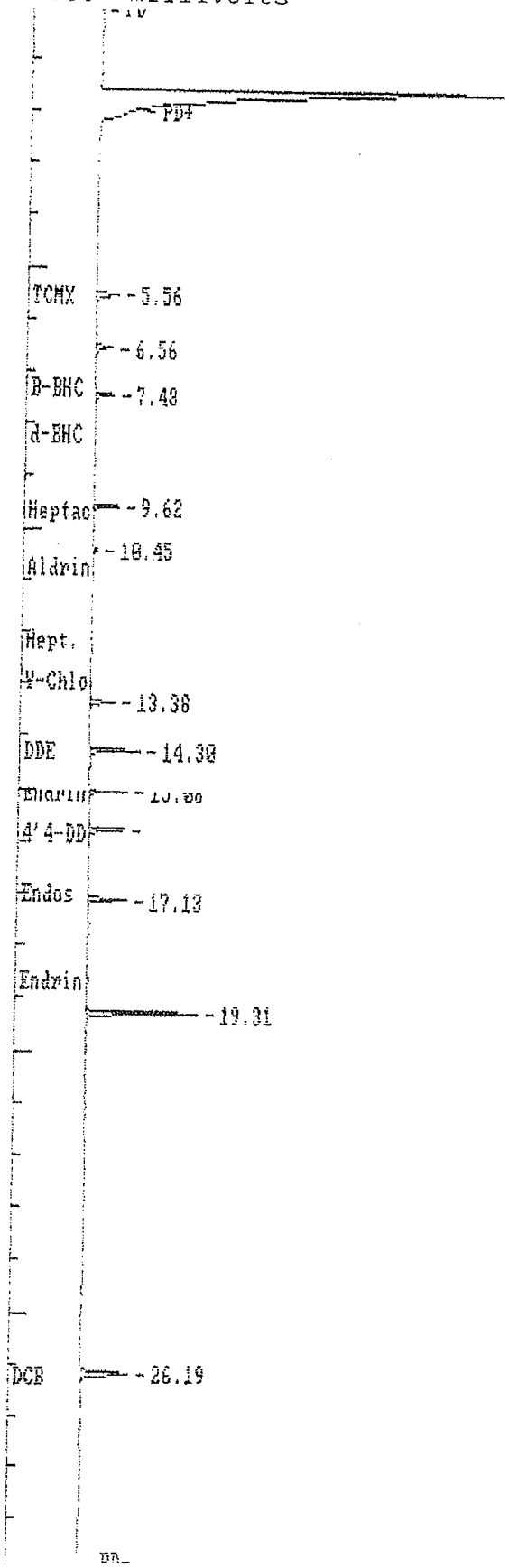
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.561	TCMX	8.9741	4.0127%	39701	8584	4.6	1	0	0	2.2604E-04
2	6.563	A-BHC	0.0000	0.0000%	27160	6576	4.1	1			1.0000E-09
3	7.482	Y-BHC	8.8387	3.9522%	28576	7357	3.9	1	0	-.2187	3.0931E-04
4	9.619	Heptachlor	9.7139	4.3436%	37554	9871	3.8	1	0	-.1743	2.5867E-04
5	10.454		0.0000	0.0000%	7116	1562	4.6	1			1.0000E-09
6	13.377	Endosulfan I	9.0640	4.0530%	33138	9352	3.5	1	0	-.1217	2.7352E-04
7	14.295	~~DDE~~ Dieldrin	13.3270	5.9591%	68661	19113	3.6	1	0	-.1173	1.9410E-04
8	15.080	Endrin	18.3258	8.1943%	53676	14782	3.6	1	0	-.1119	3.4141E-04
9	15.798	4'4-DDD	18.4511	8.2504%	54652	13774	4.0	1	0	-.2134	3.3761E-04
10	17.134	DDT	17.4570	7.8059%	55199	14896	3.7	1	0	-.1968	3.1626E-04
11	19.305	Methoxychlor	100.5958	44.9813%	156628	42616	3.7	1	0	0	6.4226E-04
12	26.186	DCB	18.8920	8.4475%	97615	18262	5.3	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 223.6393

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E70.PTS Printed on 11-21-1997 at 21:44:23
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ull Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:45:17 Version 5.1.5

Sample Name: INDB 10-20 UG/L

Date: 11-18-1997 23:28:38 Method: M:APES-E 11-21-1997 21:15:10 # 396

Data File: D:NV14E71

Interface: 2 Cycle#: 71 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

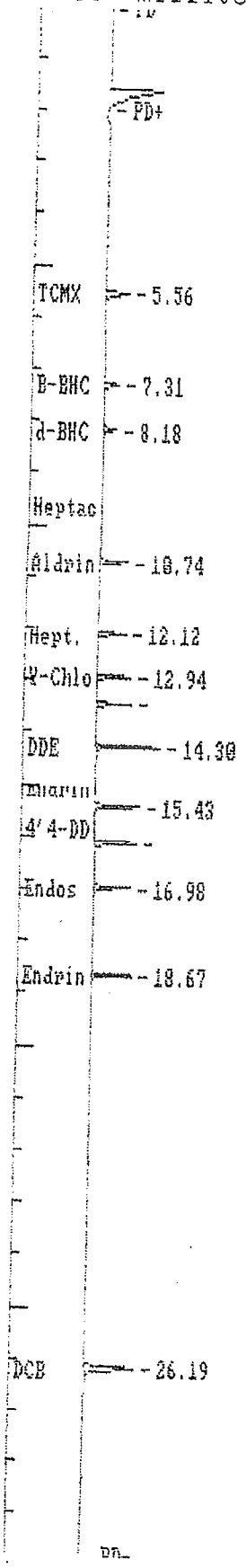
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT RL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.561 TCMX		9.7156	5.3847%	42982	9257	4.6 1	0	0	2.2604E-04
2	7.315 B-BHC		9.7619	5.4104%	25186	6039	4.2 1	0	-.2237	3.8760E-04
3	8.183 d-BHC		9.4484	5.2366%	22128	5469	4.0 1	0	-.2073	4.2699E-04
4	10.738 Aldrin		8.6710	4.8057%	38985	10946	3.6 1	0	-.1571	2.2242E-04
5	12.124 Hept. epox.		9.2790	5.1427%	37802	10501	3.6 1	0	-.1383	2.4546E-04
6	12.943 Y-Chlordane		9.1779	5.0867%	46064	12921	3.6 1	0	-.1273	1.9924E-04
7	13.477 a-Chlordane		9.0580	5.0202%	46622	13235	3.5 1	0	-.2450	1.9429E-04
8	14.295 DDE		17.4860	9.6913%	90088	24783	3.6 1	0	-.1173	1.9410E-04
9	15.431 Endosif II		19.1960	10.6390%	59911	17188	3.5 1	0	-.1048	3.2041E-04
10	16.132 Endrin ald		19.7832	10.9644%	59349	16086	3.7 1	0	-.1040	3.3333E-04
11	16.984 Endos sulf		18.9778	10.5181%	51771	14080	3.7 1	0	-.1005	3.6657E-04
12	18.671 Endrin ket.		20.0813	11.1297%	57513	15373	3.7 1	0	0	3.4916E-04
13	26.186 DCB		19.7943	10.9706%	102277	19027	5.4 1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 180.4303

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E71.PTS Printed on 11-21-1997 at 21:45:28
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ull Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:46:20 Version 5.1.5

* Sample Name: INDA 20-200 UG/L
* Date: 11-19-1997 00:01:18 Method: M:APES-E 11-21-1997 21:15:10 # 396
* Interface: 2 Cycle#: 72 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Data File: D:NV14E7C

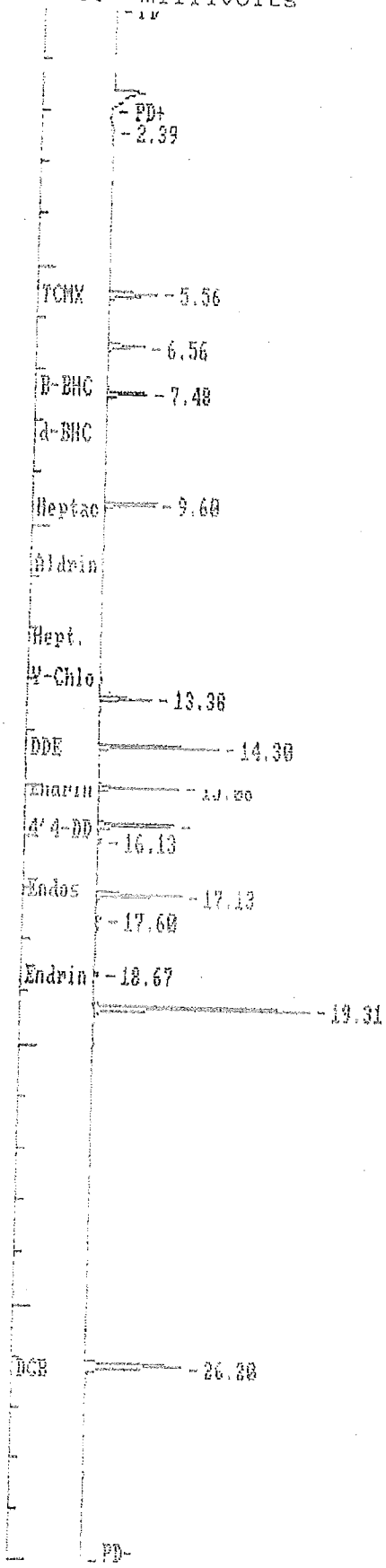
Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.388		0.0000	0.0000%	22283	1077	20.7 1			1.0000E-09
2	5.561 TCMX		19.7348	4.1855%	87307	18797	4.6 1	0	0	2.2604E-04
3	6.563 α-BHC		0.0001	0.0000%	58100	14223	4.1 1			1.0000E-09
4	7.482 Y-BHC		18.9757	4.0245%	61348	15557	3.9 1	0	-.2187	3.0931E-04
5	9.602 Heptachlor		19.6204	4.1612%	75852	19783	3.8 1	0	-.3476	2.5867E-04
6	13.377 Endosulfan I		19.2477	4.0822%	70369	19933	3.5 1	0	-.1217	2.7352E-04
7	14.295 DDE- Dieldrin		31.4677	6.6739%	162122	46498	3.5 1	0	-.1173	1.9410E-04
8	15.080 Endrin		38.4617	8.1572%	112654	31079	3.6 1	0	-.1119	3.4141E-04
9	15.798 4'4-DDD		39.5817	8.3947%	117241	29583	4.0 2	0	-.2134	3.3761E-04
10	16.132 Endrin ald		2.4486	0.5194%	7346	1848	4.0 2	0	-.1040	3.3333E-04
11	17.134 DDT		38.5320	8.1721%	121838	32847	3.7 1	0	-.1968	3.1626E-04
12	17.602		0.0000	0.0000%	8859	2136	4.1 1			1.0000E-09
13	18.671 Endrin ket.		2.7639	0.5862%	7916	2065	3.8 1	0	0	3.4916E-04
14	19.305 Methoxychlor		201.9806	42.8374%	314484	83786	3.8 1	0	0	6.4226E-04
15	26.202 DCB		38.6906	8.2058%	199915	36946	5.4 1	0	-.1436	1.9354E-04

TOTAL AMOUNT = 471.5057

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E72.PTS Printed on 11-21-1997 at 21:46:32
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ull Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:47:30 Version 5.1.5

* Sample Name: INDB 20-40 UG/L
* Date: 11-19-1997 00:34:02 Method: M:APES-E 11-21-1997 21:15:10 # 396
* Interface: 2 Cycle#: 73 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Data File: O:NV14E73

* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

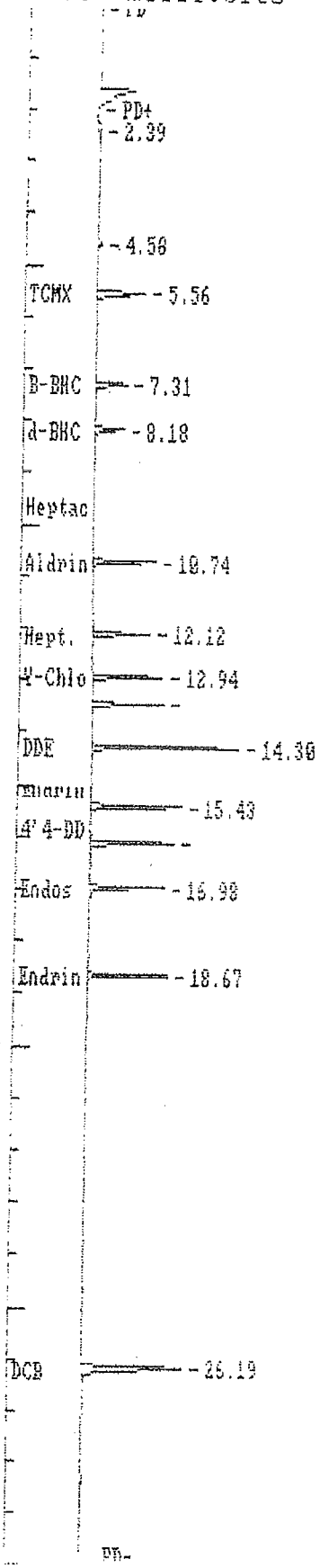
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.388		0.0000	0.0000%	25495	1133	22.5	1			1.0000E-09
2	4.576		0.0000	0.0000%	9105	1659	5.5	1			1.0000E-09
3	5.561 TCMX		19.9343	5.4172%	88190	18809	4.7	1	0	0	2.2604E-04
4	7.315 B-BHC		19.6316	5.3350%	50650	12109	4.2	1	0	-.2237	3.8760E-04
5	8.183 d-BHC		18.9225	5.1422%	44316	11190	4.0	1	0	-.2073	4.2699E-04
6	10.738 Aldrin		18.5154	5.0316%	83245	23949	3.5	1	0	-.1571	2.2242E-04
7	12.124 Hept. epox.		18.8626	5.1260%	76846	21968	3.5	1	0	-.1383	2.4546E-04
8	12.943 Y-Chlordane		19.0061	5.1650%	95391	27224	3.5	1	0	-.1273	1.9924E-04
9	13.477 a-Chlordane		19.0172	5.1680%	97881	27708	3.5	1	0	-.2450	1.9429E-04
10	14.295 DDE		38.7478	10.5298%	199628	56766	3.5	1	0	-.1173	1.9410E-04
11	15.431 Endosif II		38.4033	10.4362%	119857	35159	3.4	1	0	-.1048	3.2041E-04
12	16.132 Endrin ald		39.0236	10.6048%	117071	31922	3.7	1	0	-.1040	3.3332E-04
13	16.984 Endos sulf		38.5303	10.4707%	105111	28667	3.7	1	0	-.1005	3.6657E-04
14	18.671 Endrin ket.		39.6672	10.7797%	113607	30620	3.7	1	0	0	3.4916E-04
15	26.186 DCB		39.7195	10.7939%	205231	38411	5.3	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 367.9813

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E73.PTS Printed on 11-21-1997 at 21:47:45
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ull Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:48:40 Version 5.1.5

* Sample Name: INDA 40-400 UG/L Data File: D:NV14E74
* Date: 11-19-1997 01:06:41 Method: M:APES-E 11-21-1997 21:15:10 # 396
* Interface: 2 Cycle#: 74 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

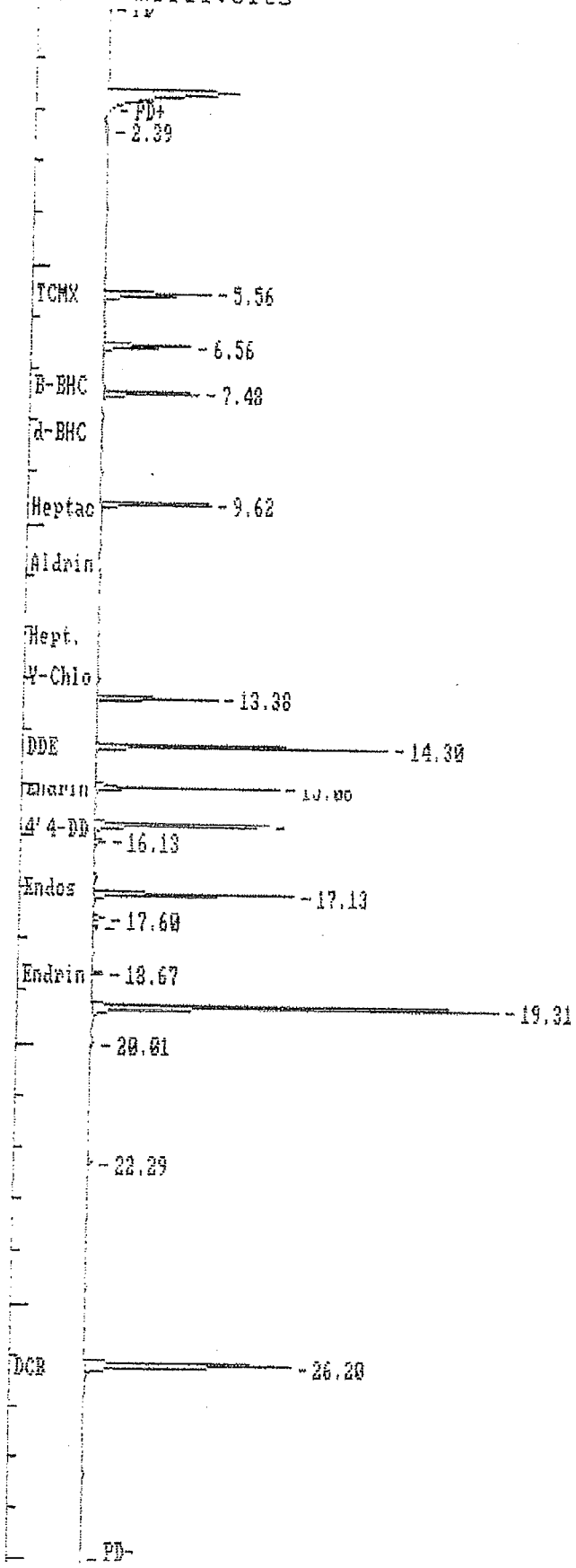
Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.000 sec.
Dilution Factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.388		0.0000	0.0000%	24390	1138	21.4	1			1.0000E-09
2	5.561	TCMX	42.9789	4.3325%	190139	40949	4.6	1	0	0	2.2610E-04
3	6.563	α-BHC	0.0001	0.0000%	130171	33401	3.9	1			1.0000E-09
4	7.482	Y-BHC	42.6578	4.3001%	137913	36853	3.7	1	0	-.2187	3.0931E-04
5	9.619	Heptachlor	40.7400	4.1068%	157501	42296	3.7	1	0	-.1743	2.5867E-04
6	13.377	Endosulfan I	42.5487	4.2891%	155558	46277	3.4	1	0	-.1217	2.7352E-04
7	14.295	~~DDE~~ Dieldrin	76.2275	7.6841%	392724	113033	3.5	1	0	-.1173	1.9411E-04
8	15.080	Endrin	85.6271	8.6316%	250802	70865	3.5	1	0	-.1119	3.4141E-04
9	15.798	4'4-DDD	85.7554	8.6445%	254007	67182	3.8	2	0	-.2134	3.3761E-04
10	16.132	Endrin ald	5.3471	0.5390%	16041	3937	4.1	2	0	-.1040	3.3333E-04
11	17.134	DDT	87.6319	8.8337%	277092	77309	3.6	1	0	-.1968	3.1626E-04
12	17.602		0.0000	0.0000%	17697	4269	4.1	2			1.0000E-09
13	17.765		0.0000	0.0000%	9173	2122	4.3	2			1.0000E-09
14	18.671	Endrin ket.	5.4722	0.5516%	15672	4137	3.8	1	0	0	3.4916E-04
15	19.305	Methoxychlor	393.6589	39.6826%	612927	157281	3.9	1	0	0	6.4226E-04
16	20.007		0.0000	0.0000%	4984	1487	3.4	1			1.0000E-09
17	22.294		0.0000	0.0000%	6973	1775	3.9	1			1.0000E-09
18	26.202	DCB	83.3741	8.4045%	430794	79394	5.4	1	0	-.1436	1.9354E-04

TOTAL AMOUNT = 992.0196

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E74.PTS Printed on 11-21-1997 at 21:48:57
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:49:54 Version 5.1.5

Data File: O:NV14E75

Sample Name: IND8 40-80 UG/L

Date: 11-19-1997 01:39:22 Method: M:APES-E 11-21-1997 21:15:10 # 396

Interface: 2 Cycle#: 75 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

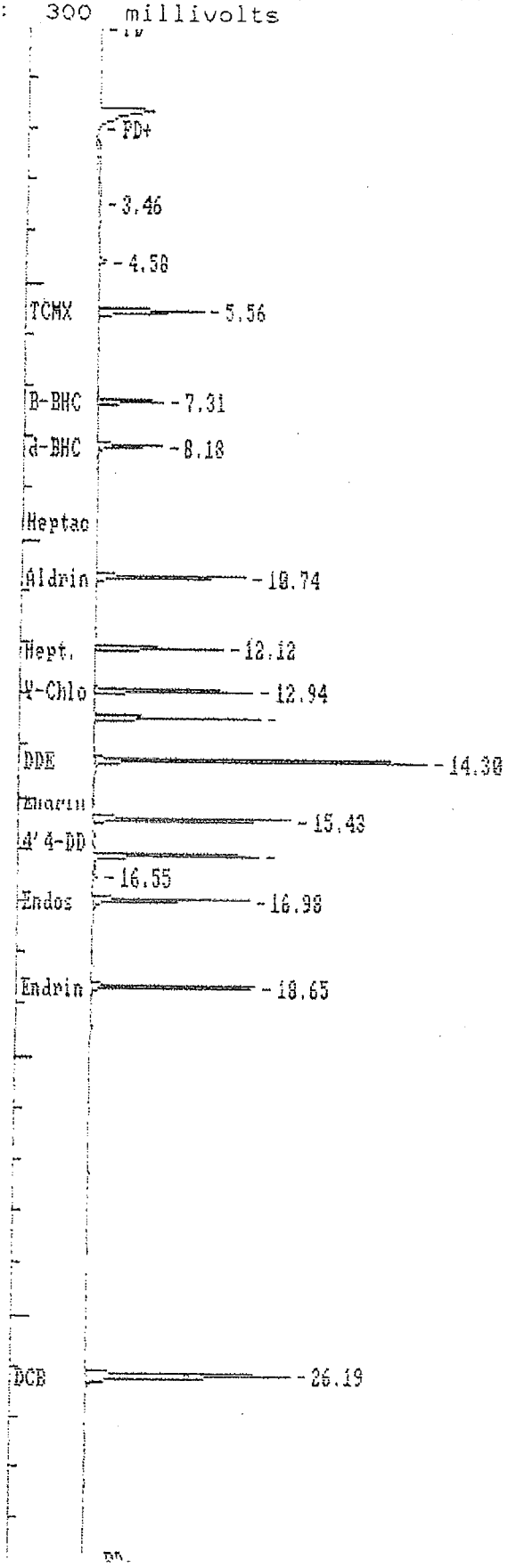
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
											1.0000E-09
1	3.457		0.0001	0.0000%	69470	375	185.4	1			1.0000E-09
2	4.576		0.0000	0.0000%	16386	3012	5.4	1			
3	5.561 TCMX		42.7921	5.3673%	189308	41574	4.6	1	0	0	2.2604E-04
4	7.315 B-BHC		40.7014	5.1052%	105010	26010	4.0	1	0	-.2237	3.8760E-04
5	8.183 d-BHC		41.0620	5.1529%	96214	25555	3.8	1	0	-.2073	4.2699E-04
6	10.738 Aldrin		44.1283	5.5350%	198401	59213	3.4	1	0	-.1571	2.2242E-04
7	12.124 Hept. epox.		42.0250	5.2712%	171210	50497	3.4	1	0	-.1383	2.4546E-04
8	12.943 Y-Chlordane		42.5366	5.3354%	213491	62439	3.4	1	0	-.1273	1.9924E-04
9	13.477 a-Chlordane		43.3016	5.4313%	222873	65013	3.4	1	0	-.2480	1.9429E-04
10	14.295 DDE		90.0002	11.2868%	463682	130800	3.5	1	0	-.1173	1.9410E-04
11	15.421 Endosulf II		82.4915	10.3470%	257456	77753	3.3	1	0	-.1048	3.2041E-04
12	16.132 Endrin ald		79.1538	9.9283%	237461	65189	3.6	1	0	-.1040	3.3333E-04
13	16.550		0.0000	0.0000%	7597	1992	3.8	1			1.0000E-09
14	16.984 Endos sulf		82.9981	10.4105%	226419	61346	3.7	1	0	-.1008	3.6657E-04
15	18.654 Endrin ket.		80.9220	10.1501%	231761	64424	3.6	1	0	-.1771	3.4916E-04
16	26.186 DCB		85.1215	10.6768%	439823	80127	5.5	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 797.2533

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E75.PTS Printed on 11-21-1997 at 21:50:20
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:51:08 version 5.1.5

Sample Name: INDA 60-600 UG/L Data File: D:NV14E76

Date: 11-19-1997 02:12:01 Method: M:APES-E 11-21-1997 21:15:10 # 396

Interface: 2 Cycle#: 76 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

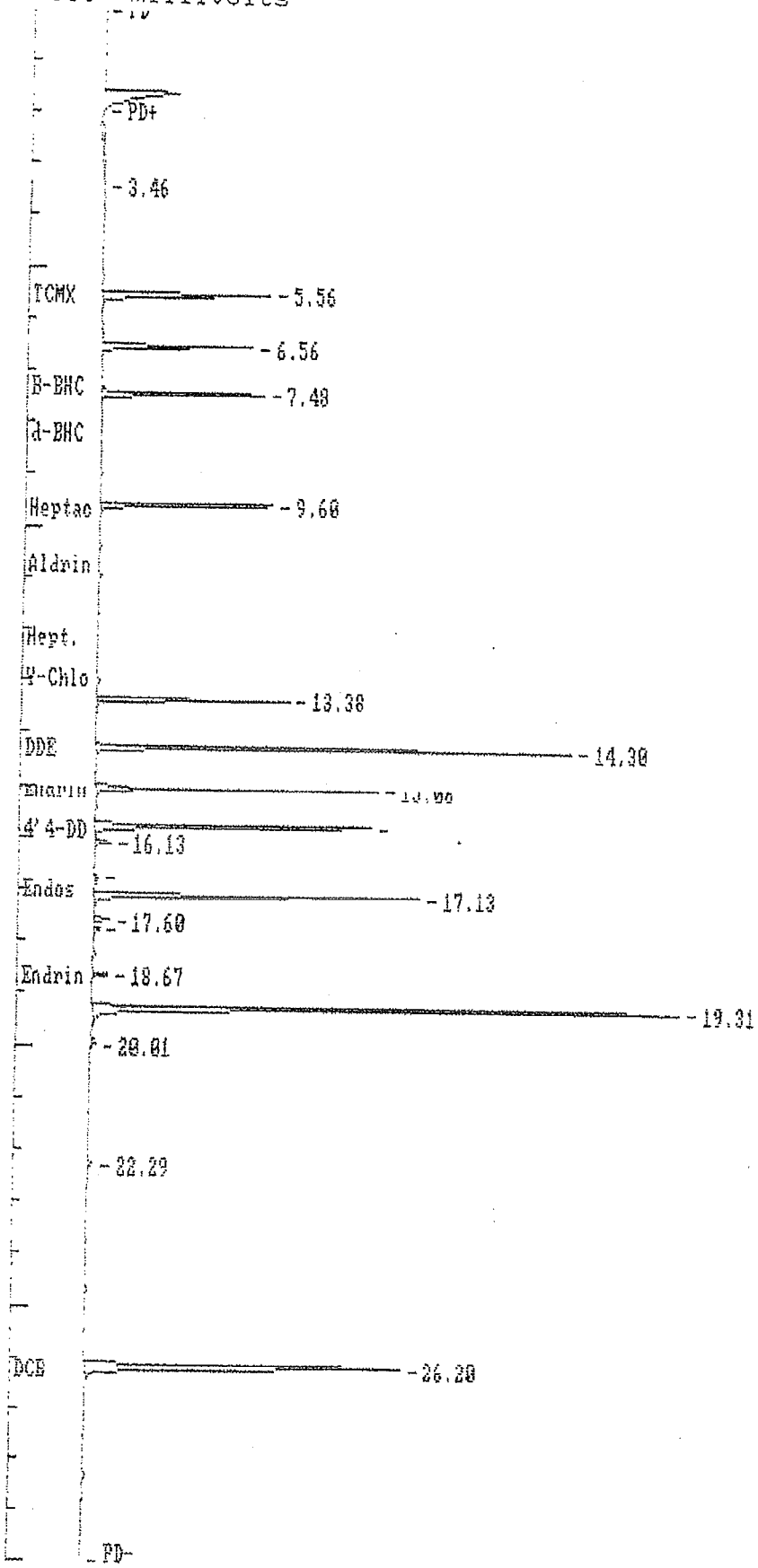
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.457		0.0001	0.0000%	71704	436	164.6	1			1.0000E-09
2	5.561	TCMX	66.4241	4.3857%	293860	64831	4.5	1	0	0	2.2604E-04
3	6.563	α-BHC	0.0002	0.0000%	214525	58673	3.7	1			1.0000E-09
4	7.482	Y-BHC	71.7947	4.7402%	232112	62935	3.7	1	0	-.2187	3.0931E-04
5	9.602	Heptachlor	62.0820	4.0990%	240009	66490	3.6	1	0	-.3476	2.5867E-04
6	13.377	Endosulfan I	67.5621	4.4608%	247007	73803	3.3	1	0	-.1217	2.7352E-04
7	14.295	~~DDE~~ Dieldrin	121.8429	8.0447%	627734	182226	3.4	1	0	-.1173	1.9410E-04
8	15.080	Endrin	132.5504	8.7516%	388240	108560	3.6	1	0	-.1119	3.4141E-04
9	15.798	4'4-DDD	131.7588	8.6994%	390270	106104	3.7	2	0	-.2134	3.3761E-04
10	16.132	Endrin ald	8.6020	0.5679%	25806	6303	4.1	2	0	-.1040	3.3333E-04
11	16.800		0.0000	0.0000%	4739	1498	3.2	1			1.0000E-09
12	17.134	DDT	141.2116	9.3235%	446511	124981	3.6	1	0	-.1963	3.1628E-04
13	17.602		0.0000	0.0000%	26132	6311	4.1	2			1.0000E-09
14	17.785		0.0000	0.0000%	11070	2519	4.4	2			1.0000E-09
15	18.671	Endrin ket.	8.4299	0.5566%	24143	6285	3.8	1	0	0	3.4916E-04
16	19.305	Methoxychlor	572.9844	37.8313%	892137	225582	4.0	1	0	0	6.4226E-04
17	20.007		0.0000	0.0000%	7422	2245	3.3	1			1.0000E-09
18	22.294		0.0000	0.0000%	9890	2479	4.0	1			1.0000E-09
19	26.202	OCB	129.3233	8.5392%	668265	121089	5.5	1	0	-.1436	1.9354E-04

TOTAL AMOUNT = 1514.5763

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E76.PTS Printed on 11-21-1997 at 21:51:40
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:52:32 Version 5.1.5

Sample Name: INDB 60-120 UG/L Data File: D:NV14E77

Date: 11-19-1997 02:44:44 Method: M:APES-E 11-21-1997 21:15:10 # 396

Interface: 2 Cycle#: 77 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

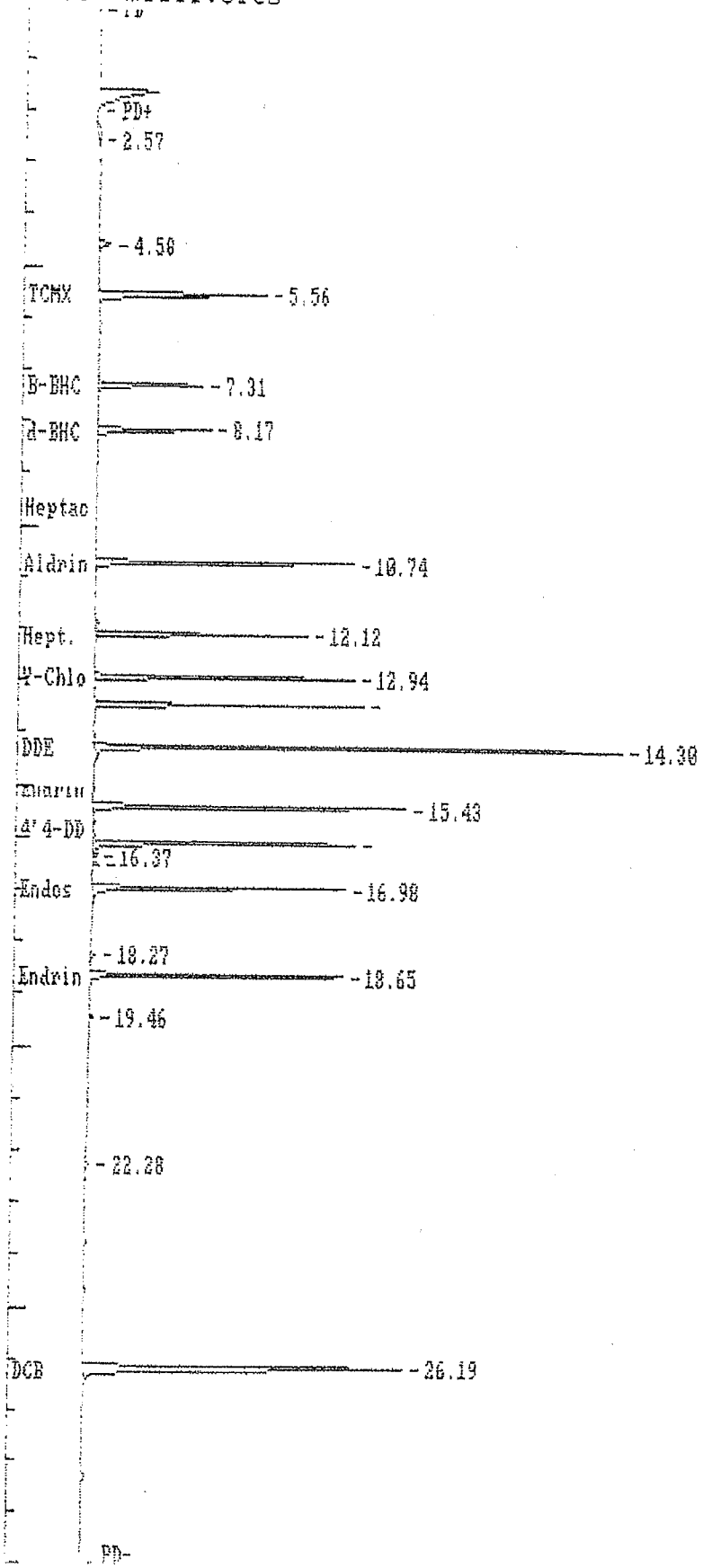
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.572		0.0000	0.0000%	28411	802	35.4	1			1.0000E-09
2	4.576		0.0000	0.0000%	24931	4561	5.5	1			1.0000E-09
3	5.561 TCMX		67.5944	5.2943%	299037	65528	4.6	1	0	0	2.2604E-04
4	7.315 B-BHC		63.4464	4.9694%	163692	40620	4.0	1	0	-.2237	3.8760E-04
5	8.166 d-BHC		69.4090	5.4364%	162556	44186	3.7	1	0	-.4109	4.2699E-04
6	10.738 Aldrin		74.7648	5.8559%	336142	100417	3.3	1	0	-.1571	2.2242E-04
7	12.124 Hept. epox.		68.2848	5.3483%	278192	82621	3.4	1	0	-.1383	2.4546E-04
8	12.943 Y-Chlordane		68.8942	5.3961%	345780	101293	3.4	1	0	-.1273	1.9924E-04
9	13.477 a-Chlordane		70.2084	5.4990%	361363	104575	3.5	1	0	-.2450	1.9429E-04
10	14.295 DDE		143.5404	11.2427%	739520	204549	3.6	1	0	-.1173	1.9410E-04
11	15.491 Endoslf II		129.3084	10.1280%	403572	121998	3.3	1	0	-.1048	3.2041E-04
12	16.132 Endrin ald		126.0048	9.8692%	378014	102173	3.7	2	0	-.1040	3.3333E-04
13	16.366		0.0000	0.0000%	7190	1972	3.6	2			1.0000E-09
14	16.550		0.0000	0.0000%	11328	2947	3.8	2			1.0000E-09
15	16.984 Endos sulf		135.8534	10.6406%	370608	98451	3.8	1	0	-.1005	3.6657E-04
16	18.270		0.0000	0.0000%	8745	1819	4.8	1			1.0000E-09
17	18.654 Endrin ket.		123.0732	9.6396%	352482	98304	3.6	1	0	-.1771	3.4916E-04
18	19.455 Methoxychlor		3.6341	0.2846%	5658	1571	3.6	1	0	.6909	6.4226E-04
19	22.278		0.0000	0.0000%	5583	1458	3.8	1			1.0000E-09
20	26.186 DCB		132.7306	10.3960%	685819	124003	5.5	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 1276.7471

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E77.PTS Printed on 11-21-1997 at 21:53:06
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:00:51 Version 5.1.5

Sample Name: INDA 5-50 UG/L Data File: D:0V14E68

Date: 11-18-1997 21:50:33 Method: M:BPES-E 11-21-1997 21:24:54 # 390

Interface: 2 Cycle#: 68 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

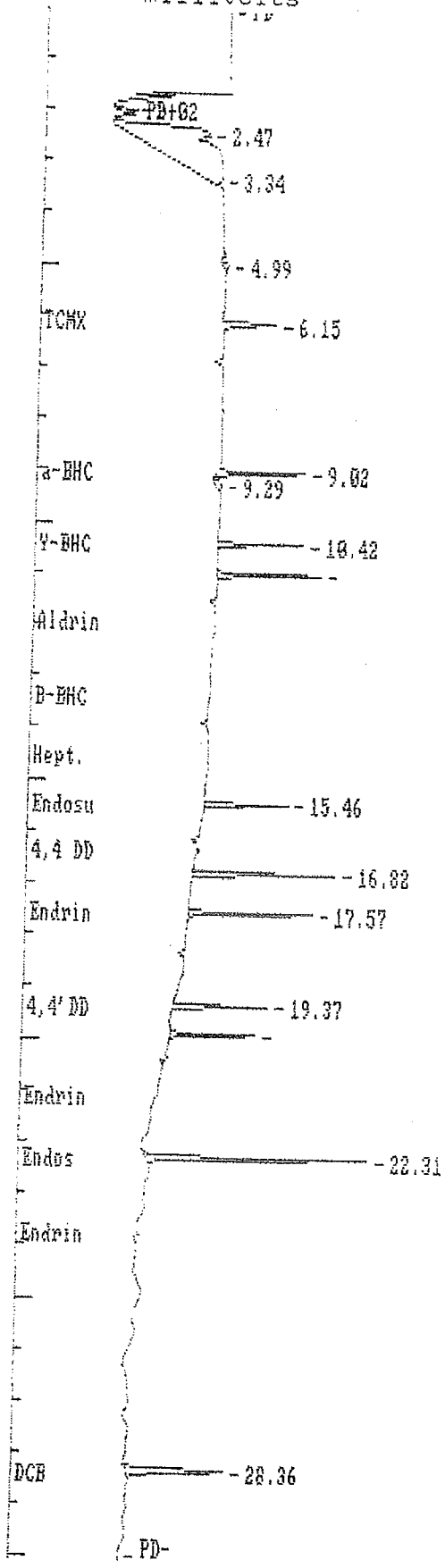
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	14968	4016	3.7	1			1.0000E-09
2	2.472		0.0005	0.0004%	459910	29474	15.6	3			1.0000E-09
3	3.340		0.0008	0.0007%	779760	4204	185.5	4			1.0000E-09
4	4.993		0.0000	0.0000%	13323	1872	7.1	1			1.0000E-09
5	6.146	TCMX	5.8338	5.3372%	91672	20901	4.4	1	0	.2544	6.3638E-05
6	9.018	a-BHC	5.7861	5.2935%	126634	34582	3.7	1	0	-.1881	4.5691E-05
7	9.285		0.0000	0.0000%	20190	1702	11.9	1			1.0000E-09
8	10.421	Y-BHC	5.4669	5.0015%	113896	33585	3.4	1	0	0	4.7998E-05
9	11.022	Heptachlor	5.7794	5.2874%	140186	40693	3.4	1	0	0	4.1227E-05
10	15.464	Endosulf I	5.5386	5.0671%	111043	32940	3.4	1	0	-.1085	4.9878E-05
11	16.817	Dieldrin	10.8127	9.8922%	190688	55685	3.4	1	0	0	5.6705E-05
12	17.568	Endrin	11.2411	10.2842%	162907	48600	3.4	1	0	0	6.9004E-05
13	19.372	4,4'DDD	10.2729	9.3984%	121652	37355	3.3	1	0	0	8.4445E-05
14	19.906	4,4 DDT	10.0298	9.1759%	111090	33150	3.4	1	0	0	9.0285E-05
15	22.311	~~Endos sulf~~ Methoxy	27.4678	25.1478%	309155	85358	3.6	1	0	0	8.8913E-05
16	28.357	DCB	11.0548	10.1137%	226158	38089	5.9	1	0	-.1176	4.8881E-05

TOTAL AMOUNT = 109.3051

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E68.PTS Printed on 11-21-1997 at 22:01:01
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:01:49 Version 5.1.5

Sample Name: INDS 5-10 UG/L Data File: D:OV14E69

Date: 11-18-1997 22:23:16 Method: M:BPES-E 11-21-1997 21:24:54 # 390

Interface: 2 Cycle#: 69 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

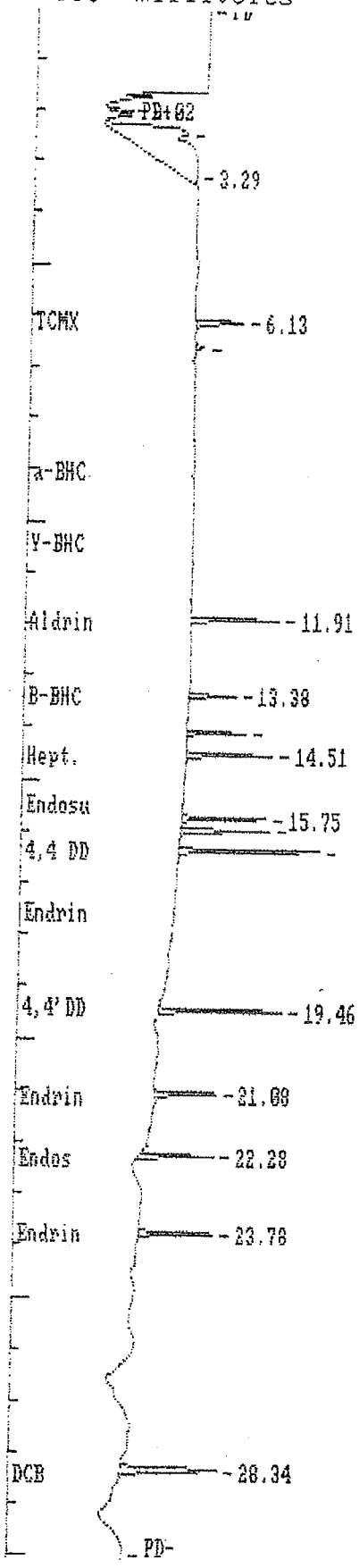
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16571	4288	3.9	1			1.0000E-09
2	2.472		0.0004	0.0004%	389114	24941	15.6	3			1.0000E-09
3	3.290		0.0006	0.0007%	633829	4160	152.4	4			1.0000E-09
4	6.129	TCMX	5.4953	5.7358%	86353	19011	4.5	1	C	0	6.3638E-05
5	6.613		0.0000	0.0000%	14651	3701	4.0	1			1.0000E-09
6	11.307	Aldrin	5.1856	5.4126%	114748	34063	3.4	1	0	-.1417	4.5192E-05
7	13.377	B-BHC	5.1148	5.3386%	58416	18334	3.2	1	C	-.1217	8.7558E-05
8	14.095	d-BHC	4.4705	4.6661%	70888	23158	3.1	1	0	-.1148	6.3064E-05
9	14.512	Hept. epox.	5.2836	5.5148%	111854	33587	3.3	1	0	-.1149	4.7237E-05
10	15.748	Y-Chlordane	5.1410	5.3660%	111359	32730	3.4	2	0	-.1072	4.6166E-05
11	15.982	a-Chlordane	5.1820	5.4087%	116247	34324	3.4	2	0	-.1068	4.4577E-05
12	16.366	4,4 DDE	10.1975	10.6437%	181648	54581	3.3	1	0	-.1037	5.6139E-05
13	19.455	EndosulfII	10.0930	10.5346%	161821	47836	3.4	1	0	0	6.2371E-05
14	21.075	Endrin ald	9.6509	10.0732%	96924	23936	4.0	1	0	0	9.9572E-05
15	22.278	Endos sulf	9.2315	9.6355%	103827	28986	3.6	1	0	-.1488	8.8913E-05
16	23.781	Endrin ket	9.8939	10.3269%	118618	28786	4.1	1	0	0	8.3410E-05
17	28.340	DCB	10.8670	11.3425%	222317	37359	6.0	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 95.8077

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:OV14E69.PTS Printed on 11-21-1997 at 22:02:15
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:02:57 Version 5.1.5

* Sample Name: INDA 10-100 UG/L Data File: D:QV14E70
* Date: 11-18-1997 22:55:56 Method: M:BPES-S 11-21-1997 21:24:54 # 390
* Interface: 2 Cycle#: 70 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

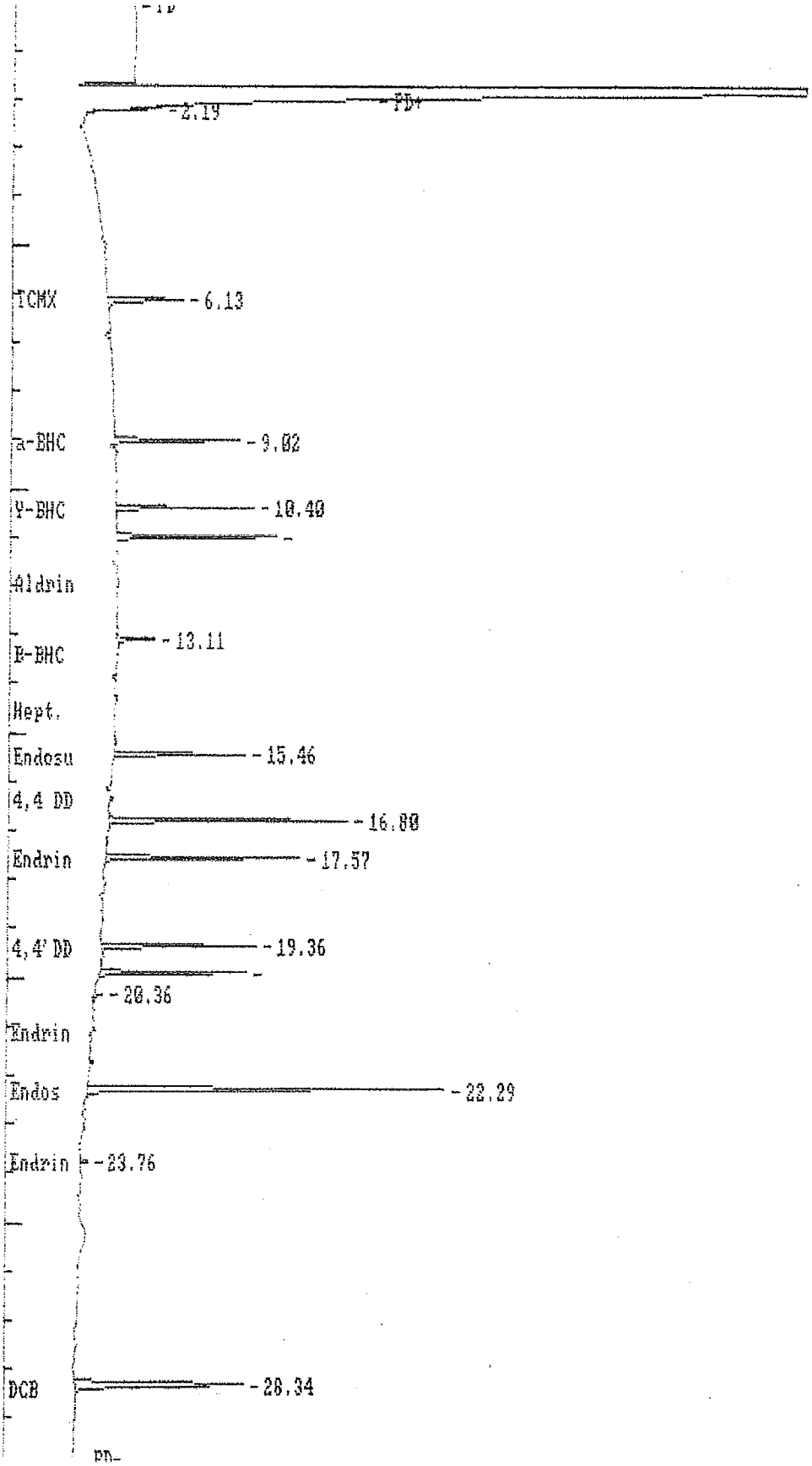
Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.188		0.0000	0.0000%	35515	10677	3.3	1			1.0000E-09
2	6.129	TCMX	9.1213	4.7330%	143332	31849	4.5	1	0	0	6.3638E-05
3	9.018	a-BHC	8.7511	4.5409%	191527	53125	3.6	1	0	-.1881	4.5691E-05
4	10.404	Y-BHC	8.9119	4.6243%	185670	57056	3.3	1	0	-.1621	4.7998E-05
5	11.005	Heptachlor	9.4299	4.8932%	228733	66306	3.4	1	0	-.1515	4.1227E-05
6	13.109		0.0001	0.0000%	62071	15664	4.0	1			1.0000E-09
7	15.464	Endosulf I	9.6290	4.9965%	193052	54537	3.5	1	0	-.1085	4.9879E-05
8	16.800	Dieldrin	18.9323	9.8239%	333871	98458	3.4	1	0	0	5.6705E-05
9	17.568	Endrin	19.6265	10.1841%	284427	80379	3.5	1	0	0	6.9004E-05
10	19.355	4,4'DDD	19.2627	9.9954%	228109	64222	3.6	1	0	-.1738	8.4445E-05
11	19.906	4,4 DDT	18.3765	9.5355%	203538	60825	3.3	1	0	0	9.0285E-05
12	20.357		0.0000	0.0000%	10967	3846	2.9	1			1.0000E-09
13	22.294	~~Endos sulf~~ Methoxy	49.1493	25.5034%	552782	147668	3.7	1	0	0	8.8913E-05
14	23.764	~~Endrin ket~~	1.0546	0.5472%	12644	3104	4.1	1	0	-.1382	8.3410E-05
15	28.340	DCB	20.4711	10.6224%	418797	69624	6.0	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 192.7164

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E70.PTS Printed on 11-21-1997 at 22:03:28
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:04:12 Version 5.1.5

Sample Name: INDB 10-20 UG/L Data File: D:OV14E71

Date: 11-18-1997 23:28:38 Method: M:BPES-E 11-21-1997 21:24:54 # 390

Interface: 2 Cycle#: 71 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

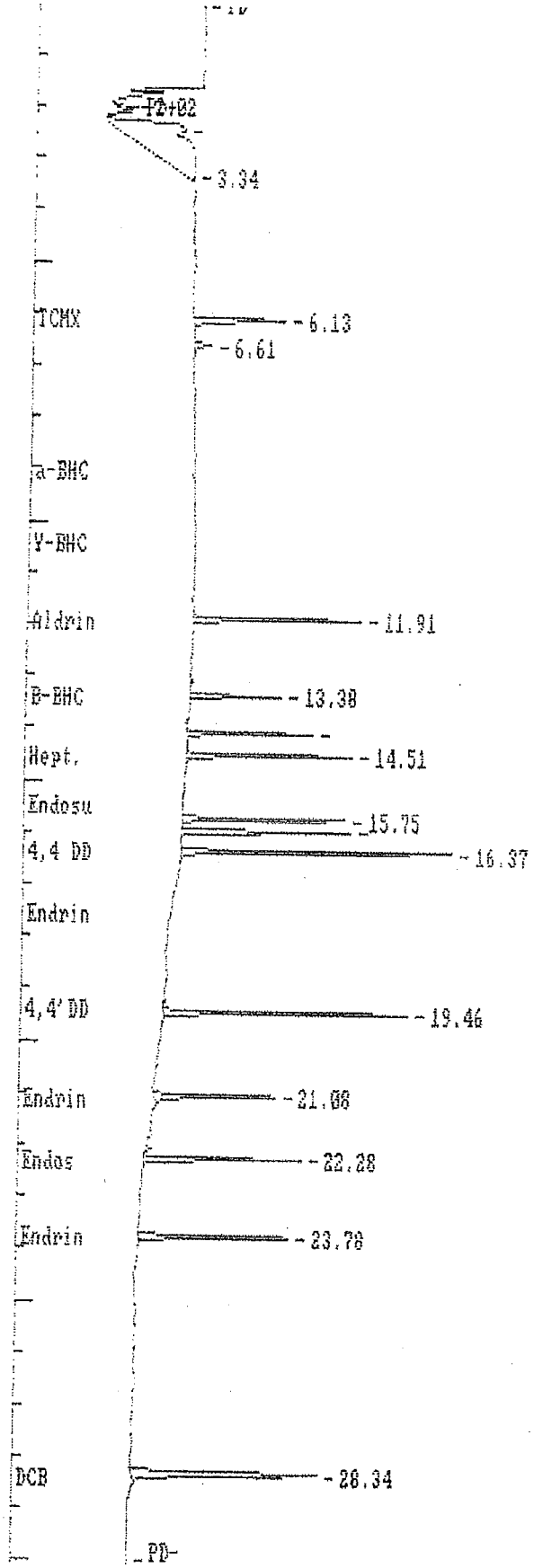
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16303	4372	3.7	1			1.0000E-09
2	2.472		0.0004	0.0002%	379224	24201	15.7	3			1.0000E-09
3	3.340		0.0006	0.0003%	611446	2461	248.5	4			1.0000E-09
4	6.129	TCMX	10.2510	5.3578%	161084	36021	4.5	1	0	0	6.3638E-05
5	6.613		0.0000	0.0000%	28560	7191	4.0	1			1.0000E-09
6	11.907	Aldrin	9.9170	5.1833%	219444	65279	3.4	1	0	-.1417	4.5192E-05
7	13.377	B-BHC	10.0966	5.2771%	115313	35784	3.2	1	0	-.1217	8.7558E-05
8	14.095	d-BHC	9.3423	4.8829%	148141	48670	3.0	1	0	-.1148	6.3064E-05
9	14.512	Hept. epox.	10.1442	5.3020%	214753	63959	3.4	1	0	-.1149	4.7237E-05
10	15.748	Y-Chlordane	9.9617	5.2171%	216215	63256	3.4	2	0	-.1072	4.6166E-05
11	15.982	a-Chlordane	9.9054	5.1772%	222208	65512	3.4	2	0	-.1068	4.4577E-05
12	16.366	4,4 ODE	19.7864	10.3416%	352456	105025	3.4	1	0	-.1037	5.6139E-05
13	19.455	Endosulfil	20.4620	10.6948%	328068	94812	3.5	1	0	0	6.2371E-05
14	21.075	Endrin ald	19.4989	10.1914%	195828	47364	4.1	1	0	0	9.9572E-05
15	22.278	Endos sulf	20.6350	10.7852%	232082	61171	3.8	1	0	-.1488	8.8913E-05
16	23.781	Endrin ket	20.0258	10.4668%	240090	58267	4.1	1	0	0	8.3410E-05
17	28.340	DCB	21.2802	11.1224%	435351	71994	6.0	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 191.3277

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E71.PTS Printed on 11-21-1997 at 22:04:40
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:05:36 Version 5.1.5

Sample Name: INDA 20-200 UG/L Data File: D:0V14E72

Date: 11-19-1997 00:01:18 Method: M:BPES-E 11-21-1997 21:24:54 # 390

Interface: 2 Cycle#: 72 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16893	4445	3.8	1			1.0000E-09
2	2.472		0.0004	0.0001%	361936	22940	15.8	2			1.0000E-09
3	2.989		0.0004	0.0001%	350561	5692	61.6	2			1.0000E-09
4	4.977		0.0000	0.0000%	13891	2437	5.7	1			1.0000E-09
5	6.129	TCMX	19.9396	4.9683%	313331	68119	4.6	1	0	0	6.3638E-05
6	7.465		0.0001	0.0000%	58008	1318	44.0	1			1.0000E-09
7	9.018	a-BHC	19.1504	4.7716%	419125	114106	3.7	1	0	-.1881	4.5691E-05
8	10.404	Y-BHC	19.4968	4.8579%	406196	121997	3.3	1	0	-.1621	4.7998E-05
9	11.005	Heptachlor	19.5778	4.9030%	477306	136682	3.5	1	0	-.1515	4.1227E-05
10	11.890	Aldrin	2.0438	0.5093%	45226	1177	38.4	1	0	-.2817	4.5192E-05
11	15.464	Endosulf I	19.8775	4.9528%	398523	110427	3.6	1	0	-.1085	4.9878E-05
12	16.366	4,4 DDE	1.0097	0.2516%	17986	5480	3.3	1	0	-.1037	5.6139E-05
13	16.800	Dieldrin	40.0086	9.9688%	705551	206131	3.4	1	0	0	5.6705E-05
14	17.568	Endrin	39.3678	9.8091%	570519	157254	3.6	1	0	0	6.9004E-05
15	19.355	4,4'DDD	39.6208	9.8722%	469190	131395	3.6	1	0	-.1738	8.4445E-05
16	19.906	4,4 DDT	39.2753	9.7861%	435013	127987	3.4	1	0	0	9.0285E-05
17	20.357		0.0000	0.0000%	26211	8321	3.2	1			1.0000E-09
18	21.075	Endrin ald	2.2441	0.5592%	22538	5707	3.9	1	0	0	9.9572E-05
19	22.294	~~Endos sulf~~ Mirex	97.0608	24.1842%	1091643	279632	3.9	1	0	0	8.8913E-05
20	22.712		0.0000	0.0000%	10073	2791	3.6	1			1.0000E-09
21	23.764	Endrin ket	2.6951	0.6715%	32311	7765	4.2	1	0	-.1382	8.3416E-05
22	28.340	DCB	39.8698	9.9342%	815657	134114	6.1	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 401.3389

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:0V14E72.PTS Printed on 11-21-1997 at 22:06:04
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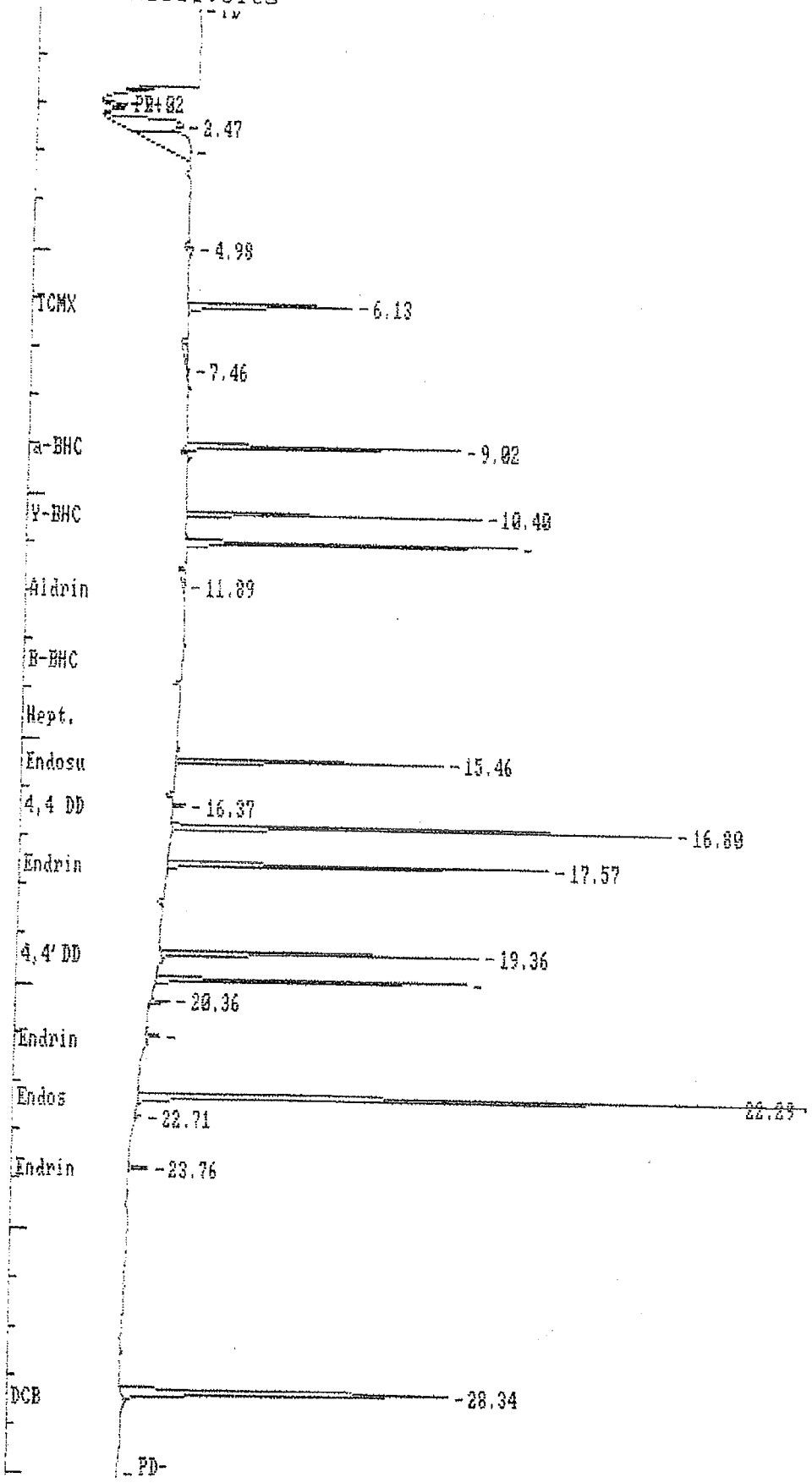
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:07:23 Version 5.1.5

* Sample Name: INDB 20-40 UG/L Data File: D:0V14F73
* Date: 11-19-1997 00:34:02 Method: M:8PES-E 11-21-1997 21:24:54 # 390
* Interface: 2 Cycle#: 73 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	17042	4531	3.8	1			1.0000E-09
2	2.472		0.0004	0.0001%	399472	25534	15.6	3			1.0000E-09
3	3.340		0.0007	0.0002%	653635	3041	214.9	4			1.0000E-09
4	6.129 TCMX		20.1100	5.3081%	316009	68264	4.6	1	0	0	6.3638E-05
5	6.613		0.0001	0.0000%	56265	13856	4.1	1			1.0000E-09
6	11.907	Aldrin	19.6595	5.1892%	435026	127607	3.4	1	0	-.1417	4.5192E-05
7	13.377	B-BHC	20.0057	5.2806%	228486	69944	3.3	1	0	-.1217	8.7558E-05
8	14.095	d-BHC	19.6826	5.1953%	312107	101164	3.1	1	0	-.1148	6.3064E-05
9	14.512	Hept. epox.	19.8494	5.2393%	420211	122907	3.4	1	0	-.1149	4.7237E-05
10	15.748	Y-Chlordane	19.9112	5.2557%	431297	123248	3.5	2	0	-.1072	4.6166E-05
11	15.962	a-Chlordane	20.0646	5.2962%	450109	128444	3.5	2	0	-.1068	4.4577E-05
12	16.366	4,4 DDE	39.7684	10.4971%	708394	206541	3.4	1	0	-.1037	5.6139E-05
13	19.455	Endosulfi	40.1537	10.5988%	643784	183313	3.5	1	0	0	6.2371E-05
14	21.075	Endrin ald	38.9540	10.2821%	391215	91180	4.3	1	0	0	9.9572E-05
15	22.077		0.0000	0.0000%	21361	5483	3.9	1			1.0000E-09
16	22.278	Endos sulf	39.5327	10.4349%	444624	117795	3.8	1	0	-.1486	8.8913E-05
17	23.781	Endrin ket	40.6256	10.7234%	487061	115878	4.2	1	0	0	8.3410E-05
18	29.340	DCB	40.5333	10.6990%	829230	135649	6.1	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 378.8519

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:0V14E73.PTS Printed on 11-21-1997 at 22:07:33
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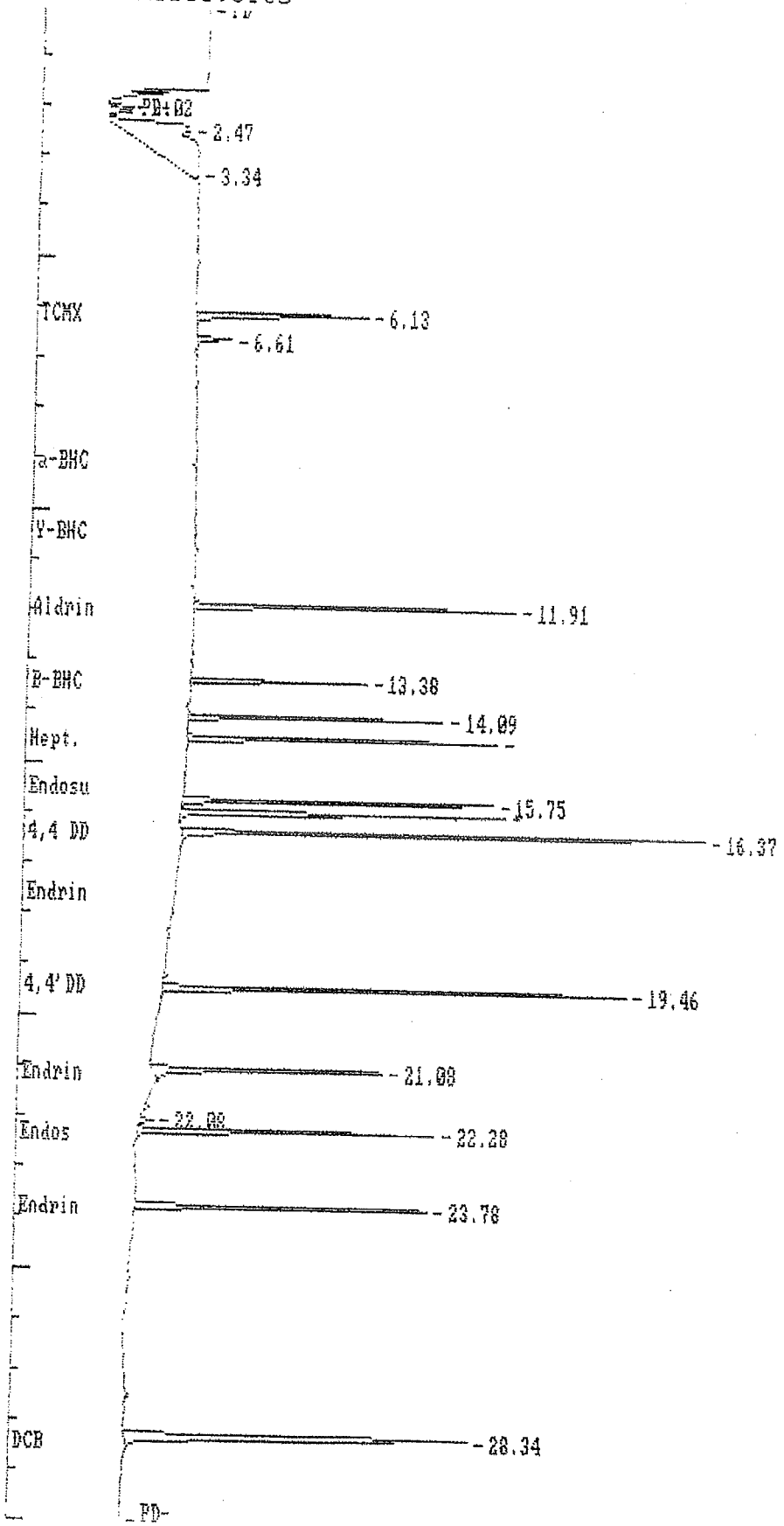
ull Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:08:43 Version 5.1.5

* Sample Name: INDA 40-400 UG/L Data File: D:0V14E74
* Date: 11-19-1997 01:06:41 Method: M:BPES-E 11-21-1997 21:24:54 # 390
* Interface: 2 Cycle#: 74 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	39557	5444	7.3	1			1.0000E-09
2	2.472		0.0004	0.0000%	384359	25118	15.3	3			1.0000E-09
3	3.340		0.0007	0.0001%	679057	4245	160.0	4			1.0000E-09
4	4.977		0.0000	0.0000%	21551	4011	5.4	1			1.0000E-09
5	6.129	TCMX	39.0643	4.9011%	613857	129881	4.7	1	0	0	6.3638E-05
6	7.465		0.0001	0.0000%	66849	2332	28.7	1			1.0000E-09
7	7.849		0.0000	0.0000%	14305	3647	3.9	1			1.0000E-09
8	9.018	a-BHC	39.8470	4.9993%	872092	242437	3.6	1	0	-.1881	4.5691E-05
9	9.268		0.0000	0.0000%	13864	3823	3.6	1			1.0000E-09
10	10.404	Y-BHC	40.5345	5.0856%	844495	251012	3.4	1	0	-.1621	4.7998E-05
11	11.905	Heptachlor	38.8863	4.8788%	943226	264593	3.6	1	0	-.1515	4.1227E-05
12	11.907	Aldrin	1.8744	0.2352%	41476	1072	38.7	1	0	-.1417	4.5192E-05
13	14.095	d-BHC	1.7213	0.2160%	27294	1435	19.0	1	0	-.1148	6.3064E-05
14	15.214		0.0000	0.0000%	10302	2986	3.4	1			1.0000E-09
15	15.464	Endosulf I	39.2292	4.9218%	786506	216660	3.6	1	0	-.1085	4.9878E-05
16	16.366	4,4 DDE	3.4857	0.4373%	62091	12433	5.0	1	0	-.1037	5.6139E-05
17	16.800	Dieldrin	79.9088	10.0256%	1409192	403194	3.5	1	0	0	5.6705E-05
18	17.568	Endrin	77.8436	9.7665%	1128109	310555	3.6	1	0	0	6.9004E-05
19	18.437		0.0000	0.0000%	22057	1885	11.7	1			1.0000E-09
20	19.355	4,4'DDD	81.1102	10.1764%	960507	263551	3.6	1	0	-.1738	8.4445E-05
21	19.906	4,4 DDT	82.8445	10.3940%	917586	268202	3.4	1	0	0	9.0285E-05
22	20.357		0.0001	0.0000%	55291	16880	3.3	1			1.0000E-09
23	21.075	Endrin ald	4.8736	0.6117%	48966	12454	3.9	1	0	0	9.9572E-05
24	22.294	~~Endos sul~~ Mxchlor	183.1257	22.9756%	2059615	516273	4.0	2	0	0	8.8913E-05
25	22.712		0.0000	0.0000%	20662	5948	3.5	2			1.0000E-09
26	23.781	Endrin ket	5.7356	0.7221%	69007	16392	4.2	1	0	0	8.3110E-05
27	28.340	DCB	76.9359	9.6527%	1573956	249638	6.3	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 797.0442

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:0V14E74.PTS Printed on 11-21-1997 at 22:08:57
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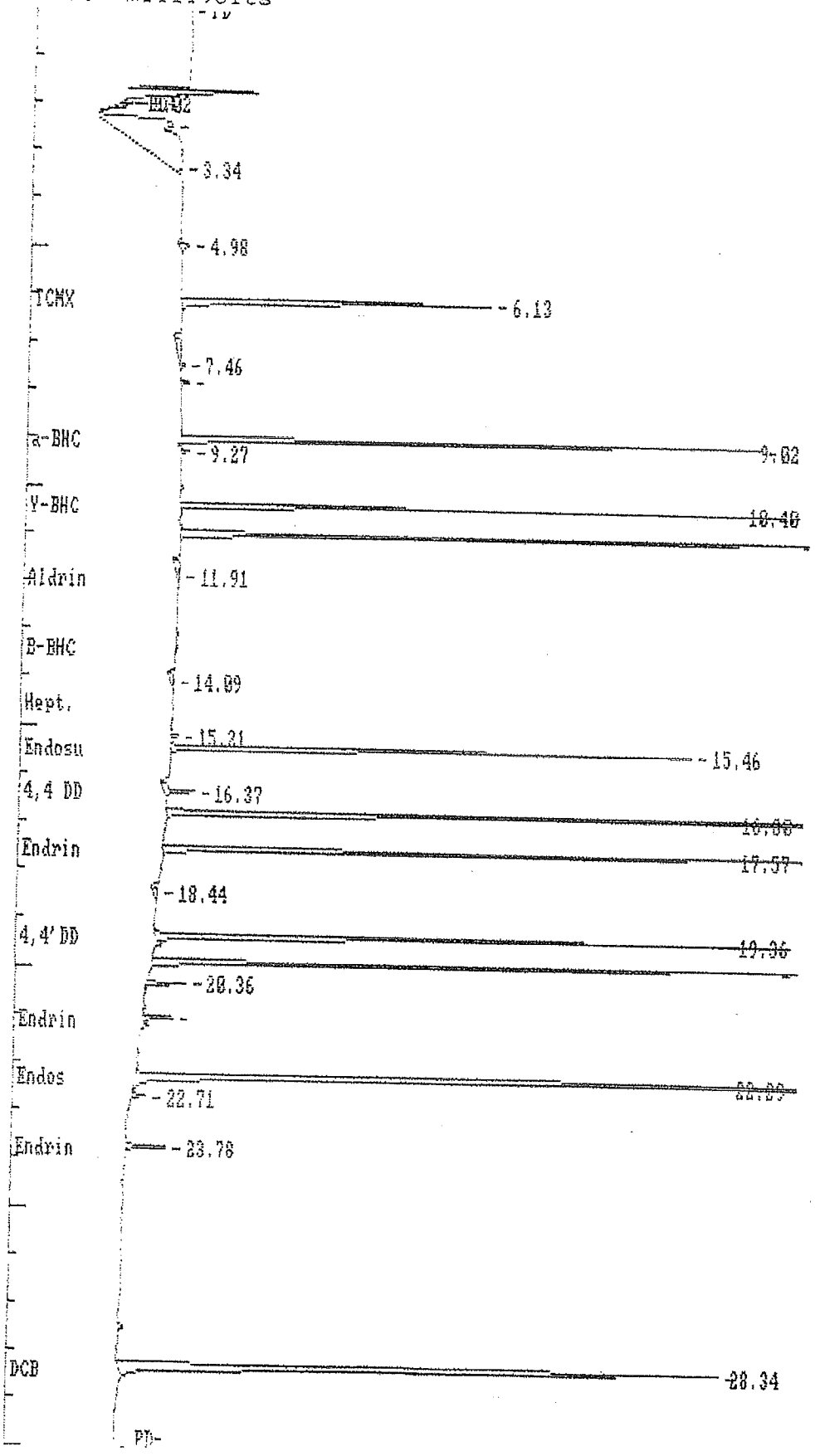

EXTERNAL STANDARD TABLE

11-21-1997 22:10:25 Version 5.1.5

* Sample Name: IND8 40-80 UG/L Data File: D:0V14E75
* Date: 11-19-1997 01:39:23 Method: M:BPE8-E 11-21-1997 21:24:54 # 390
* Interface: 2 Cycle#: 75 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	17111	4822	3.5	1			1.0000E-09
2	2.472		0.0004	0.0000%	376786	23850	15.8	2			1.0000E-09
3	2.989		0.0004	0.0001%	393205	6806	57.8	2			1.0000E-09
4	6.129	TCMX	39.0731	5.1562%	613995	133600	4.6	1	0	0	6.3638E-05
5	6.613		0.0001	0.0000%	107002	26456	4.0	1			1.0000E-09
6	10.788		0.0000	0.0000%	12065	2549	4.7	1			1.0000E-09
7	11.907	Aldrin	39.3394	5.1913%	870502	252084	3.5	1	0	-.1417	4.5192E-05
8	13.377	B-BHC	39.3720	5.1956%	449668	135571	3.3	1	0	-.1217	8.7558E-05
9	14.095	d-BHC	41.9224	5.5322%	664763	213637	3.1	1	0	-.1148	6.3064E-05
10	14.512	Hept. epox.	39.0385	5.1516%	826445	241613	3.4	1	0	-.1149	4.7237E-05
11	15.748	Y-Chlordane	39.4993	5.2124%	855595	245568	3.5	2	0	-.1072	4.6166E-05
12	15.982	a-Chlordane	39.1771	5.1699%	878861	252679	3.5	2	0	-.1068	4.4577E-05
13	16.366	4,4 DDE	80.2079	10.5844%	1428744	408099	3.5	1	0	-.1037	5.6139E-05
14	19.222		0.0000	0.0000%	10689	3015	3.5	1			1.0000E-09
15	19.455	EndoslfII	79.0626	10.4333%	1267610	352293	3.6	1	0	0	6.2371E-05
16	21.075	Endrin ald	79.6942	10.5166%	800369	173145	4.6	1	0	0	9.9572E-05
17	21.827		0.0000	0.0000%	13324	4105	3.2	1			1.0000E-09
18	22.077		0.0000	0.0000%	46450	10781	4.3	2			1.0000E-09
19	22.278	Endos sulf	81.7596	10.7892%	919550	238824	3.9	2	0	-.1488	8.8913E-05
20	23.781	Endrin ket	81.8452	10.8005%	981243	230142	4.3	1	0	0	8.3410E-05
21	27.522		0.0000	0.0000%	11964	2270	5.3	1			1.0000E-09
22	28.340	DCB	77.8004	10.2667%	1591641	256780	6.2	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 757.7926

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

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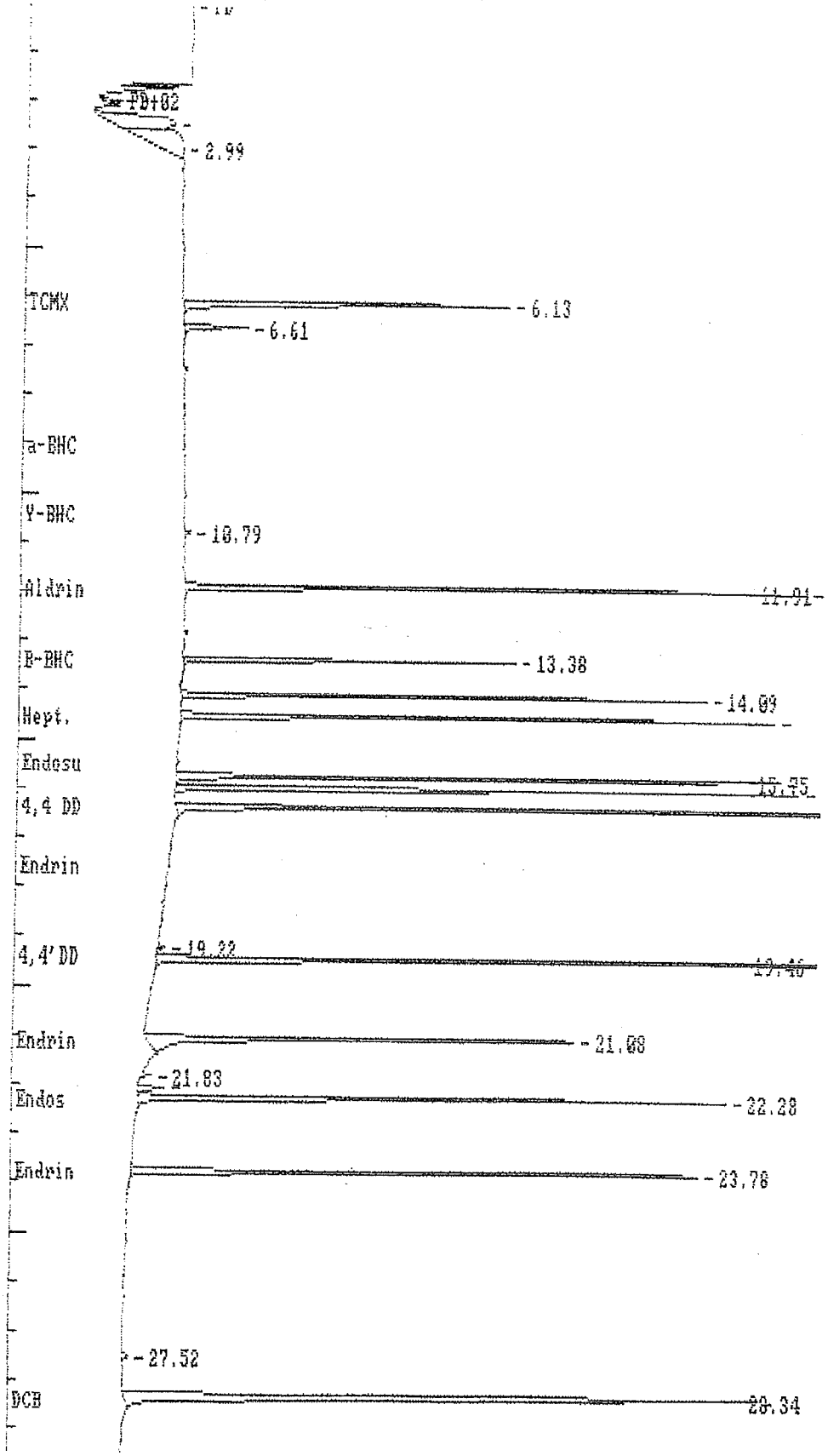
ull Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:11:57 Version 5.1.5

Sample Name: INDA 60-600 UG/L
Data File: D:OV14E75
Date: 11-19-1997 02:12:01 Method: M:8PES-E 11-21-1997 21:24:54 # 390
Interface: 2 Cycle#: 76 Operator JJK Channel#: 1 Vial#: N.A.
Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0: Detector 1: ECD
Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16370	4893	3.3	1			1.0000E-09
2	2.455		0.0004	0.0000%	394568	26550	14.9	3			1.0000E-09
3	3.340		0.0007	0.0001%	701033	4219	166.1	4			1.0000E-09
4	4.977		0.0000	0.0000%	27047	5102	5.3	1			1.0000E-09
5	6.129 TCMX		56.8510	4.8918%	893357	192169	4.6	1	0	0	6.3638E-05
6	7.465		0.0000	0.0000%	12192	3076	4.0	1			1.0000E-09
7	7.849		0.0000	0.0000%	19798	5131	3.9	1			1.0000E-09
8	9.018 a-BHC		60.8320	5.2344%	1331369	372577	3.6	1	0	-.1881	4.5691E-05
9	9.268		0.0000	0.0000%	20689	5915	3.5	1			1.0000E-09
10	10.404 Y-BHC		61.6340	5.3034%	1284083	381877	3.4	1	0	-.1621	4.7998E-05
11	11.005 Heptachlor		56.6989	4.8787%	1375289	385385	3.6	1	0	-.1515	4.1227E-05
12	11.673		0.0000	0.0000%	19986	1371	14.6	1			1.0000E-09
13	15.214		0.0000	0.0000%	14089	4050	3.5	1			1.0000E-09
14	15.464 Endosulf I		57.2860	4.9293%	1148528	313244	3.7	1	0	-.1085	4.9878E-05
15	16.366 4,4 DDE		2.8902	0.2487%	51484	15215	3.4	1	0	-.1037	5.6139E-05
16	16.800 Dieldrin		116.7723	10.0478%	2059280	578570	3.6	1	0	0	5.6705E-05
17	17.568 Endrin		112.4896	9.6793%	1630200	438063	3.7	1	0	0	6.9004E-05
18	19.355 4,4'DDD		120.6458	10.3811%	1428688	391761	3.6	1	0	-.1738	8.4445E-05
19	19.906 4,4 DDT		127.2882	10.9527%	1409845	401919	3.5	1	0	0	9.0285E-05
20	20.357		0.0001	0.0000%	84747	25348	3.3	1			1.0000E-09
21	21.075 Endrin ald		8.1212	0.6988%	81561	20484	4.0	1	0	0	9.9572E-05
22	22.294 ~~Endos sulf~~ Methoxy		262.2449	22.5652%	2949468	724375	4.1	2	0	0	8.8913E-05
23	22.712		0.0000	0.0000%	33029	9296	3.6	2			1.0000E-09
24	23.764 Endrin ket		8.9145	0.7671%	106876	25478	4.2	1	0	-.1382	8.3410E-05
25	27.522		0.0000	0.0000%	17611	3369	5.2	1			1.0000E-09
26	28.340 DCB		109.4938	9.4215%	2240025	359907	6.2	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 1162.1639

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:OV14E76.PTS Printed on 11-21-1997 at 22:12:06 474
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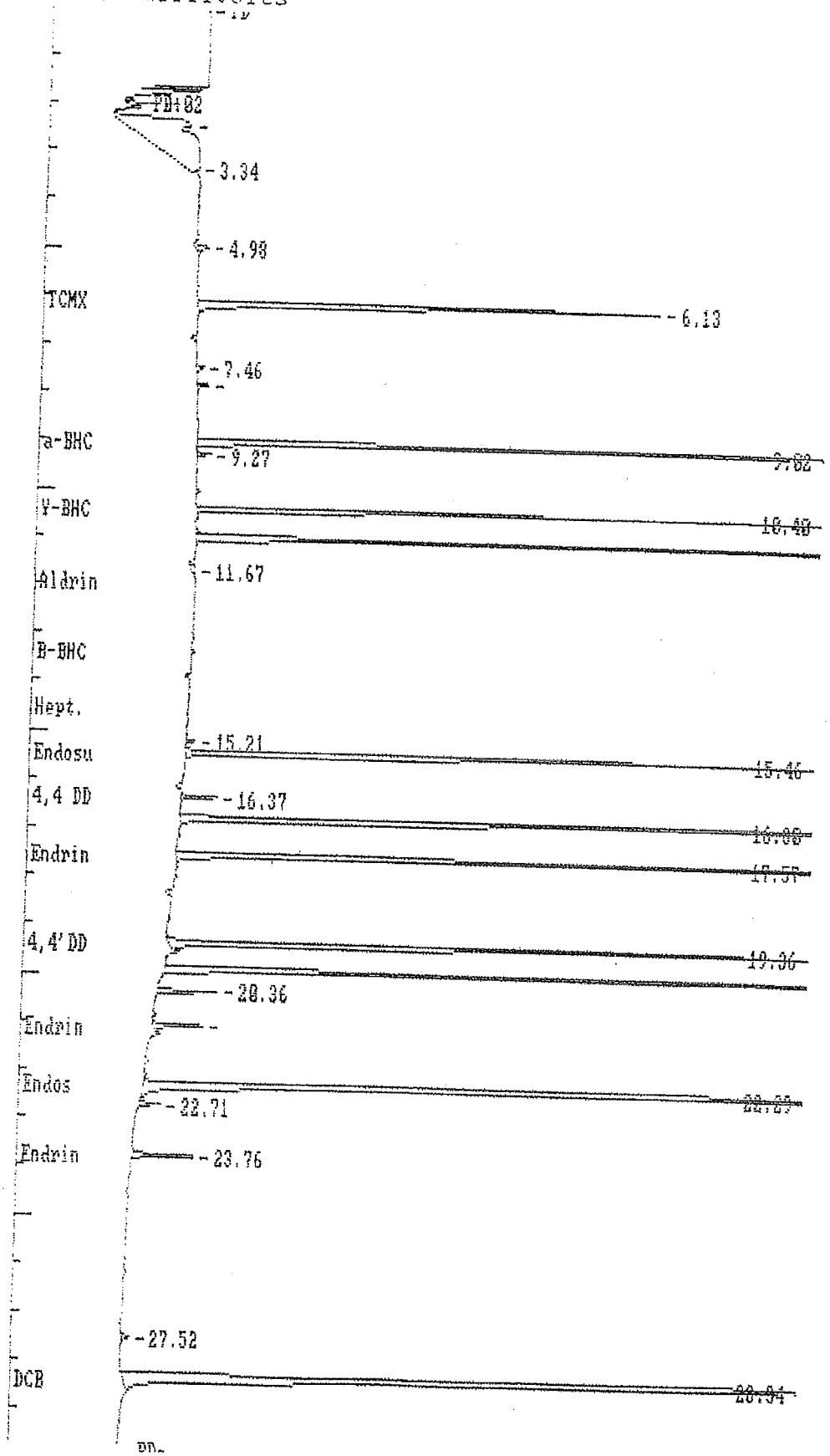

EXTERNAL STANDARD TABLE

11-21-1997 22:13:32 Version 5.1.5

* Sample Name: INDR 60-120 UG/L Data File: D:0V14E77
* Date: 11-19-1997 02:44:44 Method: M:BPES-E 11-21-1997 21:24:54 # 390
* Interface: 2 Cycle#: 77 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16961	4797	3.5	1			1.0000E-09
2	2.455		0.0004	0.0000%	406431	26978	15.1	2			1.0000E-09
3	3.290		0.0007	0.0001%	704060	5717	123.1	2			1.0000E-09
4	6.129	TCMX	57.8924	5.0348%	909722	196226	4.6	1	0	0	6.3638E-05
5	6.613		0.0002	0.0000%	164060	40369	4.1	1			1.0000E-09
6	6.930		0.0000	0.0000%	10449	1814	5.8	1			1.0000E-09
7	7.465		0.0000	0.0000%	11209	2885	3.9	1			1.0000E-09
8	10.788		0.0000	0.0000%	19586	3989	4.9	1			1.0000E-09
9	11.907	Aldrin	60.2865	5.2430%	1334020	372741	3.6	1	0	-.1417	4.5192E-05
10	13.377	B-BHC	58.9565	5.1273%	673342	199399	3.4	1	0	-.1217	8.7558E-05
11	14.095	d-BHC	68.3709	5.9461%	1084158	337751	3.2	1	0	-.1148	6.3064E-05
12	14.512	Hept. epox.	57.6240	5.0115%	1219901	346593	3.5	1	0	-.1149	4.7237E-05
13	15.748	Y-Chlordane	59.4377	5.1692%	1287481	365639	3.5	2	0	-.1072	4.6166E-05
14	15.982	a-Chlordane	59.4200	5.1677%	1332968	374745	3.6	2	0	-.1068	4.4577E-05
15	16.366	4,4 DDE	119.2926	10.3747%	2124960	599317	3.5	1	0	-.1037	5.6139E-05
16	18.387		0.0000	0.0000%	10938	2040	5.4	1			1.0000E-09
17	19.238		0.0000	0.0000%	15897	4414	3.6	1			1.0000E-09
18	19.455	EndoslfII	117.0671	10.1811%	1876936	513730	3.7	1	0	0	6.2371E-05
19	20.474		0.0000	0.0000%	10491	1780	5.9	1			1.0000E-09
20	21.075	Endrin ald	130.7850	11.3741%	1313474	263703	5.0	1	0	0	9.9572E-05
21	21.927		0.0000	0.0000%	21848	6750	3.2	1			1.0000E-09
22	22.077		0.0001	0.0000%	72123	16656	4.3	2			1.0000E-09
23	22.279	Endos sulf	124.1808	10.7998%	1396661	358399	3.9	2	0	-.1488	8.8913E-05
24	23.781	Endrin ket	123.4617	10.7373%	1460182	340382	4.3	1	0	0	8.3410E-05
25	27.522		0.0000	0.0000%	18750	3583	5.2	1			1.0000E-09
26	28.349	DCB	113.0677	9.8333%	2313138	365739	6.3	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 1149.8442

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

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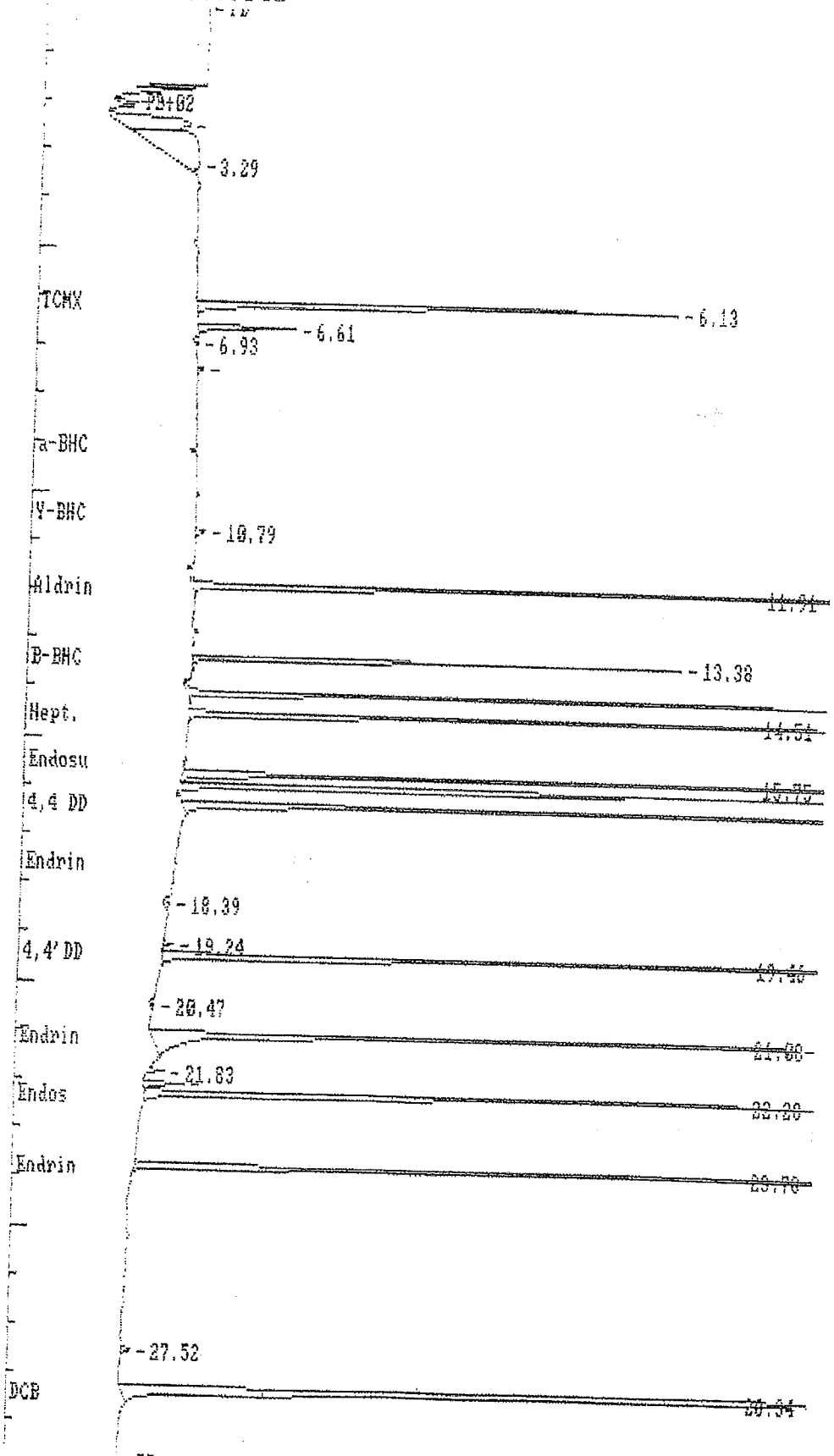

10B

PESTICIDE IDENTIFICATION SUMMARY FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

Lab Name: EMSL Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID : _____ Date(s) Analyzed: 11/19/97

Instrument ID (1): HP5890 SII Instrument ID (2): _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	Calib. Factor	Cont. Calib Factor	%D
Aroclor 1016	1	7.70	7.65	7.75	1167600		
	2	8.27	8.22	8.32			
COLUMN 1	3	9.12	9.07	9.17			
	4	9.44	9.39	9.49			
Initial curve	5	11.36	11.31	11.41			
10/21/97	1				11/25/97		
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1260	1	15.40	15.35	15.45	1790700		
	2	16.27	16.22	16.32			
COLUMN 1	3	18.72	18.67	18.77			
	4	19.71	19.66	19.86			
Initial	5	20.76	20.71	20.81			
10/21/97	1						
	2						
COLUMN 2	3						
	4						
	5						
Aroclor 1221 (2 ppm)	1	4.22	4.17	4.27	303950	~~361000~~ 355963 11/25/97	17
	2	6.10	6.05	6.15			
COLUMN 1	3	6.36	6.31	6.41			
	4	6.51	6.46	6.56			
Initial curve	5	7.80	7.75	7.85			
10/22/97	1	7.18	7.13	7.23	632150		
	2	7.68	7.63	7.73			
COLUMN 2	3	7.87	7.82	7.92			
	4	9.18	9.13	9.23			
	5	10.72	10.67	10.77			

E79

At least 3 peaks for each column are required for identification of multicomponent analytes

page ___ of ___

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PESTICIDE IDENTIFICATION SUMMARY FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

Lab Name: EMSL Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID : _____ Date(s) Analyzed: 11/19/97 _____

Instrument ID (1): HP5890SII Instrument ID (2): _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	Calib. Factor	Cont. Calib Factor	%D
Aroclor 1232	1	6.51	6.46	6.56	595200	677100	14
	2	7.70	7.65	7.75			
	3	8.27	8.22	8.32			
COLUMN 1	4	9.12	9.07	9.17			
	5	9.44	9.39	9.49			
Initial curve 10/22/97	1						
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1242	1	7.70	7.65	7.75	834500	901000	8
	2	8.27	8.22	8.32			
	3	9.12	9.07	9.17			
COLUMN 1	4	9.44	9.39	9.49			
	5	11.36	11.31	11.41			
Initial 10/23/97	1						
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1248	1	7.70	7.65	7.75	778500	882000	13
	2	9.10	9.05	9.15			
	3	9.44	9.39	9.49			
COLUMN 1	4	10.94	10.89	10.99			
	5	11.36	11.31	11.41			
Initial 10/22/97		11.06	11.01	11.11			
	1						
	2						
	3						
COLUMN 2	4						
	5						

E80

E81

E82

At least 3 peaks for each column are required for identification of multicomponent analytes

page __ of __

1C8
PESTICIDE IDENTIFICATION SUMMARY FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

Lab Name: Final Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID : _____ Date(s) Analyzed: 11/19/97 11/21/97

Instrument ID (1): HP5890SII Instrument ID (2): _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	Calib. Factor	Cont. Calib Factor	%D
Aroclor 1254	1	12.27-12.42	12.22	12.47	1731600	2131000	23
	2	13.23	13.18	13.28			
	3	14.53	14.48	14.58			
COLUMN 1	4	15.4-15.46	15.35	15.51			
	5	16.27-16.38	16.22	16.43			
Initial 10/22/97	1	14.34	14.29	14.39	2611200		E83
	2	16.27	16.22	16.32			
	3	16.68	16.63	16.73			
COLUMN 2	4	17.25	17.20	17.30			
	5	18.09	18.04	18.14			
Aroclor 1016	1	7.72	7.67	7.77	1408100	1363619	3
	2	8.30	8.25	8.35			
	3	9.14	9.09	9.19			
COLUMN 1	4	9.45	9.40	9.50			
	5	11.37	11.32	11.42			
Initial 11/19/97	1						E123
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1260	1	15.43	15.38	15.50	2311900	2217000	
	2	16.30	16.23	16.37			
	3	18.14	18.07	18.21			
COLUMN 1	4	19.74	19.67	19.81			
	5	20.79	20.72	20.86			
Initial 11/19/97	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks for each column are required for identification of multicomponent analytes

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: EMSL
Instrument ID: HP 5890 Series II
GC Column:DB-5 ID: 0.32

Init. Calibration Date:11/19/97-11/20/97
Date Analyzed:11/20/97
Time Analyzed:1949

Lab File ID: D:NV14E111

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
alpha-BHC	6.56	6.51	6.61	2905	2906	6.58	0
gamma-BHC (Lindane)	7.48	7.43	7.53	3067	3080	7.50	0
Heptachlor	9.60	9.55	9.65	3793	4145	9.64	9
Endosulfan I	13.38	13.31	13.45	3518	3573	13.39	2
Dieldrin	14.30	14.23	14.37	4053	4005	14.33	1
Endrin	15.08	15.01	15.15	2816	2961	15.10	5
4,4'-DDD	15.80	15.73	15.87	2931	2779	15.83	5
4,4'-DDT	17.13	17.06	17.20	3046	3139	17.17	3
Methoxychlor	19.30	19.23	19.37	1572	1696	19.32	8
Tetrachloro-m-xylene	5.56	5.51	5.61	4365	3981	5.58	9
Decachlorobiphenyl	26.20	26.10	26.30	4998	4604	26.24	8

Lab File ID: D:NV14E110

Date Analyzed:11/20/97
Time Analyzed:1917

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
beta-BHC	7.32	7.27	7.37	2533	2470	7.33	2
delta-BHC	8.18	8.13	8.23	2216	2351	8.20	6
Aldrin	10.74	10.69	10.79	4162	4217	10.76	1
Heptachlor epoxide	12.12	12.05	12.19	3842	4005	12.14	4
4,4'-DDE	14.30	14.23	14.37	4991	4888	14.32	2
Endosulfan II	15.43	15.36	15.50	2996	3216	15.45	7
Endosulfan sulfate	16.98	16.91	17.05	2628	2736	17.00	4
Endrin ketone	18.67	18.60	18.74	2840	3030	18.69	7
Endrin aldehyde	16.13	16.06	16.20	2927	3013	16.15	3
alpha-Chlordane	13.48	13.41	13.55	4894	4925	13.51	1
gamma-Chlordane	12.94	12.87	13.01	4770	4812	12.96	1
Tetrachloro-m-xylene	5.56	5.51	5.61	4410	4089	5.58	7
Decachlorobiphenyl	26.19	26.09	26.29	5131	4532	26.24	12

QC LIMITS: RPD of amounts in the Individual Mixes must be less than or equal to 25.0%.

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: EMSL
Instrument ID: HP 5890 Series II
GC Column:DB-1701 ID: 0.32

Init. Calibration Date:11/19/97-11/20/97
Date Analyzed:11/20/97
Time Analyzed:1949

Lab File ID:OV14E111

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
alpha-BHC	9.02	8.97	9.07	20956	19790	9.04	6
gamma-BHC (Lindane)	10.40	10.35	10.45	20310	18741	10.42	8
Heptachlor	11.00	10.95	11.05	23865	22434	11.02	6
Endosulfan I	15.46	15.39	15.53	19926	18610	15.48	7
Dieldrin	16.80	16.73	16.87	17639	16530	16.82	6
Endrin	17.57	17.50	17.64	14263	13794	17.58	3
4,4'-DDD	19.36	19.29	19.43	11730	10659	19.39	9
4,4'-DDT	19.91	19.84	19.98	10875	10450	19.92	4
Methoxychlor	22.29	22.22	22.36	5458	5228	22.33	4
Tetrachloro-m-xylene	6.13	6.08	6.18	15667	14501	6.15	7
Decachlorobiphenyl	28.34	28.24	28.44	20391	18759	28.39	8

Lab File ID:OV14E110

Date Analyzed:11/20/97
Time Analyzed:1917

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
beta-BHC	13.38	13.33	13.43	11424	10187	13.39	11
delta-BHC	14.10	14.05	14.15	15605	16101	14.11	3
Aldrin	11.91	11.86	11.96	21751	22863	11.92	5
Heptachlor epoxide	14.51	14.44	14.58	21011	19279	14.53	8
4,4'-DDE	16.37	16.30	16.44	17710	17355	16.38	2
Endosulfan II	19.46	19.39	19.53	16095	14947	19.47	7
Endosulfan sulfate	22.28	22.21	22.35	11116	10695	22.31	4
Endrin ketone	23.78	23.71	23.85	12177	11232	23.80	8
Endrin aldehyde	21.08	21.01	21.15	9780	8441	21.09	14
alpha-Chlordane	15.98	15.91	16.05	22505	22160	16.00	2
gamma-Chlordane	15.75	15.68	15.82	21565	20386	15.76	5
Tetrachloro-m-xylene	6.13	6.08	6.18	15800	14106	6.16	11
Decachlorobiphenyl	28.34	28.24	28.44	20731	18686	28.39	10

QC LIMITS: RPD of amounts in the Individual Mixes must be less than or equal to 25.0%.

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: EMSL
Instrument ID: HP 5890 Series II
GC Column:DB-5 ID: 0.32

Init. Calibration Date:11/19/97-11/20/97
Date Analyzed:11/21/97
Time Analyzed:1949

Lab File ID: D:NV14E134

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
alpha-BHC	6.56	6.51	6.61	2905	3083	6.58	6
gamma-BHC (Lindane)	7.48	7.43	7.53	3067	3276	7.48	7
Heptachlor	9.60	9.55	9.65	3793	4463	9.62	18
Endosulfan I	13.38	13.31	13.45	3518	3644	13.39	4
Dieldrin	14.30	14.23	14.37	4053	4128	14.31	2
Endrin	15.08	15.01	15.15	2816	3200	15.08	14
4,4'-DDD	15.80	15.73	15.87	2931	2808	15.82	4
4,4'-DDT	17.13	17.06	17.20	3046	3219	17.15	6
Methoxychlor	19.30	19.23	19.37	1572	1980	19.32	26
Tetrachloro-m-xylene	5.56	5.51	5.61	4365	3913	5.58	10
Decachlorobiphenyl	26.20	26.10	26.30	4998	4718	26.22	6

Lab File ID: D:NV14E133

Date Analyzed:11/21/97
Time Analyzed:1916

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
beta-BHC	7.32	7.27	7.37	2533	2550	7.33	1
delta-BHC	8.18	8.13	8.23	2216	1981	8.18	11
Aldrin	10.74	10.69	10.79	4162	4039	10.76	3
Heptachlor epoxide	12.12	12.05	12.19	3842	3928	12.12	2
4,4'-DDE	14.30	14.23	14.37	4991	4455	14.30	11
Endosulfan II	15.43	15.36	15.50	2996	3197	15.45	7
Endosulfan sulfate	16.98	16.91	17.05	2628	2469	17.00	6
Endrin ketone	18.67	18.60	18.74	2840	2805	18.67	1
Endrin aldehyde	16.13	16.06	16.20	2927	2899	16.15	1
alpha-Chlordane	13.48	13.41	13.55	4894	4663	13.49	5
gamma-Chlordane	12.94	12.87	13.01	4770	4625	12.96	3
Tetrachloro-m-xylene	5.56	5.51	5.61	4410	3903	5.58	11
Decachlorobiphenyl	26.19	26.09	26.29	5131	4656	26.22	9

QC LIMITS: RPD of amounts in the Individual Mixes must be less than or equal to 25.0%.

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: EMSL
Instrument ID: HP 5890 Series II
GC Column:DB-1701 ID: 0.32

Init. Calibration Date:11/19/97-11/20/97
Date Analyzed:11/21/97
Time Analyzed:1949

Lab File ID:OV14E134

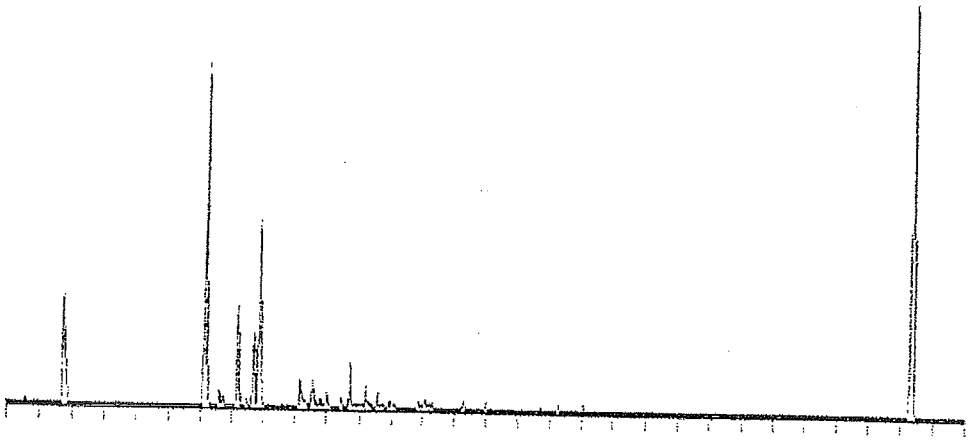
INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
alpha-BHC	9.02	8.97	9.07	20956	18884	9.02	10
gamma-BHC (Lindane)	10.40	10.35	10.45	20310	17891	10.42	12
Heptachlor	11.00	10.95	11.05	23865	21457	11.02	10
Endosulfan I	15.46	15.39	15.53	19926	16847	15.46	15
Dieldrin	16.80	16.73	16.87	17639	14850	16.82	16
Endrin	17.57	17.50	17.64	14263	12895	17.57	10
4,4'-DDD	19.36	19.29	19.43	11730	9466	19.37	19
4,4'-DDT	19.91	19.84	19.98	10875	8859	19.92	19
Methoxychlor	22.29	22.22	22.36	5458	5087	22.31	7
Tetrachloro-m-xylene	6.13	6.08	6.18	15667	14113	6.15	10
Decachlorobiphenyl	28.34	28.24	28.44	20391	17280	28.38	15

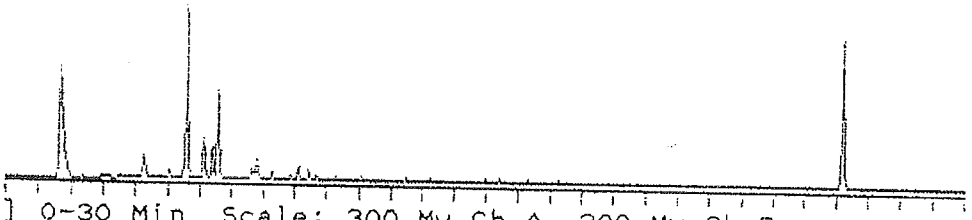
Lab File ID:OV14E135

Date Analyzed:11/21/97
Time Analyzed:1916

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
beta-BHC	13.38	13.33	13.43	11424	9221	13.39	19
delta-BHC	14.10	14.05	14.15	15605	11709	14.11	25
Aldrin	11.91	11.86	11.96	21751	17938	11.92	18
Heptachlor epoxide	14.51	14.44	14.58	21011	17028	14.53	19
4,4'-DDE	16.37	16.30	16.44	17710	12543	16.38	29
Endosulfan II	19.46	19.39	19.53	16095	12543	19.47	22
Endosulfan sulfate	22.28	22.21	22.35	11116	8315	22.29	25
Endrin ketone	23.78	23.71	23.85	12177	8953	23.78	26
Endrin aldehyde	21.08	21.01	21.15	9780	6820	21.08	30
alpha-Chlordane	15.98	15.91	16.05	22505	18989	16.00	16
gamma-Chlordane	15.75	15.68	15.82	21565	17630	15.76	18
Tetrachloro-m-xylene	6.13	6.08	6.18	15800	13121	6.15	17
Decachlorobiphenyl	28.34	28.24	28.44	20731	16523	28.37	20

QC LIMITS: RPD of amounts in the Individual Mixes must be less than or equal to 25.0%.





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1221 2PPM Processed: 11-19-1997 04:20:40, segment 14, cycle 79
RAW DATA SAVED IN FILE D:NV14E79.PTS Second Channel Stored in D:0V14E79.PTS

EXTERNAL STANDARD TABLE

********** 11-19-1997 04:21:42 Version 5.1.5 **********
* Sample Name: A1221 2PPM
* Date: 11-19-1997 03:50:07 Method: M:APES-E 10-29-1997 19:24:01 # 395 *
* Interface: 2 Cycle#: 79 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *
****
* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: *
* Misc. Information: Detector 1: ECD *
****

Data File: D:NV14E79

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.355		0.0000	0.0000%	19969	1166	17.1	1			1.0000E-09
2	4.242		0.0001	0.0000%	88608	15089	5.9	1			1.0000E-09
3	5.043		0.0000	0.0000%	25254	4599	5.5	1			1.0000E-09
4	5.561	TCMX	94.5831	47.8562%	567499	114219	5.0	1			1.6667E-04

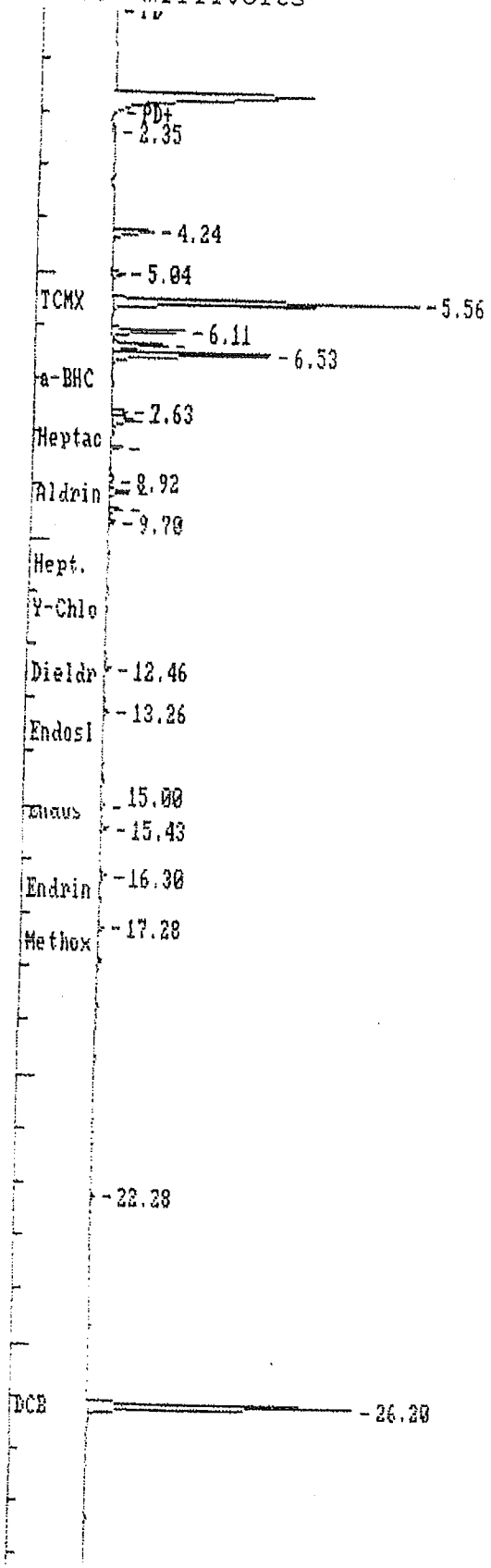
711000

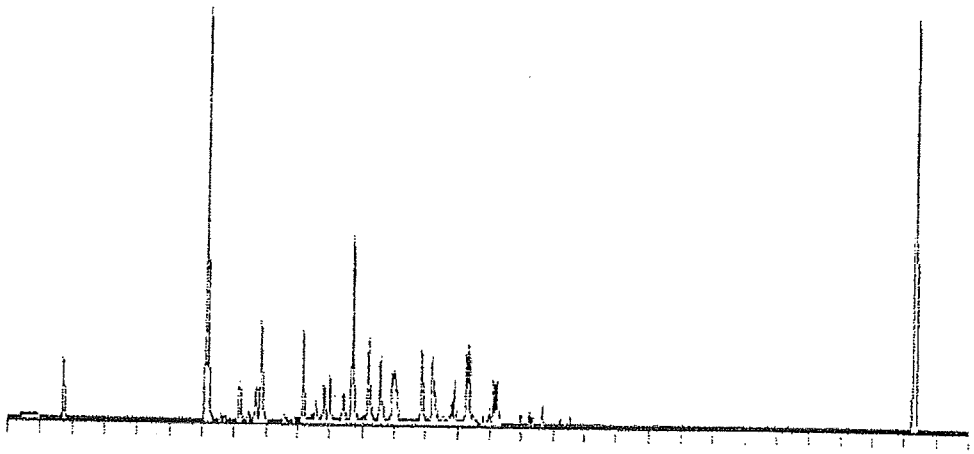
7	6.530									
8	7.632	0.0003	0.0002%	317639	59568	5.3	2			1.0000E-09
9	7.799	0.0000	0.0000%	24898	5821	4.3	2			1.0000E-09
10	8.300	0.0001	0.0000%	74470	11280	6.6	2			1.0000E-09
11	8.918	0.0000	0.0000%	18798	4442	4.2	1			1.0000E-09
	9.135 Aldrin	0.0000	0.0000%	11376	1512	7.5	1			1.0000E-09
	9.452	15.1425	7.6617%	43141	7891	5.5	1	0	-.1868	3.5100E-04
14	9.703	0.0000	0.0000%	22206	5200	4.3	2			1.0000E-09
15	12.458 Dieldrin	0.0000	0.0000%	10542	2722	3.9	2			1.0000E-09
16	13.260 Endrin	3.4265	1.7337%	9594	2300	4.2	1	0	-.6681	3.5714E-04
17	14.997 Endos sulf	3.2539	1.6464%	8431	2189	3.9	1	0	.2555	3.8595E-04
18	15.431 DDT	2.5522	1.2913%	5528	1468	3.8	1	0	-.6650	4.6168E-04
19	16.299 Endrin ket.	8.9499	4.5284%	13362	3014	4.4	1	0	0	6.6979E-04
20	17.284 Methoxychlor	2.9923	1.5140%	8334	2462	3.4	1	0	-1.515	3.5907E-04
21	22.278	7.0375	3.5608%	8987	2099	4.3	1	0	-1.428	7.8309E-04
22	26.202 DCB	0.0000	0.0000%	5819	1516	3.8	1			1.0000E-09
		59.7014	30.2071%	537313	98453	5.5	1	0	.1234	1.1111E-04

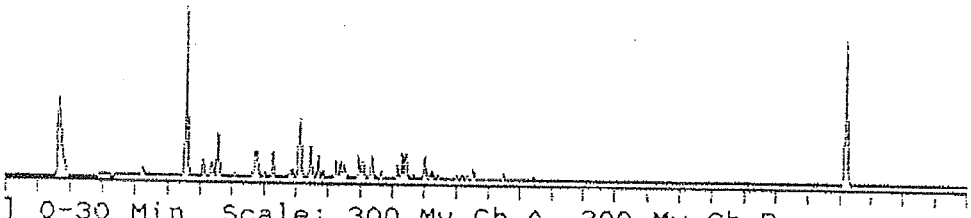
TOTAL AMOUNT = 197.6403

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E79.ATB
Data File = D:NV14E79.PTS Printed on 11-19-1997 at 04:22:07
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1232 1PPM Processed: 11-19-1997 04:53:17, segment 15, cycle 80
RAW DATA SAVED IN FILE D:NV14E80.PTS Second Channel Stored in D:OV14E80.PTS

EXTERNAL STANDARD TABLE

********** 11-19-1997 04:54:19 Version 5.1.5 **********
* Sample Name: A1232 1PPM
* Date: 11-19-1997 04:22:44 Method: M:APES-E 10-29-1997 19:24:01 # 395
* Interface: 2 Cycle#: 80 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
Data File: D:NV14E80

****
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:
****

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.223		0.0001	0.0000%	70003	620	112.8	1			1.0000E-09
2	4.242		0.0000	0.0000%	28018	4839	5.8	1			1.0000E-09
3	5.043		0.0000	0.0000%	6403	1242	5.2	1			1.0000E-09
4	5.561	TCMX	90.0775	24.9972%	540465	112734	4.8	1	0	0	1.6667E-04

7	6.530	0.0002	0.0000%	150236	28699	5.2	2			1.0000E-09
8	7.097 B-BHC	5.9239	1.6439%	7885	1765	4.5	1	0	-.0352	7.5131E-04
9	7.732	0.0001	0.0000%	144596	16824	8.6	2			1.0000E-09
10	8.033 Heptachlor	3.1244	0.8670%	11023	2529	4.4	2	0	-.6223	2.8345E-04
11	8.300	0.0001	0.0000%	72406	16685	4.3	2			1.0000E-09
	8.834	0.0000	0.0000%	33702	5052	6.7	2			1.0000E-09
13	9.135 Aldrin	75.6210	20.9854%	215444	37388	5.8	2	0	.1868	3.5100E-04
14	9.452	0.0001	0.0000%	94525	20983	4.5	2			1.0000E-09
15	9.703	0.0001	0.0000%	57279	13300	4.3	2			1.0000E-09
16	9.870	0.0000	0.0000%	14913	3651	4.1	2			1.0000E-09
17	10.270	0.0000	0.0000%	43974	10828	4.1	2			1.0000E-09
18	10.404	0.0000	0.0000%	44382	10242	4.3	2			1.0000E-09
19	10.521 Hept. epox.	10.9191	3.0301%	35291	7235	4.9	2	0	.1618	3.0941E-04
20	10.955	0.0001	0.0000%	59398	14209	4.2	2			1.0000E-09
21	11.072	0.0000	0.0000%	47307	10059	4.7	2			1.0000E-09
22	11.373 Y-Chlordane	20.2756	5.6266%	68309	14012	4.9	2	0	.5899	2.9682E-04
23	11.657 Endosulfan I	5.3809	1.4932%	15868	4198	3.8	1	0	-.1404	3.3910E-04
24	12.174	0.0000	0.0000%	33633	8754	3.8	2			1.0000E-09
25	12.308	0.0001	0.0000%	64842	15702	4.1	2			1.0000E-09
26	12.425 Dieldrin	26.2080	7.2729%	73382	16078	4.6	2	0	-.9344	3.5714E-04
27	13.026 4,4-DDE	28.8267	7.9996%	61804	14397	4.3	2	0	1.964	4.6642E-04
28	13.260 Endrin	9.2512	2.5673%	23970	4099	5.8	2	0	.2555	3.8595E-04
29	13.443 Endosif II	3.2514	0.9023%	9188	2406	3.8	2	0	-1.107	3.5386E-04
30	14.028	0.0000	0.0000%	7948	2013	3.9	2			1.0000E-09
31	14.212 4'4-DDD	8.2130	2.2792%	11950	2948	4.1	2	0	-.3526	6.8729E-04
32	14.362	0.0000	0.0000%	6772	1859	3.6	2			1.0000E-09
33	14.562	0.0000	0.0000%	20534	5157	4.0	1			1.0000E-09
34	14.963 Endos sulf	3.0458	0.8452%	6597	1600	4.1	1	0	-.8862	4.6168E-04
35	15.498 DDT	8.4110	2.3341%	12558	2951	4.3	1	0	.4315	6.6978E-04
36	16.449 Endrin ket.	3.4579	0.9596%	9630	2204	4.4	1	0	-.6072	3.5907E-04
37	22.278	0.0000	0.0000%	5497	1465	3.8	1			1.0000E-09
38	26.186 DCB	58.3626	16.1960%	525263	95441	5.5	1	0	0	1.1111E-04

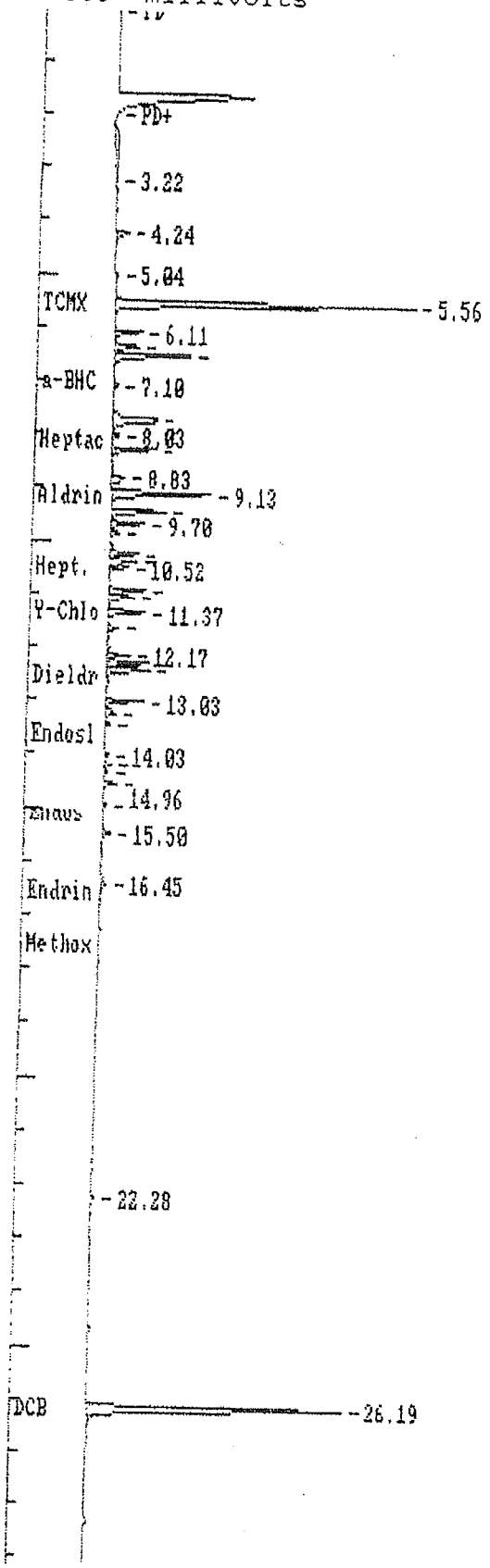
677100

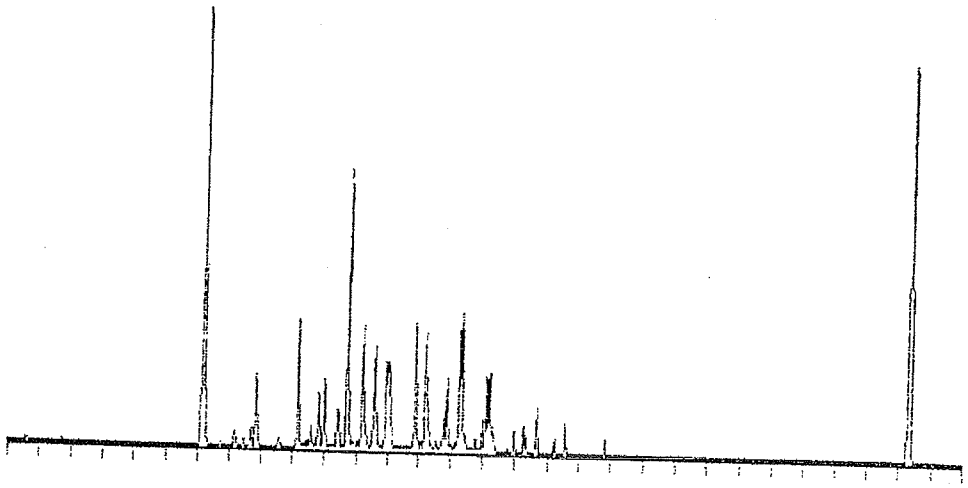
1099%

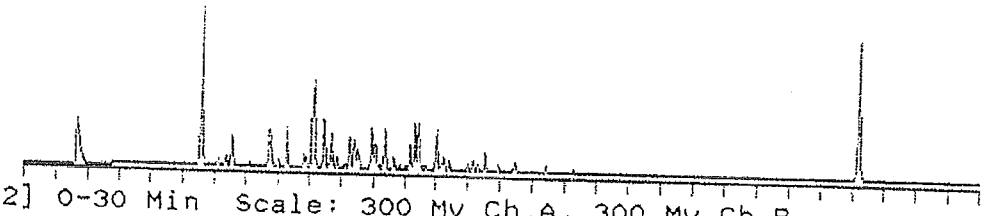
TOTAL AMOUNT = 360.3509

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E80.ATB
Data File = D:NV14E80.PTS Printed on 11-19-1997 at 04:54:45
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1242 1PPM Processed: 11-19-1997 05:25:58, segment 16, cycle 81
RAW DATA SAVED IN FILE D:NV14E81.PTS Second Channel Stored in D:OV14E81.PTS

EXTERNAL STANDARD TABLE

********** 11-19-1997 05:27:00 Version 5.1.5 **********
* Sample Name: A1242 1PPM
* Date: 11-19-1997 04:55:24 Method: M:APES-E 10-29-1997 19:24:01 # 395 *
Data File: D:NV14E81
* Interface: 2 Cycle#: 81 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *
* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

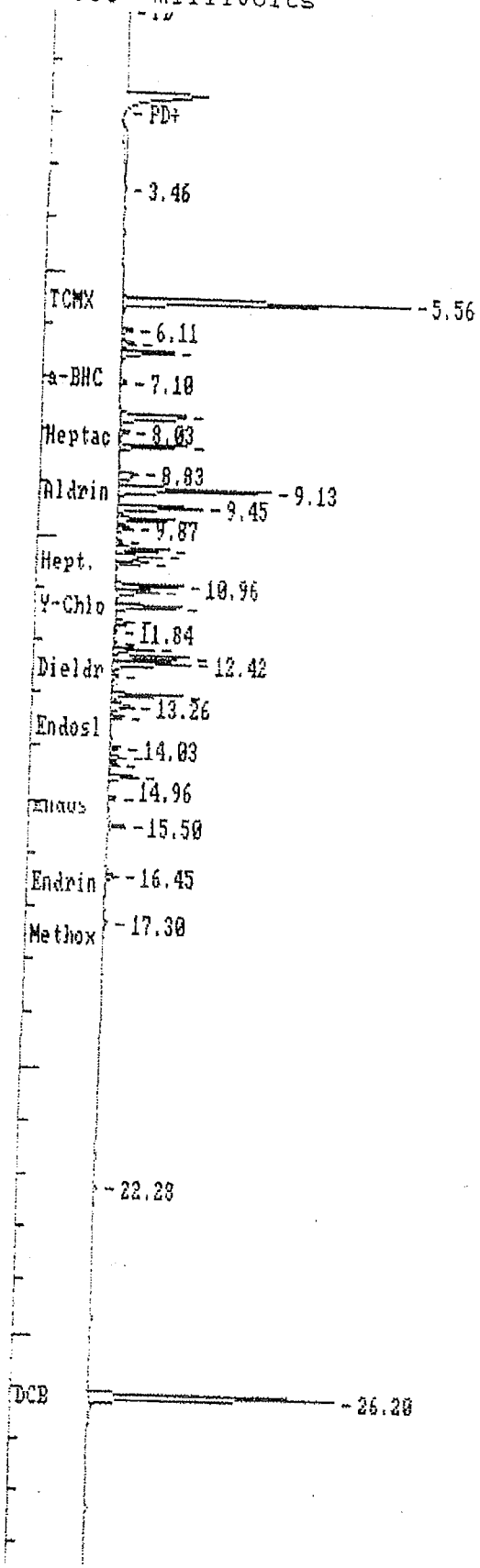
	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.457		0.0001	0.0000%	74374	532	139.8	1			1.0000E-09
2	5.561	TCMX	86.0292	18.0107%	516175	108305	4.8	1	0	0	1.6667E-04
3	6.112		0.0000	0.0000%	22377	4380	5.1	2			1.0000E-09
4	6.379		0.0000	0.0000%	27716	5421	5.1	2			1.0000E-09

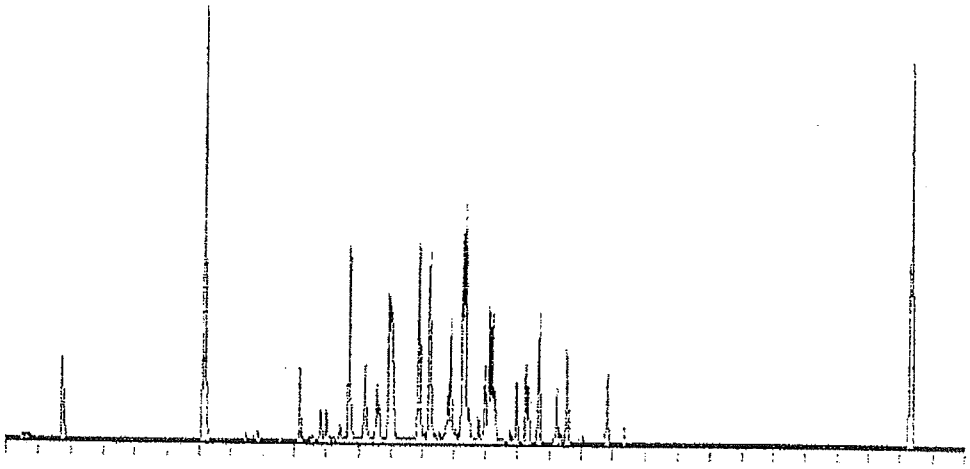
7	7.732	0.0002	0.0000%	182458	24767	7.4	2			1.0000E-09
8	8.033 Heptachlor	4.1927	0.8778%	14792	3572	4.1	2	0	-.6223	2.8345E-04
9	8.300	0.0001	0.0000%	112031	25601	4.4	1			1.0000E-09
10	8.834	0.0001	0.0000%	50338	7581	6.6	2			1.0000E-09
11	9.135 Aldrin	118.4754	24.8035%	337537	57944	5.8	2	0	-.1868	3.5100E-04
	9.452	0.0001	0.0000%	146795	32275	4.5	2	901000		1.0000E-09
13	9.703	0.0001	0.0000%	93001	21484	4.3	2			1.0000E-09
14	9.870	0.0000	0.0000%	25058	6070	4.1	2			1.0000E-09
15	10.137	0.0000	0.0000%	9368	2451	3.8	2			1.0000E-09
16	10.270	0.0001	0.0000%	85765	19848	4.3	2			1.0000E-09
17	10.404	0.0001	0.0000%	75913	17677	4.3	2			1.0000E-09
18	10.521 Hept. epox.	18.8569	3.9478%	60945	12246	5.0	2	0	.1618	3.0941E-04
19	10.955	0.0001	0.0000%	107833	25606	4.2	2			1.0000E-09
20	11.072	0.0001	0.0000%	79326	16640	4.8	2			1.0000E-09
21	11.373 Y-Chlordane	36.2707	7.5935%	122196	24791	4.9	2	0	.5899	2.9682E-04
22	11.657 Endosulfan I	9.9471	2.0825%	29334	7648	3.8	1	0	-.1404	3.3910E-04
23	11.840 a-Chlordane	1.4443	0.3024%	4922	1362	3.6	2	0	.1378	2.9343E-04
24	12.041	0.0000	0.0000%	5309	1527	3.6	2			1.0000E-09
25	12.174	0.0001	0.0000%	61702	15548	4.0	2			1.0000E-09
26	12.308	0.0001	0.0000%	122020	28993	4.2	2			1.0000E-09
27	12.425 Dieldrin	51.0015	10.6774%	142804	29416	4.9	2	0	-.9344	3.5714E-04
28	12.675 4,4-DDE	5.8813	1.2313%	12609	2328	5.4	2	0	-.7804	4.6642E-04
29	13.026	0.0001	0.0000%	115430	26809	4.3	2			1.0000E-09
30	13.260 Endrin	19.4015	4.0618%	50269	8470	5.9	2	0	.2555	3.8595E-04
31	13.443 Endosif II	6.9161	1.4479%	19545	5011	3.9	2	0	-1.107	3.5386E-04
32	14.028	0.0000	0.0000%	17173	4256	4.0	2			1.0000E-09
33	14.212 4'4-DDD	17.8769	3.7426%	26011	6347	4.1	2	0	-.3526	6.8729E-04
34	14.362	0.0000	0.0000%	14903	3902	3.8	2			1.0000E-09
35	14.562	0.0000	0.0000%	44950	11175	4.0	1			1.0000E-09
36	14.963 Endos sulf	5.8561	1.2260%	12684	3204	4.0	1	0	-.8862	4.6168E-04
37	15.498 DDT	17.9964	3.7676%	26869	6392	4.2	1	0	.4315	6.6979E-04
38	16.449 Endrin ket.	7.3616	1.5412%	20502	4623	4.4	1	0	-.6072	3.5907E-04
39	17.301 Methoxychlor	4.7048	0.9850%	6008	1418	4.2	1	0	-1.333	7.8309E-04
40	22.278	0.0000	0.0000%	5385	1437	3.7	1			1.0000E-09
41	26.202 DCB	56.2980	11.7863%	506682	92565	5.5	1	0	.1234	1.1111E-04

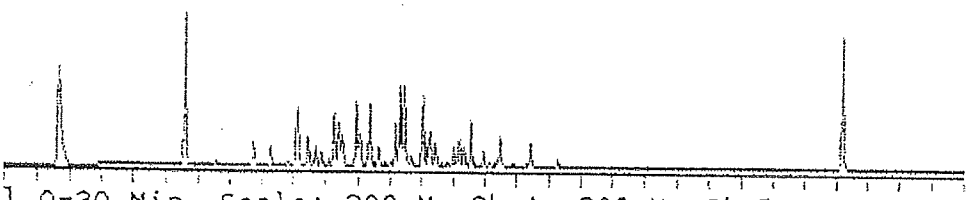
TOTAL AMOUNT = 477.6570

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E81.ATB
Data File = D:NV14E81.PTS Printed on 11-19-1997 at 05:27:26
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ull Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1248 1PPM Processed: 11-19-1997 05:58:36, segment 17, cycle 82
RAW DATA SAVED IN FILE D:NV14E82.PTS Second Channel Stored in D:OV14E82.PTS

EXTERNAL STANDARD TABLE

********** 11-19-1997 05:59:39 Version 5.1.5 **********
* Sample Name: A1248 1PPM Data File: D:NV14E82 *
* Date: 11-19-1997 05:28:03 Method: M:APES-E 10-29-1997 19:24:01 # 395 *
* Interface: 2 Cycle#: 82 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *
* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

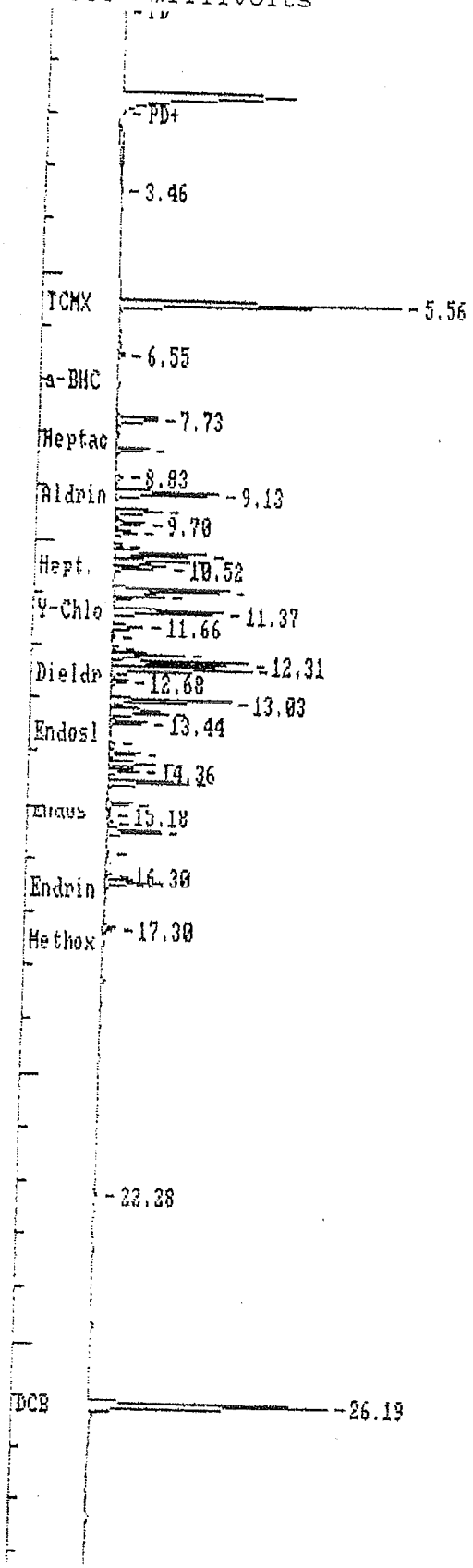
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.457		0.0001	0.0000%	72845	525	138.8	1			1.0000E-09
2	5.561	TCMX	83.3307	12.4228%	499984	105988	4.7	1	0	0	1.6667E-04
3	6.546		0.0000	0.0000%	11233	2375	4.7	1			1.0000E-09

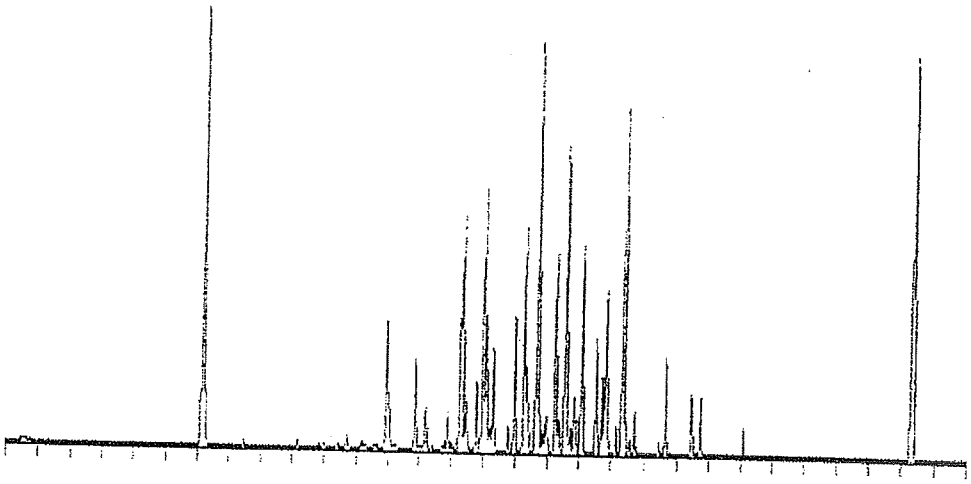
7	9.135 Aldrin	81.1968	12.1046%	231330	38595	6.0 2	0	-.1868		3.5100E-04
8	9.469	0.0001	0.0000%	88589	17967	4.9 2				1.0000E-09
9	9.703	0.0001	0.0000%	54968	11463	4.8 2				1.0000E-09
10	9.870	0.0000	0.0000%	35505	8581	4.1 2				1.0000E-09
11	10.137	0.0000	0.0000%	13612	3495	3.9 2				1.0000E-09
	10.270	0.0002	0.0000%	152662	34549	4.4 2				1.0000E-09
	10.404	0.0001	0.0000%	123018	28389	4.3 2				1.0000E-09
14	10.521 Hept. epox.	30.2626	4.5115%	97809	19515	5.0 2	0	.1616		3.0941E-04
15	10.955	0.0002	0.0000%	190338	43044	4.4 2				1.0000E-09
16	11.072	0.0001	0.0000%	75221	19482	3.9 2				1.0000E-09
17	11.373 Y-Chlordane	59.4556	8.8635%	200306	40805	4.9 1	0	.5899		2.9682E-04
18	11.657 Endosulfan I	15.3083	2.2821%	45144	11698	3.9 1	0	-.1404		3.3910E-04
19	11.840 a-Chlordane	1.2809	0.1909%	4365	1293	3.4 1	0	.1378		2.9343E-04
20	12.041	0.0000	0.0000%	8971	2532	3.5 2				1.0000E-09
21	12.174	0.0001	0.0000%	109336	27342	4.0 2				1.0000E-09
22	12.308	0.0002	0.0000%	219318	51397	4.3 2				1.0000E-09
23	12.441 Dieldrin	94.2585	14.0519%	263924	52473	5.0 2	0	-.8013		3.5714E-04
24	12.675 4,4-DDE	13.4912	2.0112%	28925	6291	4.6 2	0	-.7804		4.6642E-04
25	13.026	0.0002	0.0000%	199663	44888	4.4 2				1.0000E-09
26	13.260 Endrin	50.7551	7.5665%	131507	21846	6.0 2	0	.2555		3.8595E-04
27	13.443 Endosif II	19.9658	2.9765%	56423	13943	4.0 2	0	-1.107		3.5386E-04
28	13.844	0.0000	0.0000%	9452	2544	3.7 1				1.0000E-09
29	14.028	0.0001	0.0000%	50336	11931	4.2 2				1.0000E-09
30	14.212 4'4-DDD	51.8056	7.7231%	75377	17784	4.2 2	0	-.3526		6.8729E-04
31	14.362	0.0000	0.0000%	46200	11473	4.0 2				1.0000E-09
32	14.562	0.0001	0.0000%	123233	29976	4.1 2				1.0000E-09
33	14.963	0.0000	0.0000%	37345	9244	4.0 2				1.0000E-09
34	15.180 Endos sulf	3.4816	0.5190%	7541	1492	5.1 2	0	.5517		4.6168E-04
35	15.314	0.0000	0.0000%	7629	2136	3.6 2				1.0000E-09
36	15.498 DDT	66.7548	9.9517%	99665	20158	4.9 2	0	.4315		6.6979E-04
37	15.882	0.0000	0.0000%	6994	1288	5.4 1				1.0000E-09
38	16.299	0.0000	0.0000%	11065	2870	3.9 2				1.0000E-09
39	16.449 Endrin ket.	26.3257	3.9246%	73317	15392	4.8 2	0	-.6072		3.5907E-04
40	17.301 Methoxychlor	18.9380	2.8232%	24184	4840	5.0 1	0	-1.333		7.8309E-04
41	22.278	0.0000	0.0000%	5376	1421	3.8 1				1.0000E-09
42	26.186 DCB	54.1772	8.0766%	487595	89222	5.5 1	0	0		1.1111E-04

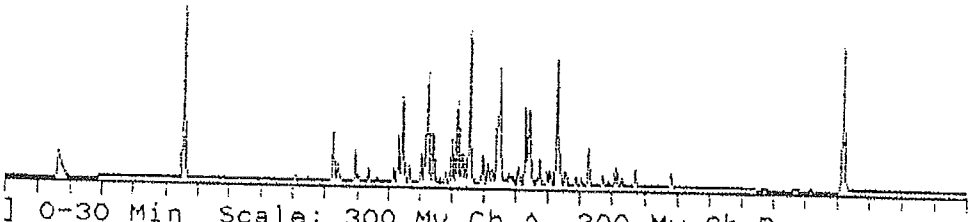
TOTAL AMOUNT = 670.7900

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E82.ATB
Data File = D:NV14E82.PTS Printed on 11-19-1997 at 06:00:04
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1254 1PPM Processed: 11-19-1997 06:31:19, segment 18, cycle 83
End of sequence file reached at cycle 83
RAW DATA SAVED IN FILE D:NV14E83.PTS Second Channel Stored in D:OV14E83.PTS

EXTERNAL STANDARD TABLE

********** 11-19-1997 06:32:22 Version 5.1.5 **********
* Sample Name: A1254 1PPM
* Date: 11-19-1997 06:00:46 Method: M:APES-E 10-29-1997 19:24:01 # 395
Data File: D:NV14E83
* Interface: 2 Cycle#: 83 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
ple Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.457		0.0001	0.0000%	72245	536	134.8	1			1.0000E-09
2	5.561	TCMX	86.9069	7.8307%	521441	112335	4.6	1	0	0	1.6667E-04

6	10.404 Hept. epox.	15.7520	1.4193%	50911	9895	5.1	2	0	-.9510	3.0941E-04
7	10.955	0.0001	0.0000%	91989	20607	4.5	1			1.0000E-09
8	11.373 Y-Chlordane	9.9117	0.8931%	33393	7592	4.4	1	0	.5899	2.9682E-04
9	11.657 Endosulfan I	2.2758	0.2051%	6711	1840	3.6	1	0	-.1404	3.3910E-04
10	12.174	0.0000	0.0000%	32860	8237	4.0	2			1.0000E-09
	12.308	0.0001	0.0000%	131278	31320	4.2	2			1.0000E-09
12	12.458 Dieldrin	93.1258	8.3910%	260752	56428	4.6	2	0	-.6681	3.5714E-04
13	12.675 4,4-DDE	20.3260	1.8315%	43579	10612	4.1	2	0	-.7804	4.6642E-04
14	13.059	0.0001	0.0000%	88485	18613	4.8	2			1.0000E-09
15	13.260 Endrin	148.7590	13.4038%	385435	72135	5.3	2	0	.2555	3.8595E-04
16	13.443 Endosif II	46.3504	4.1764%	130986	31802	4.1	2	0	-1.107	3.5386E-04
17	13.844	0.0000	0.0000%	21199	5596	3.8	1			1.0000E-09
18	14.028	0.0001	0.0000%	109063	27188	4.0	1			1.0000E-09
19	14.212 4'4-DDD	141.0789	12.7118%	205270	51774	4.0	2	0	-.3526	6.8729E-04
20	14.362	0.0000	0.0000%	43869	13893	3.2	2			1.0000E-09
21	14.562	0.0004	0.0000%	381864	97309	3.9	1			1.0000E-09
22	14.980	0.0001	0.0000%	90433	18950	4.8	2			1.0000E-09
23	15.164 Endos sulf	27.5719	2.4843%	59721	12544	4.8	2	0		4.6168E-04
24	15.314	0.0000	0.0000%	28864	6805	4.2	2			1.0000E-09
25	15.481 DDT	320.0975	28.8421%	477906	76542	6.2	2	0	.3233	6.6979E-04
26	15.798	0.0000	0.0000%	21909	4656	4.7	1			1.0000E-09
27	16.082	0.0000	0.0000%	36024	9935	3.6	1			1.0000E-09
28	16.299	0.0002	0.0000%	195133	50339	3.9	2			1.0000E-09
29	16.433 Endrin ket.	107.5384	9.6897%	299494	49220	6.1	2	0	-.7081	3.5907E-04
30	16.750	0.0001	0.0000%	77422	16464	4.7	2			1.0000E-09
31	17.001	0.0000	0.0000%	28612	7435	3.8	2			1.0000E-09
32	17.101	0.0000	0.0000%	30072	7789	3.9	2			1.0000E-09
33	17.301	0.0004	0.0000%	442355	82791	5.3	2			1.0000E-09
34	17.585 Methoxychlor	28.8571	2.6001%	36850	8824	4.2	2	0	.2857	7.8309E-04
35	17.902	0.0000	0.0000%	12970	3821	3.4	1			1.0000E-09
36	18.086	0.0000	0.0000%	14967	3866	3.9	1			1.0000E-09
37	18.286	0.0001	0.0000%	105638	23979	4.4	1			1.0000E-09
38	18.737	0.0000	0.0000%	23725	5596	4.2	2			1.0000E-09
39	18.938	0.0000	0.0000%	12842	3437	3.7	2			1.0000E-09
40	19.138	0.0001	0.0000%	60985	12627	4.8	2			1.0000E-09
41	19.339	0.0000	0.0000%	15411	3329	4.6	2			1.0000E-09
42	19.739	0.0000	0.0000%	43884	10696	4.1	1			1.0000E-09
43	20.792	0.0000	0.0000%	38513	8682	4.4	1			1.0000E-09
44	22.278	0.0000	0.0000%	6112	1521	4.0	1			1.0000E-09
45	26.186 DCB	57.2465	5.1581%	515218	94968	5.4	1	0	0	1.1111E-04

TOTAL AMOUNT = 1109.8267

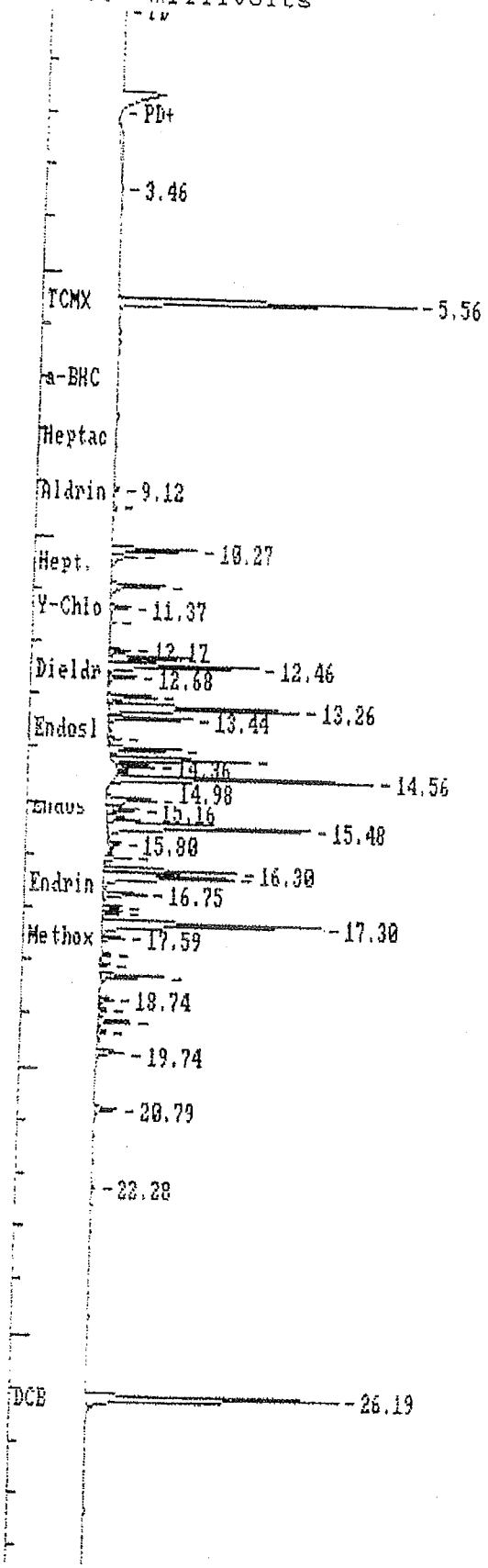
GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

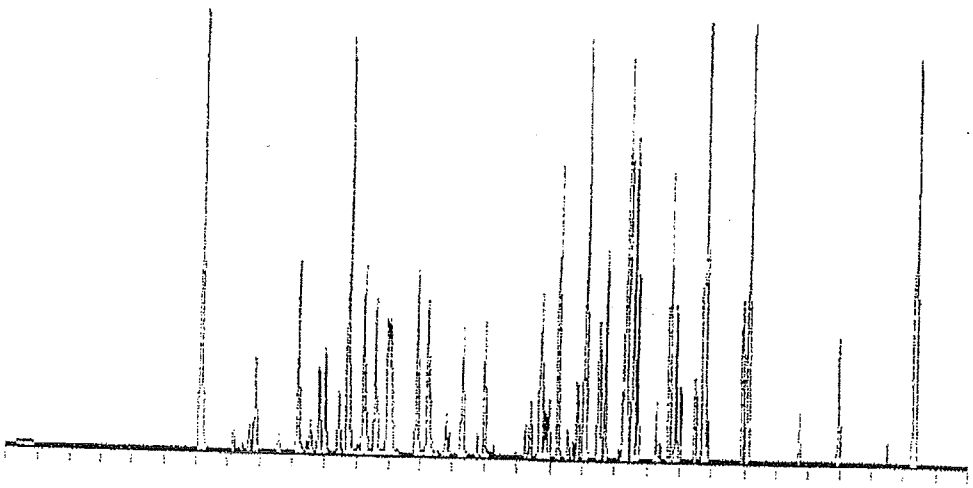
2131000

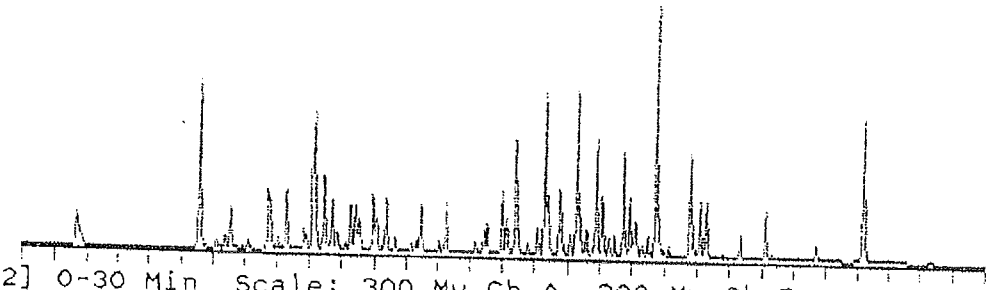
1047.4411

497

Areas, times, and heights stored in: D:NV14E83.ATB
Data File = D:NV14E83.PTS Printed on 11-19-1997 at 06:32:47
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1660 1.0 Processed: 11-19-1997 20:52:47, segment 3, cycle 89
RAW DATA SAVED IN FILE D:NV14E89.PTS Second Channel Stored in D:OV14E89.PTS

EXTERNAL STANDARD TABLE

********** 11-19-1997 20:53:49 Version 5.1.5 **********
* Sample Name: A1660 1.0 PPM
* Date: 11-19-1997 20:22:09 Method: M:APES-E 10-29-1997 19:24:01 # 395 *
Data File: D:NV14E89
* Interface: 2 Cycle#: 89 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *
* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *
Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

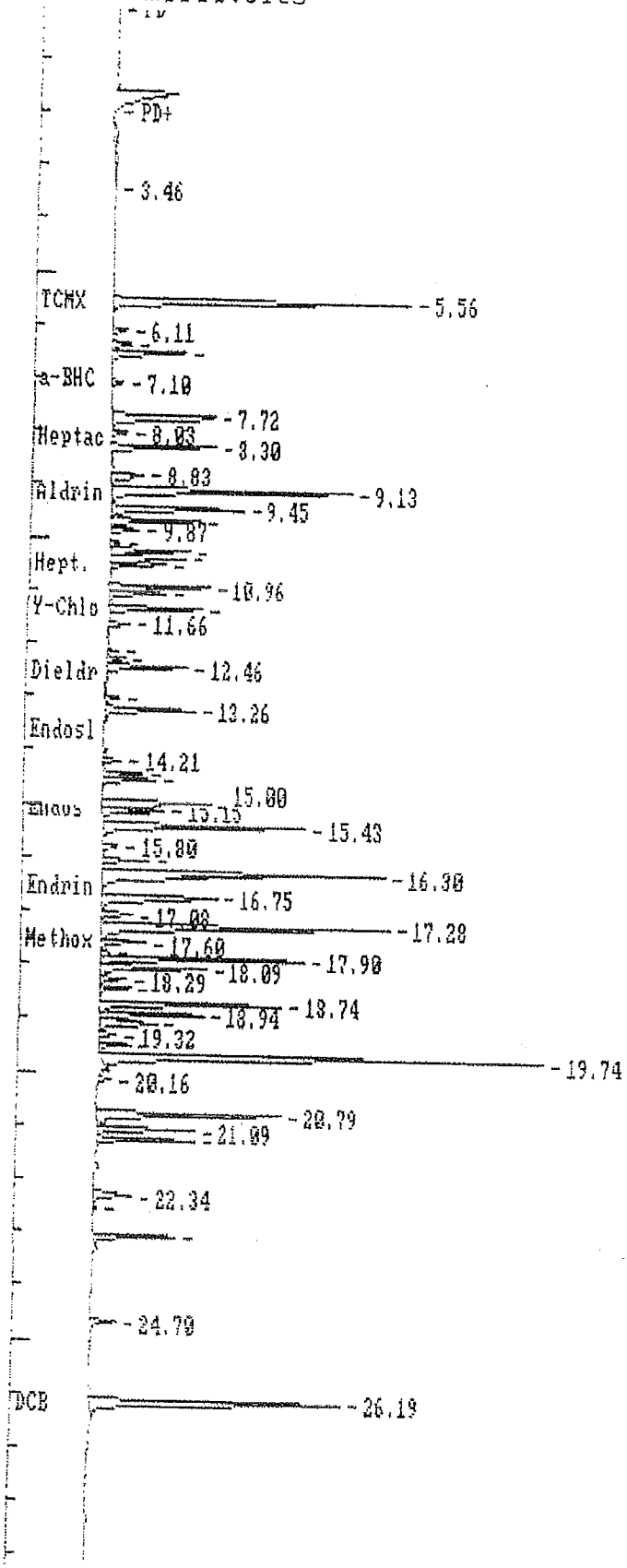
#	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.457		0.0001	0.0000%	72014	532	135.3	1			
2	5.561	TCMX	91.3600	8.9183%	548160	111983	4.9	1	0	0	1.0000E-09
3	6.112		0.0000	0.0000%	29062	5579	5.2	2			1.6667E-04
4	6.379		0.0000	0.0000%	36353	7049	5.2	2			1.0000E-09

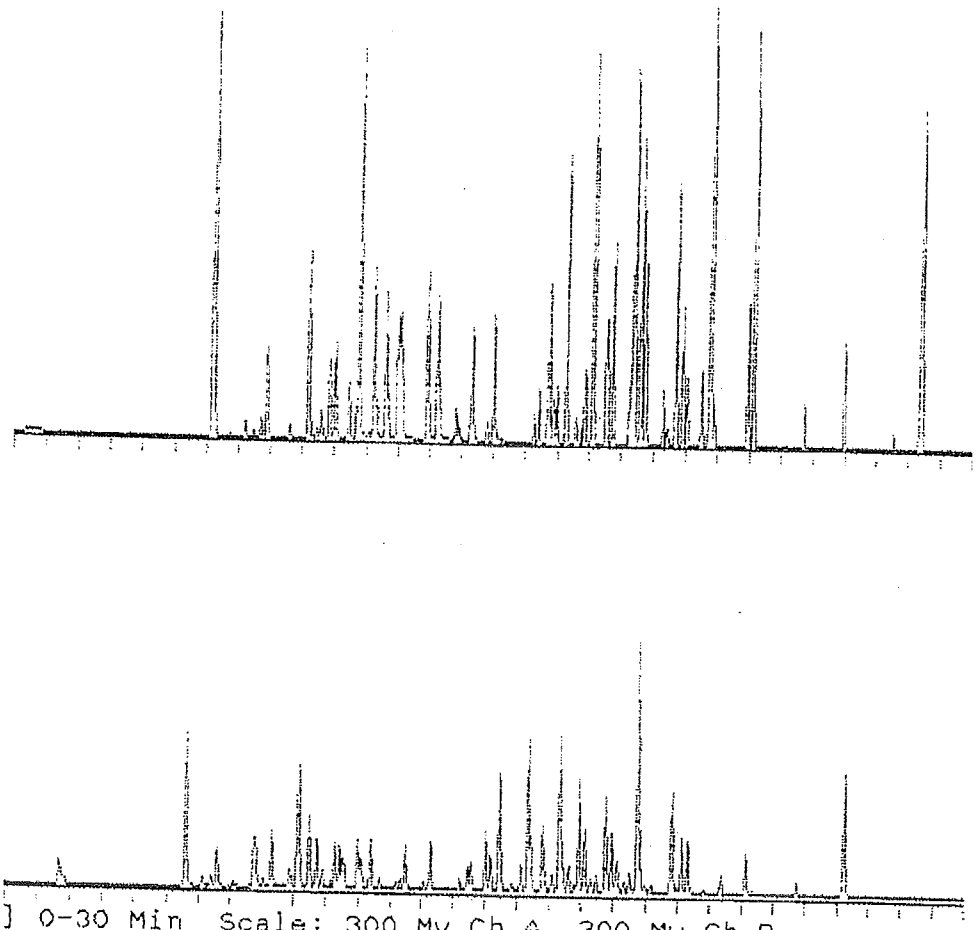
7	7.715	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		0	.0352	[illegible]
8	8.033 Heptachlor	0.0003	0.0000%	287135	37967	7.6 2				1.0000E-09
9	8.300	7.3020	0.7128%	25761	5967	4.3 2		0	-.6223	2.8345E-04
10	8.834	0.0002	0.0000%	178084	38759	4.6 1				1.0000E-09
11	9.135 Aldrin	0.0001	0.0000%	81248	12012	6.8 2				1.0000E-09
	9.452	189.4701	18.4956%	539800	90673	6.0 2		0	-.1868	3.5100E-04
..	9.703	0.0002	0.0000%	233171	49837	4.7 2				1.0000E-09
14	9.870	0.0002	0.0000%	150645	33464	4.5 2				1.0000E-09
15	10.137	0.0000	0.0000%	45295	10656	4.3 2	140800			1.0000E-09
16	10.270	0.0000	0.0000%	15708	4018	3.9 2				1.0000E-09
17	10.404	0.0001	0.0000%	132604	29429	4.5 2				1.0000E-09
18	10.521 Hept. epox.	0.0001	0.0000%	121248	27770	4.4 2				1.0000E-09
19	10.955	32.0702	3.1306%	103651	20627	5.0 2		0	.1618	3.0941E-04
20	11.072	0.0002	0.0000%	160259	37236	4.3 2				1.0000E-09
21	11.373 Y-Chlordane	0.0001	0.0000%	100433	21343	4.7 2				1.0000E-09
22	11.657 Endosulfan I	50.4378	4.9236%	169925	34300	5.0 2		0	.5899	2.9682E-04
23	12.174	10.5703	1.0318%	31172	8153	3.8 1		0	-.1404	3.3910E-04
24	12.308	0.0000	0.0000%	16282	4352	3.7 2				1.0000E-09
25	12.458 Dieldrin	0.0000	0.0000%	29851	7179	4.2 2				1.0000E-09
26	13.059	47.7553	4.6618%	133715	29882	4.5 2		0	-.6681	3.5714E-04
27	13.260 Endrin	0.0000	0.0000%	25143	5680	4.4 2				1.0000E-09
28	14.212 4'4-DDD	55.5678	5.4244%	143976	32971	4.4 2		0	.2555	3.8595E-04
29	14.462	18.2939	1.7858%	26618	6857	3.9 1		0	-.3526	6.8729E-04
30	14.562	0.0001	0.0000%	62226	14768	4.2 2				1.0000E-09
31	14.997	0.0001	0.0000%	76779	19255	4.0 2				1.0000E-09
32	15.147 Endos sulf	0.0002	0.0000%	162674	39886	4.1 2				1.0000E-09
33	15.431 DDT	47.9087	4.6767%	103770	22595	4.6 2		0	.3305	4.6168E-04
34	15.798	244.8270	23.8994%	365527	75571	4.8 2		0	0	6.6979E-04
35	16.082	0.0000	0.0000%	24690	5349	4.6 1				1.0000E-09
36	16.299	0.0001	0.0000%	57091	17183	3.9 2				1.0000E-09
37	16.750 Endrin ket.	0.0006	0.0001%	605748	106169	5.7 2				1.0000E-09
38	17.084	98.1002	9.5763%	273209	42673	6.4 2		0	1.209	3.5907E-04
39	17.284	0.0001	0.0000%	53673	11382	4.7 2				1.0000E-09
40	17.602 Methoxychlor	0.0006	0.0001%	571158	108378	5.3 2				1.0000E-09
41	17.785	57.1237	5.5763%	72947	16829	4.3 2		0	.3809	7.8309E-04
42	17.902	0.0000	0.0000%	17169	3824	4.5 2				1.0000E-09
43	18.086	0.0003	0.0000%	311627	76280	4.1 2	231900			1.0000E-09
44	18.286	0.0002	0.0000%	169686	39225	4.3 2				1.0000E-09
45	18.453	0.0000	0.0000%	48293	9900	4.9 2				1.0000E-09
46	18.737	0.0000	0.0000%	45763	11333	4.0 2				1.0000E-09
47	18.938	0.0003	0.0000%	262730	68334	4.1 2				1.0000E-09
48	19.105	0.0002	0.0000%	158346	38372	4.1 2				1.0000E-09
49	19.322	0.0001	0.0000%	131962	21264	6.2 2				1.0000E-09
50	19.506	0.0000	0.0000%	29799	6462	4.6 2				1.0000E-09
51	19.739	0.0000	0.0000%	49609	11742	4.2 2				1.0000E-09
52	20.157	0.0007	0.0001%	717922	165866	4.3 1				1.0000E-09
53	20.792	0.0000	0.0000%	17170	4862	3.5 1				1.0000E-09
54	21.092	0.0003	0.0000%	340101	68884	4.9 2				1.0000E-09
55	21.276	0.0001	0.0000%	141361	36105	3.9 2				1.0000E-09
56	22.345	0.0002	0.0000%	155586	35988	4.3 2				1.0000E-09
57	22.578	0.0001	0.0000%	72629	14365	5.1 2				1.0000E-09
58	23.113	0.0000	0.0000%	6754	1691	4.0 2				1.0000E-09
59	24.699	0.0001	0.0000%	130505	30130	4.3 1				1.0000E-09
60	26.186 DCB	0.0000	0.0000%	44023	9339	4.7 1				1.0000E-09
		57.9607	5.6580%	521646	94054	5.5 1		0	0	1.1112E-04

TOTAL AMOUNT = 1024.4065

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E89.ATB
Data File = D:NV14E89.PTS Printed on 11-19-1997 at 20:54:16
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1660 1PPM Processed: 11-21-1997 03:52:22, segment 12, cycle 123
RAW DATA SAVED IN FILE D:NV14E123.PTS Second Channel Stored in D:NV14E123.PTS

EXTERNAL STANDARD TABLE

11-21-1997 03:53:26 Version 5.1.5

Sample Name: A1660 1PPM
Data File: D:NV14E123
Date: 11-21-1997 03:19:43 Method: M:APES-E 10-29-1997 19:24:01 # 395
Interface: 2 Cycle#: 123 Operator JJK Channel#: 0 Vial#: N.A.
Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0: Detector 1: ECD
Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.578	TCMX	87.6899	8.9483%	526139	102105	5.2	1	0	.3201	1.6667E-04
2	6.129		0.0000	0.0000%	27144	5140	5.3	2			1.0000E-09
3	6.396		0.0000	0.0000%	33997	6513	5.2	2			1.0000E-09
4	6.563		0.0001	0.0000%	136900	25943	5.3	2			1.0000E-09

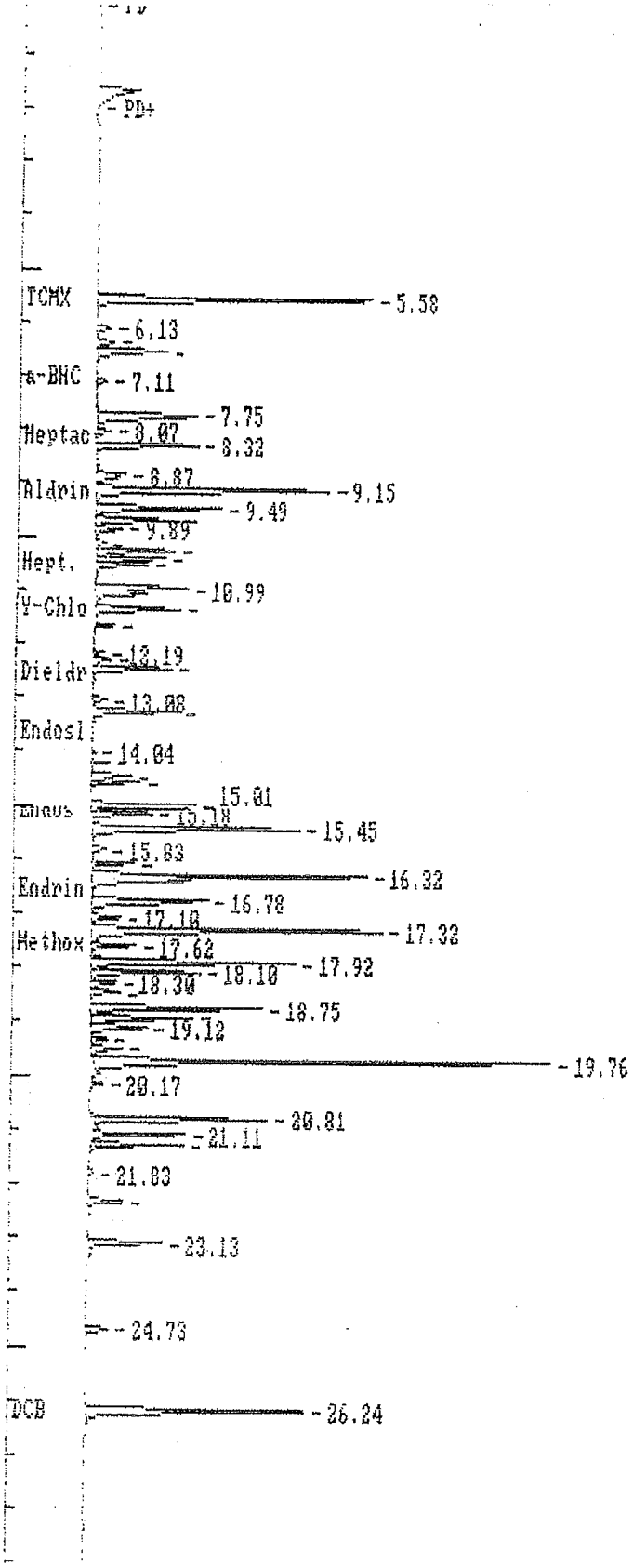
7	8.066 Heptachlor	0.0003	0.0000%	2000664	37026	7.6 2				
8	8.317	7.0060	0.7149%	24717	5535	4.5 2	0	-.2090	2.8345E-04	
9	8.868	0.0002	0.0000%	171934	37717	4.6 1			1.0000E-09	
10	9.152 Aldrin	0.0001	0.0000%	76733	11084	6.9 2			1.0000E-09	
11	9.486	183.5304	18.7283%	522878	86611	6.0 2	0	0	3.5100E-04	
12	9.719	0.0002	0.0000%	225612	46439	4.9 2			1.0000E-09	
13	9.886	0.0001	0.0000%	142889	30974	4.6 2			1.0000E-09	
14	10.154	0.0000	0.0000%	41494	9661	4.3 2			1.0000E-09	
15	10.287	0.0000	0.0000%	15592	3612	4.1 2			1.0000E-09	
16	10.438	0.0001	0.0000%	126419	29125	4.3 2			1.0000E-09	
17	10.554 Hept. epox.	0.0001	0.0000%	115147	25803	4.5 2			1.0000E-09	
18	10.989	31.6805	3.2328%	102391	19418	5.3 2	0	.4798	3.0941E-04	
19	11.389 Y-Chlordane	0.0002	0.0000%	248930	34263	7.3 2			1.0000E-09	
20	11.673 Endosulfan I	48.2432	4.9230%	162531	31655	5.1 2	0	.7376	2.9682E-04	
21	12.191	9.9536	1.0157%	29353	7406	4.0 1	0	.0025	3.3910E-04	
22	12.325	0.0000	0.0000%	15345	4081	3.8 2			1.0000E-09	
23	12.475 Dieldrin	0.0000	0.0000%	27838	6762	4.1 2			1.0000E-09	
24	13.076	46.0473	4.6989%	128932	29012	4.4 2	0	-.5350	3.5714E-04	
25	13.276 Endrin	0.0000	0.0000%	23802	5366	4.4 2			1.0000E-09	
26	14.045	53.8847	5.4986%	139615	31163	4.5 2	0	.3818	3.8595E-04	
27	14.228 4'4-DDD	0.0000	0.0000%	5558	1484	3.7 1			1.0000E-09	
28	14.479	17.1976	1.7549%	25022	6591	3.8 1	0	-.2355	6.8729E-04	
29	14.579	0.0001	0.0000%	57583	14632	3.9 2			1.0000E-09	
30	15.013	0.0001	0.0000%	74205	18038	4.1 2			1.0000E-09	
31	15.180 Endos sulf	0.0002	0.0000%	157911	38392	4.1 2			1.0000E-09	
32	15.447 DDT	44.7092	4.5623%	96840	22334	4.3 2	0	.5517	4.6168E-04	
33	15.832	238.5403	24.3418%	356141	76735	4.6 2	0	.1069	6.6979E-04	
34	16.115	0.0000	0.0000%	23297	4958	4.7 1			1.0000E-09	
35	16.316	0.0001	0.0000%	64303	15855	4.1 2			1.0000E-09	
36	16.783 Endrin ket.	0.0006	0.0001%	588446	101741	5.8 2			1.0000E-09	
37	17.101	94.0378	9.5961%	251895	42676	6.1 2	0	1.410	3.5907E-04	
38	17.318	0.0001	0.0000%	51266	10802	4.7 2			1.0000E-09	
39	17.618 Methoxychlor	0.0006	0.0001%	554146	107638	5.1 2			1.0000E-09	
40	17.819	53.6916	5.4789%	68564	16486	4.2 2	0	.4761	7.8309E-04	
41	17.919	0.0000	0.0000%	14369	3716	3.9 2			1.0000E-09	
42	18.103	0.0003	0.0000%	304488	75536	4.0 2			1.0000E-09	
43	18.303	0.0002	0.0000%	159151	40087	4.0 2			1.0000E-09	
44	18.487	0.0000	0.0000%	46221	9186	5.0 2			1.0000E-09	
45	18.754	0.0000	0.0000%	43136	10876	4.0 2			1.0000E-09	
46	18.955	0.0003	0.0000%	274845	63475	4.3 2			1.0000E-09	
47	19.121	0.0002	0.0000%	153666	37411	4.1 2			1.0000E-09	
48	19.355	0.0001	0.0000%	121258	20731	5.8 2			1.0000E-09	
49	19.522	0.0000	0.0000%	28461	6173	4.6 2			1.0000E-09	
50	19.756	0.0000	0.0000%	48873	11676	4.2 2			1.0000E-09	
51	20.174	0.0007	0.0001%	703598	169011	4.2 1			1.0000E-09	
52	20.808	0.0000	0.0000%	16540	4435	3.7 1			1.0000E-09	
53	21.109	0.0003	0.0000%	294257	64636	4.6 1			1.0000E-09	
54	21.309	0.0001	0.0000%	124008	34084	3.6 2			1.0000E-09	
55	21.827	0.0001	0.0000%	141726	33857	4.2 2			1.0000E-09	
56	22.361	0.0000	0.0000%	11703	1806	6.5 1			1.0000E-09	
57	23.129	0.0001	0.0000%	65541	13142	5.0 1			1.0000E-09	
58	24.733	0.0001	0.0000%	118402	27282	4.3 1			1.0000E-09	
59	26.236 DCB	0.0000	0.0000%	38501	8165	4.7 1			1.0000E-09	
		49.0695	5.0073%	441625	90707	5.5 1	0	.2510	1.1111E-04	

22 17200

TOTAL AMOUNT = 979.9636

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E123.ATB
Data File = D:NV14E123.PTS Printed on 11-21-1997 at 03:53:53
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 03:54:33 Version 5.1.5

* Sample Name: A1660 1PPM
* Date: 11-21-1997 03:19:48 Method: M:BPES-E 11-03-1997 18:46:51 # 380
* Interface: 2 Cycle#: 123 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Data File: D:DV14E123

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

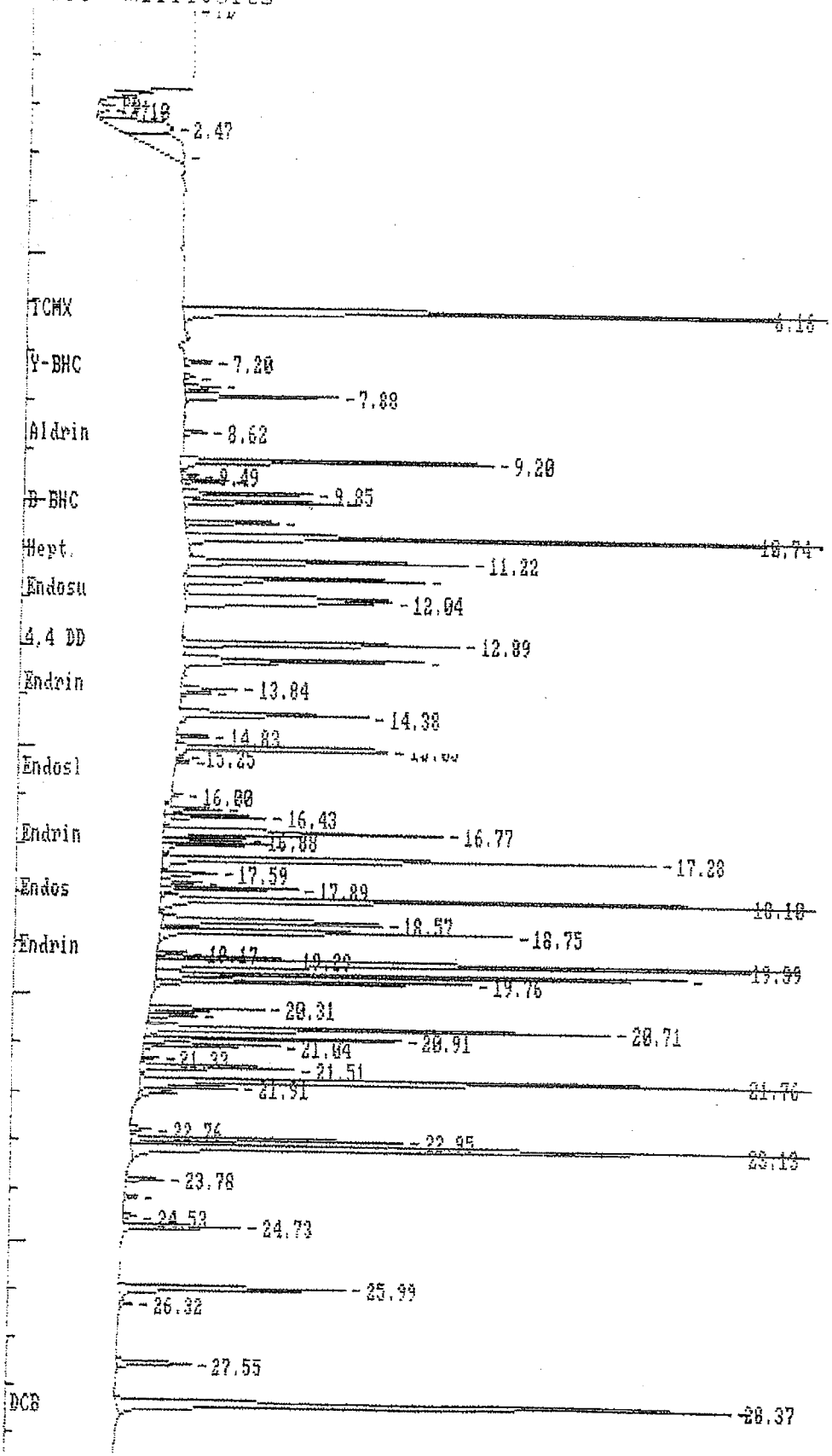
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.104		0.0000	0.0000%	44266	4781	9.3	1			1.0000E-09
2	2.472		0.0003	0.0000%	344588	22133	15.6	2			1.0000E-09
3	3.023		0.0004	0.0000%	354958	4950	71.7	2			1.0000E-09
4	6.162	TCMX	469.7032	15.2088%	1463125	290102	5.0	1	0	.5269	3.2103E-04
5	7.198	Y-BHC	20.8622	0.6755%	54868	11787	4.7	1	0	-.6939	3.8023E-04
6	7.498		0.0000	0.0000%	19020	4673	4.1	1			1.0000E-09
7	7.699		0.0001	0.0000%	63609	15101	4.2	2			1.0000E-09
8	7.882	Heptachlor	71.0656	2.3011%	289806	62676	4.6	2	0	.8495	2.4522E-04
9	8.617	Aldrin	12.5795	0.4073%	38053	9583	4.0	1	0	.1999	3.3052E-04
10	9.202		0.0006	0.0000%	570915	128149	4.5	2			1.0000E-09
11	9.486		0.0000	0.0000%	31208	7268	4.3	2			1.0000E-09
12	9.602		0.0001	0.0000%	96167	19462	4.4	2			1.0000E-09
13	9.853		0.0002	0.0000%	207054	53150	3.9	2			1.0000E-09
14	10.037	B-BHC	146.0488	4.7290%	271359	64727	4.2	2	0	0	5.3821E-04
15	10.454		0.0002	0.0000%	203192	38759	5.2	1			1.0000E-09
16	10.736	d-BHC	688.4315	22.2911%	1186856	263200	4.5	1	0	.6288	5.8005E-04
17	11.222		0.0006	0.0000%	568315	114146	5.0	1			1.0000E-09
18	11.590	Endosulf I	152.3756	4.9339%	477089	98665	4.8	2	0	-1.839	3.1939E-04
19	12.041	Y-Chlordane	229.0844	7.4177%	863419	84455	10.2	2	0	-.5476	2.6532E-04
20	12.892	4,4 DDE	238.9318	7.7365%	580365	113027	5.1	1	0	.2597	4.1169E-04
21	13.243		0.0005	0.0000%	498279	97751	5.1	1			1.0000E-09
22	13.944	Endrin	32.4417	1.0505%	88177	23483	3.8	2	0	1.097	3.6792E-04
23	13.945		0.0000	0.0000%	39835	12627	3.2	2			1.0000E-09
24	14.379		0.0004	0.0000%	370089	76123	4.9	1			1.0000E-09
25	14.830		0.0001	0.0000%	50561	13648	3.7	2			1.0000E-09
26	15.030		0.0004	0.0000%	355462	86696	4.1	3			1.0000E-09
27	15.247		0.0000	0.0000%	13193	3636	3.6	4			1.0000E-09
28	15.331	EndosIfII	6.9178	0.2240%	21051	6011	3.5	2	0	-.7535	3.2862E-04
29	15.999	4,4 DDT	8.8524	0.2866%	16067	4557	3.5	1	0	-.4133	5.5096E-04
30	16.282		0.0001	0.0000%	102768	24002	4.3	2			1.0000E-09
	16.433		0.0002	0.0000%	172178	41794	4.1	2			1.0000E-09
32	16.767	Endrin ald	239.1082	7.7422%	628615	113976	5.5	2	0	-.1976	3.8037E-04
33	16.884		0.0001	0.0000%	133526	34356	3.9	2			1.0000E-09
34	17.001		0.0002	0.0000%	191839	43793	4.4	2			1.0000E-09
35	17.284		0.0008	0.0000%	817606	201297	4.1	2			1.0000E-09
36	17.585		0.0001	0.0000%	120016	23130	5.2	2			1.0000E-09
37	17.769		0.0001	0.0000%	66715	17050	3.9	2			1.0000E-09
38	17.886	Endos sulf	101.8264	3.2974%	221808	51071	4.3	2			

41	18.754	0.0006	0.0000%	571004	143691	4.0 2	0	.9974	6.5833E-04
42	19.172 Endrin ket	15.5353	0.5030%	44773	12423	3.6 2	0	.7017	1.0000E-09
43	19.288	0.0002	0.0000%	172305	50897	3.4 2			3.4698E-04
44	19.389	0.0014	0.0000%	1431992	262184	5.5 2			1.0000E-09
45	19.606	0.0008	0.0000%	846156	216578	3.9 2			1.0000E-09
46	19.756	0.0005	0.0000%	503403	129314	3.9 2			1.0000E-09
47	20.307	0.0002	0.0000%	166872	47174	3.5 2			1.0000E-09
48	20.441	0.0001	0.0000%	117065	20680	5.7 2			1.0000E-09
49	20.708	0.0008	0.0000%	795490	189498	4.2 2			1.0000E-09
50	20.908	0.0004	0.0000%	430198	104748	4.1 2			1.0000E-09
51	21.042	0.0002	0.0000%	225273	56002	4.0 2			1.0000E-09
52	21.326	0.0000	0.0000%	26202	7554	3.5 2			1.0000E-09
53	21.510	0.0003	0.0000%	283377	63134	4.5 2			1.0000E-09
54	21.760	0.0019	0.0001%	1884327	457448	4.1 3			1.0000E-09
55	21.910	0.0002	0.0000%	204061	36958	5.5 4			1.0000E-09
56	22.762	0.0000	0.0000%	34039	9140	3.7 1			1.0000E-09
57	22.946	0.0005	0.0000%	466562	111552	4.2 2			1.0000E-09
58	23.129	0.0014	0.0000%	1397185	297481	4.7 2			1.0000E-09
59	23.781	0.0001	0.0000%	63272	15567	4.1 1			1.0000E-09
60	24.132	0.0000	0.0000%	23105	5605	4.1 1			1.0000E-09
61	24.532	0.0000	0.0000%	26740	5787	4.6 2			1.0000E-09
62	24.733	0.0002	0.0000%	222538	48192	4.6 2			1.0000E-09
63	25.985	0.0005	0.0000%	509094	92389	5.5 2			1.0000E-09
64	26.319	0.0000	0.0000%	29914	5455	5.5 2			1.0000E-09
65	27.555	0.0002	0.0000%	172903	30794	5.6 1			1.0000E-09
66	28.373 DCB	296.2156	9.5913%	1590381	250481	6.3 1	0	0	1.8625E-04

TOTAL AMOUNT = 3088.3625

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:OV14E123.ATB
Data File = D:OV14E123.PTS Printed on 11-21-1997 at 03:55:38
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 23:45:23 Version 5.1.5

Sample Name: INDB 20-40
Data File: D:NV14E110
Date: 11-20-1997 19:17:17 Method: M:APES-E 11-21-1997 22:31:52 # 393
Interface: 2 Cycle#: 110 Operator JJK Channel#: 0 Vial#: N.A.
Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0:
Detector 1: ECD
Misc. Information:

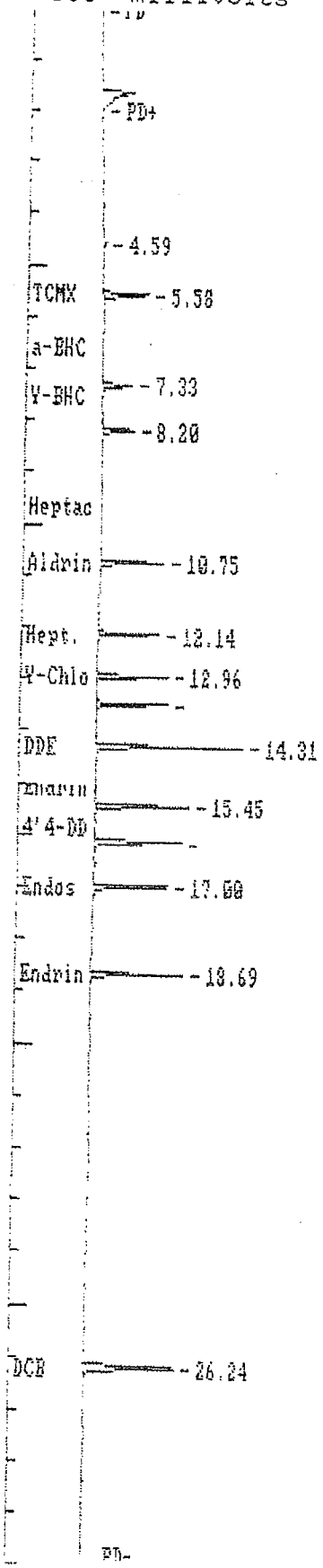
Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	4.592		0.0000	0.0000%	7661	1441	5.3	1			1.0000E-09
2	5.678	TCMX	18.4874	4.9792%	31788	17469	1.7	1	0	.3201	2.2604E-04
3	7.331	B-BHC	19.1462	5.1566%	49397	11727	4.2	1	0	0	3.8760E-04
4	8.200	d-BHC	20.0798	5.4080%	47037	12515	3.8	1	0	0	4.2699E-04
5	10.755	Aldrin	18.7596	5.0525%	84343	24566	3.4	1	0	0	2.2242E-04
6	12.141	Hept. epox.	19.6588	5.2946%	80090	23626	3.4	1	0	0	2.4546E-04
7	12.959	Y-Chlordane	19.1733	5.1639%	96231	27054	3.6	1	0	0	1.9924E-04
8	13.510	a-Chlordane	19.1361	5.1539%	98494	27288	3.6	1	0	0	1.9429E-04
9	14.312	DDE	37.9485	10.2206%	195511	56629	3.5	1	0	0	1.9413E-04
10	15.447	Endoslf II	41.2226	11.1024%	128656	36129	3.6	1	0	0	3.2041E-04
11	16.149	Endrin ald	40.1752	10.8197%	126520	33144	3.8	1	0	0	3.1753E-04
12	17.001	Endos sulf	40.1154	10.8044%	109437	28479	3.8	1	0	0	3.6653E-04
13	18.687	Endrin ket.	42.3183	11.3961%	121185	35437	3.4	1	0	0	3.4915E-04
14	26.236	DDB	35.0809	9.4482%	181263	34495	5.3	1	0	0	1.9354E-04

TOTAL AMOUNT = 371.2960

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E110.PTS Printed on 11-21-1997 at 23:45:28
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ll Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 23:46:14 Version 5.1.5

Sample Name: IND& 20-200 Data File: D:NV14F111

Date: 11-20-1997 19:49:59 Method: M:APES-E 11-21-1997 22:31:52 # 398

Interface: 2 Cycle#: 111 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

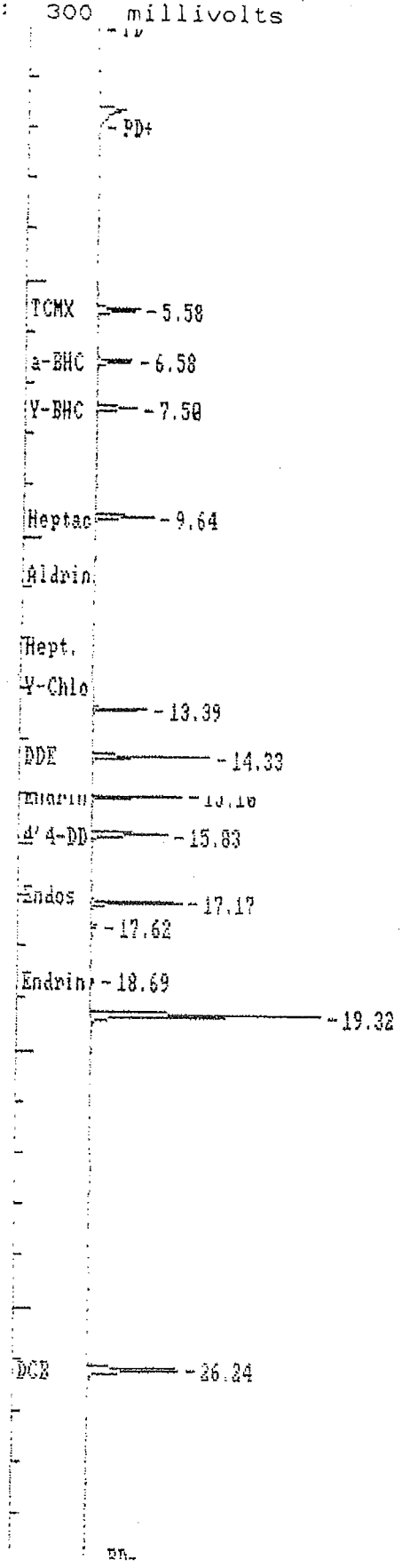
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.578	TCMX	17.9967	3.5397%	79617	16490	4.8	1	0	.3201	2.2604E-04
2	6.580	a-BHC	19.0651	3.7498%	58110	13563	4.3	1	0	.2559	3.2803E-04
3	7.498	Y-BHC	19.0509	3.7470%	61591	15673	3.9	1	0	0	3.0931E-04
4	9.636	Heptachlor	21.4414	4.2178%	62892	22353	2.8	1	0	0	3.4087E-04
5	13.393	Endosulfan I	19.5456	3.8443%	71459	20858	3.4	1	0	0	2.7352E-04
6	14.329	Dieldrin	38.0730	7.4884%	160211	45556	3.5	1	0	0	2.3764E-04
7	15.097	Endrin	40.4380	7.9536%	118443	34687	3.4	1	0	0	3.4141E-04
8	15.832	4'4-DDD	37.5317	7.3820%	111169	29220	3.8	1	0	0	3.3761E-04
9	17.168	DDT	39.7102	7.8105%	125564	34824	3.6	1	0	0	3.1636E-04
10	17.613		0.0000	0.0000%	8751	2026	4.3	1			1.0000E-29
11	19.537	Endrin Ket.	2.1109	0.4152%	5046	1668	3.6	1	0	0	3.4915E-04
12	13.322	Methoxychlor	217.3156	42.7414%	339139	89299	3.8	1	0	0	3.4216E-04
13	26.236	DDE	35.6445	7.0108%	184175	34881	5.3	1	0	0	1.9354E-04

TOTAL AMOUNT = 508.4236

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E111.PTS Printed on 11-21-1997 at 23:46:24
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ll Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 23:52:50 Version 5.1.5

Sample Name: INDB 20-40
Data File: D:0V14E110
Date: 11-20-1997 19:17:17 Method: M:8PES-E 11-21-1997 22:32:03 # 391
Interface: 2 Cycle#: 110 Operator JJK Channel#: 1 Vial#: N.A.
Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0: Detector 1: ECD
Misc. Information:

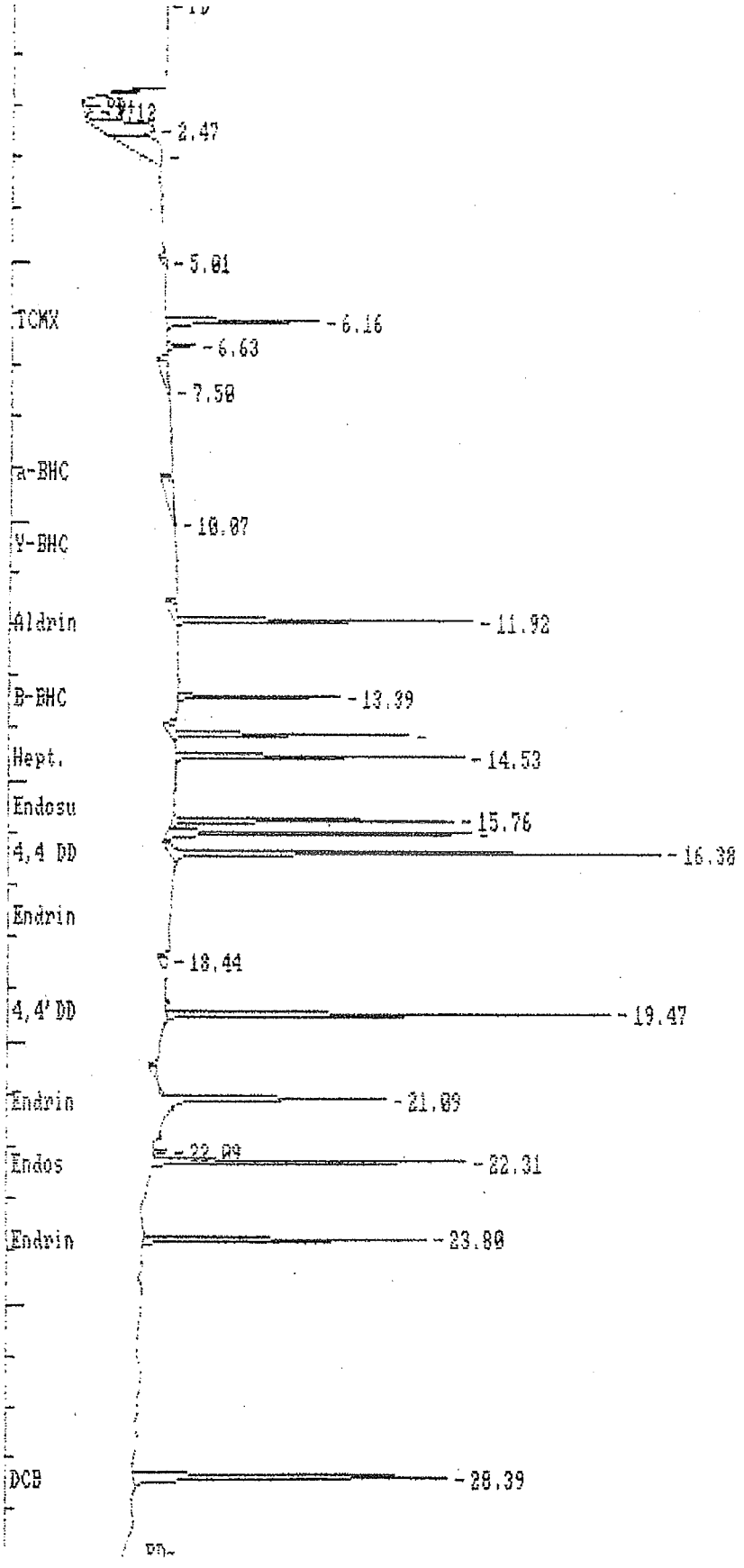
Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.121		0.0000	0.0000%	34487	3653	9.4	1			1.0000E-09
2	2.472		0.0003	0.0001%	311695	19800	15.7	2			1.0000E-09
3	3.006		0.0003	0.0001%	311232	4962	62.7	2			1.0000E-09
4	5.010		0.0000	0.0000%	12021	1581	7.6	1			1.0000E-09
5	6.162 TCMX		17.9529	5.0503%	282111	59532	4.7	1	0	.5269	6.3638E-05
6	6.630		0.0000	0.0000%	44884	11059	4.1	1			1.0000E-09
7	7.498		0.0001	0.0000%	85347	1391	61.4	1			1.0000E-09
8	10.070		0.0001	0.0000%	146739	881	166.6	1			1.0000E-09
9	11.924 Aldrin		20.6647	5.8131%	457268	114896	4.0	1	0	0	4.5192E-05
10	13.393 B-BHC		17.8393	5.0183%	203743	62697	3.2	1	0	0	8.7553E-05
11	14.111 d-BHC		20.3071	5.7125%	329010.	92254	3.5	1	0	0	6.3064E-05
12	14.529 Hept. epox.		18.2139	5.1237%	385598	111029	3.5	1	0	0	4.7237E-05
13	15.765 Y-Chlordane		18.8827	5.2950%	407719	108849	3.7	2	0	0	4.6166E-05
14	15.999 a-Chlordane		19.7561	5.5576%	443190	117359	3.8	2	0	0	4.4577E-05
15	16.383 4,4 DDE		38.9710	10.9628%	694191	197037	3.7	1	0	0	5.6139E-05
16	18.437		0.0000	0.0000%	27664	2835	9.8	1			1.0000E-09
17	19.472 EndosIfII		37.2905	10.4901%	597878	169625	3.5	1	0	0	6.2371E-05
18	21.092 Endrin ald		33.6189	9.4573%	337635	83903	4.0	1	0	0	9.9572E-05
19	22.094		0.0000	0.0000%	25180	5349	4.7	2			1.0000E-09
20	23.311 Endos sulf		38.0350	10.6996%	427780	120415	3.6	2	0	0	8.8913E-05
21	23.797 Endrin ket		37.4748	10.5419%	449295	109122	4.1	1	0	0	8.3410E-05
22	28.390 DDD		36.5344	10.2778%	747425	120965	6.2	1	0	0	4.8881E-05

TOTAL AMOUNT = 355.4825

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E110.PTS Printed on 11-21-1997 at 23:53:01
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
11 Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 23:54:17 Version 5.1.5

Sample Name: INDA 20-200
Data File: D:0V14E111
Date: 11-20-1997 19:49:59 Method: M:SPES-E 11-21-1997 22:32:03 # 391
Interface: 2 Cycle#: 111 Operator JJK Channel#: 1 Vial#: N.A.
Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0: Detector 1: ECD
Misc. Information:

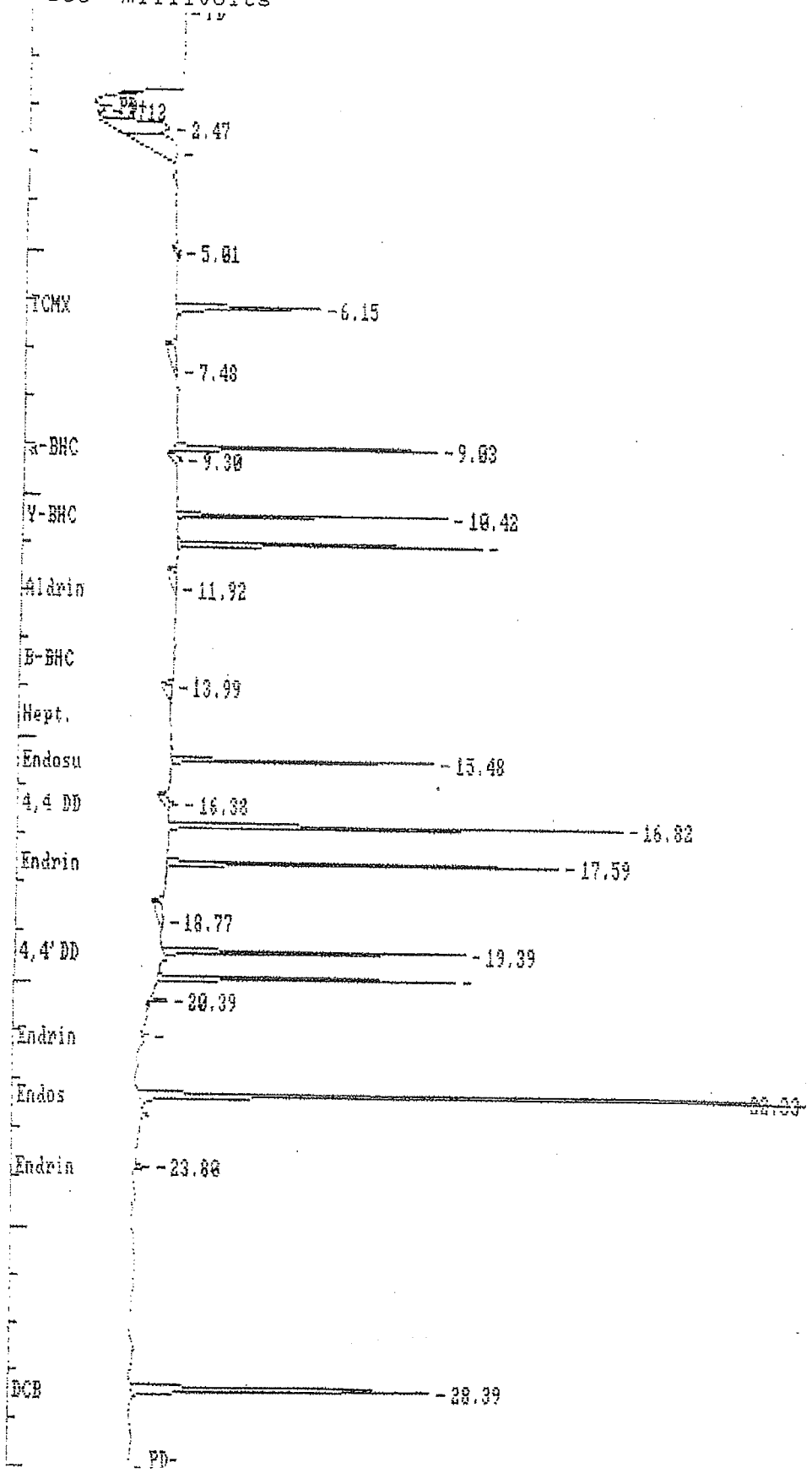
Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.121		0.0000	0.0000%	25035	3596	9.7	1			1.0000E-09
2	2.472		0.0003	0.0001%	333193	21289	15.7	2			1.0000E-09
3	2.989		0.0003	0.0001%	344917	6288	54.9	2			1.0000E-09
4	5.010		0.0000	0.0000%	10627	1810	5.9	1			1.0000E-09
5	6.146	TCMX	18.4557	3.8384%	290013	59385	4.9	1	0	.2544	6.3638E-05
6	7.482		0.0001	0.0000%	80934	1435	56.4	1			1.0000E-09
7	9.035	a-BHC	18.0846	3.7612%	395799	108280	3.7	1	0	0	4.5691E-05
8	9.302		0.0000	0.0000%	29712	3216	9.2	1			1.0000E-09
9	10.421	Y-BHC	17.9912	3.7418%	374829	110569	3.4	1	0	0	4.7998E-05
10	11.022	Heptachlor	18.4973	3.8470%	448672	124656	3.6	1	0	0	4.1227E-05
11	11.924	Aldrin	3.2103	0.6677%	71037	1721	41.3	1	0	0	4.5192E-05
12	13.995	d-BHC	2.3639	0.4919%	37579	3196	11.8	1	0	-.8248	6.3064E-05
13	15.481	Endosulf I	18.5647	3.8610%	372203	107596	3.5	1	0	0	4.9878E-05
14	16.383	4,4 DDE	2.5996	0.5406%	46304	5016	9.2	1	0	0	5.6139E-05
15	16.817	Dieldrin	37.4945	7.7980%	661215	184950	3.6	1	0	0	5.6705E-05
16	17.585	Endrin	38.0738	7.9185%	551765	159823	3.5	1	0	0	6.9004E-05
17	18.771		0.0001	0.0000%	75244	1917	39.2	1			1.0000E-09
18	19.389	4,4'DDD	36.0052	7.4882%	426373	123514	3.5	1	0	0	8.4443E-05
19	19.923	4,4 DDT	37.7410	7.8493%	418019	121704	3.4	1	0	0	9.0285E-05
20	20.391		0.0000	0.0000%	22952	7634	3.0	1			1.0000E-09
21	21.390	Endrin ald	1.1329	0.2356%	11377	3106	3.7	1	0	0	9.9572E-05
22	22.328	Methoxychl	191.9701	39.9254%	1045661	264627	4.0	1	0	0	1.8353E-04
23	23.737	Endrin ket	1.9534	0.4063%	22420	6023	3.9	1	0	0	8.7110E-05
24	29.390	DCS	36.6777	7.6291%	758353	121910	6.2	1	0	0	4.8361E-05

TOTAL AMOUNT = 480.8225

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E111.PTS Printed on 11-21-1997 at 23:54:28
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
11 Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-22-1997 00:23:36 Version 5.1.5

* Sample Name: IND9 20-40 Data File: D:NV14E133
* Date: 11-21-1997 19:16:10 Method: M:APES-E 11-21-1997 22:31:52 # 396
* Interface: 2 Cycle#: 133 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

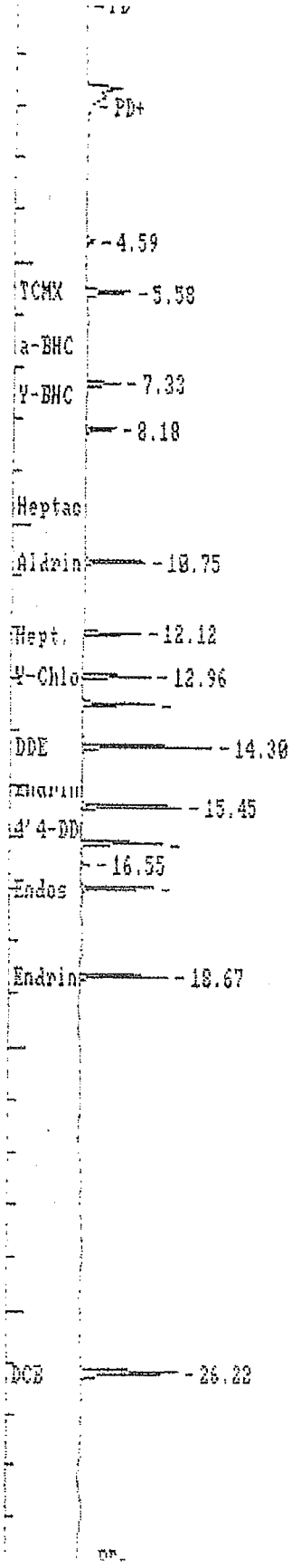
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	AREA/ HEIGHT	HEIGHT BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	4.592		0.0000	0.0000%	15005	2393	5.2 1			1.0000E-09
2	5.578	TCMX	17.6442	4.9875%	78058	16695	4.7 1	0	.3201	2.2604E-04
3	7.331	B-BHC	19.7699	5.5884%	51006	12764	4.0 1	0	0	3.8760E-04
4	8.183	d-BHC	16.9155	4.7816%	39616	11213	3.5 1	0	-.2073	4.2693E-04
5	10.755	Aldrin	17.9671	5.0788%	80760	22741	3.6 1	0	0	2.2242E-04
6	12.124	Hept. epox.	19.2927	5.4507%	78558	21924	3.6 1	0	-.1393	2.4546E-04
7	12.959	Y-Chlordane	18.4309	5.2099%	92505	25966	3.6 1	0	0	1.9924E-04
8	13.494	a-Chlordane	18.1174	5.1213%	93250	27319	3.4 1	0	-.1213	1.9429E-04
9	14.295	DDE	34.5888	9.7774%	178202	49001	3.6 1	0	-.1173	1.9410E-04
10	15.447	Endosulf II	40.9735	11.5821%	127878	37824	3.4 1	0	0	3.2041E-04
11	16.149	Endrin ald	38.6515	10.9258%	115954	31006	3.7 1	0	0	3.3331E-04
12	16.550		0.0000	0.0000%	12001	3274	3.7 1			1.0000E-09
13	17.301	Endos sulf	36.2020	10.2334%	98759	27437	3.6 1	0	0	3.6637E-04
14	18.671	Endrin ket.	39.1767	11.0742%	112202	33103	3.4 1	0	0	3.4916E-04
15	26.219	DDD	36.0443	10.1868%	186241	36143	5.2 1	0	-.0300	1.9354E-04

TOTAL AMOUNT = 353.7644

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E133.PTS Printed on 11-22-1997 at 00:23:41
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
.1 Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-22-1997 00:23:51 Version 5.1.5

* Sample Name: INDA 20-200 Data File: D:NV14E134
* Date: 11-21-1997 19:49:10 Method: M:APES-E 11-21-1997 22:31:52 # 398
* Interface: 2 Cycle#: 134 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

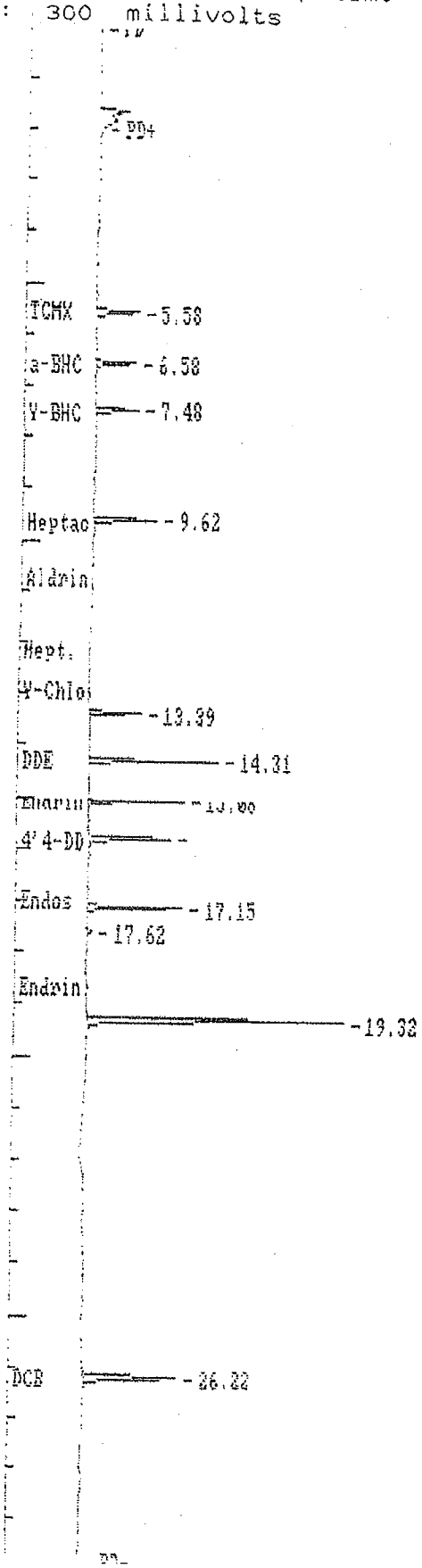
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.578	TCMX	17.6911	3.2374%	78365	16733	4.7	1	0	.0201	2.2604E-04
2	6.580	a-BHC	20.2333	3.7026%	81668	15801	5.1	1	0	.2559	2.4780E-04
3	7.462	Y-BHC	20.2629	3.7081%	65510	16996	3.9	1	0	-.2167	3.0931E-04
4	9.619	Heptachlor	23.0871	4.2249%	99255	24571	3.6	1	0	-.1743	2.5967E-04
5	13.393	Endosulfan 1	19.9364	3.6483%	72887	20306	3.6	1	0	0	2.7352E-04
6	14.312	4,4-Dieldrin	32.0499	5.8651%	165121	50376	3.3	1	0	0	1.9410E-04
7	15.080	Endrin	43.6953	7.9962%	127983	37064	3.5	1	0	-.1119	3.4141E-04
8	15.815	4'4-DDD	37.9155	6.9385%	112306	31882	3.5	1	0	-.1080	3.3761E-04
9	17.151	DDT	40.7182	7.4514%	128751	36879	3.5	1	0	0	3.1625E-04
10	17.618		0.0000	0.0000%	3586	2143	1.7	1			1.0000E-09
11	19.322	Methoxychlor	254.3334	46.5438%	396006	100003	4.0	1	0	0	6.4226E-04
12	26.219	DCB	36.5233	6.6838%	138719	36119	3.8	1	0	-.0300	1.9354E-04

TOTAL AMOUNT = 546.4617

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E134.PTS Printed on 11-22-1997 at 00:23:55
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
11 Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-22-1997 00:22:00 Version 5.1.5 **********

* Sample Name: INDB 20-40 Data File: D:0V14E133 *
* Date: 11-21-1997 19:16:10 Method: M:BPES-E 11-21-1997 22:32:03 # 391 *
* Interface: 2 Cycle#: 133 Operator JJK Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.104		0.0001	0.0000%	125954	13474	9.3	1			1.0000E-09
2	2.472		0.0002	0.0001%	154298	7425	20.8	1			1.0000E-09
3	5.110		0.0000	0.0000%	25405	1911	13.3	1			1.0000E-09
4	6.146	TCMX	16.6999	5.6159%	262421	57753	4.5	1	0	.2544	6.3638E-05
5	6.630		0.0001	0.0000%	82820	19479	4.3	2			1.0000E-09
6	6.797		0.0000	0.0000%	22979	4982	4.6	2			1.0000E-09
7	6.947		0.0000	0.0000%	9633	1912	5.0	1			1.0000E-09
8	10.053		0.0001	0.0000%	132803	1011	131.3	1			1.0000E-09
9	11.924	Aldrin	16.2125	5.4521%	358753	106058	3.4	1	0	0	4.5192E-05
10	13.392	B-BHC	16.1472	5.4301%	184417	54089	3.4	1	0	0	8.7558E-05
11	14.111	d-BHC	14.7673	4.9662%	234172	67009	3.5	1	0	0	6.3064E-05
12	14.529	Hept. epox.	16.0870	5.4098%	340562	100628	3.4	1	0	0	4.7237E-05
13	15.765	Y-Chlordane	16.2791	5.4741%	352597	101791	3.5	2	0	0	4.6166E-05
14	15.999	a-Chlordane	16.9294	5.6931%	379777	106262	3.6	2	0	0	4.4577E-05
15	16.383	4,4 DDE	34.0377	11.4464%	606314	170623	3.6	1	0	0	5.6139E-05
16	19.472	EndoslfII	31.2925	10.5232%	501712	140022	3.6	1	0	0	6.2371E-05
17	21.075	Endrin ald	27.1648	9.1352%	272817	67372	4.0	1	0	0	9.9572E-05
18	22.077		0.0000	0.0000%	44442	11581	3.8	1			1.0000E-09
19	22.294	Endos sulf	29.5719	9.9446%	332595	93803	3.5	1	0	0	8.8913E-05
20	23.781	Endrin ket	29.8714	10.0453%	358128	85354	4.2	1	0	0	8.3413E-05
21	26.002		0.0001	0.0000%	38335	2457	15.6	1			1.0000E-09
22	28.373	DCB	32.3054	10.8638%	660904	107218	6.2	1	0	0	4.8881E-05

TOTAL AMOUNT = 297.3661

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:OV14E133.PTS Printed on 11-22-1997 at 00:22:16
Start time: 0.00 min. Stop time: 30.03 min. Offset: 1 mv.
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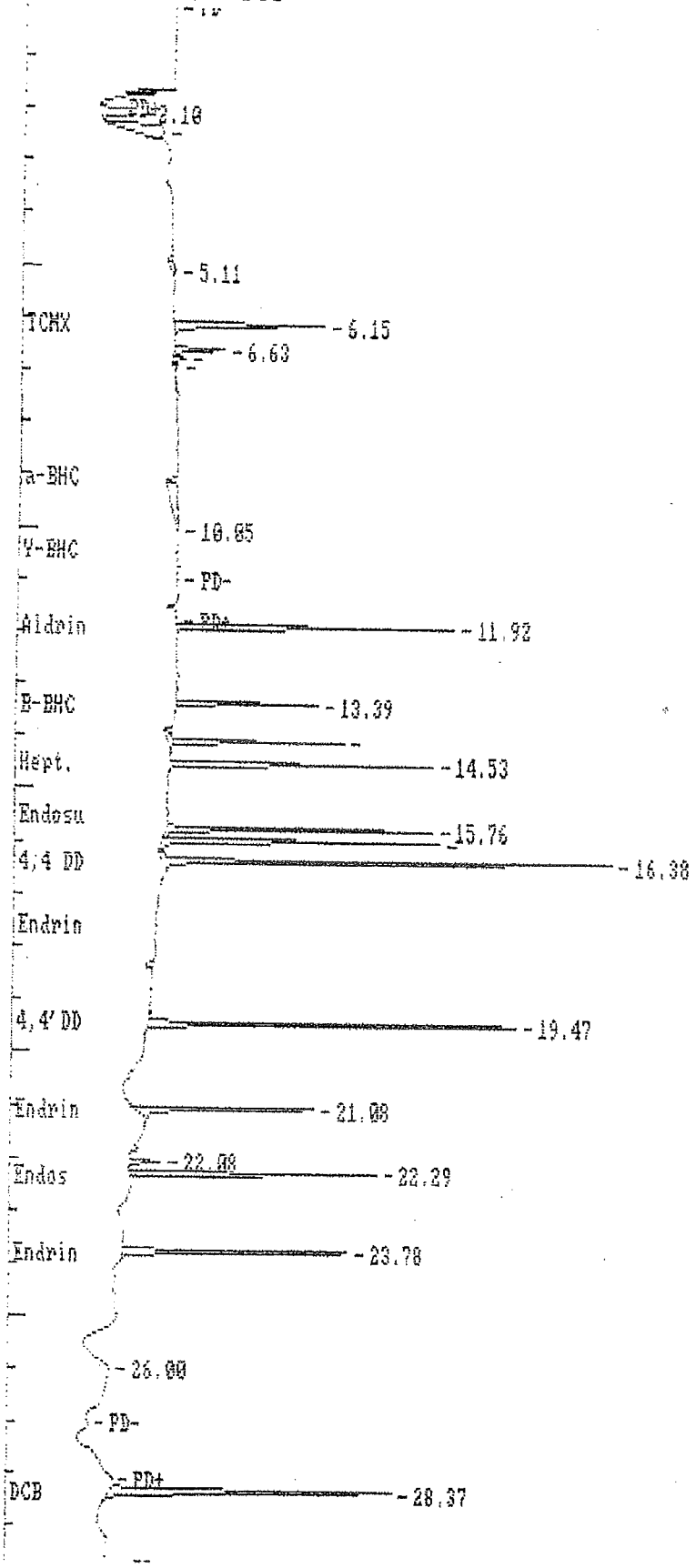


EXTERNAL STANDARD TABLE

11-22-1997 00:18:07 Version 5.1.5

Sample Name: INDA 20-200 Data File: D:\DV14E134

Date: 11-21-1997 19:49:10 Method: M:SPES-E 11-21-1997 22:32:03 # 391

Interface: 2 Cycle#: 134 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

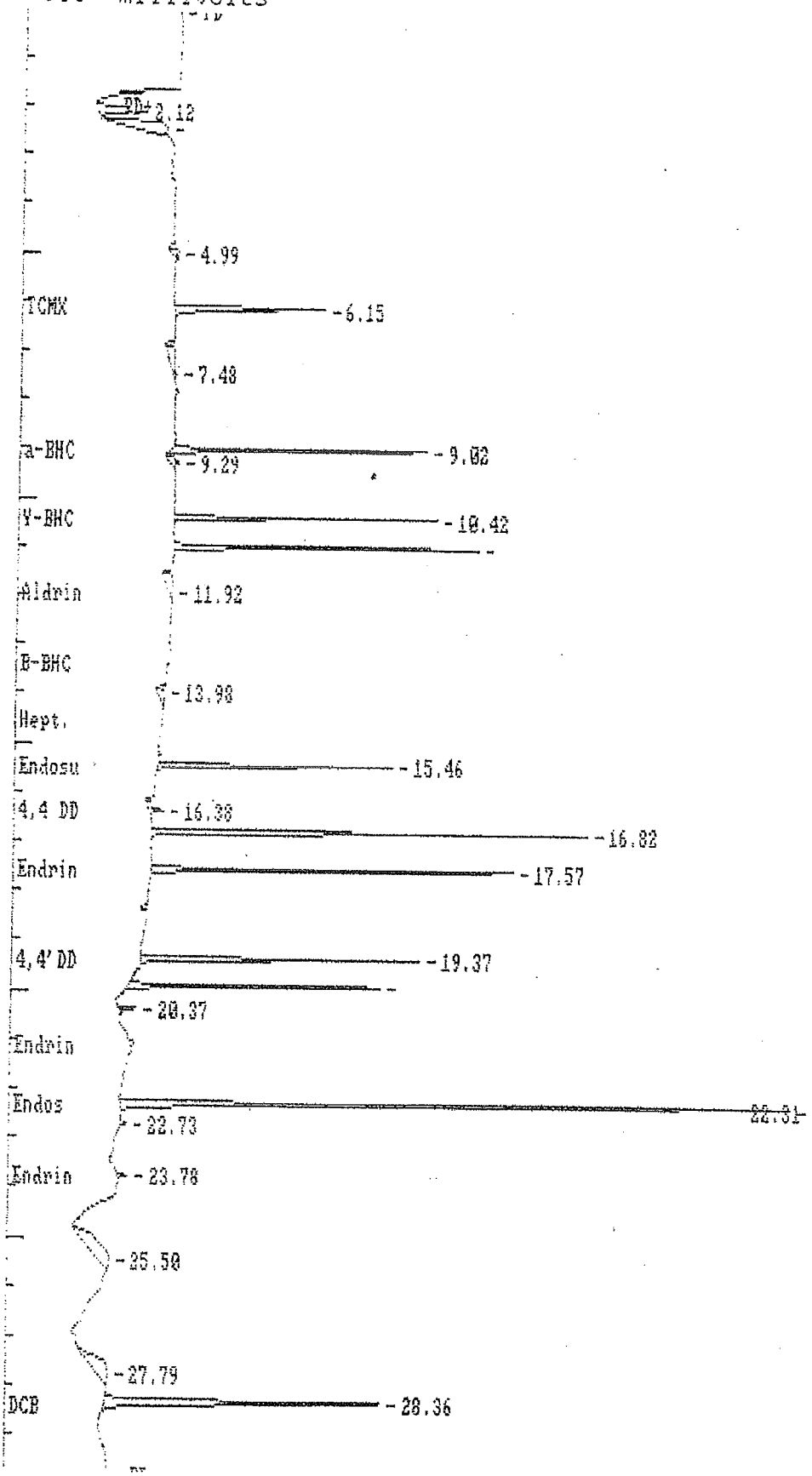
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.121		0.0001	0.0000%	131922	14002	9.4	1			1.0000E-09
2	2.472		0.0001	0.0000%	173406	8352	20.8	1			1.0000E-09
3	4.993		0.0000	0.0000%	13420	2658	5.8	1			1.0000E-09
4	6.146	TCMX	17.9619	5.0904%	282253	61693	4.6	1	0	.2544	6.3638E-05
5	7.482		0.0001	0.0000%	81646	1350	60.5	1			1.0000E-09
6	9.018	a-BHC	17.2571	4.8907%	377688	104835	3.6	1	0	-.1881	4.5691E-05
7	9.285		0.0000	0.0000%	31662	3430	9.2	1			1.0000E-09
8	10.421	Y-BHC	17.1745	4.8673%	357814	107266	3.3	1	0	0	4.7998E-05
9	11.022	Heptachlor	17.6919	5.0139%	429136	124240	3.5	1	0	0	4.1227E-05
10	11.924	Aldrin	3.0149	0.8542%	66693	1567	42.6	1	0	0	4.5192E-05
11	13.978	d-BHC	1.7044	0.4830%	27027	2522	10.7	1	0	-.9432	6.3061E-05
12	15.464	Endosulf I	16.8054	4.7627%	336932	96085	3.5	1	0	-.1083	4.9878E-05
13	16.383	4,4 DDE	2.0862	0.5918%	37197	5558	6.7	1	0	0	5.6133E-05
14	16.817	Dieldrin	33.6833	9.5459%	594006	176725	3.4	1	0	0	5.6705E-05
15	17.568	Endrin	35.5910	10.0865%	515786	146840	3.5	1	0	0	6.9004E-05
16	19.372	4,4'DDD	31.9747	9.0617%	378645	113517	3.3	1	0	0	8.4445E-05
17	19.923	4,4 DDT	31.9951	9.0674%	354378	103137	3.4	1	0	0	9.0285E-05
18	20.374		0.0000	0.0000%	21897	7038	3.1	1			1.0000E-09
19	22.311	~~Endos-sulf~~ Methoxy	90.4579	25.6358%	1017380	271955	3.7	1	0	0	8.8913E-05
20	22.729		0.0000	0.0000%	8853	2539	3.5	1			1.0000E-09
21	23.791	Endrin ket	1.6702	0.4733%	20324	4423	4.5	1	0	0	8.2213E-05
22	26.301		0.0001	0.0001%	103776	3739	54.5	1			1.0000E-09
23	27.769		0.0001	0.0000%	144982	3394	42.7	1			1.0000E-09
24	28.357	DDB	33.7863	9.5752%	671211	112470	6.1	1	0	-.1176	4.3881E-05

TOTAL AMOUNT = 352.8571

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:OV14E134.PTS Printed on 11-22-1997 at 00:18:29
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
11 Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-2, S-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78619

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E113

% Moisture: 16 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/20/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	4	U
72-55-9	4,4'-DDE	4	U
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	20	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

EXTERNAL STANDARD TABLE

********** 11-22-1997 18:26:57 Version 5.1.5 **********

* Sample Name: 78619 P.F
* Date: 11-20-1997 21:49:10 Method: M:APES-I 11-21-1997 22:31:52 # 398
* Interface: 2 Cycle#: 113 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Data File: D:NV14E113

* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

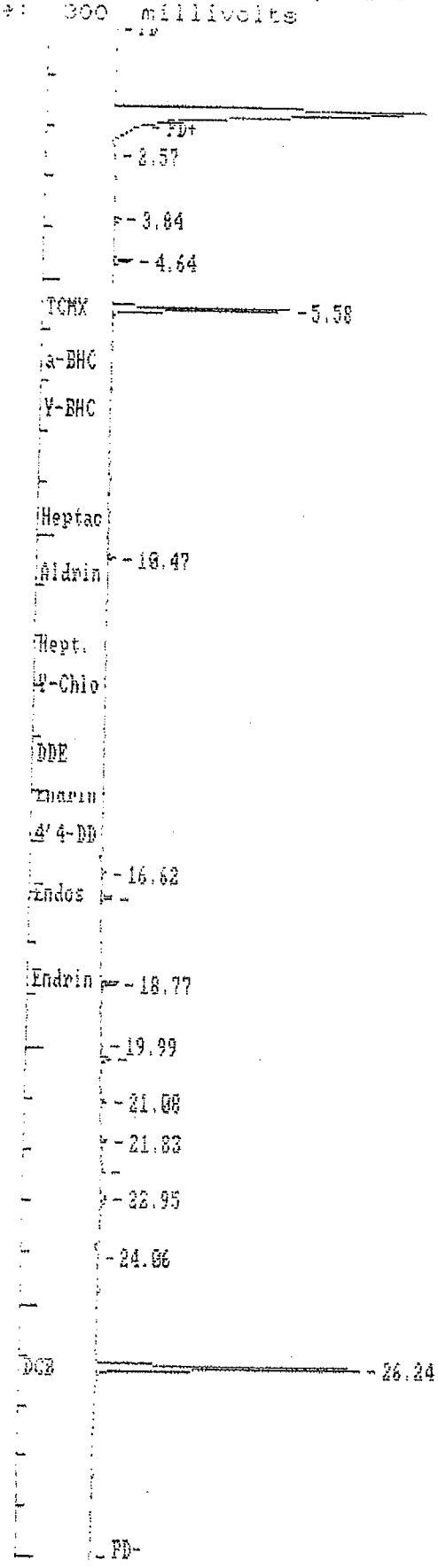
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.572		0.0000	0.0000%	20357	947	21.5	1			1.0000E-09
2	3.841		0.0000	0.0000%	13112	2342	5.6	1			1.0000E-09
3	4.643		0.0000	0.0000%	38509	7966	4.8	1			1.0000E-09
4	5.578	TCMX	74.5813	38.4531%	329948	69504	4.7	1	0	.3201	2.2604E-04
5	10.471		0.0000	0.0000%	15123	3452	4.4	1			1.0000E-09
6	16.616		0.0000	0.0000%	6256	1710	3.7	1			1.0000E-09
7	17.101	DBT	6.1264	3.1587%	19372	4670	4.1	1	0	-.3914	3.1626E-04
8	18.771	Endrin ket.	9.3084	4.7993%	26659	6504	4.1	1	0	.4484	3.4916E-04
9	19.990		0.0000	0.0000%	5705	1196	4.8	1			1.0000E-09
10	20.257		0.0000	0.0000%	20251	4129	4.9	1			1.0000E-09
11	21.075		0.0000	0.0000%	9177	2369	3.9	1			1.0000E-09
12	21.827		0.0000	0.0000%	12317	2852	4.3	1			1.0000E-09
13	22.428		0.0000	0.0000%	5912	1661	3.6	1			1.0000E-09
14	22.946		0.0000	0.0000%	10092	2263	4.5	1			1.0000E-09
15	24.065		0.0000	0.0000%	9409	875	10.7	1			1.0000E-09
16	26.236	DCB	103.9377	53.5889%	537046	102923	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 193.9539

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E113.PTS Printed on 11-22-1997 at 13:27:01
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-10, S-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78620

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E114

% Moisture: 20 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/20/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3	U
319-85-7	beta-BHC	3	U
319-86-8	delta-BHC	3	U
58-89-9	gamma-BHC (Lindane)	3	U
76-44-8	Heptachlor	3	U
309-00-2	Aldrin	3	U
1024-57-3	Heptachlor epoxide	3	U
959-98-8	Endosulfan I	3	U
60-57-1	Dieldrin	3	U
72-55-9	4,4'-DDE	5	U
72-20-8	Endrin	5	U
33213-65-9	Endosulfan II	5	U
72-54-8	4,4'-DDD	5	U
1031-07-8	Endosulfan sulfate	5	U
50-29-3	4,4'-DDT	5	U
72-43-5	Methoxychlor	5	U
53494-70-5	Endrin ketone	30	U
7421-36-3	Endrin aldehyde	5	U
57-74-9	Chlordane	5	U
8001-35-2	Toxaphene	30	U
12674-11-2	Aroclor-1016	60	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

EXTERNAL STANDARD TABLE

********** 11-22-1997 18:27:10 Version 5.1.5 **********

Name: 78620 [illegible]

11-20-1997 22:31:53 Method: M:APES-E 11-21-1997 22:31:52 # 399

Data File: D:NV14E114

face: 2 Cycle#: 114 Operator JJK Channel#: 0 Vial#: N.A.

ting Peak Width: 10 Threshold: 20 Area Threshold: 2000

****

Instrument Type: PE 3500

Solvent Description: Column Type: RTX 5/1701

Conditions:

Detector 0:

* Misc. Information: Detector 1: ECD

****

Starting Delay: 0.00

Area reject: 2000

Amount injected: 1.00

Sample Weight: 1.00000

Ending retention time: 30.00

One sample per 1.002 sec.

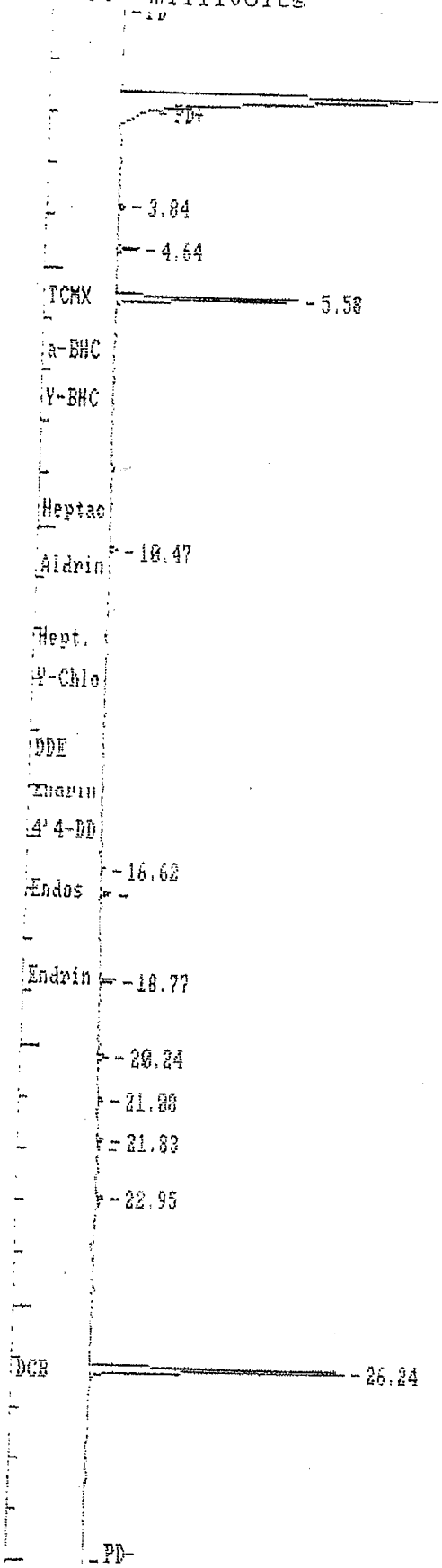
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.841		0.0000	0.0000%	13749	2469	5.6	1			1.0000E-09
2	4.643		0.0000	0.0000%	40702	8420	4.8	1			1.0000E-09
3	5.578	TCMX	76.7995	39.9158%	339761	71082	4.8	1	0	.3201	2.2604E-04
4	10.471		0.0000	0.0000%	14217	3214	4.4	1			1.0000E-09
5	16.616		0.0000	0.0000%	5647	1592	3.5	1			1.0000E-09
6	17.101	DDT	6.1975	3.2211%	19597	4426	4.4	1	0	-.3914	3.1626E-04
7	18.771	Endrin ket.	8.5310	4.4339%	24433	6002	4.1	1	0	.4484	2.4916E-04
8	20.240		0.0000	0.0000%	19969	4125	4.8	1			1.0000E-09
9	21.075		0.0000	0.0000%	9217	2227	4.1	1			1.0000E-09
10	21.827		0.0000	0.0000%	11254	2627	4.3	1			1.0000E-09
11	21.994		0.0000	0.0000%	5225	1209	4.3	1			1.0000E-09
12	22.346		0.0000	0.0000%	11271	2482	4.5	1			1.0000E-09
13	26.236	DCS	100.8758	52.4292%	521225	98267	5.3	1	0	0	1.9354E-04

TOTAL AMOUNT = 192.4040

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E114.PTS Printed on 11-22-1997 at 18:27:14
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-5, 5-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78622

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E115

% Moisture: 12 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/20/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	4	U
72-55-9	4,4'-DDE	4	U
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	20	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

EXTERNAL STANDARD TABLE

11-22-1997 18:28:05 Version 5.1.5

Sample Name: 78622 P/P

Date: 11-20-1997 22:58:19 Method: M:APES-E 11-21-1997 22:31:52 # 395

Data File: D:NV14E115

Interface: 2 Cycle#: 115 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00

Area reject: 2000

Amount injected: 1.00

Sample Weight: 1.00000

Ending retention time: 00.00

One sample per 1.002 sec.

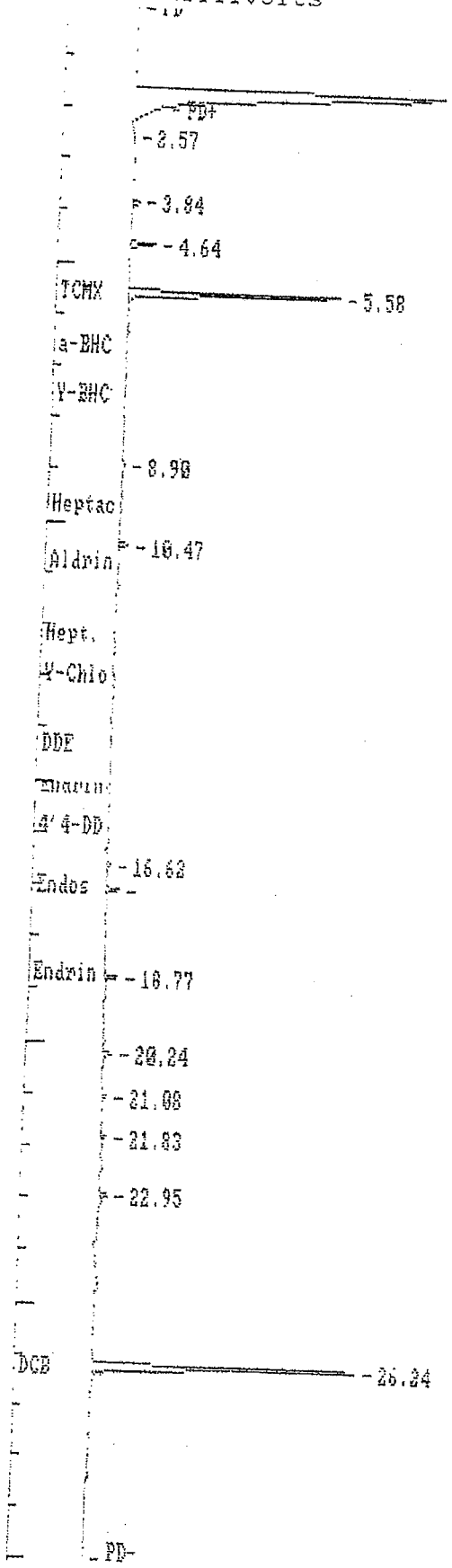
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.572		0.0000	0.0000%	18633	842	22.1	1			1.0000E-09
2	3.841		0.0000	0.0000%	17180	2913	5.9	1			1.0000E-09
3	4.643		0.0001	0.0000%	50312	10001	5.0	1			1.0000E-09
4	5.578	TCMX	91.6681	43.9438%	405539	81969	5.0	1	0	.3201	2.2604E-04
5	8.901		0.0000	0.0000%	5786	1202	4.8	1			1.0000E-09
6	10.471		0.0000	0.0000%	16663	3774	4.4	1			1.0000E-09
7	16.616		0.0000	0.0000%	4797	1329	3.6	1			1.0000E-09
8	17.101	DCT	7.0599	3.3839%	22321	5366	4.2	1	0	-.0914	3.1626E-04
9	19.771	End in ket.	7.1281	3.4170%	20415	5006	4.1	1	0	.4481	3.4916E-04
10	20.240		0.0000	0.0000%	17946	3732	4.8	1			1.0000E-09
11	21.375		0.0000	0.0000%	7138	1838	3.9	1			1.0000E-09
12	21.827		0.0000	0.0000%	9464	2215	4.3	1			1.0000E-09
13	22.946		0.0000	0.0000%	13403	2860	4.7	1			1.0000E-09
14	26.236	DCB	102.7476	49.2551%	530897	100698	5.3	1	0	0	1.9354E-04

TOTAL AMOUNT = 208.6028

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E11S.PTS Printed on 11-22-1997 at 18:28:13
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-7, 5-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78623

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E116

% Moisture: 19 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/20/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3	U
319-85-7	beta-BHC	3	U
319-86-8	delta-BHC	3	U
58-89-9	gamma-BHC (Lindane)	3	U
76-44-8	Heptachlor	3	U
309-00-2	Aldrin	3	U
1024-57-3	Heptachlor epoxide	3	U
959-98-8	Endosulfan I	3	U
60-57-1	Dieldrin	5	U
72-55-9	4,4'-DDE	5	U
72-20-8	Endrin	5	U
33213-65-9	Endosulfan II	5	U
72-54-8	4,4'-DDD	5	U
1031-07-8	Endosulfan sulfate	5	U
50-29-3	4,4'-DDT	5	U
72-43-5	Methoxychlor	30	U
53494-70-5	Endrin ketone	5	U
7421-36-3	Endrin aldehyde	5	U
57-74-9	Chlordane	30	U
8001-35-2	Toxaphene	60	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

EXTERNAL STANDARD TABLE

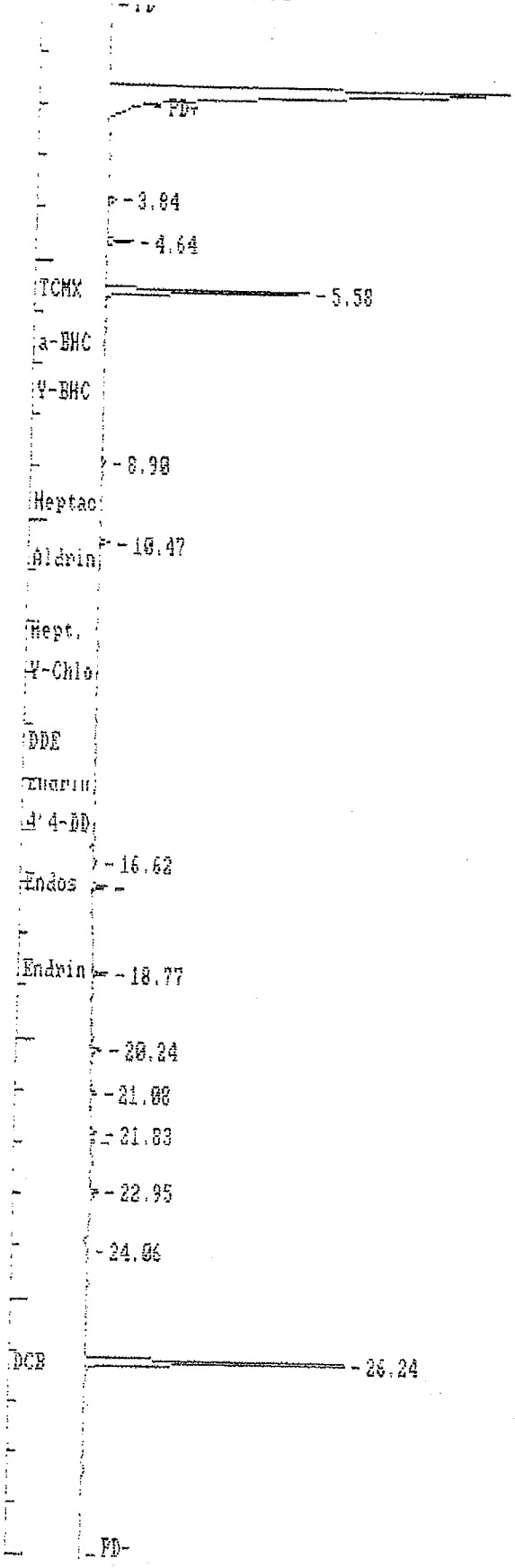
```
********************** 11-22-1997 19:29:12 Version 5.1.5 ***********************
* Sample Name: 79623 P/P                                                        *
* Date: 11-20-1997 23:30:5[illegible] Method: M:APES-E  11-21-1997 22:31:52  #  398 *
* Interface: 2   Cycle#:  116  Operator JJK Channel#: 0    Vial#: N.A.          *
* Starting Peak Width:  10   Threshold: 20  Area Threshold: 2000                *
*************************************************************************************
* Instrument Type: PE 8500                                                      *
*                 Solvent Description:          Column Type: RTX 5/1701         *
* Conditions:                                                                   *
*                 Detector 0:                                                   *
* Misc. Information:                                Detector 1: ECD             *
*************************************************************************************
Starting Delay:    0.00                                                         *
Area reject:       2000                          Ending retention time:    30.00
Amount injected:          1.00                   One sample per   1.002 sec.
Sample Weight:            1.00000                Dilution factor:          1.00
```

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.841		0.0000	0.0000%	17636	3031	5.8	1			1.0000E-09
2	4.640		0.0000	0.0000%	50763	10248	5.0	1			1.0000E-09
3	5.578	TCMX	87.7667	42.1472%	388280	79267	4.9	1	0	.3201	2.2604E-04
4	8.901		0.0000	0.0000%	6422	1351	4.8	1			1.0000E-09
5	10.471		0.0000	0.0000%	19030	4254	4.5	1			1.0000E-09
6	16.616		0.0000	0.0000%	6078	1694	3.6	1			1.0000E-09
7	17.101	DDT	7.8696	3.7791%	24884	5967	4.2	1	0	-.3914	3.1625E-04
8	18.771	Endrin ket.	8.8504	4.2501%	25348	6171	4.1	1	0	.4484	3.4915E-04
9	20.240		0.0000	0.0000%	21336	4429	4.8	1			1.0000E-09
10	21.075		0.0000	0.0000%	8563	2221	3.9	1			1.0000E-09
11	21.827		0.0000	0.0000%	11667	2785	4.2	1			1.0000E-09
12	21.994		0.0000	0.0000%	5690	1326	4.3	1			1.0000E-09
13	22.946		0.0000	0.0000%	12531	2708	4.6	1			1.0000E-09
14	24.065		0.0000	0.0000%	11733	989	11.9	1			1.0000E-09
15	26.236	DCB	103.7519	49.8235%	536086	100427	5.3	1	0	0	1.9354E-04

TOTAL AMOUNT = 208.2389

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E116.PTS Printed on 11-22-1997 at 18:29:23
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mV.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-9, S-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-78624

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E117

% Moisture: 16 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	2	U
72-55-9	4,4'-DDE	4	U
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	20	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

EXTERNAL STANDARD TABLE

11-22-1997 18:30:20 Version 5.1.5

* Sample Name: 78624 P/F
* Date: 11-21-1997 00:03:41 Method: M:APES-E 11-21-1997 22:31:52 # 998
* Interface: 2 Cycle#: 117 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Data File: D:NV14E117

* Instrument Type: PI 3500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

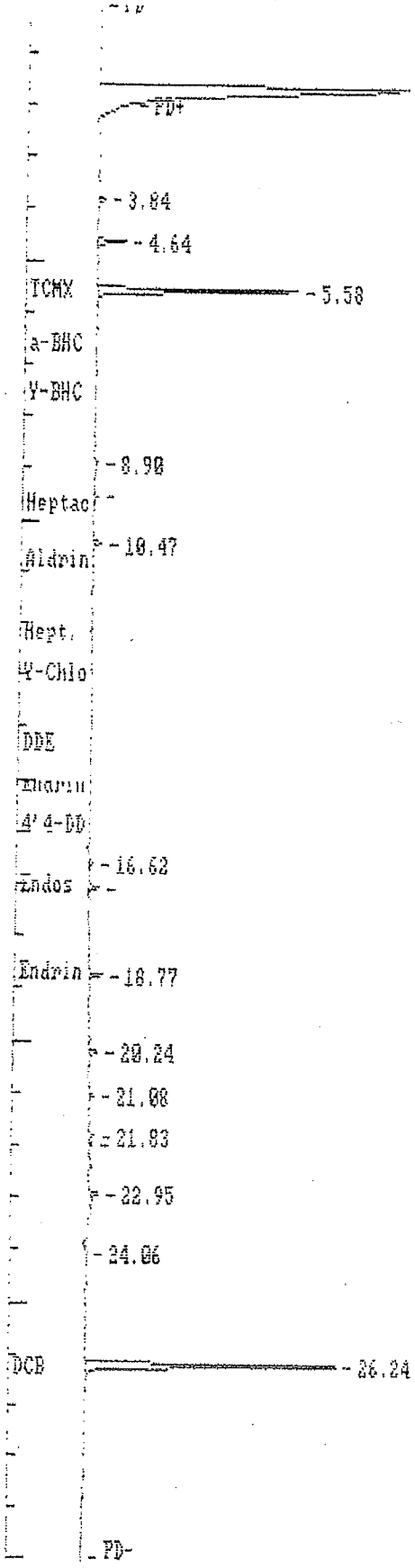
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.841		0.0000	0.0000%	16193	2765	5.9	1			1.0000E-09
2	4.643		0.0001	0.0000%	55729	11161	5.0	1			1.0000E-09
3	5.578	TCMX	86.2338	42.8568%	380614	77319	4.9	1	0	.3201	2.2604E-04
4	8.901		0.0000	0.0000%	6196	1340	4.6	1			1.0000E-09
5	9.569	Heptachlor	1.5401	0.7672%	5954	1660	3.6	1	0	-.6942	2.5867E-04
6	10.471		0.0000	0.0000%	15779	3600	4.4	1			1.0000E-09
7	16.616		0.0000	0.0000%	5215	1458	3.6	1			1.0000E-09
8	17.101	DDT	5.8086	2.8935%	18367	4344	4.2	1	0	-.2914	3.1626E-04
9	18.771	Endrin ket.	7.5678	3.7698%	21674	5286	4.1	1	0	.4484	3.4916E-04
10	20.240		0.0000	0.0000%	18130	3783	4.8	1			1.0000E-09
11	21.075		0.0000	0.0000%	7450	1962	3.8	1			1.0000E-09
12	21.827		0.0000	0.0000%	10020	2351	4.3	2			1.0000E-09
13	21.994		0.0000	0.0000%	5911	1368	4.3	2			1.0000E-09
14	22.946		0.0000	0.0000%	16401	3430	4.8	1			1.0000E-09
15	24.065		0.0000	0.0000%	10696	895	12.0	1			1.0000E-09
16	26.236	DCS	99.7968	49.7127%	515650	95790	5.4	1	0	0	1.9354E-04

TOTAL AMOUNT = 200.7473

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E117.PTS Printed on 11-22-1997 at 18:30:32
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-3, S-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-82199

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E131

% Moisture: 14 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	2	U
72-55-9	4,4'-DDE	5.4	
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	4	U
53494-70-5	Endrin ketone	20	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	4	U
8001-35-2	Toxaphene	20	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U
		40	U

EXTERNAL STANDARD TABLE

11-22-1997 19:54:03 Version 5.1.5

Sample Name: 82199 8/9 Data File: D:NV14E13:

Date: 11-21-1997 15:11:23 Method: M:APES-E 11-21-1997 22:31:52 # 299

Interface: 2 Cycle#: 131 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.000 sec.

Amount injected: 1.00 Dilution factor: 1.00

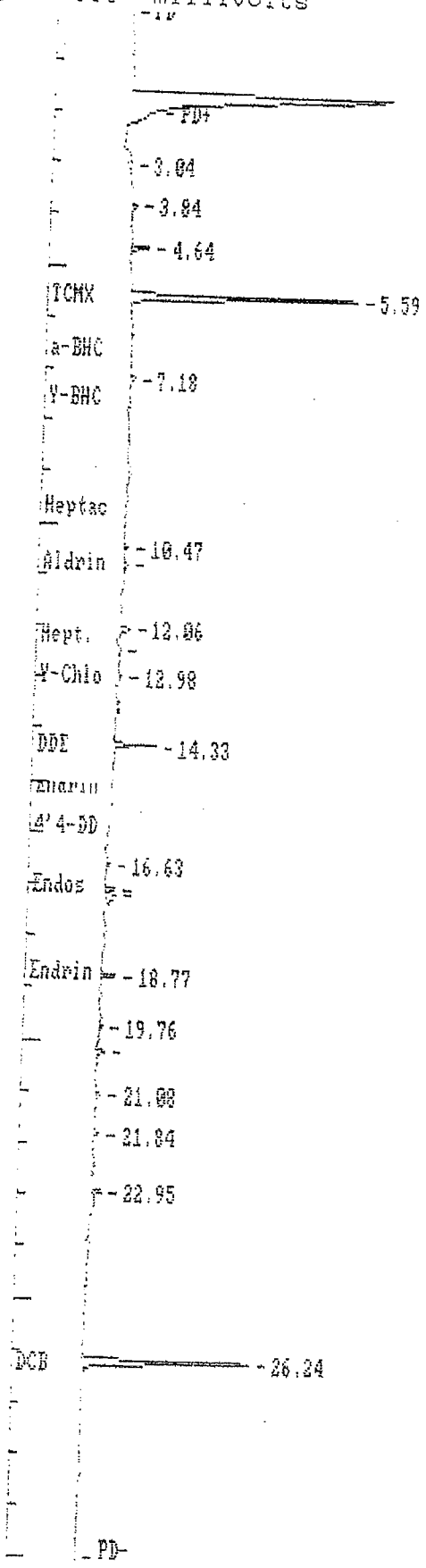
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.039		0.0000	0.0000%	33681	1329	26.5	1			1.0000E-09
2	3.841		0.0000	0.0000%	12640	2269	5.6	1			1.0000E-09
3	4.643		0.0000	0.0000%	38663	7375	5.8	1			1.0000E-09
4	5.594	TCMX	104.3581	48.1080%	461680	88656	5.2	1	0	.6004	2.2604E-04
5	7.181		0.0000	0.0000%	11233	1940	5.8	1			1.0000E-09
6	10.471		0.0000	0.0000%	8356	2008	4.2	1			1.0000E-09
7	10.805	Aldrin	2.0426	0.9416%	9183	1614	5.7	1	0	.4629	2.2242E-04
8	12.057	Hept. epox.	5.0853	2.3443%	20717	3762	5.5	1	0	-.6685	2.4545E-04
9	12.492		0.0000	0.0000%	11522	1169	10.2	1			1.0000E-09
10	12.976	Y-chlordane	0.9906	0.4567%	4972	1314	3.8	1	0	.1304	1.9924E-04
11	14.329	Dieldrin	14.0656	6.4841%	59138	16295	3.6	1	0	0	2.3784E-04
12	16.033		0.0000	0.0000%	6180	1601	3.9	1			1.0000E-09
13	17.191	Endos sulf	6.4950	2.9941%	17718	4061	4.4	2	0	.5870	3.6657E-04
14	17.234	DDE	10.1625	4.6848%	32134	3907	8.2	2	0	.3987	3.1625E-04
15	18.771	Endrin ket.	8.2296	3.7938%	23570	5742	4.1	1	0	.4464	3.4916E-04
16	19.756		0.0000	0.0000%	4728	1470	3.2	1			1.0000E-09
17	20.257		0.0000	0.0000%	15057	3141	4.8	1			1.0000E-09
18	21.075		0.0000	0.0000%	9184	2019	4.3	1			1.0000E-09
19	21.844		0.0000	0.0000%	9915	2287	4.3	1			1.0000E-09
20	22.944		0.0000	0.0000%	15981	3410	4.7	1			1.0000E-09
21	26.236	DDE	65.4950	30.1925%	339412	64789	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 216.9645

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E131.PTS Printed on 11-22-1997 at 19:44:21
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-22-1997 19:59:22 Version 5.1.5

Sample Name: 82199 F/P
Data File: D:\DV14E131

Date: 11-21-1997 18:11:29 Method: M:\PE\5-E 11-21-1997 22:32:00 # 391

Interface: 2 Cycle#: 131 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

Ending retention time: 30.00
One sample per 1.000 sec.
Dilution factor: 1.00

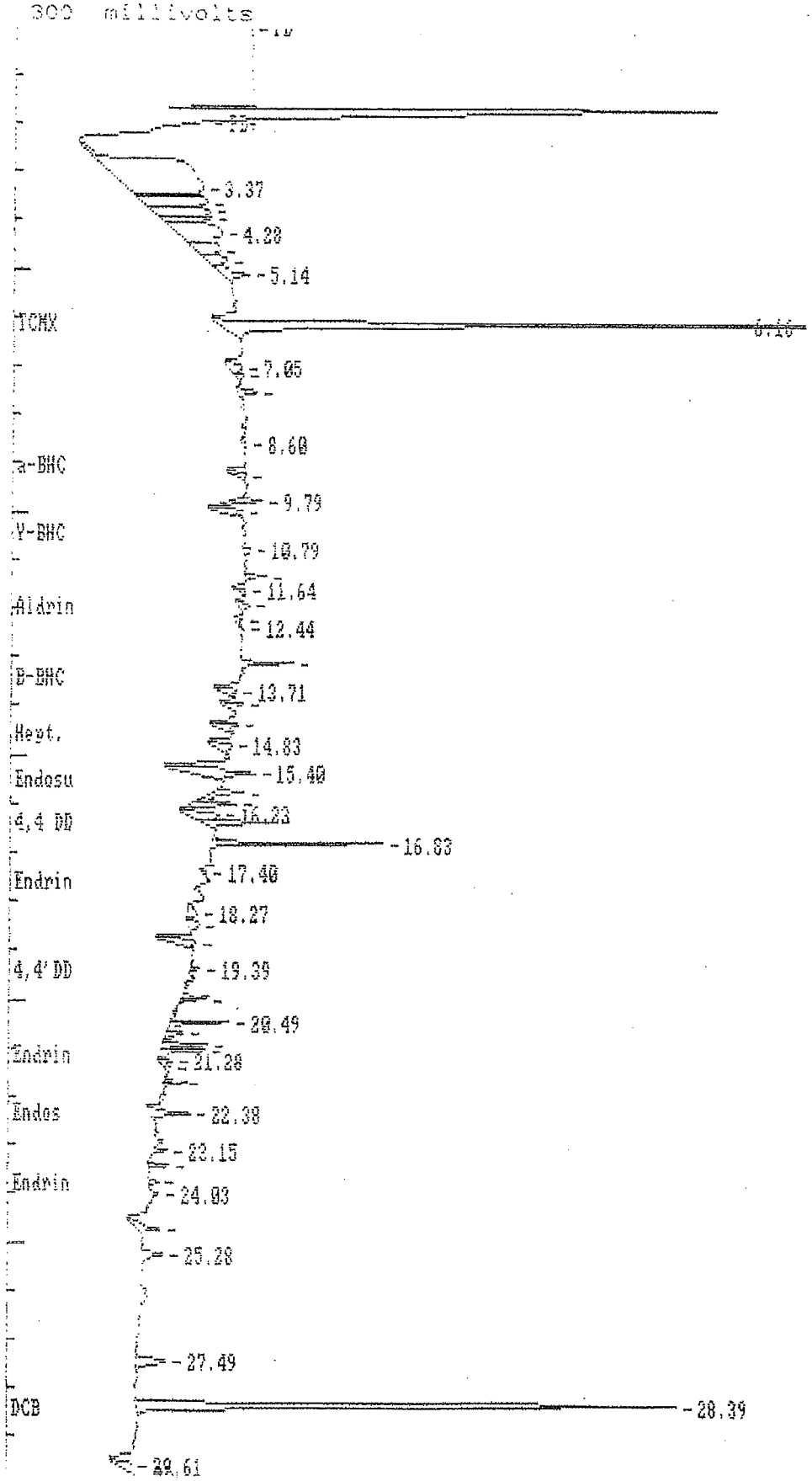
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.373		0.0014	0.0005%	1387124	29892	46.4	2			1.0000E-09
2	3.541		0.0003	0.0001%	336978	26086	12.9	2			1.0000E-09
3	3.841		0.0002	0.0001%	240340	22713	10.6	2			1.0000E-09
4	3.975		0.0001	0.0001%	146863	20045	7.3	2			1.0000E-09
5	4.275		0.0004	0.0002%	384152	17968	21.4	2			1.0000E-09
6	4.643		0.0002	0.0001%	158296	9010	17.6	2			1.0000E-09
7	4.843		0.0001	0.0000%	87805	7820	11.2	2			1.0000E-09
8	5.141		0.0001	0.0000%	100841	10278	9.8	2			1.0000E-09
9	6.162	TCMX	98.6201	39.0165%	1549716	280771	5.5	1	0	.5269	6.3636E-05
10	7.047		0.0001	0.0000%	53025	4765	11.1	2			1.0000E-09
11	7.214		0.0000	0.0000%	13474	2550	5.3	2			1.0000E-09
12	7.335		0.0001	0.0006%	53846	7607	7.1	1			1.0000E-09
13	8.609		0.0000	0.0000%	10511	1672	6.3	1			1.0000E-09
14	9.295		0.0000	0.0000%	38401	3252	11.8	1			1.0000E-09
15	9.786		0.0001	0.0000%	79881	13243	6.0	1			1.0000E-09
16	10.003		0.0001	0.0000%	52475	7110	7.4	1			1.0000E-09
17	10.768		0.0000	0.0000%	27205	3251	8.4	1			1.0000E-09
18	11.356		0.0000	0.0000%	36349	8941	4.1	1			1.0000E-09
19	11.640		0.0000	0.0000%	14959	2610	5.7	1			1.0000E-09
20	11.967	Aldrin	1.5067	0.5961%	33340	4361	7.6	1	0	.2784	4.5192E-05
21	12.241		0.0000	0.0000%	9487	2747	3.5	1			1.0000E-09
22	12.441		0.0000	0.0000%	7747	2043	3.8	1			1.0000E-09
23	13.143	B-BHC	7.4366	2.9421%	94933	21506	3.9	1	0	-1.867	8.7558E-05
24	13.711		0.0000	0.0000%	38809	4958	7.8	1			1.0000E-09
25	13.978	d-BHC	2.1725	0.8595%	34449	7069	4.9	1	0	-.9432	6.3064E-05
26	14.412	Hept. epox.	2.0359	0.8054%	43099	8014	5.4	1	0	-.8046	4.7237E-05
27	14.830		0.0001	0.0000%	61880	6548	9.5	1			1.0000E-09
28	15.097	Endosulf I	11.9671	4.7345%	239931	23093	10.4	1	0	-.5400	4.9878E-05
29	15.791	Y-Chlordane	4.8951	1.9366%	106033	13676	7.8	2	0	.1046	4.6166E-05
30	16.013	a-Chlordane	4.4316	1.7533%	99415	20110	4.9	2	0	.1018	4.4577E-05
	16.232		0.0001	0.0002%	46464	12580	7.9	2			1.0000E-09
32	16.399	4,4 DDE	7.4803	2.9594%	183247	29111	6.6	2	0	.1001	5.6139E-05
33	16.634	Dieldrin	14.0346	5.5525%	247504	70736	3.5	1	0	0	5.6705E-05
34	17.101	Endrin	0.6192	0.2450%	8973	1984	4.5	1	0	-1.044	6.9004E-05
35	18.270		0.0000	0.0000%	49824	4630	10.8	1			1.0000E-09
36	18.504		0.0001	0.0000%	51645	4624	11.2	1			1.0000E-09
37	18.854		0.0001	0.0006%	70839	7238	9.8	1			1.0000E-09

41	20.491									1.0000E-09
42	20.708	0.0001	0.0000%	112760	25038	4.5	2			1.0000E-09
43	20.958	0.0000	0.0000%	49607	7649	6.5	2			1.0000E-09
44	21.059 Endrin ald	0.0001	0.0000%	92751	19202	4.8	2			1.0000E-09
45	21.276	8.8434	3.4987%	88815	18878	4.7	2	0	-.1578	9.9572E-05
46	21.409	0.0000	0.0000%	25739	5319	4.8	2			1.0000E-09
47	21.677	0.0000	0.0000%	8217	2176	3.8	2			1.0000E-09
48	21.760	0.0000	0.0000%	12346	3737	3.3	2			1.0000E-09
49	22.378 Methoxychl	0.0000	0.0000%	28456	7466	3.8	2			1.0000E-09
50	23.146	18.1728	7.1896%	98987	16155	6.1	1	0	.0239	1.8359E-04
51	23.447	0.0000	0.0000%	22586	5635	4.0	1			1.0000E-09
52	23.797 Endrin ket	0.0000	0.0000%	38173	8638	4.4	1			1.0000E-09
53	24.031	1.7709	0.7006%	21231	3935	5.4	1	0	0	8.3410E-05
54	24.766	0.0000	0.0000%	16002	3355	4.8	1			1.0000E-09
55	25.284	0.0001	0.0000%	80059	8827	9.1	1			1.0000E-09
56	27.488	0.0001	0.0000%	58899	8428	7.0	1			1.0000E-09
57	28.390 OCS	0.0001	0.0000%	106851	11878	9.0	1			1.0000E-09
58	29.609	65.7285	26.0038%	1344674	221775	6.1	1	0	0	4.8881E-05
		0.0000	0.0000%	44149	3899	11.3	1			1.0000E-09

TOTAL AMOUNT = 252.7653

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E131.PTS Printed on 11-22-1997 at 20:00:04
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
11 Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-6, S-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-82200

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E124

% Moisture: 17 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3	U
319-85-7	beta-BHC	3	U
319-86-8	delta-BHC	3	U
58-89-9	gamma-BHC (Lindane)	3	U
76-44-8	Heptachlor	3	U
309-00-2	Aldrin	3	U
1024-57-3	Heptachlor epoxide	3	U
959-98-8	Endosulfan I	3	U
60-57-1	Dieldrin	5	U
72-55-9	4,4'-DDE	5	U
72-20-8	Endrin	5	U
33213-65-9	Endosulfan II	5	U
72-54-8	4,4'-DDD	5	U
1031-07-8	Endosulfan sulfate	5	U
50-29-3	4,4'-DDT	5	U
72-43-5	Methoxychlor	30	U
53494-70-5	Endrin ketone	5	U
7421-36-3	Endrin aldehyde	5	U
57-74-9	Chlordane	30	U
8001-35-2	Toxaphene	60	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

EXTERNAL STANDARD TABLE

********** 11-22-1997 19:37:51 Version 5.1.5 **********

Sample Name: 82200 P/P Data File: D:NV14E124

* Date: 11-21-1997 03:52:28 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 124 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

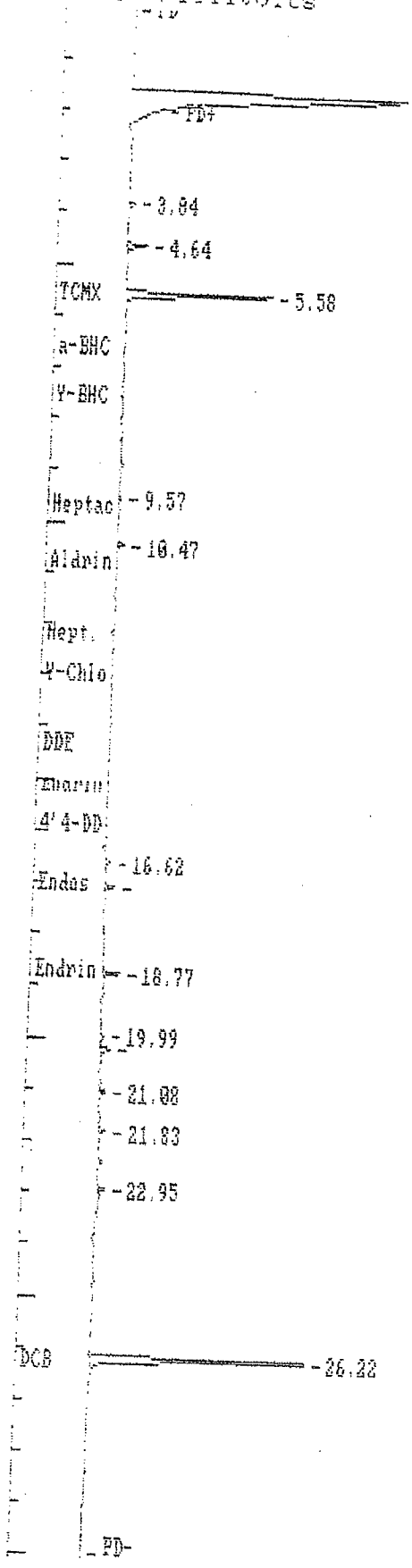
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.841		0.0000	0.0000%	12580	2216	5.7	1			1.0000E-09
2	4.643		0.0000	0.0000%	40040	7924	5.1	1			1.0000E-09
3	5.578	TCMX	65.3237	38.6838%	288992	57751	5.0	1	0	.3201	2.2604E-04
4	9.569	Heptachlor	1.2635	0.7482%	4885	1296	3.8	1	0	-.6942	2.5567E-04
5	10.471		0.0000	0.0000%	12600	2939	4.3	1			1.0000E-09
6	16.616		0.0000	0.0000%	6471	1813	3.6	1			1.0000E-09
7	17.101	DD	5.5588	3.2919%	17577	4163	4.2	1	0	-.3914	3.1626E-04
8	18.771	Endrin ket.	9.0978	5.3876%	26056	6356	4.1	1	0	.4484	3.4916E-04
9	19.990		0.0000	0.0000%	5916	1209	4.9	1			1.0000E-09
10	20.240		0.0000	0.0000%	19431	4005	4.9	1			1.0000E-09
11	21.075		0.0000	0.0000%	8539	2218	3.9	1			1.0000E-09
12	21.827		0.0000	0.0000%	11843	2796	4.2	1			1.0000E-09
13	22.946		0.0000	0.0000%	12702	2711	4.7	1			1.0000E-09
14	26.219	DCS	87.6220	51.8885%	452743	83501	5.4	1	0	-.0800	1.9354E-04

TOTAL AMOUNT = 168.8659

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E124.PTS Printed on 11-22-1997 at 19:37:55
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-8, S-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-82201

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E126

% Moisture: 15 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	2	U
319-85-7	beta-BHC	2	U
319-86-8	delta-BHC	2	U
58-89-9	gamma-BHC (Lindane)	2	U
76-44-8	Heptachlor	2	U
309-00-2	Aldrin	2	U
1024-57-3	Heptachlor epoxide	2	U
959-98-8	Endosulfan I	2	U
60-57-1	Dieldrin	21	
72-55-9	4,4'-DDE	4	U
72-20-8	Endrin	4	U
33213-65-9	Endosulfan II	4	U
72-54-8	4,4'-DDD	4	U
1031-07-8	Endosulfan sulfate	4	U
50-29-3	4,4'-DDT	4	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	4	U
7421-36-3	Endrin aldehyde	4	U
57-74-9	Chlordane	20	U
8001-35-2	Toxaphene	50	U
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

EXTERNAL STANDARD TABLE

11-22-1997 19:38:55 Version 5.1.5

Sample Name: 82201 P/P Data File: D:NV14E126

Date: 11-21-1997 04:57:51 Method: M:APES-E 11-21-1997 22:31:52 # 399

Interface: 2 Cycle#: 126 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

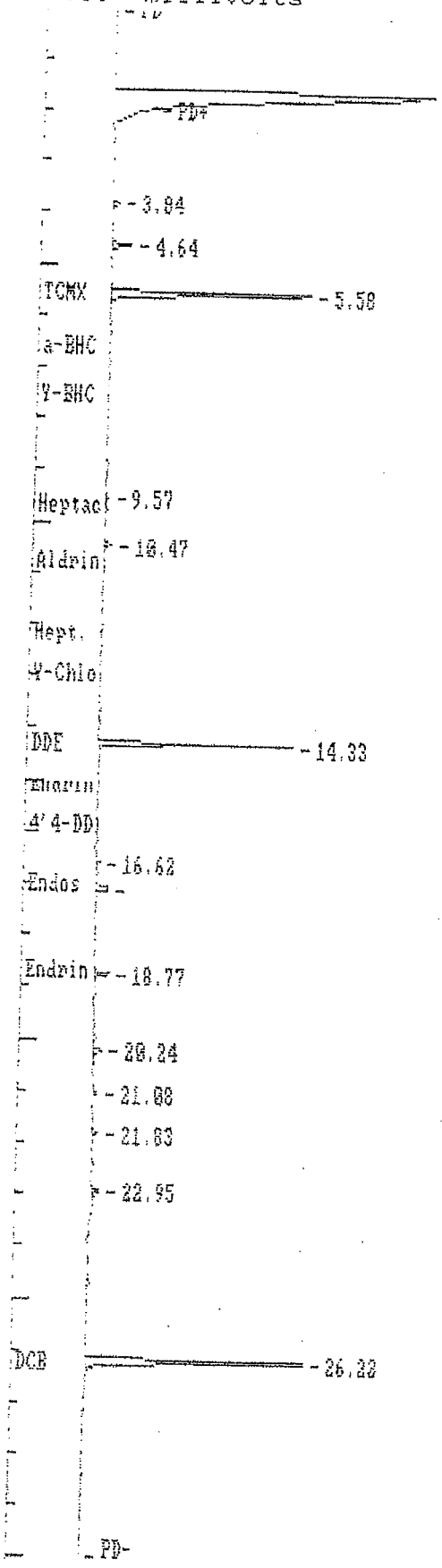
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC.AREA
1	3.841		0.0000	0.0000%	13483	2419	5.6	1			[illegible]
2	4.643		0.0000	0.0000%	38409	7859	4.9	1			[illegible]
3	5.578	TCMX	85.9784	33.7470%	380368	77346	4.9	1	0	.3201	[illegible]
4	9.569	Heptachlor	1.2819	0.5032%	4956	1418	3.5	1	0	-.6942	[illegible]
5	10.471		0.0000	0.0000%	13778	3190	4.3	1			[illegible]
6	14.329	Dieldrin	63.0660	24.7538%	265382	74535	3.6	1	0	0	[illegible]
7	16.616		0.0000	0.0000%	5338	1502	3.6	1			[illegible]
8	17.151	DDT	10.4494	4.1014%	33041	4839	6.8	1	0	0	[illegible]
9	18.771	Endrin ket.	7.5220	2.9524%	21543	5402	4.0	1	0	.4484	[illegible]
10	20.240		0.0000	0.0000%	16208	3441	4.7	1			[illegible]
11	21.075		0.0000	0.0000%	7740	1926	4.0	1			[illegible]
12	21.827		0.0000	0.0000%	9805	2332	4.2	1			[illegible]
13	22.946		0.0000	0.0000%	13271	2777	4.8	1			[illegible]
14	26.219	DCB	86.4755	33.9421%	446819	83698	5.3	1	0	-.0800	[illegible]

TOTAL AMOUNT = 254.7733

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14S126.PTS Printed on 11-22-1997 at 19:39:03
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 19:52:50 Version 5.1.5

Sample Name: 82201 F/F

Date File: [illegible]

Date: 11-21-1997 04:57:51 Method: M:BPES-E 11-21-1997 22:32:03 # 391

Interface: 2 Cycle#: 126 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00

Area reject: 2000

Amount injected: 1.00

Sample Weight: 1.00000

Ending retention time: 30.00

One sample per 1.002 sec.

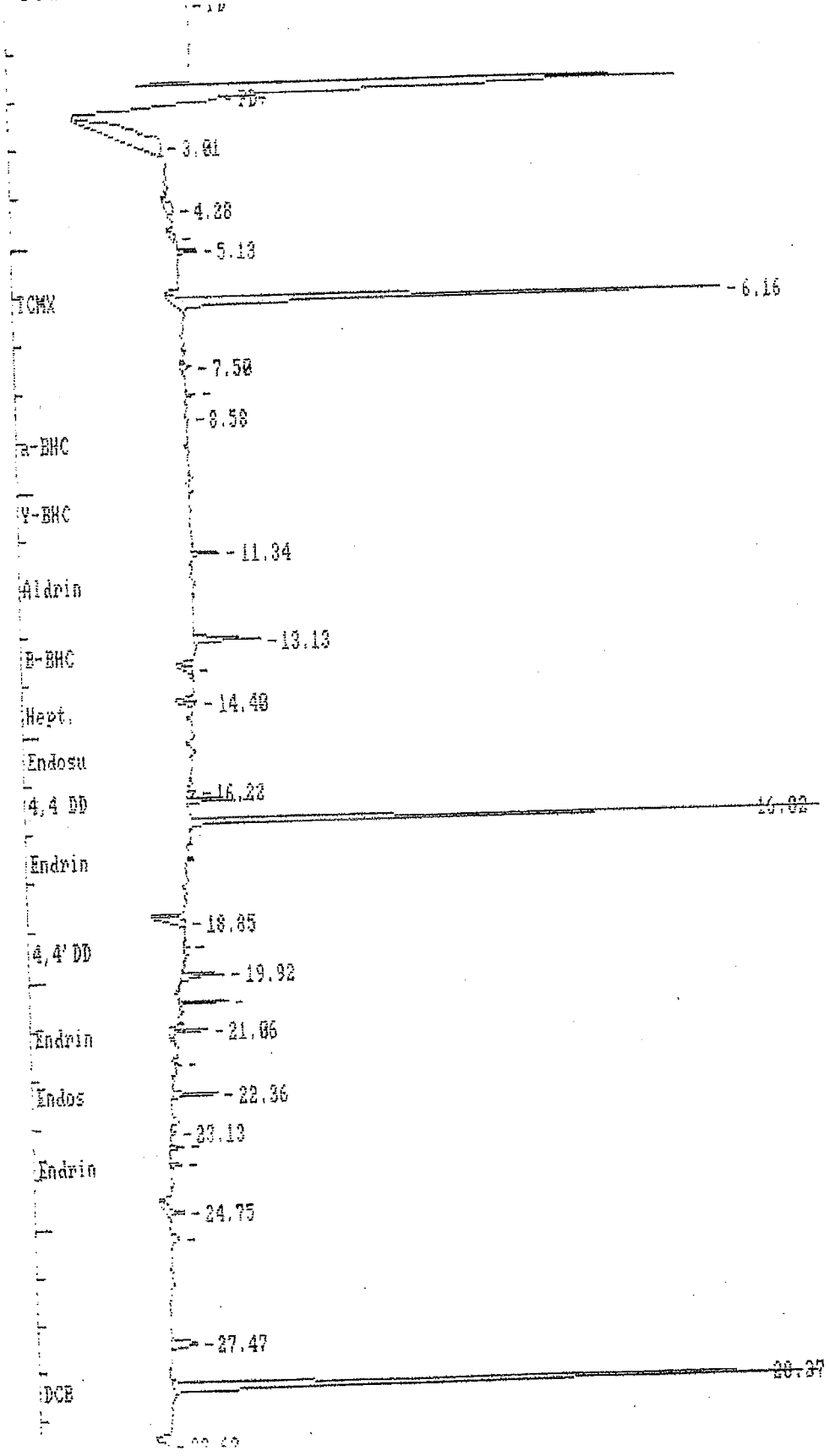
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.006		0.0004	0.0002%	442570	5690	77.8	1			1.0000E-09
2	4.275		0.0001	0.0000%	61758	3550	17.4	1			1.0000E-09
3	4.843		0.0000	0.0000%	14952	1321	11.3	1			1.0000E-09
4	5.127		0.0000	0.0000%	35768	8127	4.4	1			1.0000E-09
5	6.162	TCMX	76.4159	29.6520%	1200799	224391	5.4	1	0	.5269	6.3638E-05
6	7.498		0.0000	0.0000%	23542	4632	5.1	1			1.0000E-09
7	8.066		0.0000	0.0000%	17217	4292	4.0	1			1.0000E-09
8	8.584		0.0000	0.0000%	6783	1382	4.9	1			1.0000E-09
9	11.239		0.0000	0.0000%	48062	11716	4.1	1			1.0000E-09
10	13.126	B-BHC	11.1838	4.3397%	127730	27289	4.7	1	0	-1.392	5.7558E-05
11	13.694		0.0001	0.0000%	25558	3126	8.2	1			1.0000E-09
12	14.395	Hept. epox.	1.2664	0.4914%	26811	5566	4.8	1	0	-.9195	4.7237E-05
13	16.216	a-Chlordane	0.8305	0.3222%	18630	3639	5.1	2	0	1.354	4.4577E-05
14	16.383	4,4 DDE	4.1977	1.6288%	74773	19882	3.8	2	0	0	5.6139E-05
15	16.817	Dieldrin	54.1674	21.0186%	955242	268520	3.6	1	0	0	5.6705E-05
16	18.854		0.0001	0.0000%	64157	5069	12.7	1			1.0000E-09
17	19.372	4,4'DDD	0.6813	0.2646%	8074	2494	3.2	1	0	0	8.4445E-05
18	19.923	4,4 DDT <DC	7.8989	3.0651%	87489	17784	4.9	1	0	0	9.0285E-05
19	20.491		0.0001	0.0000%	84168	21014	4.0	1			1.0000E-09
20	21.359	Endrin ald	6.6684	2.5876%	66971	15853	4.2	1	0	-.1578	9.9572E-05
21	21.760		0.0000	0.0000%	12224	2801	4.4	1			1.0000E-09
22	22.361	Methoxychl	14.6867	5.6990%	79999	19020	4.2	1	0	.1491	1.8359E-04
23	23.129		0.0000	0.0000%	11371	2318	4.9	1			1.0000E-09
24	23.430		0.0000	0.0000%	23892	5851	4.1	1			1.0000E-09
25	23.781	Endrin ket	1.9273	0.7478%	23106	4965	4.7	1	0	0	8.3410E-05
26	24.749		0.0001	0.0000%	66443	7373	9.0	1			1.0000E-09
27	25.284		0.0000	0.0000%	22631	3217	7.0	1			1.0000E-09
28	27.471		0.0001	0.0000%	100886	10925	9.2	1			1.0000E-09
29	28.273	DDE	77.7824	30.1826%	1591293	256592	6.2	1	0	0	4.8881E-05
30	29.626		0.0000	0.0000%	23812	2402	10.0	1			1.0000E-09

TOTAL AMOUNT = 257.7093

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:OV14E126.PTS Printed on 11-22-1997 at 19:53:03
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-4, S-4

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: 97-82202

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E125

% Moisture: 20 decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/kg	Q
319-84-6	alpha-BHC	3	U
319-85-7	beta-BHC	3	U
319-86-8	delta-BHC	3	U
58-89-9	gamma-BHC (Lindane)	3	U
76-44-8	Heptachlor	3	U
309-00-2	Aldrin	3	U
1024-57-3	Heptachlor epoxide	3	U
959-98-8	Endosulfan I	3	U
60-57-1	Dieldrin	5	U
72-55-9	4,4'-DDE	5	U
72-20-8	Endrin	5	U
33213-65-9	Endosulfan II	5	U
72-54-8	4,4'-DDD	5	U
1031-07-8	Endosulfan sulfate	5	U
50-29-3	4,4'-DDT	5	U
72-43-5	Methoxychlor	30	U
53494-70-5	Endrin ketone	5	U
7421-36-3	Endrin aldehyde	5	U
57-74-9	Chlordane	30	U
8001-35-2	Toxaphene	60	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	50	U
11096-82-5	Aroclor-1260	50	U

EXTERNAL STANDARD TABLE

********** 11-22-1997 19:38:04 Version 5.1.5 **********

* Sample Name: 82202 P/F
* Date: 11-21-1997 04:23:12 Method: M:APES-E 11-21-1997 22:31:52 # 298
* Interface: 2 Cycle#: 125 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Data File: D:NV14E125

* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

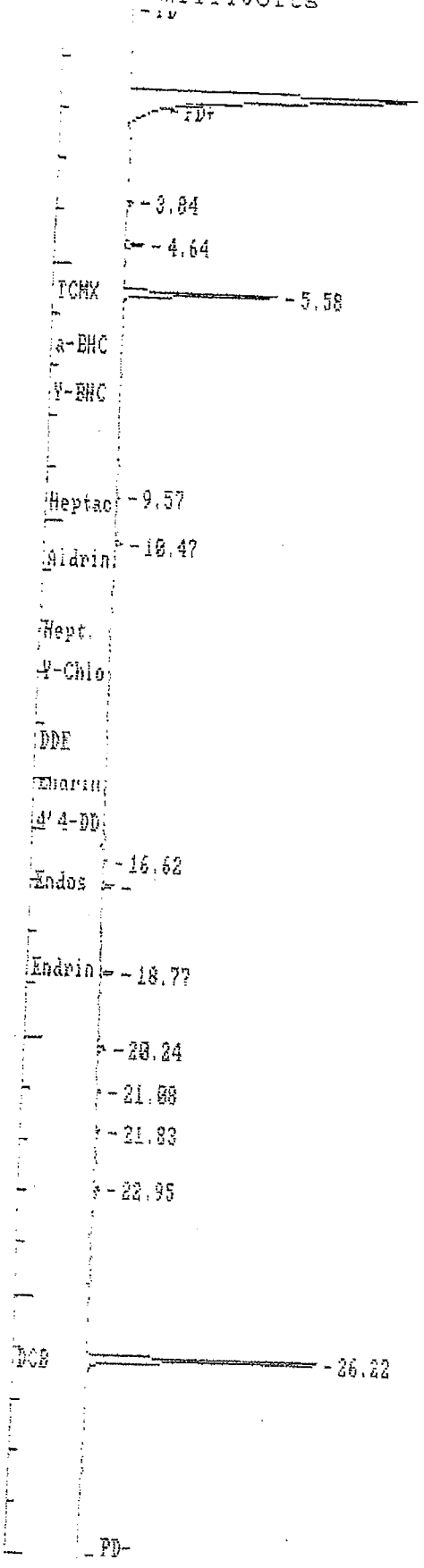
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.841		0.0000	0.0000%	10938	2013	5.4	1			1.0000E-09
2	4.643		0.0000	0.0000%	37042	7435	5.0	1			1.0000E-09
3	5.578	TCMX	66.0613	38.3775%	292257	59211	4.9	1	0	.3201	2.2604E-04
4	9.569	Heptachlor	1.2022	0.6984%	4648	1260	3.7	1	0	-.6942	2.5867E-04
5	10.471		0.0000	0.0000%	12168	2823	4.3	1			1.0000E-09
6	16.616		0.0000	0.0000%	5252	1479	3.6	1			1.0000E-09
7	17.101	DDT	6.2845	3.6509%	19872	4736	4.2	1	0	-.3914	3.1626E-04
8	18.771	Endrin ket.	7.6028	4.4167%	22774	5306	4.1	1	0	.4483	3.4916E-04
9	20.240		0.0000	0.0000%	17210	3606	4.8	1			1.0000E-09
10	21.075		0.0000	0.0000%	7149	1881	3.8	1			1.0000E-09
11	21.827		0.0000	0.0000%	10076	2364	4.3	1			1.0000E-09
12	22.946		0.0000	0.0000%	9708	2105	4.6	1			1.0000E-09
13	26.219	DCB	90.9852	52.8564%	470120	87354	5.4	1	0	-.3800	1.9354E-04

TOTAL AMOUNT = 172.1366

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:\NV14E125.PTS Printed on 11-22-1997 at 19:38:08
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



SOIL PESTICIDE SURROGATE RECOVERY

Lab Name: EMSL ANALYTICAL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

LAB SAMPLE ID.	TCX 1 %REC	#	TCX 2 %REC	#	DCB 1 %REC	#	DCB 2 %REC	#	OTHER (1)	OTHER (2)	TOT OUT
MB 451-3	93				107						0
97-78619	63				122						0
97-78620	64				118						0
97-78622	77				120						0
97-78623	74				121						0
97-78624	72				117						0
97-82199	88		106		77		85				0
97-82200	55				102						0
97-82201	72		82		101		100				0
97-82202	56				106						0
MB 444-1	104				110						0
74471MS	95				109						0
74471MSD	90				104						0

	ADVISORY QC LIMITS
TXC = Tetrachloro-m-xylene	(30-150)
DCB = Decachlorobiphenyl	(30-150)

\# Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

4C

PESTICIDE METHOD BLANK SUMMARY

SAMPLE NO.

Lab Nam EMSL ANALYTICAL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Lab Sample ID: MB 444-1 Lab File ID: D:NV14E121

Matrix: (soil/wate Soil Extraction: (SepF/Cont/ Sonc

Sulfur Cleanup: (Y N Date Extracte 11/05/97

Date Analyzed (1): 11/21/97 Date Analyzed

Time Analyzed (1): 2:14 Time Analyzed

Instrument ID (1): Instrument ID

GC Column DB-5 D 0.32 (mm) GC Column(2): DB-1701 D .32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MS

SAMPLE NO	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
	97-74471MS	11/21/97	
	97-74471MSD	11/21/97	

COMMENTS:

1D

PCB ANALYSIS DATA SHEET

CLIENT SAMPLE ID.

Lab Name: EMSL ANALYTICAL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: MB 444-1

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E121

% Moisture: decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/05/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

U= Not detected

EXTERNAL STANDARD TABLE

********** 11-22-1997 18:34:57 Version 5.1.5 **********

* Sample Name: MB 11/5 P/P 5 MB 444-1 Data File: D:NV14E121 *
* Date: 11-21-1997 02:14:23 Method: M:APES-E 11-21-1997 22:31:52 # 393 *
* Interface: 2 Cycle#: 121 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

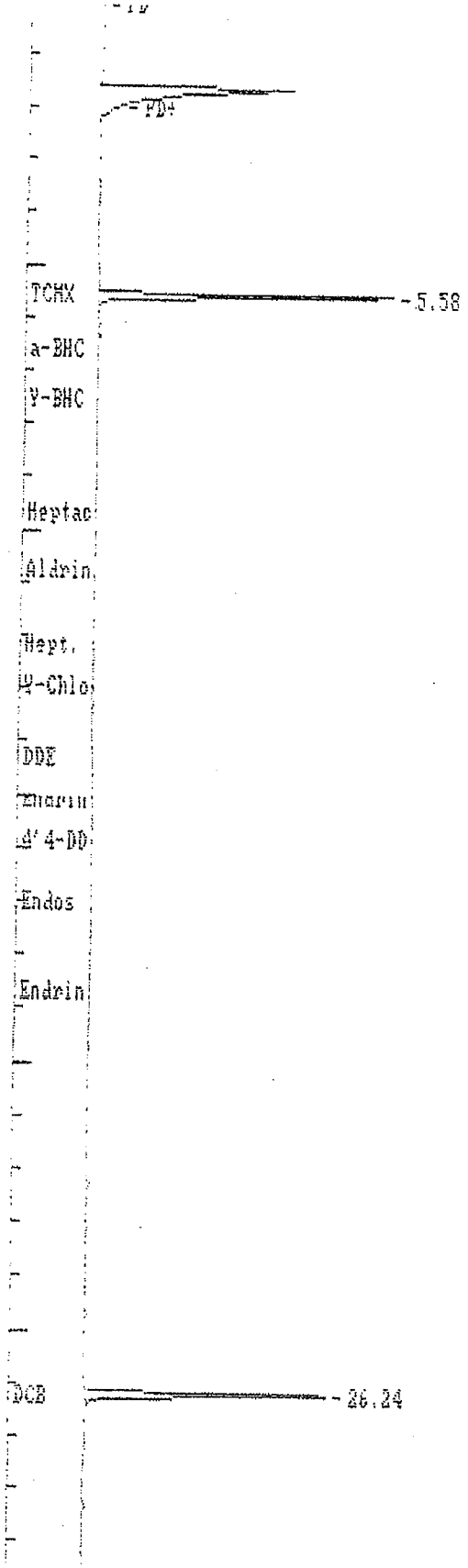
Starting Delay: 0.00 Ending retention time: 20.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.578	TCMX	124.1540	56.8782%	549257	110194	5.2 1	0	.3201	2.2604E-04
2	26.236	DCB	94.1265	43.1218%	486352	39507	5.4 1	0	0	1.9354E-04

TOTAL AMOUNT = 218.2805

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E121.PTS Printed on 11-22-1997 at 18:35:10
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
11 Range: 300 millivolts



4C

PESTICIDE METHOD BLANK SUMMARY

SAMPLE NO.

Lab Nam EMSL ANALYTICAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID: MB 451-3 Lab File ID: D:NV14E122

Matrix: (soil/wate Soil Extraction: (SepF/Cont/ Sonc

Sulfur Cleanup: (Y N Date Extracte 11/18/97

Date Analyzed (1): 11/21/97 Date Analyzed _____

Time Analyzed (1): 2:47 Time Analyzed _____

Instrument ID (1): _____ Instrument ID _____

GC Column DB-5 D 0.32 (mm) GC Column(2): DB-1701 D .32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MS

	SAMPLE NO	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
#		97-78619	11/20/97	
#		97-78620	11/20/97	
#		97-78622	11/20/97	
#		97-78623	11/20/97	
#		97-78624	11/21/97	
#		97-82199	11/21/97	
#		97-82200	11/21/97	
#		97-82201	11/21/97	
#		97-82202	11/21/97	
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COMMENTS: _____

1D
PCB ANALYSIS DATA SHEET

CLIENT SAMPLE ID.

Lab Name: EMSL ANALYTICAL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) soil Lab Sample ID: MB 451-3

Sample wt/vol: 30 (g/mL) g Lab File ID: D:NV14E122

% Moisture: decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) Sonc Date Extracted: 11/18/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/21/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg	Q
12674-11-2	Aroclor-1016	40	U
11104-28-2	Aroclor-1221	40	U
11141-16-5	Aroclor-1232	40	U
53469-21-9	Aroclor-1242	40	U
12672-29-6	Aroclor-1248	40	U
11097-69-1	Aroclor-1254	40	U
11096-82-5	Aroclor-1260	40	U

U= Not detected

EXTERNAL STANDARD TABLE

11-22-1997 10:35:51 Version 5.1.5

* Sample Name: MB 11.18 F/P 5 451-3 Data File: D:\NV14\F102
* Date: 11-21-1997 02:47:06 Method: M:APES-E 11-21-1997 22:31:52 # 398
* Interface: 2 Cycle#: 122 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

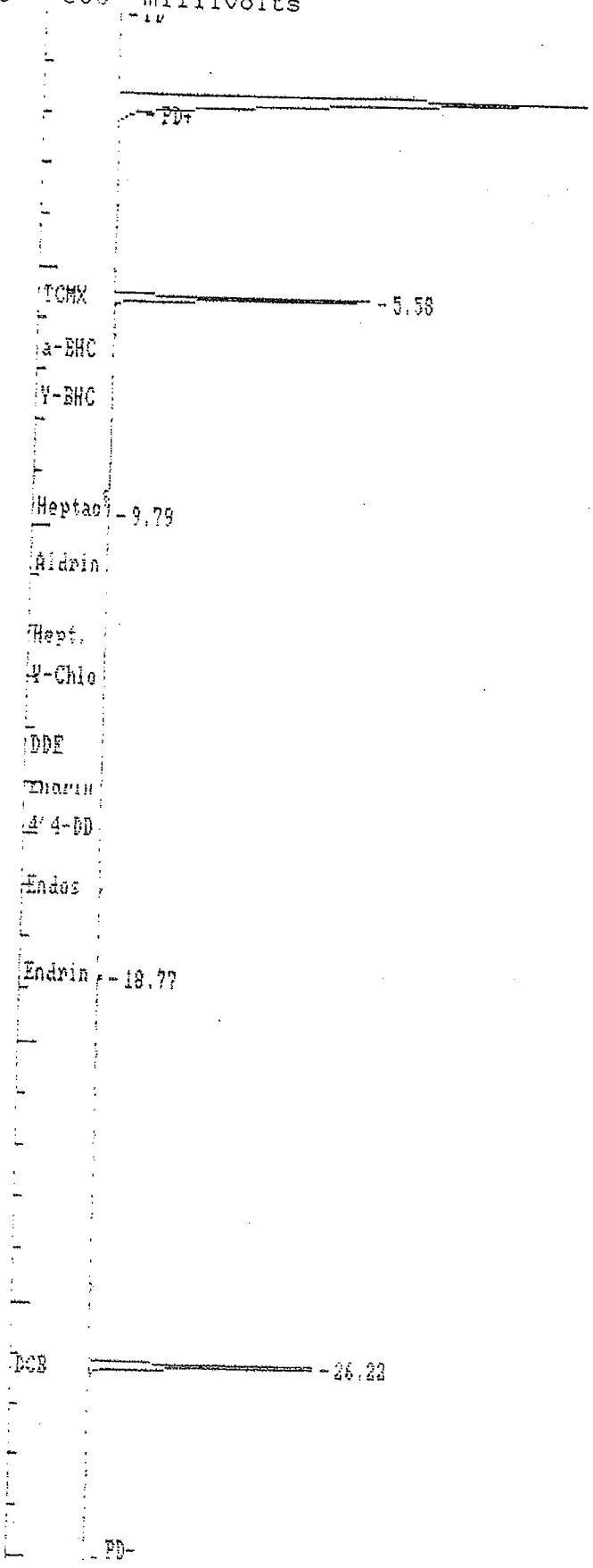
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.000 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET.TIME	CONC/RES
1	5.578	TCMX	110.9572	52.3557%	490875	99294	4.9	1	0	.3021	[illegible]
2	9.786	Heptachlor	7.7580	3.6597%	29992	838	35.8	1	0	1.556	[illegible]
3	18.771	Endrin Ket.	2.3979	1.1292%	6867	1725	4.0	1	0	.4494	[illegible]
4	26.219	DCB	91.2220	43.0614%	471344	86508	5.4	1	0	-.0800	[illegible]

TOTAL AMOUNT = 212.3350

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E122.PTS Printed on 11-22-1997 at 18:35:55
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



3E

SOIL PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: EMSL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Sample No.: 97-74471

COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONCENTRATION (ug/kg)	MS CONCENTRATION (ug/kg)	MS % REC	#	QC. LIMITS REC.
gamma-BHC(Lindane)	16.7	U	17.1	102		46-127
Heptachlor	16.7	U	16.4	98		35-130
Aldrin	16.7	U	15.1	90		34-132
Dieldrin	33.3	U	34.8	105		31-134
Endrin	33.3	U	34.6	104		42-139
4,4'-DDT	33.3	U	36.4	109		23-134

COMPOUND	SPIKE ADDED (ug/kg)	MSD CONCENTRATI (ug/kg)	MSD % REC	#	% RPD	#	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC(Lindane)	16.7	15.5	93		9.8		50	46-127
Heptachlor	16.7	15.2	91		7.6		31	35-130
Aldrin	16.7	14.8	89		2		43	34-132
Dieldrin	33.3	33.6	101		3.5		38	31-134
Endrin	33.3	33.1	99		4.4		45	42-139
4,4'-DDT	33.3	31.1	93		16		50	23-134

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 6 outside limits

Spike Recovery: 0 out of 12 outside limits

COMMENTS: _____

EXTERNAL STANDARD TABLE

11-21-1997 13:32:30 Version 5.1.5

Sample Name: 24ST1 2-0 MB Data File: D:\NV14E\11\

Date: 11-21-1997 01:09:04 Method: N:\PE8-E 11-21-1997 22:31:52 = 398

Interface: 2 Cable#: 119 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.11

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

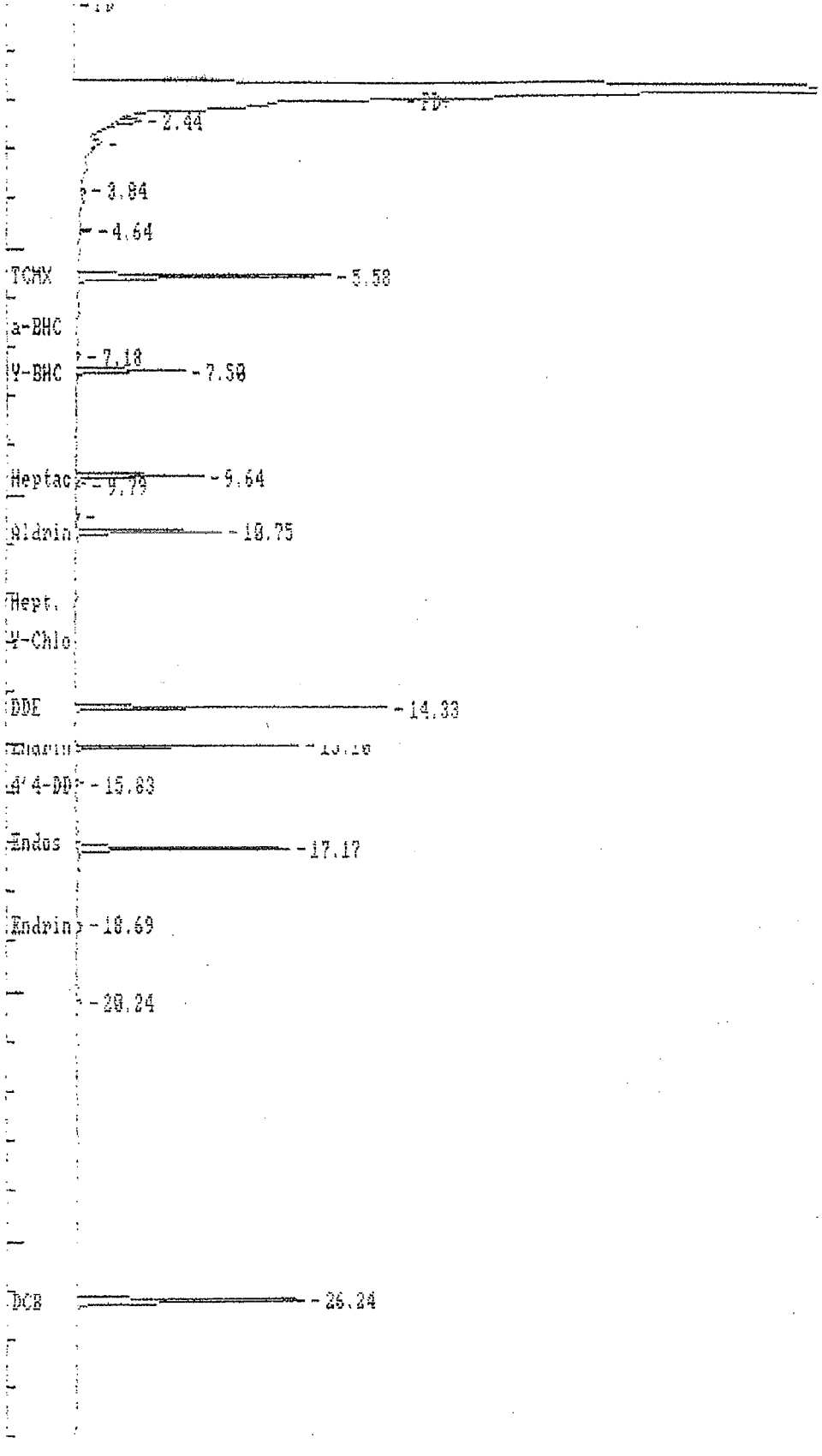
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT RL	REF PEAK	% DELTA RET TIME	CONC. AREA
1	2.438		0.0001	0.0000%	63104	10232	6.2 1			1.0001E-09
2	3.872		0.0000	0.0000%	31026	4211	7.4 1			1.0000E-09
3	5.841		0.0000	0.0000%	9594	1504	6.4 1			1.0000E-09
4	4.643		0.0000	0.0000%	23008	4934	4.6 1			1.0000E-09
5	5.578	TCMX	113.3709	16.7637%	501553	102413	4.9 1	0	.3221	2.2604E-04
6	7.181		0.0000	0.0000%	9463	1622	5.8 1			1.0000E-09
7	7.498	Y-BHC	51.2243	7.5743%	165608	43753	3.8 1	16.1	0	3.0931E-04
8	9.035	Heptachlor	49.3216	7.2930%	190678	51745	3.7 3	0	0	2.9817E-04
9	9.786		0.0000	0.0000%	15178	3907	3.9 1			1.0000E-09
10	10.423		0.0000	0.0000%	9839	1579	6.2 1			1.0000E-09
11	10.755	Aldrin	45.0364	6.7038%	203835	53192	3.8 1	0	0	1.2262E-04
12	14.024	Dieldrin	104.6339	15.4573%	439887	126219	3.5 1	53.3	0	2.5764E-04
13	15.097	Endrin	103.9544	15.3713%	304482	90907	3.4 1	0	0	3.4161E-04
14	15.932	4'4-DDD	4.3219	0.6389%	12799	3227	4.0 1	0	0	3.3761E-04
15	17.168	DDT	109.0733	16.1290%	344907	85570	4.0 1	0	0	3.1626E-04
16	18.687	Endrin ket.	1.9734	0.2918%	5632	1702	3.3 1	0	0	3.4978E-04
17	20.240		0.0000	0.0000%	11052	2423	4.6 1			1.0000E-09
18	26.236	DCB	93.1710	13.7758%	481414	91294	5.3 1	0	0	1.9354E-04

TOTAL AMOUNT = 676.3334

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E119.PTS Printed on 11-22-1997 at 18:32:39
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 500 millivolts



EXTERNAL STANDARD TABLE

********** 11-22-1997 18:33:46 Version 5.1.5 **********

* Sample Name: 74471 P/P MSD Data File: D:NV14E120 *
* Date: 11-21-1997 01:41:45 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 120 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

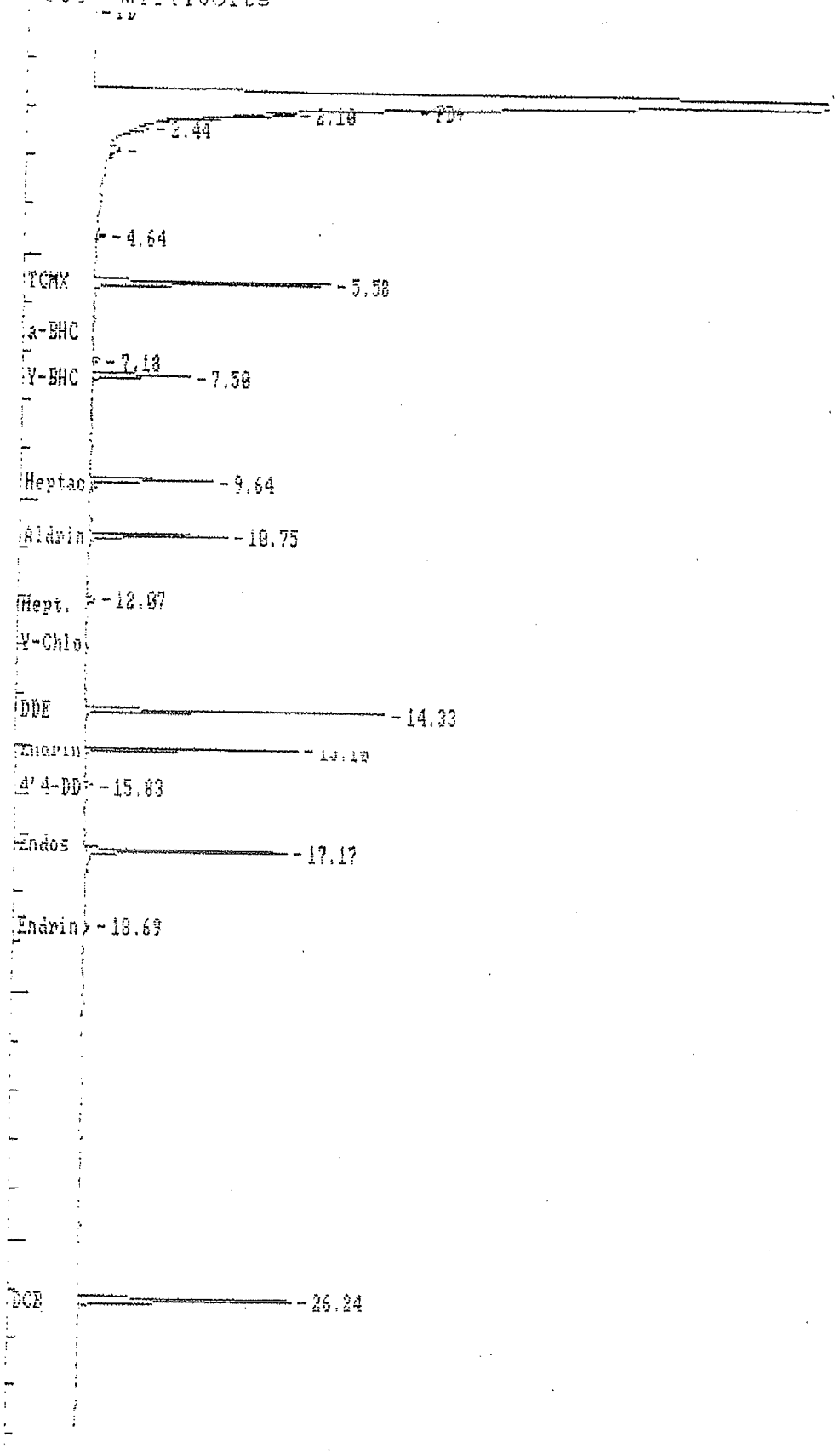
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.104		0.0000	0.0000%	58092	10864	8.1	1			1.0000E-09
2	2.438		0.0000	0.0000%	28425	5467	5.2	1			1.0000E-09
3	2.872		0.0000	0.0000%	29748	4148	7.2	1			1.0000E-09
4	4.643		0.0000	0.0000%	15973	3487	4.6	1			1.0000E-09
5	5.578	TCMX	106.8588	16.7733%	472743	95716	4.9	1	0	.3201	2.2604E-04
6	7.181		0.0000	0.0000%	18229	2951	6.2	1			1.0000E-09
7	7.498	Y-BHC	93 46.6508	15.5 7.3226%	150822	39692	3.8	1	0	0	3.0931E-04
8	9.636	Heptachlor	91 45.6431	15.2 7.1644%	176456	49461	3.6	1	0	0	2.5867E-04
9	10.755	Aldrin	39 44.4625	14.8 6.9792%	199905	56140	3.6	1	0	0	2.2242E-04
10	12.074	Hept. epox	4.6829	0.7351%	19076	3279	5.8	1	0	-.5510	2.4546E-04
11	14.329	Dieldrin	101 100.6874	33.6 15.8046%	423693	121892	3.5	1	0	0	2.3764E-04
12	15.097	Endrin	79 99.2901	33.1 15.5852%	290820	86031	3.4	1	0	0	2.4141E-04
13	15.882	4'4-DDD	4.3656	0.6852%	12931	3257	4.0	1	0	0	3.3761E-04
14	17.168	DDT	93 93.3077	31.1 14.6462%	295039	80779	3.7	1	0	0	3.1626E-04
15	18.687	Endrin ket.	2.3915	0.3754%	6850	1988	3.4	1	0	0	2.4916E-04
16	26.236	DCB	88.7363	13.9287%	458503	86215	5.3	1	0	0	1.9354E-04

TOTAL AMOUNT = 637.0779

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E120.PTS Printed on 11-22-1997 at 18:34:19
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



METALS DATA PACKAGE

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97122494
Date Received: 11/07/97 18:20

The following results are for Silver

Lab #	Conc.	Unit	Client Designation
97 0078619	<5.9	mg/kg	MW-2,S-5
97 0078620	<6.1	mg/kg	MW-10,S-5
97 0078622	<5.7	mg/kg	MW-5,S-4
97 0078623	<6.1	mg/kg	MW-7,S-5
97 0078624	<5.9	mg/kg	MW-9,S-5

The following results are for Arsenic

Lab #	Conc.	Unit	Client Designation
97 0078619	<12	mg/kg	MW-2,S-5
97 0078620	<12	mg/kg	MW-10,S-5
97 0078622	<11	mg/kg	MW-5,S-4
97 0078623	<12	mg/kg	MW-7,S-5
97 0078624	<12	mg/kg	MW-9,S-5

The following results are for Beryllium

Lab #	Conc.	Unit	Client Designation
97 0078619	<1.2	mg/kg	MW-2,S-5
97 0078620	<1.2	mg/kg	MW-10,S-5
97 0078622	<1.1	mg/kg	MW-5,S-4
97 0078623	<1.2	mg/kg	MW-7,S-5
97 0078624	<1.2	mg/kg	MW-9,S-5

The following results are for Cadmium

Lab #	Conc.	Unit	Client Designation
97 0078619	<2.4	mg/kg	MW-2,S-5
97 0078620	<2.4	mg/kg	MW-10,S-5
97 0078622	<2.3	mg/kg	MW-5,S-4
97 0078623	<2.4	mg/kg	MW-7,S-5
97 0078624	<2.4	mg/kg	MW-9,S-5

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97122494
Date Received: 11/07/97 18:20

The following results are for Chromium

Lab #	Conc.	Unit	Client Designation
97 0078619	<5.9	mg/kg	MW-2,S-5
97 0078620	<6.1	mg/kg	MW-10,S-5
97 0078622	<5.7	mg/kg	MW-5,S-4
97 0078623	<6.1	mg/kg	MW-7,S-5
97 0078624	<5.9	mg/kg	MW-9,S-5

The following results are for Copper

Lab #	Conc.	Unit	Client Designation
97 0078619	<5.9	mg/kg	MW-2,S-5
97 0078620	<6.1	mg/kg	MW-10,S-5
97 0078622	<5.7	mg/kg	MW-5,S-4
97 0078623	<6.1	mg/kg	MW-7,S-5
97 0078624	<5.9	mg/kg	MW-9,S-5

The following results are for Mercury

Lab #	Conc.	Unit	Client Designation
97 0078619	<0.12	mg/kg	MW-2,S-5
97 0078620	<0.12	mg/kg	MW-10,S-5
97 0078622	<0.11	mg/kg	MW-5,S-4
97 0078623	<0.12	mg/kg	MW-7,S-5
97 0078624	<0.12	mg/kg	MW-9,S-5

The following results are for Nickel

Lab #	Conc.	Unit	Client Designation
97 0078619	<5.9	mg/kg	MW-2,S-5
97 0078620	<6.1	mg/kg	MW-10,S-5
97 0078622	<5.7	mg/kg	MW-5,S-4
97 0078623	<6.1	mg/kg	MW-7,S-5
97 0078624	<5.9	mg/kg	MW-9,S-5

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97122494
Date Received: 11/07/97 18:20

The following results are for Lead

Lab #	Conc.	Unit	Client Designation
97 0078619	<24	mg/kg	MW-2,S-5
97 0078620	<24	mg/kg	MW-10,S-5
97 0078622	<23	mg/kg	MW-5,S-4
97 0078623	<24	mg/kg	MW-7,S-5
97 0078624	<24	mg/kg	MW-9,S-5

The following results are for Antimony

Lab #	Conc.	Unit	Client Designation
97 0078619	<0.59	mg/kg	MW-2,S-5
97 0078620	<0.61	mg/kg	MW-10,S-5
97 0078622	<0.57	mg/kg	MW-5,S-4
97 0078623	<0.61	mg/kg	MW-7,S-5
97 0078624	<0.59	mg/kg	MW-9,S-5

The following results are for Selenium

Lab #	Conc.	Unit	Client Designation
97 0078619	<0.59	mg/kg	MW-2,S-5
97 0078620	<0.61	mg/kg	MW-10,S-5
97 0078622	<0.57	mg/kg	MW-5,S-4
97 0078623	<0.61	mg/kg	MW-7,S-5
97 0078624	<0.59	mg/kg	MW-9,S-5

The following results are for Thallium

Lab #	Conc.	Unit	Client Designation
97 0078619	<0.59	mg/kg	MW-2,S-5
97 0078620	<0.61	mg/kg	MW-10,S-5
97 0078622	<0.57	mg/kg	MW-5,S-4
97 0078623	<0.61	mg/kg	MW-7,S-5
97 0078624	<0.59	mg/kg	MW-9,S-5

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97122494
Date Received: 11/07/97 18:20

The following results are for Solids, Total

Lab #	Conc.	Unit	Client Designation
97 0078619	84	%	MW-2,S-5
97 0078620	80	%	MW-10,S-5
97 0078622	88	%	MW-5,S-4
97 0078623	81	%	MW-7,S-5
97 0078624	84	%	MW-9,S-5

The following results are for Zinc

Lab #	Conc.	Unit	Client Designation
97 0078619	6.8	mg/kg	MW-2,S-5
97 0078620	7.1	mg/kg	MW-10,S-5
97 0078622	9.3	mg/kg	MW-5,S-4
97 0078623	9.6	mg/kg	MW-7,S-5
97 0078624	9.4	mg/kg	MW-9,S-5

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97122697
Date Received: 11/12/97 17:0

The following results are for Silver

Lab #	Conc.	Unit	Client Designation
97 0082199	<5.8	mg/kg	MW-3,S-4
97 0082200	<5.9	mg/kg	MW-6,S-4
97 0082201	<5.9	mg/kg	MW-8,S-4
97 0082202	<6.1	mg/kg	MW-4,S-4

The following results are for Arsenic

Lab #	Conc.	Unit	Client Designation
97 0082199	<12	mg/kg	MW-3,S-4
97 0082200	<12	mg/kg	MW-6,S-4
97 0082201	<12	mg/kg	MW-8,S-4
97 0082202	<12	mg/kg	MW-4,S-4

The following results are for Beryllium

Lab #	Conc.	Unit	Client Designation
97 0082199	<1.2	mg/kg	MW-3,S-4
97 0082200	<1.2	mg/kg	MW-6,S-4
97 0082201	<1.2	mg/kg	MW-8,S-4
97 0082202	<1.2	mg/kg	MW-4,S-4

The following results are for Cadmium

Lab #	Conc.	Unit	Client Designation
97 0082199	<2.3	mg/kg	MW-3,S-4
97 0082200	<2.4	mg/kg	MW-6,S-4
97 0082201	<2.3	mg/kg	MW-8,S-4
97 0082202	<2.4	mg/kg	MW-4,S-4

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97120697
Date Received: 11/12/97 17:00

The following results are for Chromium

Lab #	Conc.	Unit	Client Designation
97 0082199	17	mg/kg	MW-3,S-4
97 0082200	<5.9	mg/kg	MW-6,S-4
97 0082201	<5.9	mg/kg	MW-8,S-4
97 0082202	<6.1	mg/kg	MW-4,S-4

The following results are for Copper

Lab #	Conc.	Unit	Client Designation
97 0082199	22	mg/kg	MW-3,S-4
97 0082200	<5.9	mg/kg	MW-6,S-4
97 0082201	<5.9	mg/kg	MW-8,S-4
97 0082202	<6.1	mg/kg	MW-4,S-4

The following results are for Mercury

Lab #	Conc.	Unit	Client Designation
97 0082199	<0.12	mg/kg	MW-3,S-4
97 0082200	<0.12	mg/kg	MW-6,S-4
97 0082201	<0.12	mg/kg	MW-8,S-4
97 0082202	<0.12	mg/kg	MW-4,S-4

The following results are for Nickel

Lab #	Conc.	Unit	Client Designation
97 0082199	<5.8	mg/kg	MW-3,S-4
97 0082200	<5.9	mg/kg	MW-6,S-4
97 0082201	<5.9	mg/kg	MW-8,S-4
97 0082202	<6.1	mg/kg	MW-4,S-4

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97122697
Date Received: 11/12/97 17:00

The following results are for Lead

Lab #	Conc.	Unit	Client Designation
97 0082199	<23	mg/kg	MW-3,S-4
97 0082200	<24	mg/kg	MW-6,S-4
97 0082201	<23	mg/kg	MW-8,S-4
97 0082202	<25	mg/kg	MW-4,S-4

The following results are for Antimony

Lab #	Conc.	Unit	Client Designation
97 0082199	<0.58	mg/kg	MW-3,S-4
97 0082200	<0.59	mg/kg	MW-6,S-4
97 0082201	<0.59	mg/kg	MW-8,S-4
97 0082202	<0.61	mg/kg	MW-4,S-4

The following results are for Selenium

Lab #	Conc.	Unit	Client Designation
97 0082199	<0.58	mg/kg	MW-3,S-4
97 0082200	<0.59	mg/kg	MW-6,S-4
97 0082201	<0.59	mg/kg	MW-8,S-4
97 0082202	<0.61	mg/kg	MW-4,S-4

The following results are for Thallium

Lab #	Conc.	Unit	Client Designation
97 0082199	<0.58	mg/kg	MW-3,S-4
97 0062200	<0.59	mg/kg	MW-6,S-4
97 0082201	<0.59	mg/kg	MW-8,S-4
97 0082202	<0.61	mg/kg	MW-4,S-4

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97122697
Date Received: 12.12.97 17:00

The following results are for Solids, Total

Lab #	Conc.	Unit	Client Designation
97 0082199	86	%	MW-3,S-4
97 0082200	83	%	MW-6,S-4
97 0082201	85	%	MW-8,S-4
97 0082202	80	%	MW-4,S-4

The following results are for Zinc

Lab #	Conc.	Unit	Client Designation
97 0082199	26	mg/kg	MW-3,S-4
97 0082200	7.1	mg/kg	MW-6,S-4
97 0082201	11	mg/kg	MW-8,S-4
97 0082202	12	mg/kg	MW-4,S-4

Sample Digestion Chain of Custody

Digestion Date Begin: 11/18/97

Tech(s): TL

Matrix:	Aqueous	Soil	Sludge	Oil	Filter	Paintchips	Cassette	TCLP	Other:
		X							

Analysis: X ICP X GFAA

Batch Number: B652 Book: 277 Page: 1 Temp (C))

#	EMSL Sample ID	Prep Amount Wt(g)/Vol(ml)	Volume(ml)	Analysis Date(s) Element(s) Required	TS%	Due
S1QC	78619	0.5027	50		84	
S11	78620	0.5115	50		80	
S27	78622	0.5004	50		88	
S12	78623	0.5029	50		81	
S13	78624	0.5035	50		84	
S14	82199	0.5003	50		86	
S15	82200	0.5070	50		83	
S16	82201	0.5014	50		85	
S17	82202	0.5092	50		80	
S18	81905	2.0013	50		8.5	
S19	85120	0.5006	50			
S20	85121	0.5013	50			
S21	85122	0.5039	50			
S22	85123	0.4992	50			
S23	85124	0.4994	50			
S24	85125	0.5077	50			
S25	85126	0.5019	50			
S26	85127	0.5003	50			
S28						
S29						

#			Batch QC Provided: Inital Wt g/Vol mL	Final Vol
S2,3	2	Prep Blank	20 ml	50
S4	1	Control #1 ICP	20ml	50
S6	1	Sample Dup	0.5067	50
S7	1	Matrix Spike #1 ICP	0.5000	50
S8	1	M.Spike DuP #1 ICP	0.5006	50
S5	1	Control #2 GFAA	20ml	50
		SampleDup #2		
S9	1	Matrix Spike#2 GFAA	0.5019	50
S10	1	M.Spike Dup#2 GFAA	0.5075	50

Digestion Method:

	SW-846 3005	X	SW-846 3051
	SW-846 3010		DIG 200 for ICP/GFAA
	SW-846 3015		NIOSH
	SW-846 3020	Other:	
	SW-846 3040		
	SW-846 3050		

Amount Spike Added (ml)	Standard Serial ID	
0.5	ICP	109-23-D
0.5	GF	257-27-G

Lot # HNO3 Lot # HCL

Lot # 1+1HNO3 Lot # 1+1HCL

Lot # H2O2

Relinquished By: Date: Received By: Date:

ICP Check Standard

Batch Number B652

Analyte	ICV Result mg/l	True Conc mg/l	% Rec 90-110	ICB Result mg/l	CCV-1 Result mg/l	True Conc mg/l	% Rec 90-110	CCB-1 Result mg/l	CCV-F Result mg/l	True Conc mg/l	% Rec 90-110	CCB-F Result mg/l
Ag	0.518	0.5	104	< 0.050	0.544	0.5	109	< 0.050	0.498	0.5	100	< 0.050
Al		5.0		<		5.0		<		5.0		<
As	2.061	2.0	103	< 0.100	2.650	2.5	106	< 0.100	2.473	2.5	99	< 0.100
B		/	ERR	<		/	ERR	<		/	ERR	<
Ba		10.0		<		10.0		<		10.0		<
Be	0.207	0.2	103	< 0.010	0.258	0.25	103	< 0.010	0.243	0.25	97	< 0.010
Ca		25.0		<		25.0		<		25.0		<
Cd	0.496	0.5	99	< 0.020	0.543	0.5	109	< 0.020	0.515	0.5	103	< 0.020
Co	2.058	0.5		<		0.5		<		0.5		<
Cr	~~0.514~~	2.0	~~104~~ 26	< 0.050	2.642	2.5	106	< 0.050	2.494	2.5	100	< 0.050
Cu	2.093	2.0	105	< 0.050	2.710	2.5	108	< 0.050	2.497	2.5	100	< 0.050
Fe		5.0		<		5.0		<		5.0		<
K		25.0		<		25.0		<		25.0		<
Mg		25.0		<		25.0		<		25.0		<
Mn		2.0		<		2.5		<		2.5		<
Mo		1.0		<		1.0		<		1.0		<
Na		25.0		<		25.0		<		25.0		<
Ni	2.055	2.0	103	< 0.050	2.620	2.5	105	< 0.050	2.479	2.5	99	< 0.050
Pb	10.268	10.0	103	< 0.200	10.668	10.0	107	< 0.200	10.261	10.0	103	< 0.200
Sb		2.0		<		2.5		<		2.5		<
Se		2.0		<		2.5		<		2.5		<
Si		/	ERR	<		/	ERR	<		/	ERR	<
Sn		/	ERR	<		/	ERR	<		/	ERR	<
Tl		2.0		<		2.5		<		2.5		<
Ti		2.0		<		2.5		<		2.5		<
V		0.5		<		0.5		<		0.5		<
Zn	2.080	2.0	104	< 0.050	2.636	2.5	105	< 0.050	2.564	2.5	103	< 0.050

mtH 11/25/97

ICP Interference Check Standard

EMSL Standard ID ICSAB-1 Check Standard Source Spex

Analyte	Control Limits Mean	Control Limits Std.Dev.	True Value mg/l	Initial Measured mg/l	% R	Final Measured mg/l	% R
Ag			1.0	0.988	98.8	0.933	93.3
Al			500.0				
As					ERR		ERR
B					ERR		ERR
Ba			0.5				
Be			0.5	0.489	97.8	0.468	93.6
Ca			500.0				
Cd			1.0	0.892	89.2	0.914	91.4
Co			0.5				
Cr			0.5	0.463	92.5	0.450	89.9
Cu			0.5	0.492	98.3	0.451	90.2
Fe			200.0				
K					ERR		ERR
Mg			500.0				
Mn			0.5				
Mo					ERR		ERR
Na					ERR		ERR
Ni			1.0	0.893	89.3	0.870	87.0
Pb			1.0	1.129	112.9	1.198	119.8
Sb					ERR		ERR
Se					ERR		ERR
Si					ERR		ERR
Sn					ERR		ERR
Tl					ERR		ERR
Ti					ERR		ERR
V			0.5				
Zn			1.0	0.978	97.8	0.991	99.1

ICP Interference Check Standard

EMSL Standard ID ICSAB-2 Check Standard Source Spex

Analyte	Control Limits Mean	Control Limits Std.Dev.	True Value mg/l	Initial Measured mg/l	% R	Final Measured mg/l	% R
Ag					ERR		ERR
Al			5.0				
As			5.0	5.172	103.4	5.295	105.9
B			5.0				
Ba					ERR		ERR
Be					ERR		ERR
Ca			0.5				
Cd					ERR		ERR
Co					ERR		ERR
Cr			100.0				
Cu			100.0				
Fe			0.5				
K					ERR		ERR
Mg			0.5				
Mn			100.0				
Mo			5.0				
Na			5.0				
Ni			100.0				
Pb					ERR		ERR
Sb			5.0				
Se			5.0				
Si			0.5				
Sn					ERR		ERR
Tl			5.0				
Ti			100.0				
V			100.0				
Zn					ERR		ERR

QC Sample 78619

Batch Numb. B652

Analyte	Blank/DL		Duplicate			Dilution		Spike								Control		
	Prep Blank mg/kg	Detection Limit mg/kg	Sample Result mg/kg	Dup Samp Result mg/kg	RPD %	1:5 Serial Dilution mg/kg	% Diff.	True Conc mg/kg	MS Result mg/kg	% Rec 80-120	MSD Result mg/kg	% Rec 80-120	RPD %	PostSpike Result mg/kg	% Rec 75-125	Control Result mg/l	True Conc mg/l	% Rec 80-120
Ag	< 5.00	5.00	< 5.9	< 5.9	0.8	< 29.6	400.00	11.905	10.604	89	10.613	89	0.1	10.6	88.8	0.0866	0.1	87
Al	<				ERR		ERR	238.1					ERR				2	
As	< 10.00	10.00	< 11.8	< 11.7	0.8	< 59.2	400.00	238.1	219.07	92	215.66	91	1.6	218.6	91.8	1.8252	2	91
B	<				ERR		ERR	59.524					ERR				0.5	
Ba	<				ERR		ERR	238.1					ERR				2	
Be	< 1.00	1.00	< 1.2	< 1.2	0.8	< 5.9	400.00	5.9524	5.7226	96	5.6539	95	1.2	5.6	94.4	0.0461	0.05	92
Ca	<				ERR		ERR	2381					ERR				20	
Cd	< 2.00	2.00	< 2.4	< 2.3	0.8	< 11.8	400.00	23.81	22.65	95	23.079	97	1.9	22.8	95.8	0.1872	0.2	94
Co	<				ERR		ERR	59.524					ERR				0.5	
Cr	< 5.00	5.00	< 5.9	< 5.9	0.8	< 29.6	400.00	59.524	57.496	97	58.823	99	2.3	59.1	99.2	0.4478	0.5	90
Cu	5.00	5.00	< 5.9	< 5.9	0.8	< 29.6	400.00	59.524	59.423	100	59.129	99	0.5	57.8	97.1	0.5078	0.5	102
Fe	<				ERR		ERR	238.1					ERR				2	
K	<				ERR		ERR	2381					ERR				20	
Mg	<				ERR		ERR	2381					ERR				20	
Mn	<				ERR		ERR	59.524					ERR				0.5	
Mo	<				ERR		ERR	59.524					ERR				0.5	
Na	<				ERR		ERR	2381					ERR				20	
Ni	< 5.00	5.00	< 5.9	< 5.9	0.8	< 29.6	400.00	59.524	57.425	96	57.885	97	0.8	57.6	96.8	0.4471	0.5	89
Pb	< 20.00	20.00	< 23.7	< 23.5	0.8	< 118.4	400.00	238.1	215.04	90	217.94	92	1.3	210.8	88.5	1.7698	2	88
Sb	<				ERR		ERR	595.24					ERR				5	
Se	<				ERR		ERR	238.1					ERR				2	
Si	<				ERR		ERR	119.05					ERR				1	
Sn	<				ERR		ERR	119.05					ERR				1	
Tl	<				ERR		ERR	595.24					ERR				5	
Ti	<				ERR		ERR	238.1					ERR				2	
V	<				ERR		ERR	59.524					ERR				0.5	
Zn	< 5.00	5.00	6.8	8.1	17.3	38.7	470.92	59.524	58.86	88	58.833	87	0.1	61.0	91.1	0.4443	0.5	89

Comment:

NR = No Recovery

#1 = Matrix Interference

#2 = High Analyte

Graphite Furnace QC Results Report

Samples in batch		
78619	82202	85125
78620	81905	85126
78623	85120	85127
78624	85121	
82199	85122	
82200	85123	
82201	85124	

Batch Number B652

Analyte	Analysis Date	ICV Result mg/l	True Conc mg/l	% Rec 90-110	ICB Result mg/l	CCV-I Result mg/l	True Conc mg/l	% Rec 80-120	CCB-I Result mg/l	CCV-F Result mg/l	True Conc mg/l	% Rec 80-120	CCB-F Result mg/l
As			0.040		0.0050		0.050		0.0050		0.050		0.0050
Se	11/19/97	0.021	0.020	107	< 0.0050	0.020	0.020	102	< 0.0050	0.019	0.020	97	< 0.0050
Pb			0.040		0.0050		0.040		0.0050		0.040		0.0050
Sb	11/20/97	0.020	0.020	100	< 0.0050	0.020	0.020	101	< 0.0050	0.020	0.020	98	< 0.0050
Tl	11/20/97	0.042	0.040	104	< 0.0050	0.042	0.040	104	< 0.0050	0.042	0.040	105	< 0.0050

Comment:

NR = No Recovery

#1 = Matrix Interference

#2 = High Analyte

Graphite Furnace QC Results Report

Samples in batch:

78619	82202	85125
78620	81905	85126
78623	85120	85127
78624	85121	
82199	85122	
82200	85123	
82201	85124	

QC Sample 78619

Batch Numb. B652

		Blank/DL		Duplicate					Spike										Control		
Analyte	Analysis Date	Prep Blank mg/kg	Detection Limit mg/kg	Sample Result mg/kg	Dup Samp Result mg/kg	RPD %	1:5 Serial Dilution mg/kg	% Diff.	MS Result mg/kg	True Conc mg/kg	% Rec 80-120	MSD Result mg/kg	True Conc mg/kg	% Rec 80-120	RPD %	1:5 PostSpk Result mg/kg	True Conc mg/kg	% Rec 85-115	Control Result mg/l	True Conc mg/l	% Rec 80-120
As		0.500	0.500			ERR		ERR		4.744			4.692		ERR		14.8			0.040	
Se	11/19/97	< 0.500	0.500	< 0.595	< 0.595		< 2.976	4.00	2.361	2.372	100	2.429	2.346	104	0.8	14.2	12.4	114.0	0.020	0.020	101
Pb		0.500	0.500			ERR		ERR		2.372			2.346		ERR		11.8			0.020	
Sb	11/20/97	< 0.500	0.500	< 0.595	< 0.595		< 2.976	4.00	1.098	2.372	46	1.125	2.346	48	0.9	12.5	11.8	105.8	0.020	0.020	101
Tl	11/20/97	< 0.500	0.500	< 0.595	< 0.595		< 2.976	4.00	2.512	2.372	106	2.536	2.346	108	0.5	11.7	11.8	99.1	0.021	0.020	104

Comment:

NR = No Recovery

#1 = Matrix Interference

#2 = High Analyte

EMSL Analytical Services

Mercury CVAA QC Results Report-NonAqueous

Samples in batch:

78619	82201
78620	82202
78622	81572
78623	
78624	
82199	
82200	

Analyte	Analysis Date	ICV Result mg/l	True Conc mg/l	% Rec 90-110	ICB Result mg/l	CCV-1 Result mg/l	True Conc mg/l	% Rec 90-110	CCB-1 Result mg/l	CCV-F Result mg/l	True Conc mg/l	% Rec 90-110	CCB-F Result mg/l
Hg	11/14/97	0.0021	0.0020	104	< 0.00020	0.0019	0.0020	96	< 0.00020	0.0019	0.0020	93	< 0.00020

Comment:

NR = No Recovery

#1 = Matrix Interference

#2 = High Analyte

EMSL Analy Services

Mercury CVAA QC Results Report-NonAqueous

Samples in batch:

78619	82201
78620	82202
78622	81572
78623	
78624	
82199	
82200	

QC Sample 78619

		Blank/DL		Duplicate					Spike										Control		
Analyte	Analysis Date	Prep Blank mg/kg	Detection Limit mg/kg	Sample Result mg/kg	Dup Samp Result mg/kg	RPD %	1:5 Serial Dilution mg/kg	% Diff.	MS Result mg/kg	True Conc mg/kg	% Rec 80-120	MSD Result mg/kg	True Conc mg/kg	% Rec 80-120	RPD %	1:5 PostSpk Result mg/kg	True Conc mg/kg	% Rec 85-115	Control Result mg/l	True Conc mg/l	% Rec 80-120
Hg	11/14/97	< 0.10	0.10	< 0.119	< 0.119		NA		1.187	1.181	101	1.150	1.177	98	0.7	NA	NA	NA	0.0020	0.0020	99

Comment:

NR = No Recovery

#1 = Matrix interference

#2 = High Analyte

PETROLEUM HYDROCARBON DATA PACKAGE

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97122494
Date Received: 11/07/97 18:20

The following results are for Petroleum Hydrocarbons, Total (I.R)

Lab #	Conc.	Unit	Client Designation
97 0078619	17	mg/kg	MW-2,S-5
97 0078620	29	mg/kg	MW-10,S-5
97 0078622	20	mg/kg	MW-5,S-4
97 0078623	37	mg/kg	MW-7,S-5
97 0078624	29	mg/kg	MW-9,S-5

The following results are for Solids, Total

Lab #	Conc.	Unit	Client Designation
97 0078619	84	%	MW-2,S-5
97 0078620	80	%	MW-10,S-5
97 0078622	88	%	MW-5,S-4
97 0078623	81	%	MW-7,S-5
97 0078624	84	%	MW-9,S-5

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97123697
Date Received: 12/12/97 17:00

The following results are for Petroleum Hydrocarbons, Total (I.R)

Lab #	Conc.	Unit	Client Designation
97 0082199	93	mg/kg	MW-3,S-4
97 0082200	22	mg/kg	MW-6,S-4
97 0082201	27	mg/kg	MW-8,S-4
97 0082202	27	mg/kg	MW-4,S-4

The following results are for Solids, Total

Lab #	Conc.	Unit	Client Designation
97 0082199	86	%	MW-3,S-4
97 0082200	83	%	MW-6,S-4
97 0082201	85	%	MW-8,S-4
97 0082202	80	%	MW-4,S-4

BLANKS

Lab Name: EMSL Analytical Contract: _____

Lab Code: _____ Case No.: _____ AS No.: _____ SDG No.: _____

Preparation Blank Matrix (Soil/Water): Soil

Preparation Blank Concentration Units (mg/l or mg/kg): mg/kg

Analyte	Initial Calib. Blank (mg/l)	C	Continuing Calibration Blank (mg/l) 1	C	2	C	3	C	Preparation Blank	C	M
Total Petroleum Hydrocarbons (11/12/97)									<10		
Total Petroleum Hydrocarbons (11/13/97)									<10		

PETROLEUM HYDROCARBON MATRIX SPIKE RECOVERY

Lab Name: EMSL ANALYTICAL, INC.

Lab Code: _____

Lab Sample ID: _97-78624; 97-82202_____

Concentration Units (mg/l or mg/kg dry weight): _mg/kg DWB_____

Compound	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Total Petroleum Hydrocarbons	80-120	292		29		296	89		
Total Petroleum Hydrocarbons	80-120	311		26		294	97		

*VALUES OUTSIDE OF QC LIMITS

Spike Recovery:____0____ out of ____2_____ outside limits

COMMENTS:_____

PETROLEUM HYDROCARBON RESULT/DUPLICATE RECOVERY

Lab Name: EMSL ANALYTICAL, INC.

Lab Code: _____

Lab Sample ID: 97-78624; 97-82202

Parameter	Units	Sample Result	Conc. Duplicate	RPD %	QC Limits Recovery
Total Petroleum Hydrocarbons	**mg/kg DWB**	29.2	37.4	25	+/-20%
Total Petroleum Hydrocarbons	**mg/kg DWB**	26.5	26.5	0	+/-20%

* Values outside of QC limits.

RPD: 1 out of 2 outside limits

Comments: _____

EMSL

PETROLEUM HYDROCARBON CONTROL RECOVERY

Lab Name: EMSL ANALYTICAL, INC.

Lab Code: _____

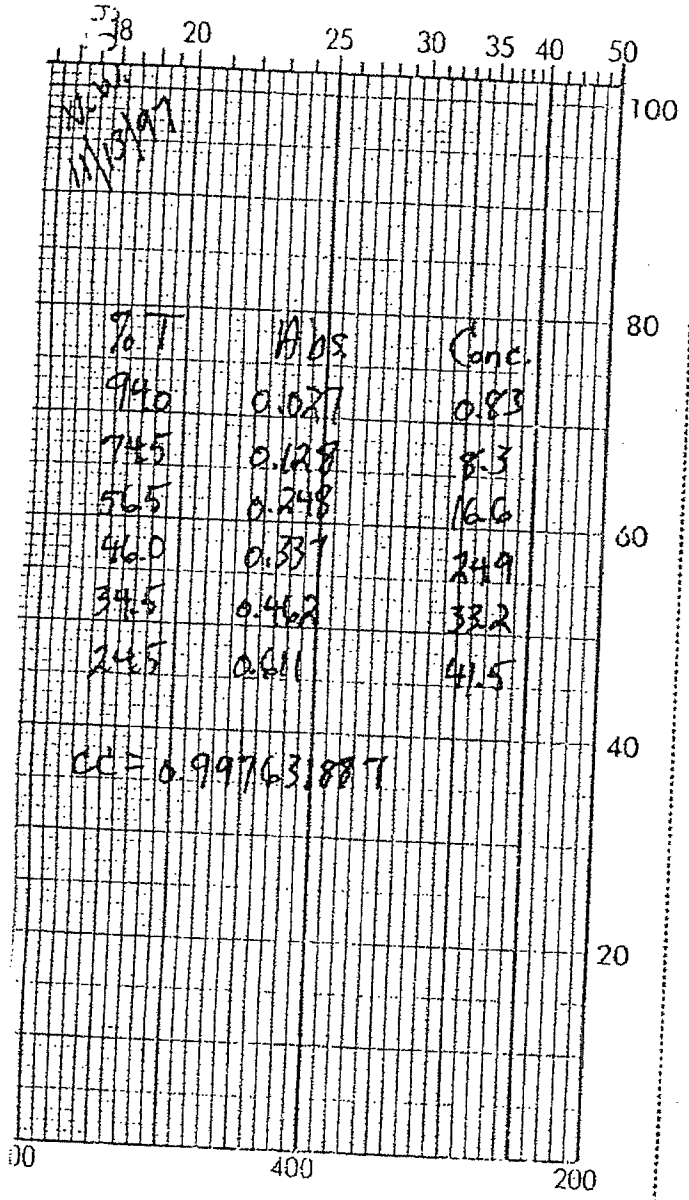
Lab Sample ID: _____Control_____

Compound	Control Actual Value mg	Control Theoretical Value, mg	% Recovery	QC Limits Recovery
Total Petroleum Hydrocarbons	26.2	24.9	105	80-120
(11/12/97)				
Total Petroleum Hydrocarbons	25.1	24.9	101	80-120
(11/13/97)				

* VALUES OUTSIDE OF QC LIMITS

Control Recovery: _____0_____ out of _____2_____ outside limits

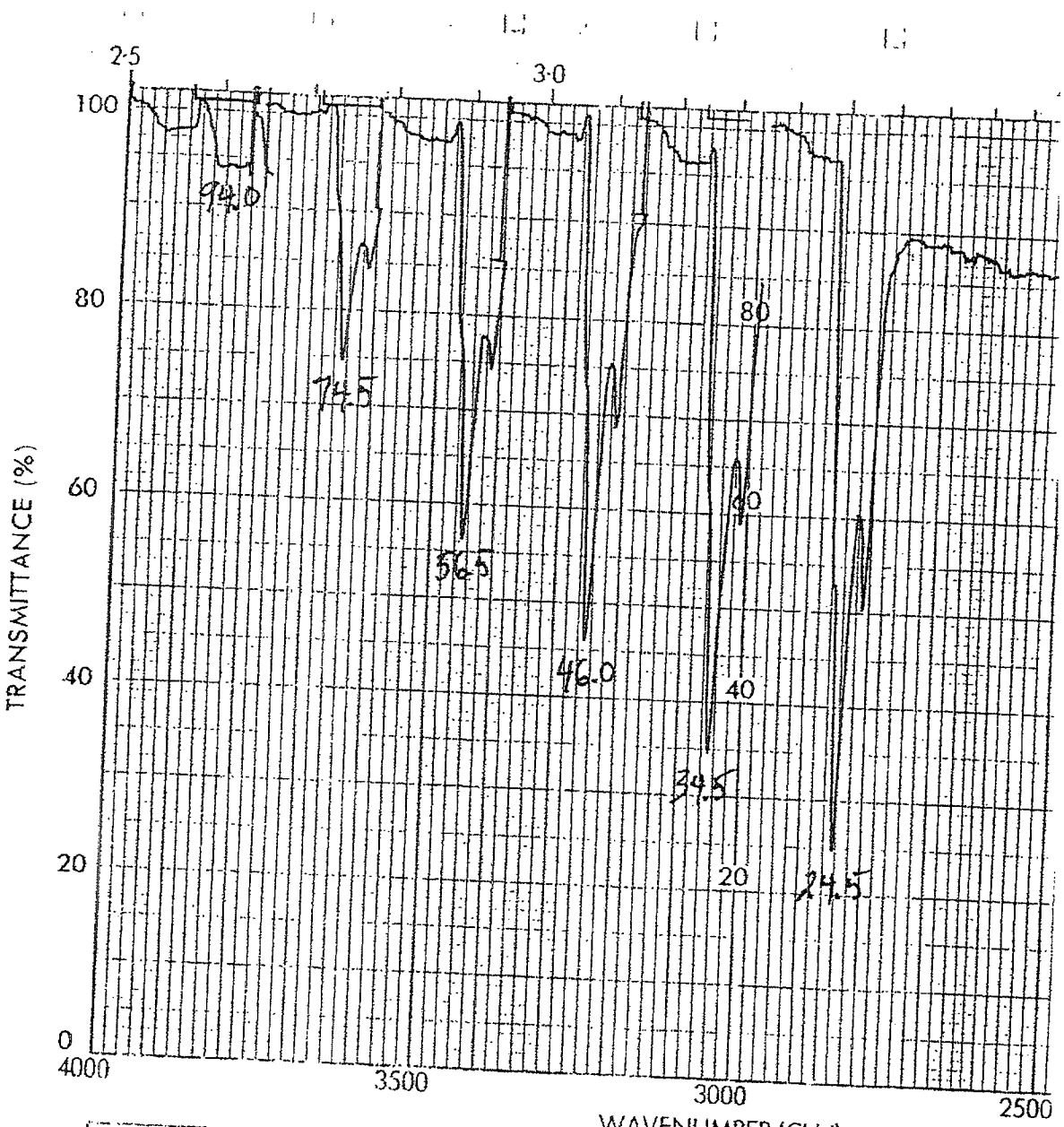
COMMENTS:_____



% T	Abs	Conc.
94.0	0.027	0.83
74.5	0.128	8.3
56.5	0.248	16.6
46.0	0.337	24.9
34.5	0.462	33.2
24.5	0.611	41.5

CC = 0.99763188 T

OPERATOR	
DATE	
REF No.	



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	CONCI
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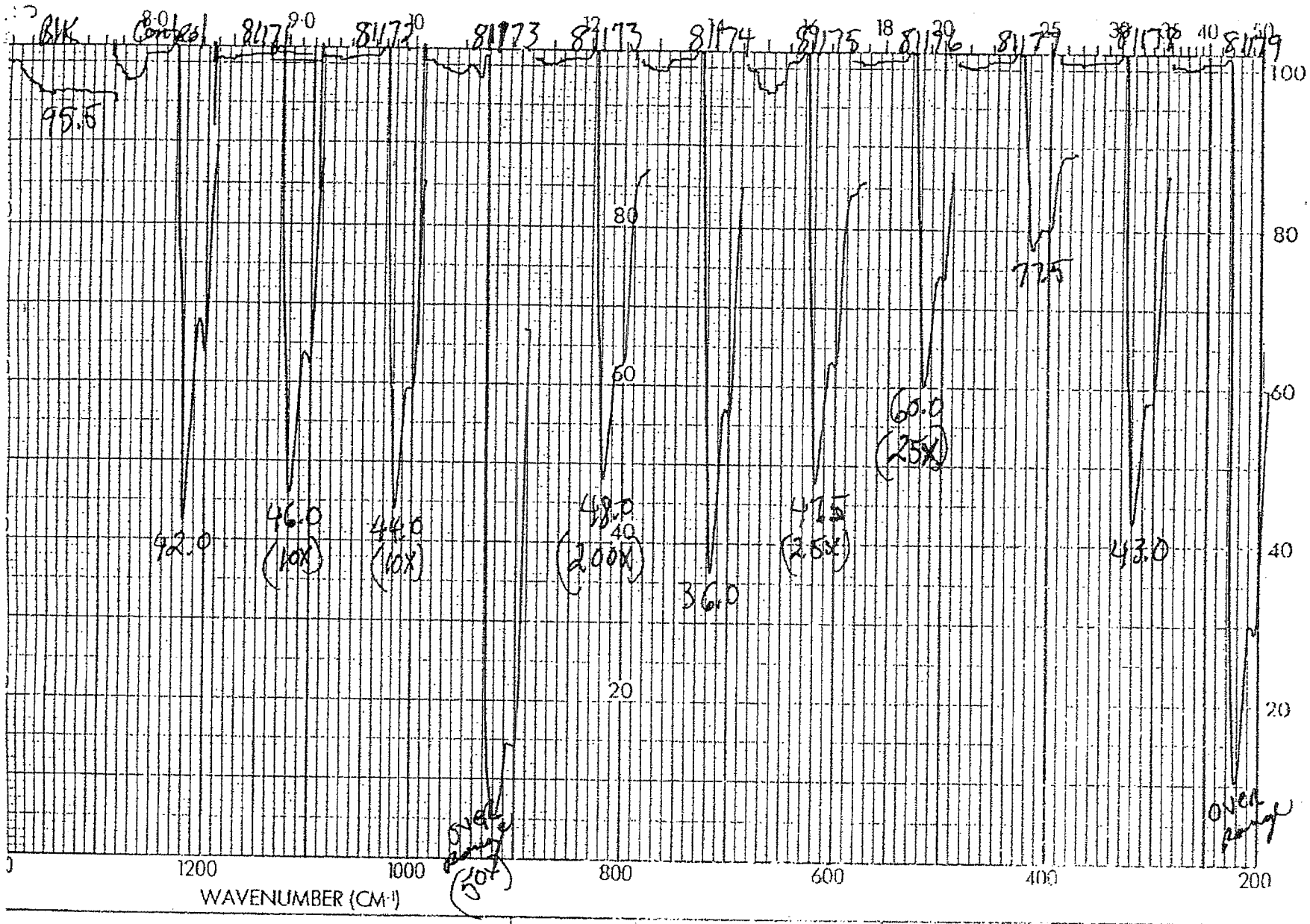
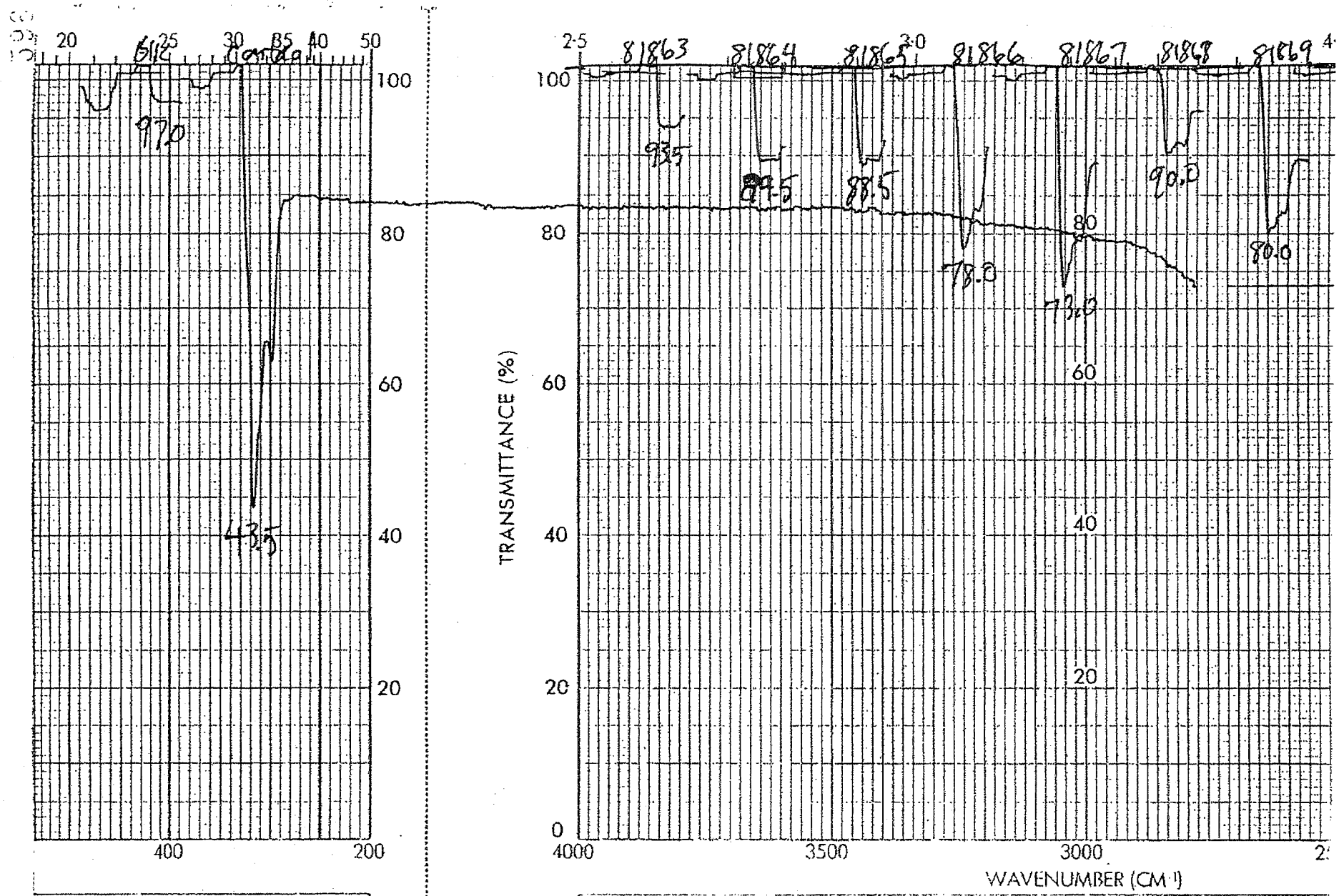
	REFERE



SCAN MODE SLIT____ TIME CONSTANT	OPERATOR DATE
GRAPHIC CONTROLS CORPORATION BUFFALO NEW YORK No. PR 5100 4367	REF No.



OPERATOR

DATE

REF

SAMPLE

ORIGIN

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CO

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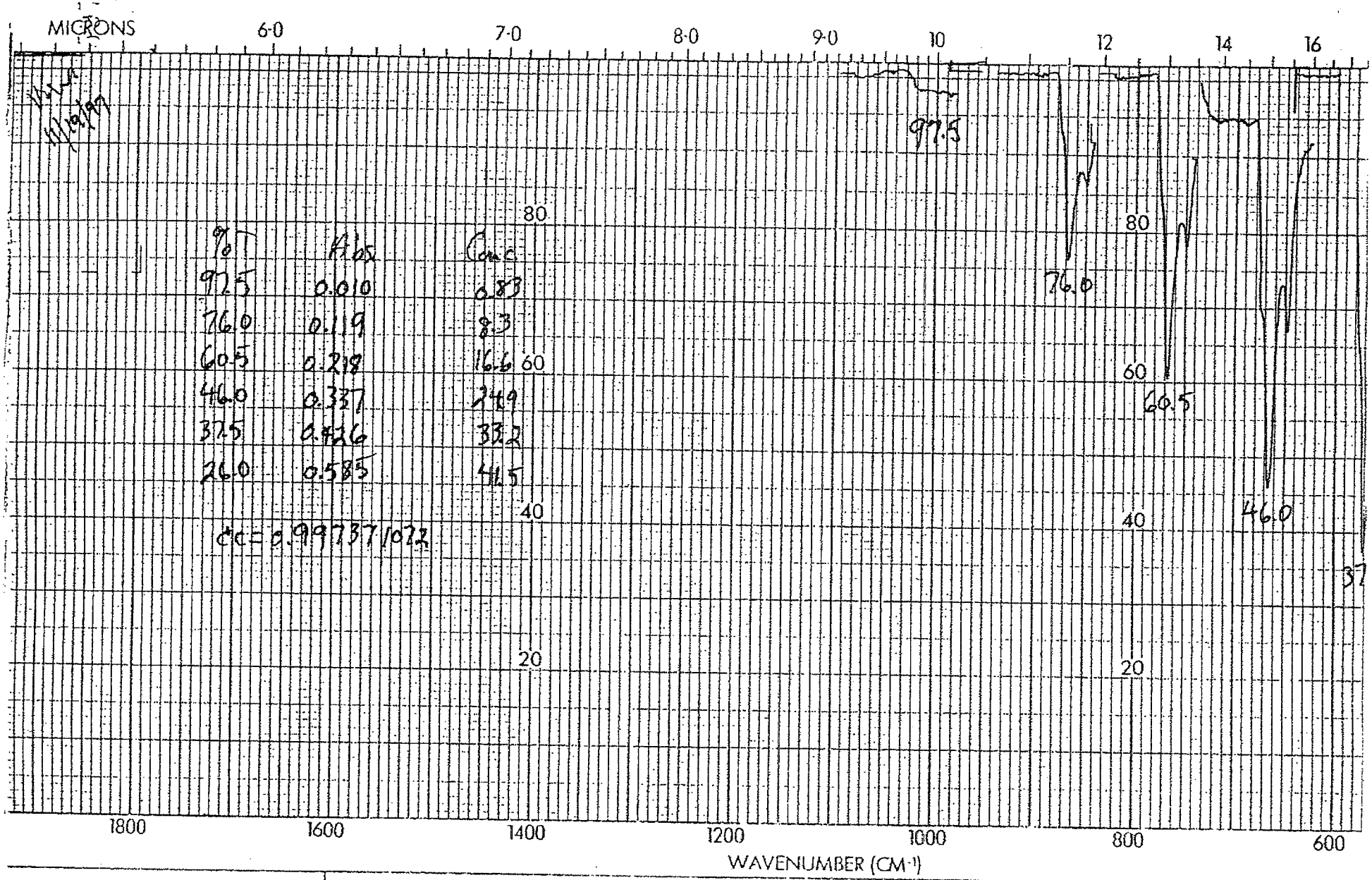
REF

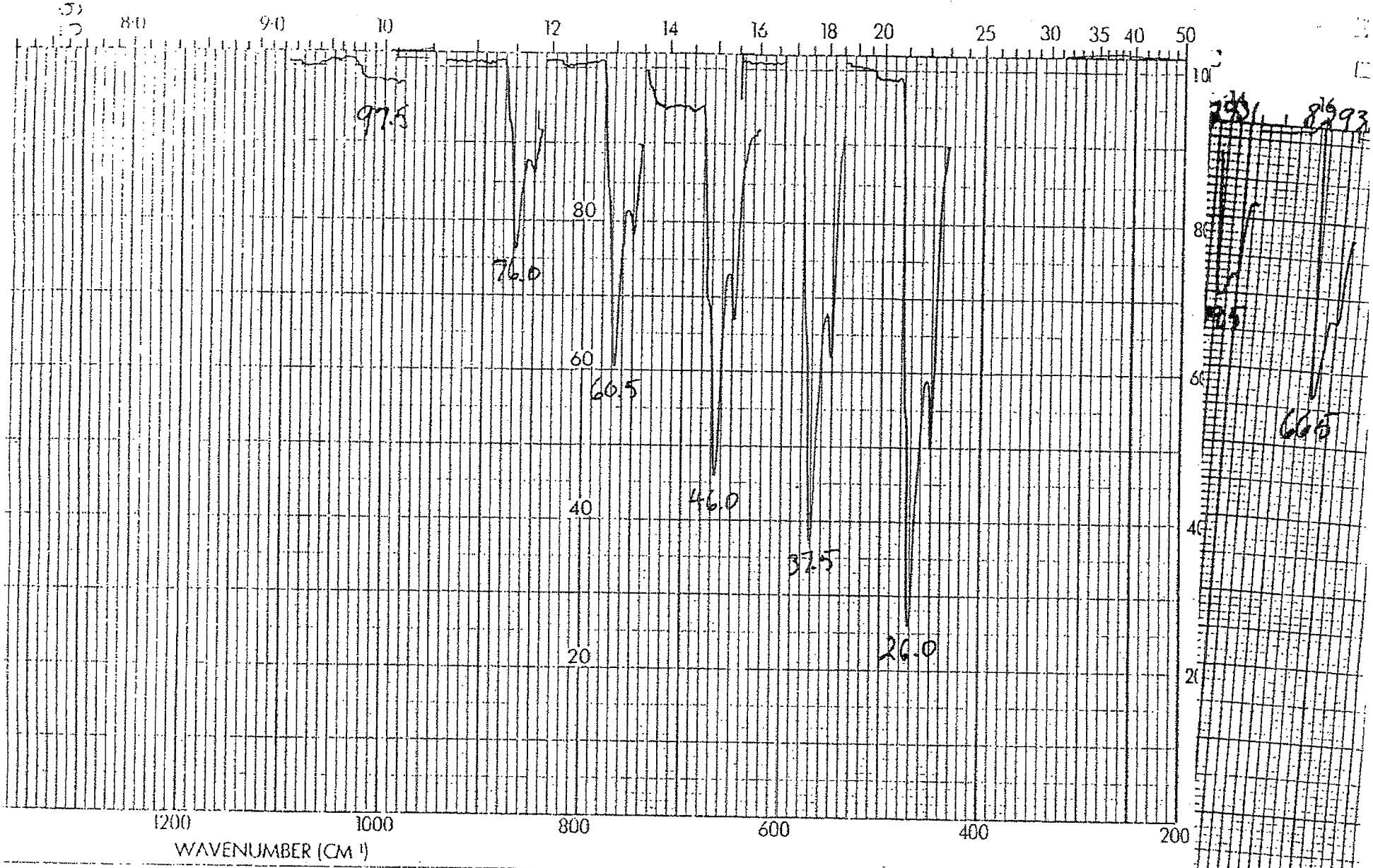


REMARKS

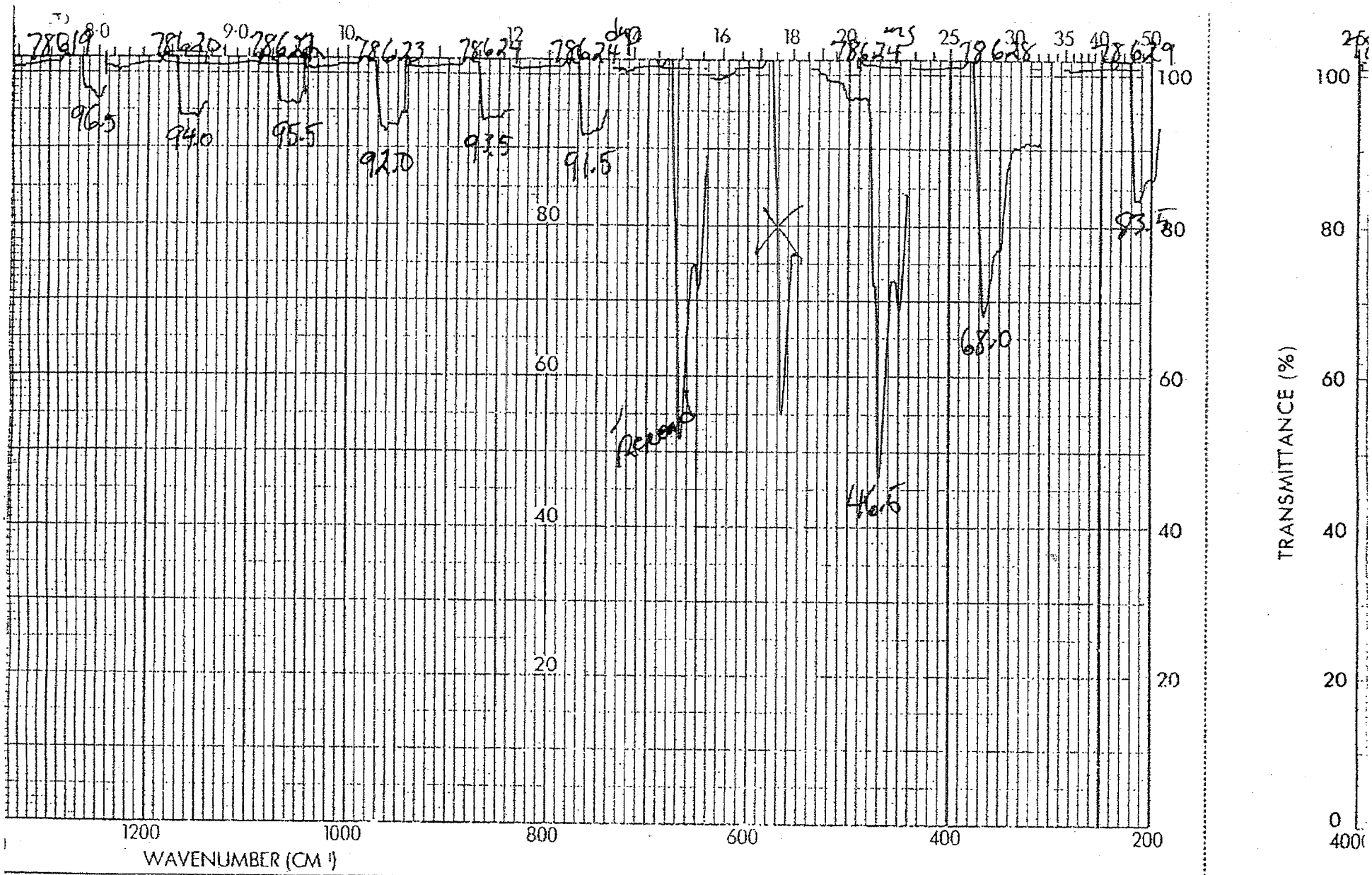
SCAN MODE

SLIT TIME CONSTANT

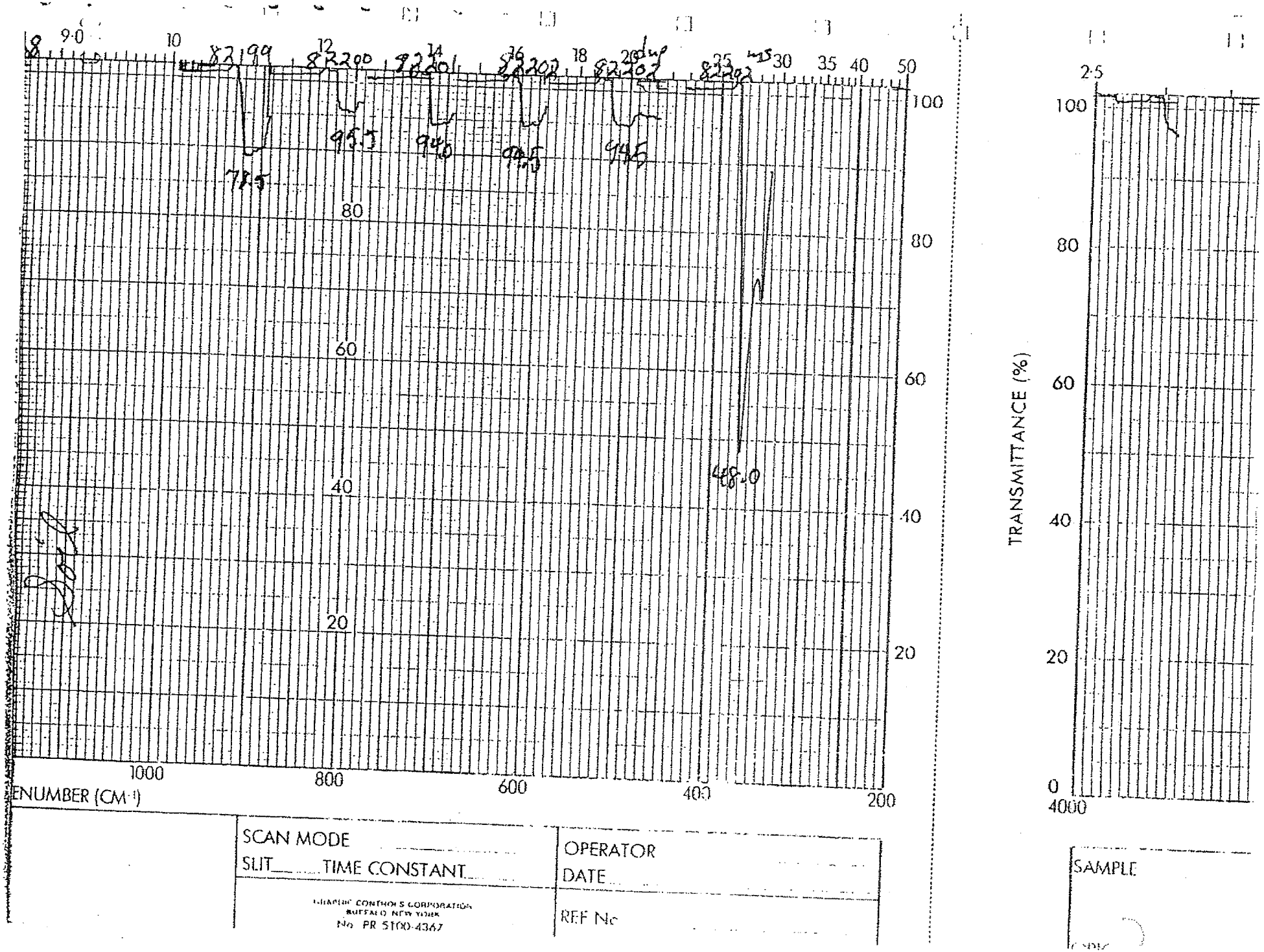
GRAPHIC CONTROLS CORPORATION
BUFFALO NEW YORK
No. PR 5 367



SCAN MODE	OPERATOR
SLIT TIME CONSTANT	DATE
GRAPHIC CONTROLS CORPORATION BUFFALO NEW YORK No. PR 5106	RFF No.



	SCAN MODE	OPERATOR
	SLIT ____ TIME CONSTANT	DATE
	GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK No. PR 5100-4367	REF No.


9·0
10
12
14
16
18
20
25
30
35
40
50
100
80
60
40
20
1000
800
600
400
200
ENUMBER (CM⁻¹)
TRANSMITTANCE (%)
2·5
4000
0
SCAN MODE
SLIT TIME CONSTANT
OPERATOR
DATE
SAMPLE
REF No
No PR 5100-4367

GENERAL CHEMISTRY ANALYSIS DATA PACKAGE

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JPK-E.A.Terminal

Project #: PO128494
Date Received: 11/07/97 18:20

The following results are for Phenolics as phenol

Lab #	Conc.	Unit	Client Designation
97 0078619	<1.2	mg/kg	MW-2,S-5
97 0078620	<1.2	mg/kg	MW-10,S-5
97 0078622	<1.2	mg/kg	MW-5,S-4
97 0078623	<1.2	mg/kg	MW-7,S-5
97 0078624	<1.2	mg/kg	MW-9,S-5

The following results are for Total Cyanide

Lab #	Conc.	Unit	Client Designation
97 0078619	<0.25	mg/kg	MW-2,S-5
97 0078620	<0.25	mg/kg	MW-10,S-5
97 0078622	<0.25	mg/kg	MW-5,S-4
97 0078623	<0.25	mg/kg	MW-7,S-5
97 0078624	<0.25	mg/kg	MW-9,S-5

The following results are for Solids, Total

Lab #	Conc.	Unit	Client Designation
97 0078619	84	%	MW-2,S-5
97 0078620	80	%	MW-10,S-5
97 0078622	88	%	MW-5,S-4
97 0078623	81	%	MW-7,S-5
97 0078624	84	%	MW-9,S-5

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1997
Customer Project No. JFK-B.A.Terminal

Project #: [illegible]
Date Received: 11/12/97 17:0[illegible]

The following results are for Phenolics as phenol

Lab #	Conc.	Unit	Client Designation
97 0082199	<1.2	mg/kg	MW-3,S-4
97 0082200	<1.2	mg/kg	MW-6,S-4
97 0082201	<1.2	mg/kg	MW-8,S-4
97 0082202	<1.2	mg/kg	MW-4,S-4

The following results are for Total Cyanide

Lab #	Conc.	Unit	Client Designation
97 0082199	<0.25	mg/kg	MW-3,S-4
97 0082200	<0.25	mg/kg	MW-6,S-4
97 0082201	<0.25	mg/kg	MW-8,S-4
97 0082202	<0.25	mg/kg	MW-4,S-4

The following results are for Solids, Total

Lab #	Conc.	Unit	Client Designation
97 0082199	86	%	MW-3,S-4
97 0082200	83	%	MW-6,S-4
97 0082201	85	%	MW-8,S-4
97 0082202	80	%	MW-4,S-4

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK-B.A.Terminal

Project #: 97100697
Date Received: 11/12/97 17:0

The following results are for Phenolics as phenol

Lab #	Conc.	Unit	Client Designation
97 0082199	<1.2	mg/kg	MW-3,S-4
97 0082200	<1.2	mg/kg	MW-6,S-4
97 0082201	<1.2	mg/kg	MW-8,S-4
97 0082202	<1.2	mg/kg	MW-4,S-4

The following results are for Total Cyanide

Lab #	Conc.	Unit	Client Designation
97 0082199	<0.25	mg/kg	MW-3,S-4
97 0082200	<0.25	mg/kg	MW-6,S-4
97 0082201	<0.25	mg/kg	MW-8,S-4
97 0082202	<0.25	mg/kg	MW-4,S-4

The following results are for Solids, Total

Lab #	Conc.	Unit	Client Designation
97 0082199	86	%	MW-3,S-4
97 0082200	83	%	MW-6,S-4
97 0082201	85	%	MW-8,S-4
97 0082202	80	%	MW-4,S-4

BLANKS

Lab Name: EMSL Analytical Contract:

Lab Code: Case No.: AS No.: SDG No.:

Preparation Blank Matrix (Soil/Water): Soil

Preparation Blank Concentration Units (ug/l or mg/kg): mg/kg

Analyte	Initial Calib. Blank (ug/l)	C	Continuing Calibration Blank (ug/l) 1	C	2	C	3	C	Preparation Blank	C	M
Phenolics											
Total Cyanide (11/13/97)									**<1.25**		
Total Cyanide (11/14/97)									**<0.25**		
									<0.25		

EMSL

SPIKE SAMPLE RECOVERY

Lab Name: **EMSL Analytical** Contract: _____ Lab Sample No.: **97-66708, 97-78620**

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix (soil/water): **Soil** Level (low/med) : _____

% Solids for Sample: **91, 80**

Concentration Units (mg/l or mg/kg dry weight): **mg/kg DWB**

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	75-125	7980		399		7812	97		
Total Cyanide	75-125	9.32		0		10.0	93		

Comments: _____

DUPLICATES

Lab Name: EMSL ANALYTICAL Contract: ______ Lab Sample No.: 97-66706, 97-78620

Lab Code: ______ Case No.: ______ SAS No.: ______ SDG No.: ______

Matrix (soil/water): Soil :Level (low/med.): ______

% Solids for Sample: 2, 80 % Solids for Duplicate: 2, 80

Concentration units (mg/l or mg/kg dry weight): mg/kg DWB

Analyte	Control Limit	Sample(S)	C	Duplicate(D)	C	RPD	Q	M
Phenolics	+/-20%	399		351		13		
Total Cyanide	+/-20%	<0.25		<0.25		NC		

LABORATORY CONTROL SAMPLE

Lab Name: EMSL Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No: _____ SDG No: _____

Solid LCS Source: _____

Aqueous LCS Source: Various

Analyte	Aqueous (mg/l)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Phenolics	**0.500**	**0.485**	**97**				**80-120**	
Total Cyanide (11/13/97)	**0.400**	**0.371**	**93**				**80-120**	
Total Cyanide (11/14/97)	**0.400**	**0.371**	**93**				**80-120**	

New Jersey Department of Environmental Protection
Division of Water Resources
Bureau of Underground Storage Tanks
CN-029, Trenton, New Jersey 08625

LABORATORY AUTHENTICATION STATEMENT

I certify under penalty of law, where applicable, this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18, 40 CFR Part 136 for Water and Wastewater Analyses and SW 846 for Solid Waste Analyses. I have personally examined and am familiar with the information contained in this report, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, complete, and meets the standards specified in N.J.A.C. 7:18, 40 CFR Part 136, and/or SW 846. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Laboratory Manager (as defined in N.J.A.C. 7:18)

PORT AUTHORITY LEASE NO. [illegible]

SUPPLEMENT NO. 2

PORT AUTHORITY OF NEW YORK AND NEW JERSEY

AND

BRITISH AIRWAYS, PLC

VOLUME 2

Environmental Engineering Unit
Aviation Design Division

J.F.K. International Airport British Airways Building 59 Environmental Investigation Summary Report

December 1997

Engineering Department
The Port Authority of NY & NJ

EXHIBIT L
Book 3 of 3

For the Port Authority

Initialed:

For the Lessee

APPENDIX "C"

LABORATORY REPORTS OF GROUNDWATER

EMSL ANALYTICAL, INC.

Asbestos – Lead – Environmental – Materials

Corporate Office and Lab
108 Haddon Avenue
Westmont, NJ
609-858-4800

3 Cooper Street
Westmont, NJ
609-858-4800

San Mateo, CA
415-570-5401

S. Pasadena, CA
213-254-9960

N. Miami Beach, FL
305-650-0577

Smyrna, GA
770-333-6066

Indianapolis, IN
317-570-5892

Lexington, KY
293-1590

Ann Arbor, MI
313-668-6810

Piscataway, NJ
732-981-0550

New York, NY
212-290-0051

Carle Place, NY
516-997-7251

Buffalo, NY
516-997-7251

Charlotte, NC
704-567-1521

Greensboro, NC
910-297-1487

Dallas, TX
214-831-9725

Houston, TX
713-686-3635

...le, WA
...233-9007

EMSL France
Paris
011-33-147014805

ANALYTICAL DATA REPORT
FOR
PORT AUTHORITY OF NY & NJ
Engineering Department
241 Erie Street, Room 234
Jersey City, NJ 07310-1397

PROJECT : **JFK British Airways**

EMSL Project: # 97123007

Field Sample No. & Location	Laboratory Sample ID	Matrix	Date & Time of Collection	Date Received
MW-2	**97-85731**	**Aqueous**	**11/17/97 @ 1040**	**11/18/97**
MW-3	**97-85732**	**Aqueous**	**11/17/97 @ 1007**	**11/18/97**
MW-5	**97-85733**	**Aqueous**	**11/17/97 @ 0945**	**11/18/97**
MW-6	**97-85734**	**Aqueous**	**11/17/97 @ 1245**	**11/18/97**
MW-7	**97-85735**	**Aqueous**	**11/17/97 @ 0923**	**11/18/97**
MW-8	**97-85736**	**Aqueous**	**11/17/97 @ 1147**	**11/18/97**
MW-9	**97-85737**	**Aqueous**	**11/17/97 @ 0855**	**11/18/97**
MW-9A	**97-85738**	**Aqueous**	**11/17/97 @ 0900**	**11/18/97**
Field Blank	**97-85739**	**Aqueous**	**11/17/97 @ 0830**	**11/18/97**
Trip Blank	**97-85740**	**Aqueous**	**11/17/97 ----**	**11/18/97**
MW-10	**97-85741**	**Aqueous**	**11/17/97 @ 1104**	**11/18/97**

Laboratory Name — EMSL ANALYTICAL, INC.

Certification No. — NJDEPE No. 04653

Supervisor/Manager Signature
Printed Name — Paul V. Laraia

Date — 12-3-97

EMSL

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. Initial Calibration Data	
. Continuing Calibration BFB Tune	
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. Internal Standards Area Summary	
. Sample Results	
. Surrogate Recovery Form	
. Method Blank Data	
. Matrix Spike/Matrix Spike Duplicate Data	
GC/MS Semivolatile Organic Data Package	236-363
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. Initial Calibration Data	
. Continuing Calibration DFTPP Tune	
. Continuing Calibration Data	
. Internal Standards Area Summary	
. Sample Results	
. Surrogate Recovery Form	
. Method Blank Data	
. Matrix Spike/Matrix Spike Duplicate Data	
Pesticides & PCB Analysis Data Package	364-525
. Standard Data	
. Sample Results	
. Surrogate Recovery Form	
. Method Blank	
. Matrix Spike/Matrix Spike Duplicate Data	
Metals Analysis Data Package	526-539
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. Calibrations	
. Blanks	
. Spike Recovery	
. Duplicates	
. Laboratory Control Sample	

Petroleum Hydrocarbons Analysis Data Package ---------- 540-551
- Sample Results
- Method Blank Data
- Matrix Spike Data
- Duplicate Data
- Laboratory Control Sample
- Spectra

General Chemistry Analytical Data Package ---------- 552-557
- Sample Results
- Blanks
- Quality Assurance Data

Statement of Authentication ---------- 558

SAMPLE DATA SUMMARY PACKAGE

Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085731
Date Collected: 11/17/97 10:40
Collected By: Client
Date Received: 11/18/97 15:00

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: MW-2

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	<0.050	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-2

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85731

Sample wt/vol: 1000 (g/mL) mL Lab File ID: D:NV14E161

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785731B

MW-2

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785731B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7251.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 9785731B MW-2

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785731B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7251.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785731B
MW-2

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785731B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7251.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.90	7	J
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IA

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785731V MD-2

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785731V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9736.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785731V

MW-2

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785731V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9736.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785731V
MB-2

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785731V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9736.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
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EMSL

Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085732
Date Collected: 11/17/97 10:37
Collected By: Client
Date Received: 11/18/97 15:00

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: MW-3

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	<0.050	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-3

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85732

Sample wt/vol: 990 (g/mL) mL Lab File ID: D:NV14E162

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785732B
MW-3

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785732B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7252.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785732B

MW-3

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785732B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7252.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	1	J
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785732B
MB-3

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785732B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7252.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 4 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1.	Unknown Hydrocarbon	10.78	10	J
2.	Unknown Hydrocarbon	10.90	12	J
3. 57-10-3	Hexadecanoic acid	22.90	10	J
4. 10544-50-0	Sulfur, mol. (S8)	23.47	4	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785732V
MW-3

013

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785732V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9737.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785732V
MW-3

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785732V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9737.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units:
(ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785732V
MW-3 U

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785732V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9737.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
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Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085733
Date Collected: 11/17/97 09:45
Collected By: Client
Date Received: 11/18/97 15:00

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: MW-5

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	0.016	mg/l
Cadmium	0.025	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	0.064	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85733

Sample wt/vol: 930 (g/mL) mL Lab File ID: D:NV14E163

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785733B
MW-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785733B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7253.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785733B MB-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785733B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7253.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785733B
MW-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785733B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7253.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.90	8	J
2. 10544-50-0	Sulfur, mol. (S8)	23.47	6	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785733V
MW-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785733V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9738.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785733V

MW-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785733V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9738.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785733V
MW-5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785733V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9738.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
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Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085734
Date Collected: 11/17/97 12:45
Collected By: Client
Date Received: 11/18/97 15:00

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: MW-6

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	<0.050	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-6

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85734

Sample wt/vol: 990 (g/mL) mL Lab File ID: D:NV14E164

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.05	
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 9785734B MW-6

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785734B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7254.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 9785734B MW-6

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785734B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7254.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785734B
MW-6

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785734B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7254.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1.	Unknown	6.09	8	J
2. 57-10-3	Hexadecanoic acid	22.89	5	J
3.				
4.				
5.				
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VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785734V
MD-6

034

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785734V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9739.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units:

CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785734V
MW-6

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785734V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9739.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	8	
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785734V
MD-6

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785734V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9739.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
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EMSL

Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085735
Date Collected: 11/17/97 09:23
Collected By: Client
Date Received: 11/18/97 15:00

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: MW-7

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	<0.050	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-7

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85735

Sample wt/vol: 950 (g/mL) mL Lab File ID: D:NV14E165

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785735B

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785735B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7255.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785735B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785735B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7255.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	7	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785735B
MW-7

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785735B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7255.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.91	8	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785735V MW-7

042

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785735V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9740.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

IA

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785735V
MW-7

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785735V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9740.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785735V
MB-7

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785735V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9740.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
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EMSL

Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085736
Date Collected: 11/17/97 11:47
Collected By: Client
Date Received: 11/18/97 15:00

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: MW-8

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	<0.050	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-8

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85736

Sample wt/vol: 1000 (g/mL) mL Lab File ID: D:NV14E166

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.06	
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785736B MB-8

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785736B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7256.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785736B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785736B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7256.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	1	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	B
205-99-2	Benzo[b]fluoranthene	3	U
207-08-9	Benzo[k]fluoranthene	1	U
50-32-8	Benzo[a]pyrene	2	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785736B
MW-8

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785736B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7256.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.91	10	J
2.	Unknown	31.79	32	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785736V
MW-8

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785736V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9741.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	2	
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
9785736V
MW-8

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785736V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9741.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9785736V
MB-8

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785736V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9741.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
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EMSL

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: MW-9

Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085737
Date Collected: 11/17/97 08:55
Collected By: Client
Date Received: 11/18/97 15:00

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	0.058	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-9

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85737

Sample wt/vol: 990 (g/mL) mL Lab File ID: D:NV14E167

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785737B

MW-9

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785737B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7257.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785737B MB-9

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785737B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7257.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785737B MW-9

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785737B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7257.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.91	9	J
2.	Unknown	31.77	34	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785737V
MW-9

USC

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785737V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9742.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785737V MW-9

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785737V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9742.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785737V
MW-9

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785737V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9742.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
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EMSL

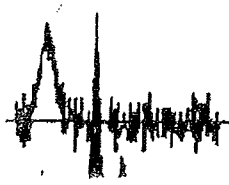
Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: MW-9A

Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085738
Date Collected: 11/17/97 09:00
Collected By: Client
Date Received: 11/18/97 15:00

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	0.057	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-9A

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85738

Sample wt/vol: 990 (g/mL) mL Lab File ID: D:NV14E168

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785738B
MW-9A

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785738B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7258.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785738B MB-9A

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785738B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7258.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785738B
MW-9A

065

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785738B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7258.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.91	8	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785738V
MW-9A

060

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785738V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9743.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
9785738V
MW 9A

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785738V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9743.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9785738V
MW 9A

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785738V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9743.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
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EMSL

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085739
Date Collected: 11/17/97 08:30
Collected By: Client
Date Received: 11/18/97 15:00

Client Project: JFK British Airways

Client Designation: Field Blank

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	<0.050	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Field Blank

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85739

Sample wt/vol: 940 (g/mL) mL Lab File ID: D:NV14E169

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785739B
Field Blank

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785739B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7259.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Concentration Units:

CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785739B
Field Blank

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785739B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7259.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785739B
Field Blank

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785739B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7259.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785739V
Field Blank

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785739V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9735.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	10	
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785739V Field Blank

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785739V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9735.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785739V
Field Blank

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785739V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9735.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
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Date of Report: 11/26/97
Project Number: 97123007
Lab ID: 97-0085740
Date Collected: 11/17/97 00:00
Collected By: Client
Date Received: 11/18/97 15:00

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JFK British Airways

Client Designation: Trip Blank

	Conc.	Unit
ORGANIC		
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785740V Trip Blank

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785740V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9734.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	10	
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785740V Trip Blank

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785740V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9734.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785740V
Trip Blank

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785740V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9734.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	16.30	23	J
2.	Unknown	20.33	50	J
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4.				
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30.				

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City NJ 07310-1397

Client Project: JPK British Airways

Date of Report: 12/01/97
Project Number: 97123007
Lab ID: 97-0085741
Date Collected: 11/17/97 11:04
Collected By: Client
Date Received: 11/18/97 15:00

Client Designation: MW-10

	Conc.	Unit
LIMITED		
Phenolics as phenol	<0.050	mg/l
Total Cyanide	<0.010	mg/l
Petroleum Hydrocarbons, Total (I.R)	<1.0	mg/l
METALS		
Silver	<0.050	mg/l
Arsenic	<0.0080	mg/l
Beryllium	<0.010	mg/l
Cadmium	<0.020	mg/l
Chromium	<0.050	mg/l
Copper	<0.050	mg/l
Mercury	<0.00020	mg/l
Nickel	<0.050	mg/l
Lead	<0.0050	mg/l
Antimony	<0.0050	mg/l
Selenium	<0.0050	mg/l
Thallium	<0.0050	mg/l
Zinc	<0.050	mg/l
ORGANIC		
Pesticides		
Pesticides and PCBs by 608	see attached	ug/l
Semi-Volatiles		
BNA by 8270 with Library Search	see attached	ug/l
Volatiles		
Acrolein and Acrylonitrile	see attached	ug/l
MTBE by GC/MS(624/8260)	see attached	ug/l
VOA by 8260 with Library Search	see attached	ug/l

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-18

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85741

Sample wt/vol: 950 (g/mL) mL Lab File ID: D:NV14E170

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785741B MW-10

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785741B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7260.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785741B
MW-10

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785741B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7260.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	3	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785741B
MW-10

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785741B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7260.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.89	6	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785741V

MW-18

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785741V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9745.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/21/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785741V
MW-10

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785741V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9745.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/21/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units:

CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9785741V
MW-10

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785741V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9745.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/21/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
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LABORATORY DELIVERABLES

THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following laboratory deliverables shall be included in the data submission. All deviations from the accepted methodology and procedures, or performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The proposed "Technical Requirements for Site Remediation" rules, which appeared in the May 4, 1992 New Jersey Register, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits be included in one section of the data package and in the main body of the report.

		Check If Complete
1.	Cover Page, Title Page listing Lab Certification #, facility name, address & date of report.	X
2.	Table of Contents	X
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds.	X
4.	Summary Table cross-referencing field ID #'s vs. Lab ID #'s.	X
5.	Document bound, paginated and legible.	X
6.	Chain of Custody	X
7.	Methodology Summary	X
8.	Laboratory Chronicle and Holding Time Check.	X
9.	Results submitted on a dry weight basis (if applicable).	X
10.	Method Detection Limits.	X
11.	Lab certified by NJDEP for parameters or appropriate category of parameters or a member of the USEP CLP.	X
12.	Non-Conformance Summary	X

M

Laboratory Manager or Environmental Consultant's Signature

12-3-97

Date

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

A. Checklist which must be attached to the Summary

The following information must be reported in the Closure Plan Implementation Summary for all laboratory analyses performed in the compliance with the site assessment requirements:

Page #		
1	1.	Name and address of the facility.
1	2.	Name of the laboratory performing the sample analysis.
1	3.	NJDEP certification number assigned to the laboratory pursuant to N.J.A.C. 7:18.
1	4.	Laboratory sample identification number.
1	5.	Customer sample identification number corresponding to the laboratory sample identification.
1	6.	Sample Location (also on the site diagram).
1	7.	Matrix of the sample analyzed (i.e., water or sediments; including soil, sediment, and sludges). All sediment results must be reported on a dry weight basis.
101-104	8.	The reference for the method used (e.g., EPA Method 625, 40 CFR Part 136).
1	9.	The signature of the person completing the report form.
1	10.	The dates the laboratory report form was prepared, as well as the dates the sample were collected, submitted and analyzed.
105	11.	A list of all parameters (constituents and conditions) for which the analyses were performed.
4-88	12.	Sample results and corresponding units for each parameter.

CHAIN OF CUSTODY

THE PORT AUTHORITY OF N.Y. & N.J. 9712 3007 09
ENGINEERING DEPARTMENT
MATERIALS ENGINEERING DIVISION
CHAIN OF CUSTODY REPORT

LABORATORY DESTINATION: ENSL

PAGE 1 OF 1

BILLING INFORMATION

BILL TO: PA NY & NJ
ADDRESS: 241 Erie Street
Jersey City, NJ 07310-1397
ATTENTION: V. Berndt
TELEPHONE: 201-216-2963
FAX: 201-216-2949

PROJECT INFORMATION

PROJECT: JFK British Airways
JOB#: A3 972.010
LOCATION: NY
CONTACT: DORIAN BAILEY (201) 216-2963
SAMPLED BY: R.G. / L.M.
ANALYTICAL PROTOCOL: 2 wk TAT

SAMPLE ID	DATE	TIME	SAMPLE TYPE: COMPOSITE	SAMPLE TYPE: GRAB	SAMPLE MATRIX	# OF BOTTLES	ANALYSIS (METHOD): PP+40+MTBE+Acetone	ANALYSIS (METHOD): TPHC	ANALYSIS (METHOD): VOA+15+MTBE Acetone Xylenes	PRESERVATIVES: H_2SO_4	PRESERVATIVES: HCL	PRESERVATIVES: HNO_3	PRESERVATIVES: NAOH	PRESERVATIVES: NON-PRES
~~MW 1~~	11-17-97			x	AQ									
MW 2 8573		10:40AM		x		10	✓	✓		2	2	1	1	4
MW 3 32		10:07A		x		10	✓	✓		2	2	1	1	4
MW 4				x										
MW 5 33		9:45AM		x		10	✓	✓		2	2	1	1	4
MW 6 34		12:45PM		x		10	✓	✓		2	2	1	1	4
MW 7 35		9:13AM		x		10	✓	✓		2	2	1	1	4
MW 8 36		11:77AM		x		11	✓	✓		3	2	1	1	4
MW 9 37		8:55AM		x		10	✓	✓		2	2	1	1	4
MW 9A 38		9:00AM		x		10	✓	✓		2	2	1	1	4
F.B. 39	↓	8:30AM		x	↓	10	✓	✓		2	2	1	1	4
T.B. 46	11-17-97	—		✓	AQ	2			✓		2			
MW 10 41	11-17-97	11:04AM		x	AQ	11	✓	✓		3	2	1	1	4

TURNAROUND (INDICATE IN CALENDAR DAYS): FAX: HARD COPY:

RELINQUISHED BY: DATE: 11/18/97 TIME: 11:55
RECEIVED BY: EMSL DATE: 11-18-97 TIME: 11:55
RELINQUISHED BY: DATE: TIME:
RECEIVED BY: DATE: 11/18

DELIVERABLES/ (CIRCLE ONE): DATA SUM NY/ASP (RED/DELIV) CLP OTHER: as per Angeles

COMMENTS: HARDCOPY REPORTS BY 12/3/97

11-18-97

Sample Digestion Chain of Custody

Digestion Date Begin: 11/19/97

Tech(s): TL

Batch Number: B656 Book: 277 Page: 5 Temp. (C) 95

Matrix:	Aqueous	Soil	Sludge	Oil	Filter	Paintchips	Cassette	TCLP	Other:
	X								

Analysis: X ICP X GFAA

#	EMSL Sample ID	Prep Amount Volume(ml)	Prep Amount Volume(ml)	Analysis Date(s) 11-21-97 Element(s) Required	Due
A10C	85731	50.00	50.00	~~Ag Be Cd Cr Cu Ni Zn~~ ~~TIZR~~	11/25
A11	85732	50.00	50.00		
A12	85733	50.00	50.00		
A13	85734	50.00	50.00		
A14	85735	50.00	50.00		
A15	85736	50.00	50.00		
A16	85737	50.00	50.00		
A17	85738	50.00	50.00		
A18	85739	50.00	50.00		
A19	85741	50.00	50.00		
A20	85742	50.00	50.00	~~Fe Mn~~ ①	11/21
A21	85743	50.00	50.00		12/4
A22					
A23					
A24					
A25					
A26					
A27					
A28					
A29					

① Reported 11-21-97 JB

Remainder reported 11-24-97 08:30 SVHP

Ref # 97-864

NV21B

#			Batch QC Provided: Initial Wt(g)/Vol(ml)	Final Vol(ml)
A2,3	2	Prep Blank	50	50
A4	1	Control #1 ICP	50	50
A6	1	Sample Dup	50	50
A7	1	Matrix Spike #1 ICP	50	50
A8	1	M.Spike DuP #1 ICP	50	50
A5	1	Control #2 GFAA	50	50
		SampleDup #2		
A9	1	Matrix Spike#2 GFAA	50	50
A10	1	M.Spike Dup#2 GFAA	50	50

Digestion Method:

	SW-846 3005		SW-846 3051
	SW-846 3010	X	DIG 200 for ICP/GFAA
	SW-846 3015		NIOSH
	SW-846 3020	Other:	
	SW-846 3040		
	SW-846 3050		

Amount Spike Added (ml)	Standard Serial ID	
0.5	ICP	109-23-D
0.5	GFAA	257-27-G

Lot # HNO3 Lot # HCL Lot # H2O2

Lot # 1+1HNO3 Lot # 1+1HCL

Relinquished By: [signature] Date: 11/20/97 Received By: [signature] Date: 11/20/97

Mercury Analysis
Post Sequence Summary Report

Methodology EPA

Operator: ERIKA TAYLOR
Reviewer:
Data file C:\HGTALK\DATA\HGNOV19B
Samples Prepared 11/19/97

Wavelength 253.7 nm
Loop size ml
Instrument ID: AM3200
Lab. Name: EMSL
IDL : .05 ug/L
CRDL : .2 ug/L
Detector Range 1.0 Au/1 volt
Final Sample Volume 100 ml

Current
C:\HGTALK\METHOD\HGAQ.HMH
C:\HGTALK\SEQUENCE\HGNOV19B.hsq
Wed Nov 19 21:36:30 1997

Original
C:\HGTALK\METHOD\HGAQ.HMH
C:\HGTALK\SEQUENCE\HGNOV19B.hsq
Wed Nov 19 21:36:30 1997

SDG No	Inj No	Time	Vial	Sample ID	Samp Type	Calc Amt	Test Value	Result	Dil Fact
	1	21:37	1/11	RINSE	sample	0.0000 ug/L		Pass	1.00
	2	21:41	1/1	BLANK	blank	0.0000 ug/L			1.00
	3	21:44	1/2	S1	standard	0.2000 ug/L			1.00
	4	21:48	1/3	S2	standard	0.5000 ug/L			1.00
	5	21:52	1/4	S3	standard	1.0000 ug/L			1.00
	6	21:55	1/5	S4	standard	2.0000 ug/L			1.00
	7	21:59	1/6	S5	standard	5.0000 ug/L			1.00
Correlation coefficient 0.999874 Passed									
Rf0 -3.0268e-002 Rf1 3.5699e-005									
Standard Error Passed									
	8	22:03	1/7	ICV	ICV	1.9781 ug/L	98.91%	Pass	1.00
	9	22:06	1/11	RINSE	sample	0.0351 ug/L		Pass	1.00
	10	22:10	1/1	ICB	ICB	0.0240 ug/L		Pass	1.00
	11	22:14	1/1	PREP BLK	sample	0.0207 ug/L		Pass	1.00
	12	22:18	2/1	CONTROL	LCS	1.9396 ug/L	96.98%	Pass	1.00
	13	22:21	2/2	85741	sample	0.0448 ug/L		Pass	1.00
	14	22:25	2/3	85741 DUP	sample	0.0270 ug/L		Pass	1.00
	15	22:29	2/4	85741 MS	sample	1.9166 ug/L		Pass	1.00
	16	22:32	2/5	85741 MSD	sample	1.9207 ug/L		Pass	1.00
	17	22:36	2/6	85739	sample	No Peak found			1.00
	18	22:40	2/7	85738	sample	0.0253 ug/L		Pass	1.00
	19	22:43	2/8	85737	sample	0.0386 ug/L		Pass	1.00
	20	22:47	2/9	85736	sample	No Peak found			1.00
	21	22:51	1/7	CCV1	CCV	1.9073 ug/L	95.36%	Pass	1.00
	22	22:54	1/11	RINSE	sample	0.0326 ug/L		Pass	1.00
	23	22:58	1/1	CCB1	CCB	0.0217 ug/L		Pass	1.00
Batch Passed									
	24	23:02	2/10	85735	sample	0.0321 ug/L		Pass	1.00
	25	23:05	2/11	85734	sample	No Peak found			1.00
	26	23:09	2/12	85733	sample	0.0529 ug/L		Pass	1.00
	27	23:13	2/13	85732	sample	0.0418 ug/L		Pass	1.00
	28	23:17	2/14	85731	sample	0.0348 ug/L		Pass	1.00
	29	23:20	1/7	CCV2	CCV	1.8765 ug/L	93.83%	Pass	1.00
	30	23:24	1/10	RINSE	sample	0.0281 ug/L		Pass	1.00
	31	23:28	1/9	CCB2	CCB	No Peak found			1.00
Batch Passed									

End of Report. Number of page(s) 1

11/19/97

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

Mercury Analysis
Post Sequence Summary Report

Methodology EPA

Operator: ERIKA TAYLOR
Reviewer:
Data file C:\HGTALK\DATA\HGNOV19B
Samples Prepared 11/19/97

Wavelength 253.7 nm
Loop size ml
Instrument ID: AM3200
Lab. Name: EMSL
IDL : .05 ug/L
CRDL : .2 ug/L
Detector Range 1.0 Au/1 volt
Final Sample Volume 100 ml

Current
C:\HGTALK\METHOD\HGAQ.HMH
C:\HGTALK\SEQUENCE\HGNOV19B.hsq
Wed Nov 19 21:36:30 1997

Original
C:\HGTALK\METHOD\HGAQ.HMH
C:\HGTALK\SEQUENCE\HGNOV19B.hsq
Wed Nov 19 21:36:30 1997

SDG No	Inj No	Time	Vial	Sample ID	Samp Type	Calc Amt	Test Value	Result	Dil Fact
	1	21:37	1/11	RINSE	sample	0.0000 ug/L		Pass	1.00
	2	21:41	1/1	BLANK	blank	0.0000 ug/L			1.00
	3	21:44	1/2	S1	standard	0.2000 ug/L			1.00
	4	21:48	1/3	S2	standard	0.5000 ug/L			1.00
	5	21:52	1/4	S3	standard	1.0000 ug/L			1.00
	6	21:55	1/5	S4	standard	2.0000 ug/L			1.00
	7	21:59	1/6	S5	standard	5.0000 ug/L			1.00
Correlation coefficient 0.999874 Passed									
Rf0 -3.0268e-002 Rf1 3.5699e-005									
Standard Error Passed									
	8	22:03	1/7	ICV	ICV	1.9781 ug/L	98.91%	Pass	1.00
	9	22:06	1/11	RINSE	sample	0.0351 ug/L		Pass	1.00
	10	22:10	1/1	ICB	ICB	0.0240 ug/L		Pass	1.00
	11	22:14	1/1	PREP BLK	sample	0.0207 ug/L		Pass	1.00
	12	22:18	2/1	CONTROL	LCS	1.9396 ug/L	96.98%	Pass	1.00
	13	22:21	2/2	85741	sample	0.0448 ug/L		Pass	1.00
	14	22:25	2/3	85741 DUP	sample	0.0270 ug/L		Pass	1.00
	15	22:29	2/4	85741 MS	sample	1.9166 ug/L		Pass	1.00
	16	22:32	2/5	85741 MSD	sample	1.9207 ug/L		Pass	1.00
	17	22:36	2/6	85739	sample	No Peak found			1.00
	18	22:40	2/7	85738	sample	0.0253 ug/L		Pass	1.00
	19	22:43	2/8	85737	sample	0.0386 ug/L		Pass	1.00
	20	22:47	2/9	85736	sample	No Peak found			1.00
	21	22:51	1/7	CCV1	CCV	1.9073 ug/L	95.36%	Pass	1.00
	22	22:54	1/11	RINSE	sample	0.0326 ug/L		Pass	1.00
	23	22:58	1/1	CCB1	CCB	0.0217 ug/L		Pass	1.00
Batch Passed									
	24	23:02	2/10	85735	sample	0.0321 ug/L		Pass	1.00
	25	23:05	2/11	85734	sample	No Peak found			1.00
	26	23:09	2/12	85733	sample	0.0529 ug/L		Pass	1.00
	27	23:13	2/13	85732	sample	0.0418 ug/L		Pass	1.00
	28	23:17	2/14	85731	sample	0.0348 ug/L		Pass	1.00
	29	23:20	1/7	CCV2	CCV	1.8765 ug/L	93.83%	Pass	1.00
	30	23:24	1/10	RINSE	sample	0.0281 ug/L		Pass	1.00
	31	23:28	1/9	CCB2	CCB	No Peak found			1.00
Batch Passed									

End of Report. Number of page(s) 1

EJ 11/19/97

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

EMSL ANALYTICAL, INC.

INTERNAL CHAIN OF CUSTODY

PETROLEUM HYDROCARBONS

L E	TIME	SAMPLE ID #	ANALYSIS	INITIALS	SIGNATURE
1/17/97	12:30	82930 -937	TPH/S	V.W.	Velisa Wathen
↓	13:00	82938	TPH/AQ	P.S.	Pam S
↓	↓	82944	↓	↓	↓
1/18/97	10:00	84787 -94	TPH/S	V.W.	Velisa Wathen
↓	↓	85679	↓	↓	↓
1/19/97	11:00	85149 -53	TPH/AQ	P.S.	Pam S
↓	↓	85731-3941+42	↓	↓	↓
1/20/97	12:30	85812	TPH/AQ	P.S.	Pam Boyd
↓	↓	85868	↓	↓	↓
↓	↓	86113 -116	↓	↓	↓
↓	14:00	82928	TPH/S	V.W.	Velisa Wathen
↓	↓	83176-79,82,83+88	↓	↓	↓
↓	↓	85054+55	↓	↓	↓
↓	↓	85875+76	↓	↓	↓
↓	↓	85883	↓	↓	↓
↓	↓	82939 -943	↓	↓	↓
1/21/97	13:30	85184 -188	TPH/S	V.W.	Velisa Wathen
↓	↓	86598	↓	↓	↓
1/22/97	15:30	86914 - 926	TPH/S	V.W.	Velisa Wathen
↓	↓	86960	↓	↓	↓
↓	↓	86927 -929	↓	↓	↓

EMSL ANALYTICAL, INC.

INTERNAL CHAIN OF CUSTODY

093

WET CHEMISTRY

DATE	TIME	SAMPLE ID #	ANALYSIS	INITIALS	SIGNATURE
11/21/97	9 AM	85742	NH_3-N	MY	Mary Yan
↓	↓	85731-39	Pheno	MY	Mary Yan
↓	↓	85741	↓	↓	↓
↓	↓	85140-47	r-CN	MY	Mary Yan
11/23/97	9 AM	86140-159	TDS	MY	Mary Yan
↓	↓	86628-33	↓	↓	↓
11/24/97	9 AM	81433-37	Hardness	MY	Mary Yan
↓	↓	86140-149	NH_3-N	↓	↓
↓	↓	85210	$r-S^{=}+CN$	↓	↓
↓	↓	86926	$r-S^{=}+CN$	↓	↓
11/25/97	3 PM	89284-86	TSS	MY	Mary Yan
↓	↓	89318	$r-S^{=}$	↓	↓
11/20/97		85731-39, 41	T. Cyanide	PS	Pamela Harsy C

EMSL ANALYTICAL, INC.

INTERNAL CHAIN OF CUSTODY

ORGANIC PREP.

faxed 11/24/97 mail 12/1/97

DATE	TIME	SAMPLE ID #	ANALYSIS	INITIALS	SIGNATURE	REC'D BY	DATE
11/21	4:30	BLK	BNA 1200ml	BY	Bryan Young	[signature]	11/24/97
		85731					
		85732					
		85733					
		85734					
		85735					
	5:00	85736					
		85737					
		85738					
		85739					
		85741					
		85741MS	BNA 500ml				
	5:45	85741MSD	"				
		LCS	BNA 1200ml				

Organics Internal COC

Sample Number(s)	Analysis	Date	Name(Print)	Initial
82945	VOA8021	11/18/97	SVANBTE	SV
85210-11	Zhe	11/18/97	S. OSTROWSKI	SO
81886-7	BNA	11/18/97	SVANBTE	SV
81276	"	"	"	"
81279-88	"	"	"	"
81819-24	BNA	11/17-18/97	"	"
82199-202	"	"	"	"
86178-80	ETGAIR + TICR	11/20/97	S. OSTROWSKI	SO
85210	TCLP Benzene	11/20/97	S. OSTROWSKI	SO
85210	TCLP VOA	11/20/97	"	"
83181, 84, 87-88	VOA + LS + TIER	11/17/97	"	"
81185	8270 BN	11/20/97	SVANBTE	SV
86845	Glycol ne	11/21/97	"	"
86456-58	VOA	11/21/97	S. OSTROWSKI	SO
85812	Benzene + RE	11/21/97	S. OSTROWSKI	SO
85054-56	VOA + LS + TIER	11/21/97	S. OSTROWSKI	SO
85731-41	VOA + ACAC + MTBE + LS + TIER	"	"	"
81433-7	625 BN	11/20-1/97	SVANBTE	SV
81433-8	EGLI VOA	11/21/97	"	"
81861	BNA	11/21/97	"	"
86459-64	524.2	11/21/97	S. OSTROWSKI	SO
86118	624	11/25/97	S. OSTROWSKI	SO
89113-14	624	11/24/97	"	"
86598	VOA + LS	11/21/97	S. OSTROWSKI	SO
86981-82	Benzene + RE	11/24/97	S. OSTROWSKI	SO
85210	TCLP BNA	11/25/97	SVANBTE	SV
86640-42	Zhe	11/24/97	S. OSTROWSKI	SO
85731-41	BNA	11/24/97	SVANBTE	SV
86943-44	BTEX 624	11/25/97	S. OSTROWSKI	SO
86610-14	BTEX 624	"	"	"
86640-42	TCLP Benzene	11/25/97	S. OSTROWSKI	SO
82196-7	BN	11/21/97	SVANBTE	SV

Organic Preparation Log

QC Number: 452

Fraction: P/P AQ

	Sample (EMSL No.)	A-type (bna,bn, etc.)	Amount (g or mL)	FV (final vol)	Ext. (ext. date)	By (initials)	Conc. (conc. date)	By (initials)	Clnup (clean-up)	Comments
1	81276	P/P	800	10	11/14	DL	11/17/17	DL		
2	78285	P/P	1200	1e	11/10	BY	11/15	BY		MBH
3	85731	P/P	1000	10	11/24	DL	11/24	DL		from BNA extract
4	85732		990							
5	85733		930							
6	85734		990							
7	85735		950							
8	85736		1000							
9	85737		990							
10	85738		990							
11	85739		940							
12	85741		950							
13	86118		990							
14	86979		1000							
15	86980		990							
16	85068	P/B	1080			JVN	11/15	DL		
17	81861	P/P	1200	1e	11/14					from BNA ext
18										
19										
20										
Blank 1	452-1	P/P	1000	10	11/14	DL				
Blank 2	452-2	P/P	1200	10	11/10	BY	11/15	BY		
Blank 3	452-3	P/P	1000	10	11/24	DL	11/24	DL		from BNA extract
LS	85734	P/P	990	10	11/24	DL	11/24	DL		
LSD			990							

Extraction Method: SepF | LIQ/LIQ | Sonicat | Dilution

Spot Information

Surrogate	Lot#	Amount(ul)
Pest Spike		

Spike Solutions	Lot#	Amount(uL)
BN		
Acid		
Pest/PCB	1ml of 400 ng/L	
TPH		
Other		

Solvent	Lot#
MeCl2	
Acetone	
Hexane	# 1194-610
SodSulfate	
Other	

Blank Spike 452-3 P/P 1000 1200 10 10 11/18 11/14 11/13

to check Aluminas from BNA ext.

095

EMSL ANALYTICAL, INC.

INTERNAL CHAIN OF CUSTODY

PEST/PCB/HERB

ATE	TIME	SAMPLE ID #	ANALYSIS	INITIALS	SIGNATURE
4-5		71195-213	PCB	J.H	
16		74461-6	PLP		
6		74468-73	PLP		
16		73892	PCB		
17		74412	PCB		
17		75594	PCB		
15		72295-6	T Herb		
17		74405	PCB		
-		77707-11	PCB		
12-13		73398-9	T Pest		
12		73398-9	PCB		
112		73398-9	T Herb		
11-12		78320-8	PCB		
11/12		77164-7	PLP		
-16		81851-8	PCB		
16		78457	PCB		
16		81055	PCB		
14		81100-92	PCB		
		85120-47	PCB		
17		85731-41	Pest/PCBs		

METHODOLOGY SUMMARY

METHODOLOGY SUMMARY

Mercury, Solid/Aqueous

SW 846 Method 7471, a cold-vapor atomic absorption method, is based on the absorption of radiation at the 253.7-nm wavelength by mercury vapor. The mercury is reduced to the elemental state and aerated from solution in a closed system. The mercury vapor passes through a cell positioned in the light path of an atomic absorption spectrophotometer. Absorbance (peak height) is measured as a function of mercury concentration.

Metals - Aqueous (Total)

This is a procedure used to determine metals concentrations in aqueous matrices. It involves an acidic digestion under oxidizing conditions of approximately 100 milliliters of sample. Nitric and hydrochloric acids as well as hydrogen peroxide are employed in the digestion. The digested sample is filtered and diluted to 100 milliliters. The analysis is performed by ICP, furnace atomic absorption or flame atomic absorption. Reference methods are SW-846 3rd Edition, September 1986, Revised July 1992, EPA Methods for the Chemical Analysis of Water and Wastes, Revised, March 1983 and Methods for the Determination of Metals in Environmental Samples EPA/600/4-91/010 June 1991.

Metals - Aqueous (Dissolved)

This is a procedure used to determine metals concentrations in aqueous matrices. It involves immediate field or laboratory filtration of all samples through a 0.45 um filter before analysis. The samples are exposed to an acidic digestion under oxidizing conditions of approximately 100 milliliters of sample. Nitric and hydrochloric acids as well as hydrogen peroxide are employed in the digestion. The digested sample is filtered and diluted to 100 milliliters. The analysis is performed by ICP, furnace atomic absorption or flame atomic absorption. Reference methods are SW-846 3rd Edition, September 1986, Revised July 1992, EPA Methods for the Chemical Analysis of Water and Wastes, Revised, March 1983 and Methods for the Determination of Metals in Environmental Samples EPA/600/4-91/010 June 1991.

Semivolatiles by GC/MS - Aqueous

EPA Method 625 - This is a gas chromatograph/mass spectrometer (GC/MS) method applicable to the determination of a number of organic compounds that are partitioned in an organic solvent and amenable to gas chromatography. Federal Register, Vol. 40, No. 136, July, 1988.

An HP5890/5970B GC/MS was used with a DB-5 fused silica capillary column.

Method detection limits are as stated.

Pesticides/PCB's - Aqueous

EPA Method 608 - This method covers the determination of pesticides and polychlorinated biphenyls (PCB's) in samples by extraction/concentration with organic solvents and subsequent qualification/quantification by Gas Chromatography. The gas chromatograph utilizes an electron capture detector (ECD) which is applicable for the determination of the compounds listed for this method in the U.S.E.P.A. Manual entitled "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater".

Phenolics

A portion of sample is distilled at pH 4. An aliquot of the distillate is reacted with 4-aminoantipyrene to form a dye, the intensity of which is proportional to concentration. Reference method is EPA Method 420.1.

Petroleum Hydrocarbons by IR - Aqueous

The sample is extracted with freon and an Infrared Spectrophotometer (IR) method is used to determine petroleum hydrocarbon levels in aqueous matrices. The non-petroleum hydrocarbons are removed with silica gel and the extract is analyzed by IR against a series of standard mixtures. Reference method is EPA Method 418.1.

Cyanide

An aliquot of sample is acidified under analysis conditions liberating cyanide as HCN. A distillation follows leaving behind interferences and scrubbing the distilled HCN in sodium hydroxide solution. An aliquot of the NaOH solution is analyzed colorimetrically for cyanide ion. Reference method is EPA Method 335.2.

Volatile Organics by GC/MS

Reference Method SW-846 8240/8260/624

A representative sample, typically 5.0 grams for soils and 5.0 mLs for waters, is analyzed by the purge and trap method. The purged sample components are trapped in a tube containing suitable sorbent materials. The trapped components are then introduced into the gas chromatograph and analyzed using mass spectrometry.

Sample spectra and area responses are compared to standards analyzed in an identical way using the internal standard calculation technique.

Surrogate compounds are added to monitor analytical efficiency.

If tentatively identified compounds are requested, a computer program analyzes the non-priority pollutant/HSL/TCL compounds with standard mass spectra found in the latest version of the NIH/NBS/EPA mass spectral library.

METHODOLOGY

All analyses are adapted from one or more of the following reference methods:

- "Guidelines Establishing Test Procedures for the Analysis of Pollutants", Code of Federal Regulations Vol. 40, Part 136.
- "Test Methods for Evaluating Solid Waste", SW846 Third Edition, September 1986, USEPA.
- Code of Federal Regulations Vol. 40, Part 261, "Appendix II-Method 1311 Toxicity Characteristic Leaching Procedure (TCLP)".
- "Standard Methods for the Examination of Water and Wastewater", 15th, 16th and 17th editions.
- "Methods for the Chemical Analysis of Water and Wastes", EPA 600/4-79-020, March 1983, U.S.EPA, EMSL.
- "Annual Book of Standards, Section 11-Water", American Society for Testing and Materials (ASTM).
- "Methods for the Determination of Organic Compounds in Drinking Water", EPA 600/4-88/039, December 1988.
- "Official Methods of Analysis", Association of Official Analytical Chemists AOAC 15th Edition, 1990.
- NIOSH Manual of Analytical Methods, Third Edition, 1984, Revised 8/15/90, DHHS Pub. No. 84-100.

DEFINITIONS OF ABBREVIATIONS

U:	Not Detected
E:	Estimated Concentration
NFL:	No Free Liquid
NR:	Not Reactive
NS:	Not requested
<:	Less than minimum detection limit
NC:	Not calculable
LCS:	Laboratory Control Sample
MS/MSD:	Matrix Spike/Matrix Spike Duplicate
RSD:	Relative Standard Deviation
NTU:	Nephelometric Turbidity Units; used for turbidity.
deg. C:	degrees celcius
ug:	microgram; there are 1000 ug in 1 mg.
g:	gram; there are 1000 g in 1 Kg.
ul:	microliter; there are 1000 ul in 1 ml.
L	Liter
ppb	Parts per billion = ug/Kg, ug/L
ppm	Parts per million = mg/Kg, ug/g mg/L, ug/ml; 1 ppm = 1000 ppb.
B:	Compound found in method blank
J:	Compound detected, however below reportable detection limit
NA:	Not Applicable
NI:	Not Ignitable
ND:	Not Detected
MDL:	Method detection limit. Can be a limit specified by the method or a number determined by performing an MDL study.
RPD:	Relative Percent Difference
umhos:	Conductivity units; resistance is expressed in ohms.
col/3:	Colonies per volume of sample analyzed; used for bacteriology.
deg. F:	degrees Fahrenheit
mg:	milligram; there are 1000 mg in 1 g.
Kg:	kilogram
ml:	milliliter; there are 1000 ml in 1 liter.

COMMENTS: All soil samples are calculated on a dry weight basis except as noted.

LABORATORY CHRONICLE

Lab ID: 97-85731 to 97-85741

Client: Port Authority of NY & NJ

	I DATE	II	Hold Time
Date Sampled	11/17/97		
Receipt/Refrigeration	11/18/97		
Extractions			
1. Metals prep	11/19/97		---
2. Mercury prep	11/19/97		---
3. Semivolatiles	11/19-11/21/97		7 Days
4. Pesticides/PCBs	11/24/97		7 Days
Analyses			
1. Metals	11/20-11/25/97		180 Days
2. Mercury	11/19/97		28 Days
3. Semivolatiles	11/24/97		40 Days
4. Pesticides/PCBs	11/25/97		40 Days
5. Phenolics	11/21/97		28 Days
6. Total Cyanide	11/20/97		14 Days
7. Total Petroleum Hydrocarbons	11/19/97-11/24/97		14 Days
8. Volatile Organics	11/20-11/21/97		14 Days

QC Supervisor
Review & Approval

(Signature) _____

(Printed Name) Peter B. Panton

(Date) 12-3-97

NOTE: If fractions are re-extracted and re-analyzed because the initial endeavors failed to meet the required Quality Control Criteria, the dates of re-extraction and/or re-analysis will be entered in Column II Additionally.

EMSL

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

		No	Yes
1.	Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)		X
2.	GC/MS Tune Specifications		
	a. BFB Meet Criteria		X
	b. DFTPP Meet Criteria		
3.	GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series.		X
4,	GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of. sample analysis for 600 series and 12 hours for 8000 series.		X
5.	GC/MS Calibration - Initial Requirements		
	a. Calibration Check Compounds		X
	b. System Performance Check Compounds		
6.	Blank Contamination - If yes, list compounds and concentrations in each blank:		X
	a. VOA Fraction		
	b. B/N Fraction **bis(2-ethylhexyl)phthalate 2 ppb.**		
	c. Acid Fraction		
7.	Surrogate Recoveries Meet Criteria	X	
	If not met, list those compounds and their recoveries which fall outside the acceptable range:		
	a. VOA Fraction		
	b. B/N Fraction **85733: NBZ 14% Recovery**		
	c. Acid Fraction		
	If not met, were the calculations checked and the results qualified as "estimated"?		NA
8.	Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range)	X	
	a. VOA Fraction		
	b. B/N Fraction		
	c. Acid Fraction **2, 4-Dimethylphenol MS=30%.**		
9.	Internal Standard Area/Retention Time Shift Meet Criteria		X

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT, cont.

		No	Yes
10.	Extraction Holding Time Met		X
	If not met, list number of days exceeded for each sample:		
11.	Analysis Holding Time Met		X
	If not met, list number of days exceeded for each sample:		

12. Definitions:
U=Not Detected. J=Detected, but below report detection limit. B=Compound found in blank. E=Estimated concentration. NA=Not Applicable

Additional Comments:

Laboratory Manager M Date: 12-3-97

EMSL

GC ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	No	Yes
1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)		X
2. Standards Summary Submitted		X
3. Calibration-Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of sample analysis.		X
4. Blank Contamination - If yes, list compounds and concentrations in each blank:	X	
a. VOA Fraction		
b. B/N Fraction		
c. Acid Fraction		
d. Pesticides/PCB's		
e. Other		
5. Surrogate Recoveries Meet Criteria (If Applicable)	X	
a. VOA Fraction		
b. B/N Fraction		
c. Acid Fraction		
d. Pesticides/PCB's **Matrix spike & matrix spike dup not spiked with surrogates.**		
e. Other		
If not Met, were the calculations checked and the results qualified (if applicable)		NA
6. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (if applicable)		X
(if not met, list those compounds and their recoveries which fall outside the acceptable range)		
a. VOA Fraction		
b. B/N Fraction		
c. Acid Fraction		
d. Pesticides/PCB's		
e. Other		
7. Retention Time Shift Meet Criteria (if applicable)		X

GC ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT, cont.

		No	Yes
8.	Extraction Holding Time Met If not met, list number of days exceeded for each sample:		X
9.	Analysis Holding Time Met If not met, list number of days exceeded for each sample:		X

10. Definitions:
U=Not Detected. J=Detected, but below report detection limit. B=Compound found in blank. E=Estimated concentration. NA=Not Applicable

Additional Comments:

Laboratory Manager: [signature] Date: 12-3-97

METALS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMA

		No	Yes
1.	Calibration Summary Meet Criteria		X
2.	ICP Interference Check Sample Results Summary Submitted (if applicable) Meet Criteria		X
3.	Serial Dilution Summary Submitted (if applicable) / Meet Criteria		NA
4.	Laboratory Control Sample Summary Submitted (if applicable) / Meet Criteria		X
5.	Blank Contamination - If yes, list compounds and concentrations in each blank.	X	
6.	Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (if not met, list those compounds and their recoveries which fall outside the acceptable range) **Furnace: As, Se and Pb MS/MSDs outside QC limits, post-spike recoveries for all elements are within limits.**	X	
7.	Extraction Holding Time Met If not met, list number of days exceeded for each sample:		X
8.	Analysis Holding Time Met If not met, list number of days exceeded for each sample:		X

9. Definitions: U=Not Detected. J=Detected, but below report detection limit. B=Compound found in blank, E=Estimated concentration. NA=Not Applicable

Additional Comments: _____

Laboratory Manager: M Date: 12-3-97

PHC ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

		No	Yes
1.	Blank Contamination - If yes, list the sample and the corresponding concentration in each blank:	X	
2.	Matrix Spike Duplicate Recoveries Meet Criteria (if not met, list the sample and corresponding recovery which falls outside the acceptable range)		X
3.	IR Spectra submitted for all standards, blanks & samples		X
4.	Chromatograms submitted for all standards, blanks, & samples if GC finger-printing was conducted		NA
5.	Extraction Holding Time Met		X
	If not met, list number of days exceeded for each sample:		
6.	Analysis Holding Time Met		X
	If not met, list number of days exceeded for each sample:		

7. Definitions: U=Not Detected. J=Detected, but below report detection limit. B=Compound found in blank. E=Estimated concentration. NA=Not Applicable

Additional Comments: _____

Laboratory Manager: _____ Date: 12-3-97

GC/MS VOLATILE ORGANIC DATA PACKAGE

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)
EPA 624

Lab Name: EMSL ANALYTICAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab File ID: C9557.D BFB Injection Date: 11/09/97

Instrument ID: 5972-INSTRUMENT 1 BFB Injection Time: 2308

GC Column RTX-62 ID: 0.53 (mm) Heated Purge: (Y / N) _____

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	24.1
75	30.0 - 60.0% of mass 95	51.0
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.2
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	Greater than 50.0% of mass 95	77.2
175	5.0 - 9.0% of mass 174	6.6 (8.6)1
176	95.0 - 101.0% of mass 174	75.0 (97.2)1
177	5.0 - 9.0% of mass 176	4.8 (6.4)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

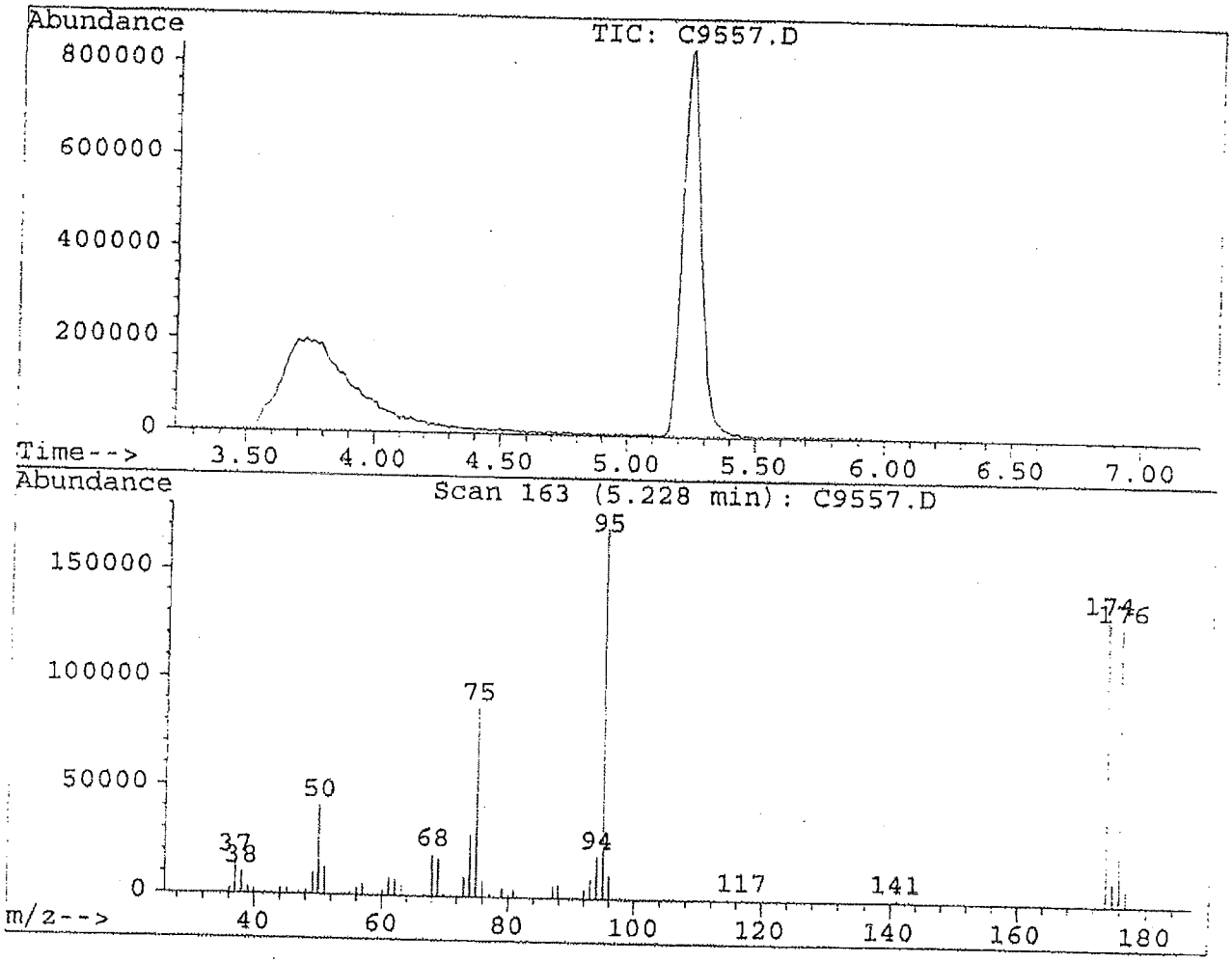
	CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01		1 PPB STANDARD	C9558.D	11/09/97	2331
02		5 PPB STANDARD	C9559.D	11/10/97	0008
03		20 PPB STANDARD	C9560.D	11/10/97	0044
04		100 PPB STANDARD	C9561.D	11/10/97	0121
05		150 PPB STANDARD	C9562.D	11/10/97	0158
06		200 PPB STANDARD	C9563.D	11/10/97	0235
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

CLPBFB

Data File : C:\HPCHEM\1\DATA\C9557.D
Acq On : 9 Nov 97 11:08 pm
Sample : BFB TUNE
Misc : 50 NG INJECTION

Vial: 2
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\110997W.M
Title : VOA Standards for 5 point calibration



Peak Apex is scan: 163

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.1	41312	PASS
75	95	30	60	51.0	87520	PASS
95	95	100	100	100.0	171648	PASS
96	95	5	9	6.2	10572	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	77.2	132544	PASS
175	174	5	9	8.6	11375	PASS
176	174	95	101	97.2	128872	PASS
177	176	5	9	6.4	8195	PASS

C9557.D 110997W.M Mon Nov 10 12:08:51 1997 VOA1

can 163 (5.228 min): C9557.D
BFB TUNE

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.05	2722	51.00	12488	69.90	1150	90.90	1439
36.95	15176	54.95	1130	73.10	8946	92.00	4330
37.95	10236	55.95	3136	74.00	28728	93.00	8965
38.95	3555	56.95	5115	75.00	87520	94.00	19416
39.85	2374	60.05	2171	76.00	7593	95.00	171648
44.00	2634	60.95	7977	77.15	1586	96.00	10572
45.10	2651	61.95	7494	78.95	4248	116.90	1164
47.00	1783	63.05	5122	79.95	1338	140.90	1371
48.10	1854	66.70	1043	80.85	3875	142.90	1321
49.10	10083	68.10	19328	86.95	5894	173.90	132544
50.00	41312	69.00	17208	87.85	5976	174.95	11375

can 163 (5.228 min): C9557.D
BFB TUNE

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
175.95	128872						
176.95	8195						

Response Factor Report 5972 - In

Method : C:\HPCHEM\1\METHODS\110997W.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Initial Calibration

Calibration Files
1 =C9558.D 5 =C9559.D 20 =C9560.D
100 =C9561.D 150 =C9562.D 200 =C9563.D

		Compound	1	5	20	100	150	200	Avg	%RSD
1)	I	Bromochloromethane	ISTD							
2)	M	Dichlorodifluoromet	1.325	1.742	1.722	1.179	1.139	1.349	1.410	18.66
3)	PM	Chloromethane		0.479	0.397	0.387	0.406	0.470	0.428	10.17
4)	CM	Vinyl chloride	0.653	0.858	0.870	0.733	0.696	0.794	0.767	11.48
5)	TM	Bromomethane		0.695	0.551	0.602	0.630	0.738	0.643	11.56
6)	M	Chloroethane		0.499	0.528	0.472	0.427	0.467	0.479	7.88
7)	M	Trichlorofluorometh	2.184	2.511	2.550	2.179	2.089	2.285	2.299	8.25
8)	T	Acrolein	0.020	0.019	0.020	0.024	0.027		0.022	13.97
9)	MC	1,1-Dichloroethene	0.924	0.924	0.933	0.858	0.826	0.897	0.894	4.83
10)	T	Acetone			0.530	0.330	0.323	0.295	0.369	29.25
11)	T	Carbon disulfide	2.295	2.337	2.460	2.192	2.086	2.271	2.274	5.61
12)	M	Methylene chloride			1.664	1.327	1.275	1.310	1.394	13.01
13)	T	Acrylonitrile			0.144	0.155	0.142	0.141	0.146	4.35
14)	M	trans-1,2-Dichloroe	0.765	0.966	1.014	0.970	0.925	0.982	0.937	9.48
15)	M	Methyl-tert butyl e	2.997	2.542	2.574	2.589	2.465	2.466	2.606	7.63
16)	T	tert-Butyl Alcohol		0.060	0.063	0.068	0.063	0.061	0.063	4.97
17)	PM	1,1-Dichloroethane	1.798	1.947	1.971	1.977	1.915	1.955	1.927	3.47
	T	cis-1,2-Dichloroeth	0.965	1.073	1.123	1.135	1.095	1.109	1.083	5.70
19)	T	2-Butanone		0.574	0.510	0.416	0.402	0.371	0.455	18.57
20)	M	Chloroform	2.182	2.276	2.356	2.308	2.203	2.259	2.264	2.85
21)	M	1,1,1-Trichloroetha	2.091	2.157	2.267	2.220	2.137	2.163	2.172	2.86
22)	M	Carbon tetrachlorid	1.798	2.001	2.139	2.065	1.975	2.029	2.001	5.74
23)	S	1,2-Dichloroethane-	1.416	1.437	1.458	1.342	1.356	1.343	1.392	3.69
24)	M	Benzene	3.162	3.246	3.257	3.172	3.060	3.110	3.168	2.41
25)	M	1,2-Dichloroethane	1.550	1.517	1.640	1.663	1.594	1.606	1.595	3.42
26)	I	1,4-Difluorobenzene	ISTD							
27)	M	Trichloroethene	0.336	0.377	0.392	0.396	0.382	0.383	0.378	5.76
28)	CM	1,2-Dichloropropane	0.270	0.271	0.286	0.308	0.300	0.297	0.289	5.39
29)	M	Bromodichloromethan	0.482	0.531	0.578	0.621	0.606	0.597	0.569	9.28
30)	M	2-Chloroethyl vinyl	0.109	0.109	0.121	0.136	0.131		0.121	10.11
31)	M	cis-1,3-Dichloropro	0.403	0.420	0.469	0.509	0.494	0.482	0.463	9.08
32)	T	4-Methyl-2-pentanon	0.241	0.276	0.271	0.278	0.266	0.243	0.262	6.29
33)	S	Toluene-d8	0.930	0.936	0.951	0.953	0.947	0.953	0.945	1.02
34)	MC	Toluene	0.560	0.545	0.584	0.595	0.579	0.576	0.573	3.08
35)	M	trans-1,3-Dichlorop	0.366	0.398	0.445	0.485	0.468	0.449	0.435	10.27
36)	M	1,1,2-Trichloroetha	0.237	0.256	0.272	0.295	0.287	0.279	0.271	7.83
37)	T	2-Hexanone	0.212	0.180	0.192	0.187	0.183	0.160	0.185	9.24
38)	M	Tetrachloroethene	0.333	0.346	0.358	0.362	0.348	0.348	0.349	2.90
39)	M	Dibromochloromethan	0.401	0.453	0.488	0.544	0.527	0.520	0.489	10.96
41)	I	Chlorobenzene-d5	ISTD							
	MP	Chlorobenzene	0.920	0.889	0.933	0.969	0.947	0.925	0.931	2.88
	T	1,1,1,2-Tetrachloro	0.405	0.449	0.472	0.499	0.486	0.476	0.464	7.17
	CM	Ethylbenzene	1.421	1.429	1.533	1.534	1.503	1.471	1.482	3.36
45)	M	Xylene (para & meta	1.210	1.200	1.258	1.265	1.227	1.194	1.226	2.42
46)	M	Xylene (ortho)	1.066	1.069	1.180	1.190	1.165	1.142	1.135	4.83
47)	T	Styrene	0.844	0.899	0.981	1.041	1.023	0.991	0.963	7.91
48)	PM	Bromoform	0.316	0.373	0.435	0.476	0.471	0.453	0.421	15.07

49)	S	4-Bromofluorobenzen	0.738	0.758	0.759	0.771	0.768	0.783	0.763	2.00
50)	PM	1,1,2,2-Tetrachloro	0.436	0.450	0.496	0.534	0.515	0.499	0.488	7.76
51)	M	1,3-Dichlorobenzene	0.807	0.754	0.833	0.887	0.877	0.844	0.834	5.84
52)	M	1,4-Dichlorobenzene	0.881	0.947	1.000	1.031	1.019	0.970	0.975	5.67
53)	M	1,2-Dichlorobenzene	0.737	0.789	0.867	0.906	0.881	0.855	0.839	7.58

* = Out of Range

Quantitation Report

Data File : C:\HPCHEM\1\DATA\C9558.D
Acq On : 9 Nov 97 11:31 pm
Sample : 1 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:50 1997

Vial: 3
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.70	130	545886	30.00	ug/l		0.16
26) 1,4-Difluorobenzene	13.39	114	2230568	30.00	ug/l		0.16
41) Chlorobenzene-d5	18.34	117	1891165	30.00	ug/l		0.16
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.72	65	773151	29.01	ug/l		96.70%
33) Toluene-d8	15.80	98	2074026	30.26	ug/l		100.86%
49) 4-Bromofluorobenzene	20.42	95	1394930	29.63	ug/l		98.77%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.02	85	24115	0.83	ug/l	#	88
3) Chloromethane	4.56	50	16397	1.57	ug/l	m	38
4) Vinyl chloride	4.81	62	11885	0.84	ug/l		94
5) Bromomethane	5.69	94	18379	1.69	ug/l	m	95
6) Chloroethane	5.97	64	5529	0.63	ug/l	m	74
7) Trichlorofluoromethane	6.52	101	39741	0.89	ug/l		97
8) Acrolein	7.69	56	15268	15.68	ug/l		100
9) 1,1-Dichloroethene	7.74	96	16812	0.99	ug/l	#	88
10) Acetone	8.02	43	34675	8.12	ug/l		100
11) Carbon disulfide	8.18	76	41764	0.98	ug/l		100
12) Methylene chloride	8.90	49	82707	3.13	ug/l		99
14) trans-1,2-Dichloroethene	9.33	96	13928	0.78	ug/l	#	78
15) Methyl-tert butyl ether	9.29	73	54535	1.04	ug/l		96
16) tert-Butyl Alcohol	9.15	59	1860	1.36	ug/l		100
17) 1,1-Dichloroethane	10.20	63	32720	0.91	ug/l		85
18) cis-1,2-Dichloroethene	11.28	96	17565	0.89	ug/l	#	90
20) Chloroform	11.83	83	39712	0.90	ug/l		94
21) 1,1,1-Trichloroethane	12.08	97	38050	0.87	ug/l		79
22) Carbon tetrachloride	12.31	117	32715	0.83	ug/l	#	73
24) Benzene	12.70	78	57545	1.01	ug/l		100
25) 1,2-Dichloroethane	12.88	62	28213	0.89	ug/l		91
27) Trichloroethene	13.77	130	24972	0.84	ug/l	#	78
28) 1,2-Dichloropropane	14.25	63	20089	0.97	ug/l		91
29) Bromodichloromethane	14.68	83	35839	0.81	ug/l		83
30) 2-Chloroethyl vinyl ether	15.18	63	8119	0.81	ug/l		75
31) cis-1,3-Dichloropropene	15.44	75	29997	0.83	ug/l		88
32) 4-Methyl-2-pentanone	15.66	43	17915	0.85	ug/l		89
34) Toluene	15.92	92	41609	0.96	ug/l		88
35) trans-1,3-Dichloropropene	16.40	75	27227	0.77	ug/l	#	48
36) 1,1,2-Trichloroethane	16.73	97	17641	0.86	ug/l		85
37) 2-Hexanone	17.08	43	15792	1.24	ug/l		85
38) Tetrachloroethene	16.82	164	24782	0.91	ug/l		93
39) Dibromochloromethane	17.37	129	29848	0.78	ug/l		85
42) Chlorobenzene	18.39	112	57997	0.98	ug/l		91

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\C9558.D
Acq On : 9 Nov 97 11:31 pm
Sample : 1 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:50 1997

Vial: 3
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

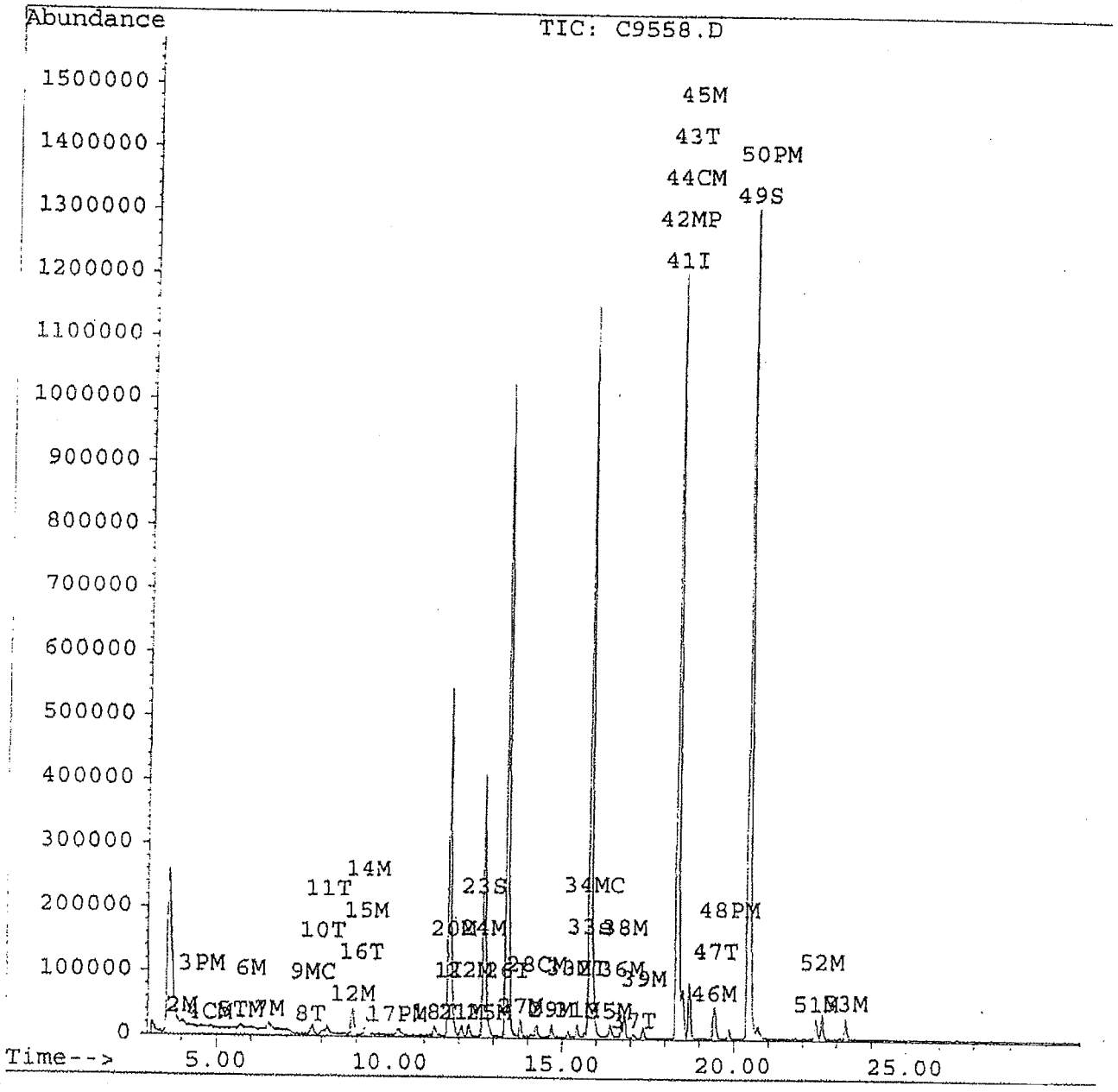
Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
43) 1,1,1,2-Tetrachloroethane	18.53	131	25547	0.85	ug/l	83
44) Ethylbenzene	18.51	91	89588	0.92	ug/l	93
45) Xylene (para & meta)	18.71	91	152567	1.88	ug/l	100
46) Xylene (ortho)	19.42	91	67211	0.89	ug/l	86
47) Styrene	19.47	104	53214	0.86	ug/l	93
48) Bromoform	19.86	173	19906	0.68	ug/l	82
50) 1,1,2,2-Tetrachloroethane	20.70	83	27462	0.87	ug/l	83
51) 1,3-Dichlorobenzene	22.39	146	50899	0.93	ug/l	92
52) 1,4-Dichlorobenzene	22.56	146	55560	0.87	ug/l	99
53) 1,2-Dichlorobenzene	23.25	146	46473	0.83	ug/l	99

Quantitation Report

Data File : C:\HPCHEM\1\DATA\C9558.D
Acq On : 9 Nov 97 11:31 pm
Sample : 1 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:50 1997

Vial: 3
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data\c9559.d
Acq On : 10 Nov 97 12:08 am
Sample : 5 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:54 1997

Vial: 4
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.73	130	514237	30.00	ug/l		0.19
26) 1,4-Difluorobenzene	13.41	114	2150426	30.00	ug/l		0.18
41) Chlorobenzene-d5	18.34	117	1786626	30.00	ug/l		0.16
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.74	65	738942	29.43	ug/l		98.10%
33) Toluene-d8	15.81	98	2012570	30.46	ug/l		101.52%
49) 4-Bromofluorobenzene	20.42	95	1353401	30.43	ug/l		101.44%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.06	85	149333	5.45	ug/l	#	85
3) Chloromethane	4.61	50	41059	4.18	ug/l	m	86
4) Vinyl chloride	4.86	62	73536	5.51	ug/l		93
5) Bromomethane	5.72	94	59584	5.83	ug/l	m	74
6) Chloroethane	5.98	64	42770	5.19	ug/l	m	87
7) Trichlorofluoromethane	6.54	101	215181	5.12	ug/l		99
8) Acrolein	7.71	56	30864	33.64	ug/l		100
9) 1,1-Dichloroethene	7.76	96	79186	4.96	ug/l	#	87
10) Acetone	8.06	43	76297	18.97	ug/l		100
11) Carbon disulfide	8.20	76	200316	4.98	ug/l		100
12) Methylene chloride	8.91	49	232452	9.35	ug/l		98
13) Acrylonitrile	9.56	53	7447	3.04	ug/l		100
14) trans-1,2-Dichloroethene	9.35	96	82774	4.89	ug/l		98
15) Methyl-tert butyl ether	9.31	73	217853	4.43	ug/l		97
16) tert-Butyl Alcohol	9.17	59	23189	18.04	ug/l		100
17) 1,1-Dichloroethane	10.24	63	166867	4.90	ug/l		98
18) cis-1,2-Dichloroethene	11.30	96	91922	4.93	ug/l		97
19) 2-Butanone	11.36	43	49199	7.73	ug/l		89
20) Chloroform	11.84	83	195059	4.70	ug/l		98
21) 1,1,1-Trichloroethane	12.08	97	184843	4.47	ug/l		93
22) Carbon tetrachloride	12.31	117	171491	4.60	ug/l		96
24) Benzene	12.70	78	278237	5.20	ug/l		100
25) 1,2-Dichloroethane	12.87	62	129989	4.34	ug/l		98
27) Trichloroethene	13.78	130	135016	4.70	ug/l		91
28) 1,2-Dichloropropane	14.26	63	97132	4.85	ug/l		96
29) Bromodichloromethane	14.70	83	190374	4.44	ug/l		87
30) 2-Chloroethyl vinyl ether	15.19	63	39187	4.05	ug/l		75
31) cis-1,3-Dichloropropene	15.44	75	150697	4.31	ug/l		83
32) 4-Methyl-2-pentanone	15.67	43	98914	4.85	ug/l		89
34) Toluene	15.93	92	195507	4.67	ug/l		91
35) trans-1,3-Dichloropropene	16.41	75	142757	4.20	ug/l		92
36) 1,1,2-Trichloroethane	16.72	97	91786	4.62	ug/l		97
37) 2-Hexanone	17.09	43	64376	5.24	ug/l		85
38) Tetrachloroethene	16.82	164	123952	4.72	ug/l		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9559.d
Acq On : 10 Nov 97 12:08 am
Sample : 5 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:54 1997

Vial: 4
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit		Qvalue
39) Dibromochloromethane	17.37	129	162484	4.39 ug/l		87
42) Chlorobenzene	18.39	112	264811	4.73 ug/l		94
43) 1,1,1,2-Tetrachloroethane	18.53	131	133731	4.69 ug/l		98
44) Ethylbenzene	18.50	91	425520	4.64 ug/l		95
45) Xylene (para & meta)	18.71	91	714865	9.34 ug/l		98
46) Xylene (ortho)	19.42	91	318359	4.46 ug/l		95
47) Styrene	19.48	104	267750	4.56 ug/l		89
48) Bromoform	19.87	173	111178	4.02 ug/l		100
50) 1,1,2,2-Tetrachloroethane	20.70	83	133970	4.50 ug/l		97
51) 1,3-Dichlorobenzene	22.40	146	224561	4.34 ug/l		99
52) 1,4-Dichlorobenzene	22.56	146	282018	4.69 ug/l	m	99
53) 1,2-Dichlorobenzene	23.27	146	234862	4.45 ug/l		91

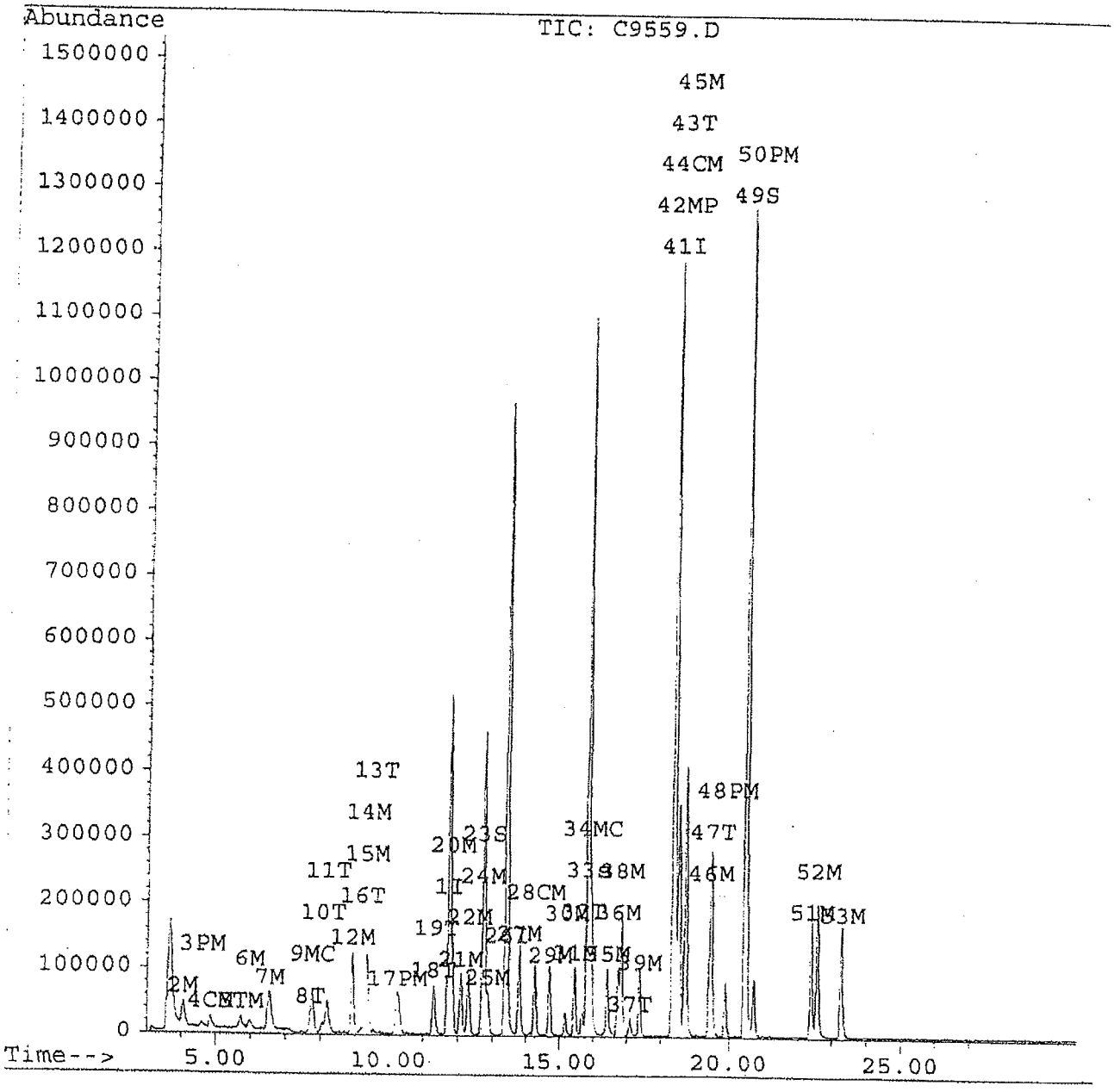
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9559.d
Acq On : 10 Nov 97 12:08 am
Sample : 5 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:54 1997

Vial: 4
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data\c9560.d
Acq On : 10 Nov 97 12:44 am
Sample : 20 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:57 1997

Vial: 5
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.73	130	538077	30.00	ug/l		0.19
26) 1,4-Difluorobenzene	13.41	114	2188865	30.00	ug/l		0.18
41) Chlorobenzene-d5	18.35	117	1794299	30.00	ug/l		0.17
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.74	65	784320	29.85	ug/l		99.52%
33) Toluene-d8	15.82	98	2081544	30.95	ug/l		103.15%
49) 4-Bromofluorobenzene	20.42	95	1362699	30.51	ug/l		101.70%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.06	85	617815	21.57	ug/l		99
3) Chloromethane	4.62	50	142398	13.87	ug/l		79
4) Vinyl chloride	4.87	62	312174	22.34	ug/l		100
5) Bromomethane	5.71	94	197623	18.48	ug/l		95
6) Chloroethane	5.95	64	189482	21.96	ug/l		93
7) Trichlorofluoromethane	6.54	101	914715	20.80	ug/l		97
8) Acrolein	7.71	56	65603	68.34	ug/l		100
9) 1,1-Dichloroethene	7.77	96	334756	20.05	ug/l		92
10) Acetone	8.06	43	190124	45.17	ug/l		91
11) Carbon disulfide	8.20	76	882523	20.95	ug/l		100
12) Methylene chloride	8.91	49	596838	22.94	ug/l		96
13) Acrylonitrile	9.57	53	51644	20.17	ug/l		100
14) trans-1,2-Dichloroethene	9.35	96	363704	20.53	ug/l		98
15) Methyl-tert butyl ether	9.32	73	923427	17.95	ug/l		96
16) tert-Butyl Alcohol	9.18	59	101903	75.78	ug/l	m	100
17) 1,1-Dichloroethane	10.24	63	706914	19.86	ug/l		95
18) cis-1,2-Dichloroethene	11.31	96	402671	20.65	ug/l		98
19) 2-Butanone	11.36	43	182989	27.48	ug/l		97
20) Chloroform	11.84	83	845012	19.44	ug/l		95
21) 1,1,1-Trichloroethane	12.09	97	813078	18.79	ug/l		99
22) Carbon tetrachloride	12.31	117	767451	19.69	ug/l		99
24) Benzene	12.72	78	1168297	20.87	ug/l		100
25) 1,2-Dichloroethane	12.88	62	588185	18.78	ug/l		95
27) Trichloroethene	13.81	130	572516	19.56	ug/l		92
28) 1,2-Dichloropropane	14.26	63	417684	20.47	ug/l		98
29) Bromodichloromethane	14.70	83	843789	19.32	ug/l		95
30) 2-Chloroethyl vinyl ether	15.18	63	176681	17.93	ug/l		99
31) cis-1,3-Dichloropropene	15.45	75	684663	19.25	ug/l		100
32) 4-Methyl-2-pentanone	15.67	43	395150	19.02	ug/l		98
34) Toluene	15.94	92	852042	20.00	ug/l		99
35) trans-1,3-Dichloropropene	16.42	75	649934	18.78	ug/l		96
36) 1,1,2-Trichloroethane	16.73	97	396837	19.63	ug/l		92
37) 2-Hexanone	17.08	43	279450	22.36	ug/l		100
38) Tetrachloroethene	16.82	164	522243	19.55	ug/l		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9560.d
Acq On : 10 Nov 97 12:44 am
Sample : 20 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:57 1997

Vial: 5
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit		Qvalue
39) Dibromochloromethane	17.37	129	712423	18.90	ug/l		96
42) Chlorobenzene	18.40	112	1116420	19.86	ug/l		95
43) 1,1,1,2-Tetrachloroethane	18.53	131	564461	19.69	ug/l		100
44) Ethylbenzene	18.51	91	1833549	19.93	ug/l		96
45) Xylene (para & meta)	18.72	91	3008921	39.14	ug/l		99
46) Xylene (ortho)	19.43	91	1411547	19.69	ug/l		99
47) Styrene	19.48	104	1172905	19.88	ug/l		98
48) Bromoform	19.88	173	520574	18.74	ug/l		97
50) 1,1,2,2-Tetrachloroethane	20.70	83	593106	19.83	ug/l		96
51) 1,3-Dichlorobenzene	22.39	146	996012	19.18	ug/l		99
52) 1,4-Dichlorobenzene	22.57	146	1196594	19.82	ug/l	m	98
53) 1,2-Dichlorobenzene	23.26	146	1037673	19.59	ug/l		97

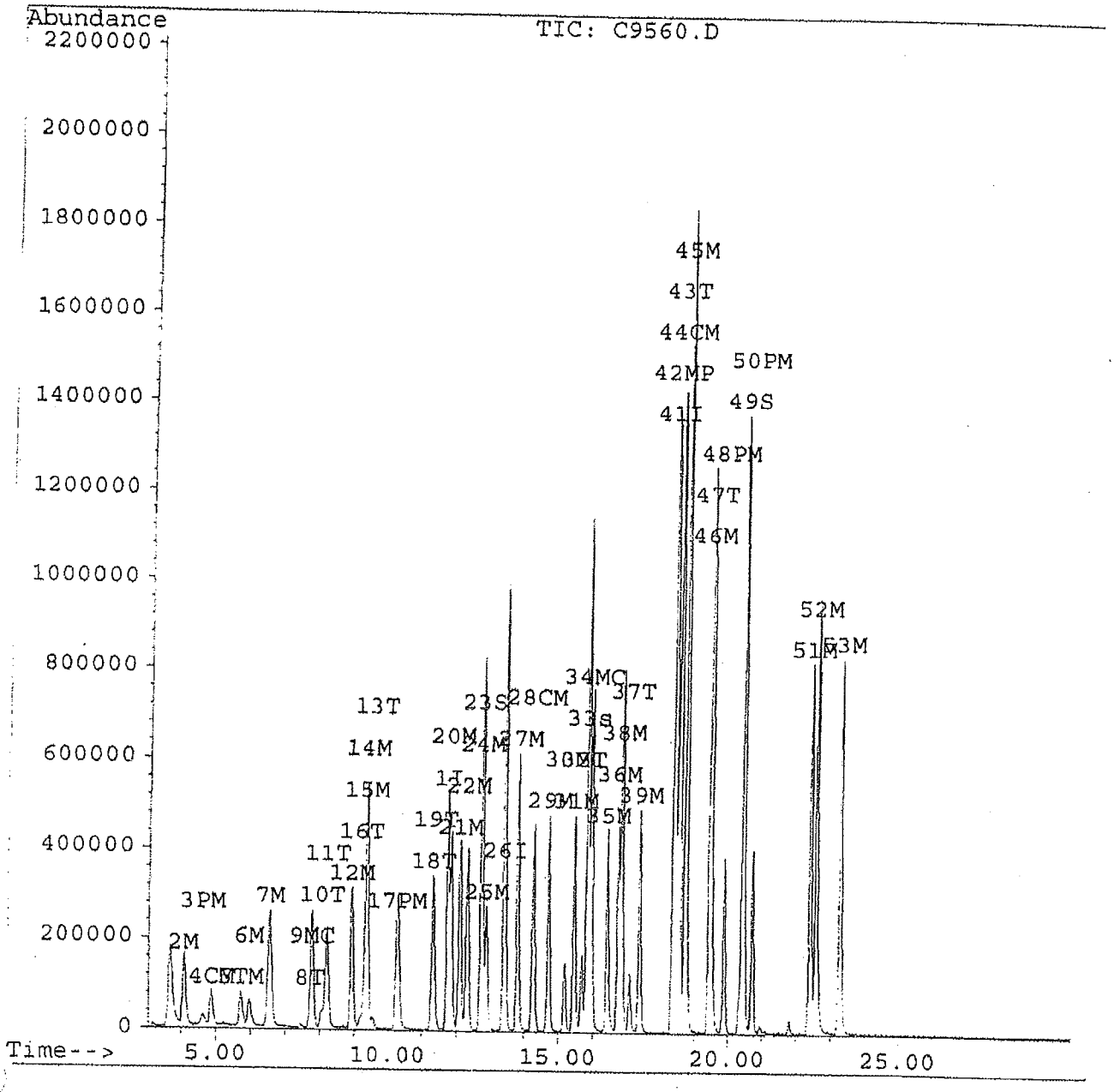
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9560.d
Acq On : 10 Nov 97 12:44 am
Sample : 20 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:57 1997

Vial: 5 126
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data\c9561.d
Acq On : 10 Nov 97 1:21 am
Sample : 100 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:59 1997

Vial: 6
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.73	130	552384	30.00	ug/l		0.19
26) 1,4-Difluorobenzene	13.41	114	2137299	30.00	ug/l		0.18
41) Chlorobenzene-d5	18.35	117	1778259	30.00	ug/l		0.17
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.74	65	741024	27.48	ug/l		91.59%
33) Toluene-d8	15.82	98	2035792	31.00	ug/l		103.32%
49) 4-Bromofluorobenzene	20.42	95	1371098	30.97	ug/l		103.25%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.07	85	2170443	73.80	ug/l		100
3) Chloromethane	4.62	50	711691	67.52	ug/l		92
4) Vinyl chloride	4.87	62	1350556	94.15	ug/l		93
5) Bromomethane	5.71	94	1107911	100.89	ug/l		80
6) Chloroethane	5.95	64	868919	98.08	ug/l		100
7) Trichlorofluoromethane	6.53	101	4011280	88.85	ug/l		98
8) Acrolein	7.73	56	130149	132.07	ug/l		100
9) 1,1-Dichloroethene	7.77	96	1580089	92.18	ug/l		95
10) Acetone	8.05	43	607449	140.59	ug/l		97
11) Carbon disulfide	8.20	76	4035964	93.32	ug/l		100
12) Methylene chloride	8.90	49	2443006	91.46	ug/l		98
13) Acrylonitrile	9.55	53	285477	108.61	ug/l		100
14) trans-1,2-Dichloroethene	9.36	96	1785673	98.21	ug/l		99
15) Methyl-tert butyl ether	9.32	73	4767559	90.27	ug/l		100
16) tert-Butyl Alcohol	9.17	59	568716	411.96	ug/l	m	100
17) 1,1-Dichloroethane	10.25	63	3640759	99.61	ug/l		97
18) cis-1,2-Dichloroethene	11.30	96	2089762	104.39	ug/l	m	0
19) 2-Butanone	11.36	43	766051	112.04	ug/l		98
20) Chloroform	11.84	83	4249490	95.25	ug/l		99
21) 1,1,1-Trichloroethane	12.09	97	4087185	91.99	ug/l		100
22) Carbon tetrachloride	12.32	117	3802964	95.02	ug/l		97
24) Benzene	12.72	78	5840677	101.65	ug/l		100
25) 1,2-Dichloroethane	12.88	62	3062517	95.26	ug/l		99
27) Trichloroethene	13.81	130	2824673	98.86	ug/l		96
28) 1,2-Dichloropropane	14.26	63	2191275	110.00	ug/l		99
29) Bromodichloromethane	14.70	83	4426011	103.80	ug/l		97
30) 2-Chloroethyl vinyl ether	15.18	63	969282	100.73	ug/l		96
31) cis-1,3-Dichloropropene	15.44	75	3623391	104.34	ug/l		96
32) 4-Methyl-2-pentanone	15.67	43	1983530	97.79	ug/l		97
34) Toluene	15.94	92	4235714	101.83	ug/l		99
35) trans-1,3-Dichloropropene	16.41	75	3454852	102.22	ug/l		100
36) 1,1,2-Trichloroethane	16.73	97	2100132	106.38	ug/l		94
37) 2-Hexanone	17.07	43	1331024	109.08	ug/l		97
38) Tetrachloroethene	16.82	164	2580687	98.91	ug/l		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9561.d
Acq On : 10 Nov 97 1:21 am
Sample : 100 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:59 1997

Vial: 6
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

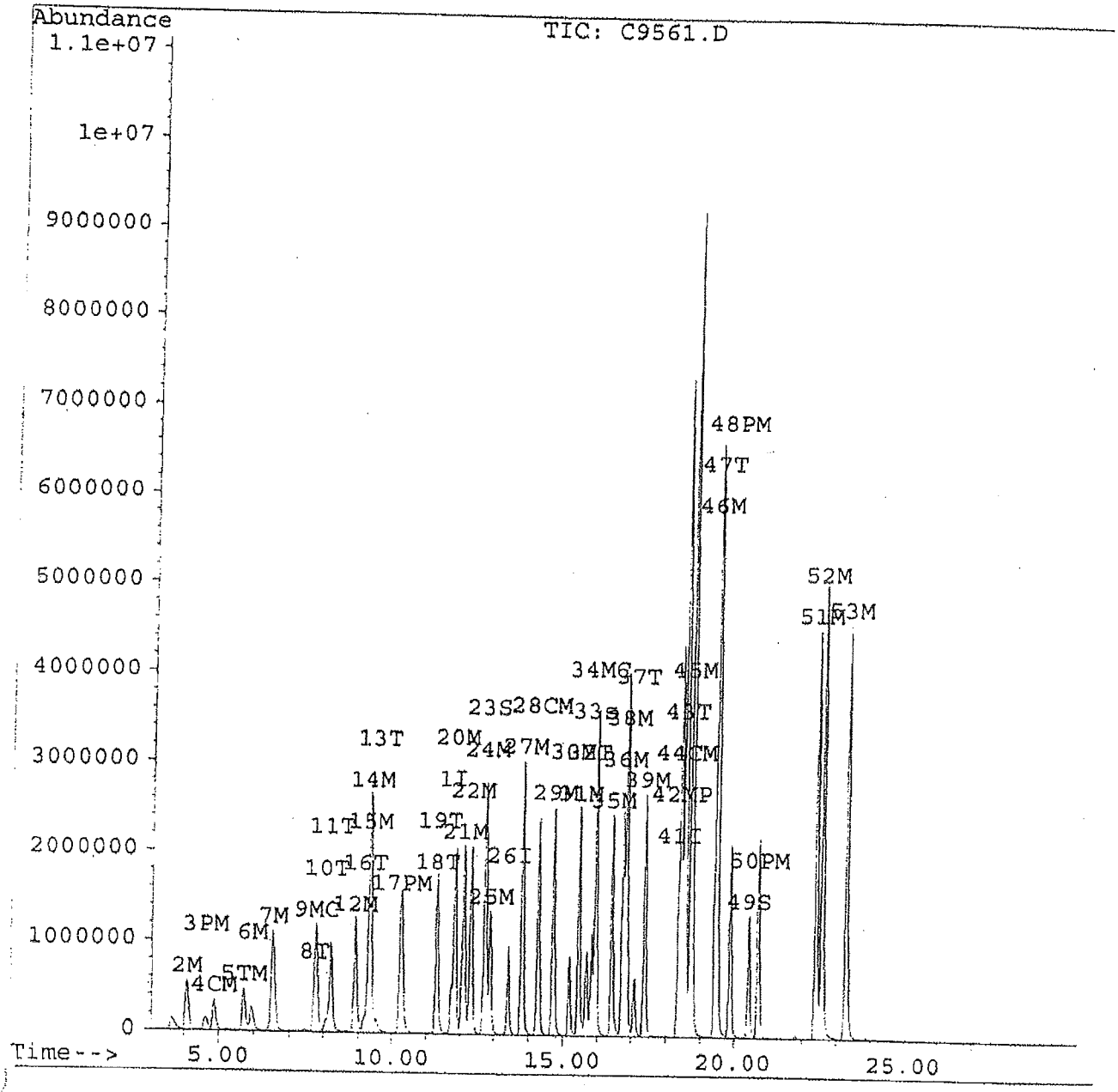
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39) Dibromochloromethane	17.37	129	3876340	105.33 ug/l	100
42) Chlorobenzene	18.39	112	5743122	103.10 ug/l	98
43) 1,1,1,2-Tetrachloroethane	18.54	131	2956233	104.06 ug/l	95
44) Ethylbenzene	18.51	91	9091715	99.69 ug/l	95
45) Xylene (para & meta)	18.72	91	14992749	196.78 ug/l	96
46) Xylene (ortho)	19.43	91	7051722	99.28 ug/l	99
47) Styrene	19.48	104	6171828	105.57 ug/l	96
48) Bromoform	19.87	173	2821976	102.48 ug/l	98
50) 1,1,2,2-Tetrachloroethane	20.70	83	3164029	106.72 ug/l	98
51) 1,3-Dichlorobenzene	22.39	146	5256229	102.12 ug/l	97
52) 1,4-Dichlorobenzene	22.57	146	6112081	102.14 ug/l	99
53) 1,2-Dichlorobenzene	23.26	146	5370093	102.27 ug/l	100

Quantitation Report

Data File : c:\hpchem\1\data\c9561.d
Acq On : 10 Nov 97 1:21 am
Sample : 100 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 11:59 1997

Vial: 6
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data\c9562.d
Acq On : 10 Nov 97 1:58 am
Sample : 150 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 12:02 1997

Vial: 7
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.72	130	558862	30.00	ug/l		0.18
26) 1,4-Difluorobenzene	13.40	114	2144192	30.00	ug/l		0.17
41) Chlorobenzene-d5	18.34	117	1762760	30.00	ug/l		0.15
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.73	65	757787	27.77	ug/l		92.57%
33) Toluene-d8	15.81	98	2030176	30.81	ug/l		102.70%
49) 4-Bromofluorobenzene	20.41	95	1354111	30.86	ug/l		102.87%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.07	85	3182237	106.95	ug/l		99
3) Chloromethane	4.60	50	1133328	106.27	ug/l		91
4) Vinyl chloride	4.85	62	1944653	133.99	ug/l		91
5) Bromomethane	5.70	94	1760190	158.43	ug/l		84
6) Chloroethane	5.92	64	1193651	133.17	ug/l		99
7) Trichlorofluoromethane	6.50	101	5836602	127.79	ug/l		96
8) Acrolein	7.72	56	222655	223.33	ug/l		100
9) 1,1-Dichloroethene	7.75	96	2306910	133.02	ug/l		96
10) Acetone	8.05	43	901288	206.18	ug/l		99
11) Carbon disulfide	8.17	76	5827717	133.19	ug/l		100
12) Methylene chloride	8.89	49	3561695	131.79	ug/l		98
13) Acrylonitrile	9.53	53	397946	149.65	ug/l		100
14) trans-1,2-Dichloroethene	9.34	96	2583360	140.43	ug/l		96
15) Methyl-tert butyl ether	9.31	73	6888890	128.92	ug/l		99
16) tert-Butyl Alcohol	9.19	59	794358	568.74	ug/l	m	100
17) 1,1-Dichloroethane	10.22	63	5351339	144.71	ug/l		96
18) cis-1,2-Dichloroethene	11.30	96	3059445	151.05	ug/l		97
19) 2-Butanone	11.35	43	1124549	162.57	ug/l	m	100
20) Chloroform	11.83	83	6156966	136.40	ug/l		99
21) 1,1,1-Trichloroethane	12.08	97	5971772	132.86	ug/l		98
22) Carbon tetrachloride	12.30	117	5517930	136.27	ug/l		99
24) Benzene	12.71	78	8550799	147.09	ug/l		100
25) 1,2-Dichloroethane	12.87	62	4453622	136.93	ug/l		97
27) Trichloroethene	13.79	130	4095882	142.89	ug/l		97
28) 1,2-Dichloropropane	14.25	63	3211127	160.68	ug/l		100
29) Bromodichloromethane	14.69	83	6491715	151.76	ug/l		97
30) 2-Chloroethyl vinyl ether	15.17	63	1404423	145.48	ug/l		99
31) cis-1,3-Dichloropropene	15.44	75	5300797	152.15	ug/l		95
32) 4-Methyl-2-pentanone	15.66	43	2850934	140.10	ug/l		95
34) Toluene	15.93	92	6204982	148.70	ug/l		97
35) trans-1,3-Dichloropropene	16.41	75	5022188	148.12	ug/l		98
36) 1,1,2-Trichloroethane	16.73	97	3077195	155.37	ug/l		98
37) 2-Hexanone	17.07	43	1961640	160.25	ug/l		99
38) Tetrachloroethene	16.82	164	3729465	142.48	ug/l		98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9562.d
Acq On : 10 Nov 97 1:58 am
Sample : 150 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 12:02 1997

Vial: 7
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

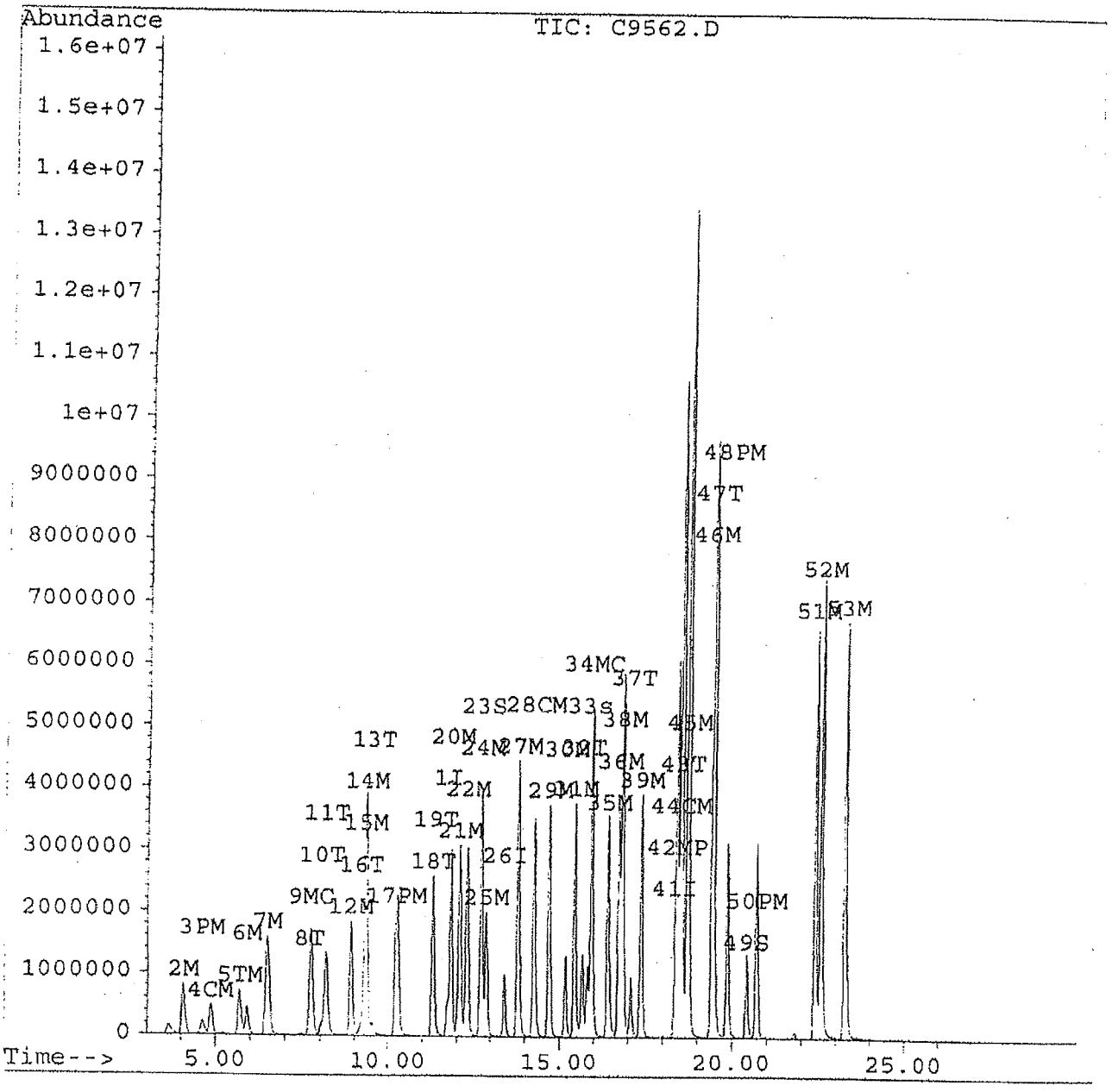
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39) Dibromochloromethane	17.36	129	5650281	153.05 ug/l	99
42) Chlorobenzene	18.39	112	8349006	151.19 ug/l	99
43) 1,1,1,2-Tetrachloroethane	18.54	131	4279504	151.96 ug/l	95
44) Ethylbenzene	18.50	91	13251247	146.58 ug/l	96
45) Xylene (para & meta)	18.71	91	21635688	286.46 ug/l	97
46) Xylene (ortho)	19.42	91	10268993	145.84 ug/l	99
47) Styrene	19.47	104	9016136	155.58 ug/l	98
48) Bromoform	19.87	173	4152158	152.11 ug/l	100
50) 1,1,2,2-Tetrachloroethane	20.69	83	4535091	154.31 ug/l	97
51) 1,3-Dichlorobenzene	22.38	146	7733457	151.57 ug/l	97
52) 1,4-Dichlorobenzene	22.56	146	8979443	151.38 ug/l	98
53) 1,2-Dichlorobenzene	23.25	146	7766844	149.22 ug/l	99

Quantitation Report

Data File : c:\hpchem\1\data\c9562.d
Acq On : 10 Nov 97 1:58 am
Sample : 150 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 12:02 1997

Vial: 7
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data\c9563.d
Acq On : 10 Nov 97 2:35 am
Sample : 200 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 12:04 1997

Vial: 8
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.73	130	534848	30.00	ug/l		0.19
26) 1,4-Difluorobenzene	13.41	114	2079245	30.00	ug/l		0.18
41) Chlorobenzene-d5	18.35	117	1720534	30.00	ug/l		0.17
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.74	65	718395	27.51	ug/l		91.70%
33) Toluene-d8	15.82	98	1980723	31.00	ug/l		103.33%
49) 4-Bromofluorobenzene	20.42	95	1346403	31.44	ug/l		104.79%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.07	85	4811774	168.98	ug/l		97
3) Chloromethane	4.61	50	1676349	164.25	ug/l		98
4) Vinyl chloride	4.86	62	2830833	203.80	ug/l		95
5) Bromomethane	5.70	94	2631584	247.50	ug/l		79
6) Chloroethane	5.92	64	1666715	194.29	ug/l		97
7) Trichlorofluoromethane	6.51	101	8147209	186.38	ug/l		98
8) Acrolein	7.71	56	380667	398.96	ug/l		100
9) 1,1-Dichloroethene	7.76	96	3199095	192.75	ug/l		97
10) Acetone	8.06	43	1052992	251.70	ug/l		97
11) Carbon disulfide	8.20	76	8099164	193.41	ug/l		100
12) Methylene chloride	8.90	49	4669600	180.55	ug/l		98
13) Acrylonitrile	9.55	53	503772	197.95	ug/l		100
14) trans-1,2-Dichloroethene	9.35	96	3503237	198.99	ug/l		97
15) Methyl-tert butyl ether	9.32	73	8791670	171.91	ug/l		99
16) tert-Butyl Alcohol	9.19	59	993015	742.90	ug/l	m	100
17) 1,1-Dichloroethane	10.24	63	6969490	196.94	ug/l		99
18) cis-1,2-Dichloroethene	11.30	96	3954211	203.99	ug/l	m	0
19) 2-Butanone	11.35	43	1323258	199.89	ug/l	m	97
20) Chloroform	11.84	83	8055376	186.48	ug/l		98
21) 1,1,1-Trichloroethane	12.09	97	7710952	179.25	ug/l		98
22) Carbon tetrachloride	12.31	117	7235677	186.72	ug/l		99
24) Benzene	12.72	78	11088519	199.31	ug/l		100
25) 1,2-Dichloroethane	12.88	62	5725836	183.94	ug/l		94
27) Trichloroethene	13.80	130	5312845	191.13	ug/l		97
28) 1,2-Dichloropropane	14.26	63	4121149	212.66	ug/l		100
29) Bromodichloromethane	14.70	83	8282001	199.66	ug/l		96
30) 2-Chloroethyl vinyl ether	15.18	63	616006	65.81	ug/l		99
31) cis-1,3-Dichloropropene	15.45	75	6684374	197.86	ug/l		94
32) 4-Methyl-2-pentanone	15.67	43	3367402	170.64	ug/l		96
34) Toluene	15.94	92	7978258	197.16	ug/l		96
35) trans-1,3-Dichloropropene	16.41	75	6219316	189.16	ug/l		98
36) 1,1,2-Trichloroethane	16.73	97	3870111	201.50	ug/l		95
37) 2-Hexanone	17.07	43	2213106	186.44	ug/l		99
38) Tetrachloroethene	16.82	164	4825820	190.13	ug/l		99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9563.d
Acq On : 10 Nov 97 2:35 am
Sample : 200 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 12:04 1997

Vial: 8
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
39) Dibromochloromethane	17.37	129	7202395	201.18 ug/l	100
42) Chlorobenzene	18.40	112	10609199	196.84 ug/l	98
43) 1,1,1,2-Tetrachloroethane	18.54	131	5456253	198.50 ug/l	94
44) Ethylbenzene	18.51	91	16870566	191.20 ug/l	96
45) Xylene (para & meta)	18.72	91	27399085	371.68 ug/l	96
46) Xylene (ortho)	19.43	91	13101935	190.64 ug/l	99
47) Styrene	19.48	104	11364624	200.92 ug/l	99
48) Bromoform	19.88	173	5191983	194.87 ug/l	99
50) 1,1,2,2-Tetrachloroethane	20.70	83	5720944	199.44 ug/l	97
51) 1,3-Dichlorobenzene	22.39	146	9675212	194.28 ug/l	96
52) 1,4-Dichlorobenzene	22.57	146	11126945	192.18 ug/l	99
53) 1,2-Dichlorobenzene	23.26	146	9805651	193.01 ug/l	99

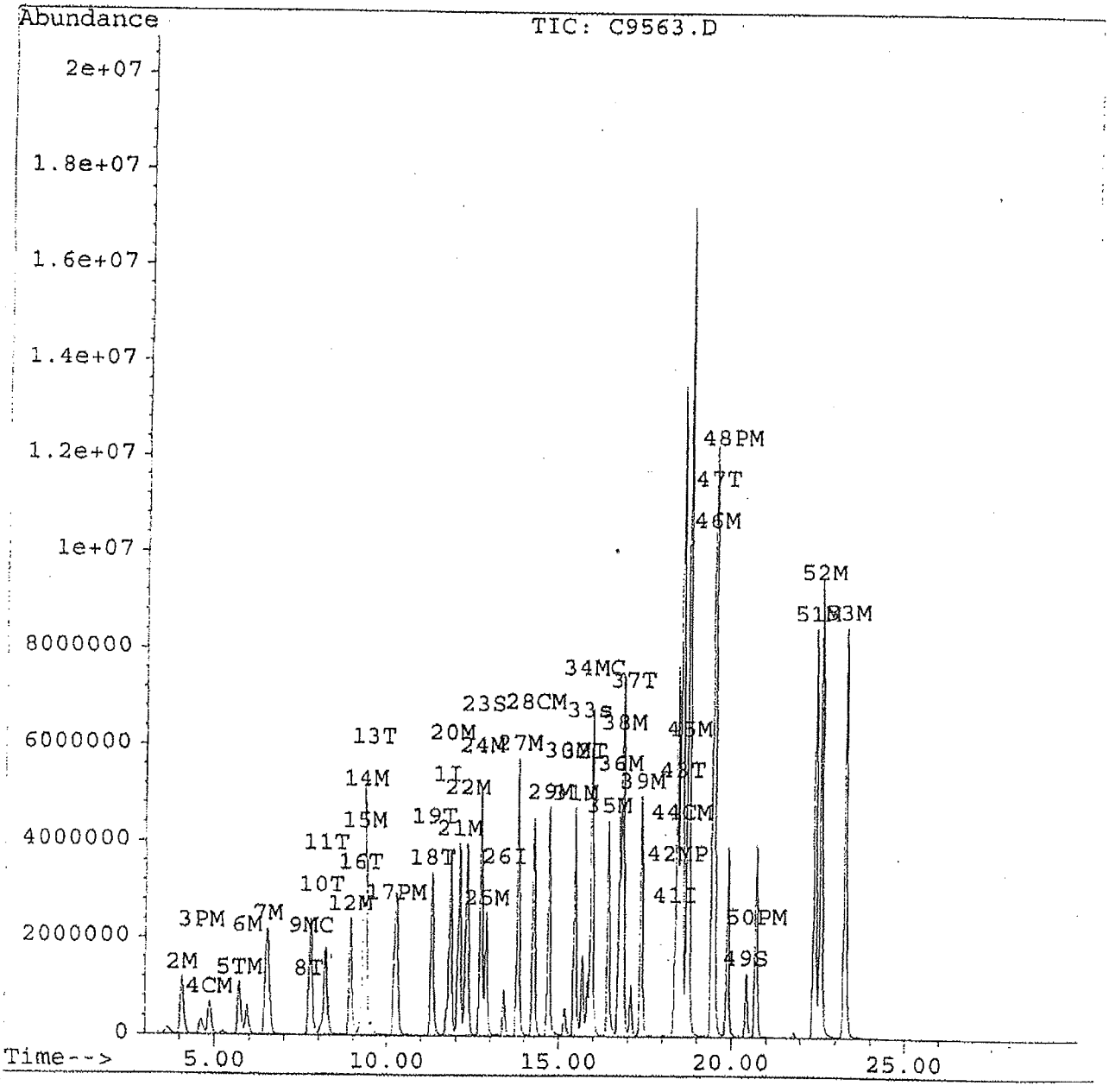
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9563.d
Acq On : 10 Nov 97 2:35 am
Sample : 200 PPB STANDARD
Misc : 5 ML
Quant Time: Nov 10 12:04 1997

Vial: 8
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Mon Nov 10 12:23:57 1997
Response via : Multiple Level Calibration



5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK

BROMOFLUOROBENZENE (BFB)

136

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: C9731.D BFB Injection Date: 11/20/97

Instrument ID: 5972-INSTRUMENT 1 BFB Injection Time: 1704

GC Column: RTX-624 X ID: 0.53 (mm) Heated Purge: (Y/N) _____

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	24.7
75	30.0 - 66.0% of mass 95	51.6
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	75.7
175	4.0 - 9.0% of mass 174	5.1 (6.7)1
176	93.0 - 101.0% of mass 174	74.6 (98.6)1
177	5.0 - 9.0% of mass 176	4.3 (5.7)2

1-Value is % mass 174 2-Value is % mass 176

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

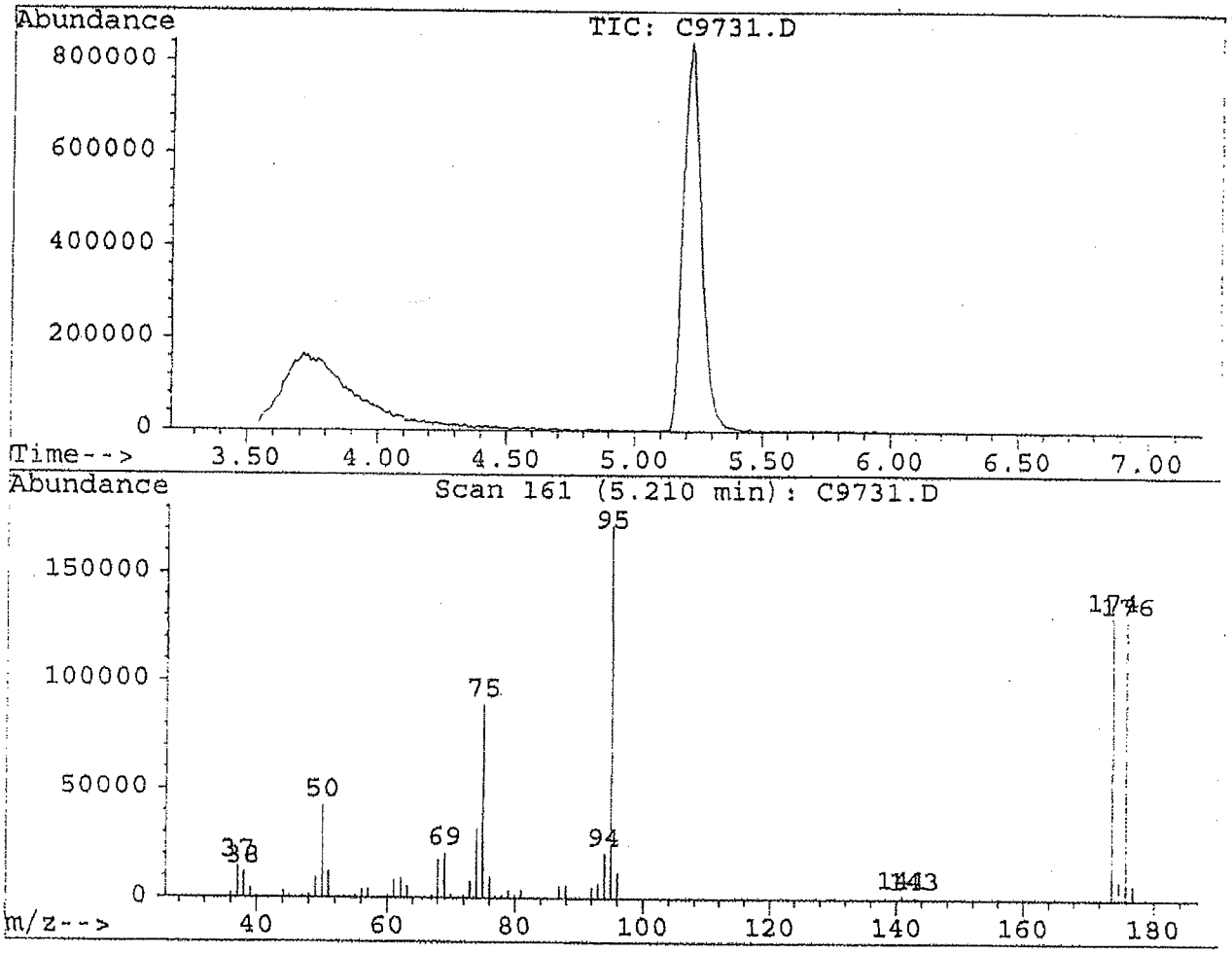
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD020	20 STND	C9732.D	11/20/97	1717
02	VBLK01	M. BLANK	C9733.D	11/20/97	1753
03	9785740V	9785740V	C9734.D	11/20/97	1830
04	9785739V	9785739V	C9735.D	11/20/97	1906
05	9785731V	9785731V	C9736.D	11/20/97	1943
06	9785732V	9785732V	C9737.D	11/20/97	2019
07	9785733V	9785733V	C9738.D	11/20/97	2056
08	9785734V	9785734V	C9739.D	11/20/97	2132
09	9785735V	9785735V	C9740.D	11/20/97	2208
10	9785736V	9785736V	C9741.D	11/20/97	2245
11	9785737V	9785737V	C9742.D	11/20/97	2321
12	9785738V	9785738V	C9743.D	11/20/97	2357
13	9785741MS	85741MS	C9744.D	11/21/97	0034
14	9785741V	9785741V	C9745.D	11/21/97	0110
15	9785741MSD	85741MSD	C9746.D	11/21/97	0146
16					
17					
18					
19					
20					
21					
22					

CLPBFB

Data File : C:\HPCHEM\1\DATA\C9731.D
Acq On : 20 Nov 97 5:04 pm
Sample : BFB TUNE
Misc : 50 NG INJECTION

Vial: 2
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration



Peak Apex is scan: 161

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.7	42672	PASS
75	95	30	60	51.6	89184	PASS
95	95	100	100	100.0	172800	PASS
96	95	5	9	6.9	11922	PASS
173	174	0	2	0.0	0	PASS
174	95	50	100	75.7	130840	PASS
175	174	5	9	6.7	8795	PASS
176	174	95	101	98.6	128960	PASS
177	176	5	9	5.7	7382	PASS

C9731.D 624NAP.M Thu Nov 20 18:02:51 1997 VOA1

Quantitation Report

Data File : C:\HPCHEM\1\DATA\C9732.D
Acq On : 20 Nov 97 5:17 pm
Sample : 20 PPB CHK STANDARD
Misc : 5 ML
Quant Time: Nov 20 18:04 1997

Vial: 3
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.67	130	556675	30.00	ug/l		-0.06
26) 1,4-Difluorobenzene	13.35	114	2172861	30.00	ug/l		-0.06
41) Chlorobenzene-d5	18.30	117	1822659	30.00	ug/l		-0.05
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.69	65	816473	31.61	ug/l		105.37%
33) Toluene-d8	15.77	98	2081135	30.41	ug/l		101.38%
49) 4-Bromofluorobenzene	20.37	95	1431900	30.90	ug/l		103.00%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.02	85	411234	15.72	ug/l	m	93
3) Chloromethane	4.53	50	127561	16.07	ug/l		92
4) Vinyl chloride	4.79	62	254993	17.91	ug/l		90
5) Bromomethane	5.63	94	193099	16.18	ug/l		91
6) Chloroethane	5.85	64	176938	19.92	ug/l		95
7) Trichlorofluoromethane	6.46	101	940615	22.04	ug/l		99
8) Acrolein	7.63	56	80823	198.24	ug/l	m	100
9) 1,1-Dichloroethene	7.71	96	322915	19.47	ug/l		95
10) Acetone	8.01	43	178462	26.03	ug/l	m	86
11) Carbon disulfide	8.13	76	818918	19.41	ug/l		100
12) Methylene chloride	8.85	49	604616	23.38	ug/l		98
13) Acrylonitrile	9.48	53	44428	16.44	ug/l		100
14) trans-1,2-Dichloroethene	9.29	96	354214	20.37	ug/l		97
15) Methyl-tert butyl ether	9.25	73	995384	20.59	ug/l		99
16) tert-Butyl Alcohol	9.14	59	116752	99.89	ug/l	m	100
17) 1,1-Dichloroethane	10.17	63	729132	20.39	ug/l		97
18) cis-1,2-Dichloroethene	11.23	96	408984	20.35	ug/l		98
19) 2-Butanone	11.30	43	181153	21.47	ug/l		96
20) Chloroform	11.78	83	888903	21.16	ug/l		92
21) 1,1,1-Trichloroethane	12.03	97	882884	21.90	ug/l		99
22) Carbon tetrachloride	12.24	117	825282	22.22	ug/l		100
24) Benzene	12.66	78	1167254	19.86	ug/l		100
25) 1,2-Dichloroethane	12.82	62	651992	22.03	ug/l		99
27) Trichloroethene	13.74	130	578357	21.14	ug/l		95
28) 1,2-Dichloropropane	14.21	63	413928	19.80	ug/l		97
29) Bromodichloromethane	14.64	83	929642	22.55	ug/l		97
30) 2-Chloroethyl vinyl ether	15.14	63	184669	21.01	ug/l		99
31) cis-1,3-Dichloropropene	15.40	75	731898	21.82	ug/l		99
32) 4-Methyl-2-pentanone	15.62	43	417050	21.94	ug/l		97
34) Toluene	15.89	92	843049	20.31	ug/l		97
35) trans-1,3-Dichloropropene	16.35	75	708244	22.46	ug/l		99
36) 1,1,2-Trichloroethane	16.68	97	412605	21.02	ug/l		96
37) 2-Hexanone	17.03	43	313407	23.33	ug/l		87
38) Tetrachloroethene	16.77	164	554693	21.93	ug/l		92

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\C9732.D
Acq On : 20 Nov 97 5:17 pm
Sample : 20 PPB CHK STANDARD
Misc : 5 ML
Quant Time: Nov 20 18:04 1997

Vial: 3 114
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
39)	Dibromochloromethane	17.32	129	780972	22.05	ug/l	98
42)	Chlorobenzene	18.35	112	1135883	20.09	ug/l	95
43)	1,1,1,2-Tetrachloroethane	18.49	131	608582	21.57	ug/l	96
44)	Ethylbenzene	18.46	91	1847427	20.52	ug/l	97
45)	Xylene (para & meta)	18.66	91	3106181	41.71	ug/l	99
46)	Xylene (ortho)	19.38	91	1466618	21.26	ug/l	99
47)	Styrene	19.42	104	1224616	20.93	ug/l	99
48)	Bromoform	19.82	173	575586	22.52	ug/l	99
50)	1,1,2,2-Tetrachloroethane	20.66	83	618190	20.85	ug/l	96
51)	1,3-Dichlorobenzene	22.35	146	1053641	20.80	ug/l	99
52)	1,4-Dichlorobenzene	22.51	146	1241339	20.96	ug/l	95
53)	1,2-Dichlorobenzene	23.22	146	1108129	21.73	ug/l	97

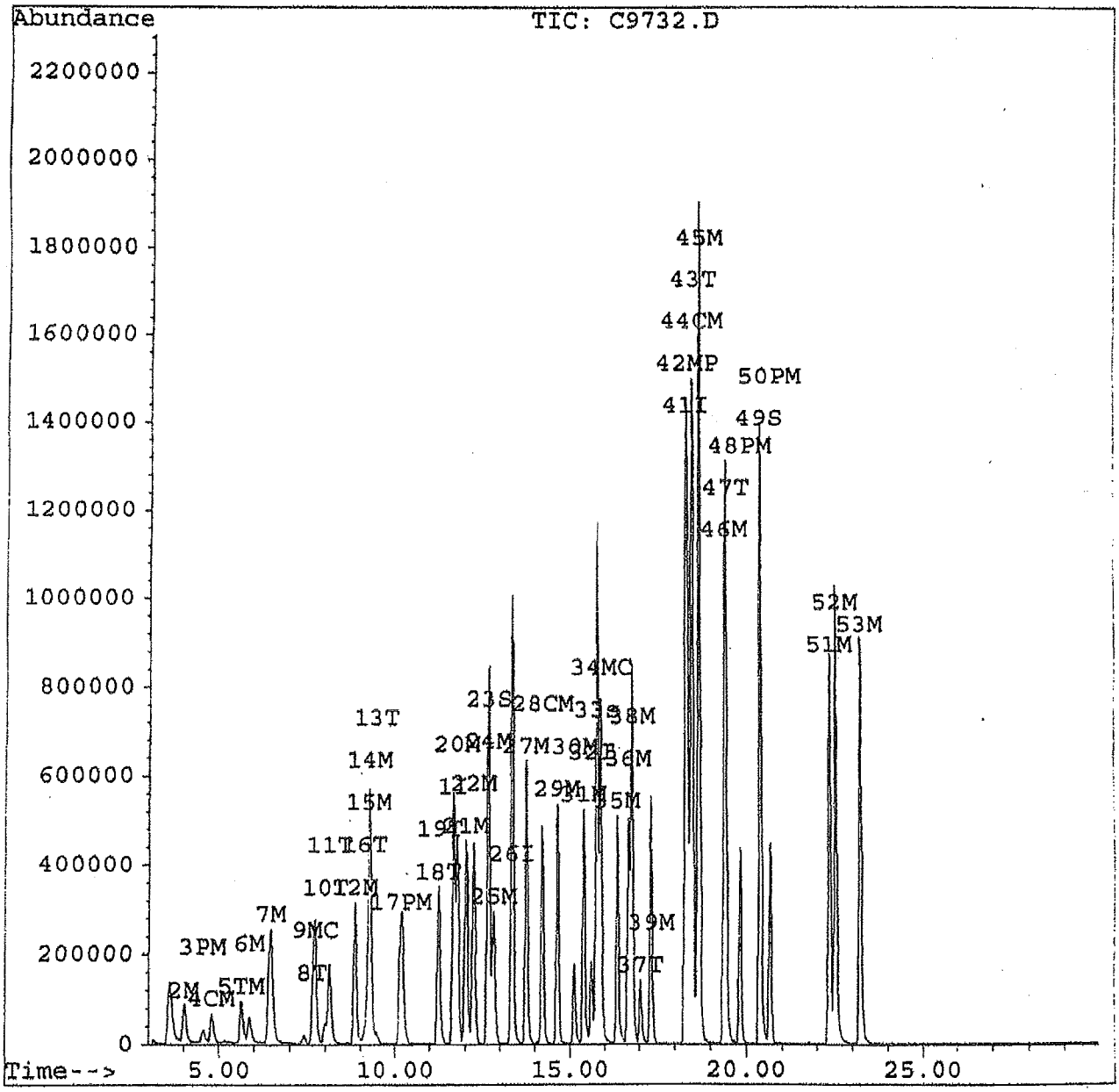
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\C9732.D
Acq On : 20 Nov 97 5:17 pm
Sample : 20 PPB CHK STANDARD
Misc : 5 ML
Quant Time: Nov 20 18:04 1997

Vial: 3
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID (Standard): C9732.D Date Analyzed: 11/20/97

Instrument ID: 5972-INSTRUMENT 1 Time Analyzed: 1717

GC Column: RTX-624 X 75M ID: 0.53 (mm) Heated Purge (Y/N) N

		IS1 (BCM) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (CBZ) AREA #	RT #
	12 HOUR STD	556675	11.67	2172861	13.35	1822659	18.30
	UPPER LIMIT	1113350	12.17	4345722	13.85	3645318	18.80
	LOWER LIMIT	278338	11.17	1086431	12.85	911330	17.80
	SAMPLE NO.						
01	VBLK01	483448	11.68	1948900	13.36	1656717	18.30
02	9785740V	499713	11.68	1944023	13.36	1678762	18.31
03	9785739V	511681	11.68	1970229	13.37	1716908	18.31
04	9785731V	511342	11.69	1949425	13.37	1671534	18.31
05	9785732V	501975	11.69	1945762	13.37	1659894	18.31
06	9785733V	495004	11.69	1959512	13.37	1677060	18.31
07	9785734V	501602	11.69	1944151	13.37	1668502	18.31
08	9785735V	490418	11.71	1900246	13.38	1632687	18.32
09	9785736V	482333	11.69	1966797	13.37	1648831	18.31
10	9785737V	486437	11.69	1915847	13.37	1646473	18.31
11	9785738V	491016	11.70	1911849	13.37	1628123	18.31
12	9785741MS	469402	11.69	1870912	13.37	1557973	18.31
13	9785741V	410981	11.68	1527573	13.36	1327560	18.31
14	9785741MSD	472042	11.69	1910829	13.37	1600941	18.32
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (BCM) = Bromochloromethane
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785731V

MW-2

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785731V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9736.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785731V

MW-2

148

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785731V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9736.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785731V
MW2-2

L40

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785731V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9736.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
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27.				
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29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data\c9736.d
Acq On : 20 Nov 97 7:43 pm
Sample : 9785731
Misc : 5 ML
Quant Time: Nov 21 11:23 1997

Vial: 7
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.69	130	511342	30.00	ug/l	0.02
26) 1,4-Difluorobenzene	13.37	114	1949425	30.00	ug/l	0.02
41) Chlorobenzene-d5	18.31	117	1671534	30.00	ug/l	0.01
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	12.70	65	777223	32.76	ug/l	109.20%
33) Toluene-d8	15.78	98	1857393	30.25	ug/l	100.85%
49) 4-Bromofluorobenzene	20.39	95	1275166	30.01	ug/l	100.02%
Target Compounds						Qvalue

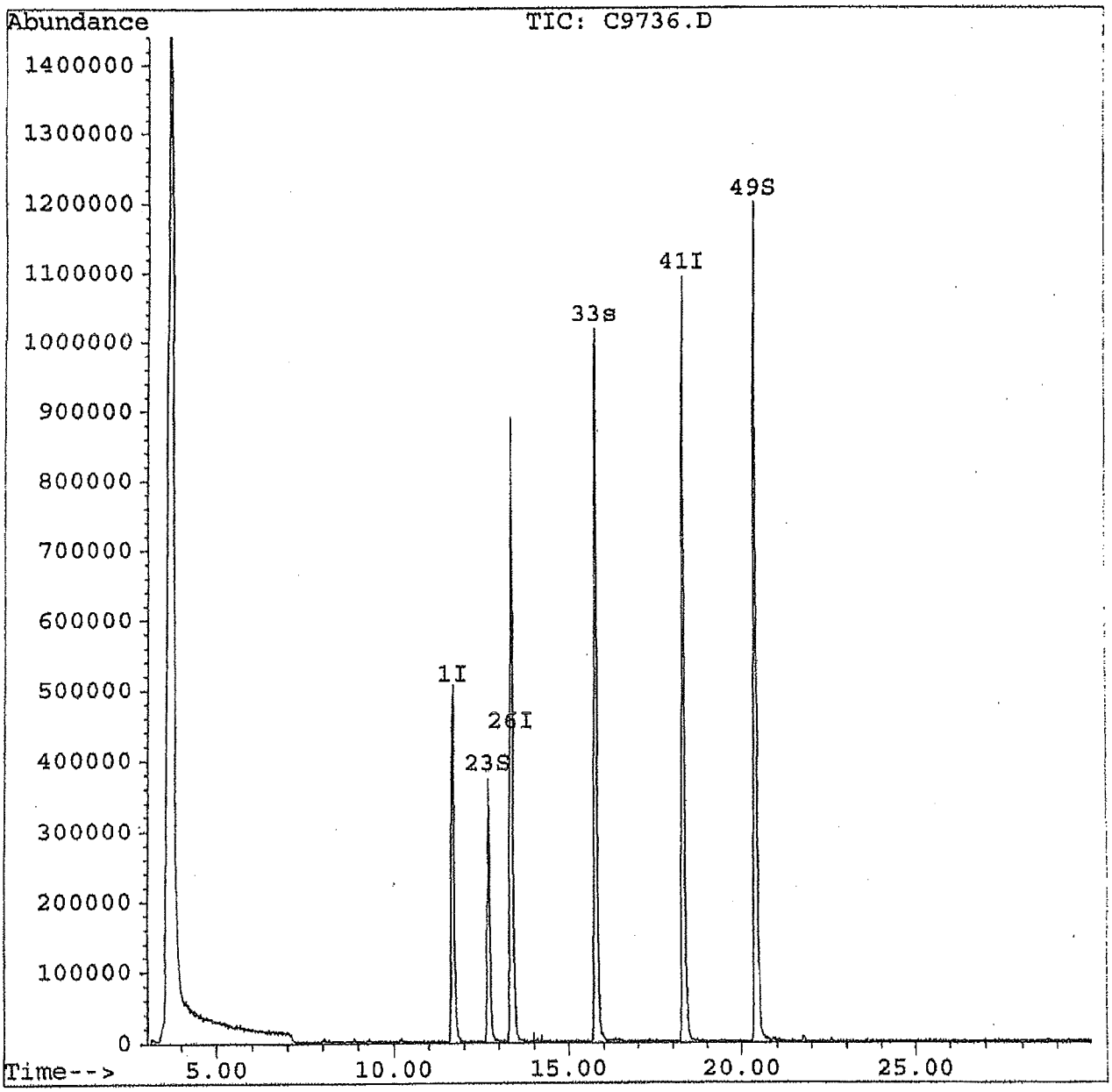
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9736.d
Acq On : 20 Nov 97 7:43 pm
Sample : 9785731
Misc : 5 ML
Quant Time: Nov 21 11:23 1997

Vial: 7
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



Library Search Compound Report

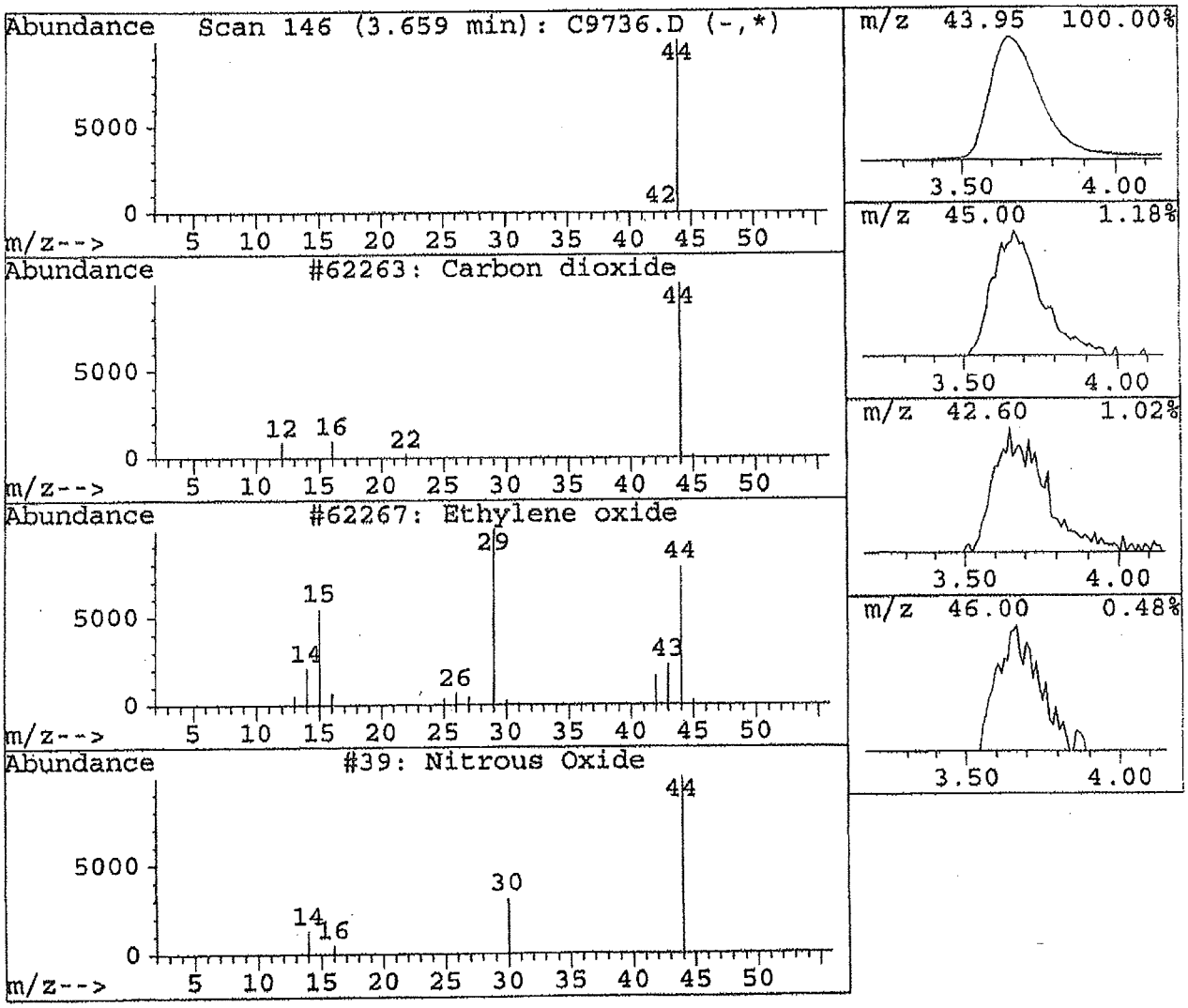
Data File : c:\hpchem\1\data\c9736.d
Acq On : 20 Nov 97 7:43 pm
Sample : 9785731
Misc : 5 ML

Vial: 7 152
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.66	228.99 ug/l	20838204	Bromochloromethane	11.69

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	39	010024-97-2	3
4	Acetaldehyde	62265	000075-07-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



Library Search Compound Report

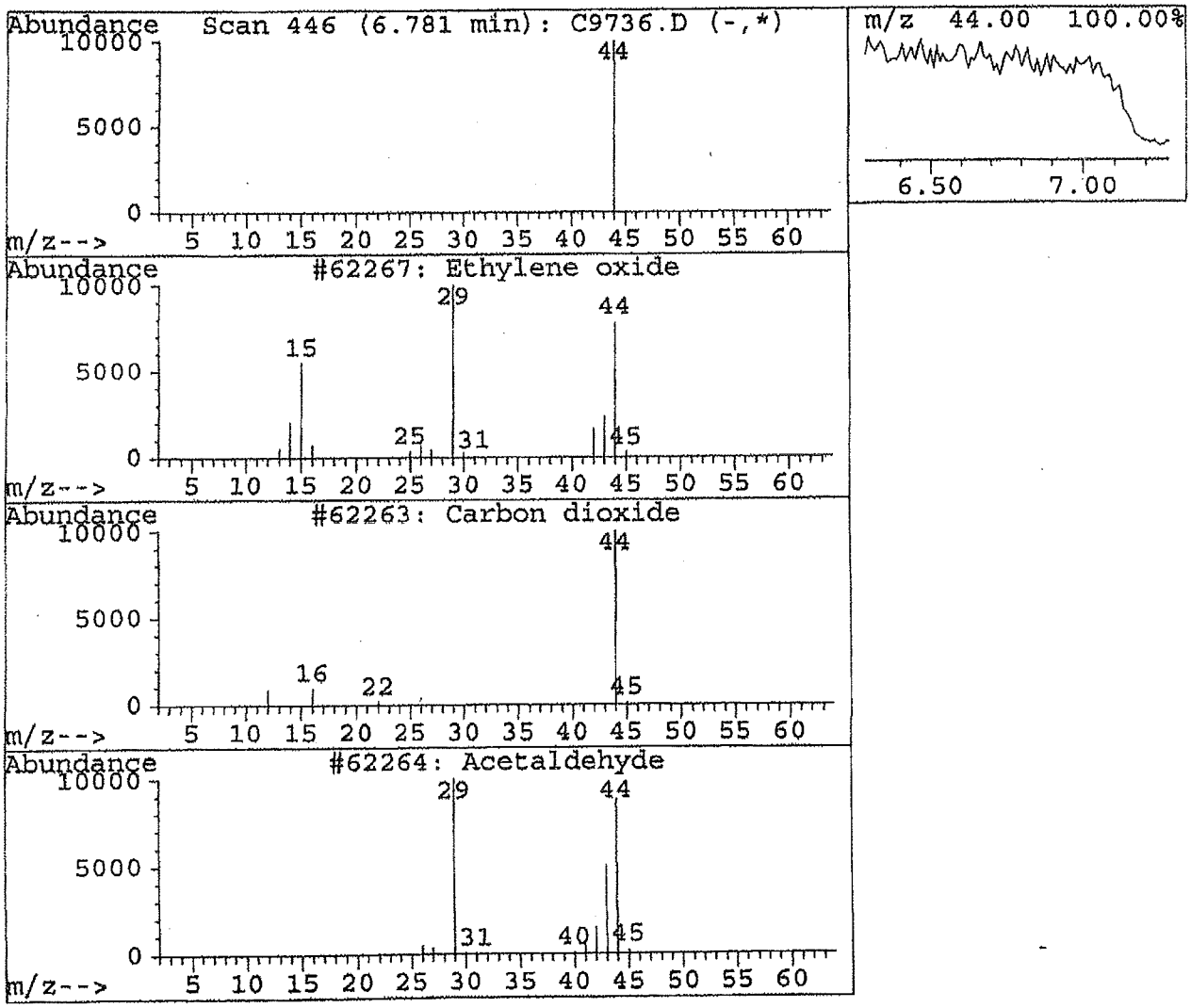
Data File : c:\hpchem\1\data\c9736.d
Acq On : 20 Nov 97 7:43 pm
Sample : 9785731
Misc : 5 ML

Vial: 7
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
6.78	3.28 ug/l	298051	Bromochloromethane	11.69

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Ethylene oxide	62267	000075-21-8	2
2	Carbon dioxide	62263	000124-38-9	2
3	Acetaldehyde	62264	000075-07-0	2
4	Nitrous Oxide	62270	010024-97-2	2
5	Ethyne, fluoro-	35	002713-09-9	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785732V

MW-3

154

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785732V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9737.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785732V
MW-3

155

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785732V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9737.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9785732V MS-3

150

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785732V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9737.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units:
(ug/L or ug/Kg) ug/L

Number TICs found: 0

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
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Quantitation Report

Data File : c:\hpchem\1\data\c9737.d
Acq On : 20 Nov 97 8:19 pm
Sample : 9785732
Misc : 5 ML
Quant Time: Nov 21 11:24 1997

Vial: 8
Operator: SRK
Inst : 5972 In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.69	130	501975	30.00	ug/l	0.02
26) 1,4-Difluorobenzene	13.37	114	1945762	30.00	ug/l	0.02
41) Chlorobenzene-d5	18.31	117	1659894	30.00	ug/l	0.01
System Monitoring Compounds						**%Recovery**
23) 1,2-Dichloroethane-d4	12.71	65	754694	32.40	ug/l	108.01%
33) Toluene-d8	15.78	98	1870228	30.52	ug/l	101.74%
49) 4-Bromofluorobenzene	20.40	95	1259513	29.85	ug/l	99.48%
Target Compounds						**Qvalue**

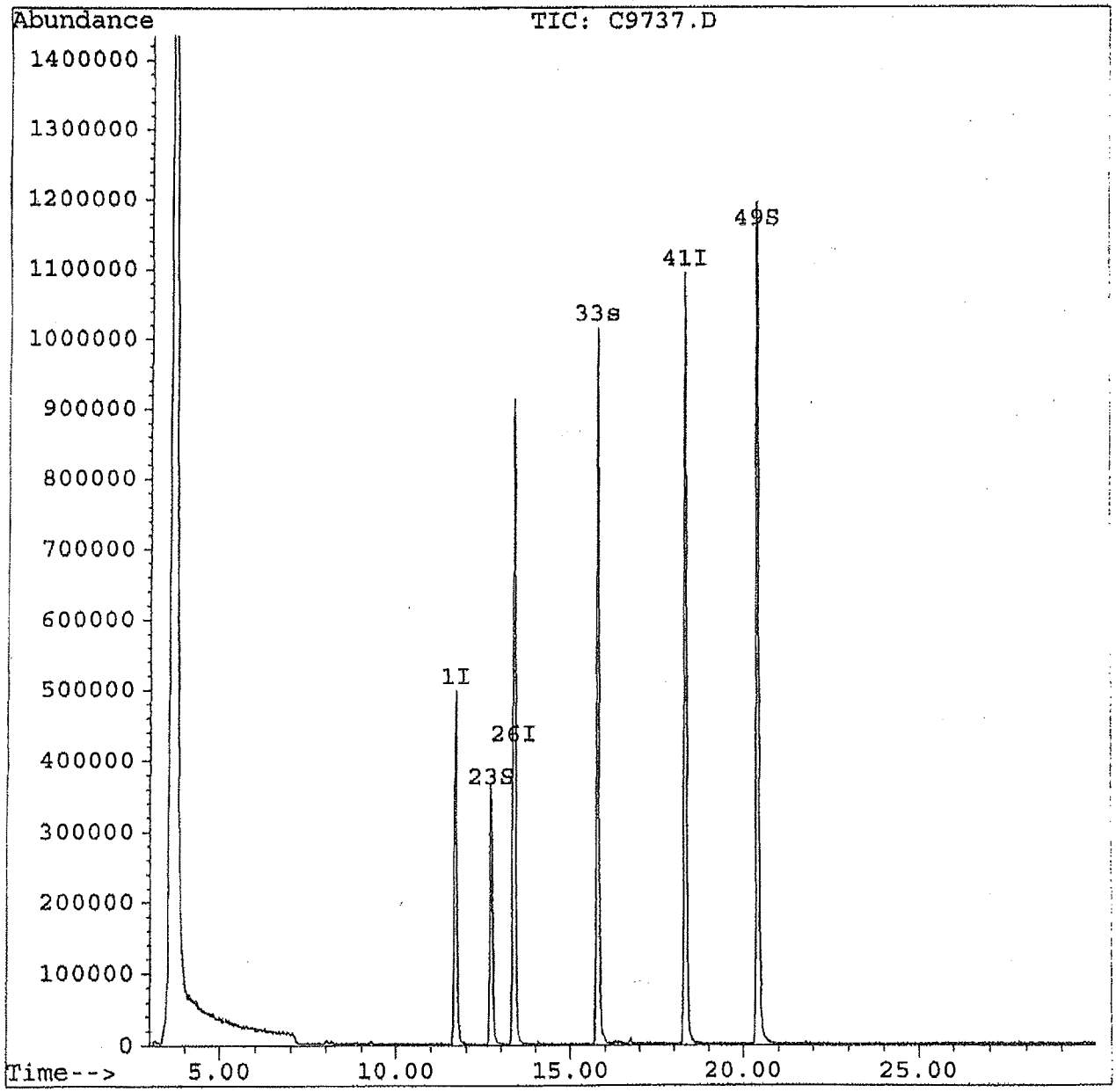
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9737.d
Acq On : 20 Nov 97 8:19 pm
Sample : 9785732
Misc : 5 ML
Quant Time: Nov 21 11:24 1997

Vial: 8
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



Library Search Compound Report

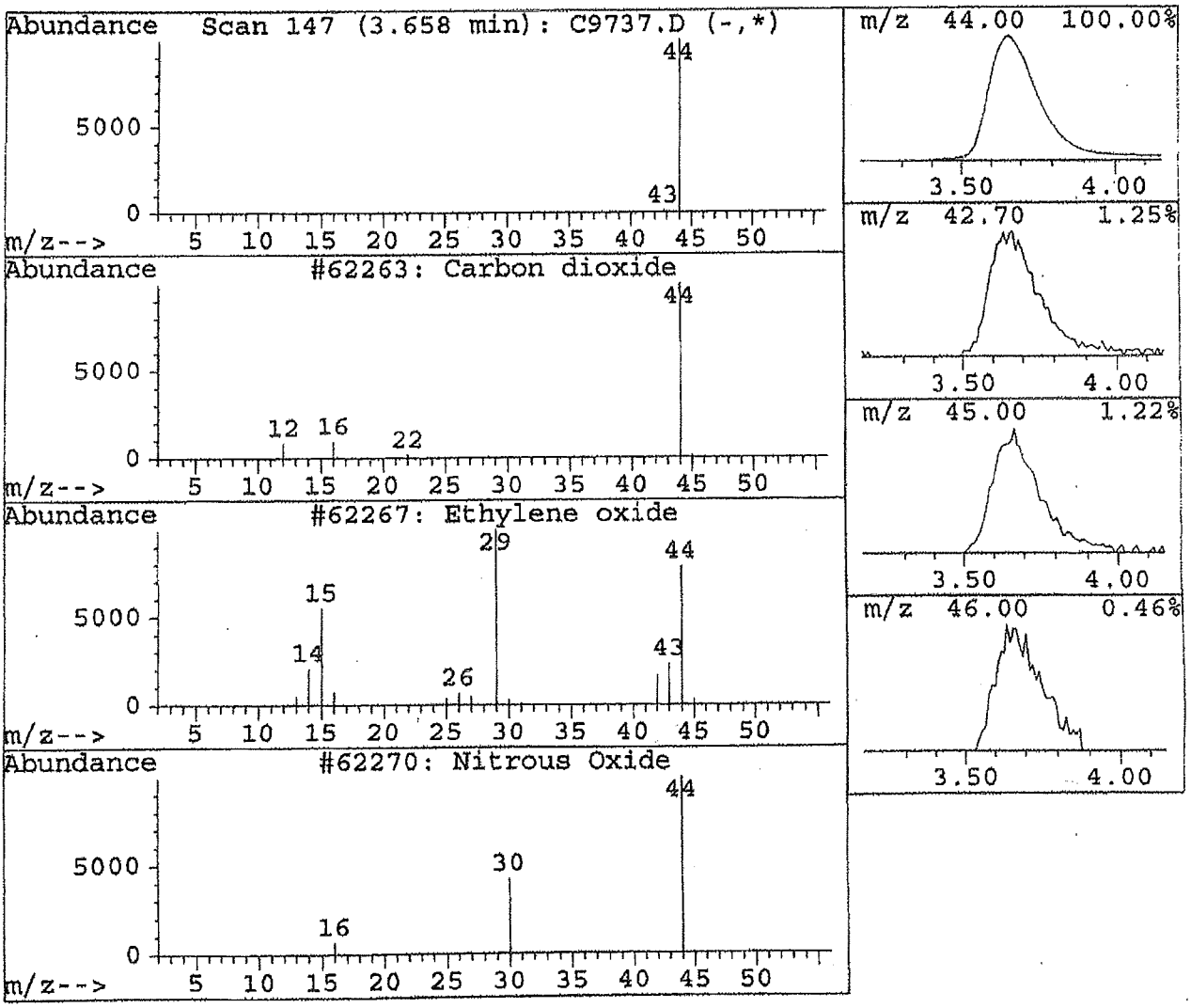
Data File : c:\hpchem\1\data\c9737.d
Acq On : 20 Nov 97 8:19 pm
Sample : 9785732
Misc : 5 ML

Vial: 8 159
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.66	296.97 ug/l	26534633	Bromochloromethane	11.69

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Ethylene oxide	62267	000075-21-8	3
3	Nitrous Oxide	62270	010024-97-2	3
4	Cyclopropane, 1,1-dibromo-2-chloro-	33732	024071-57-6	2
5	Acetaldehyde	62265	000075-07-0	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785733V

MW-5

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785733V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9738.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785733V

MW-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____ 161

Matrix: (soil/water) WATER Lab Sample ID: 9785733V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9738.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

SAMPLE NO. 162

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

9785733V
MW-5

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785733V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9738.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
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Quantitation Report

Data File : c:\hpchem\1\data\c9738.d
Acq On : 20 Nov 97 8:56 pm
Sample : 9785733
Misc : 5 ML
Quant Time: Nov 21 11:24 1997

Vial: 9 163
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.69	130	495004	30.00	ug/l	0.02
26) 1,4-Difluorobenzene	13.37	114	1959512	30.00	ug/l	0.02
41) Chlorobenzene-d5	18.31	117	1677060	30.00	ug/l	0.01
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	12.70	65	758892	33.04	ug/l	110.14%
33) Toluene-d8	15.78	98	1878737	30.44	ug/l	101.48%
49) 4-Bromofluorobenzene	20.39	95	1286246	30.17	ug/l	100.56%
Target Compounds						Qvalue

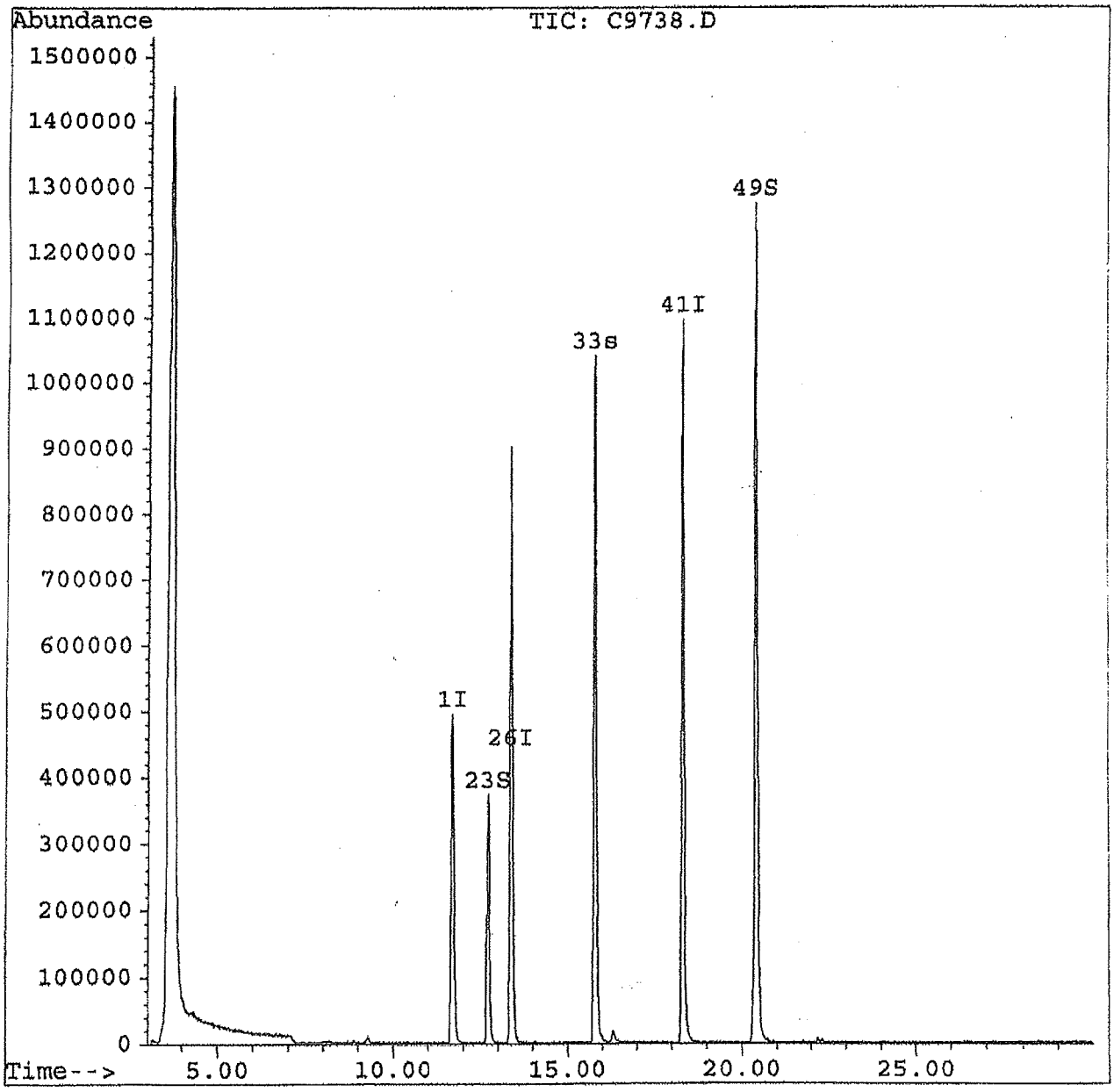
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9738.d
Acq On : 20 Nov 97 8:56 pm
Sample : 9785733
Misc : 5 ML
Quant Time: Nov 21 11:24 1997

Vial: 9
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



Library Search Compound Report

165

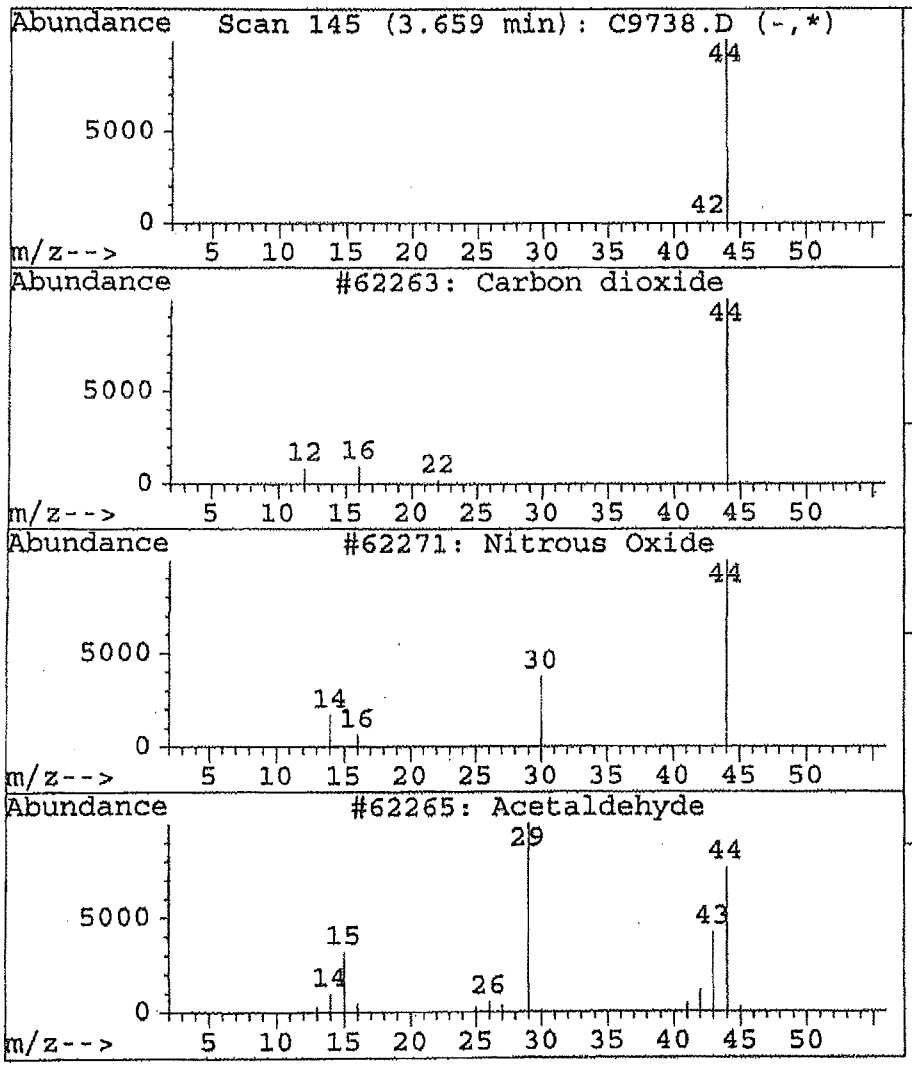
Data File : c:\hpchem\1\data\c9738.d
Acq On : 20 Nov 97 8:56 pm
Sample : 9785733
Misc : 5 ML

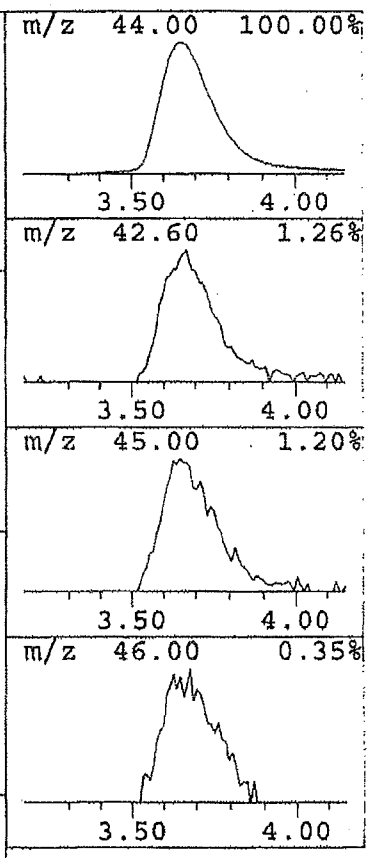
Vial: 9
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.66	215.88 ug/l	19481862	Bromochloromethane	11.69

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	62271	010024-97-2	3
3	Acetaldehyde	62265	000075-07-0	2
4	Ethyne, fluoro-	35	002713-09-9	2
5	Ethylene oxide	62267	000075-21-8	2





1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785734V

MW-6

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785734V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9739.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
9785734V
MW-6

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785734V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9739.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units:
(ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	8	
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785734V
MW-6 163

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785734V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9739.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
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Quantitation Report

Data File : c:\hpchem\1\data\c9739.d
Acq On : 20 Nov 97 9:32 pm
Sample : 9785734
Misc : 5 ML
Quant Time: Nov 21 11:25 1997

Vial: 10
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

160

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.69	130	501602	30.00	ug/l	0.02
26) 1,4-Difluorobenzene	13.37	114	1944151	30.00	ug/l	0.02
41) Chlorobenzene-d5	18.31	117	1668502	30.00	ug/l	0.01
System Monitoring Compounds						**%Recovery**
23) 1,2-Dichloroethane-d4	12.70	65	755126	32.45	ug/l	108.15%
33) Toluene-d8	15.79	98	1889053	30.85	ug/l	102.85%
49) 4-Bromofluorobenzene	20.39	95	1271661	29.98	ug/l	99.93%
Target Compounds						**Qvalue**
15) Methyl-tert butyl ether	9.29	73	331846	7.62	ug/l	95

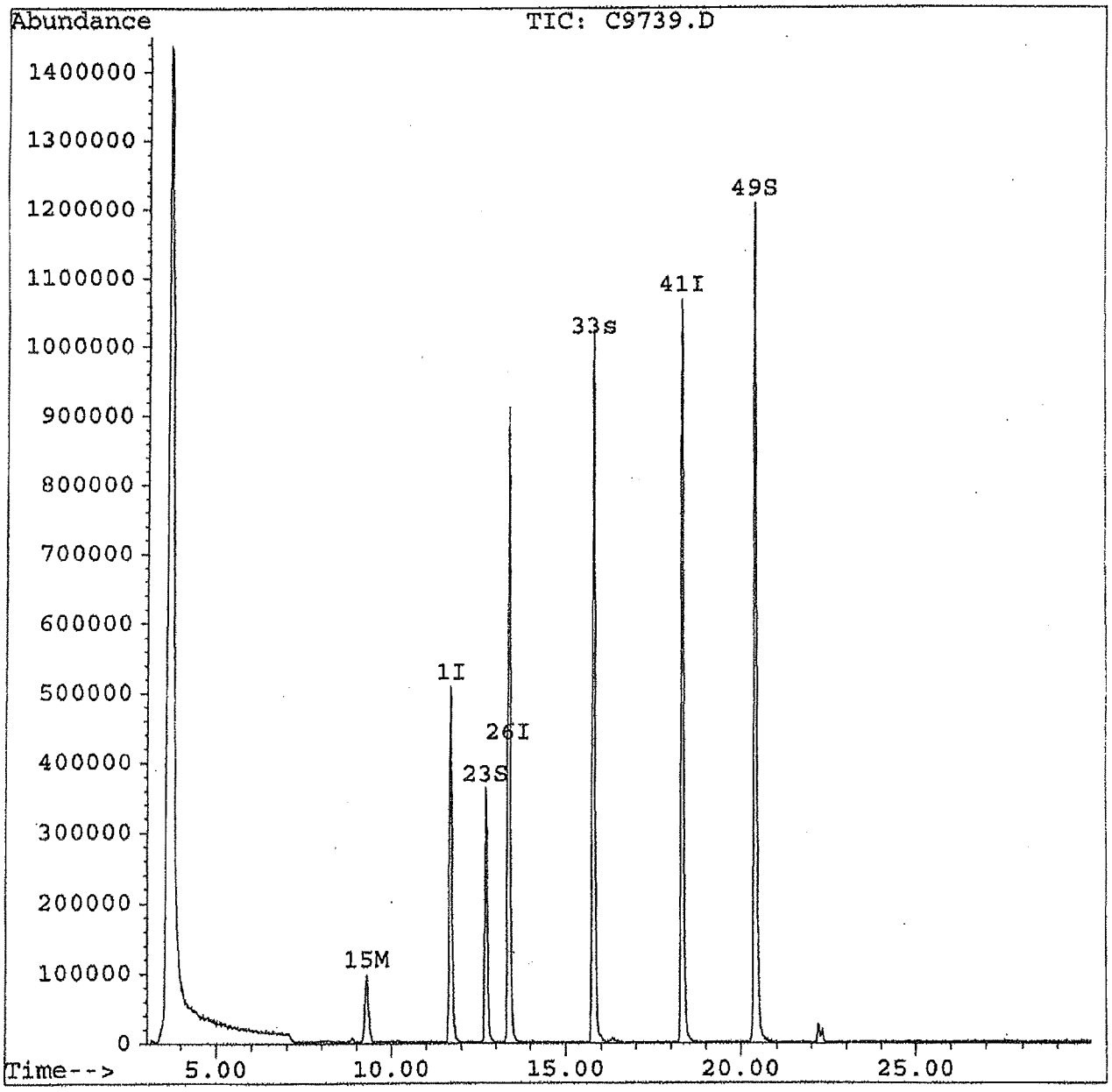
(#) = qualifier out of range (m) = manual integration

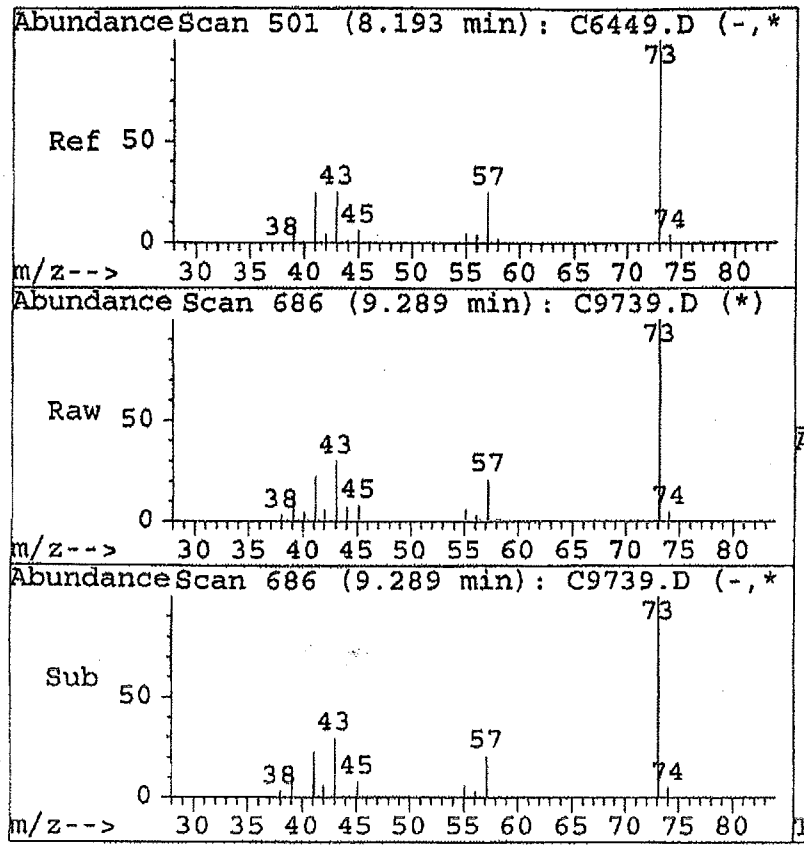
Quantitation Report

Data File : c:\hpchem\1\data\c9739.d
Acq On : 20 Nov 97 9:32 pm
Sample : 9785734
Misc : 5 ML
Quant Time: Nov 21 11:25 1997

Vial: 10
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

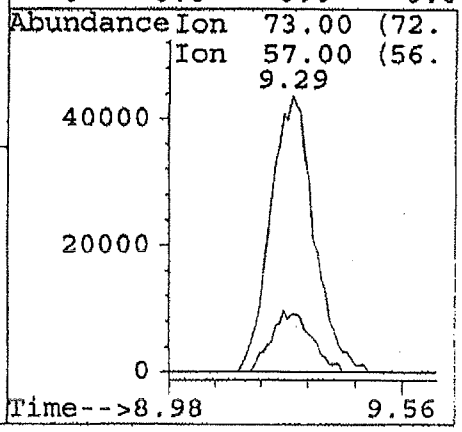




#15
Methyl-tert butyl ether
Concen: 7.62 ug/l
RT: 9.29 min Scan# 686
Delta R.T. 0.04 min
Lab File: c9739.d
Acq: 20 Nov 97 9:32 pm

Tgt Ion:73 Resp: 331846

Ion	Ratio	Lower	Upper
73	100		
57	20.9	3.4	43.4
0	0.0	0.0	0.0
0	0.0	0.0	0.0



1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9785736V
MW-8

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785736V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9741.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units:

Number TICs found: 0 (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
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7.				
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Quantitation Report

Data File : c:\hpchem\1\data\c9741.d
Acq On : 20 Nov 97 10:45 pm
Sample : 9785736
Misc : 5 ML
Quant Time: Nov 21 11:26 1997

Vial: 12
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.69	130	482333	30.00	ug/l	0.02
26) 1,4-Difluorobenzene	13.37	114	1966797	30.00	ug/l	0.02
41) Chlorobenzene-d5	18.31	117	1648831	30.00	ug/l	0.01
System Monitoring Compounds						**%Recovery**
23) 1,2-Dichloroethane-d4	12.70	65	717575	32.06	ug/l	106.88%
33) Toluene-d8	15.78	98	1845427	29.79	ug/l	99.31%
49) 4-Bromofluorobenzene	20.39	95	1252166	29.87	ug/l	99.57%
Target Compounds						**Qvalue**
17) 1,1-Dichloroethane	10.20	63	75413	2.43	ug/l	90

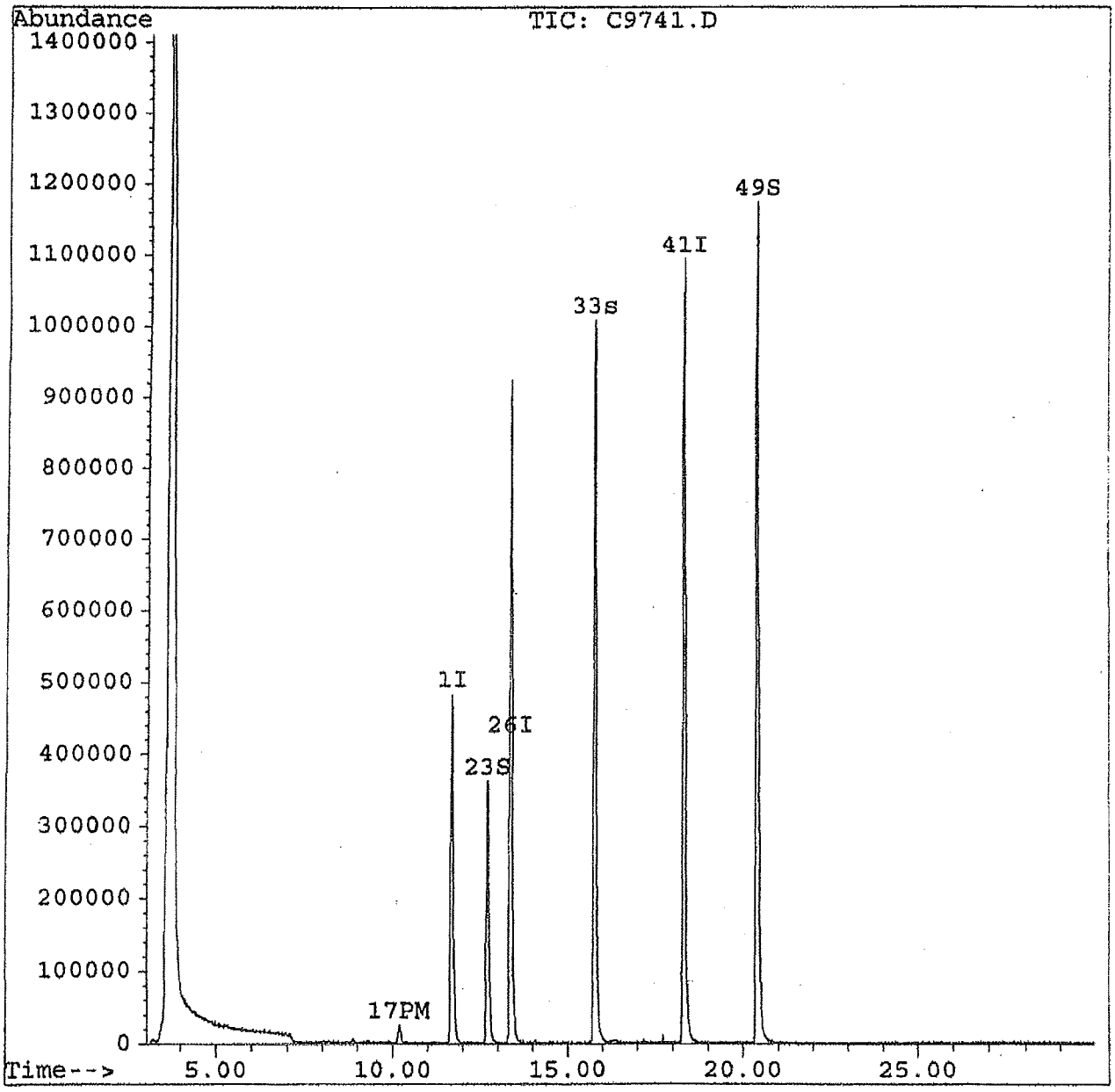
(#) = qualifier out of range (m) = manual integration

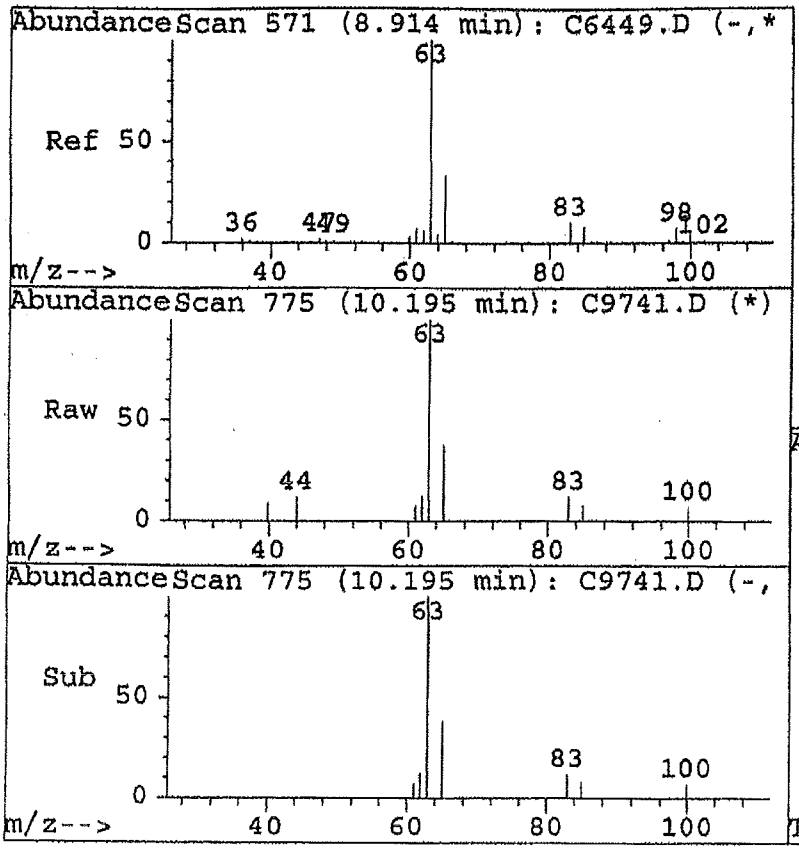
Quantitation Report

Data File : c:\hpchem\1\data\c9741.d
Acq On : 20 Nov 97 10:45 pm
Sample : 9785736
Misc : 5 ML
Quant Time: Nov 21 11:26 1997

Vial: 12
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

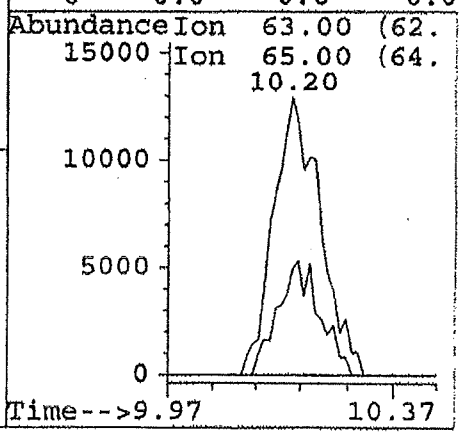




#17
1,1-Dichloroethane
Concen: 2.43 ug/l
RT: 10.20 min Scan# 775
Delta R.T. 0.02 min
Lab File: c9741.d
Acq: 20 Nov 97 10:45 pm

Tgt Ion:63 Resp: 75413

Ion	Ratio	Lower	Upper
63	100		
65	38.3	12.7	52.7
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

180

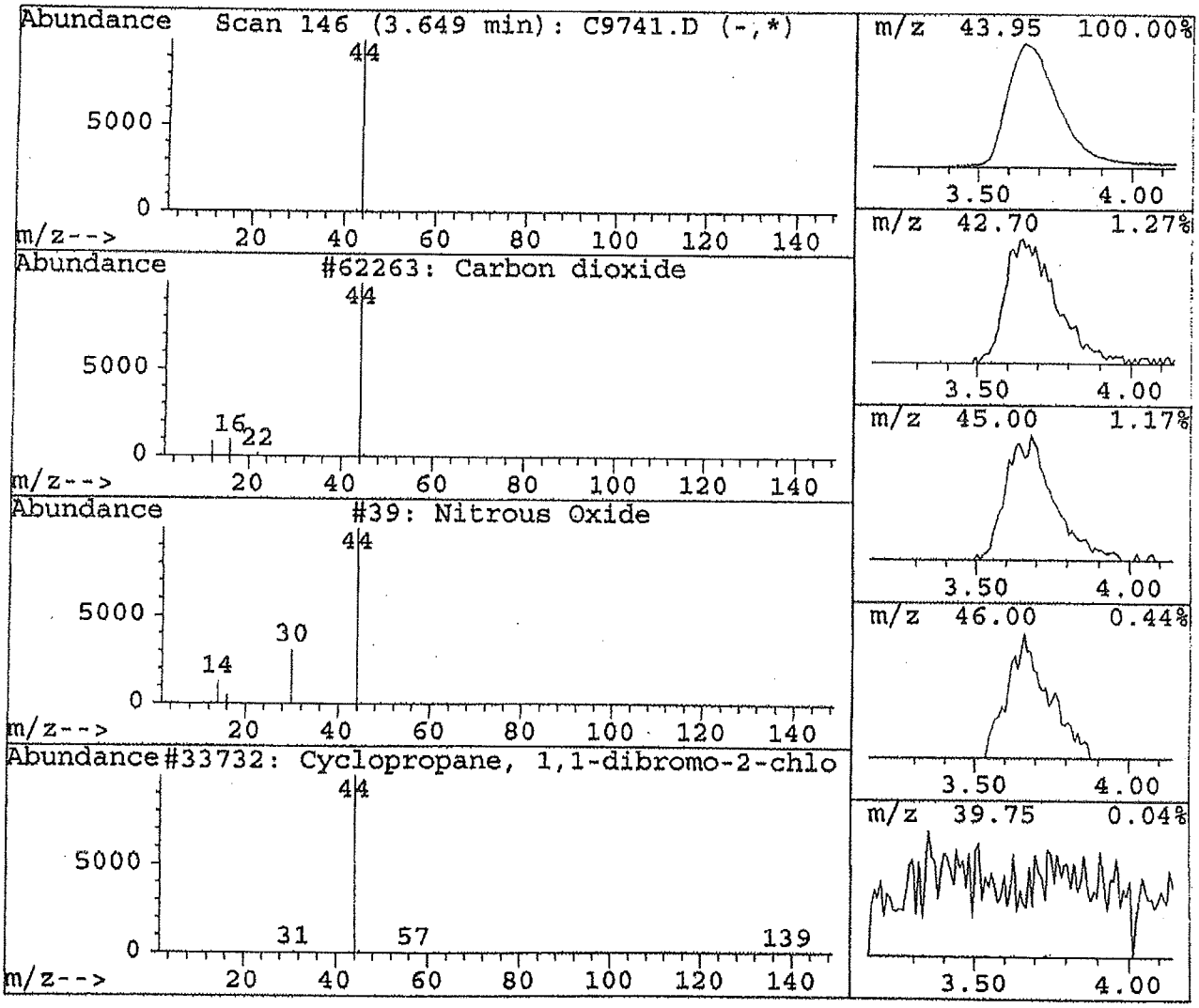
Data File : c:\hpchem\1\data\c9741.d
Acq On : 20 Nov 97 10:45 pm
Sample : 9785736
Misc : 5 ML

Vial: 12
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.65	264.80 ug/l	22930665	Bromochloromethane	11.69

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	39	010024-97-2	3
3	Cyclopropane, 1,1-dibromo-2-chloro-	33732	024071-57-6	2
4	Carbamic acid, monoammonium salt	391	001111-78-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785737V

MW-9

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785737V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9742.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785737V

mu1-9

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785737V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9742.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units:

CAS No.	Compound	(ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

SAMPLE NO.

9785737V
MW2-9

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

180

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785737V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9742.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
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Quantitation Report

Data File : c:\hpchem\1\data\c9742.d
Acq On : 20 Nov 97 11:21 pm
Sample : 9785737
Misc : 5 ML
Quant Time: Nov 21 11:26 1997

Vial: 13
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.69	130	486437	30.00	ug/l	0.02
26) 1,4-Difluorobenzene	13.37	114	1915847	30.00	ug/l	0.02
41) Chlorobenzene-d5	18.31	117	1646473	30.00	ug/l	0.01
System Monitoring Compounds						**%Recovery**
23) 1,2-Dichloroethane-d4	12.71	65	710596	31.48	ug/l	104.95%
33) Toluene-d8	15.78	98	1849742	30.66	ug/l	102.19%
49) 4-Bromofluorobenzene	20.40	95	1246705	29.78	ug/l	99.28%

Target Compounds Qvalue

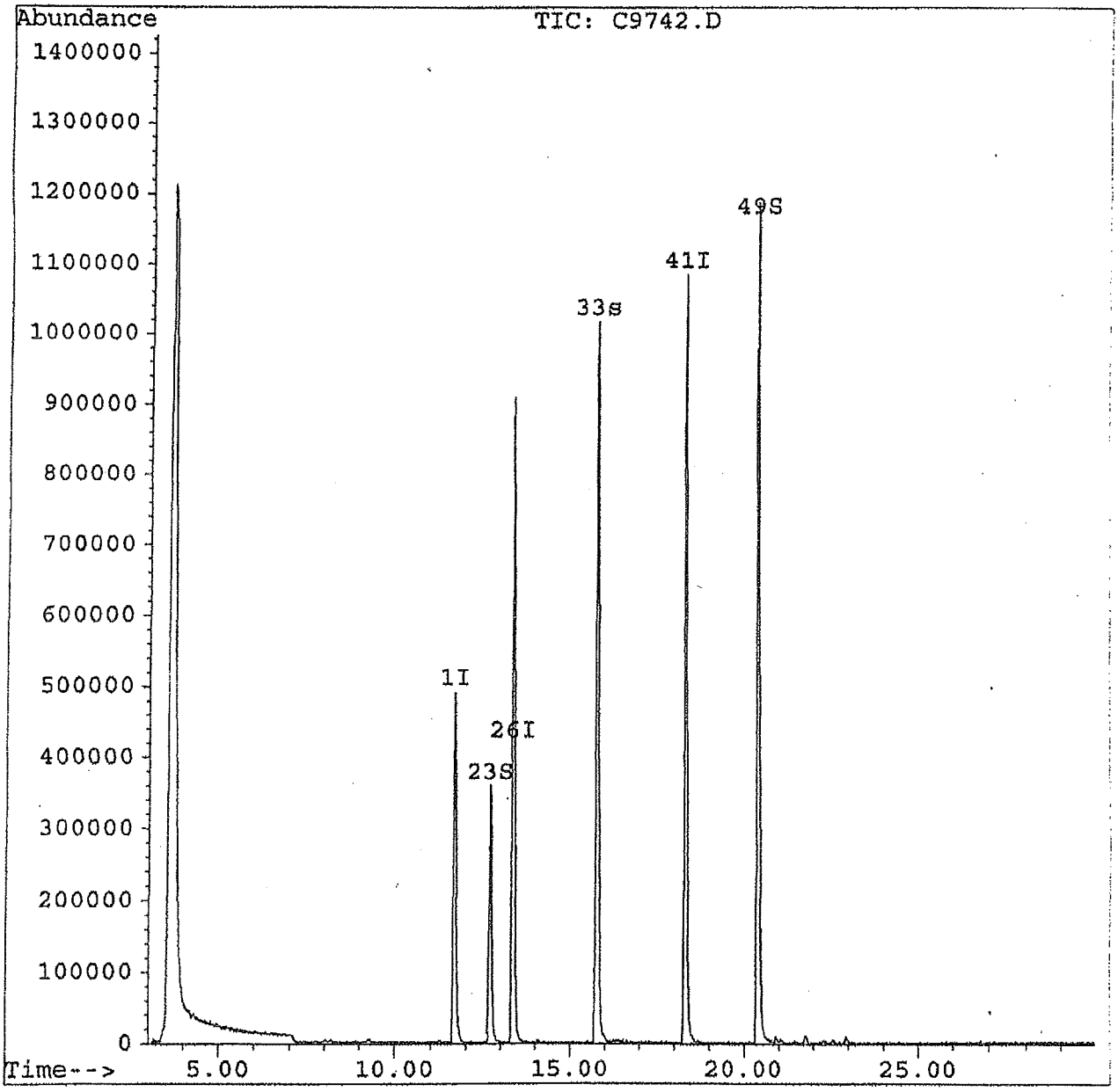
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9742.d
Acq On : 20 Nov 97 11:21 pm
Sample : 9785737
Misc : 5 ML
Quant Time: Nov 21 11:26 1997

Vial: 13
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



Library Search Compound Report

192

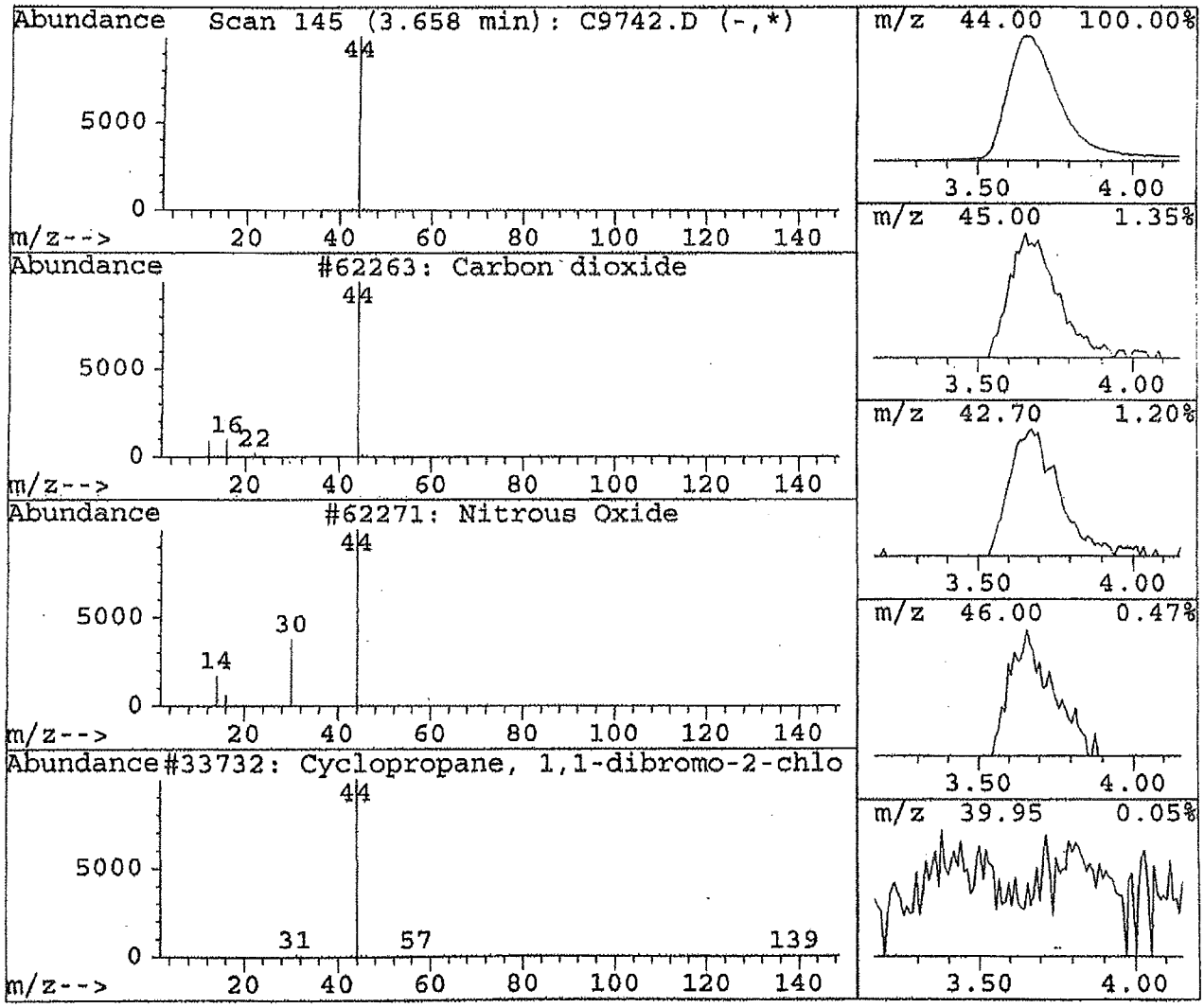
Data File : c:\hpchem\1\data\c9742.d
Acq On : 20 Nov 97 11:21 pm
Sample : 9785737
Misc : 5 ML

Vial: 13
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.66	182.12 ug/l	15965112	Bromochloromethane	11.69

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	62271	010024-97-2	3
3	Cyclopropane, 1,1-dibromo-2-chloro-	33732	024071-57-6	2
4	Acetaldehyde	36	000075-07-0	2
5	Carbamic acid, monoammonium salt	391	001111-78-0	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785738V 190

MW-94

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785738V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9743.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785738V

MW-9A

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785738V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9743.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

9785738V
MW-9A

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785738V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9743.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data\c9743.d
Acq On : 20 Nov 97 11:57 pm
Sample : 9785738
Misc : 5 ML
Quant Time: Nov 21 11:27 1997

Vial: 14 193
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.70	130	491016	30.00	ug/l	0.03
26) 1,4-Difluorobenzene	13.37	114	1911849	30.00	ug/l	0.02
41) Chlorobenzene-d5	18.31	117	1628123	30.00	ug/l	0.01
System Monitoring Compounds						**%Recovery**
23) 1,2-Dichloroethane-d4	12.71	65	750793	32.96	ug/l	109.85%
33) Toluene-d8	15.79	98	1827234	30.35	ug/l	101.16%
49) 4-Bromofluorobenzene	20.39	95	1251375	30.23	ug/l	100.77%
Target Compounds						**Qvalue**

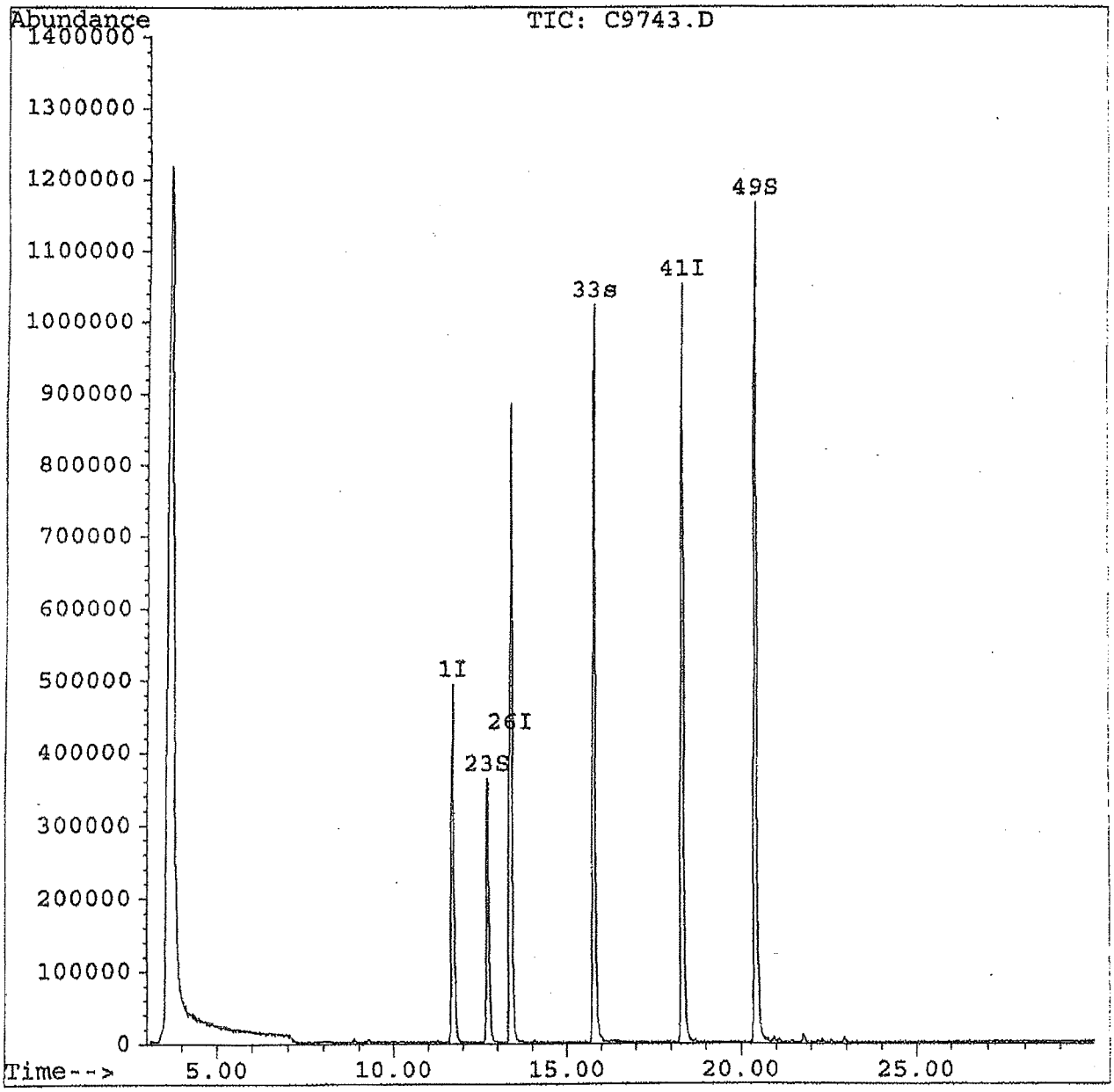
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9743.d
Acq On : 20 Nov 97 11:57 pm
Sample : 9785738
Misc : 5 ML
Quant Time: Nov 21 11:27 1997

Vial: 14
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



Library Search Compound Report

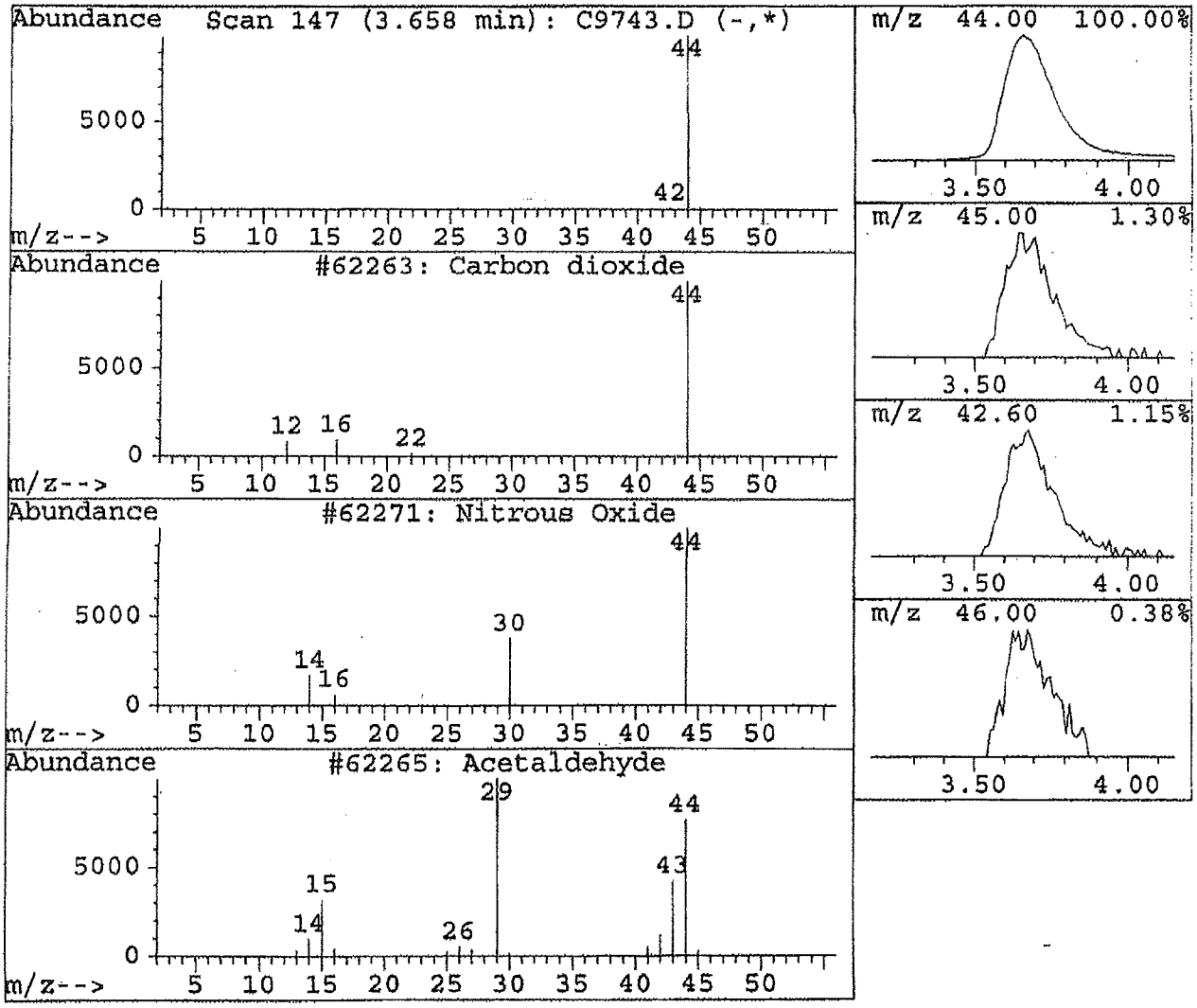
Data File : c:\hpchem\1\data\c9743.d
Acq On : 20 Nov 97 11:57 pm
Sample : 9785738
Misc : 5 ML

Vial: 14
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.66	183.90 ug/l	16196428	Bromochloromethane	11.70

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	62271	010024-97-2	3
3	Acetaldehyde	62265	000075-07-0	2
4	Ethyne, fluoro-	35	002713-09-9	2
5	Ethylene oxide	62267	000075-21-8	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785739V
Field Blank

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785739V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9735.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	10	
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785739V FB

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785739V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9735.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. 9785739V FB

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785739V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9735.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data\c9735.d
Acq On : 20 Nov 97 7:06 pm
Sample : 9785739 FB
Misc : 5 ML
Quant Time: Nov 21 11:23 1997

Vial: 6
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.68	130	511681	30.00	ug/l	0.01
26) 1,4-Difluorobenzene	13.37	114	1970229	30.00	ug/l	0.02
41) Chlorobenzene-d5	18.31	117	1716908	30.00	ug/l	0.01
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	12.70	65	763554	32.16	ug/l	107.21%
33) Toluene-d8	15.78	98	1905660	30.71	ug/l	102.38%
49) 4-Bromofluorobenzene	20.39	95	1317576	30.18	ug/l	100.61%
Target Compounds						Qvalue
12) Methylene chloride	8.87	49	230558	9.70	ug/l	98

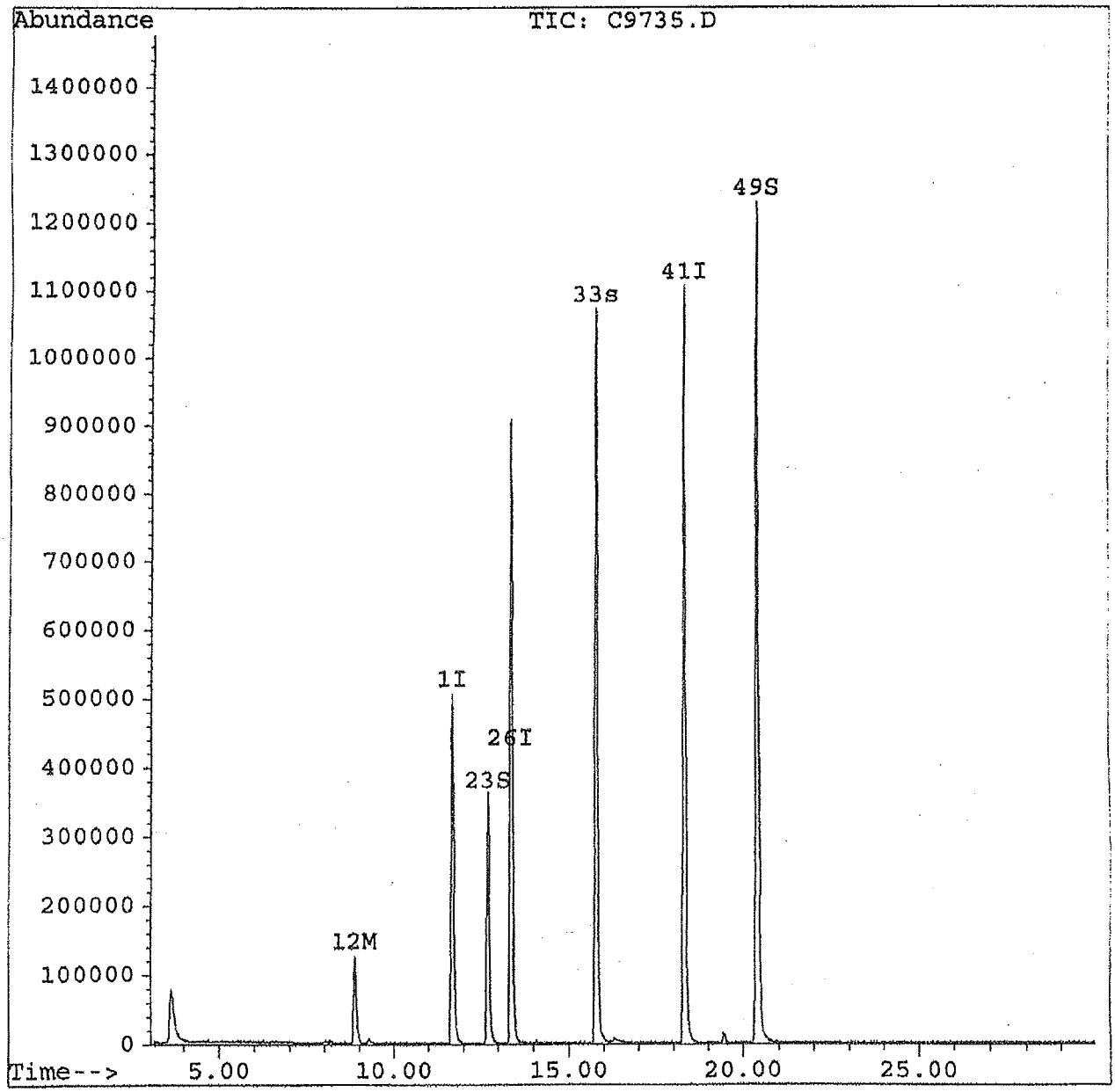
(#) = qualifier out of range (m) = manual integration

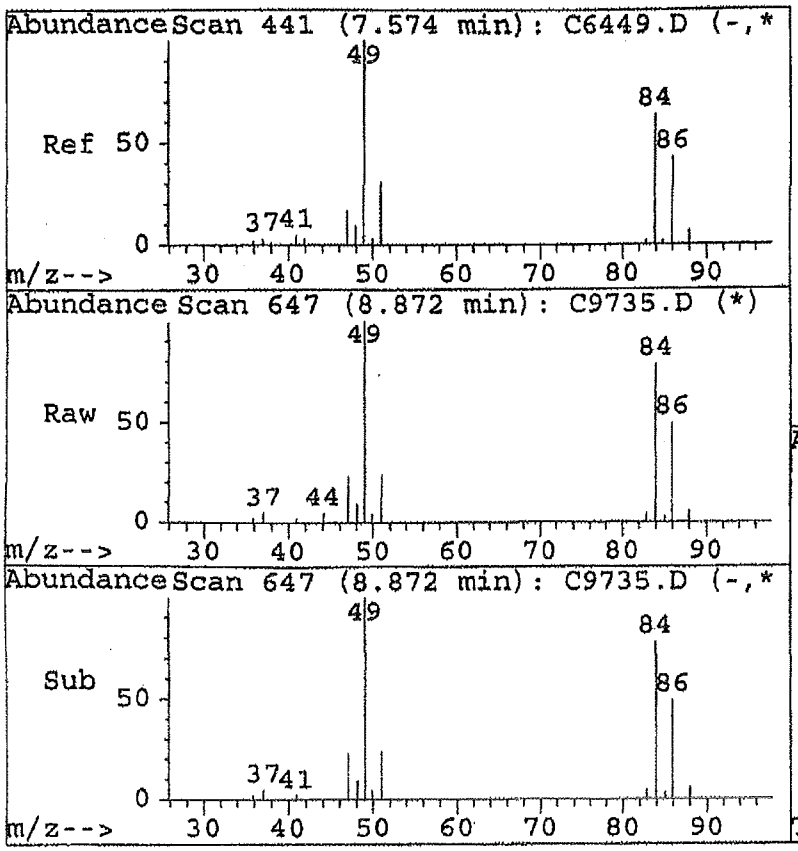
Quantitation Report

Data File : c:\hpchem\1\data\c9735.d
Acq On : 20 Nov 97 7:06 pm
Sample : 9785739 FB
Misc : 5 ML
Quant Time: Nov 21 11:23 1997

Vial: 6
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

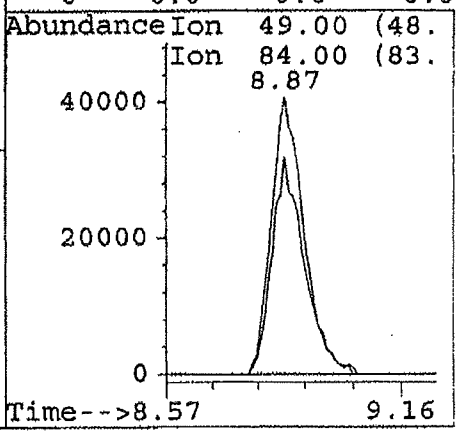




#12
Methylene chloride
Concen: 9.70 ug/l
RT: 8.87 min Scan# 647
Delta R.T. 0.02 min
Lab File: c9735.d
Acq: 20 Nov 97 7:06 pm

Tgt Ion:49 Resp: 230558

Ion	Ratio	Lower	Upper
49	100		
84	78.3	31.5	121.5
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

235

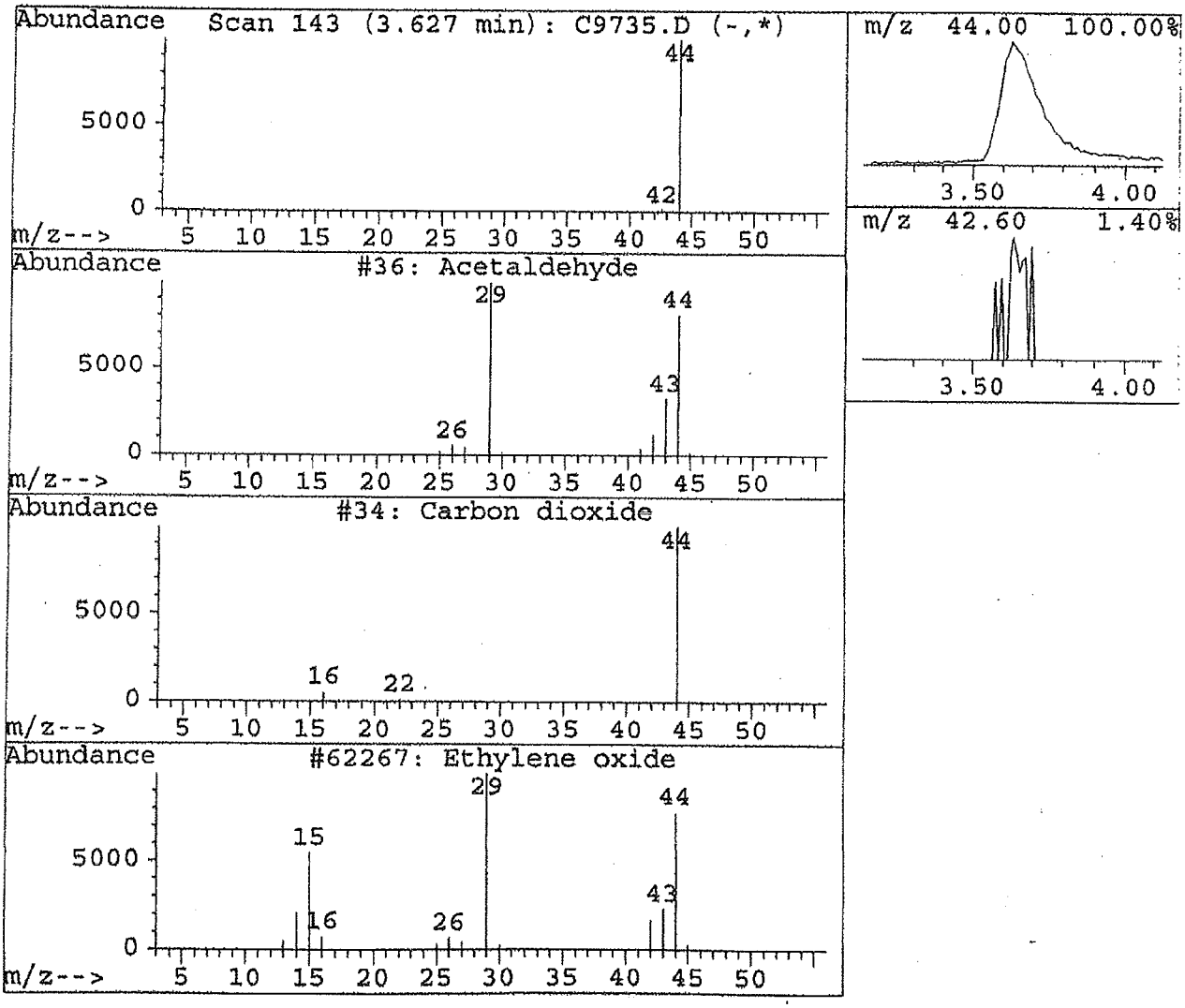
Data File : c:\hpchem\1\data\c9735.d
Acq On : 20 Nov 97 7:06 pm
Sample : 9785739 FB
Misc : 5 ML

Vial: 6
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.63	9.39 ug/l	856458	Bromochloromethane	11.68

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Acetaldehyde	36	000075-07-0	2
2	Carbon dioxide	34	000124-38-9	2
3	Ethylene oxide	62267	000075-21-8	2
4	Nitrous Oxide	62271	010024-97-2	2
5	Ethyne, fluoro-	35	002713-09-9	2



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785740V

Trip Blank

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785740V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9734.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	10	
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785740V

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785740V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9734.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

SAMPLE NO. 9785740V

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785740V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9734.D

Level: (low/med) Date Received: 11/18/97

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	Unknown	16.30	23	J
2.	Unknown	20.33	50	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
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Quantitation Report

Data File : c:\hpchem\1\data\c9734.d
Acq On : 20 Nov 97 6:30 pm
Sample : 9785740 TB
Misc : 5 ML
Quant Time: Nov 21 11:22 1997

Vial: 5 230
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.68	130	499713	30.00	ug/l	0.01
26) 1,4-Difluorobenzene	13.36	114	1944023	30.00	ug/l	0.01
41) Chlorobenzene-d5	18.31	117	1678762	30.00	ug/l	0.01
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	12.70	65	744958	32.13	ug/l	107.10%
33) Toluene-d8	15.78	98	1872517	30.59	ug/l	101.95%
49) 4-Bromofluorobenzene	20.38	95	1329111	31.14	ug/l	103.80%
Target Compounds						Qvalue
12) Methylene chloride	8.86	49	231024	9.95	ug/l	98

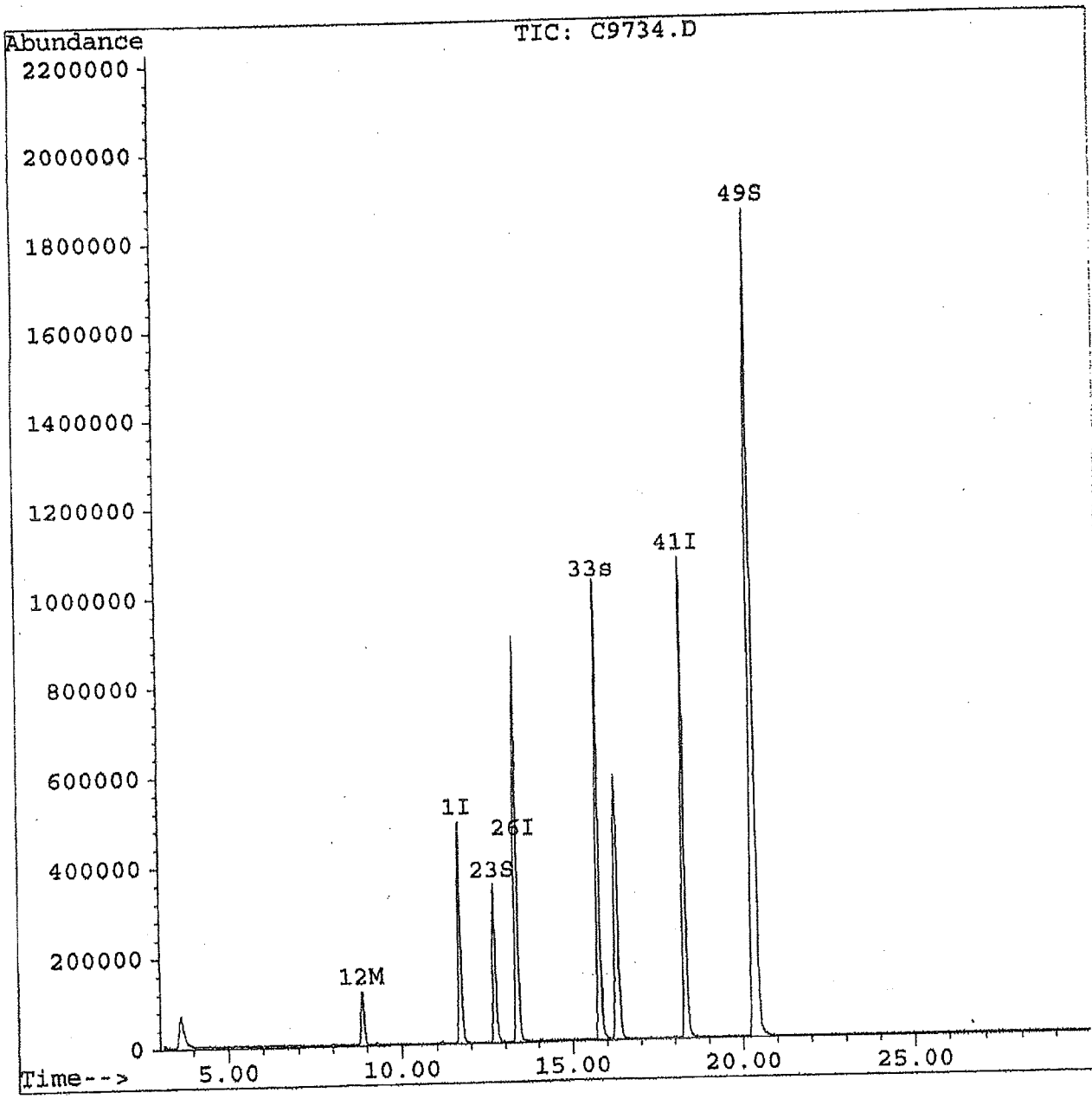
(#) = qualifier out of range (m) = manual integration

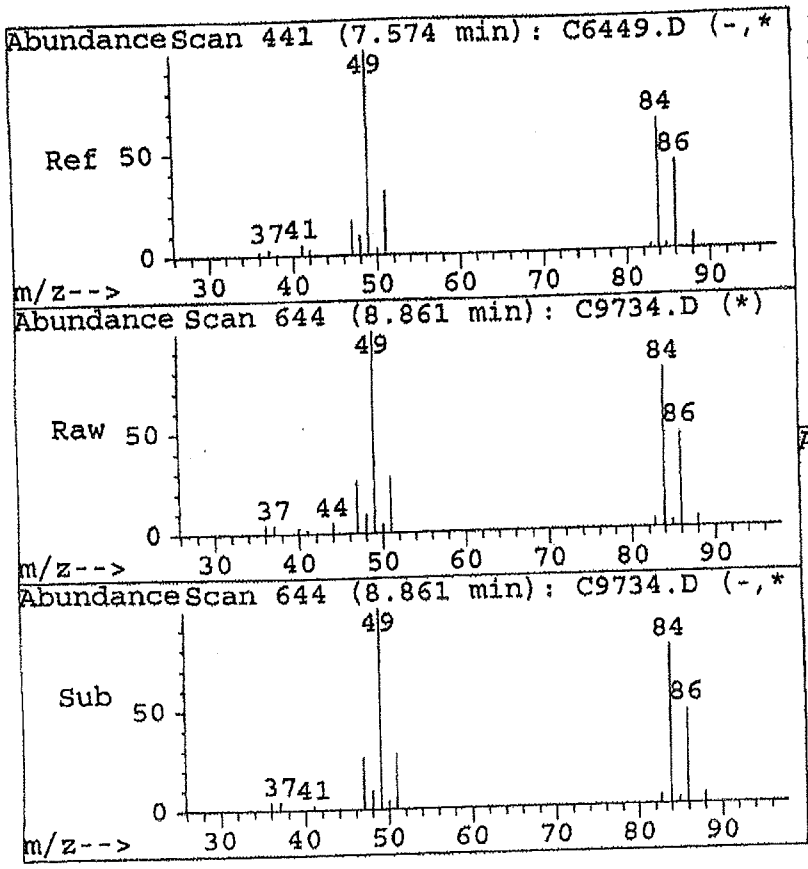
Quantitation Report

Data File : c:\hpchem\1\data\c9734.d
Acq On : 20 Nov 97 6:30 pm
Sample : 9785740 TB
Misc : 5 ML
Quant Time: Nov 21 11:22 1997

Vial: 5
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



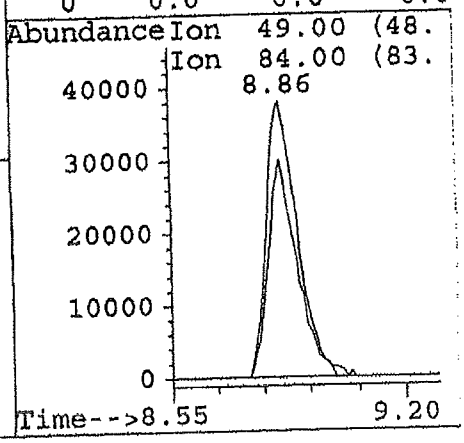


#12
Methylene chloride
Concen: 9.95 ug/l
RT: 8.86 min Scan# 644
Delta R.T. 0.01 min
Lab File: c9734.d
Acq: 20 Nov 97 6:30 pm

211

Tgt Ion:49 Resp: 231024

Ion	Ratio	Lower	Upper
49	100		
84	78.6	31.5	121.5
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

212

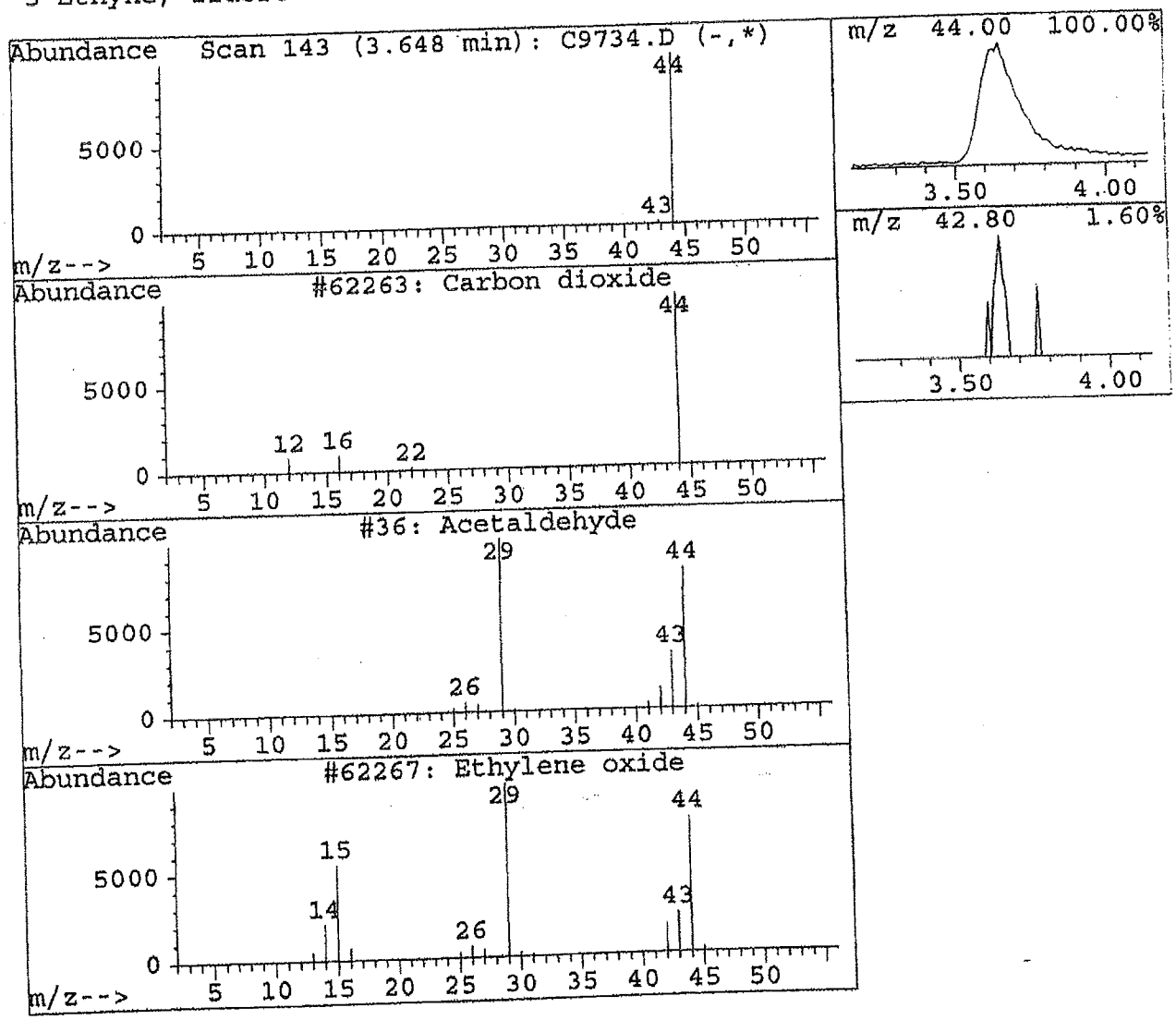
Data File : c:\hpchem\1\data\c9734.d
Acq On : 20 Nov 97 6:30 pm
Sample : 9785740 TB
Misc : 5 ML

Vial: 5
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.65	8.52 ug/l	750405	Bromochloromethane	11.68

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	2
2	Acetaldehyde	36	000075-07-0	2
3	Ethylene oxide	62267	000075-21-8	2
4	Nitrous Oxide	62270	010024-97-2	2
5	Ethyne, fluoro-	35	002713-09-9	2



Library Search Compound Report

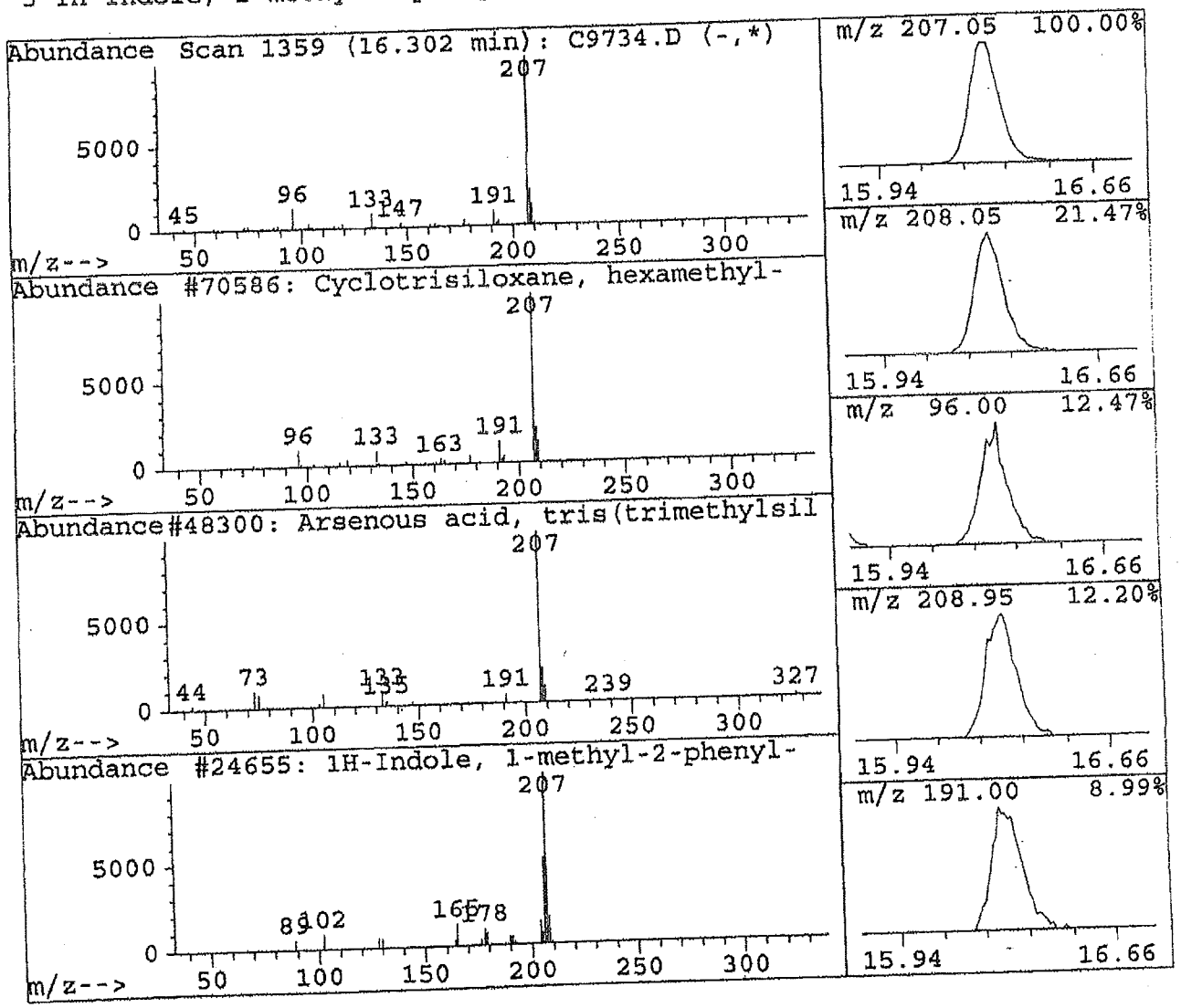
Data File : c:\hpchem\1\data\c9734.d
Acq On : 20 Nov 97 6:30 pm
Sample : 9785740 TB
Misc : 5 ML

Vial: 5
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
16.30	23.25 ug/l	4191504	Chlorobenzene-d5	18.31

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Cyclotrisiloxane, hexamethyl-	70586	000541-05-9	47
2	Arsenous acid, tris(trimethylsilyl)	48300	055429-29-3	56
3	1H-Indole, 1-methyl-2-phenyl-	24655	003558-24-5	38
4	1H-Indole, 5-methyl-2-phenyl-	24654	013228-36-9	38
5	1H-Indole, 2-methyl-3-phenyl-	24658	004757-69-1	9



Library Search Compound Report

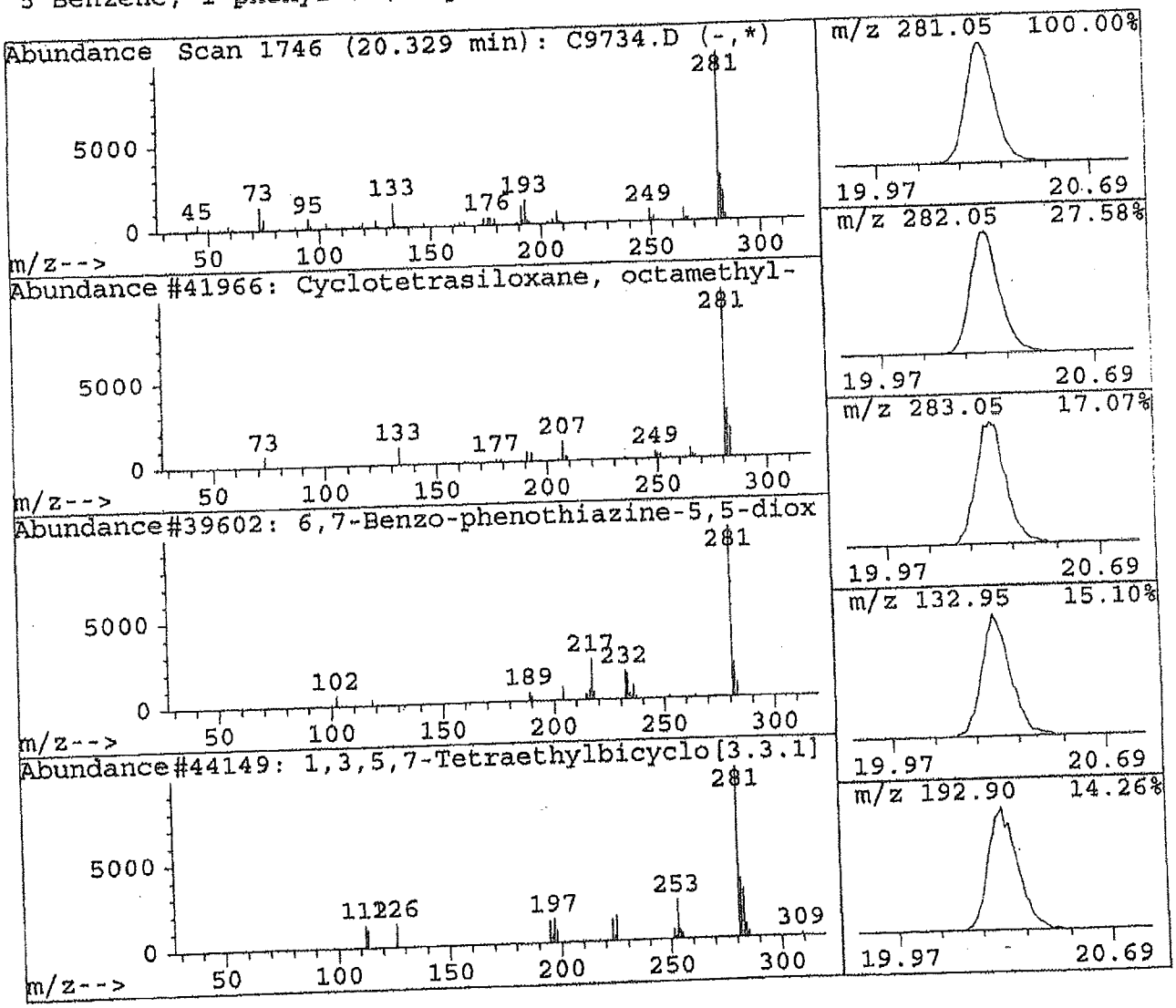
Data File : c:\hpchem\1\data\c9734.d
Acq On : 20 Nov 97 6:30 pm
Sample : 9785740 TB
Misc : 5 ML

Vial: 5
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
20.33	50.13 ug/l	9037464	Chlorobenzene-d5	18.31

Hit# of 16	Tentative ID	Ref#	CAS#	Qual
1	Cyclotetrasiloxane, octamethyl-	41966	000556-67-2	64
2	6,7-Benzo-phenothiazine-5,5-dioxide	39602	000000-00-0	9
3	1,3,5,7-Tetraethylbicyclo[3.3.1]tet	44149	073420-21-0	4
4	4-(1-Benzimidazyl)-7-nitro-2,1,3-ox	39560	091485-32-4	5
5	Benzene, 1-phenyl-4-(2-cyano-2-phen	39643	027869-56-3	47



1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785741V

WMB-10

215

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785741V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9745.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/21/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	2	U
110-75-8	2-Chloroethyl vinyl ether	1	U
541-73-1	1,3-Dichlorobenzene	1	U-
106-46-7	1,4-Dichlorobenzene		

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 9785741V MW2-10

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785741V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9745.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/21/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

9785741V
MW3-10

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785741V

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9745.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: not dec. _____ Date Analyzed: 11/21/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units:
(ug/L or ug/Kg) ug/L

Number TICs found: 0

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
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Quantitation Report

Data File : c:\hpchem\1\data\c9745.d
Acq On : 21 Nov 97 1:10 am
Sample : 9785741
Misc : 5 ML
Quant Time: Nov 21 11:28 1997

Vial: 16 219
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.68	130	410981	30.00	ug/l	0.01
26) 1,4-Difluorobenzene	13.36	114	1527573	30.00	ug/l	0.01
41) Chlorobenzene-d5	18.31	117	1327560	30.00	ug/l	0.01
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	12.71	65	607668	31.87	ug/l	106.23%
33) Toluene-d8	15.78	98	1461351	30.38	ug/l	101.26%
49) 4-Bromofluorobenzene	20.39	95	997149	29.54	ug/l	98.48%
Target Compounds						Qvalue

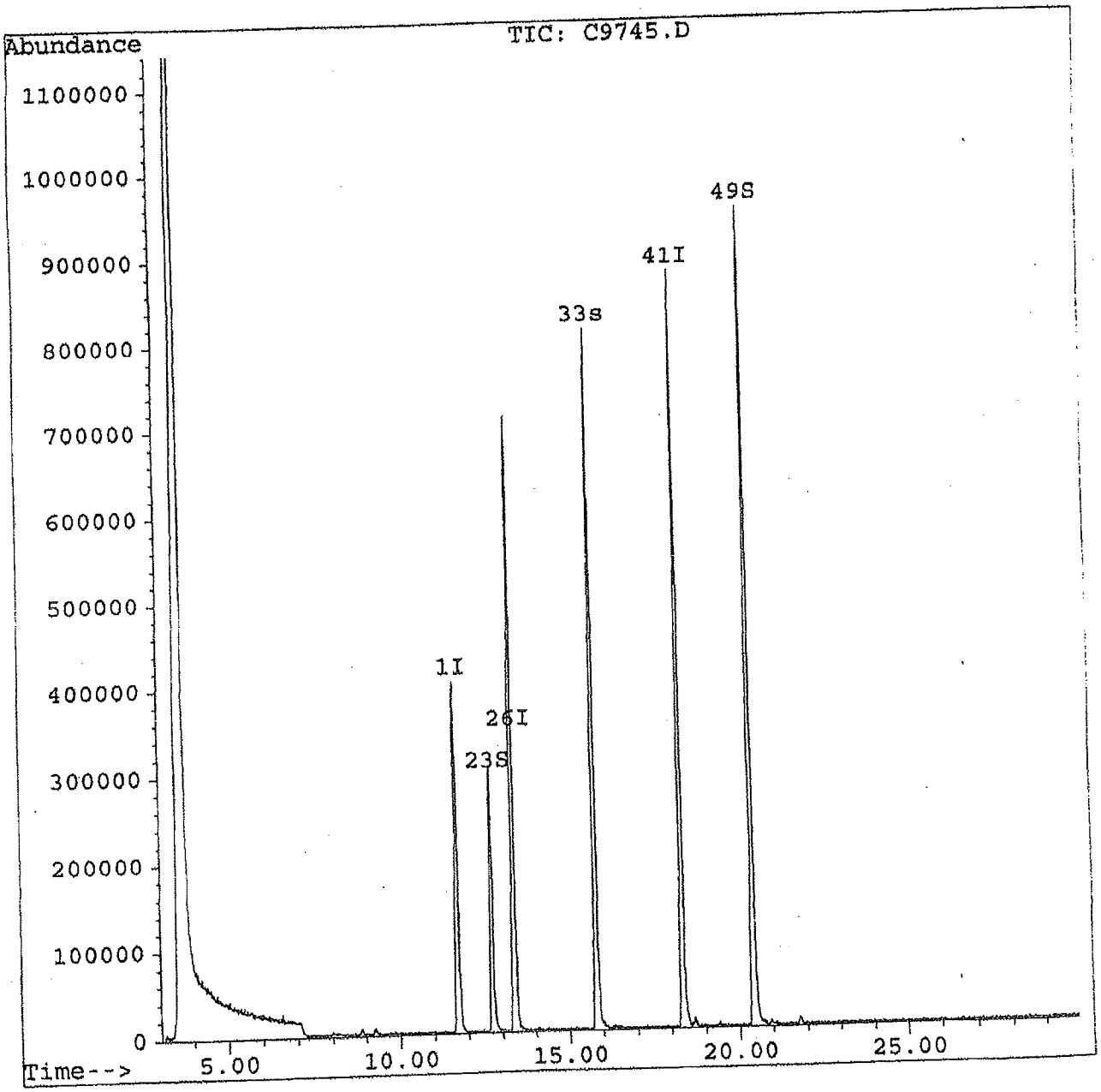
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9745.d
Acq On : 21 Nov 97 1:10 am
Sample : 9785741
Misc : 5 ML
Quant Time: Nov 21 11:28 1997

Vial: 16
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



Library Search Compound Report

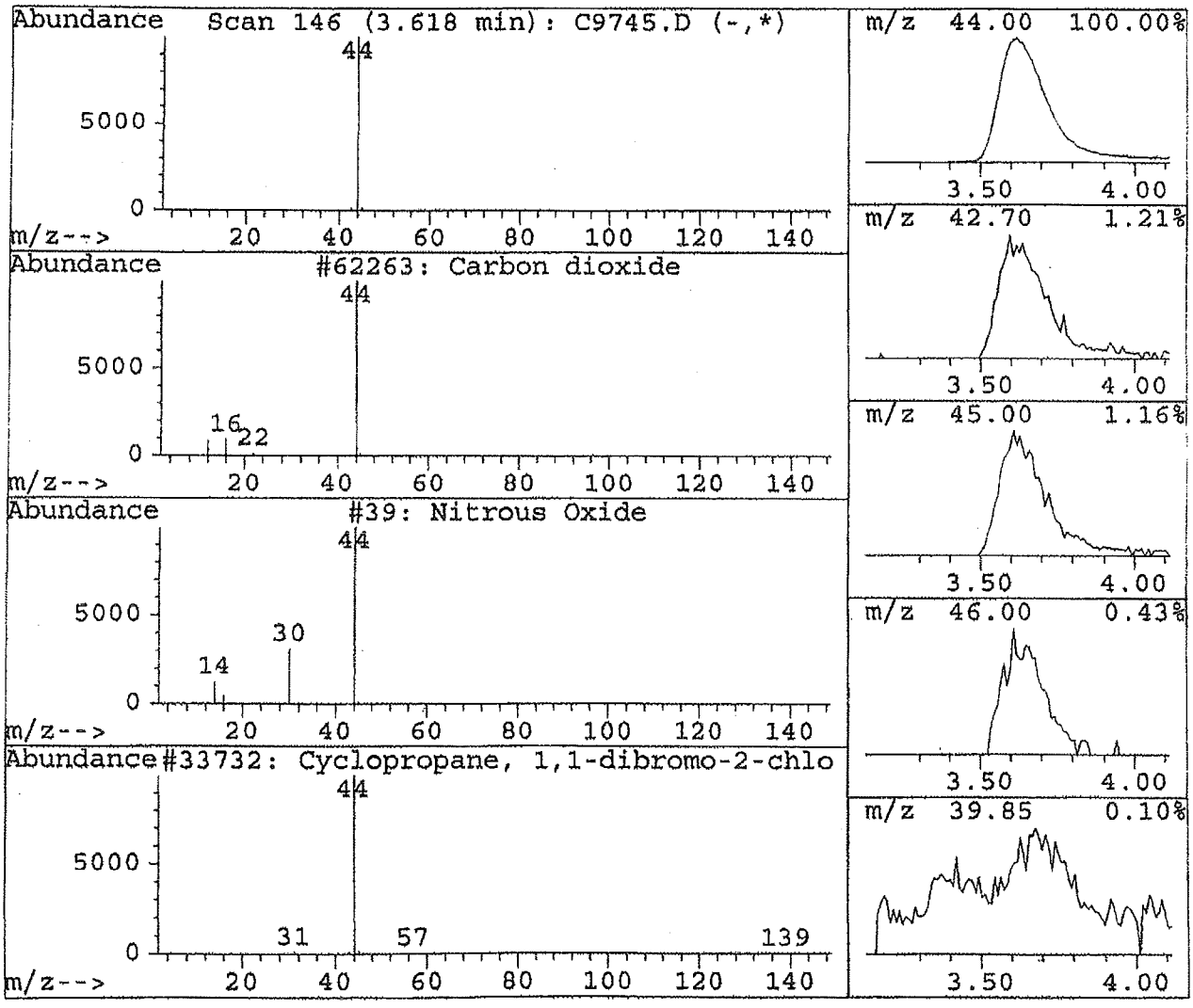
Data File : c:\hpchem\1\data\c9745.d
Acq On : 21 Nov 97 1:10 am
Sample : 9785741
Misc : 5 ML

Vial: 16
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.62	331.66 ug/l	24414535	Bromochloromethane	11.68

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	4
2	Nitrous Oxide	39	010024-97-2	3
3	Cyclopropane, 1,1-dibromo-2-chloro-	33732	024071-57-6	2
4	Carbamic acid, monoammonium salt	391	001111-78-0	2
5	Ethyne, fluoro-	35	002713-09-9	2



2A

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

	SAMPLE NO.	SMC1 (DCE) #	SMC2 (TLD8) #	SMC3 (BFB) #	OTHER #	TOT OUT
01	VBLK01	108	101	99		
02	9785740V	107	102	104		
03	9785739V	107	102	101		
04	9785731V	109	101	100		
05	9785732V	108	102	100		
06	9785733V	110	101	101		
07	9785734V	108	103	100		
08	9785735V	110	102	100		
09	9785736V	107	99	100		
10	9785737V	105	102	99		
11	9785738V	110	101	101		
12	9785741MS	106	101	105		
13	9785741V	106	101	98		
14	9785741MSD	106	102	102		
15						
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	QC LIMITS
SMC1 (DCE) = 1,2-Dichloroethane-d4	(81-112)
SMC2 (TLD8) = Toluene-d8	(91-113)
SMC3 (BFB) = 4-Bromofluorobenzene	(81-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

4A

VOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

VBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Lab File ID: C9733.D Lab Sample ID: M. BLANK

Date Analyzed: 11/20/97 Time Analyzed: 1753

GC Column: RTX-624 X 7 ID: 0.53 (mm) Heated Purge: (Y/N) N

Instrument ID: 5972-INST

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	9785740V	9785740V	C9734.D	1830
02	9785739V	9785739V	C9735.D	1906
03	9785731V	9785731V	C9736.D	1943
04	9785732V	9785732V	C9737.D	2019
05	9785733V	9785733V	C9738.D	2056
06	9785734V	9785734V	C9739.D	2132
07	9785735V	9785735V	C9740.D	2208
08	9785736V	9785736V	C9741.D	2245
09	9785737V	9785737V	C9742.D	2321
10	9785738V	9785738V	C9743.D	2357
11	9785741MS	85741MS	C9744.D	0034
12	9785741V	9785741V	C9745.D	0110
13	9785741MSD	85741MSD	C9746.D	0146
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

COMMENTS:

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

VBLK01

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: M. BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9733.D

Level: (low/med) _____ Date Received: _____

% Moisture: not dec. _____ Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
74-83-9	Bromomethane	1	U
75-01-4	Vinyl chloride	1	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	U
75-09-2	Methylene chloride	1	U
75-35-4	1,1-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
156-60-65	trans-1,2-Dichloroethene	1	U
156-59-4	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
107-06-2	1,2-Dichloroethane	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon tetrachloride	1	U
75-27-4	Bromodichloromethane	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-01-6	Trichloroethene	1	U
124-48-1	Dibromochloromethane	1	U
79-00-5	1,1,2-Trichloroethane	1	U
71-43-2	Benzene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
75-25-2	Bromoform	1	U
127-18-4	Tetrachloroethene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
108-88-3	Toluene	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethylbenzene	1	U
108-38-9	Xylene (para & meta)	1	U
95-47-6	Xylene (ortho)	1	U
110-75-8	2-Chloroethyl vinyl ether	2	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

VBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: M. BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9733.D

Level: (low/med) Date Received:

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
95-50-1	1,2-Dichlorobenzene	1	U
107-02-8	Acrolein	50	U
107-13-1	Acrylonitrile	50	U
75-65-0	Methyl-tert butyl ether	1	U
1634-04-4	tert-Butyl Alcohol	10	U

1E

SAMPLE NO. 225

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

VBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No. Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: M. BLANK

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C9733.D

Level: (low/med) Date Received:

% Moisture: not dec. Date Analyzed: 11/20/97

GC Column: RTX-624 X 75M ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc.	Q
1.	NONE FOUND			
2.				
3.				
4.				
5.				
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7.				
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Quantitation Report

Data File : c:\hpchem\1\data\c9733.d
Acq On : 20 Nov 97 5:53 pm
Sample : METHOD BLANK
Misc : 5 ML
Quant Time: Nov 21 11:22 1997

Vial: 4
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Bromochloromethane	11.68	130	483448	30.00	ug/l	0.01
26) 1,4-Difluorobenzene	13.36	114	1948900	30.00	ug/l	0.01
41) Chlorobenzene-d5	18.30	117	1656717	30.00	ug/l	0.00
System Monitoring Compounds						%Recovery
23) 1,2-Dichloroethane-d4	12.70	65	726994	32.41	ug/l	108.04%
33) Toluene-d8	15.77	98	1860570	30.31	ug/l	101.05%
49) 4-Bromofluorobenzene	20.38	95	1253563	29.76	ug/l	99.20%

Target Compounds Qvalue

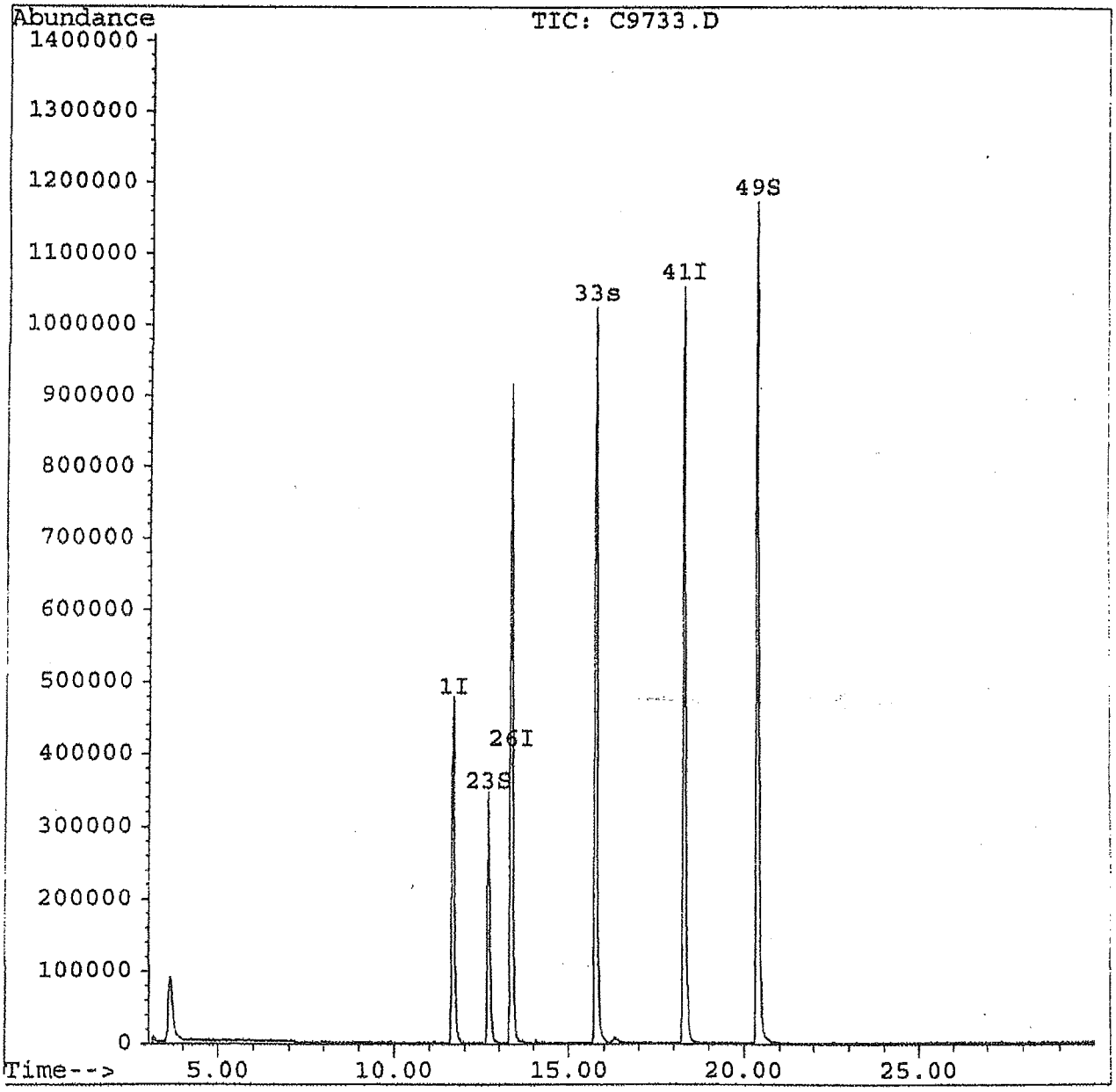
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9733.d
Acq On : 20 Nov 97 5:53 pm
Sample : METHOD BLANK
Misc : 5 ML
Quant Time: Nov 21 11:22 1997

Vial: 4
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



Library Search Compound Report

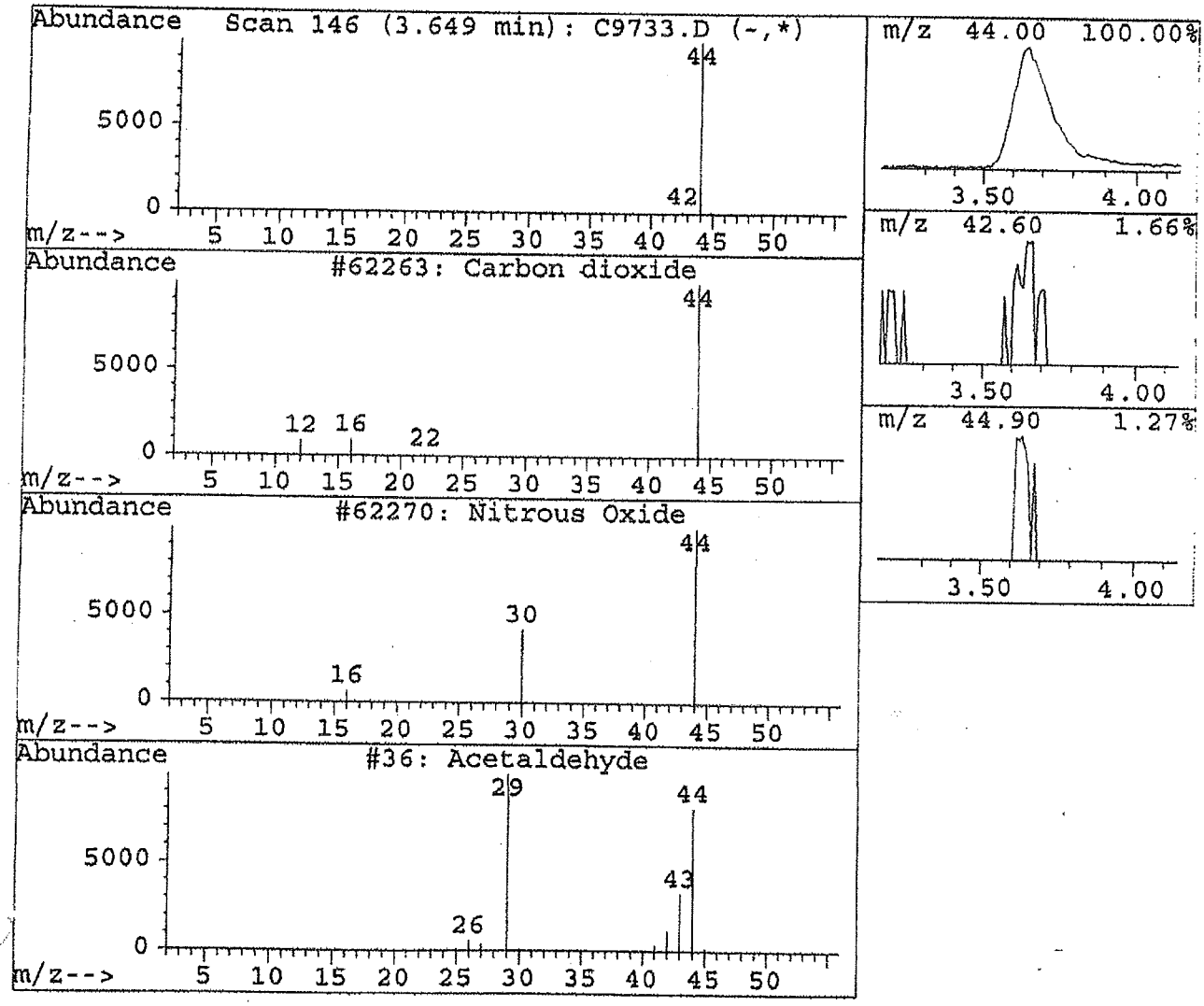
Data File : c:\hpchem\1\data\c9733.d
Acq On : 20 Nov 97 5:53 pm
Sample : METHOD BLANK
Misc : 5 ML

Vial: 4 220
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
3.65	10.49 ug/l	909546	Bromochloromethane	11.68

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Carbon dioxide	62263	000124-38-9	3
2	Nitrous Oxide	62270	010024-97-2	3
3	Acetaldehyde	36	000075-07-0	2
4	2,5-Dimethoxy-4-(methylsulfonyl)amp	38244	000000-00-0	1
5	Cyclopropane, 1,1-dibromo-2-chloro-	33732	024071-57-6	1



Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
L t Update : Thu Nov 20 18:04:35 1997
Response via : Initial Calibration

Non-Spiked Sample: C9745.D

	Spike Sample	Spike Duplicate Sample
File ID :	C9744.D	C9746.D
Sample :	9785741 MS	9785741 MSD
Acq Time:	21 Nov 97 12:34 am	21 Nov 97 1:46 am

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
Dichlorodifluorometh	0.0	20	15	17	75	85	12	25	50-150
Chloromethane	0.0	20	17	18	83	91	9	99	1-273
Vinyl chloride	0.0	20	16	19	82	93	13	100	1-251
Bromomethane	0.0	20	16	18	82	91	10	90	1-242
Chloroethane	0.0	20	19	20	94	101	7	57	14-230
Trichlorofluorometha	0.0	20	22	24	109	119	9	50	17-181
1,1-Dichloroethene	0.0	20	19	21	93	106	12	46	1-234
Methylene chloride	0.0	20	23	25	114	122	7	37	1-221
trans-1,2-Dichloroet	0.0	20	20	21	99	107	8	29	54-156
Methyl-tert butyl et	0.0	20	21	21	106	106	1	25	25-150
1-Dichloroethane	0.0	20	21	22	104	108	4	26	59-155
loroform	0.0	20	22	22	107	112	4	31	51-138
1,1,1-Trichloroethan	0.0	20	21	23	105	114	8	23	52-162
Carbon tetrachloride	0.0	20	21	22	104	112	7	26	70-140
Benzene	0.0	20	20	21	99	105	6	35	37-151
1,2-Dichloroethane	0.0	20	24	25	118	122	3	30	49-155
Trichloroethene	0.0	20	20	21	102	106	4	33	71-157
1,2-Dichloropropane	0.0	20	20	20	100	101	1	69	1-210
Bromodichloromethane	0.0	20	21	22	106	109	3	32	35-155
2-Chloroethyl vinyl	0.0	20	0	0	0	1	200#	130	0-305
cis-1,3-Dichloroprop	0.0	20	20	20	98	98	0	79	1-227
Toluene	0.0	20	20	21	99	104	5	24	47-150
trans-1,3-Dichloropr	0.0	20	20	21	102	103	0	52	17-183
1,1,2-Trichloroethan	0.0	20	21	21	105	105	0	28	52-150
Tetrachloroethene	0.0	20	21	21	103	107	4	25	64-148
Dibromochloromethane	0.0	20	21	21	104	104	1	31	53-149
Chlorobenzene	0.0	20	20	20	102	102	0	32	37-160
Ethylbenzene	0.0	20	21	21	103	104	1	30	37-162
Xylene (para & meta)	0.0	40	41	42	101	104	3	25	50-150
Xylene (ortho)	0.0	20	21	21	103	105	2	25	50-150
Bromoform	0.0	20	20	21	101	106	4	27	45-169
1,1,2,2-Tetrachloroe	0.0	20	21	21	106	103	3	37	46-157
1,3-Dichlorobenzene	0.0	20	20	20	101	101	0	28	59-156
1,4-Dichlorobenzene	0.0	20	20	21	101	103	2	36	18-190
1,2-Dichlorobenzene	0.0	20	21	21	107	106	1	36	18-190

Quantitation Report

Data File : c:\hpchem\1\data\c9744.d
Acq On : 21 Nov 97 12:34 am
Sample : 9785741 MS
Misc : 5 ML
Quant Time: Nov 21 11:28 1997

Vial: 15
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.69	130	469402	30.00	ug/l		0.02
26) 1,4-Difluorobenzene	13.37	114	1870912	30.00	ug/l		0.02
41) Chlorobenzene-d5	18.31	117	1557973	30.00	ug/l		0.01
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.70	65	692033	31.78	ug/l		105.92%
33) Toluene-d8	15.78	98	1789940	30.38	ug/l		101.26%
49) 4-Bromofluorobenzene	20.39	95	1244002	31.41	ug/l		104.69%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.03	85	332262	15.07	ug/l	m	90
3) Chloromethane	4.57	50	111110	16.60	ug/l	m	91
4) Vinyl chloride	4.82	62	196374	16.35	ug/l		95
5) Bromomethane	5.65	94	165876	16.48	ug/l		96
6) Chloroethane	5.91	64	140273	18.73	ug/l		95
7) Trichlorofluoromethane	6.48	101	782355	21.74	ug/l		95
8) Acrolein	7.67	56	65217	189.70	ug/l	m	100
9) 1,1-Dichloroethene	7.72	96	261209	18.68	ug/l		95
10) Acetone	8.00	43	163639	28.31	ug/l		92
11) Carbon disulfide	8.15	76	642604	18.06	ug/l		100
12) Methylene chloride	8.86	49	506626	23.23	ug/l		97
13) Acrylonitrile	9.49	53	40705	17.86	ug/l		100
14) trans-1,2-Dichloroethene	9.31	96	291152	19.86	ug/l		98
15) Methyl-tert butyl ether	9.29	73	864581	21.21	ug/l		92
16) tert-Butyl Alcohol	9.13	59	87426	88.71	ug/l	m	100
17) 1,1-Dichloroethane	10.19	63	625042	20.73	ug/l		95
18) cis-1,2-Dichloroethene	11.26	96	337282	19.90	ug/l		97
19) 2-Butanone	11.31	43	136595	19.20	ug/l		98
20) Chloroform	11.80	83	762217	21.52	ug/l		99
21) 1,1,1-Trichloroethane	12.05	97	715805	21.06	ug/l		100
22) Carbon tetrachloride	12.26	117	653096	20.86	ug/l		98
24) Benzene	12.68	78	979195	19.75	ug/l		100
25) 1,2-Dichloroethane	12.84	62	597035	23.92	ug/l		100
27) Trichloroethene	13.75	130	480767	20.41	ug/l		98
28) 1,2-Dichloropropane	14.22	63	360562	20.03	ug/l		92
29) Bromodichloromethane	14.66	83	750199	21.13	ug/l		97
31) cis-1,3-Dichloropropene	15.41	75	566518	19.62	ug/l		97
32) 4-Methyl-2-pentanone	15.63	43	339797	20.76	ug/l		97
34) Toluene	15.90	92	712586	19.94	ug/l		92
35) trans-1,3-Dichloropropene	16.38	75	554843	20.44	ug/l		98
36) 1,1,2-Trichloroethane	16.69	97	355574	21.04	ug/l		88
37) 2-Hexanone	17.04	43	199070	17.21	ug/l		94
38) Tetrachloroethene	16.79	164	449152	20.62	ug/l		91
39) Dibromochloromethane	17.34	129	631209	20.70	ug/l		99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9744.d
Acq On : 21 Nov 97 12:34 am
Sample : 9785741 MS
Misc : 5 ML
Quant Time: Nov 21 11:28 1997

Vial: 15
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
42) Chlorobenzene	18.36	112	985041	20.38 ug/l	98
43) 1,1,1,2-Tetrachloroethane	18.50	131	501659	20.80 ug/l	96
44) Ethylbenzene	18.48	91	1611543	20.94 ug/l	100
45) Xylene (para & meta)	18.68	91	2591592	40.71 ug/l	99
46) Xylene (ortho)	19.39	91	1222514	20.73 ug/l	94
47) Styrene	19.43	104	826757	16.53 ug/l	97
48) Bromoform	19.84	173	442812	20.27 ug/l	97
50) 1,1,2,2-Tetrachloroethane	20.67	83	538238	21.23 ug/l	99
51) 1,3-Dichlorobenzene	22.36	146	874490	20.20 ug/l	100
52) 1,4-Dichlorobenzene	22.54	146	1021082	20.17 ug/l	100
53) 1,2-Dichlorobenzene	23.23	146	930888	21.36 ug/l	99

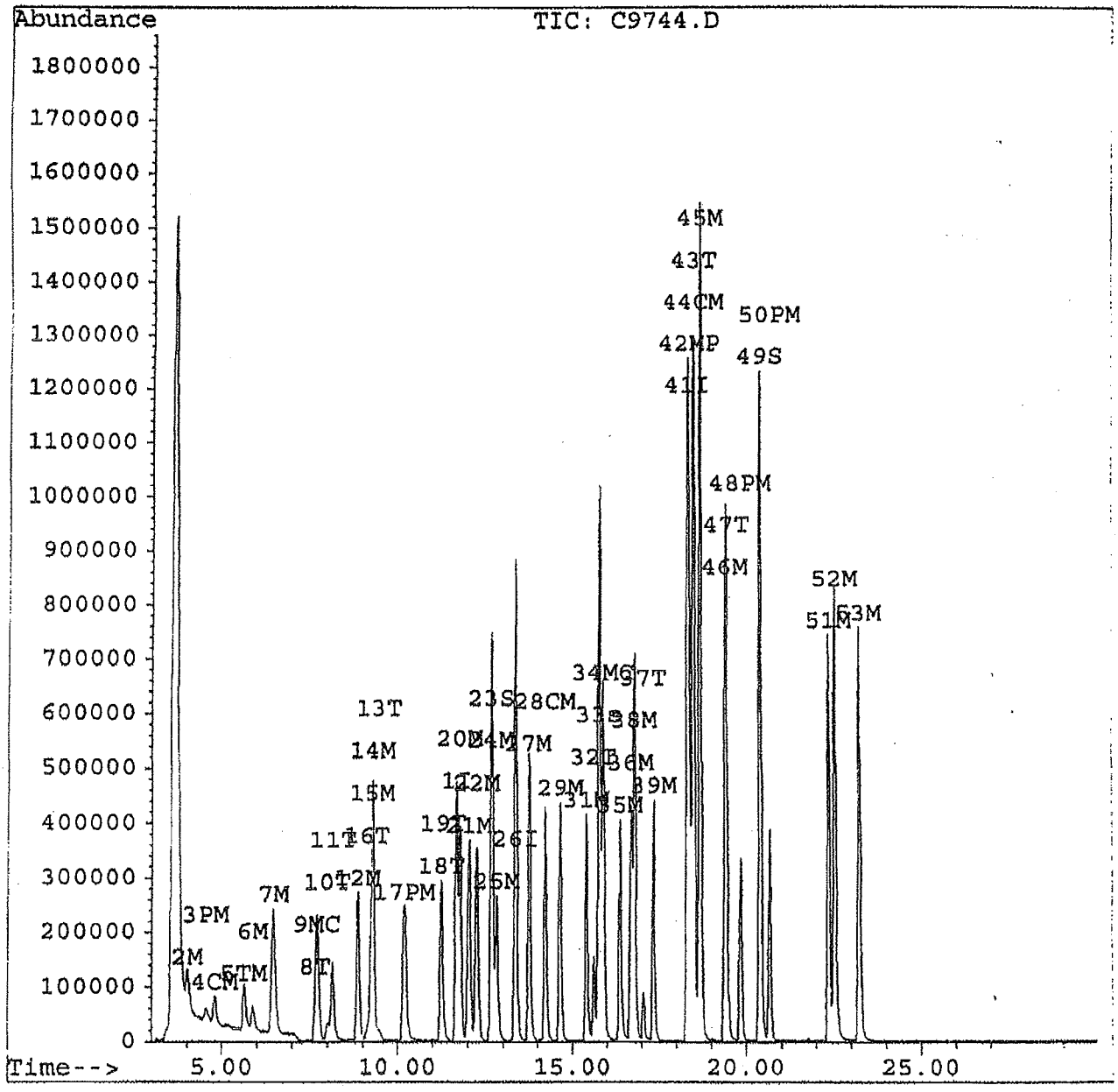
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9744.d
Acq On : 21 Nov 97 12:34 am
Sample : 9785741 MS
Misc : 5 ML
Quant Time: Nov 21 11:28 1997

Vial: 15
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data\c9746.d
Acq On : 21 Nov 97 1:46 am
Sample : 9785741 MSD
Misc : 5 ML
Quant Time: Nov 21 11:29 1997

Vial: 17
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Bromochloromethane	11.69	130	472042	30.00	ug/l		0.02
26) 1,4-Difluorobenzene	13.37	114	1910829	30.00	ug/l		0.02
41) Chlorobenzene-d5	18.32	117	1600941	30.00	ug/l		0.02
System Monitoring Compounds							%Recovery
23) 1,2-Dichloroethane-d4	12.71	65	694293	31.70	ug/l		105.67%
33) Toluene-d8	15.79	98	1847920	30.71	ug/l		102.36%
49) 4-Bromofluorobenzene	20.39	95	1250696	30.73	ug/l		102.43%
Target Compounds							Qvalue
2) Dichlorodifluoromethane	4.05	85	375631	16.94	ug/l	m	92
3) Chloromethane	4.58	50	122148	18.15	ug/l		95
4) Vinyl chloride	4.81	62	225811	18.70	ug/l		93
5) Bromomethane	5.66	94	184330	18.21	ug/l		98
6) Chloroethane	5.90	64	152025	20.18	ug/l		85
7) Trichlorofluoromethane	6.49	101	859439	23.75	ug/l		98
8) Acrolein	7.69	56	62922	182.00	ug/l	m	100
9) 1,1-Dichloroethene	7.73	96	297582	21.16	ug/l		98
10) Acetone	8.03	43	172223	29.63	ug/l		97
11) Carbon disulfide	8.16	76	670602	18.75	ug/l		100
12) Methylene chloride	8.88	49	545847	24.89	ug/l		92
13) Acrylonitrile	9.51	53	39206	17.10	ug/l		100
14) trans-1,2-Dichloroethene	9.32	96	315920	21.43	ug/l		94
15) Methyl-tert butyl ether	9.28	73	874516	21.33	ug/l		100
16) tert-Butyl Alcohol	9.15	59	88292	89.09	ug/l	m	100
17) 1,1-Dichloroethane	10.21	63	653884	21.56	ug/l		97
18) cis-1,2-Dichloroethene	11.28	96	365790	21.46	ug/l		98
19) 2-Butanone	11.33	43	135317	18.91	ug/l		95
20) Chloroform	11.81	83	796643	22.36	ug/l		98
21) 1,1,1-Trichloroethane	12.07	97	777839	22.76	ug/l		99
22) Carbon tetrachloride	12.27	117	706315	22.43	ug/l		96
24) Benzene	12.69	78	1044106	20.95	ug/l		100
25) 1,2-Dichloroethane	12.85	62	620603	24.73	ug/l		99
27) Trichloroethene	13.76	130	510031	21.20	ug/l		96
28) 1,2-Dichloropropane	14.22	63	371336	20.20	ug/l		92
29) Bromodichloromethane	14.67	83	788223	21.74	ug/l		97
31) cis-1,3-Dichloropropene	15.42	75	577541	19.58	ug/l		93
32) 4-Methyl-2-pentanone	15.65	43	341009	20.40	ug/l		94
34) Toluene	15.91	92	763070	20.91	ug/l		95
35) trans-1,3-Dichloropropene	16.37	75	569082	20.52	ug/l		99
36) 1,1,2-Trichloroethane	16.70	97	363215	21.04	ug/l		89
37) 2-Hexanone	17.05	43	202038	17.10	ug/l		76
38) Tetrachloroethene	16.79	164	475148	21.36	ug/l		87
39) Dibromochloromethane	17.34	129	649149	20.84	ug/l		97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data\c9746.d
Acq On : 21 Nov 97 1:46 am
Sample : 9785741 MSD
Misc : 5 ML
Quant Time: Nov 21 11:29 1997

Vial: 17
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

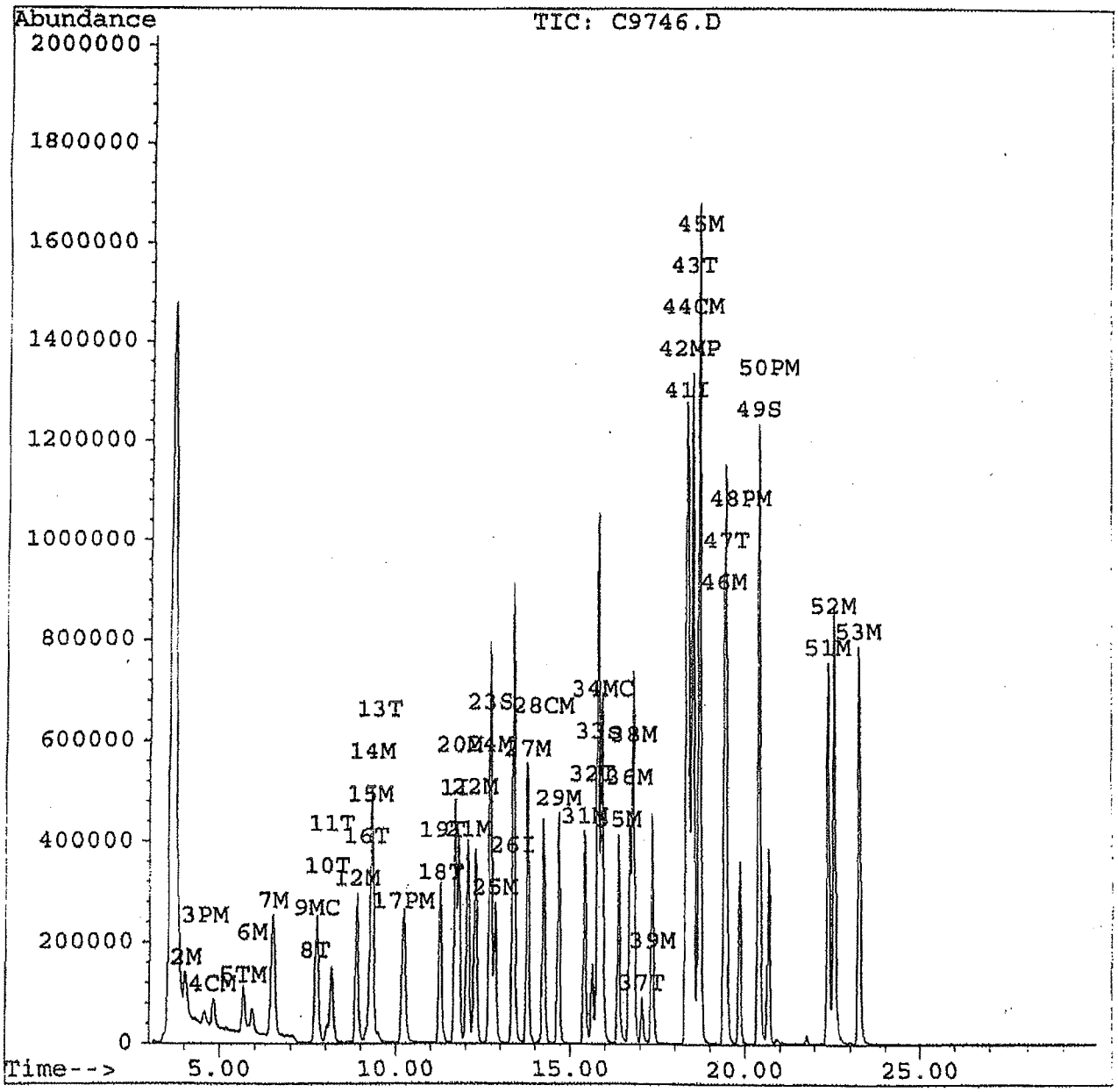
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
42) Chlorobenzene	18.37	112	1012036	20.38 ug/l	93
43) 1,1,1,2-Tetrachloroethane	18.50	131	509088	20.54 ug/l	95
44) Ethylbenzene	18.48	91	1672855	21.15 ug/l	98
45) Xylene (para & meta)	18.68	91	2746458	41.99 ug/l	96
46) Xylene (ortho)	19.39	91	1285156	21.21 ug/l	96
47) Styrene	19.44	104	1027697	20.00 ug/l	98
48) Bromoform	19.84	173	474376	21.13 ug/l	95
50) 1,1,2,2-Tetrachloroethane	20.67	83	538242	20.66 ug/l	95
51) 1,3-Dichlorobenzene	22.36	146	898821	20.20 ug/l	96
52) 1,4-Dichlorobenzene	22.52	146	1070041	20.57 ug/l	95
53) 1,2-Dichlorobenzene	23.23	146	950147	21.22 ug/l	97

Quantitation Report

Data File : c:\hpchem\1\data\c9746.d
Acq On : 21 Nov 97 1:46 am
Sample : 9785741 MSD
Misc : 5 ML
Quant Time: Nov 21 11:29 1997

Vial: 17
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration



GC/MS SEMIVOLATILE DATA PACKAGE

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: B7063.D DFTPP Injection Date: 11/4/97

Instrument ID: ABNA DFTPP Injection Time: 1525

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	59.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	72.2
70	Less than 2.0% of mass 69	(0.7)1
127	25.0 - 75.0% of mass 198	43.2
197	Less than 1.0% of mass 198	0.1
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	5.9
275	10.0 - 30.0% of mass 198	23.0
365	Greater than 0.75% of mass 198	3.4
441	Present, but less than mass 443	1.8
442	40.0 - 110.0% of mass 198	59.8
443	15.0 - 24.0% of mass 442	(18.7)2

1-Value is % mass 69 2-Value is % mass 442

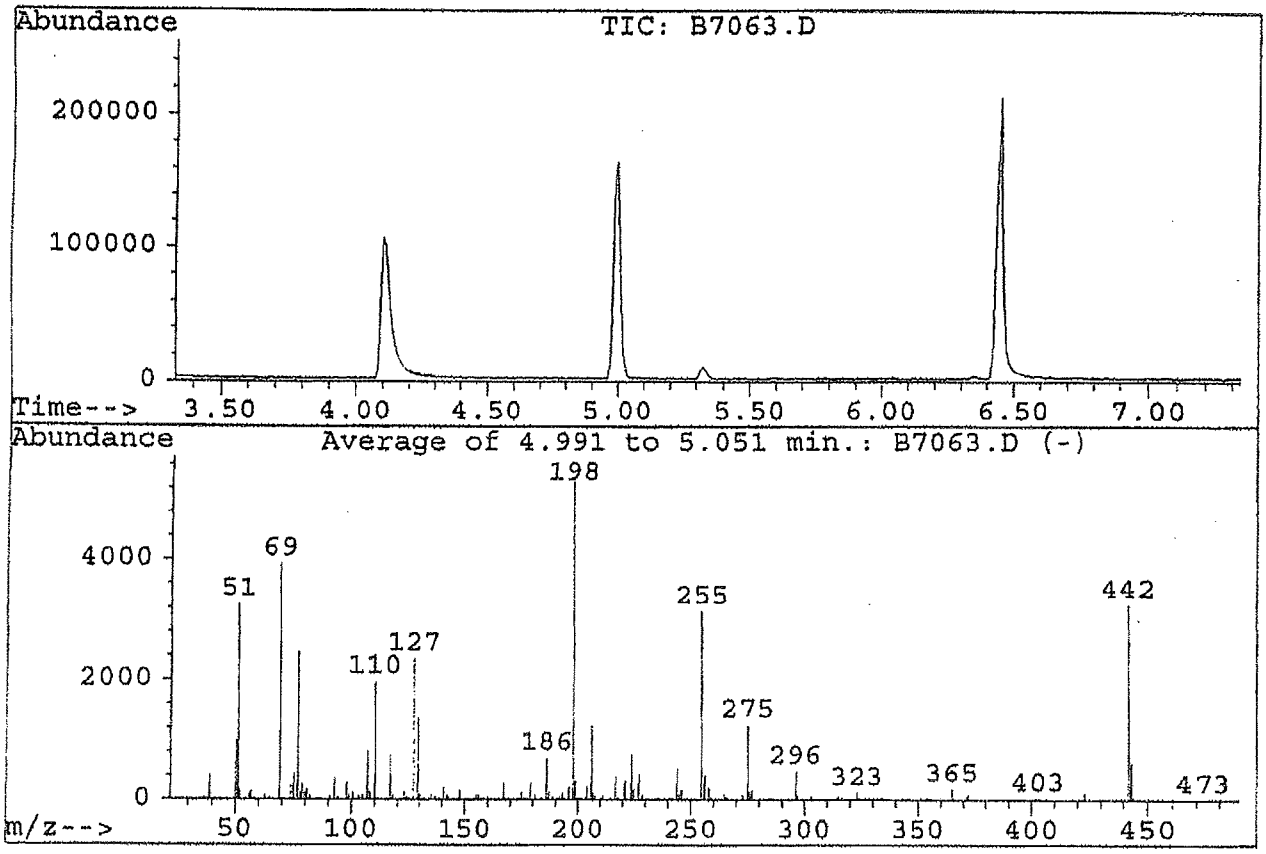
This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD010	10 STD	B7065.D	11/4/97	1622
02	SSTD020	20 STD	B7066.D	11/4/97	1709
03	SSTD050	50 STD	B7067.D	11/4/97	1756
04	SSTD080	80 STD	B7068.D	11/4/97	1843
05	SSTD120	120 STD	B7069.D	11/4/97	1930
06	SSTD160	160 STD	B7070.D	11/4/97	2017
07	SBLK01	BLANK1	B7071.D	11/4/97	2103
08	9774468B	9774468B	B7072.D	11/4/97	2150
09	9774469B	9774469B	B7073.D	11/4/97	2236
10	9774470B	9774470B	B7074.D	11/4/97	2323
11	9774471B	9774471B	B7075.D	11/5/97	0009
12	9774472B	9774472B	B7076.D	11/5/97	0055
13	9774473B	9774473B	B7077.D	11/5/97	0142
14					
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data File : C:\HPCHEM\1\DATA3\B7063.D Vial: 1
Acq On : 4 Nov 97 3:25 pm Operator: SCOTTV
Sample : DFTPP..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration



Peak Apex is scan: 235

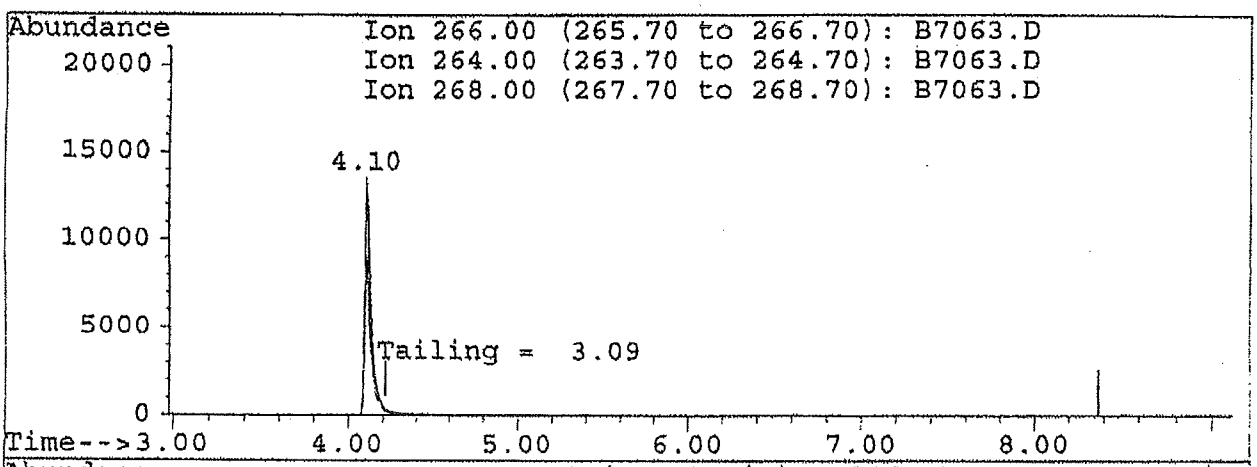
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	59.7	3251	PASS
68	69	0	2	0.2	7	PASS
69	198	0	100	72.2	3934	PASS
70	69	0	2	0.7	27	PASS
127	198	40	60	43.2	2352	PASS
197	198	0	1	0.1	4	PASS
198	198	100	100	100.0	5447	PASS
199	198	5	9	5.9	323	PASS
275	198	10	30	23.0	1253	PASS
365	198	1	100	3.4	185	PASS
441	443	0	100	1.8	11	PASS
442	198	40	100	59.8	3258	PASS
443	442	17	23	18.7	610	PASS

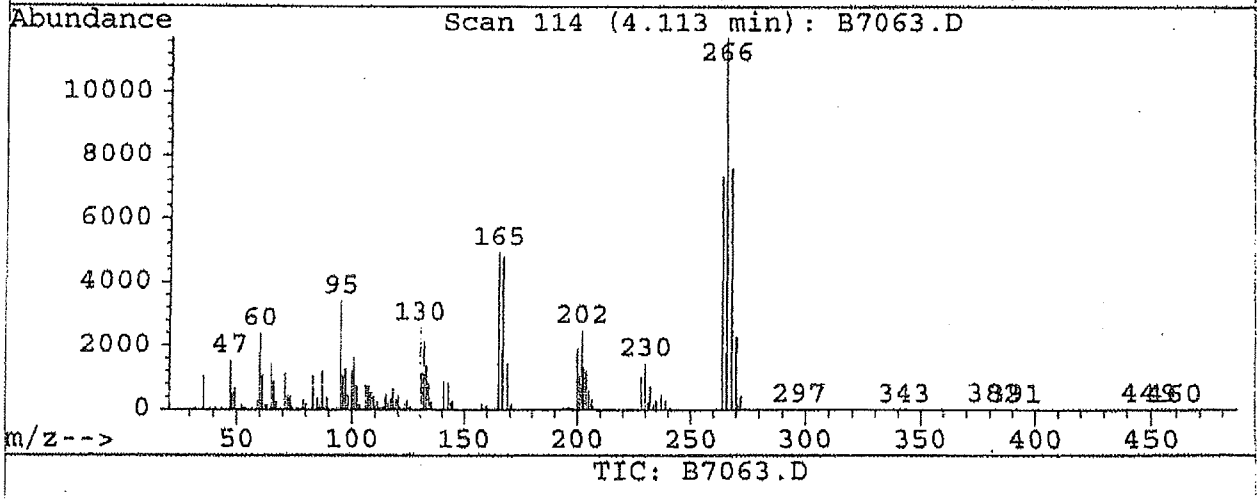
B7063.D BNACLP.M Thu Nov 20 15:59:39 1997 BNA

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B7063.D Vial: 1
Acq On : 4 Nov 97 3:25 pm Operator: SCOTTV
Sample : DFTPP..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 4 15:54 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 30 14:02:52 1997
Response via : Multiple Level Calibration





TIC: B7063.D

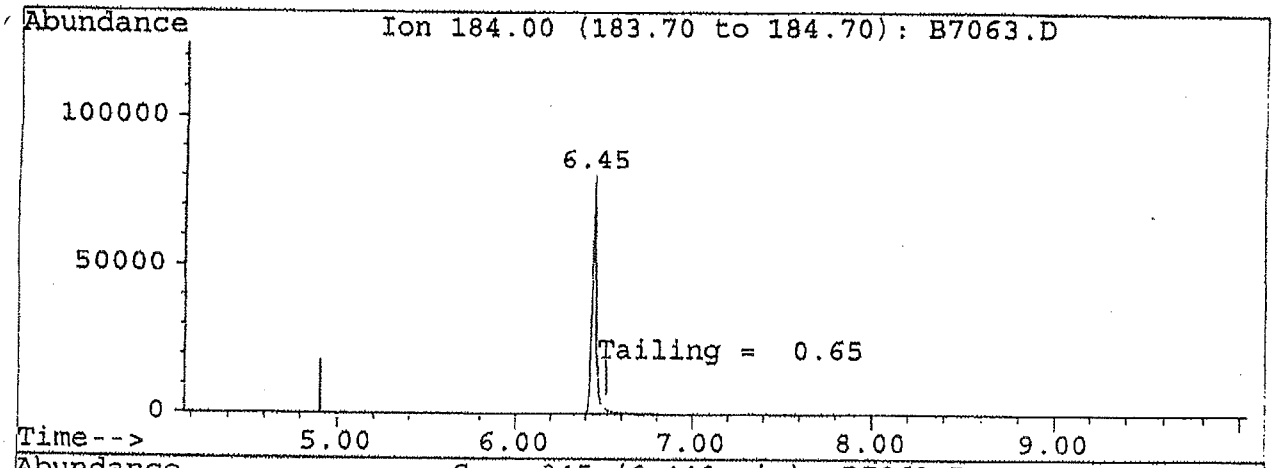
(1) Pentachlorophenol (CM)
5.37min 0.00ug/mL d
response 0

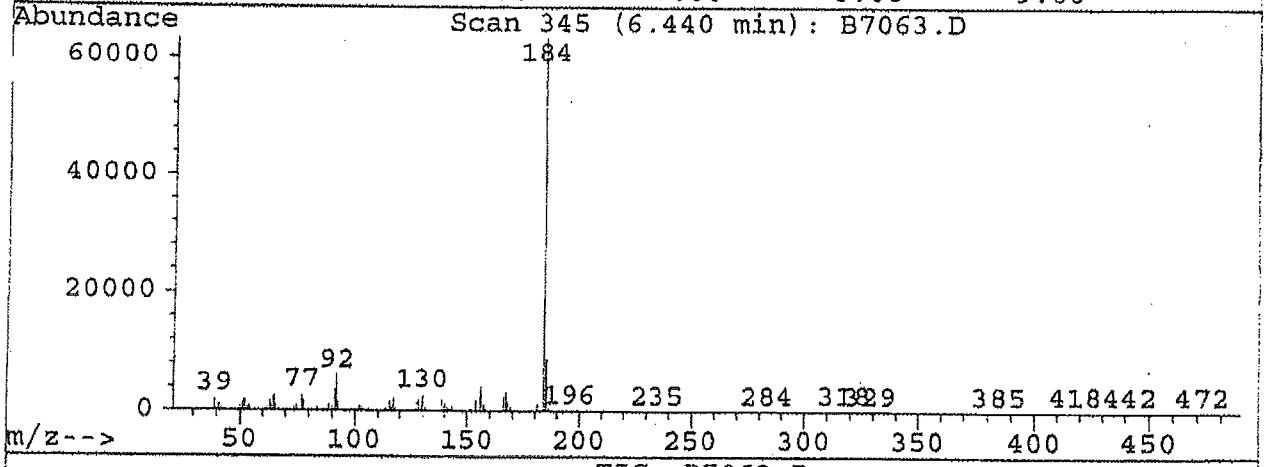
Ion	Exp%	Act%
266.00	100	0.00
264.00	64.30	0.00#
268.00	64.70	0.00#
0.00	0.00	0.00

Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B7063.D Vial: 1
Acq On : 4 Nov 97 3:25 pm Operator: SCOTTV
Sample : DFTPP..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 4 15:54 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Thu Oct 30 14:02:52 1997
Response via : Multiple Level Calibration





TIC: B7063.D

(2) Benzidine
7.91min 0.00ug/ml d
response 0

Ion	Exp%	Act%
184.00	100	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

Response Factor Report ABNA

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Initial Calibration

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Calibration Files
10 =B7065.D 20 =B7066.D 50 =B7067.D
80 =B7068.D 120 =B7069.D 160 =B7070.D

		Compound	10	20	50	80	120	160	Avg	%RSD
1)	I	1,4-Dichlorobenzene-d	ISTD							
2)	S	2-Fluorophenol	0.237	0.235	0.244	0.252	0.286	0.251	0.251	7.38
3)	S	Phenol-d5	1.675	1.521	1.514	1.465	1.442	1.381	1.500	6.66
4)	M	N-nitrosodimethylam	0.308	0.559	0.569	0.606	0.643	0.598	0.547	22.08
5)		Pyridine	0.669	1.152	1.020	0.998	1.146	1.145	1.022	18.20
6)	CM	Phenol	1.392	1.657	1.728	1.717	1.745	1.718	1.659	8.11
7)		Benzyl alcohol	0.809	1.079	1.167	1.230	1.237	1.200	1.120	14.57
8)	MT	bis(2-Chloroethyl)e	0.796	0.880	0.906	0.873	0.820	0.790	0.844	5.74
9)	M	2-Chlorophenol	1.150	1.392	1.427	1.351	1.359	1.374	1.342	7.31
10)	MT	1,3-Dichlorobenzene	1.009	1.173	1.187	1.211	1.198	1.172	1.158	6.43
11)	CM	1,4-Dichlorobenzene	1.104	1.287	1.265	1.282	1.291	1.258	1.248	5.76
12)	M	1,2-Dichlorobenzene	1.071	1.273	1.261	1.280	1.282	1.256	1.237	6.65
13)	T	2-Methylphenol	0.948	1.250	1.315	1.306	1.313	1.314	1.241	11.74
14)	M	bis(2-chloroisoprop	2.026	2.423	2.398	2.366	2.348	2.275	2.306	6.33
15)	T	4-Methylphenol	1.094	1.366	1.349	1.448	1.441	1.428	1.354	9.89
16)	PM	N-Nitroso-Di-n-prop	0.891	1.038	1.100	1.200	1.035	0.940	1.034	10.71
17)	M	Hexachloroethane	0.613	0.719	0.733	0.746	0.735	0.713	0.710	6.88
18)	I	Naphthalene-d8	ISTD							
19)	S	Nitrobenzene-d5	0.361	0.351	0.367	0.371	0.376	0.385	0.369	3.17
20)	M	Nitrobenzene	0.282	0.342	0.340	0.343	0.347	0.357	0.335	8.00
21)	M	Isophorone	0.550	0.668	0.666	0.640	0.685	0.690	0.650	7.96
22)	MC	2-Nitrophenol	0.198	0.254	0.268	0.285	0.288	0.288	0.264	13.25
23)	M	2,4-Dimethylphenol	0.371	0.452	0.489	0.482	0.489	0.499	0.463	10.36
24)	M	bis(2-Chloroethoxy)	0.328	0.380	0.412	0.412	0.412	0.411	0.393	8.71
25)	MC	2,4-Dichlorophenol	0.278	0.355	0.386	0.374	0.366	0.378	0.356	11.19
26)	M	1,2,4-Trichlorobenz	0.287	0.336	0.335	0.336	0.334	0.334	0.327	5.97
27)	M	Naphthalene	0.887	0.993	1.032	1.029	1.031	1.014	0.997	5.64
28)	T	4-Chloroaniline	0.398	0.502	0.521	0.528	0.532	0.533	0.502	10.43
29)	MC	Hexachlorobutadiene	0.210	0.251	0.244	0.244	0.248	0.250	0.241	6.35
30)	MC	4-Chloro-3-methylph	0.348	0.428	0.446	0.446	0.458	0.477	0.434	10.43
31)	M	2-Chloronaphthalene	0.724	0.833	0.817	0.828	0.832	0.877	0.819	6.18
32)	T	2-Methylnaphthalene	0.633	0.799	0.792	0.802	0.799	0.824	0.775	9.07
33)	I	Acenaphthene-d10	ISTD							
34)	P	Hexachlorocyclopent		0.258	0.315	0.362	0.392	0.417	0.349	18.14
35)	MC	2,4,6-Trichlorophen	0.327	0.405	0.428	0.430	0.396	0.404	0.398	9.47
36)	T	2,4,5-Trichlorophen	0.323	0.460	0.448	0.486	0.463	0.436	0.436	13.31
37)	S	2-Fluorobiphenyl	1.046	1.058	1.044	1.087	1.117	1.173	1.088	4.63
38)	T	2-Nitroaniline	0.323	0.455	0.474	0.518	0.530	0.585	0.481	18.65
39)	M	Dimethylphthalate	0.843	0.967	0.662	0.562	0.932	0.972	0.823	20.99
40)	M	Acenaphthylene	1.438	1.647	1.694	1.771	1.854	1.894	1.716	9.63
41)	T	2,6-Dinitrotoluene	0.235	0.302	0.190	0.270	0.287	0.314	0.266	17.46
42)	T	3-Nitroaniline	0.269	0.371	0.403	0.434	0.339	0.330	0.358	16.32
43)	CM	Acenaphthene	0.989	1.149	1.124	1.186	1.202	1.275	1.154	8.32
44)	MP	2,4-Dinitrophenol		0.158	0.228	0.241	0.273	0.295	0.239	21.96
45)	PM	4-Nitrophenol		0.204	0.243	0.233	0.214	0.261	0.231	9.76
46)	T	Dibenzofuran	1.507	1.888	1.821	1.957	1.999	2.050	1.870	10.45
47)	M	2,4-Dinitrotoluene	0.255	0.313	0.221	0.291	0.283	0.298	0.277	12.12

48)	M	Diethylphthalate	1.280	1.459	1.143	1.165	1.192	1.185	1.238	9.56
49)	M	Fluorene	1.178	1.372	1.387	1.469	1.162	1.188	1.293	10.24
50)	M	4-Chlorophenyl-phen	0.556	0.677	0.653	0.685	0.728	0.748	0.675	10.04
51)		Phenanthrene-d10	----------ISTD----------							
[illegible]	T	4-Nitroaniline	0.128	0.158	0.171	0.151	0.128	0.115	0.142	15.04
[illegible]	MC	4,6-Dinitro-2-methy		0.121	0.150	0.147	0.168	0.179	0.153	14.46
54)	T	n-Nitrosodiphenylam	0.352	0.414	0.416	0.381	0.382	0.333	0.380	8.67
55)	S	2,4,6-Tribromopheno	0.167	0.169	0.222	0.183	0.186	0.178	0.184	10.75
56)		1,2-Diphenylhydrazi	0.777	0.885	1.016	0.870	0.811	0.786	0.857	10.41
57)	M	4-Bromophenyl-pheny	0.176	0.215	0.232	0.224	0.222	0.214	0.214	9.25
58)	M	Hexachlorobenzene	0.265	0.312	0.395	0.323	0.325	0.312	0.322	13.05
59)	CM	Pentachlorophenol		0.118	0.185	0.204	0.209	0.211	0.185	21.15
60)	M	Phenanthrene	0.903	0.938	1.006	1.027	1.018	1.230	1.020	11.14
61)	M	Anthracene	0.750	0.787	0.831	0.882	0.878	0.868	0.833	6.53
62)		Carbazole	0.792	0.887	0.913	0.883	0.887	0.912	0.879	5.06
63)	M	Di-n-butylphthalate	1.247	1.357	1.450	1.384	1.256	1.249	1.324	6.49
64)	MC	Fluoranthene	1.120	1.126	1.224	1.193	1.118	1.168	1.158	3.80
65)	I	Chrysene-d12	----------ISTD----------							
66)		Benzidine	0.310	0.330	0.278	0.256	0.290	0.276	0.290	9.20
67)	M	Pyrene	1.224	1.537	1.663	1.534	1.344	1.351	1.442	11.25
68)	S	Terphenyl-d14	0.976	1.042	1.135	1.055	0.974	1.000	1.031	5.95
69)	M	Butylbenzylphthalat	0.515	0.632	0.606	0.592	0.580	0.593	0.586	6.72
70)	M	Benzo[a]anthracene	0.998	1.099	1.188	1.257	1.368	1.202	1.185	10.76
71)	M	3,3'-Dichlorobenzid	0.359	0.313	0.261	0.260	0.325	0.349	0.311	13.68
72)	M	Chrysene	0.646	0.710	0.673	0.789	0.732	0.518	0.678	13.68
73)	M	bis(2-Ethylhexyl)ph	0.662	0.869	0.819	0.829	0.794	0.809	0.797	8.89
74)	I	Perylene-d12	----------ISTD----------							
75)	MC	Di-n-octylphthalate	1.476	1.944	2.380	2.294	2.015	1.853	1.994	16.35
[illegible]	M	Benzo[b]fluoranthen	1.424	1.372	1.718	2.300	2.264	1.821	1.816	21.97
[illegible]	m	Benzo[k]fluoranthen	1.505	1.480	1.141	1.010	0.774	0.748	1.110	29.83
78)	mc	Benzo[a]pyrene	1.116	0.972	1.027	1.015	0.979	0.945	1.009	5.98
79)	m	Indeno[1,2,3-cd]pyr	0.603	0.611	0.691	0.777	0.806	0.805	0.715	13.16
80)	m	Dibenz[a,h]anthrace	0.443	0.532	0.572	0.650	0.689	0.693	0.597	16.64
81)	M	Benzo[g,h,i]perylen	0.377	0.444	0.653	0.689	0.656	0.645	0.577	22.80

#) = Out of Range

verage of 4.991 to 5.051 min.: B7063.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
36.95	27	44.60	2	51.90	162	58.10	9
37.10	3	44.75	4	52.85	16	58.70	3
37.30	4	45.70	2	53.10	3	59.60	2
37.90	24	46.65	6	53.60	2	59.80	2
39.00	399	47.05	16	54.00	5	59.95	6
41.60	1	47.50	4	54.60	4	60.30	5
42.10	5	48.40	10	55.05	1	61.55	5
42.40	5	49.60	4	55.60	1	62.00	10
42.60	5	50.00	995	56.00	110	62.30	4
42.80	5	50.20	3	57.00	139	62.90	79
43.70	23	51.00	3251	57.20	9	63.30	6

verage of 4.991 to 5.051 min.: B7063.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
63.80	7	70.00	27	75.00	441	83.50	2
64.90	27	70.30	4	75.20	4	83.75	10
65.40	6	70.65	11	77.00	2463	83.80	2
65.95	6	71.25	8	78.00	129	84.55	4
66.30	3	71.60	2	78.90	256	84.85	11
66.90	12	72.70	5	79.90	113	85.15	7
67.50	2	73.00	15	80.50	2	85.65	4
68.30	7	73.60	8	81.00	157	85.85	12
68.50	4	74.00	238	81.20	4	86.15	6
68.95	3934	74.30	5	82.05	70	86.90	27
69.75	8	74.60	5	83.30	5	88.15	3

erage of 4.991 to 5.051 min.: B7063.D

--fied:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
88.45	1	95.50	4	103.25	2	109.35	7
88.90	6	95.90	25	103.65	5	109.95	1971
89.25	5	97.45	3	103.85	61	110.65	3
89.55	4	97.65	3	104.65	3	110.95	33
90.85	59	97.95	312	104.85	66	111.95	2
91.55	1	98.15	6	105.25	6	112.15	2
92.25	5	98.95	84	105.95	3	113.85	4
92.45	2	100.95	106	106.25	2	114.20	7
92.85	362	102.15	4	106.95	820	114.40	7
93.95	36	102.65	1	107.95	132	114.75	3
94.35	3	103.00	48	108.85	6	115.20	7

erage of 4.991 to 5.051 min.: B7063.D

lified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
116.95	758	124.65	2	130.05	86	137.00	56
117.75	2	124.95	4	130.95	4	137.25	2
117.85	3	125.25	18	131.50	4	137.45	3
118.00	66	125.40	23	131.85	17	138.35	9
119.30	3	125.65	2	132.45	1	138.60	7
120.55	3	125.95	3	132.80	4	139.15	11
120.75	2	126.15	3	133.15	5	139.35	2
.95	24	126.95	2352	134.55	3	139.50	2
2.25	1	128.25	2	134.95	90	139.80	3
2.95	123	128.95	1372	135.35	2	140.90	202
43.95	61	129.15	4	136.00	9	141.95	68

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
2.30	2	149.95	15	155.00	76	161.95	17
2.85	45	150.20	3	155.60	4	162.20	8
143.80	5	150.50	2	156.00	93	163.90	3
144.10	7	150.70	1	156.20	2	164.10	2
144.50	1	151.00	26	156.90	9	164.60	3
145.00	15	151.65	6	157.50	19	164.90	29
145.95	33	151.90	1	157.95	39	165.10	5
146.55	3	152.80	3	159.95	64	165.70	2
146.80	16	153.10	4	160.85	21	166.30	1
147.30	40	153.95	46	161.20	1	166.65	9
147.90	153	154.40	15	161.70	2	166.80	6

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
166.95	284	171.95	19	181.00	82	191.10	11
167.30	2	172.90	19	181.90	14	191.35	31
167.90	27	173.05	21	182.80	3	192.05	74
169.05	29	173.80	4	183.15	9	192.60	4
169.30	2	174.05	23	184.00	26	193.05	98
169.50	2	174.45	3	184.40	3	193.80	5
169.80	8	175.00	126	186.00	701	194.10	23
170.55	12	176.05	43	187.00	119	194.55	9
170.80	3	176.95	35	188.90	40	195.15	2
171.10	11	178.00	1	190.05	14	195.95	222
171.30	6	179.00	274	190.40	10	196.15	2

rage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
196.95	4	202.95	25	211.35	2	216.85	392
197.25	2	203.90	212	212.45	1	217.95	53
197.85	5447	204.30	4	212.75	4	218.85	2
198.95	323	205.10	26	213.35	2	220.50	11
199.95	26	205.95	1251	213.65	2	220.95	317
200.25	8	206.25	3	214.95	25	221.35	1
200.85	2	206.85	114	215.25	1	221.75	2
201.15	2	207.65	2	215.65	3	222.75	2
201.40	37	207.90	58	216.05	2	223.35	1
202.30	3	210.20	24	216.30	3	223.95	739
202.55	4	210.95	60	216.55	1	224.55	1

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
224.95	170	232.00	12	239.05	21	245.65	2
225.60	5	232.25	4	239.45	2	245.95	161
226.15	2	232.55	1	240.50	3	246.95	29
226.45	2	232.90	5	240.90	29	247.15	4
226.65	1	233.50	7	241.35	8	247.65	1
226.95	420	233.90	10	241.65	1	248.30	8
227.45	1	234.95	25	242.00	37	248.55	1
227.90	12	235.65	1	242.55	6	249.00	21
228.95	82	236.00	22	243.25	1	249.50	3
229.40	4	237.75	1	243.95	526	250.05	3
231.00	33	238.75	4	245.10	99	250.70	3

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
0.95	4	255.95	396	265.55	9	272.20	4
1.20	3	257.30	12	265.90	44	272.90	77
251.50	7	257.90	197	267.15	5	273.20	22
251.80	10	258.40	3	267.50	8	273.90	5
252.00	10	258.95	37	268.50	1	275.00	1253
252.30	3	259.90	3	269.95	7	275.50	1
252.85	1	261.00	6	270.40	2	275.90	121
254.10	2	262.20	3	270.60	2	276.30	5
254.90	3141	262.55	5	271.00	13	277.00	136
255.10	2	263.15	6	271.30	1	277.40	2
255.30	3	264.95	86	271.95	9	278.50	1

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
281.30	3	288.20	1	292.15	7	300.20	2
281.80	2	288.50	1	292.90	34	300.80	2
282.40	7	288.90	3	293.10	1	301.05	5
283.05	20	289.40	2	293.40	2	301.30	3
283.95	6	289.65	3	294.00	5	301.80	7
284.25	8	289.90	5	294.30	8	302.00	2
284.50	2	290.25	4	296.00	481	302.30	4
284.90	25	290.50	1	296.95	66	302.60	1
285.50	1	290.90	1	297.50	1	303.00	48
285.70	1	291.20	1	299.10	1	303.70	2
286.20	1	291.90	4	299.70	1	303.95	15

ıge of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
304.30	2	314.00	32	321.05	9	328.00	13
306.75	1	314.60	2	321.45	1	328.75	6
307.70	4	314.90	47	322.65	2	330.90	2
308.05	3	316.00	26	322.95	127	331.30	5
308.75	3	317.05	3	324.00	28	331.55	3
309.75	2	317.95	1	325.05	1	331.75	6
309.85	2	318.15	2	325.40	2	332.20	9
310.00	8	318.55	3	326.25	8	332.55	4
311.55	3	320.10	3	326.95	23	332.80	4
312.20	6	320.45	1	327.25	1	333.35	16
313.00	8	320.85	12	327.75	4	333.75	10

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
334.00	34	344.95	2	353.75	4	359.55	1
334.25	4	345.60	7	354.05	37	360.05	4
337.20	3	346.00	26	355.35	2	360.95	1
338.20	2	346.85	3	355.65	3	362.05	2
338.85	1	347.35	3	356.85	1	362.35	3
340.55	8	349.85	2	357.25	3	363.55	4
1.35	1	350.45	5	357.95	2	364.65	7
3.05	1	351.55	6	358.40	4	364.95	185
343.35	1	351.90	24	358.75	3	365.95	29
343.75	1	352.35	1	359.05	2	366.90	2
344.50	3	353.05	5	359.35	3	367.20	1

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
[illegible].50	1	372.80	3	382.80	12	390.00	3
[illegible].40	1	373.05	14	383.00	11	390.30	3
368.60	1	374.10	2	383.50	2	390.60	2
369.00	3	375.30	2	383.85	5	390.80	1
370.00	2	376.30	3	384.10	2	391.10	9
370.20	3	377.10	1	384.80	4	391.90	9
370.40	5	377.70	2	385.65	5	392.60	1
370.90	13	377.90	4	386.10	1	392.90	5
371.40	3	378.70	1	386.60	2	393.30	2
371.70	1	381.90	2	387.60	1	394.55	3
372.05	77	382.20	3	389.65	8	395.00	1

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
395.30	4	401.70	1	406.80	2	416.70	1
396.30	3	402.10	28	407.30	1	416.95	2
396.80	1	402.80	5	407.60	2	417.35	2
398.10	1	403.05	33	407.95	5	417.75	1
398.70	2	403.40	2	408.70	3	418.25	1
398.95	2	403.95	12	409.00	1	418.55	1
399.55	4	405.25	3	410.60	2	418.95	3
399.80	1	405.50	2	410.90	1	419.25	1
400.50	2	405.70	2	412.80	4	419.50	3
400.75	4	406.25	3	414.05	4	420.75	3
401.00	2	406.50	1	415.00	1	421.00	24

ge of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
421.30	3	429.95	1	438.00	7	444.00	55
421.75	5	430.40	3	438.30	4	444.95	2
422.95	97	430.80	6	438.95	12	445.45	2
424.65	4	433.25	1	439.45	6	445.75	1
425.55	1	434.40	5	441.10	11	446.05	3
427.45	3	434.75	2	441.55	2	446.65	2
428.05	1	434.90	2	441.75	3	446.85	2
428.35	3	436.60	3	442.05	3258	447.15	2
428.55	3	436.95	2	442.75	2	447.85	1
428.90	2	437.35	2	442.95	610	448.05	2
429.15	1	437.65	10	443.35	2	448.55	2

erage of 4.991 to 5.051 min.: B7063.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
450.95	4	462.25	2	470.15	4		
451.55	1	462.45	2	471.10	4		
453.60	5	462.95	1	471.35	1		
454.85	2	463.70	3	472.50	1		
456.35	2	464.15	2	473.00	4		
457.25	1	465.85	1	473.60	3		
[illegible]7.65	1	467.45	3	473.90	1		
[illegible]7.95	1	468.45	2				
459.15	1	468.75	1				
459.75	1	469.25	2				
460.15	4	469.55	3				

Quantitation Report

Data File : c:\hpchem\1\data3\b7066.d Vial: 3
Acq On : 4 Nov 97 5:09 pm Operator: SCOTTV
Sample : 20 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 5 12:08 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.13	152	12269	40.00	ug/mL	0.00
18) Naphthalene-d8	10.91	136	52621	40.00	ug/mL	0.00
33) Acenaphthene-d10	16.16	164	41636	40.00	ug/mL	0.00
51) Phenanthrene-d10	20.49	188	98645	40.00	ug/ml	0.00
65) Chrysene-d12	28.44	240	78584	40.00	ug/mL	0.01
74) Perylene-d12	32.41	264	37898	40.00	ug/mL	0.00
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.83	112	3610	10.04	ug/mL	10.04%
3) Phenol-d5	7.06	99	23331	38.72	ug/mL	38.72%
19) Nitrobenzene-d5	8.98	82	23112	36.61	ug/mL	36.61%
37) 2-Fluorobiphenyl	14.39	172	55089	45.24	ug/mL	45.24%
55) 2,4,6-Tribromophenol	18.62	330	20898	34.39	ug/mL	34.39%
68) Terphenyl-d14	25.57	244	102390	50.20	ug/mL	50.20%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.45	74	3428	14.03	ug/ml	100
5) Pyridine	1.41	79	7069	17.23	ug/ml	100
6) Phenol	7.11	94	10163	15.85	ug/mL	100
7) Benzyl alcohol	8.00	79	6621	21.58	ug/ml	95
8) bis(2-Chloroethyl)ether	6.82	93	5400	13.99	ug/mL	89
9) 2-Chlorophenol	6.82	128	8540	18.49	ug/mL	96
10) 1,3-Dichlorobenzene	6.98	146	7193	20.66	ug/mL	98
11) 1,4-Dichlorobenzene	7.19	146	7894	20.44	ug/mL	97
12) 1,2-Dichlorobenzene	7.69	146	7812	20.99	ug/mL	97
13) 2-Methylphenol	8.75	108	7670	17.33	ug/mL	93
14) bis(2-chloroisopropyl)ethe	8.43	45	14862	27.70	ug/mL	99
15) 4-Methylphenol	9.22	108	8382	17.70	ug/mL	97
16) N-Nitroso-Di-n-propylamine	8.87	70	6365	16.53	ug/mL	98
17) Hexachloroethane	8.55	117	4411	15.33	ug/mL#	76
20) Nitrobenzene	9.04	77	8989	16.28	ug/mL	94
21) Isophorone	9.79	82	17569	21.77	ug/mL	100
22) 2-Nitrophenol	9.99	139	6695	19.07	ug/mL	98
23) 2,4-Dimethylphenol	10.62	107	11886	17.58	ug/mL	98
24) bis(2-Chloroethoxy)methane	10.75	93	10006	16.53	ug/mL	99
25) 2,4-Dichlorophenol	10.89	162	9353	20.68	ug/mL	96
26) 1,2,4-Trichlorobenzene	10.87	180	8834	20.87	ug/mL	98
27) Naphthalene	10.95	128	26119	18.89	ug/mL	98
28) 4-Chloroaniline	11.50	127	13217	20.11	ug/mL	98
29) Hexachlorobutadiene	11.64	225	6603	19.40	ug/mL	97
30) 4-Chloro-3-methylphenol	13.39	107	11263	18.70	ug/mL	98
31) 2-Chloronaphthalene	14.47	162	21928	21.11	ug/ml	97
32) 2-Methylnaphthalene	13.06	142	21017	20.98	ug/mL	98
34) Hexachlorocyclopentadiene	13.80	237	5380	11.61	ug/mL	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7066.d Vial: 3
Acq On : 4 Nov 97 5:09 pm Operator: SCOTTV
Sample : 20 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 5 12:08 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35)	2,4,6-Trichlorophenol	14.22	196	8426	18.21	ug/mL	97
36)	2,4,5-Trichlorophenol	14.47	196	9582	20.44	ug/mL	99
38)	2-Nitroaniline	15.16	65	9462	15.11	ug/mL	87
39)	Dimethylphthalate	15.95	163	20136	17.38	ug/mL	100
40)	Acenaphthylene	15.67	152	34279	19.62	ug/mL#	99
41)	2,6-Dinitrotoluene	16.10	165	6295	18.24	ug/mL	98
42)	3-Nitroaniline	16.46	138	7722	19.69	ug/mL	93
43)	Acenaphthene	16.24	153	23910	20.42	ug/mL	98
44)	2,4-Dinitrophenol	16.81	184	3283	10.85	ug/mL	86
45)	4-Nitrophenol	17.66	109	4255	14.70	ug/mL	94
46)	Dibenzofuran	16.75	168	39295	20.79	ug/mL	98
47)	2,4-Dinitrotoluene	17.23	165	6519	13.71	ug/mL	91
48)	Diethylphthalate	18.13	149	30381	19.34	ug/mL	96
49)	Fluorene	17.76	166	28565	20.66	ug/mL	99
50)	4-Chlorophenyl-phenylether	17.99	204	14099	20.58	ug/mL	99
52)	4-Nitroaniline	18.31	138	7804	18.28	ug/mL	96
53)	4,6-Dinitro-2-methylphenol	18.41	198	5976	13.98	ug/mL	100
54)	n-Nitrosodiphenylamine	18.46	169	20428	21.66	ug/mL	100
56)	1,2-Diphenylhydrazine (as	18.41	77	43634	17.90	ug/ml	100
57)	4-Bromophenyl-phenylether	19.39	248	10589	18.62	ug/mL	98
58)	Hexachlorobenzene	19.62	284	15405	17.20	ug/mL#	88
59)	Pentachlorophenol	20.37	266	5811	10.83	ug/mL	98
60)	Phenanthrene	20.55	178	46271	18.24	ug/mL	99
61)	Anthracene	20.67	178	38833	16.53	ug/mL	99
62)	Carbazole	21.43	167	43726	19.95	ug/ml	99
63)	Di-n-butylphthalate	23.03	149	66939	19.08	ug/mL	99
64)	Fluoranthene	24.09	202	55545	18.39	ug/mL	94
66)	Benzidine	24.88	184	12981	28.06	ug/ml	100
67)	Pyrene	24.70	202	60401	23.73	ug/mL	95
69)	Butylbenzylphthalate	27.45	149	24851	20.10	ug/mL#	85
70)	Benzo[a]anthracene	28.38	228	43188	20.44	ug/mL	100
71)	3,3'-Dichlorobenzidine	28.67	252	12290	16.07	ug/mL#	93
72)	Chrysene	28.50	228	27904	15.15	ug/mL	99
73)	bis(2-Ethylhexyl)phthalate	29.42	149	34159	16.27	ug/mL#	36
75)	Di-n-octylphthalate	31.19	149	36835	21.37	ug/mL	99
76)	Benzo[b]fluoranthene	31.43	252	25999	13.89	ug/mL	96
77)	Benzo[k]fluoranthene	31.51	252	28039	34.76	ug/mLm	98
78)	Benzo[a]pyrene	32.25	252	18418	20.35	ug/mL#	97
79)	Indeno[1,2,3-cd]pyrene	34.93	276	11570	16.29	ug/mLm	96
80)	Dibenz[a,h]anthracene	35.03	278	10087	16.11	ug/mLm	96
81)	Benzo[g,h,i]perylene	35.46	276	8411	16.38	ug/mLm	98

(#) = qualifier out of range (m) = manual integration

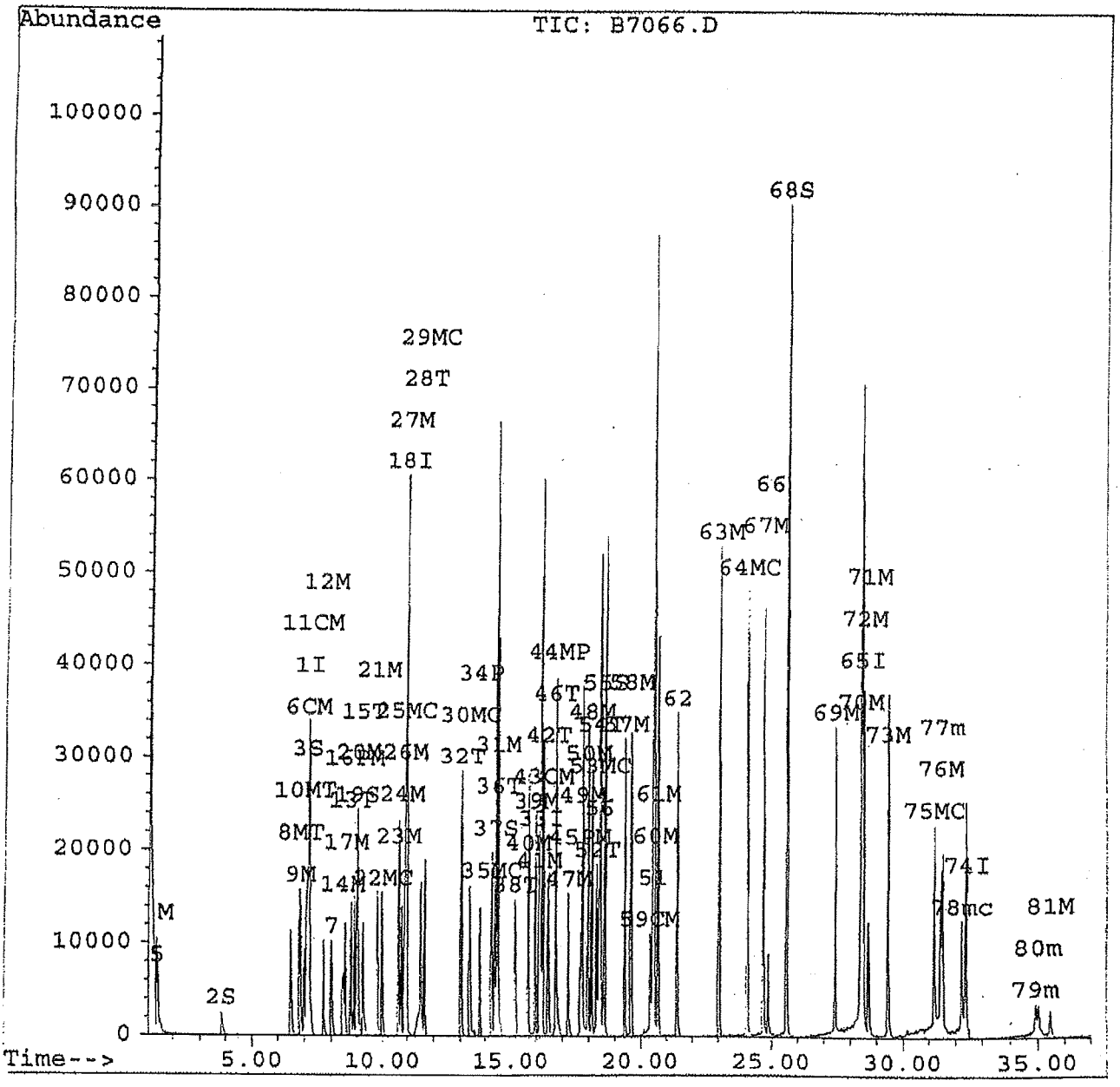
Quantitation Report

Data File : c:\hpchem\1\data3\b7066.d
Acq On : 4 Nov 97 5:09 pm
Sample : 20 STD.....
Misc :
Quant Time: Nov 5 12:08 1997

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Converted from RTE d

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed.Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

250

Data File : c:\hpchem\1\data3\b7067.d Vial: 4
Acq On : 4 Nov 97 5:56 pm Operator: SCOTTV
Sample : 50 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 5 11:52 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.13	152	12591	40.00	ug/mL	0.00
18) Naphthalene-d8	10.91	136	53219	40.00	ug/mL	0.00
33) Acenaphthene-d10	16.16	164	44781	40.00	ug/mL	0.00
51) Phenanthrene-d10	20.50	188	83157	40.00	ug/ml	0.00
65) Chrysene-d12	28.43	240	64621	40.00	ug/mL	0.00
74) Perylene-d12	32.40	264	27266	40.00	ug/mL	0.00
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.83	112	3846	10.43	ug/mL	10.43%
3) Phenol-d5	7.04	99	23829	38.53	ug/mL	38.53%
19) Nitrobenzene-d5	9.00	82	24384	38.19	ug/mL	38.19%
37) 2-Fluorobiphenyl	14.39	172	58444	44.62	ug/mL	44.62%
55) 2,4,6-Tribromophenol	18.62	330	23077	45.05	ug/mL	45.05%
68) Terphenyl-d14	25.58	244	91716	54.68	ug/mL	54.68%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.45	74	8960	35.73	ug/ml	100
5) Pyridine	1.41	79	16046	38.11	ug/ml	100
6) Phenol	7.08	94	27204	41.34	ug/mL	100
7) Benzyl alcohol	8.02	79	18367	58.34	ug/ml	100
8) bis(2-Chloroethyl)ether	6.82	93	14260	36.00	ug/mL	100
9) 2-Chlorophenol	6.80	128	22452	47.36	ug/mL	100
10) 1,3-Dichlorobenzene	6.98	146	18685	52.30	ug/mL	100
11) 1,4-Dichlorobenzene	7.19	146	19914	50.25	ug/mL	100
12) 1,2-Dichlorobenzene	7.69	146	19841	51.95	ug/mL	100
13) 2-Methylphenol	8.71	108	20695	45.55	ug/mL	100
14) bis(2-chloroisopropyl)ethe	8.43	45	37734	68.52	ug/mL	100
15) 4-Methylphenol	9.20	108	21225	43.66	ug/mL	100
16) N-Nitroso-Di-n-propylamine	8.89	70	17310	43.79	ug/mL	100
17) Hexachloroethane	8.53	117	11540	39.09	ug/mL	100
20) Nitrobenzene	9.04	77	22594	40.47	ug/mL	100
21) Isophorone	9.83	82	44324	54.31	ug/mL	100
22) 2-Nitrophenol	9.99	139	17850	50.29	ug/mL	100
23) 2,4-Dimethylphenol	10.62	107	32521	47.56	ug/mL	100
24) bis(2-Chloroethoxy)methane	10.77	93	27379	44.73	ug/mL	100
25) 2,4-Dichlorophenol	10.87	162	25686	56.15	ug/mL	100
26) 1,2,4-Trichlorobenzene	10.87	180	22318	52.14	ug/mL	100
27) Naphthalene	10.97	128	68625	49.08	ug/mL	100
28) 4-Chloroaniline	11.50	127	34647	52.13	ug/mL	100
29) Hexachlorobutadiene	11.66	225	16217	47.11	ug/mL	100
30) 4-Chloro-3-methylphenol	13.37	107	29641	48.66	ug/mL	100
31) 2-Chloronaphthalene	14.47	162	54376	51.76	ug/ml	100
32) 2-Methylnaphthalene	13.07	142	52666	51.99	ug/mL	100
34) Hexachlorocyclopentadiene	13.80	237	17634	35.39	ug/mL	100

(#) = qualifier out of range (m) = manual integration

Data File : c:\hpchem\1\data3\b7067.d Vial: 4
Acq On : 4 Nov 97 5:56 pm Operator: SCOTTV
Sample : 50 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 5 11:52 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

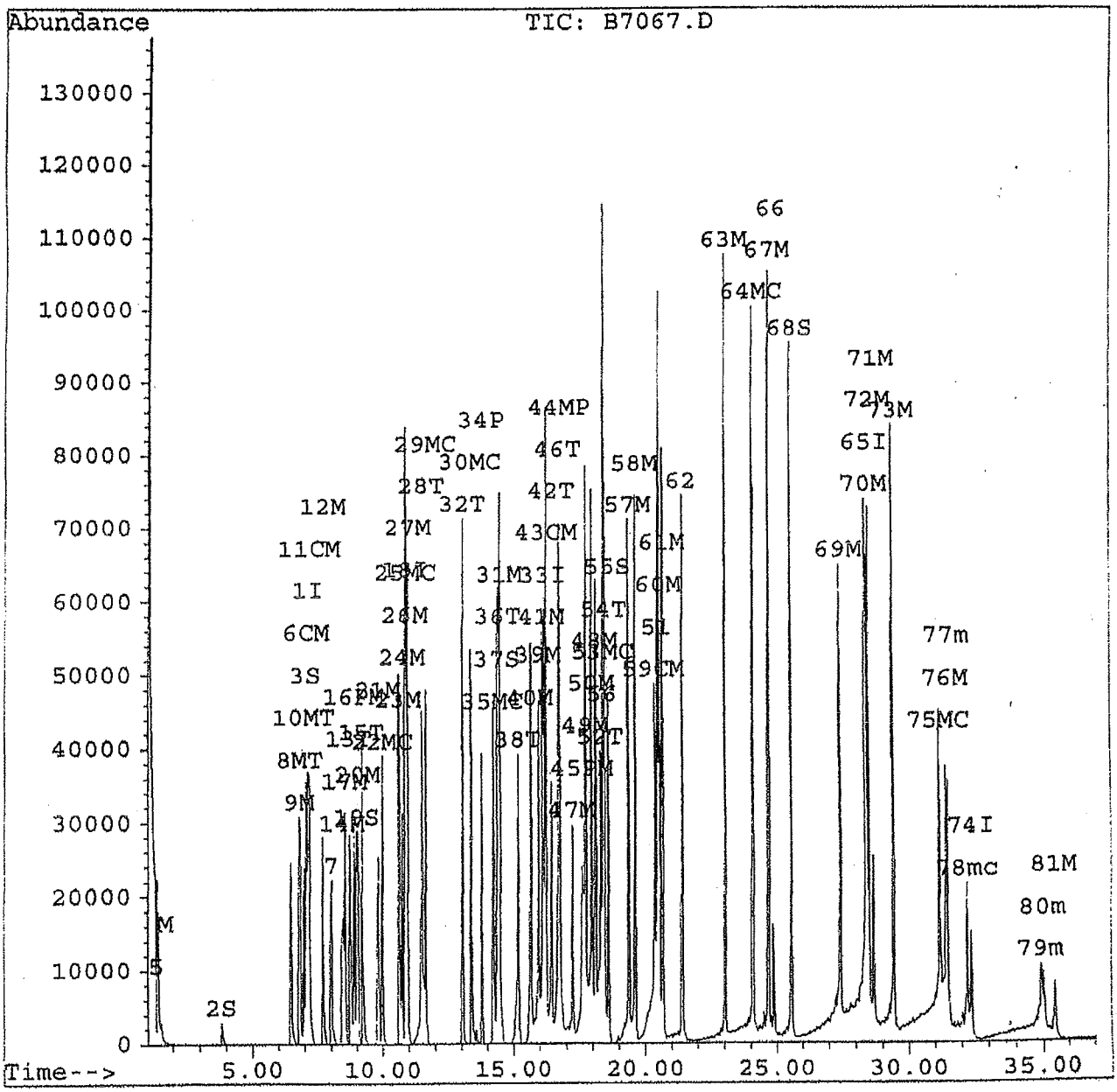
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35)	2,4,6-Trichlorophenol	14.22	196	23973	48.18	ug/mL	100
36)	2,4,5-Trichlorophenol	14.43	196	25067	49.72	ug/mL	100
38)	2-Nitroaniline	15.18	65	26511	39.37	ug/mL	100
39)	Dimethylphthalate	15.98	163	37038	29.73	ug/mL	99
40)	Acenaphthylene	15.67	152	94812	50.46	ug/mL#	100
41)	2,6-Dinitrotoluene	16.12	165	10617	28.60	ug/mL	100
42)	3-Nitroaniline	16.46	138	22549	53.46	ug/mL	98
43)	Acenaphthene	16.26	153	62915	49.96	ug/mL	100
44)	2,4-Dinitrophenol	16.79	184	12777	39.27	ug/mL	91
45)	4-Nitrophenol	17.62	109	13583	43.62	ug/mL	90
46)	Dibenzofuran	16.75	168	101953	50.15	ug/mL	100
47)	2,4-Dinitrotoluene	17.24	165	12363	24.17	ug/mL	97
48)	Diethylphthalate	18.13	149	63976	37.87	ug/mL	100
49)	Fluorene	17.77	166	77628	52.20	ug/mL	100
50)	4-Chlorophenyl-phenylether	17.99	204	36576	49.64	ug/mL	100
52)	4-Nitroaniline	18.34	138	17743	49.29	ug/mL	100
53)	4,6-Dinitro-2-methylphenol	18.44	198	15547	43.15	ug/mL	100
54)	n-Nitrosodiphenylamine	18.46	169	43254	54.39	ug/mL	100
56)	1,2-Diphenylhydrazine (as	18.42	77	105640	51.40	ug/ml	100
57)	4-Bromophenyl-phenylether	19.40	248	24164	50.41	ug/mL	100
58)	Hexachlorobenzene	19.64	284	41054	54.36	ug/mL	100
59)	Pentachlorophenol	20.37	266	19202	42.46	ug/mL	100
60)	Phenanthrene	20.56	178	104592	48.90	ug/mL	100
61)	Anthracene	20.68	178	86372	43.60	ug/mL	100
62)	Carbazole	21.43	167	94913	51.38	ug/ml	100
63)	Di-n-butylphthalate	23.04	149	150770	50.97	ug/mL	100
64)	Fluoranthene	24.10	202	127219	49.97	ug/mL	100
66)	Benzidine	24.87	184	22464	59.04	ug/ml	100
67)	Pyrene	24.71	202	134292	64.17	ug/mL	100
69)	Butylbenzylphthalate	27.43	149	48943	48.15	ug/mL	100
70)	Benzo[a]anthracene	28.39	228	95939	55.22	ug/mL	100
71)	3,3'-Dichlorobenzidine	28.68	252	21097	33.54	ug/mL	96
72)	Chrysene	28.51	228	54401	35.93	ug/mL	100
73)	bis(2-Ethylhexyl)phthalate	29.43	149	66174	38.32	ug/mL#	34
75)	Di-n-octylphthalate	31.18	149	81128	65.41	ug/mL	100
76)	Benzo[b]fluoranthene	31.44	252	58547	43.48	ug/mL	100
77)	Benzo[k]fluoranthene	31.51	252	38876	66.99	ug/mLm	99
78)	Benzo[a]pyrene	32.24	252	35012	53.76	ug/mL	99
79)	Indeno[1,2,3-cd]pyrene	34.92	276	23545	46.08	ug/mL	97
80)	Dibenz[a,h]anthracene	35.02	278	19484	43.25	ug/mL	98
81)	Benzo[g,h,i]perylene	35.45	276	22245	60.20	ug/mLm	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7067.d Vial: 4
Acq On : 4 Nov 97 5:56 pm Operator: SCOTTV
Sample : 50 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 5 11:52 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data3\b7068.d Vial: 55
Acq On : 4 Nov 97 6:43 pm Operator: SCOTTV
Sample : 80 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 5 12:09 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.13	152	12515	40.00	ug/mL	0.00
18) Naphthalene-d8	10.93	136	53129	40.00	ug/mL	0.02
33) Acenaphthene-d10	16.18	164	42933	40.00	ug/mL	0.02
51) Phenanthrene-d10	20.50	188	80359	40.00	ug/ml	0.00
65) Chrysene-d12	28.44	240	64139	40.00	ug/mL	0.01
74) Perylene-d12	32.39	264	27867	40.00	ug/mL	0.00
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.83	112	3943	10.76	ug/mL	10.76%
3) Phenol-d5	7.04	99	22922	37.29	ug/mL	37.29%
19) Nitrobenzene-d5	9.00	82	24667	38.70	ug/mL	38.70%
37) 2-Fluorobiphenyl	14.41	172	58335	46.45	ug/mL	46.45%
55) 2,4,6-Tribromophenol	18.63	330	18409	37.19	ug/mL	37.19%
68) Terphenyl-d14	25.57	244	84584	50.81	ug/mL	50.81%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.45	74	15164	60.84	ug/ml	100
5) Pyridine	1.41	79	24971	59.67	ug/ml	100
6) Phenol	7.06	94	42973	65.70	ug/mL	100
7) Benzyl alcohol	8.02	79	30799	98.41	ug/ml	93
8) bis(2-Chloroethyl)ether	6.82	93	21839	55.47	ug/mL	99
9) 2-Chlorophenol	6.78	128	33820	71.77	ug/mL	94
10) 1,3-Dichlorobenzene	6.98	146	30305	85.35	ug/mL	97
11) 1,4-Dichlorobenzene	7.19	146	32089	81.47	ug/mL	99
12) 1,2-Dichlorobenzene	7.70	146	32050	84.43	ug/mL	99
13) 2-Methylphenol	8.71	108	32699	72.41	ug/mL	97
14) bis(2-chloroisopropyl)ethe	8.43	45	59215	108.19	ug/mL	98
15) 4-Methylphenol	9.20	108	36254	75.03	ug/mL	98
16) N-Nitroso-Di-n-propylamine	8.92	70	30048	76.48	ug/mL	98
17) Hexachloroethane	8.53	117	18676	63.64	ug/mL	98
20) Nitrobenzene	9.06	77	36400	65.31	ug/mL	94
21) Isophorone	9.87	82	67961	83.41	ug/mL	100
22) 2-Nitrophenol	10.02	139	30305	85.52	ug/mL	92
23) 2,4-Dimethylphenol	10.65	107	51165	74.96	ug/mL	100
24) bis(2-Chloroethoxy)methane	10.77	93	43765	71.63	ug/mL	99
25) 2,4-Dichlorophenol	10.87	162	39776	87.10	ug/mL	98
26) 1,2,4-Trichlorobenzene	10.89	180	35717	83.58	ug/mL	99
27) Naphthalene	10.97	128	109370	78.35	ug/mL	98
28) 4-Chloroaniline	11.52	127	56087	84.53	ug/mL	99
29) Hexachlorobutadiene	11.66	225	25915	75.42	ug/mL	99
30) 4-Chloro-3-methylphenol	13.37	107	47370	77.89	ug/mL	98
31) 2-Chloronaphthalene	14.49	162	87993	83.90	ug/ml	94
32) 2-Methylnaphthalene	13.07	142	85204	84.25	ug/mL	100
34) Hexachlorocyclopentadiene	13.80	237	31109	65.12	ug/mL	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7068.d Vial: 5
Acq On : 4 Nov 97 6:43 pm Operator: SCOTTV
Sample : 80 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 5 12:09 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35)	2,4,6-Trichlorophenol	14.25	196	36922	77.39	ug/mL	98
36)	2,4,5-Trichlorophenol	14.41	196	41772	86.42	ug/mL	98
38)	2-Nitroaniline	15.20	65	44514	68.95	ug/mL	92
39)	Dimethylphthalate	15.98	163	48284	40.42	ug/mL	99
40)	Acenaphthylene	15.69	152	152107	84.44	ug/mL#	99
41)	2,6-Dinitrotoluene	16.14	165	23178	65.12	ug/mLm	0
42)	3-Nitroaniline	16.49	138	37308	92.26	ug/mL	97
43)	Acenaphthene	16.26	153	101837	84.35	ug/mL	100
44)	2,4-Dinitrophenol	16.81	184	20716	66.40	ug/mL	96
45)	4-Nitrophenol	17.61	109	20023	67.07	ug/mL	89
46)	Dibenzofuran	16.77	168	168024	86.20	ug/mL	96
47)	2,4-Dinitrotoluene	17.26	165	25026	51.02	ug/mLm	0
48)	Diethylphthalate	18.16	149	100070	61.78	ug/mL	99
49)	Fluorene	17.79	166	126152	88.48	ug/mL	99
50)	4-Chlorophenyl-phenylether	18.00	204	58807	83.25	ug/mL	99
52)	4-Nitroaniline	18.38	138	24208	69.60	ug/mL	95
53)	4,6-Dinitro-2-methylphenol	18.44	198	23688	68.04	ug/mL	100
54)	n-Nitrosodiphenylamine	18.49	169	61306	79.78	ug/mL	99
56)	1,2-Diphenylhydrazine (as	18.44	77	139779	70.38	ug/ml	100
57)	4-Bromophenyl-phenylether	19.40	248	36071	77.87	ug/mL	96
58)	Hexachlorobenzene	19.65	284	51918	71.14	ug/mL	97
59)	Pentachlorophenol	20.38	266	32803	75.05	ug/mL	98
60)	Phenanthrene	20.56	178	164982	79.82	ug/mL	100
61)	Anthracene	20.71	178	141795	74.07	ug/mLm	0
62)	Carbazole	21.44	167	141950	79.52	ug/ml	99
63)	Di-n-butylphthalate	23.05	149	222482	77.84	ug/mL	99
64)	Fluoranthene	24.10	202	191798	77.96	ug/mL	98
66)	Benzidine	24.88	184	32788	86.82	ug/ml	100
67)	Pyrene	24.72	202	196824	94.76	ug/mL	98
69)	Butylbenzylphthalate	27.44	149	75898	75.22	ug/mL	96
70)	Benzo[a]anthracene	28.40	228	161209	93.49	ug/mL	99
71)	3,3'-Dichlorobenzidine	28.67	252	33293	53.33	ug/mL#	96
72)	Chrysene	28.50	228	101248	67.36	ug/mLm	99
73)	bis(2-Ethylhexyl)phthalate	29.42	149	106379	62.07	ug/mL#	33
75)	Di-n-octylphthalate	31.19	149	127876	100.88	ug/mL	99
76)	Benzo[b]fluoranthene	31.44	252	128205	93.15	ug/mLm	97
77)	Benzo[k]fluoranthene	31.52	252	56264	94.86	ug/mLm	98
78)	Benzo[a]pyrene	32.23	252	56555	84.97	ug/mL	99
79)	Indeno[1,2,3-cd]pyrene	34.94	276	43278	82.88	ug/mL	94
80)	Dibenz[a,h]anthracene	35.02	278	36241	78.71	ug/mL	99
81)	Benzo[g,h,i]perylene	35.44	276	38394	101.66	ug/mLm	98

(#) = qualifier out of range (m) = manual integration

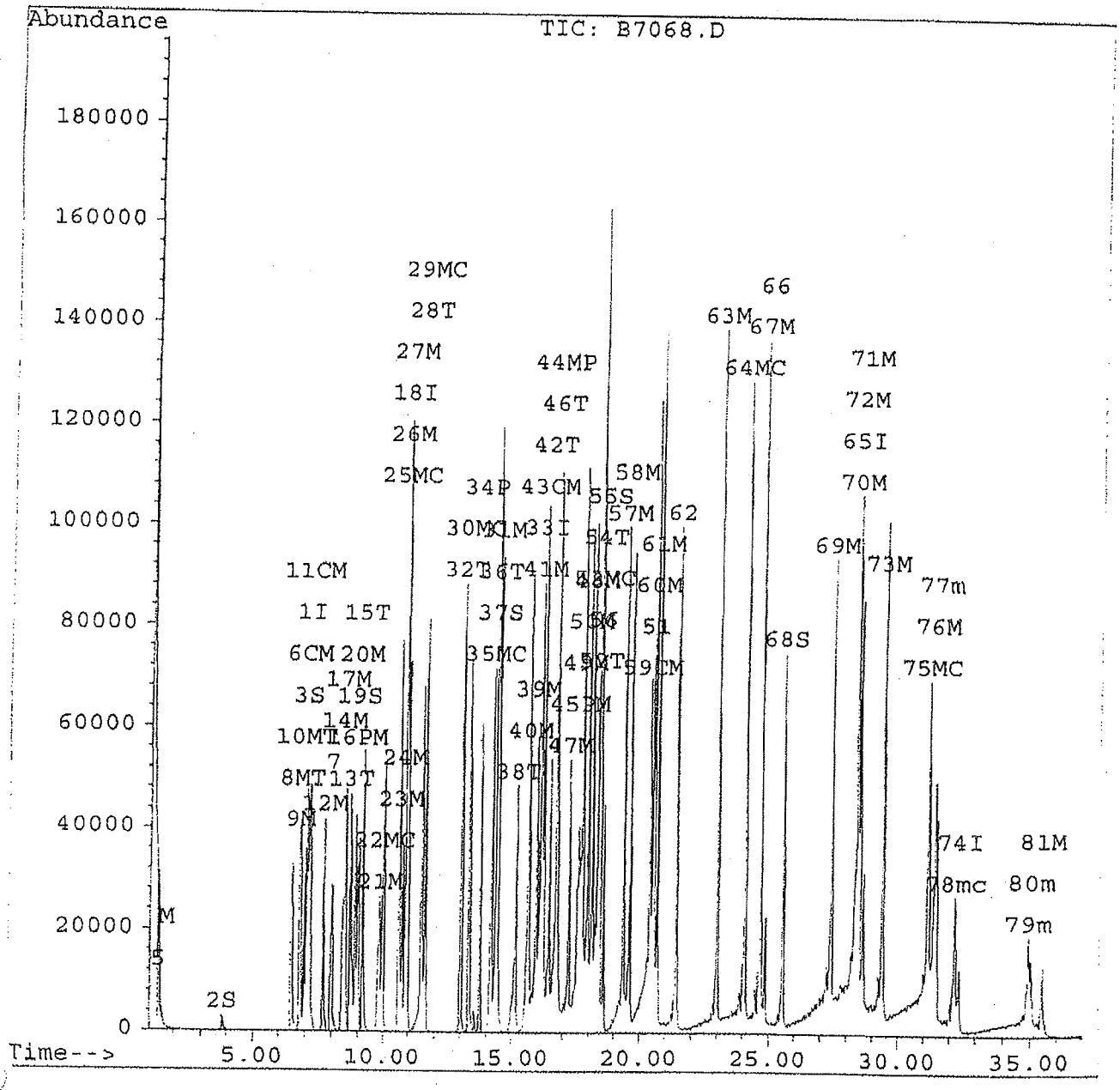
Quantitation Report

Data File : c:\hpchem\1\data3\b7068.d
Acq On : 4 Nov 97 6:43 pm
Sample : 80 STD.....
Misc :
Quant Time: Nov 5 12:09 1997

Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data3\b7069.d
Acq On : 4 Nov 97 7:30 pm
Sample : 120 STD.....
Misc :
Quant Time: Nov 5 12:11 1997

Vial: 6
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.14	152	14123	40.00	ug/mL	0.02
18) Naphthalene-d8	10.95	136	59497	40.00	ug/mL	0.04
33) Acenaphthene-d10	16.18	164	47603	40.00	ug/mL	0.02
51) Phenanthrene-d10	20.51	188	91651	40.00	ug/ml	0.01
65) Chrysene-d12	28.45	240	76941	40.00	ug/mL	0.02
74) Perylene-d12	32.39	264	39927	40.00	ug/mL	-0.02
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.85	112	5051	12.21	ug/mL	12.21%
3) Phenol-d5	7.04	99	25456	36.70	ug/mL	36.70%
19) Nitrobenzene-d5	9.02	82	27985	39.21	ug/mL	39.21%
37) 2-Fluorobiphenyl	14.41	172	66487	47.75	ug/mL	47.75%
55) 2,4,6-Tribromophenol	18.63	330	21252	37.64	ug/mL	37.64%
68) Terphenyl-d14	25.58	244	93719	46.93	ug/mL	46.93%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.47	74	27223	96.79	ug/ml	100
5) Pyridine	1.41	79	48554	102.82	ug/ml	100
6) Phenol	7.06	94	73934	100.17	ug/mL	100
7) Benzyl alcohol	8.08	79	52423	148.44	ug/ml	98
8) bis(2-Chloroethyl)ether	6.86	93	34730	78.17	ug/mL	95
9) 2-Chlorophenol	6.80	128	57584	108.28	ug/mL	96
10) 1,3-Dichlorobenzene	7.00	146	50776	126.72	ug/mL	97
11) 1,4-Dichlorobenzene	7.19	146	54708	123.08	ug/mL	99
12) 1,2-Dichlorobenzene	7.71	146	54316	126.80	ug/mL	99
13) 2-Methylphenol	8.73	108	55637	109.18	ug/mL	96
14) bis(2-chloroisopropyl)ethe	8.45	45	99481	161.06	ug/mL#	94
15) 4-Methylphenol	9.22	108	61074	112.01	ug/mL	97
16) N-Nitroso-Di-n-propylamine	8.96	70	43847	98.90	ug/mL	94
17) Hexachloroethane	8.55	117	31159	94.09	ug/mL	90
20) Nitrobenzene	9.08	77	61962	99.28	ug/mL	95
21) Isophorone	9.95	82	122291	134.02	ug/mLm	99
22) 2-Nitrophenol	10.03	139	51357	129.41	ug/mL	95
23) 2,4-Dimethylphenol	10.67	107	87302	114.21	ug/mL	99
24) bis(2-Chloroethoxy)methane	10.79	93	73610	107.58	ug/mL	99
25) 2,4-Dichlorophenol	10.89	162	65377	127.84	ug/mL#	94
26) 1,2,4-Trichlorobenzene	10.89	180	59683	124.71	ug/mL	99
27) Naphthalene	10.99	128	183957	117.68	ug/mL	99
28) 4-Chloroaniline	11.54	127	94913	127.74	ug/mL	97
29) Hexachlorobutadiene	11.66	225	44206	114.88	ug/mL	98
30) 4-Chloro-3-methylphenol	13.37	107	81762	120.05	ug/mL	99
31) 2-Chloronaphthalene	14.49	162	148585	126.51	ug/ml	100
32) 2-Methylnaphthalene	13.09	142	142547	125.86	ug/mL	100
34) Hexachlorocyclopentadiene	13.80	237	56010	105.75	ug/mL	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7069.d Vial: 6
Acq On : 4 Nov 97 7:30 pm Operator: SCOTTV
Sample : 120 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 5 12:11 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,6-Trichlorophenol	14.25	196	56543	106.89	ug/mL	98
36) 2,4,5-Trichlorophenol	14.41	196	66127	123.39	ug/mL	99
38) 2-Nitroaniline	15.23	65	75618	105.64	ug/mL	96
39) Dimethylphthalate	16.02	163	133049	100.46	ug/mLm	0
40) Acenaphthylene	15.71	152	264705	132.53	ug/mL#	97
41) 2,6-Dinitrotoluene	16.16	165	41027	103.96	ug/mLm	0
42) 3-Nitroaniline	16.51	138	48477	108.11	ug/mL	94
43) Acenaphthene	16.29	153	171601	128.19	ug/mL	99
44) 2,4-Dinitrophenol	16.84	184	39004	112.76	ug/mL#	83
45) 4-Nitrophenol	17.59	109	30518	92.20	ug/mL	92
46) Dibenzofuran	16.80	168	285506	132.10	ug/mL	93
47) 2,4-Dinitrotoluene	17.30	165	40367	74.23	ug/mLm	0
48) Diethylphthalate	18.18	149	170268	94.81	ug/mL	100
49) Fluorene	17.79	166	165984	105.00	ug/mL	99
50) 4-Chlorophenyl-phenylether	18.02	204	104023	132.81	ug/mL	96
52) 4-Nitroaniline	18.43	138	35234	88.81	ug/mL	94
53) 4,6-Dinitro-2-methylphenol	18.49	198	46252	116.48	ug/mL	100
54) n-Nitrosodiphenylamine	18.51	169	104957	119.75	ug/mL	99
56) 1,2-Diphenylhydrazine (as	18.47	77	223095	98.50	ug/ml	100
57) 4-Bromophenyl-phenylether	19.41	248	60960	115.39	ug/mL	94
58) Hexachlorobenzene	19.67	284	89267	107.25	ug/mL	99
59) Pentachlorophenol	20.41	266	57529	115.41	ug/mL	96
60) Phenanthrene	20.59	178	279773	118.68	ug/mL	99
61) Anthracene	20.71	178	241503	110.61	ug/mLm	0
62) Carbazole	21.44	167	243789	119.75	ug/ml	99
63) Di-n-butylphthalate	23.05	149	345368	105.95	ug/mL	99
64) Fluoranthene	24.11	202	307479	109.58	ug/mL	99
66) Benzidine	24.89	184	66833	147.53	ug/ml	100
67) Pyrene	24.72	202	310170	124.49	ug/mL	97
69) Butylbenzylphthalate	27.45	149	133840	110.58	ug/mL	94
70) Benzo[a]anthracene	28.41	228	315726	152.63	ug/mL	99
71) 3,3'-Dichlorobenzidine	28.68	252	75023	100.18	ug/mL	96
72) Chrysene	28.51	228	169059	93.77	ug/mLm	99
73) bis(2-Ethylhexyl)phthalate	29.43	149	183213	89.11	ug/mL#	36
75) Di-n-octylphthalate	31.18	149	241325	132.88	ug/mL	100
76) Benzo[b]fluoranthene	31.45	252	271161	137.52	ug/mLm	98
77) Benzo[k]fluoranthene	31.51	252	92736	109.13	ug/mLm	99
78) Benzo[a]pyrene	32.24	252	117256	122.95	ug/mL	98
79) Indeno[1,2,3-cd]pyrene	34.93	276	96546	129.04	ug/mL	98
80) Dibenz[a,h]anthracene	35.03	278	82578	125.18	ug/mL	98
81) Benzo[g,h,i]perylene	35.46	276	78556	145.18	ug/mLm	0

(#) = qualifier out of range (m) = manual integration

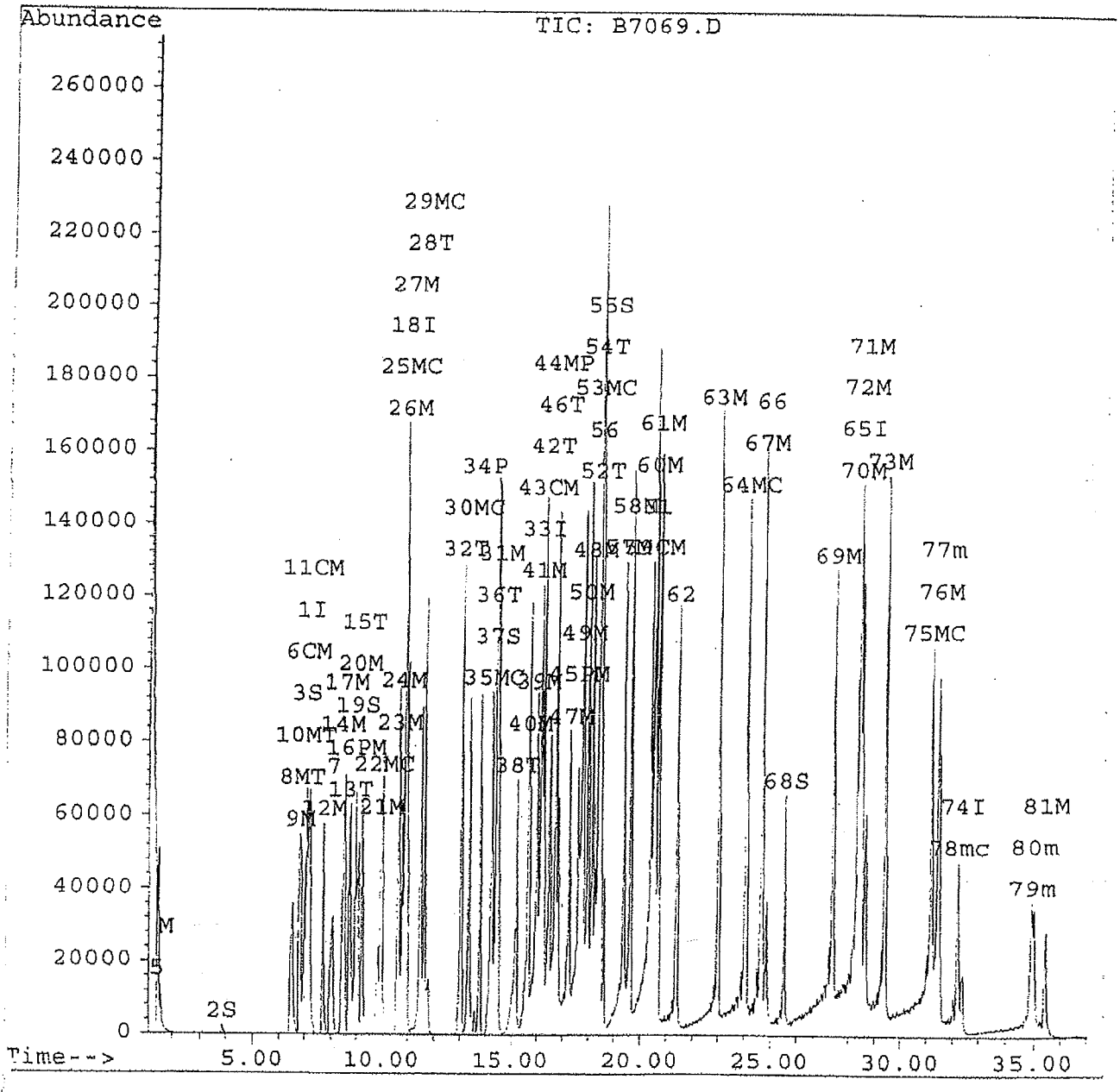
Quantitation Report

Data File : c:\hpchem\1\data3\b7069.d
Acq On : 4 Nov 97 7:30 pm
Sample : 120 STD.....
Misc :
Quant Time: Nov 5 12:11 1997

Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data3\b7070.d
Acq On : 4 Nov 97 8:17 pm
Sample : 160 STD.....
Misc :
Quant Time: Nov 5 12:14 1997

Vial: 7 259
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	7.15	152	13448	40.00	ug/mL	0.02
18) Naphthalene-d8	10.95	136	54814	40.00	ug/mL	0.04
33) Acenaphthene-d10	16.21	164	42984	40.00	ug/mL	0.05
51) Phenanthrene-d10	20.51	188	86796	40.00	ug/ml	0.02
65) Chrysene-d12	28.44	240	77058	40.00	ug/mL	0.01
74) Perylene-d12	32.36	264	43988	40.00	ug/mL	-0.05
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.85	112	4215	10.70	ug/mL	10.70%
3) Phenol-d5	7.04	99	23220	35.16	ug/mL	35.16%
19) Nitrobenzene-d5	9.04	82	26370	40.10	ug/mL	40.10%
37) 2-Fluorobiphenyl	14.44	172	63032	50.13	ug/mL	50.13%
55) 2,4,6-Tribromophenol	18.64	330	19337	36.17	ug/mL	36.17%
68) Terphenyl-d14	25.57	244	96367	48.18	ug/mL	48.18%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.47	74	32166	120.10	ug/ml	100
5) Pyridine	1.41	79	61598	136.98	ug/ml	100
6) Phenol	7.09	94	92417	131.50	ug/mL	100
7) Benzyl alcohol	8.10	79	64548	191.94	ug/ml	93
8) bis(2-Chloroethyl)ether	6.86	93	42519	100.50	ug/mL	93
9) 2-Chlorophenol	6.80	128	73917	145.97	ug/mL	96
10) 1,3-Dichlorobenzene	7.00	146	63048	165.24	ug/mL	97
11) 1,4-Dichlorobenzene	7.21	146	67678	159.90	ug/mL	100
12) 1,2-Dichlorobenzene	7.72	146	67555	165.62	ug/mL	99
13) 2-Methylphenol	8.75	108	70665	145.63	ug/mL	97
14) bis(2-chloroisopropyl)ethe	8.47	45	122364	208.05	ug/mL#	91
15) 4-Methylphenol	9.24	108	76813	147.94	ug/mL	98
16) N-Nitroso-Di-n-propylamine	8.96	70	50563	119.77	ug/mL	96
17) Hexachloroethane	8.55	117	38339	121.58	ug/mL	91
20) Nitrobenzene	9.08	77	78384	136.32	ug/mL	97
21) Isophorone	10.00	82	151189	179.85	ug/mLm	97
22) 2-Nitrophenol	10.04	139	63114	172.63	ug/mL	99
23) 2,4-Dimethylphenol	10.69	107	109315	155.22	ug/mL	99
24) bis(2-Chloroethoxy)methane	10.81	93	90222	143.12	ug/mL	100
25) 2,4-Dichlorophenol	10.91	162	82823	175.80	ug/mL#	93
26) 1,2,4-Trichlorobenzene	10.91	180	73310	166.27	ug/mL	99
27) Naphthalene	11.02	128	222329	154.38	ug/mL	99
28) 4-Chloroaniline	11.54	127	116770	170.59	ug/mL	98
29) Hexachlorobutadiene	11.67	225	54752	154.44	ug/mL	99
30) 4-Chloro-3-methylphenol	13.40	107	104682	166.84	ug/mL	91
31) 2-Chloronaphthalene	14.52	162	192300	177.72	ug/ml	97
32) 2-Methylnaphthalene	13.09	142	180714	173.20	ug/mL	100
34) Hexachlorocyclopentadiene	13.80	237	71714	149.94	ug/mL	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data3\b7070.d
Acq On : 4 Nov 97 8:17 pm
Sample : 160 STD.....
Misc :
Quant Time: Nov 5 12:14 1997

Converted from RTE d

Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
35) 2,4,6-Trichlorophenol	14.27	196	69468	145.44	ug/mL	99
36) 2,4,5-Trichlorophenol	14.42	196	74941	154.86	ug/mL	99
38) 2-Nitroaniline	15.25	65	100530	155.53	ug/mL	91
39) Dimethylphthalate	16.05	163	167169	139.79	ug/mLm	0
40) Acenaphthylene	15.72	152	325699	180.59	ug/mL#	98
41) 2,6-Dinitrotoluene	16.19	165	53931	151.34	ug/mLm	0
42) 3-Nitroaniline	16.53	138	56794	140.27	ug/mL	96
43) Acenaphthene	16.31	153	219300	181.43	ug/mL	100
44) 2,4-Dinitrophenol	16.86	184	50708	162.35	ug/mL#	82
45) 4-Nitrophenol	17.60	109	44835	150.00	ug/mL	96
46) Dibenzofuran	16.80	168	352500	180.63	ug/mL	97
47) 2,4-Dinitrotoluene	17.31	165	51280	104.43	ug/mLm	0
48) Diethylphthalate	18.21	149	203755	125.65	ug/mL	99
49) Fluorene	17.82	166	204200	143.06	ug/mL	99
50) 4-Chlorophenyl-phenylether	18.02	204	128659	181.92	ug/mL	98
52) 4-Nitroaniline	18.45	138	40026	106.54	ug/mL	94
53) 4,6-Dinitro-2-methylphenol	18.51	198	62119	165.18	ug/mL	100
54) n-Nitrosodiphenylamine	18.49	169	115782	139.49	ug/mL	92
56) 1,2-Diphenylhydrazine (as	18.47	77	272905	127.23	ug/ml	100
57) 4-Bromophenyl-phenylether	19.41	248	74348	148.60	ug/mL	94
58) Hexachlorobenzene	19.68	284	108365	137.48	ug/mL	96
59) Pentachlorophenol	20.41	266	73326	155.33	ug/mL	98
60) Phenanthrene	20.60	178	426945	191.24	ug/mL	99
61) Anthracene	20.74	178	301514	145.82	ug/mLm	0
62) Carbazole	21.47	167	316501	164.16	ug/ml	99
63) Di-n-butylphthalate	23.06	149	433500	140.42	ug/mL	99
64) Fluoranthene	24.12	202	405341	152.53	ug/mL	99
66) Benzidine	24.87	184	85114	187.60	ug/ml	100
67) Pyrene	24.73	202	416516	166.91	ug/mL	97
69) Butylbenzylphthalate	27.44	149	182685	150.71	ug/mL	97
70) Benzo[a]anthracene	28.42	228	370480	178.83	ug/mL	99
71) 3,3'-Dichlorobenzidine	28.67	252	107457	143.27	ug/mL	96
72) Chrysene	28.52	228	159666	88.42	ug/mLm	0
73) bis(2-Ethylhexyl)phthalate	29.42	149	249255	121.04	ug/mL#	35
75) Di-n-octylphthalate	31.17	149	325996	162.93	ug/mL	99
76) Benzo[b]fluoranthene	31.46	252	320354	147.46	ug/mLm	99
77) Benzo[k]fluoranthene	31.48	252	131605	140.57	ug/mLm	100
78) Benzo[a]pyrene	32.23	252	166216	158.20	ug/mL	98
79) Indeno[1,2,3-cd]pyrene	34.94	276	141725	171.94	ug/mL	99
80) Dibenz[a,h]anthracene	35.02	278	122005	167.87	ug/mL	98
81) Benzo[g,h,i]perylene	35.45	276	113480	190.36	ug/mLm	0

(#) = qualifier out of range (m) = manual integration

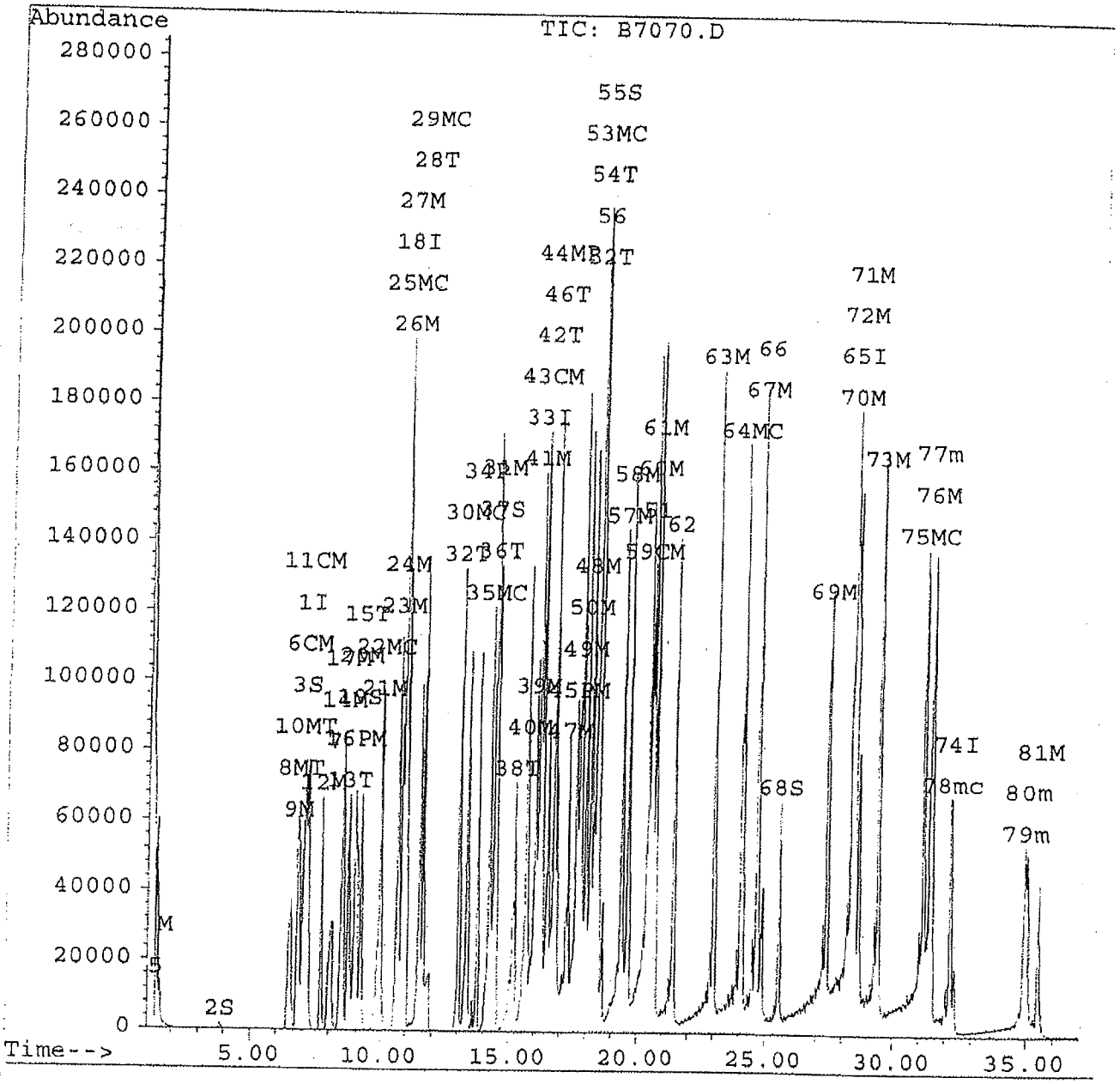
Quantitation Report

Data File : c:\hpchem\1\data3\b7070.d
Acq On : 4 Nov 97 8:17 pm
Sample : 160 STD.....
Misc :
Quant Time: Nov 5 12:14 1997

Converted from RTE d

Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID: B7248.D DFTPP Injection Date: 11/24/97

Instrument ID: ABNA DFTPP Injection Time: 0949

m/e	ION ABUNDANCE CRITERIA	%RELATIVE ABUNDANCE
51	30.0 - 80.0% of mass 198	56.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	80.3
70	Less than 2.0% of mass 69	0.3 (0.3)1
127	25.0 - 75.0% of mass 198	48.3
197	Less than 1.0% of mass 198	0.0
198	Base Peak, 100 % relative abundance	100.0
199	5.0 - 9.0% of mass 198	7.1
275	10.0 - 30.0% of mass 198	18.5
365	Greater than 0.75% of mass 198	3.9
441	Present, but less than mass 443	0.1
442	40.0 - 110.0% of mass 198	83.8
443	15.0 - 24.0% of mass 442	16.3 (19.5)2

1-Value is % mass 69 2-Value is % mass 442

This check applies to the following SAMPLES, MS, MSD, BLANKS and STANDARDS:

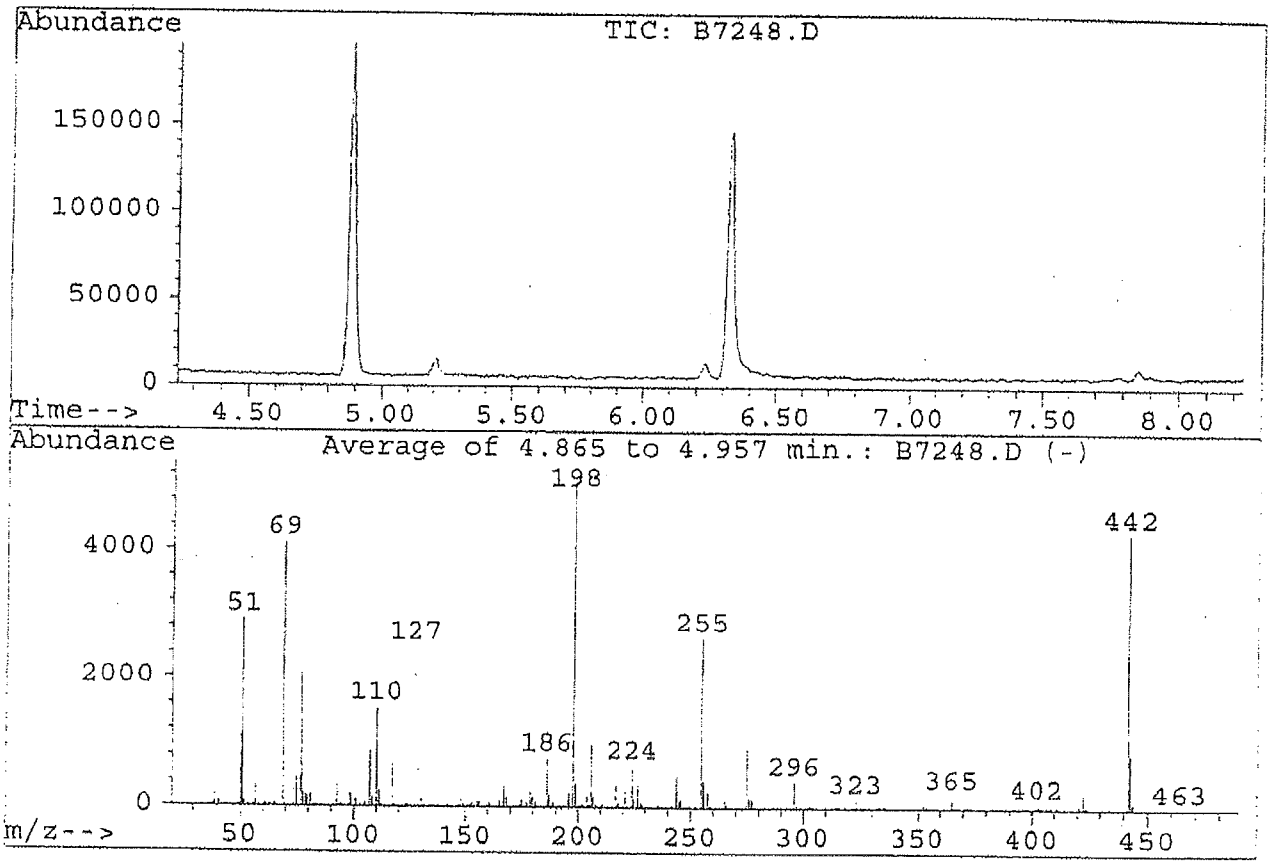
	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD050	50 STD	B7249.D	11/24/97	1008
02	SBLK01	BLANK1	B7250.D	11/24/97	1055
03	9785731B	9785731B	B7251.D	11/24/97	1142
04	9785732B	9785732B	B7252.D	11/24/97	1230
05	9785733B	9785733B	B7253.D	11/24/97	1318
06	9785734B	9785734B	B7254.D	11/24/97	1405
07	9785735B	9785735B	B7255.D	11/24/97	1453
08	9785736B	9785736B	B7256.D	11/24/97	1540
09	9785737B	9785737B	B7257.D	11/24/97	1628
10	9785738B	9785738B	B7258.D	11/24/97	1716
11	9785739B	9785739B	B7259.D	11/24/97	1803
12	9785741B	9785741B	B7260.D	11/24/97	1850
13	85741MS	85741MS	B7261.D	11/24/97	1937
14	85741MSD	85741MSD	B7262.D	11/24/97	2024
15					
16					
17					
18					
19					
20					
21					
22					

DFTPP

Data File : C:\HPCHEM\1\DATA2\B7248.D
Acq On : 24 Nov 97 9:49 am
Sample : DFTPP.....
Misc :

Vial: 1
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration



Peak Apex is scan: 317

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	56.7	2901	PASS
68	69	0	2	0.1	6	PASS
69	198	0	100	80.3	4108	PASS
70	69	0	2	0.3	13	PASS
127	198	40	60	48.3	2474	PASS
197	198	0	1	0.0	2	PASS
198	198	100	100	100.0	5119	PASS
199	198	5	9	7.1	364	PASS
275	198	10	30	18.5	945	PASS
365	198	1	100	3.9	201	PASS
441	443	0	100	0.6	5	PASS
442	198	40	100	83.8	4290	PASS
443	442	17	23	19.5	836	PASS

verage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
5.60	1	38.95	305	44.70	1	50.00	1117
5.70	3	39.60	2	45.70	2	50.60	6
36.00	5	40.25	3	46.00	4	51.00	2901
36.20	3	40.90	82	46.20	1	51.20	6
36.70	3	41.60	3	46.35	4	51.70	8
36.80	4	41.75	8	47.30	9	51.80	4
36.95	25	42.05	11	47.50	2	51.90	96
37.85	65	42.25	9	47.70	6	52.75	9
38.25	7	43.15	16	48.25	5	53.15	14
38.40	6	43.95	30	48.95	79	53.50	3
38.60	6	44.30	3	49.35	11	54.00	14

verage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
54.30	7	59.75	6	63.20	6	68.90	4108
54.60	25	60.00	25	63.55	11	69.80	4
55.70	4	60.70	9	64.90	46	69.90	13
55.95	87	61.05	58	65.15	25	70.35	9
56.35	17	61.60	4	65.40	2	71.20	4
56.95	341	61.90	40	65.90	4	71.50	3
57.75	7	62.10	3	66.00	4	71.75	5
58.35	6	62.30	2	66.20	12	72.45	12
58.90	3	62.70	4	66.55	7	73.40	6
59.20	4	62.80	2	66.80	13	73.95	256
59.50	3	62.90	84	67.70	6	74.20	8

ge of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
74.50	1	79.90	168	84.65	5	88.55	4
75.00	459	80.70	9	84.90	16	88.90	10
75.40	6	80.95	199	85.10	8	89.30	7
75.85	12	81.30	1	85.35	7	89.55	2
76.40	3	82.10	26	85.85	36	89.80	9
77.00	2073	82.35	8	86.05	8	90.15	1
77.60	2	82.65	9	86.20	5	90.95	87
78.05	211	82.95	35	86.90	16	91.90	9
78.25	6	83.30	26	87.35	8	92.55	2
78.65	10	83.95	40	87.85	7	92.85	357
78.95	183	84.35	4	88.25	1	93.25	2

erage of 4.865 to 4.957 min.: B7248.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
93.65	6	98.50	11	105.05	7	110.45	6
93.95	35	98.90	183	105.55	8	110.70	6
94.25	7	99.95	8	105.80	7	110.95	241
94.90	40	100.30	6	106.40	3	111.25	2
95.55	1	100.95	121	106.65	3	111.65	5
95.65	2	102.80	6	106.95	871	111.90	41
5.80	14	103.05	9	107.95	139	112.15	2
6.15	19	103.35	5	108.55	4	112.55	6
96.50	11	103.55	5	108.90	13	112.80	10
97.95	257	103.85	36	109.90	1526	113.10	6
98.30	11	104.85	66	110.25	3	113.55	2

verage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
3.85	5	117.90	37	122.35	7	126.95	2474
4.15	2	119.05	6	122.65	8	127.75	2
114.50	7	119.35	1	122.95	61	128.05	6
115.10	6	119.85	23	123.15	14	128.95	1248
115.45	1	120.20	3	123.45	2	129.45	3
115.85	6	120.55	6	123.80	12	129.95	126
116.25	1	120.85	15	124.05	41	130.15	3
116.95	695	121.05	3	124.35	11	131.00	26
117.35	2	121.30	8	124.70	5	131.55	3
117.65	4	121.90	76	125.05	58	131.80	8
117.75	3	122.10	9	125.75	1	132.00	13

erage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
132.05	1	135.75	1	141.50	5	146.95	59
132.15	2	135.85	2	141.95	61	147.85	137
132.40	3	135.95	21	142.00	3	149.00	35
133.00	8	136.20	5	142.10	7	149.70	4
133.05	3	137.00	18	142.80	23	150.35	4
133.15	5	137.30	8	143.50	8	150.85	33
133.95	50	137.60	12	144.70	2	151.30	12
134.25	7	138.00	9	145.20	3	151.80	9
134.55	4	138.30	14	145.90	33	152.05	19
134.90	77	138.70	10	146.00	4	152.30	10
135.45	6	140.90	129	146.15	6	152.85	62

ge of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
153.80	31	158.35	4	162.05	12	167.20	3
154.25	7	159.00	4	162.30	3	168.00	153
154.50	11	159.15	21	162.70	2	168.30	1
154.95	103	160.00	51	163.05	16	168.95	22
155.10	2	160.30	3	163.80	13	169.60	1
155.30	14	160.85	62	164.40	4	169.95	18
155.75	15	161.05	8	164.55	10	170.40	3
155.95	63	161.20	1	164.95	91	170.60	2
157.00	10	161.40	5	165.95	23	171.30	16
157.45	6	161.55	6	166.30	6	171.65	7
157.90	29	161.80	14	166.90	332	171.70	3

erage of 4.865 to 4.957 min.: B7248.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
171.80	1	176.00	25	180.25	4	185.70	9
171.95	21	176.30	5	180.50	6	185.95	750
172.25	6	176.60	7	180.95	76	186.50	4
172.85	15	177.00	68	181.40	1	186.90	191
173.00	1	177.15	5	181.70	6	187.25	3
173.20	29	177.40	2	182.05	13	187.50	2
3.35	6	177.80	4	182.90	8	187.80	4
3.90	36	178.90	223	183.65	10	188.05	19
174.25	9	179.10	1	183.95	12	188.60	7
174.90	114	179.50	1	184.60	1	188.80	1
175.50	2	179.90	152	185.15	4	188.95	63

Average of 4.865 to 4.957 min.: B7248.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
189.85	10	193.60	2	199.15	1	203.05	17
190.15	9	193.90	39	199.45	1	203.55	3
190.40	3	194.60	11	199.65	1	203.75	24
190.70	7	195.15	13	199.90	32	204.00	170
190.95	8	195.45	2	200.20	5	204.45	2
191.25	23	195.90	219	200.65	16	205.10	64
191.65	10	196.35	17	200.95	9	205.90	979
191.85	13	196.75	1	201.20	32	206.90	164
192.00	22	197.55	2	201.55	36	207.55	2
192.30	3	197.85	5119	202.20	27	207.90	51
192.90	23	198.85	364	202.75	12	208.20	3

Average of 4.865 to 4.957 min.: B7248.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
208.75	9	215.15	15	221.25	4	226.45	4
208.95	12	216.00	3	221.65	5	226.85	350
209.25	1	216.35	18	222.10	32	227.85	58
209.75	16	216.85	345	223.35	2	228.10	19
210.40	25	217.20	5	223.65	7	228.45	4
210.85	69	217.55	1	223.95	633	228.85	62
211.75	5	217.90	58	224.15	4	229.15	1
212.15	9	218.15	3	224.90	138	229.60	4
212.65	1	219.15	14	225.25	2	229.75	2
212.90	8	220.20	2	225.75	2	229.90	15
214.55	3	220.95	283	226.15	4	230.20	15

Average of 4.865 to 4.957 min.: B7248.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
230.40	3	235.30	8	239.35	5	244.75	1
230.55	1	235.55	3	239.65	6	245.05	89
230.75	5	236.00	32	240.15	4	245.20	4
231.00	32	236.75	14	240.30	15	245.95	111
231.50	5	236.95	13	240.65	4	246.90	15
231.90	5	237.15	2	240.85	14	247.25	1
232.35	3	237.65	4	241.90	57	247.70	7
233.00	17	237.85	3	242.55	8	248.05	6
233.30	10	238.60	3	243.65	2	248.70	4
233.80	8	238.80	10	243.95	502	248.95	16
234.90	33	239.00	15	244.45	2	249.30	2

Average of 4.865 to 4.957 min.: B7248.D

Modified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
249.60	2	253.50	2	260.05	3	263.80	10
249.85	4	253.70	3	260.40	2	264.05	11
250.20	9	254.15	8	260.65	3	264.30	2
250.80	8	254.85	2640	261.00	2	264.90	97
251.00	4	255.90	399	261.50	1	265.35	5
251.35	5	256.15	3	261.80	1	265.80	48
251.95	13	257.05	3	262.25	4	266.00	4
252.20	8	257.60	1	262.45	3	266.30	2
252.60	11	257.85	222	262.85	6	266.65	6
252.90	11	258.80	36	263.15	3	267.05	19
253.20	8	259.60	1	263.55	4	267.70	7

:an 161 (5.210 min): C9731.D
BFB TUNE

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
5.95	2138	51.00	12488	70.00	2032	86.95	6069
37.05	14649	55.05	1311	72.00	1299	87.95	6517
37.95	11679	56.05	3709	73.00	7522	92.00	5236
39.05	4491	57.05	4339	74.00	31880	93.00	6678
39.95	1164	60.05	1871	75.00	89184	94.00	20768
44.10	3307	61.05	8655	76.00	9599	95.00	172800
44.90	1407	62.05	9147	76.90	1205	96.00	11922
47.00	1727	63.05	5675	77.95	1134	140.90	1753
48.00	1669	67.00	1412	78.95	3906	142.90	1151
49.00	9803	68.00	17784	79.95	1219	172.30	1076
50.00	42672	69.00	20816	80.95	4258	173.90	130840

:an 161 (5.210 min): C9731.D
BFB TUNE

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
174.95	8795						
175.95	128960						
176.95	7382						

7A

VOLATILE CONTINUING CALIBRATION CHECK

130

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Instrument ID: 5972-INSTRUMENT 1 Calibration Date: 11/20/97 Time: 1717

Lab File ID: C9732.D Init. Calib. Date(s): 11/9/97 _____

Heated Purge: (Y/N) N Init. Calib. Times: _____ _____

GC Column: RTX-624 X ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF20	MIN RRF	%D	MAX %D
Chloromethane	0.428	0.344		19.6	25.0
Bromomethane	0.643	0.520		19.1	25.0
Vinyl chloride	0.767	0.687		10.4	25.0
Chloroethane	0.479	0.477		0.4	25.0
Trichlorofluoromethane	2.299	2.535		-10.3	25.0
Methylene chloride	1.394	1.629		-16.9	25.0
1,1-Dichloroethene	0.894	0.870		2.7	25.0
1,1-Dichloroethane	1.927	1.965		-2.0	25.0
trans-1,2-Dichloroethene	0.937	0.954		-1.8	25.0
cis-1,2-Dichloroethene	1.083	1.102		-1.8	25.0
Chloroform	2.264	2.395		-5.8	25.0
1,2-Dichloroethane	1.595	1.757		-10.2	25.0
1,1,1-Trichloroethane	2.172	2.379		-9.5	25.0
Carbon tetrachloride	2.001	2.224		-11.1	25.0
Bromodichloromethane	0.569	0.642		-12.8	25.0
1,2-Dichloropropane	0.289	0.286		1.0	25.0
cis-1,3-Dichloropropene	0.463	0.505		-9.1	25.0
Trichloroethene	0.378	0.399		-5.6	25.0
Dibromochloromethane	0.489	0.539		-10.2	25.0
1,1,2-Trichloroethane	0.271	0.285		-5.2	25.0
Benzene	3.168	3.145		0.7	25.0
trans-1,3-Dichloropropene	0.435	0.489		-12.4	25.0
Bromoform	0.421	0.474		-12.6	25.0
Tetrachloroethene	0.349	0.383		-9.7	25.0
1,1,2,2-Tetrachloroethane	0.488	0.509		-4.3	25.0
Toluene	0.573	0.582		-1.6	25.0
Chlorobenzene	0.931	0.935		-0.4	25.0
Ethylbenzene	1.482	1.520		-2.6	25.0
Xylene (para & meta)	1.226	1.278		-4.2	25.0
Xylene (ortho)	1.135	1.207		-6.3	25.0
2-Chloroethyl vinyl ether	0.121	0.127		-5.0	25.0
1,3-Dichlorobenzene	0.834	0.867		-4.0	25.0
1,4-Dichlorobenzene	0.975	1.022		-4.8	25.0
1,2-Dichlorobenzene	0.839	0.912		-8.7	25.0
Acrolein	0.022	0.024		-9.1	25.0
Acrylonitrile	0.146	0.120		17.8	25.0

7A

VOLATILE CONTINUING CALIBRATION CHECK

140

Lab Name: EMSL ANALYTICAL Contract: ____

Project No. ____ Site: ____ Location: ____ Group: ____

Instrument ID: 5972-INSTRUMENT 1 Calibration Date: 11/20/97 Time: 1717

Lab File ID: C9732.D Init. Calib. Date(s): 11/9/97 ____

Heated Purge: (Y/N) N Init. Calib. Times: ____ ____

GC Column: RTX-624 X ID: 0.53 (mm)

COMPOUND	RRF	RRF20	MIN RRF	%D	MAX %D
Methyl-tert butyl ether	2.606	2.682		-2.9	25.0
tert-Butyl Alcohol	0.063	0.069		-9.5	25.0
1,2-Dichloroethane-d4	1.392	1.467		-5.4	25.0
Toluene-d8	0.945	0.958		-1.4	25.0
4-Bromofluorobenzene	0.763	0.786		-3.0	25.0

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\C9732.D
Acq On : 20 Nov 97 5:17 pm
Sample : 20 PPB CHK STANDARD
Misc : 5 ML

Vial: 3
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

141

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	I	Bromochloromethane	1.000	1.000	0.0	103	0.00
2	M	Dichlorodifluoromethane	1.410	1.108	21.4	67	0.00
3	PM	Chloromethane	0.428	0.344	19.6	90	0.00
4	CM	Vinyl chloride	0.767	0.687	10.5	82	0.00
5	TM	Bromomethane	0.643	0.520	19.1	98	0.00
6	M	Chloroethane	0.479	0.477	0.4	93	0.00
7	M	Trichlorofluoromethane	2.299	2.535	-10.2	103	0.00
8	T	Acrolein	0.022	0.024	-10.1	123	0.00
9	MC	1,1-Dichloroethene	0.894	0.870	2.6	96	0.00
10	T	Acetone	0.369	0.481	-30.2#	94	0.00
11	T	Carbon disulfide	2.274	2.207	2.9	93	0.00
12	M	Methylene chloride	1.394	1.629	-16.9	101	0.00
13	T	Acrylonitrile	0.146	0.120	17.8	86	0.00
	M	trans-1,2-Dichloroethene	0.937	0.954	-1.9	97	0.00
	M	Methyl-tert butyl ether	2.606	2.682	-2.9	108	0.00
16	T	tert-Butyl Alcohol	0.063	0.069	-10.3	115	0.00
17	PM	1,1-Dichloroethane	1.927	1.965	-1.9	103	0.00
18	T	cis-1,2-Dichloroethene	1.083	1.102	-1.7	102	0.00
19	T	2-Butanone	0.455	0.488	-7.3	99	0.00
20	M	Chloroform	2.264	2.395	-5.8	105	0.00
21	M	1,1,1-Trichloroethane	2.172	2.379	-9.5	109	0.00
22	M	Carbon tetrachloride	2.001	2.224	-11.1	108	0.00
23	S	1,2-Dichloroethane-d4	1.392	1.467	-5.4	104	0.00
24	M	Benzene	3.168	3.145	0.7	100	0.00
25	M	1,2-Dichloroethane	1.595	1.757	-10.1	111	0.00
26	I	1,4-Difluorobenzene	1.000	1.000	0.0	99	0.00
27	M	Trichloroethene	0.378	0.399	-5.7	101	0.00
28	CM	1,2-Dichloropropane	0.289	0.286	1.0	99	0.00
29	M	Bromodichloromethane	0.569	0.642	-12.7	110	0.00
30	M	2-Chloroethyl vinyl ether	0.121	0.127	-5.1	105	0.00
31	M	cis-1,3-Dichloropropene	0.463	0.505	-9.1	107	0.00
32	T	4-Methyl-2-pentanone	0.262	0.288	-9.7	106	0.00
33	S	Toluene-d8	0.945	0.958	-1.4	100	0.00
34	MC	Toluene	0.573	0.582	-1.6	99	0.00
35	M	trans-1,3-Dichloropropene	0.435	0.489	-12.3	109	0.00
36	M	1,1,2-Trichloroethane	0.271	0.285	-5.1	104	0.00
37	T	2-Hexanone	0.185	0.216	-16.6	112	0.00
	4	Tetrachloroethene	0.349	0.383	-9.7	106	0.00
	M	Dibromochloromethane	0.489	0.539	-10.3	110	0.00
		1,2-Dibromoethane	0.000	0.000	0.0	0#	0.00
41	I	Chlorobenzene-d5	1.000	1.000	0.0	102	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\C9732.D
Acq On : 20 Nov 97 5:17 pm
Sample : 20 PPB CHK STANDARD
Misc : 5 ML

Vial: 3
Operator: SRK
Inst : 5972 - In
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\624NAP.M
Title : VOA Standards for 5 point calibration
Last Update : Thu Nov 20 18:04:35 1997
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
2	MP	Chlorobenzene	0.931	0.935	-0.4	102	0.00
3	T	1,1,1,2-Tetrachloroethane	0.464	0.501	-7.9	108	0.00
4	CM	Ethylbenzene	1.482	1.520	-2.6	101	0.00
5	M	Xylene (para & meta)	1.226	1.278	-4.3	103	0.00
6	M	Xylene (ortho)	1.135	1.207	-6.3	104	0.00
7	T	Styrene	0.963	1.008	-4.6	104	0.00
8	PM	Bromoform	0.421	0.474	-12.6	111	0.00
9	S	4-Bromofluorobenzene	0.763	0.786	-3.0	105	0.00
0	PM	1,1,2,2-Tetrachloroethane	0.488	0.509	-4.2	104	0.00
1	M	1,3-Dichlorobenzene	0.834	0.867	-4.0	106	0.00
2	M	1,4-Dichlorobenzene	0.975	1.022	-4.8	104	0.00
3	M	1,2-Dichlorobenzene	0.839	0.912	-8.7	107	0.00
4	t	Diisopropyl ether	0.000	0.000	0.0	0#	0.00
	:	Naphthalene	0.000	0.000	0.0	0#	-26.77#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

verage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
7.85	17	272.75	17	277.85	14	284.70	6
58.30	2	273.05	54	278.20	1	285.10	9
269.75	9	273.35	2	278.65	6	285.90	6
270.25	8	274.20	3	279.05	2	286.90	1
270.40	3	274.85	945	279.20	2	287.10	1
270.65	5	275.30	1	279.45	2	287.40	6
271.00	4	275.90	153	281.10	3	287.90	1
271.15	10	276.30	5	281.40	8	288.00	1
271.45	4	276.85	137	281.70	2	288.15	5
272.10	2	277.40	4	282.85	14	288.80	11
272.50	1	277.65	8	283.85	16	289.20	1

verage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
290.00	9	294.40	11	299.00	1	302.90	47
291.15	4	294.70	4	299.80	2	303.70	5
291.30	3	295.90	401	300.45	5	304.00	18
291.50	4	296.20	2	300.65	4	304.15	2
292.35	12	296.40	1	300.90	2	304.55	3
292.65	4	296.80	34	301.15	3	304.90	3
292.90	27	297.00	19	301.45	9	305.95	1
293.15	11	297.80	5	301.75	8	306.50	3
293.80	5	298.15	3	302.00	6	306.70	3
294.00	1	298.55	2	302.20	6	307.05	1
294.15	10	298.80	1	302.50	15	307.95	1

ge of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
308.40	3	312.90	6	317.35	1	322.95	124
308.80	6	313.20	3	317.75	1	323.95	21
309.05	4	313.55	5	318.15	3	324.15	3
309.40	4	313.95	16	318.65	1	324.90	5
309.65	1	314.10	9	319.15	4	325.15	6
309.90	6	314.35	20	319.35	1	325.45	7
310.25	4	314.90	55	319.75	4	325.65	1
311.25	1	315.45	4	320.20	9	326.15	10
311.55	2	315.90	31	321.20	9	326.95	28
311.65	2	316.75	2	321.85	9	327.75	2
312.55	8	317.05	3	322.50	2	328.00	11

erage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
328.90	9	333.90	75	339.05	7	343.00	3
329.75	1	334.15	1	339.85	1	343.25	2
330.90	6	334.95	29	340.25	2	343.85	2
331.20	4	335.15	5	340.45	1	344.05	2
331.45	1	335.35	1	340.75	7	345.10	4
331.55	3	335.90	7	341.05	1	345.35	3
1.70	10	336.25	3	341.25	1	345.80	37
1.95	9	336.50	4	341.80	4	346.05	3
32.75	7	337.85	1	341.95	1	346.30	4
32.90	17	338.25	5	342.10	4	347.05	1
333.45	15	338.75	3	342.50	2	347.95	2

verage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
8.25	2	354.95	14	359.10	5	363.40	4
8.55	1	355.15	2	359.35	1	363.60	2
349.25	2	355.40	2	359.65	4	363.80	3
349.90	4	355.85	5	360.30	4	364.10	3
350.80	6	356.05	2	360.75	4	364.30	4
351.15	2	356.50	4	360.95	2	364.80	201
351.85	44	356.85	7	361.35	6	365.70	19
352.90	35	357.35	2	361.75	2	365.90	16
353.25	2	357.55	3	362.05	3	366.10	2
353.90	23	358.10	4	362.60	2	366.60	1
354.20	4	358.75	6	363.00	5	366.90	4

verage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
367.85	6	373.05	14	378.30	2	382.95	18
368.50	1	373.30	2	378.70	1	383.40	5
369.15	4	373.50	1	379.05	5	383.70	1
369.50	12	373.90	4	379.20	1	383.80	2
369.85	7	375.30	3	379.80	2	383.95	9
370.20	5	375.50	1	380.35	3	384.60	5
370.80	6	375.70	1	381.75	9	384.95	5
371.15	3	376.75	3	381.90	1	385.75	5
371.65	7	377.10	2	382.10	3	386.10	6
371.95	51	377.30	3	382.40	1	386.45	2
372.45	7	377.55	2	382.65	9	386.90	2

ge of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
387.45	2	391.80	2	395.10	1	400.95	9
387.90	5	391.95	10	396.10	4	401.15	8
388.35	3	392.50	5	396.50	1	401.50	6
388.65	4	393.25	3	396.90	10	402.00	60
389.60	2	393.65	3	397.45	4	402.40	10
389.85	13	393.85	3	398.05	2	402.75	14
390.20	5	394.00	1	399.10	3	403.00	38
390.70	2	394.20	1	399.55	5	403.45	2
390.95	20	394.30	2	400.05	7	403.85	20
391.10	1	394.45	2	400.40	1	404.60	4
391.70	2	394.90	1	400.60	1	404.90	3

erage of 4.865 to 4.957 min.: B7248.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
405.10	1	409.30	1	414.70	10	418.10	4
405.35	7	409.70	6	415.05	3	420.40	10
405.60	3	410.15	4	415.40	1	420.90	49
405.80	2	410.50	4	415.60	1	421.60	7
406.40	7	410.90	4	415.90	5	422.05	10
406.90	1	411.30	1	416.25	5	422.25	2
.40	7	412.55	3	416.40	2	422.60	4
7.80	6	412.90	2	416.60	2	422.85	227
408.15	2	413.60	2	416.70	2	423.15	2
408.50	1	414.00	2	416.85	2	423.35	1
409.00	3	414.35	5	417.00	2	423.90	49

verage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
24.55	2	430.05	1	437.05	7	442.90	836
24.90	11	430.55	9	438.00	12	443.25	1
426.25	4	430.90	4	438.55	14	443.90	78
427.25	2	433.45	8	439.20	13	444.75	9
427.55	2	433.70	4	439.65	1	445.25	1
428.20	2	434.10	8	439.90	3	445.45	4
428.40	4	435.20	5	440.60	7	446.75	3
428.70	2	435.50	7	441.25	5	447.50	3
429.15	1	436.05	8	441.95	4290	448.25	4
429.45	1	436.35	1	442.60	5	448.75	5
429.85	1	436.75	7	442.75	2	449.10	4

erage of 4.865 to 4.957 min.: B7248.D

odified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
449.55	4	452.95	2	456.95	2	462.35	3
449.75	1	453.15	4	457.35	1	462.65	1
450.00	3	453.90	4	457.80	5	463.15	7
450.30	6	454.20	4	458.35	1	463.45	9
450.65	1	454.80	5	459.25	6	463.95	1
450.95	4	455.05	2	460.10	5	464.20	6
451.15	1	455.35	3	461.05	2	464.60	3
451.35	5	455.70	3	461.15	1	465.45	4
451.55	2	456.05	2	461.30	2	465.75	2
452.25	1	456.35	2	461.85	1	466.35	1
452.55	1	456.75	4	462.10	5	466.75	3

ge of 4.865 to 4.957 min.: B7248.D

dified:subtracted

m/z	abund.	m/z	abund.	m/z	abund.	m/z	abund.
467.25	2	471.25	7				
467.95	5	471.45	3				
468.65	2	471.85	1				
468.75	2	472.30	3				
468.90	4	472.85	6				
469.05	1	473.80	2				
469.25	3	473.95	5				
469.65	1	474.45	3				
469.85	1						
470.50	5						
470.85	4						

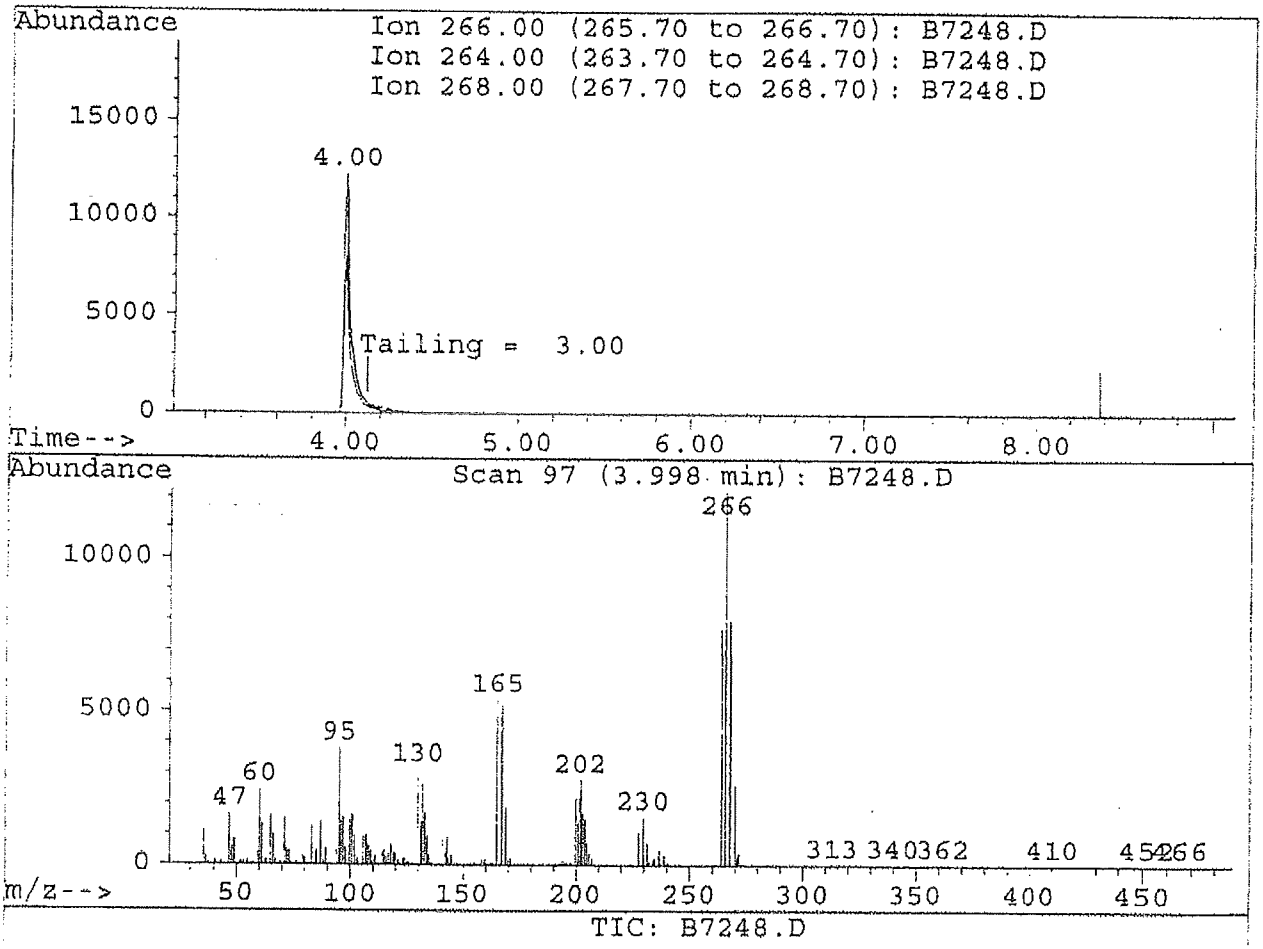
Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B7248.D
Acq On : 24 Nov 97 9:49 am
Sample : DFTPP.....
Misc :
Quant Time: Nov 24 10:25 1997

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Converted from RTE d

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



(1) Pentachlorophenol (CM)

5.37min 0.00ug/mL d

response 0

Ion	Exp%	Act%
266.00	100	0.00
264.00	64.30	0.00#
268.00	64.70	0.00#
0.00	0.00	0.00

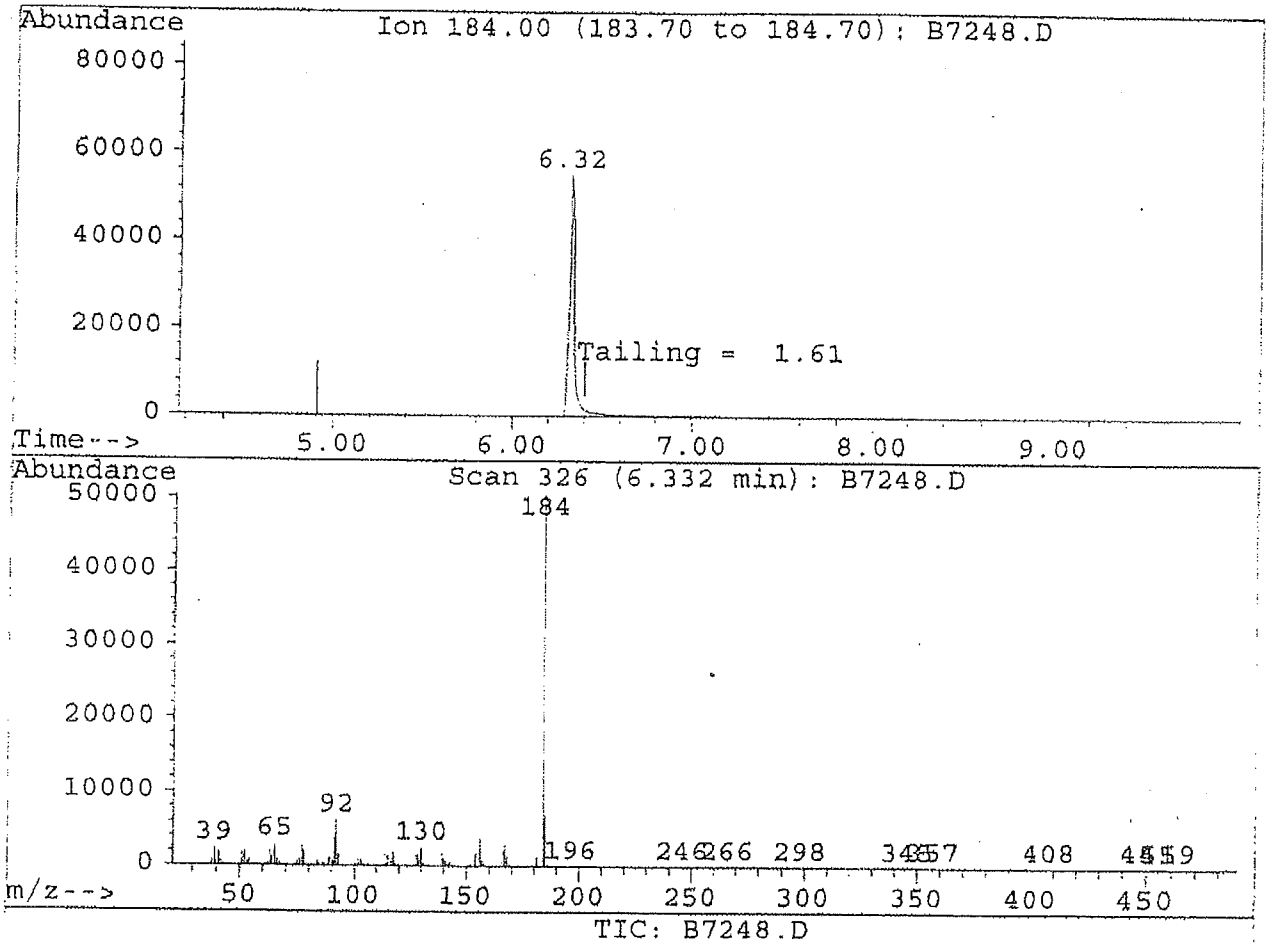
Quantitation Report

Data File : C:\HPCHEM\1\DATA2\B7248.D
Acq On : 24 Nov 97 9:49 am
Sample : DFTPP.....
Misc :
Quant Time: Nov 24 10:25 1997

Vial: 1
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Converted from RTE d

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



TIC: B7248.D

(2) Benzidine

7.91min 0.00ug/ml d

response 0

Ion	Exp%	Act%
184.00	100	0.00
0.00	0.00	0.00
0.00	0.00	0.00
0.00	0.00	0.00

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Instrument ID: ABNA Calibration Date: #### Time: 1008

Lab File ID: B7249.D Init. Calib. Date(s): #### 1/0/00

Init. Calib. Times: 1008 0000

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
N-nitrosodimethylamine	0.547	0.627		-14.6	
Phenol	1.659	1.743		-5.1	30.0
bis(2-Chloroethyl)ether	0.844	0.930		-10.2	
2-Chlorophenol	1.342	1.380		-2.8	
1,3-Dichlorobenzene	1.158	1.212		-4.7	
1,4-Dichlorobenzene	1.248	1.340		-7.4	30.0
1,2-Dichlorobenzene	1.237	1.288		-4.1	
bis(2-chloroisopropyl)ether	2.306	2.256		2.2	
N-Nitroso-Di-n-propylamine	1.034	1.044	0.050	-1.0	
Hexachloroethane	0.710	0.746		-5.1	
Nitrobenzene	0.335	0.345		-3.0	
Isophorone	0.650	0.659		-1.4	
2-Nitrophenol	0.264	0.265		-0.4	30.0
2,4-Dimethylphenol	0.463	0.468		-1.1	
bis(2-Chloroethoxy)methane	0.393	0.392		0.3	
2,4-Dichlorophenol	0.356	0.356		0.0	30.0
1,2,4-Trichlorobenzene	0.327	0.333		-1.8	
Naphthalene	0.997	1.033		-3.6	
Hexachlorobutadiene	0.241	0.236		2.1	30.0
4-Chloro-3-methylphenol	0.434	0.442		-1.8	30.0
Hexachlorocyclopentadiene	0.349	0.318	0.050	8.9	
2,4,6-Trichlorophenol	0.398	0.382		4.0	30.0
2-Chloronaphthalene	0.819	0.827		-1.0	
Dimethylphthalate	0.823	0.705		14.3	
Acenaphthylene	1.716	1.764		-2.8	
2,6-Dinitrotoluene	0.266	0.315		-18.4	
Acenaphthene	1.154	1.169		-1.3	30.0
2,4-Dinitrophenol	0.239	0.229	0.050	4.2	
4-Nitrophenol	0.231	0.193	0.050	16.5	
2,4-Dinitrotoluene	0.277	0.281		-1.4	
Diethylphthalate	1.238	1.479		-19.5	
Fluorene	1.293	1.416		-9.5	
4-Chlorophenyl-phenylether	0.675	0.659		2.4	
4,6-Dinitro-2-methylphenol	0.153	0.144		5.9	30.0
n-Nitrosodiphenylamine	0.380	0.449		-18.2	
1,2-Diphenylhydrazine(as azo)	0.000	0.000			
4-Bromophenyl-phenylether	0.214	0.223		-4.2	

All other compounds must meet a minimum RRF of 0.010.

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: EMSL ANALYTICAL Contract: _____

Project No. _____ Site: _____ Location: _____ Group: _____

Instrument ID: ABNA Calibration Date: #### Time: 1008

Lab File ID: B7249.D Init. Calib. Date(s): #### 1/0/00

Init. Calib. Times: 1008 0000

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Hexachlorobenzene	0.322	0.303		5.9	
Pentachlorophenol	0.185	0.140		24.3	30.0
Phenanthrene	1.020	1.002		1.8	
Anthracene	0.833	0.824		1.1	
Di-n-butylphthalate	1.324	1.327		-0.2	
Fluoranthene	1.158	0.968		16.4	30.0
Benzidine	0.290	0.240		17.2	
Pyrene	1.442	1.696		-17.6	
Butylbenzylphthalate	0.586	0.634		-8.2	
Benzo[a]anthracene	1.185	1.155		2.5	
3,3'-Dichlorobenzidine	0.311	0.264		15.1	
Chrysene	0.678	0.735		-8.4	
bis(2-Ethylhexyl)phthalate	0.797	0.848		-6.4	
Di-n-octylphthalate	1.994	1.879		5.8	30.0
Benzo[b]fluoranthene	1.816	1.844		-1.5	
Benzo[k]fluoranthene	1.110	1.159		-4.4	
Benzo[a]pyrene	1.009	1.027		-1.8	30.0
Indeno[1,2,3-cd]pyrene	0.715	0.774		-8.3	
Dibenz[a,h]anthracene	0.597	0.672		-12.6	
Benzo[g,h,i]perylene	0.577	0.662		-14.7	
2-Fluorophenol	0.251	0.242		3.6	
Phenol-d5	1.500	1.669		-11.3	
Nitrobenzene-d5	0.369	0.377		-2.2	
2-Fluorobiphenyl	1.088	1.070		1.7	
2,4,6-Tribromophenol	0.184	0.174		5.4	
Terphenyl-d14	1.031	1.104		-7.1	

All other compounds must meet a minimum RRF of 0.010.

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\B7249.D Vial: 2
Acq On : 24 Nov 97 10:08 am Operator: SCOTTV SUP
Sample : 50 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
1	I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	92	-0.18
2	S	2-Fluorophenol	0.251	0.242	3.4	91	-0.24
3	S	Phenol-d5	1.500	1.669	-11.3	102	-0.18
4	M	N-nitrosodimethylamine	0.547	0.627	-14.7	102	-0.08
5		Pyridine	1.022	0.953	6.7	86	-0.08
6	CM	Phenol	1.659	1.743	-5.0	93	-0.18
7		Benzyl alcohol	1.120	1.022	8.8	81	-0.18
8	MT	bis(2-Chloroethyl)ether	0.844	0.930	-10.2	95	-0.18
9	M	2-Chlorophenol	1.342	1.380	-2.8	89	-0.20
10	MT	1,3-Dichlorobenzene	1.158	1.212	-4.6	94	-0.20
11	CM	1,4-Dichlorobenzene	1.248	1.340	-7.3	98	-0.20
12	M	1,2-Dichlorobenzene	1.237	1.288	-4.1	94	-0.18
13	T	2-Methylphenol	1.241	1.212	2.3	85	-0.12
	1	bis(2-chloroisopropyl)ether	2.306	2.256	2.2	87	-0.16
	[illegible]	4-Methylphenol	1.354	1.368	-1.0	94	-0.16
16	PM	N-Nitroso-Di-n-propylamine	1.034	1.044	-1.0	88	-0.16
17	M	Hexachloroethane	0.710	0.746	-5.1	94	-0.18
18	I	Naphthalene-d8	1.000	1.000	0.0	93	-0.16
19	S	Nitrobenzene-d5	0.369	0.377	-2.2	95	-0.18
20	M	Nitrobenzene	0.335	0.345	-3.0	94	-0.16
21	M	Isophorone	0.650	0.659	-1.4	92	-0.18
22	MC	2-Nitrophenol	0.264	0.265	-0.4	92	-0.16
23	M	2,4-Dimethylphenol	0.463	0.468	-1.1	89	-0.16
24	M	bis(2-Chloroethoxy)methane	0.393	0.392	0.2	88	-0.18
25	MC	2,4-Dichlorophenol	0.356	0.356	0.1	86	-0.16
26	M	1,2,4-Trichlorobenzene	0.327	0.333	-1.9	92	-0.16
27	M	Naphthalene	0.997	1.033	-3.5	93	-0.18
28	T	4-Chloroaniline	0.502	0.512	-1.9	91	-0.16
29	MC	Hexachlorobutadiene	0.241	0.236	2.3	90	-0.18
30	MC	4-Chloro-3-methylphenol	0.434	0.442	-2.0	92	-0.16
31	M	2-Chloronaphthalene	0.819	0.827	-1.0	94	-0.18
32	T	2-Methylnaphthalene	0.775	0.801	-3.4	94	-0.18
33	I	Acenaphthene-d10	1.000	1.000	0.0	90	-0.18
34	P	Hexachlorocyclopentadiene	0.349	0.318	8.8	91	-0.18
35	MC	2,4,6-Trichlorophenol	0.398	0.382	4.0	80	0.04
36	T	2,4,5-Trichlorophenol	0.436	0.480	-10.0	96	-0.16
3	[illegible]	2-Fluorobiphenyl	1.088	1.070	1.6	92	-0.16
[illegible]	[illegible]	2-Nitroaniline	0.481	0.495	-3.1	94	-0.16
[illegible]	M	Dimethylphthalate	0.823	0.705	14.3	96	-0.18
39	M	Acenaphthylene	1.716	1.764	-2.8	93	-0.18

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA2\B7249.D Vial: 2
Acq On : 24 Nov 97 10:08 am Operator: SCOTTV SUP
Sample : 50 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
41	M	2,6-Dinitrotoluene	0.266	0.315	-18.1	149	-0.16
42	T	3-Nitroaniline	0.358	0.387	-8.3	86	-0.16
43	CM	Acenaphthene	1.154	1.169	-1.3	93	-0.18
44	MP	2,4-Dinitrophenol	0.239	0.229	4.2	90	-0.14
45	PM	4-Nitrophenol	0.231	0.193	16.3	71	-0.16
46	T	Dibenzofuran	1.870	1.854	0.9	91	-0.18
47	M	2,4-Dinitrotoluene	0.277	0.281	-1.5	114	-0.16
48	M	Diethylphthalate	1.238	1.479	-19.5	116	-0.18
49	M	Fluorene	1.293	1.416	-9.5	92	-0.18
50	M	4-Chlorophenyl-phenylether	0.675	0.659	2.3	90	-0.18
51		Phenanthrene-d10	1.000	1.000	0.0	105	-0.19
52	T	4-Nitroaniline	0.142	0.162	-14.2	99	-0.16
	MC	4,6-Dinitro-2-methylphenol	0.153	0.144	5.7	101	-0.19
	M	n-Nitrosodiphenylamine	0.380	0.449	-18.3	113	-0.16
55	S	2,4,6-Tribromophenol	0.184	0.174	5.4	82	-0.19
56		1,2-Diphenylhydrazine (as a	0.857	0.976	-13.8	100	-0.16
57	M	4-Bromophenyl-phenylether	0.214	0.223	-4.3	100	-0.19
58	M	Hexachlorobenzene	0.322	0.303	5.8	80	-0.19
59	CM	Pentachlorophenol	0.185	0.140	24.6	79	-0.17
60	M	Phenanthrene	1.020	1.002	1.8	104	-0.19
61	M	Anthracene	0.833	0.824	1.1	104	-0.19
62		Carbazole	0.879	0.804	8.6	92	-0.19
63	M	Di-n-butylphthalate	1.324	1.327	-0.2	96	-0.19
64	MC	Fluoranthene	1.158	0.968	16.4	83	-0.21
65	I	Chrysene-d12	1.000	1.000	0.0	77	-0.21
66		Benzidine	0.290	0.240	17.1	66	-0.17
67	M	Pyrene	1.442	1.696	-17.6	78	-0.21
68	S	Terphenyl-d14	1.031	1.104	-7.2	75	-0.21
69	M	Butylbenzylphthalate	0.586	0.634	-8.1	80	-0.19
70	M	Benzo[a]anthracene	1.185	1.155	2.6	75	-0.21
71	M	3,3'-Dichlorobenzidine	0.311	0.264	15.2	77	-0.19
72	M	Chrysene	0.678	0.735	-8.4	84	-0.21
73	M	bis(2-Ethylhexyl)phthalate	0.797	0.848	-6.3	79	-0.12
74	I	Perylene-d12	1.000	1.000	0.0	58	-0.21
75	MC	Di-n-octylphthalate	1.994	1.879	5.8	46#	-0.19
7		Benzo[b]fluoranthene	1.816	1.844	-1.5	62	-0.21
	n	Benzo[k]fluoranthene	1.110	1.159	-4.5	59	-0.21
3	mc	Benzo[a]pyrene	1.009	1.027	-1.8	58	-0.21
	m	Indeno[1,2,3-cd]pyrene	0.715	0.774	-8.1	65	-0.19

(#) = Out of Range

Evaluate Continuing Calibration Report

270

Data File : C:\HPCHEM\1\DATA2\B7249.D Vial: 2
Acq On : 24 Nov 97 10:08 am Operator: SCOTTV SUP
Sample : 50 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 150%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(Min)
0	m	Dibenz[a,h]anthracene	0.597	0.672	-12.7	68	-0.21
1	M	Benzo[g,h,i]perylene	0.577	0.662	-14.7	59	-0.20

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report

Data File : c:\hpchem\1\data2\b7249.d Vial: 2
Acq On : 24 Nov 97 10:08 am Operator: SCOTTV
Sample : 50 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 24 15:31 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	11610	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.75	136	49414	40.00	ug/mL	-0.16
33) Acenaphthene-d10	15.98	164	40152	40.00	ug/mL	-0.18
51) Phenanthrene-d10	20.31	188	86961	40.00	ug/ml	-0.19
65) Chrysene-d12	28.22	240	49546	40.00	ug/mL	-0.21
74) Perylene-d12	32.19	264	15805	40.00	ug/mL	-0.21
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.59	112	3519	48.31	ug/mL	48.31%
3) Phenol-d5	6.86	99	24222	55.64	ug/mL	55.64%
19) Nitrobenzene-d5	8.81	82	23282	51.12	ug/mL	51.12%
37) 2-Fluorobiphenyl	14.23	172	53724	49.21	ug/mL	49.21%
55) 2,4,6-Tribromophenol	18.44	330	18956	47.30	ug/mL	47.30%
68) Terphenyl-d14	25.38	244	68404	53.59	ug/mL	53.59%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.37	74	9105	57.34	ug/mlm	100
5) Pyridine	1.33	79	13826	46.63	ug/ml	100
6) Phenol	6.90	94	25290	52.51	ug/mL	100
7) Benzyl alcohol	7.84	79	14825	45.59	ug/ml	100
8) bis(2-Chloroethyl)ether	6.64	93	13503	55.11	ug/mL	95
9) 2-Chlorophenol	6.60	128	20025	51.41	ug/mL	94
10) 1,3-Dichlorobenzene	6.78	146	17588	52.31	ug/mL	96
11) 1,4-Dichlorobenzene	6.98	146	19440	53.67	ug/mL	96
12) 1,2-Dichlorobenzene	7.51	146	18690	52.05	ug/mL	100
13) 2-Methylphenol	8.59	108	17593	48.84	ug/mL	93
14) bis(2-chloroisopropyl)ethe	8.26	45	32735	48.91	ug/mL	99
15) 4-Methylphenol	9.04	108	19847	50.48	ug/mL	97
16) N-Nitroso-Di-n-propylamine	8.73	70	15150	50.48	ug/mL	98
17) Hexachloroethane	8.35	117	10829	52.55	ug/mL	98
20) Nitrobenzene	8.88	77	21309	51.48	ug/mL#	86
21) Isophorone	9.65	82	40695	50.70	ug/mL	97
22) 2-Nitrophenol	9.83	139	16351	50.22	ug/mL	90
23) 2,4-Dimethylphenol	10.46	107	28931	50.53	ug/mL	99
24) bis(2-Chloroethoxy)methane	10.58	93	24202	49.91	ug/mL	96
25) 2,4-Dichlorophenol	10.71	162	21979	49.94	ug/mL#	92
26) 1,2,4-Trichlorobenzene	10.71	180	20593	50.94	ug/mL	98
27) Naphthalene	10.79	128	63778	51.76	ug/mL	97
28) 4-Chloroaniline	11.34	127	31617	50.96	ug/mL	96
29) Hexachlorobutadiene	11.48	225	14550	48.86	ug/mL	98
30) 4-Chloro-3-methylphenol	13.21	107	27320	50.98	ug/mL	97
31) 2-Chloronaphthalene	14.29	162	51087	50.51	ug/ml	96
32) 2-Methylnaphthalene	12.88	142	49485	51.71	ug/mL	99
34) Hexachlorocyclopentadiene	13.61	237	15982	45.62	ug/mL	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7249.d Vial: 2
Acq On : 24 Nov 97 10:08 am Operator: SCOTTV
Sample : 50 STD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 24 15:31 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
35)	2,4,6-Trichlorophenol	14.27	196	19193	48.01 ug/mL	98
36)	2,4,5-Trichlorophenol	14.27	196	24067	54.99 ug/mL	98
38)	2-Nitroaniline	15.02	65	24860	51.53 ug/mL	87
39)	Dimethylphthalate	15.79	163	35398	42.85 ug/mLm	0
40)	Acenaphthylene	15.49	152	88523	51.38 ug/mL#	99
41)	2,6-Dinitrotoluene	15.95	165	15790	59.05 ug/mLm	0
42)	3-Nitroaniline	16.30	138	19448	54.14 ug/mL	100
43)	Acenaphthene	16.08	153	58670	50.64 ug/mL	99
44)	2,4-Dinitrophenol	16.65	184	11490	47.88 ug/mL	86
45)	4-Nitrophenol	17.46	109	9702	41.85 ug/mLm	91
46)	Dibenzofuran	16.57	168	93030	49.55 ug/mL	98
47)	2,4-Dinitrotoluene	17.07	165	14100	50.73 ug/mLm	0
48)	Diethylphthalate	17.95	149	74246	59.77 ug/mL	98
49)	Fluorene	17.58	166	71045	54.75 ug/mL	99
50)	4-Chlorophenyl-phenylether	17.81	204	33090	48.86 ug/mL	97
52)	4-Nitroaniline	18.17	138	17600	57.10 ug/mL	93
53)	4,6-Dinitro-2-methylphenol	18.26	198	15685	47.14 ug/mL	100
54)	n-Nitrosodiphenylamine	18.30	169	48837	59.14 ug/mL	96
56)	1,2-Diphenylhydrazine (as	18.26	77	106091	56.91 ug/ml	100
57)	4-Bromophenyl-phenylether	19.21	248	24251	52.15 ug/mL	97
58)	Hexachlorobenzene	19.46	284	32958	47.09 ug/mL	95
59)	Pentachlorophenol	20.21	266	15206	37.72 ug/mLm	95
60)	Phenanthrene	20.37	178	108911	49.10 ug/mL	99
61)	Anthracene	20.49	178	89576	49.47 ug/mLm	100
62)	Carbazole	21.25	167	87361	45.72 ug/ml	99
63)	Di-n-butylphthalate	22.85	149	144224	50.11 ug/mL	99
64)	Fluoranthene	23.89	202	105272	41.81 ug/mL	99
66)	Benzidine	24.70	184	14883	41.43 ug/mlm	100
67)	Pyrene	24.50	202	105033	58.80 ug/mL	99
69)	Butylbenzylphthalate	27.25	149	39247	54.05 ug/mLm	87
70)	Benzo[a]anthracene	28.18	228	71509	48.71 ug/mL	99
71)	3,3'-Dichlorobenzidine	28.49	252	16336	42.40 ug/mL	99
72)	Chrysene	28.31	228	45545	54.22 ug/mL	99
73)	bis(2-Ethylhexyl)phthalate	29.24	149	52493	53.17 ug/mLm	38
75)	Di-n-octylphthalate	30.99	149	37119	47.12 ug/mLm	99
76)	Benzo[b]fluoranthene	31.24	252	36423	50.75 ug/mL	98
77)	Benzo[k]fluoranthene	31.30	252	22901	52.24 ug/mLm	98
78)	Benzo[a]pyrene	32.03	252	20292	50.90 ug/mL	97
79)	Indeno[1,2,3-cd]pyrene	34.74	276	15285	54.07 ug/mL#	90
80)	Dibenz[a,h]anthracene	34.82	278	13279	56.33 ug/mL	99
81)	Benzo[g,h,i]perylene	35.25	276	13076	57.33 ug/mLm	0

(#) = qualifier out of range (m) = manual integration

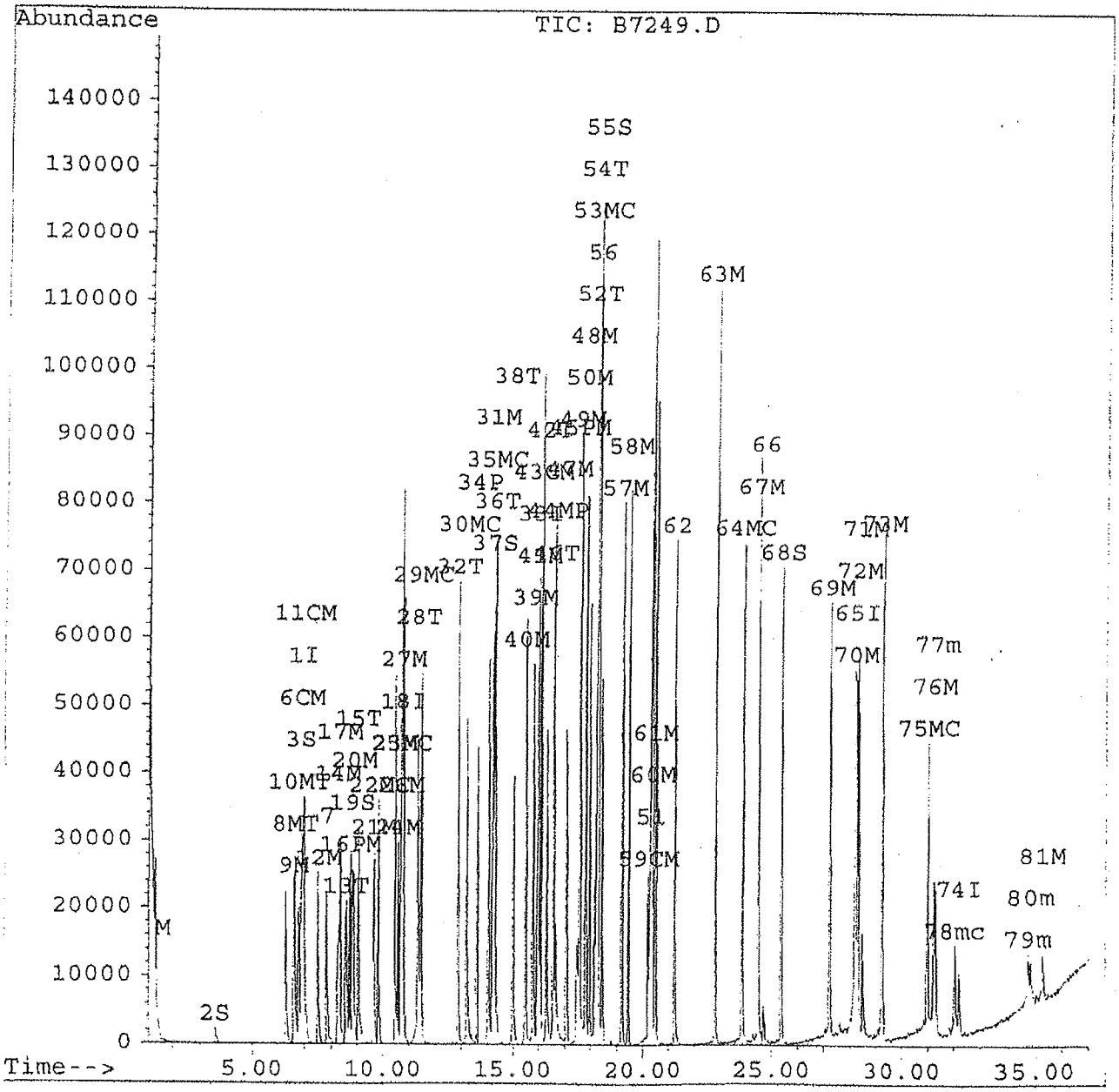
Quantitation Report

Data File : c:\hpchem\1\data2\b7249.d
Acq On : 24 Nov 97 10:08 am
Sample : 50 STD.....
Misc :
Quant Time: Nov 24 15:31 1997

Converted from RTE d

Vial: 2
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID (Standard): B7249.D Date Analyzed: 11/24/97

Instrument ID: ABNA Time Analyzed: 1008

		IS1 (DCB) AREA #	RT #	IS2 (NPT) AREA #	RT #	IS3 (ANT) AREA #	RT #
	12 HOUR STD	11610	6.94	49414	10.75	40152	15.98
	UPPER LIMIT	23220	7.44	98828	11.25	80304	16.48
	LOWER LIMIT	5805	6.44	24707	10.25	20076	15.48
	SAMPLE NO.						
01	SBLK01	13000	6.94	55823	10.72	46583	15.97
02	9785731B	13476	6.94	58254	10.72	46534	15.97
03	9785732B	12502	6.94	57493	10.72	45073	15.97
04	9785733B	12391	6.94	53782	10.72	42120	15.97
05	9785734B	12109	6.95	55268	10.73	43100	15.98
06	9785735B	12707	6.94	55078	10.72	43595	15.97
07	9785736B	12335	6.94	56046	10.72	45718	15.97
08	9785737B	13227	6.94	57607	10.72	45619	15.97
09	9785738B	12591	6.94	54049	10.73	45171	15.97
10	9785739B	12708	6.95	58050	10.71	45961	15.98
11	9785741B	12774	6.94	57033	10.72	45476	15.97
12	85741MS	13340	6.94	58490	10.73	47567	15.98
13	85741MSD	12945	6.92	56726	10.73	46974	15.98
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Lab File ID (Standard): B7249.D Date Analyzed: 11/24/97

Instrument ID: ABNA Time Analyzed: 1008

		IS4 (PHN) AREA #	RT #	IS5 (CRY) AREA #	RT #	IS6 (PRY) AREA #	RT #
	12 HOUR STD	86961	20.31	49546	28.22	15805	32.19
	UPPER LIMIT	173922	20.81	99092	28.72	31610	32.69
	LOWER LIMIT	43481	19.81	24773	27.72	7903	31.69
	SAMPLE NO.						
01	SBLK01	99527	20.30	87592	28.23	24588	32.19
02	9785731B	100316	20.30	77052	28.23	27296	32.19
03	9785732B	91176	20.30	82968	28.21	18579	32.18
04	9785733B	89139	20.30	62068	28.23	28751	32.19
05	9785734B	92510	20.29	73108	28.22	29767	32.18
06	9785735B	94448	20.28	70390	28.21	26280	32.20
07	9785736B	93092	20.28	67613	28.21	29929	32.18
08	9785737B	94184	20.28	62707	28.22	23021	32.18
09	9785738B	93322	20.29	62917	28.22	23011	32.18
10	9785739B	94472	20.29	87806	28.22	22359	32.18
11	9785741B	94824	20.28	69660	28.21	28706	32.18
12	85741MS	99141	20.29	67614	28.23	26651	32.18
13	85741MSD	94442	20.29	59420	28.23	23747	32.18
14							
15							
16							
17							
18							
19							
20							
21							
22							

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785731B

MW-2

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785731B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7251.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785731B

MW-2

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785731B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7251.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785731B
MW-2

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785731B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7251.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.90	7	J
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
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28.				
29.				
30.				

Quantitation Report

235

Data File : c:\hpchem\1\data2\b7251.d
Acq On : 24 Nov 97 11:42 am
Sample : 85731.....
Misc :
Quant Time: Nov 24 15:42 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	13476	40.00	ug/mL	-0.19
18) Naphthalene-d8	10.72	136	58254	40.00	ug/mL	-0.19
33) Acenaphthene-d10	15.97	164	46534	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.30	188	100316	40.00	ug/ml	-0.20
65) Chrysene-d12	28.23	240	77052	40.00	ug/mL	-0.20
74) Perylene-d12	32.19	264	27296	40.00	ug/mL	-0.21
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.60	112	2895	34.24	ug/mL	34.24%
3) Phenol-d5	6.88	99	26351	52.15	ug/mL	52.15%
19) Nitrobenzene-d5	8.81	82	22106	41.17	ug/mL	41.17%
37) 2-Fluorobiphenyl	14.22	172	62218	49.17	ug/mL	49.17%
55) 2,4,6-Tribromophenol	18.43	330	24830	53.71	ug/mL	53.71%
68) Terphenyl-d14	25.38	244	116440	58.65	ug/mL	58.65%
Target Compounds						Qvalue
73) bis(2-Ethylhexyl)phthalate	29.23	149	3607	2.35	ug/mL#	38

(#) = qualifier out of range (m) = manual integration

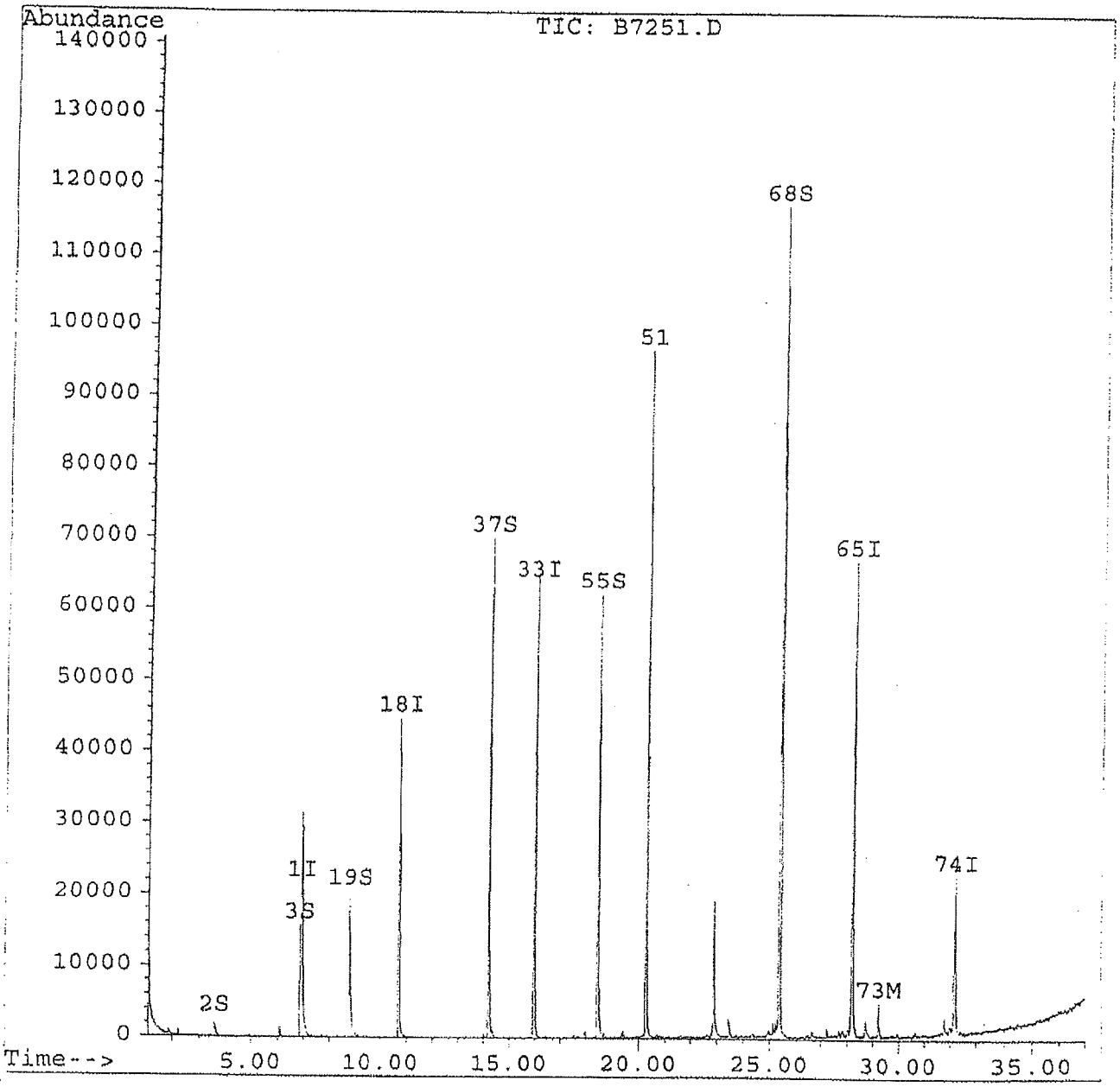
Quantitation Report

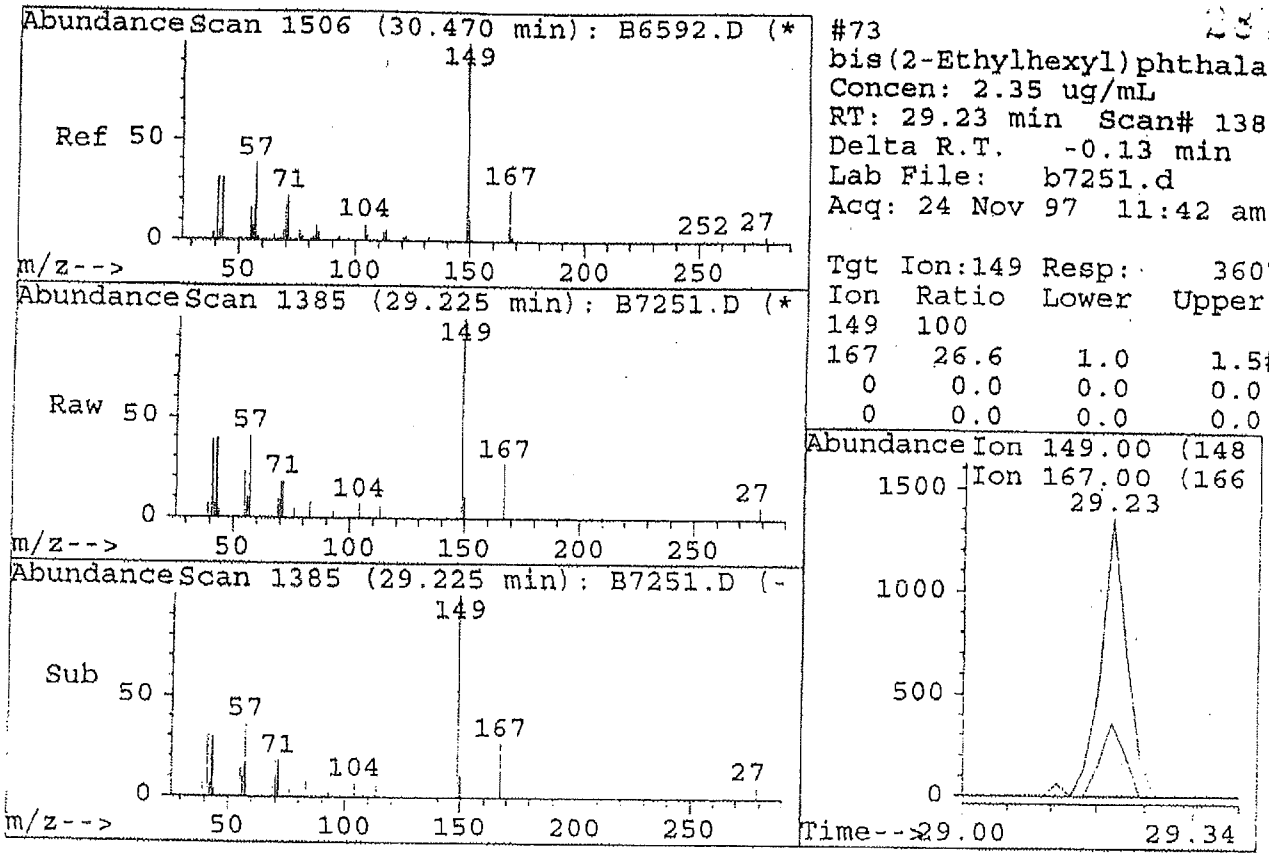
Data File : c:\hpchem\1\data2\b7251.d
Acq On : 24 Nov 97 11:42 am
Sample : 85731.....
Misc :
Quant Time: Nov 24 15:42 1997

Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration





#73
bis(2-Ethylhexyl)phthalate
Concen: 2.35 ug/mL
RT: 29.23 min Scan# 1385
Delta R.T. -0.13 min
Lab File: b7251.d
Acq: 24 Nov 97 11:42 am

Tgt Ion:149 Resp: 3607

Ion	Ratio	Lower	Upper
149	100		
167	26.6	1.0	1.5#
0	0.0	0.0	0.0
0	0.0	0.0	0.0

Library Search Compound Report

Data File : c:\hpchem\1\data2\b7251.d
Acq On : 24 Nov 97 11:42 am
Sample : 85731.....
Misc :

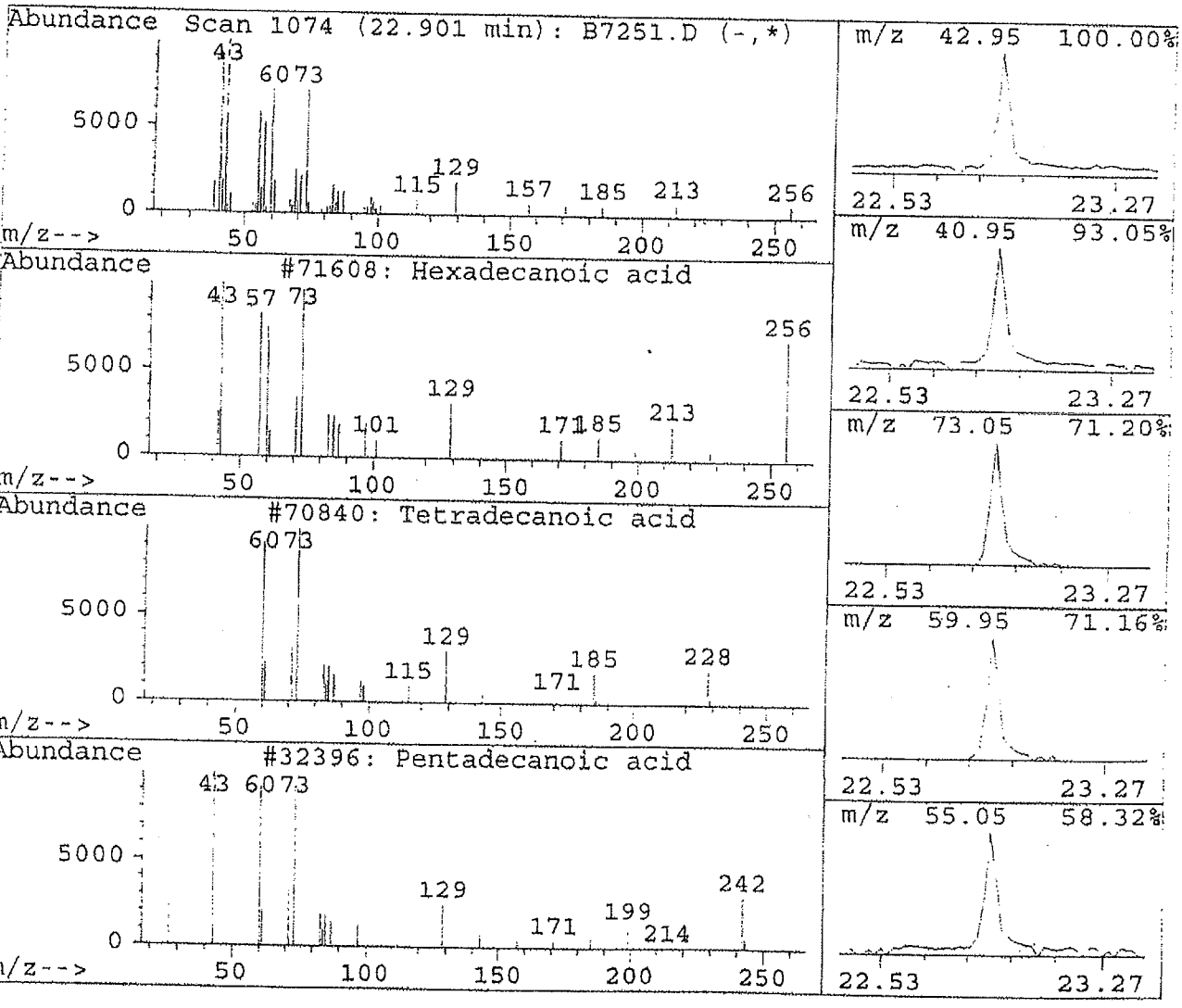
Converted from RTE d

Vial: 4
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.90	8.41 ug/mL	53136	Phenanthrene-d10	20.30

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71608	000057-10-3	96
2	Tetradecanoic acid	70840	000544-63-8	87
3	Pentadecanoic acid	32396	001002-84-2	87
4	Undecanoic acid	19473	000112-37-8	86
5	Tridecanoic acid	70343	000638-53-9	86



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785732B

MW-3

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785732B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7252.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 23

9785732B
MW-3

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785732B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7252.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	1	U
85-68-7	Butylbenzylphthalate	4	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	1	U
205-99-2	Benzo[b]fluoranthene	1	J
207-08-9	Benzo[k]fluoranthene	1	U
50-32-8	Benzo[a]pyrene	2	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785732B
MW-3

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785732B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7252.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 4 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1.	Unknown Hydrocarbon	10.78	10	J
2.	Unknown Hydrocarbon	10.90	12	J
3. 57-10-3	Hexadecanoic acid	22.90	10	J
4. 10544-50-0	Sulfur, mol. (S8)	23.47	4	J
5.				
6.				
7.				
8.				
9.				
10.				
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29.				
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Quantitation Report

Data File : c:\hpchem\1\data2\b7252.d
Acq On : 24 Nov 97 12:30 pm
Sample : 85732.....
Misc :
Quant Time: Nov 24 15:43 1997

Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	12502	40.00	ug/mL	-0.19
18) Naphthalene-d8	10.72	136	57493	40.00	ug/mL	-0.19
33) Acenaphthene-d10	15.97	164	45073	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.30	188	91176	40.00	ug/ml	-0.20
65) Chrysene-d12	28.21	240	82968	40.00	ug/mL	-0.22
74) Perylene-d12	32.18	264	18579	40.00	ug/mL	-0.22
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.60	112	3872	49.36	ug/mL	49.36%
3) Phenol-d5	6.90	99	28509	60.82	ug/mL	60.82%
19) Nitrobenzene-d5	8.81	82	25310	47.77	ug/mL	47.77%
37) 2-Fluorobiphenyl	14.22	172	70223	57.30	ug/mL	57.30%
55) 2,4,6-Tribromophenol	18.43	330	28251	67.24	ug/mL	67.24%
68) Terphenyl-d14	25.39	244	119528	55.92	ug/mL	55.92%
Target Compounds						Qvalue
75) Di-n-octylphthalate	31.00	149	1347	1.45	ug/mLm	74

(#) = qualifier out of range (m) = manual integration

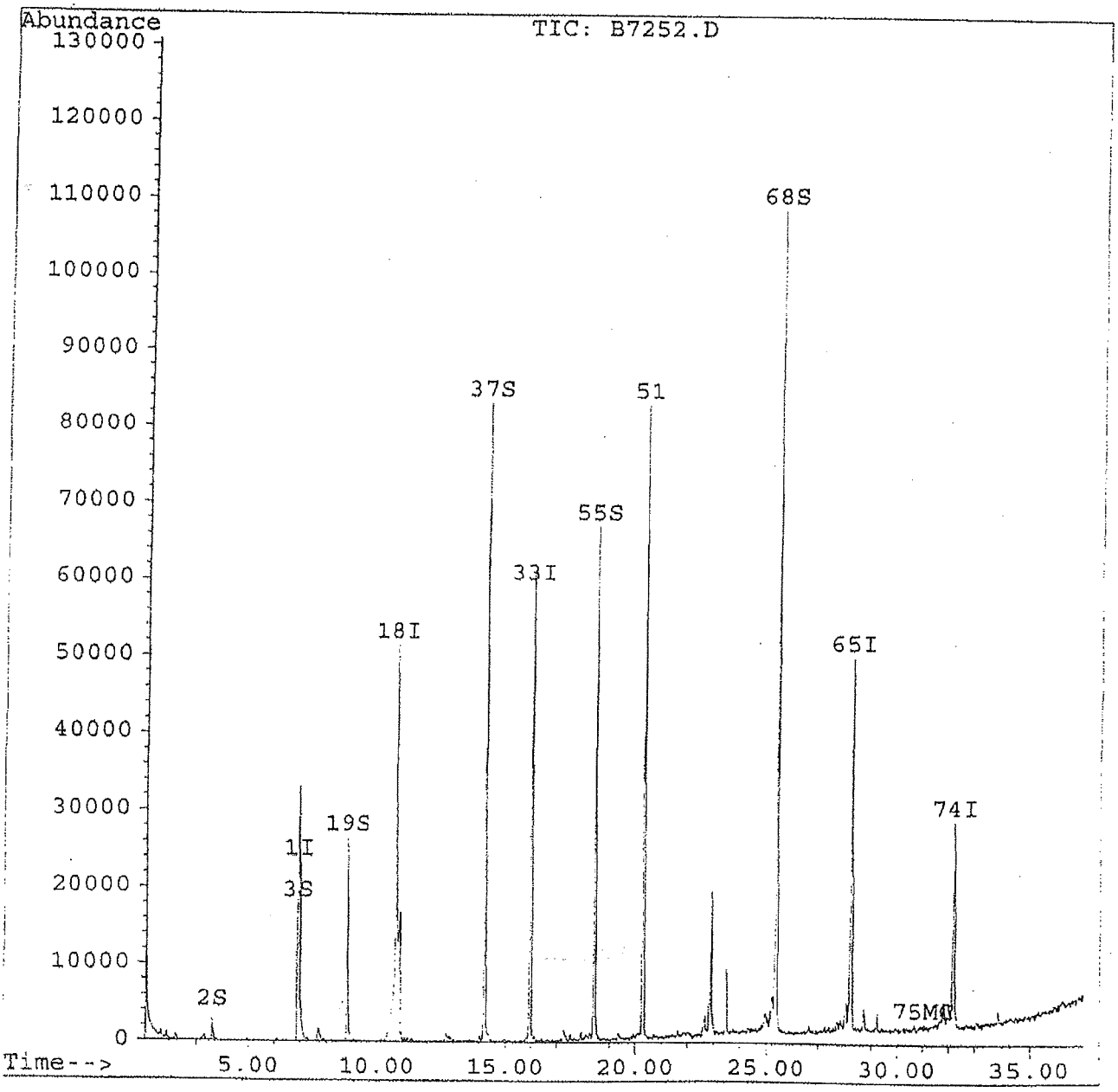
Quantitation Report

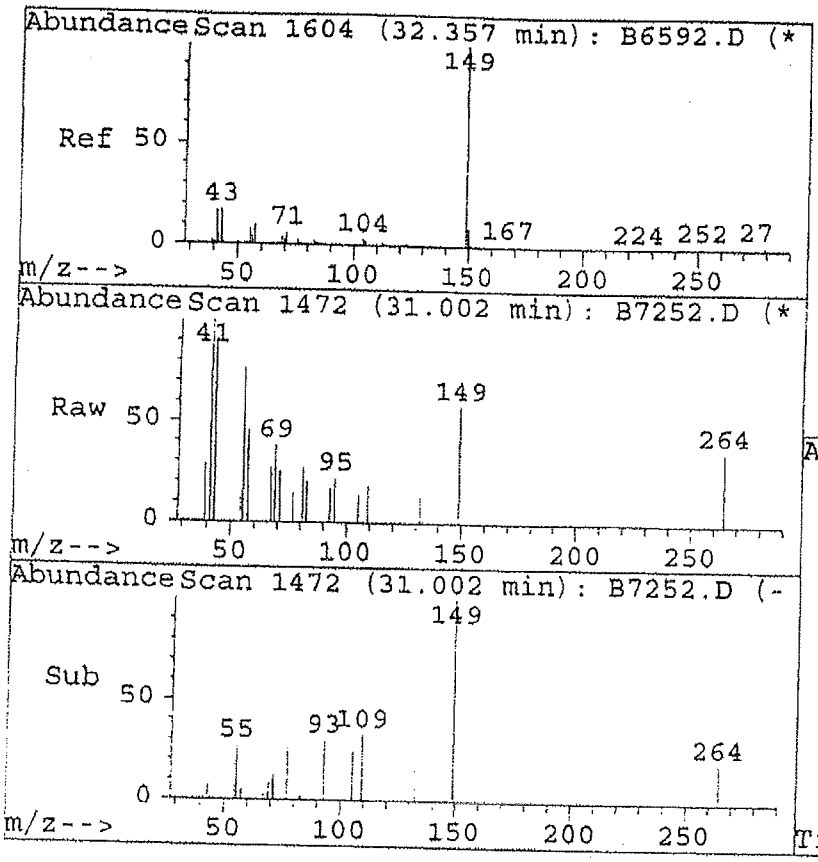
Data File : c:\hpchem\1\data2\b7252.d
Acq On : 24 Nov 97 12:30 pm
Sample : 85732.....
Misc :
Quant Time: Nov 24 15:43 1997

Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

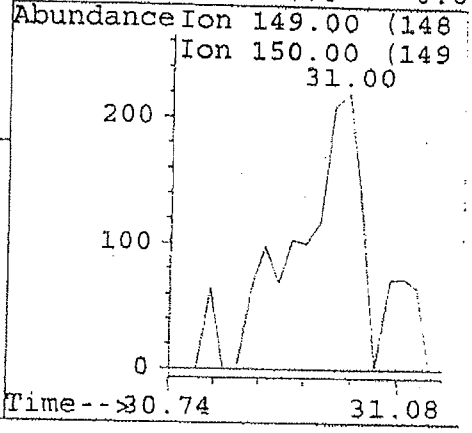




#75
Di-n-octylphthalate
Concen: 1.45 ug/mL m
RT: 31.00 min Scan# 1472
Delta R.T. -0.18 min
Lab File: b7252.d
Acq: 24 Nov 97 12:30 pm

Tgt Ion:149 Resp: 1347

Ion	Ratio	Lower	Upper
149	100		
150	0.0	7.7	11.5#
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

293

Data File : c:\hpchem\1\data2\b7252.d
Acq On : 24 Nov 97 12:30 pm
Sample : 85732.....
Misc :

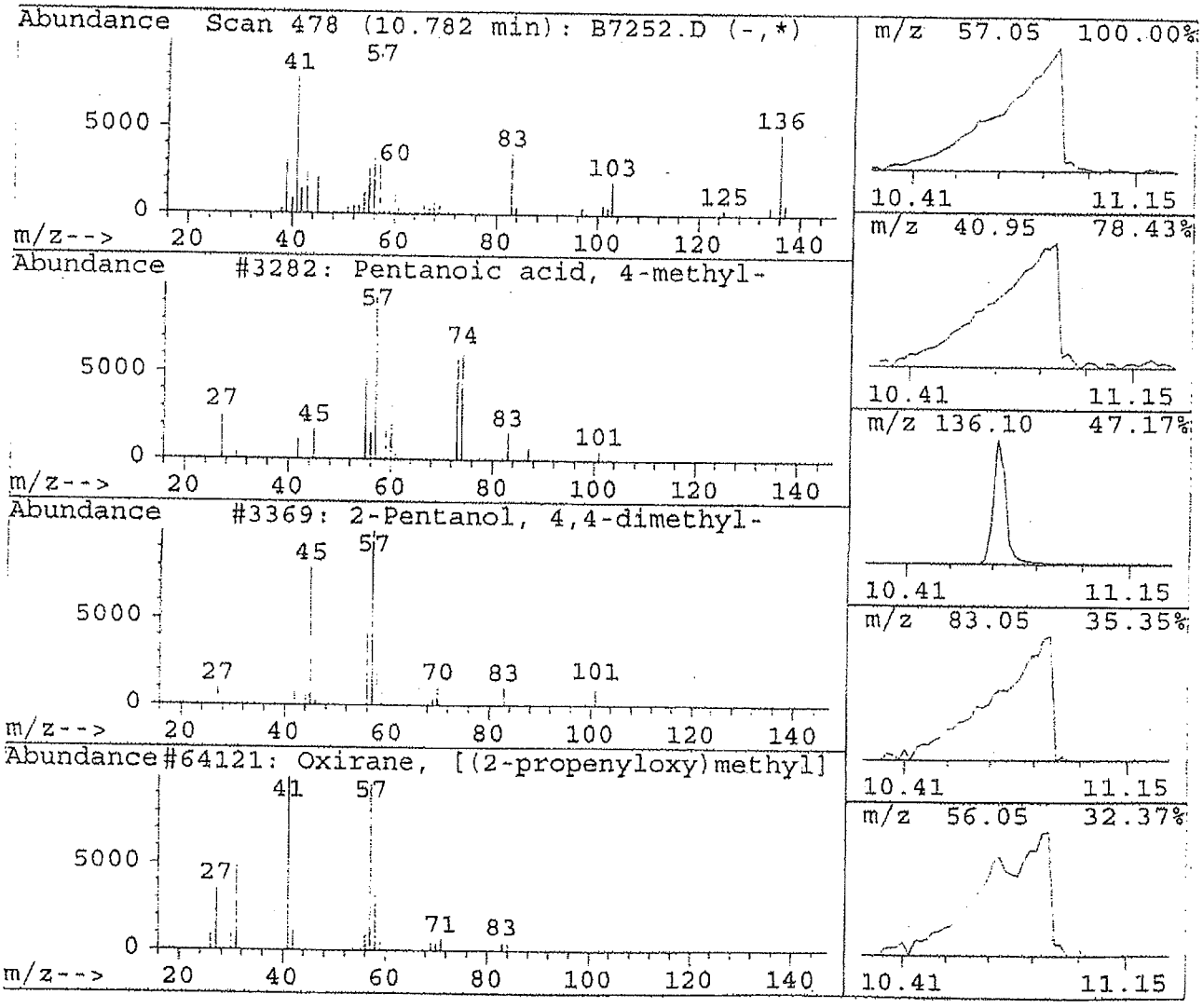
Converted from RTE d

Vial: 5
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
10.78	12.37 ug/mL	81413	Naphthalene-d8	10.72

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Pentanoic acid, 4-methyl-	3282	000646-07-1	10
2	2-Pentanol, 4,4-dimethyl-	3369	006144-93-0	9
3	Oxirane, [(2-propenyloxy)methyl]-	64121	000106-92-3	9
4	Butane, 2-nitro-	1818	000600-24-8	9
5	1-Propanol, 2,2-dimethyl-	62936	000075-84-3	9



Library Search Compound Report

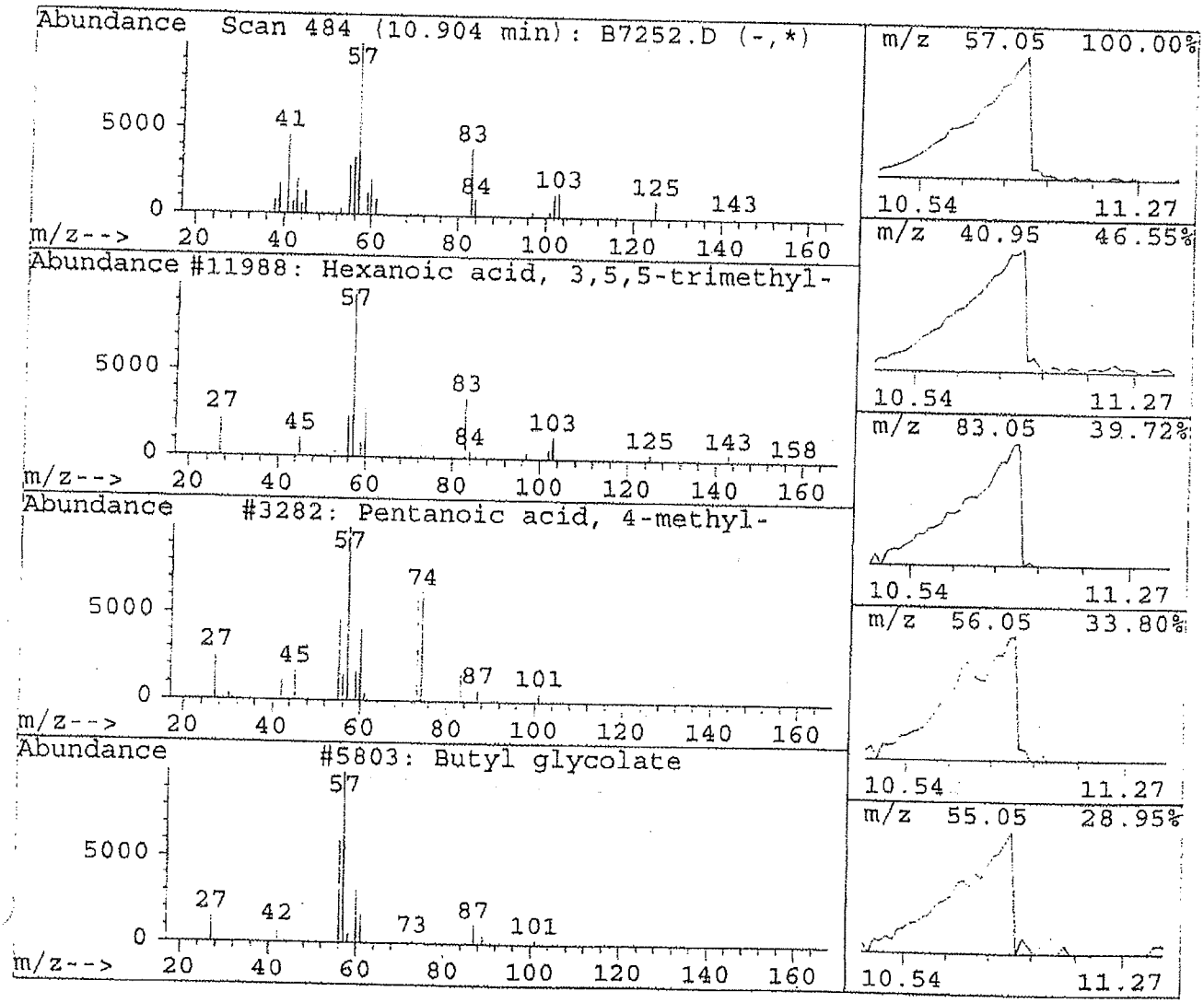
Data File : c:\hpchem\1\data2\b7252.d
Acq On : 24 Nov 97 12:30 pm
Sample : 85732.....
Misc :

Vial: 5
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
10.90	14.81 ug/mL	97514	Naphthalene-d8	10.72

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexanoic acid, 3,5,5-trimethyl-	11988	003302-10-1	36
2	Pentanoic acid, 4-methyl-	3282	000646-07-1	10
3	Butyl glycolate	5803	007397-62-8	9
4	1-Propanol, 2,2-dimethyl-	848	000075-84-3	9
5	Hexanoic acid, butyl ester	68354	000626-82-4	9



Library Search Compound Report

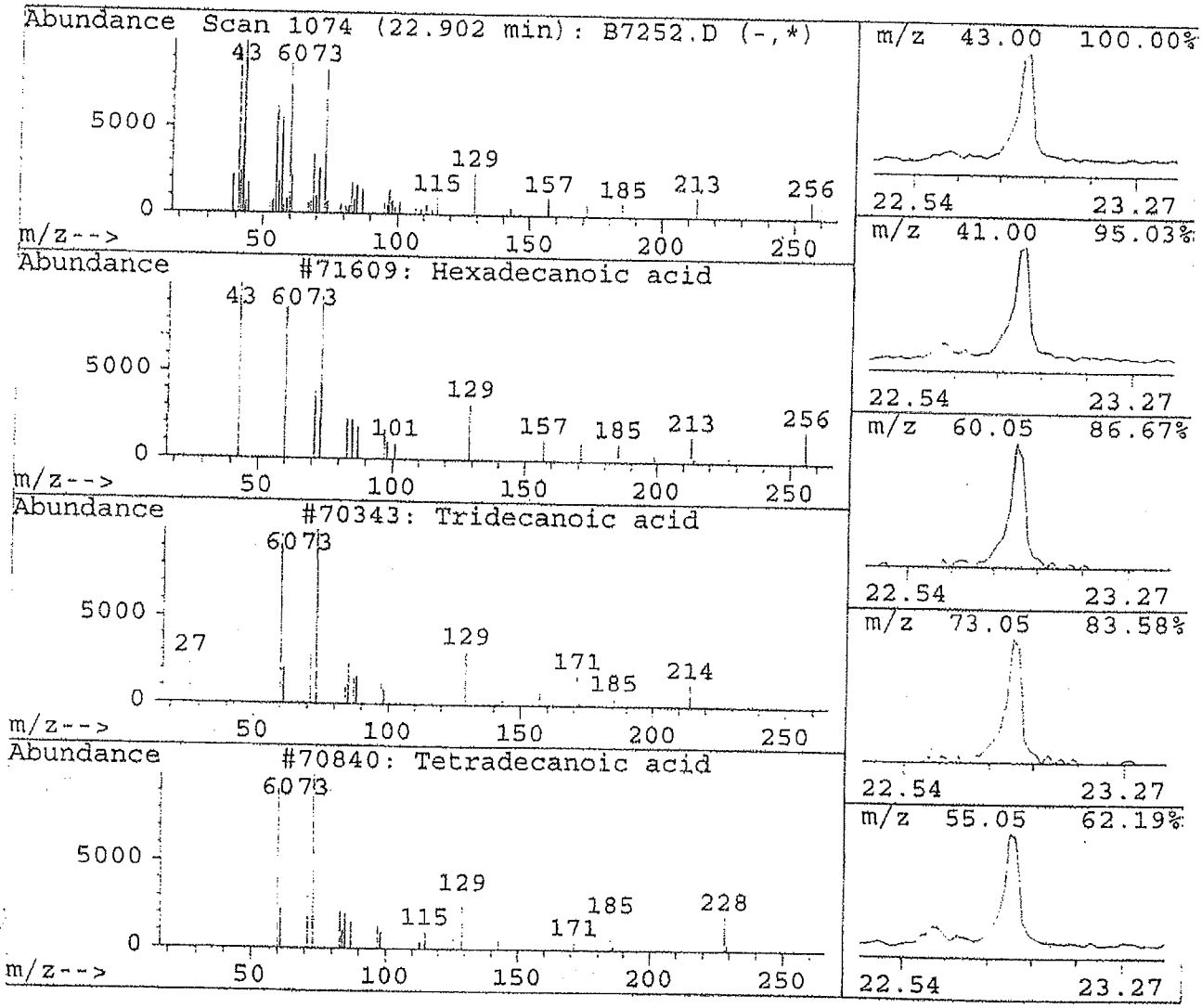
Data File : c:\hpchem\1\data2\b7252.d
Acq On : 24 Nov 97 12:30 pm
Sample : 85732.....
Misc :

Vial: 5
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.90	11.61 ug/mL	68464	Phenanthrene-d10	20.30

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71609	000057-10-3	96
2	Tridecanoic acid	70343	000638-53-9	87
3	Tetradecanoic acid	70840	000544-63-8	87
4	Pentadecanoic acid	71237	001002-84-2	83
5	Undecanoic acid	19473	000112-37-8	64



Library Search Compound Report

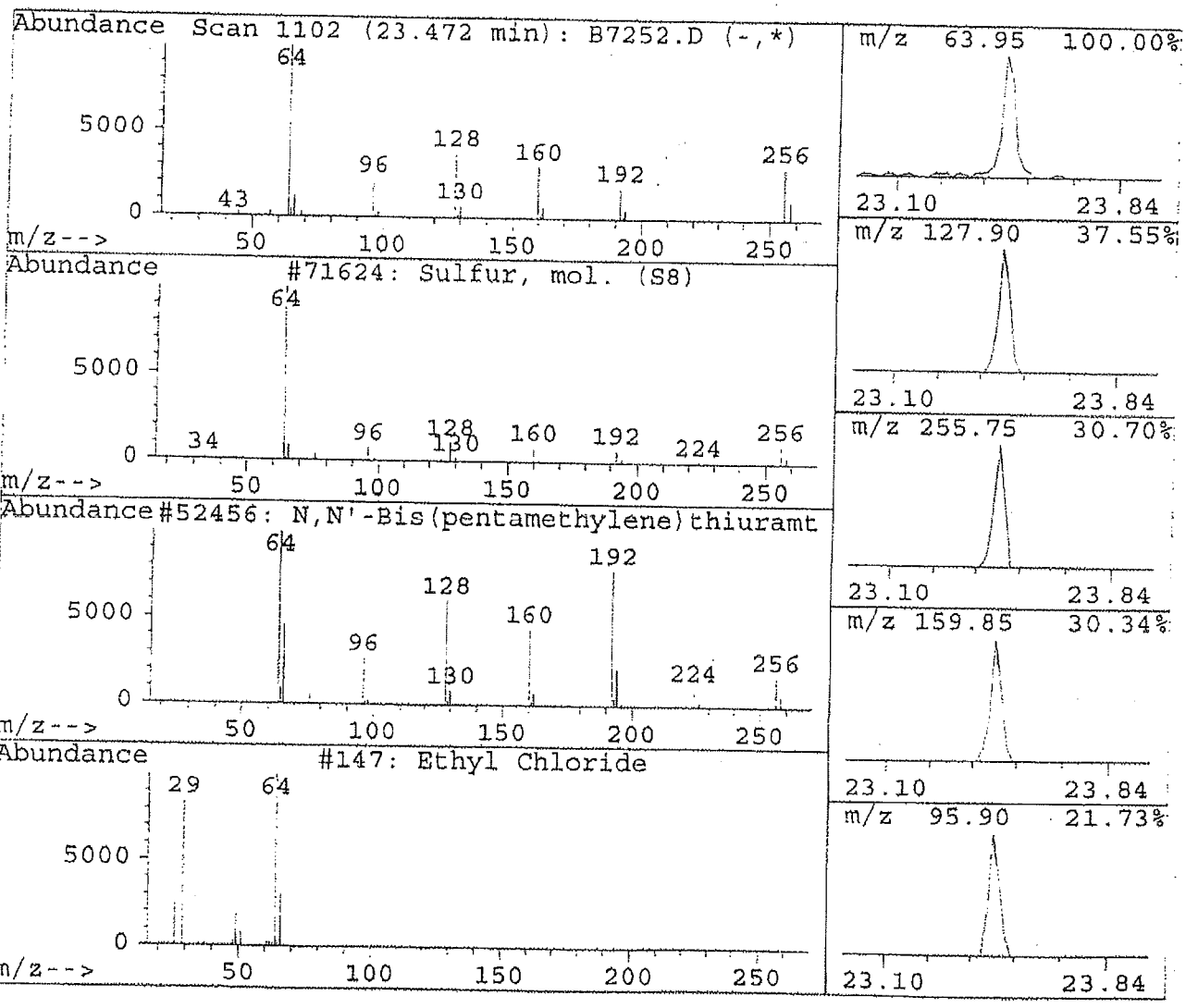
Data File : c:\hpchem\1\data2\b7252.d
Acq On : 24 Nov 97 12:30 pm
Sample : 85732.....
Misc :

Vial: 5 293
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
23.47	4.36 ug/mL	25706	Phenanthrene-d10	20.30

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Sulfur, mol. (S8)	71624	010544-50-0	25
2	N,N'-Bis(pentamethylene)thiuramtetr	52456	000000-00-0	20
3	Ethyl Chloride	147	000075-00-3	4
4	Thiodiphosphoryl fluoride ([F2P(S)]	27288	022606-64-0	4
5	Cyclohexane-d12	1082	001735-17-7	3



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785733B

MW-5

295

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785733B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7253.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785733B
MW-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785733B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7253.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. 301

9785733B
mw-5

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785733B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7253.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.90	8	J
2. 10544-50-0	Sulfur, mol. (S8)	23.47	6	J
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Quantitation Report

Data File : c:\hpchem\1\data2\b7253.d
Acq On : 24 Nov 97 1:18 pm
Sample : 85733.....
Misc :
Quant Time: Nov 24 15:44 1997

Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

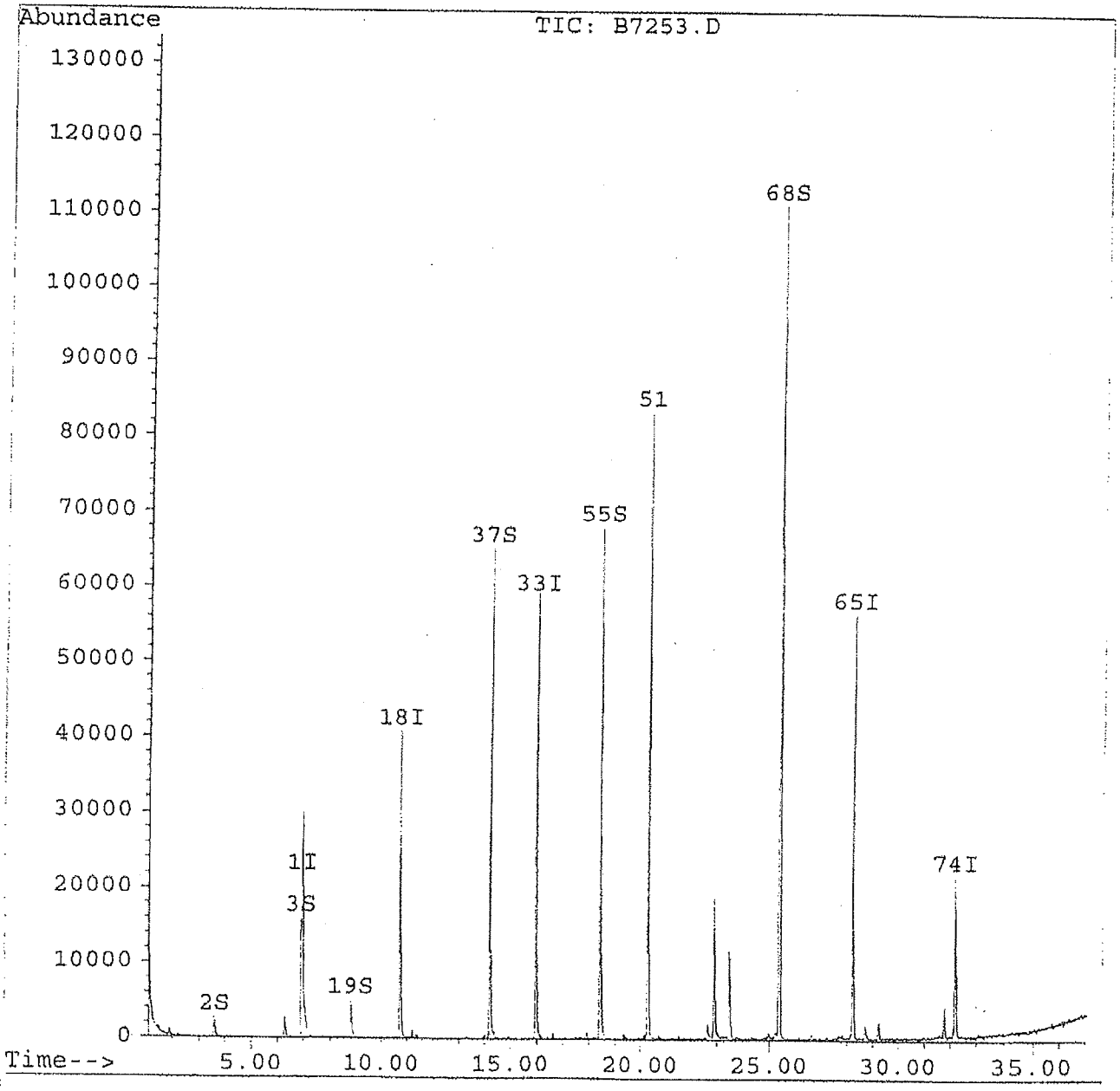
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	12391	40.00	ug/mL	-0.19
18) Naphthalene-d8	10.72	136	53782	40.00	ug/mL	-0.19
33) Acenaphthene-d10	15.97	164	42120	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.30	188	89139	40.00	ug/ml	-0.20
65) Chrysene-d12	28.23	240	62068	40.00	ug/mL	-0.20
74) Perylene-d12	32.19	264	28751	40.00	ug/mL	-0.21
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.60	112	4019	51.70	ug/mL	51.70%
3) Phenol-d5	6.88	99	27713	59.65	ug/mL	59.65%
19) Nitrobenzene-d5	8.81	82	6854	13.83	ug/mL	13.83%
37) 2-Fluorobiphenyl	14.22	172	55978	48.88	ug/mL	48.88%
55) 2,4,6-Tribromophenol	18.43	330	25832	62.89	ug/mL	62.89%
68) Terphenyl-d14	25.38	244	99785	62.40	ug/mL	62.40%
Target Compounds						Qvalue

Quantitation Report

Data File : c:\hpchem\1\data2\b7253.d
Acq On : 24 Nov 97 1:18 pm
Sample : 85733.....
Misc :
Quant Time: Nov 24 15:44 1997

Vial: 6 3 3
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

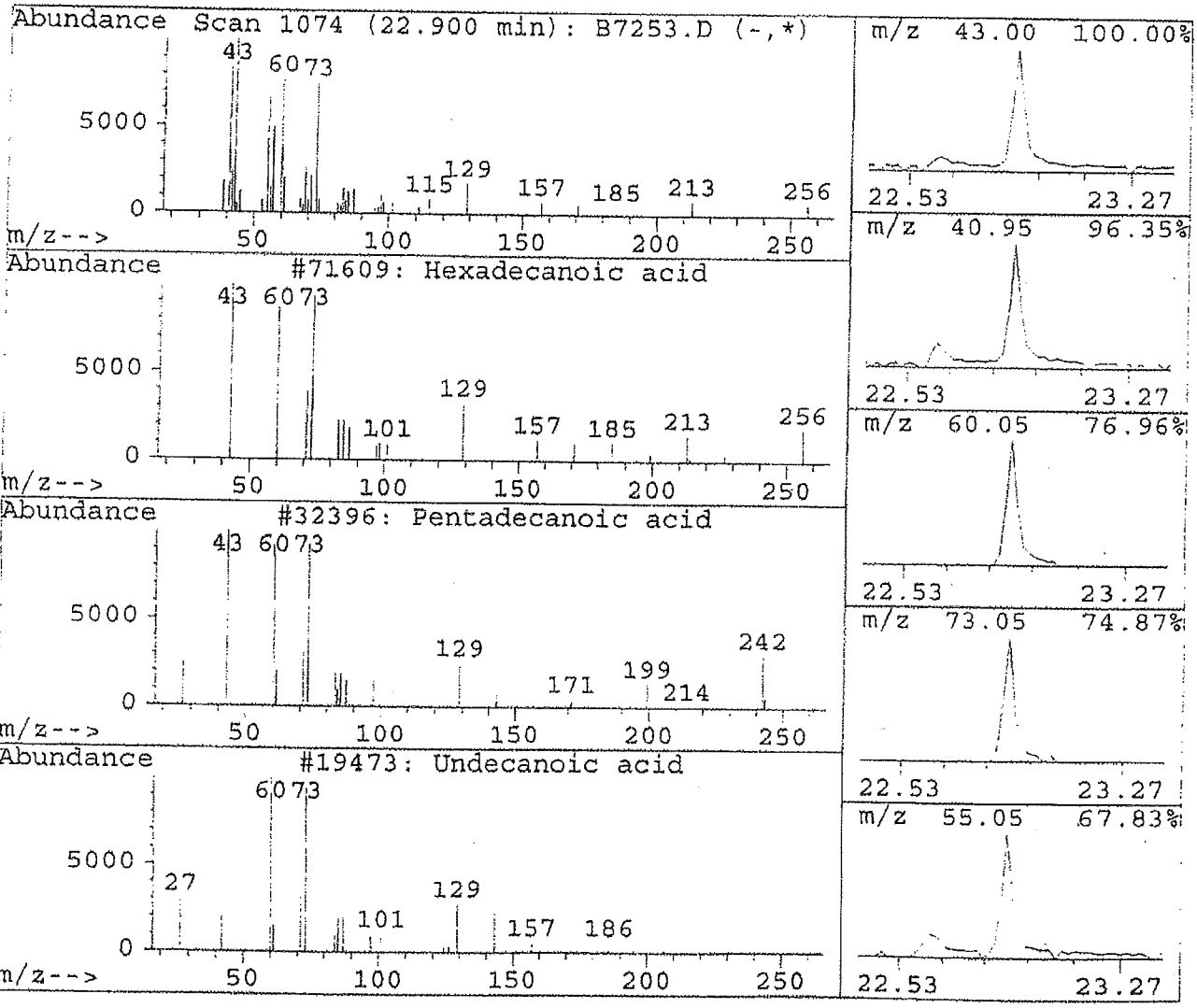
Data File : c:\hpchem\1\data2\b7253.d
Acq On : 24 Nov 97 1:18 pm
Sample : 85733.....
Misc :

Vial: 6
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.90	9.54 ug/mL	53546	Phenanthrene-d10	20.30

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71609	000057-10-3	95
2	Pentadecanoic acid	32396	001002-84-2	83
3	Undecanoic acid	19473	000112-37-8	80
4	Tetradecanoic acid	70840	000544-63-8	80
5	Tridecanoic acid	70343	000638-53-9	72



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7253.d
Acq On : 24 Nov 97 1:18 pm
Sample : 85733.....
Misc :

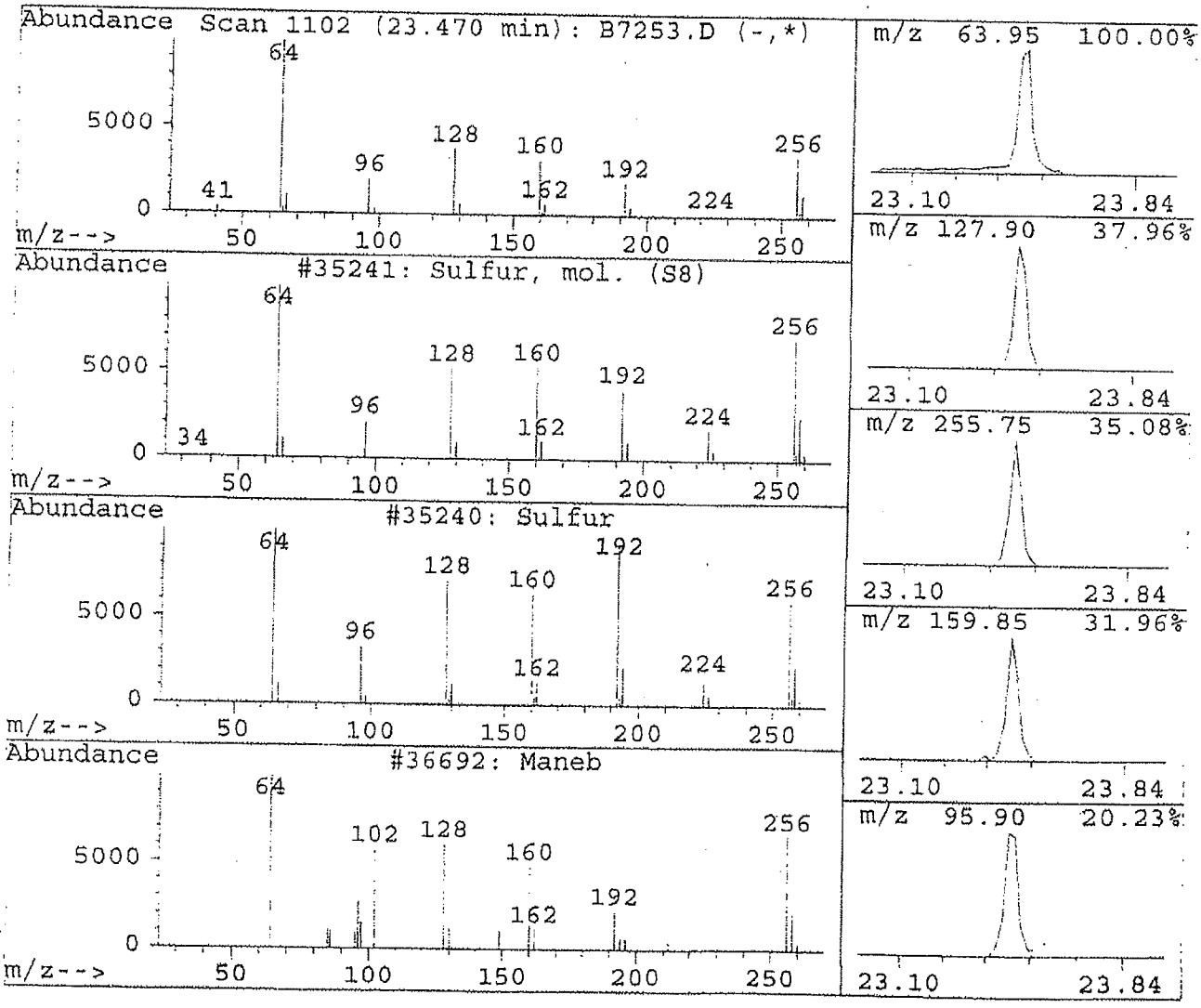
Converted from RTE d

Vial: 6
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
23.47	6.96 ug/mL	39050	Phenanthrene-d10	20.30

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Sulfur, mol. (S8)	35241	010544-50-0	94
2	Sulfur	35240	007704-34-9	55
3	Maneb	36692	012427-38-2	43
4	N,N'-Bis(pentamethylene)thiuramtetr	52456	000000-00-0	20
5	Ethyl Chloride	147	000075-00-3	4



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785734B

MW-6

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785734B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7254.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785734B
MW5-6

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785734B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7254.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785734B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785734B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7254.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1.	Unknown	6.09	8	J
2. 57-10-3	Hexadecanoic acid	22.89	5	J
3.				
4.				
5.				
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Quantitation Report

Data File : c:\hpchem\1\data2\b7254.d Vial: 7
Acq On : 24 Nov 97 2:05 pm Operator: SCOTTV
Sample : 85734..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 24 15:44 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.95	152	12109	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.73	136	55268	40.00	ug/mL	-0.18
33) Acenaphthene-d10	15.98	164	43100	40.00	ug/mL	-0.18
51) Phenanthrene-d10	20.29	188	92510	40.00	ug/ml	-0.21
65) Chrysene-d12	28.22	240	73108	40.00	ug/mL	-0.21
74) Perylene-d12	32.18	264	29767	40.00	ug/mL	-0.22
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.61	112	1876	24.69	ug/mL	24.69%
3) Phenol-d5	6.91	99	15273	33.64	ug/mL	33.64%
19) Nitrobenzene-d5	8.80	82	18879	37.06	ug/mL	37.06%
37) 2-Fluorobiphenyl	14.21	172	48015	40.97	ug/mL	40.97%
55) 2,4,6-Tribromophenol	18.42	330	15209	35.68	ug/mL	35.68%
68) Terphenyl-d14	25.37	244	108037	57.36	ug/mL	57.36%
Target Compounds						Qvalue

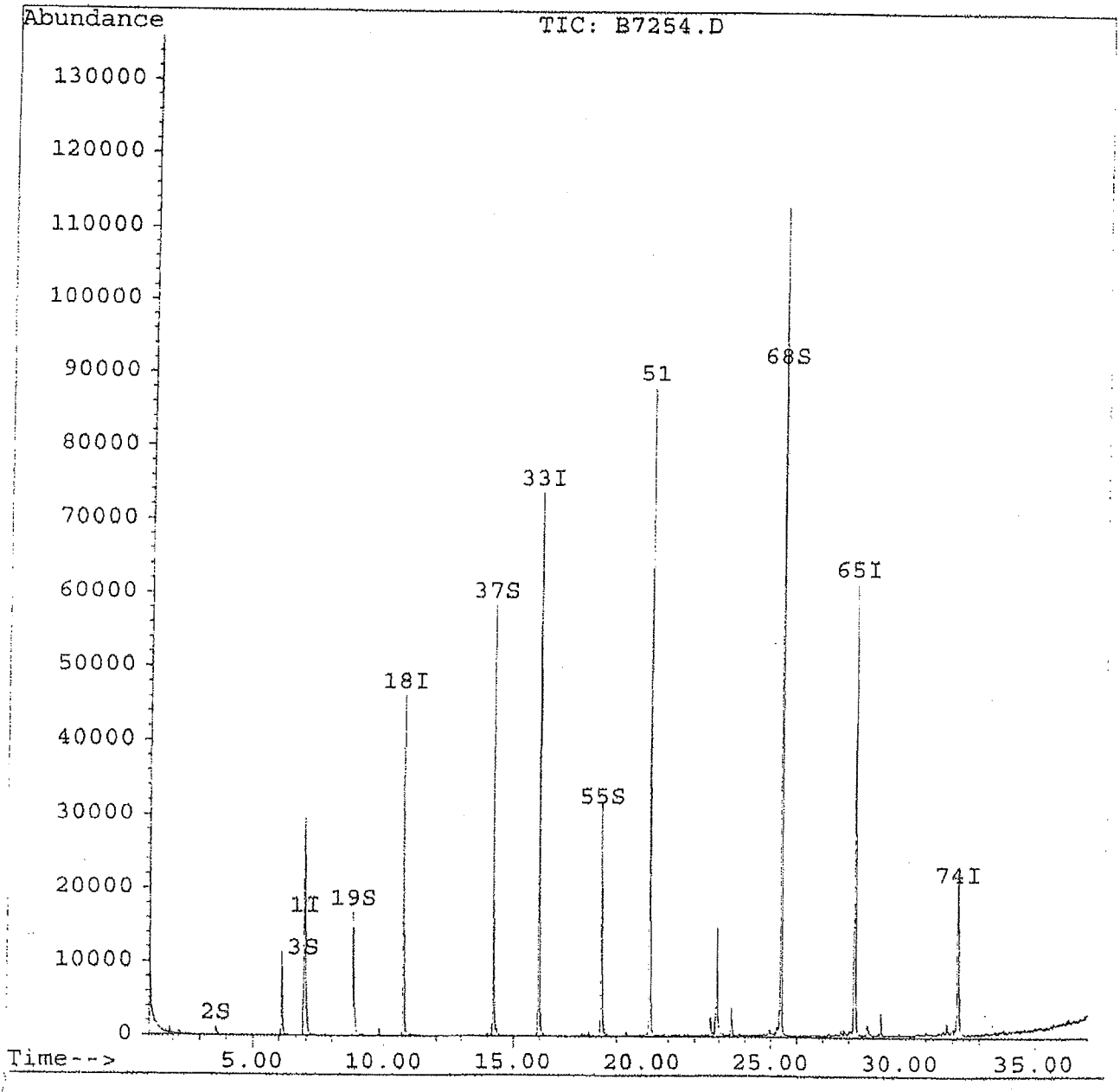
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7254.d
Acq On : 24 Nov 97 2:05 pm
Sample : 85734.....
Misc :
Quant Time: Nov 24 15:44 1997

Vial: 7
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7254.d
Acq On : 24 Nov 97 2:05 pm
Sample : 85734.....
Misc :

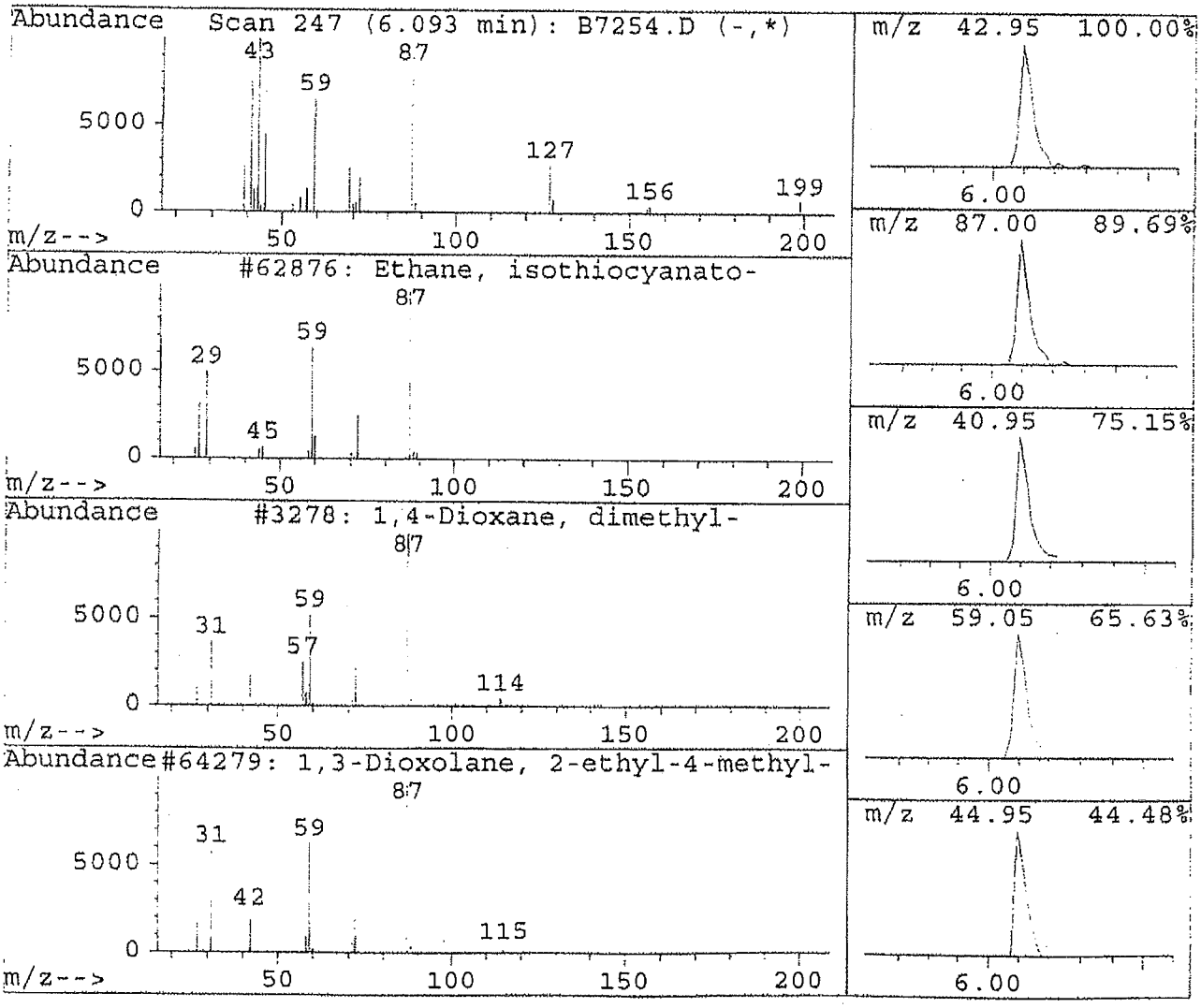
Vial: 7
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Converted from RTE d

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
6.09	9.93 ug/mL	32463	1,4-Dichlorobenzene-d4	6.95

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Ethane, isothiocyanato-	62876	000542-85-8	52
2	1,4-Dioxane, dimethyl-	3278	025136-55-4	50
3	1,3-Dioxolane, 2-ethyl-4-methyl-	64279	004359-46-0	50
4	Acetamide, N-ethyl-	750	000625-50-3	38
5	3-Hexanol, 2,3-dimethyl-	5520	004166-46-5	37



Library Search Compound Report

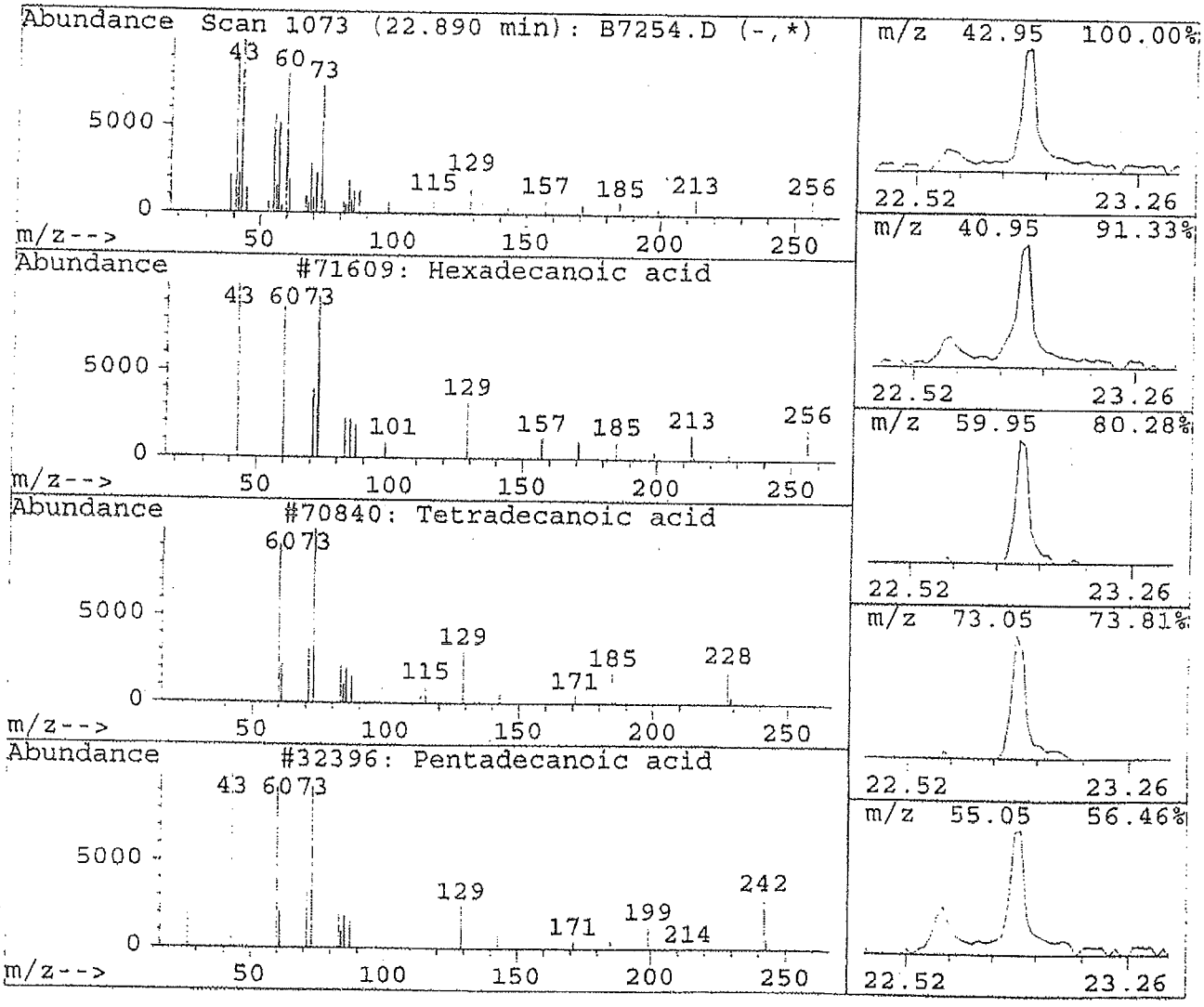
Data File : c:\hpchem\1\data2\b7254.d
Acq On : 24 Nov 97 2:05 pm
Sample : 85734.....
Misc :

Vial: 7
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.89	6.05 ug/mL	35368	Phenanthrene-d10	20.29

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71609	000057-10-3	95
2	Tetradecanoic acid	70840	000544-63-8	87
3	Pentadecanoic acid	32396	001002-84-2	87
4	Tridecanoic acid	26355	000638-53-9	64
5	Undecanoic acid	19473	000112-37-8	59



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785735B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785735B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7255.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785735B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785735B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7255.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	7	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO. 9785735B MB2-7

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785735B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7255.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.91	8	J
2.				
3.				
4.				
5.				
6.				
7.				
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29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7255.d
Acq On : 24 Nov 97 2:53 pm
Sample : 85735.....
Misc :
Quant Time: Nov 24 15:44 1997

Vial: 8
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	12707	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.72	136	55078	40.00	ug/mL	-0.18
33) Acenaphthene-d10	15.97	164	43595	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.28	188	94448	40.00	ug/ml	-0.21
65) Chrysene-d12	28.21	240	70390	40.00	ug/mL	-0.22
74) Perylene-d12	32.20	264	26280	40.00	ug/mL	-0.20
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.61	112	3517	44.11	ug/mL	44.11%
3) Phenol-d5	6.88	99	24584	51.60	ug/mL	51.60%
19) Nitrobenzene-d5	8.79	82	20264	39.92	ug/mL	39.92%
37) 2-Fluorobiphenyl	14.20	172	54534	46.00	ug/mL	46.00%
55) 2,4,6-Tribromophenol	18.41	330	24497	56.28	ug/mL	56.28%
68) Terphenyl-d14	25.39	244	103021	56.80	ug/mL	56.80%
Target Compounds						Qvalue
73) bis(2-Ethylhexyl)phthalate	29.23	149	11072	7.89	ug/mL#	40

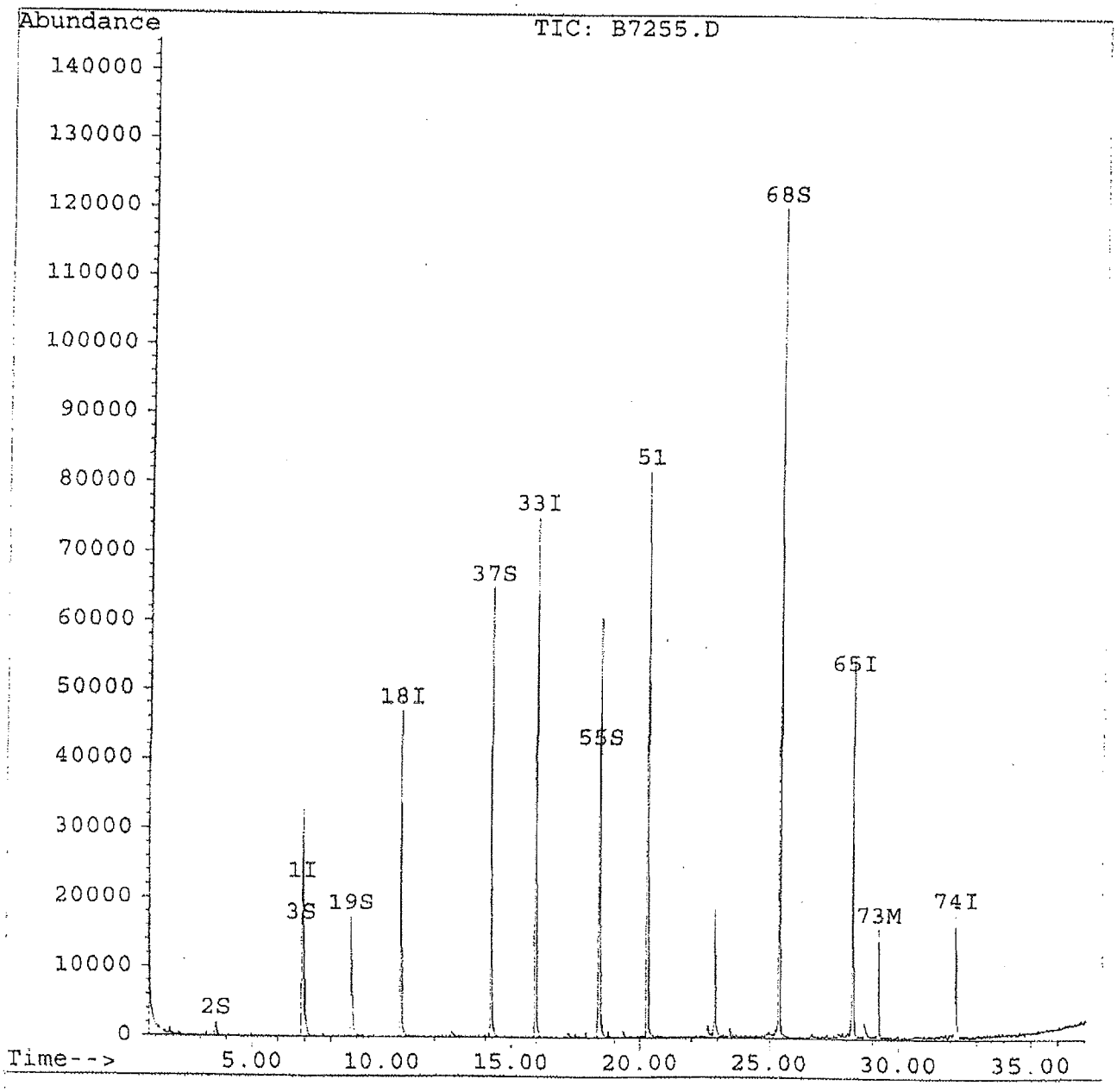
(#) = qualifier out of range (m) = manual integration

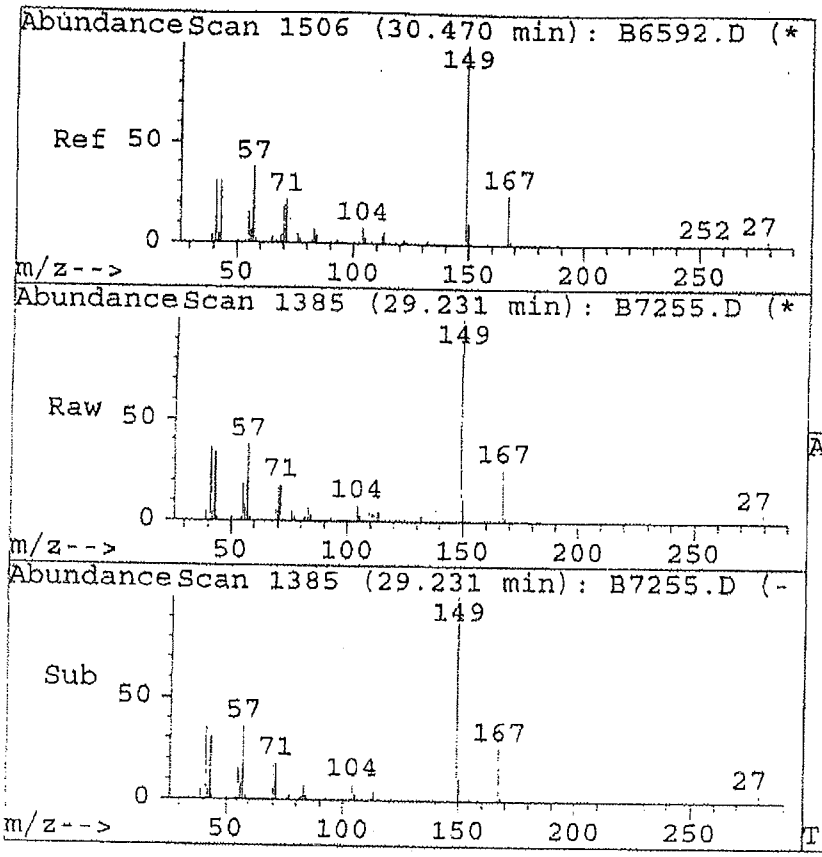
Quantitation Report

Data File : c:\hpchem\1\data2\b7255.d
Acq On : 24 Nov 97 2:53 pm
Sample : 85735.....
Misc :
Quant Time: Nov 24 15:44 1997

Vial: 8
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

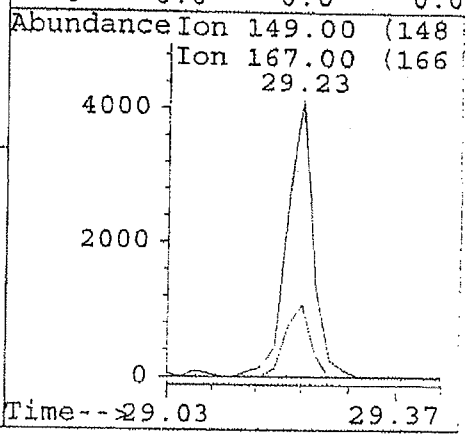




#73
bis(2-Ethylhexyl)phthalate
Concen: 7.89 ug/mL
RT: 29.23 min Scan# 1385
Delta R.T. -0.13 min
Lab File: b7255.d
Acq: 24 Nov 97 2:53 pm

Tgt Ion:149 Resp: 11072

Ion	Ratio	Lower	Upper
149	100		
167	25.9	1.0	1.5#
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

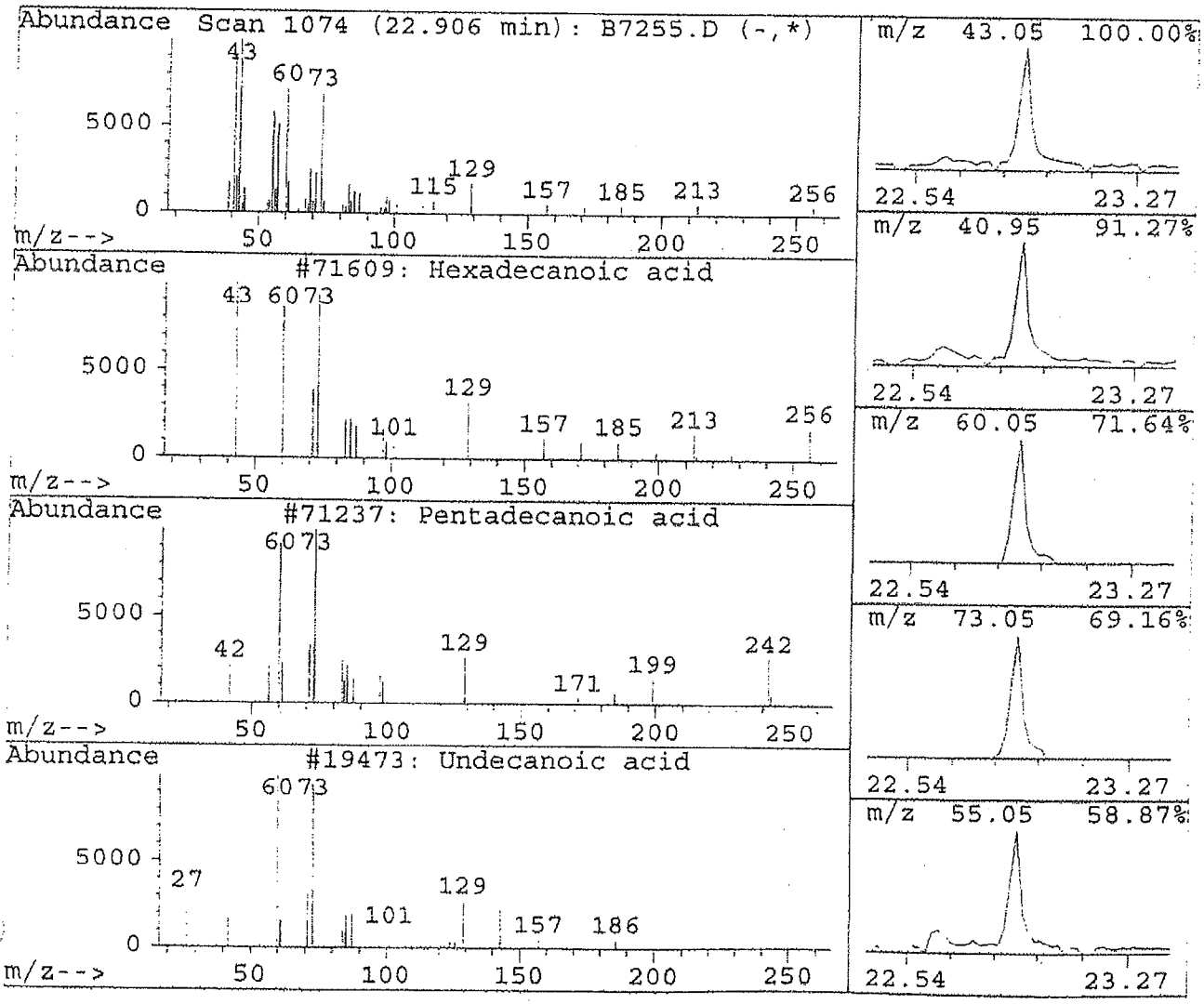
Data File : c:\hpchem\1\data2\b7255.d
Acq On : 24 Nov 97 2:53 pm
Sample : 85735.....
Misc :

Vial: 8
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.91	9.45 ug/mL	57246	Phenanthrene-d10	20.28

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71609	000057-10-3	97
2	Pentadecanoic acid	71237	001002-84-2	87
3	Undecanoic acid	19473	000112-37-8	86
4	Tetradecanoic acid	70843	000544-63-8	78
5	Tridecanoic acid	70343	000638-53-9	72



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 9785736B MW-8

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785736B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7256.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785736B

MW-8

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785736B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7256.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	3	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785736B
MW-8

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785736B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7256.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.91	10	J
2.	Unknown	31.79	32	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
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23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7256.d
Acq On : 24 Nov 97 3:40 pm
Sample : 85736.....
Misc :
Quant Time: Nov 25 11:04 1997

Converted from RTE d

Vial: 9
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	12335	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.72	136	56046	40.00	ug/mL	-0.19
33) Acenaphthene-d10	15.97	164	45718	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.28	188	93092	40.00	ug/ml	-0.21
65) Chrysene-d12	28.21	240	67613	40.00	ug/mL	-0.22
74) Perylene-d12	32.18	264	29929	40.00	ug/mL	-0.22
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.61	112	3056	39.49	ug/mL	39.49%
3) Phenol-d5	6.88	99	24627	53.25	ug/mL	53.25%
19) Nitrobenzene-d5	8.79	82	20358	39.41	ug/mL	39.41%
37) 2-Fluorobiphenyl	14.20	172	56590	45.52	ug/mL	45.52%
55) 2,4,6-Tribromophenol	18.41	330	24356	56.78	ug/mL	56.78%
68) Terphenyl-d14	25.37	244	100601	57.75	ug/mL	57.75%
Target Compounds						Qvalue
73) bis(2-Ethylhexyl)phthalate	29.23	149	4426	3.29	ug/mL#	44

(#) = qualifier out of range (m) = manual integration

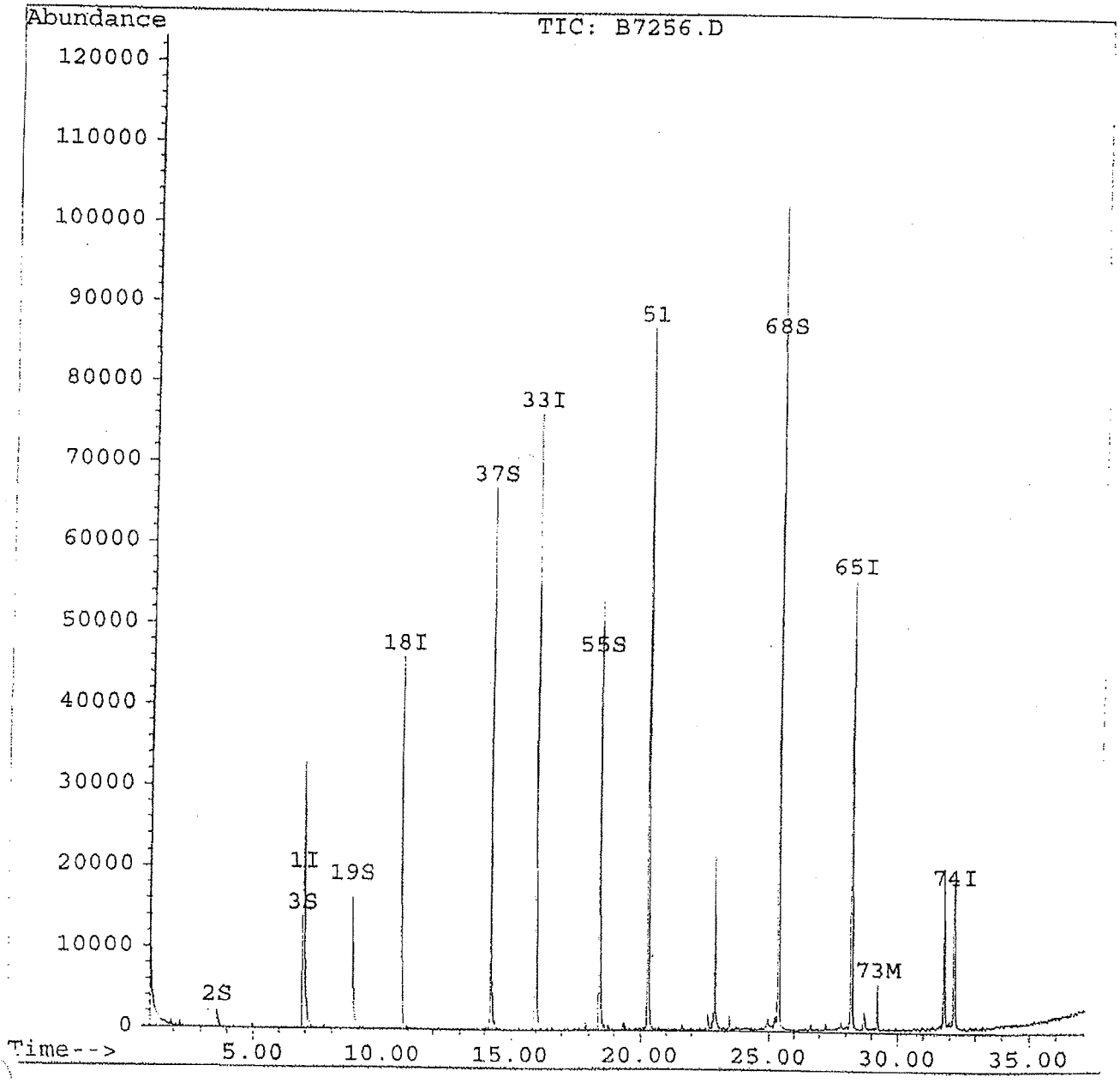
Quantitation Report

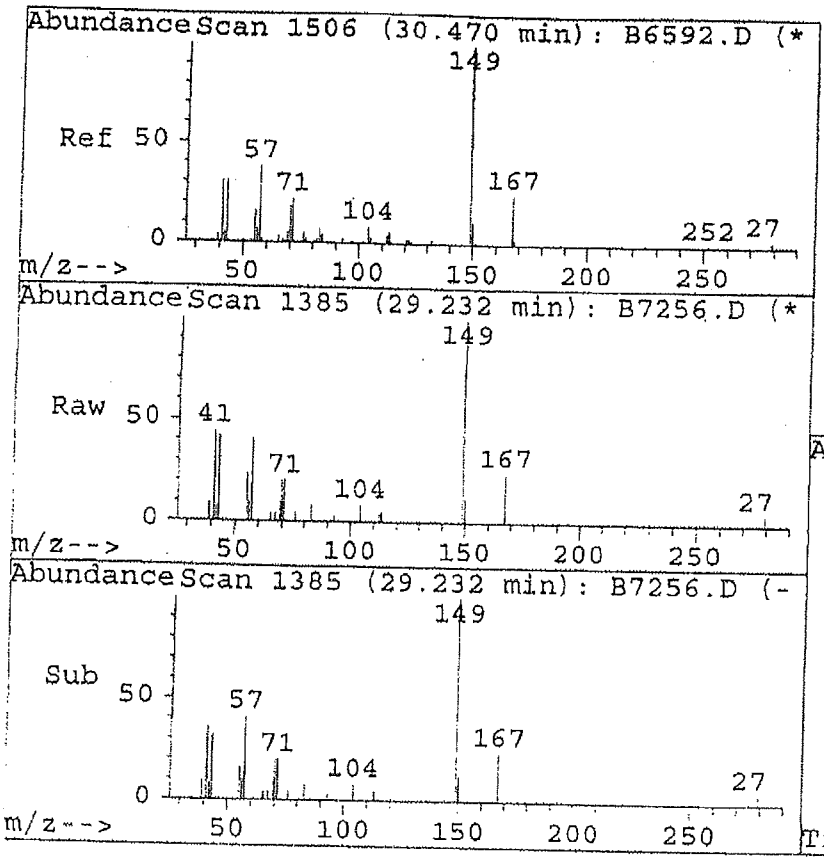
Data File : c:\hpchem\1\data2\b7256.d
Acq On : 24 Nov 97 3:40 pm
Sample : 85736.....
Misc :
Quant Time: Nov 25 11:04 1997

Converted from RTE d

Vial: 9
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

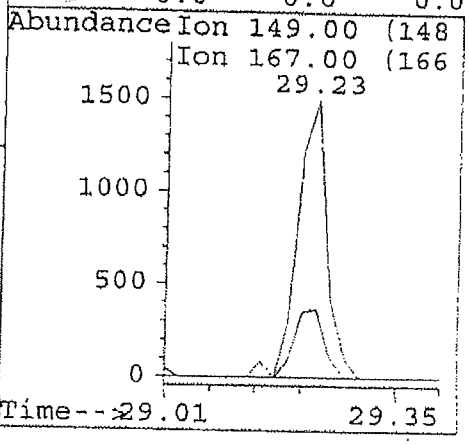




#73
bis(2-Ethylhexyl)phthalate
Concen: 3.29 ug/mL
RT: 29.23 min Scan# 1385
Delta R.T. -0.13 min
Lab File: b7256.d
Acq: 24 Nov 97 3:40 pm

Tgt Ion:149 Resp: 4426

Ion	Ratio	Lower	Upper
149	100		
167	24.2	1.0	1.5#
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7256.d
Acq On : 24 Nov 97 3:40 pm
Sample : 85736.....
Misc :

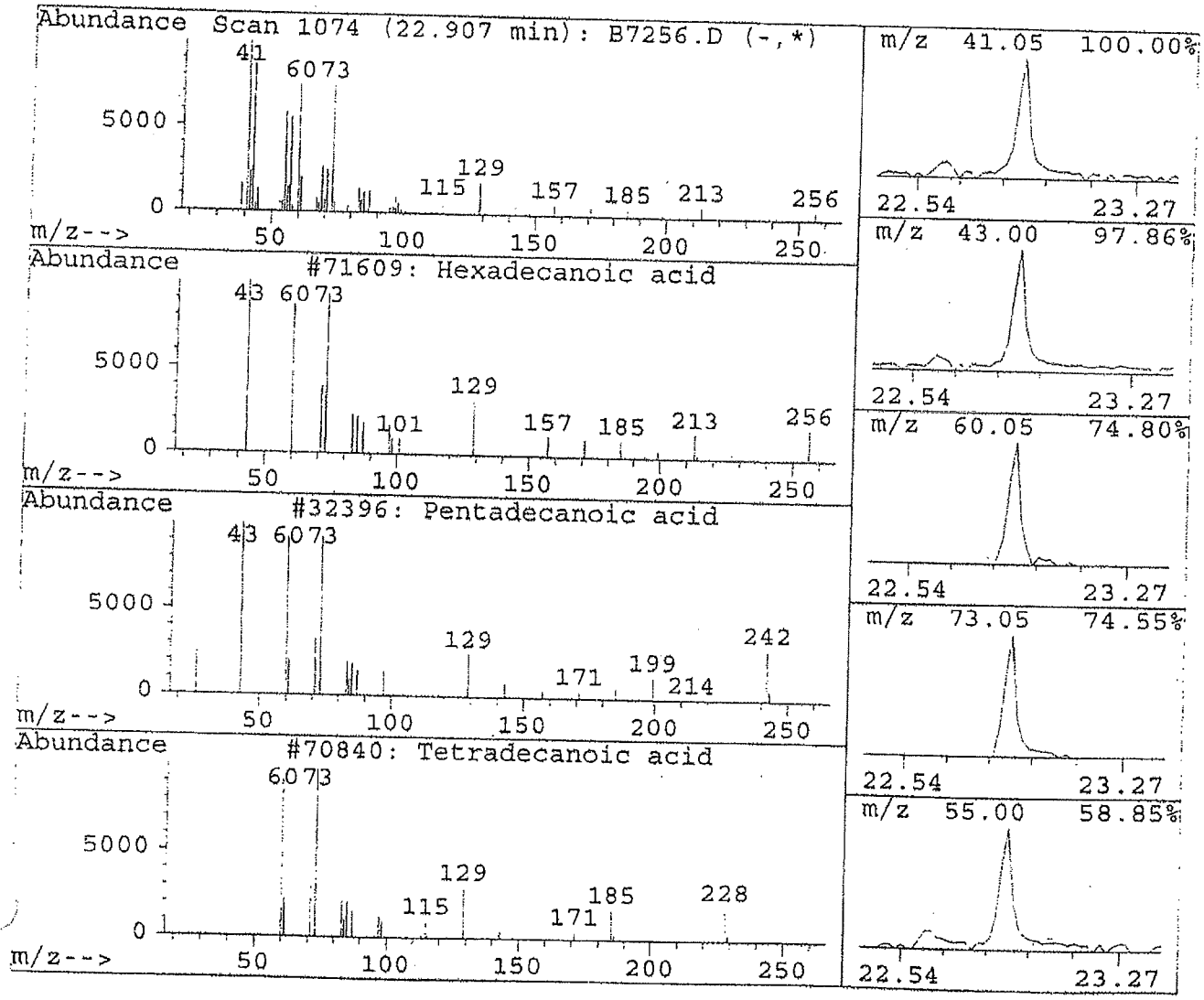
Converted from RTE d

Vial: 9
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.91	12.04 ug/mL	70983	Phenanthrene-d10	20.28

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71609	000057-10-3	96
2	Pentadecanoic acid	32396	001002-84-2	83
3	Tetradecanoic acid	70840	000544-63-8	72
4	Undecanoic acid	69096	000112-37-8	64
5	Tridecanoic acid	70343	000638-53-9	64



Library Search Compound Report

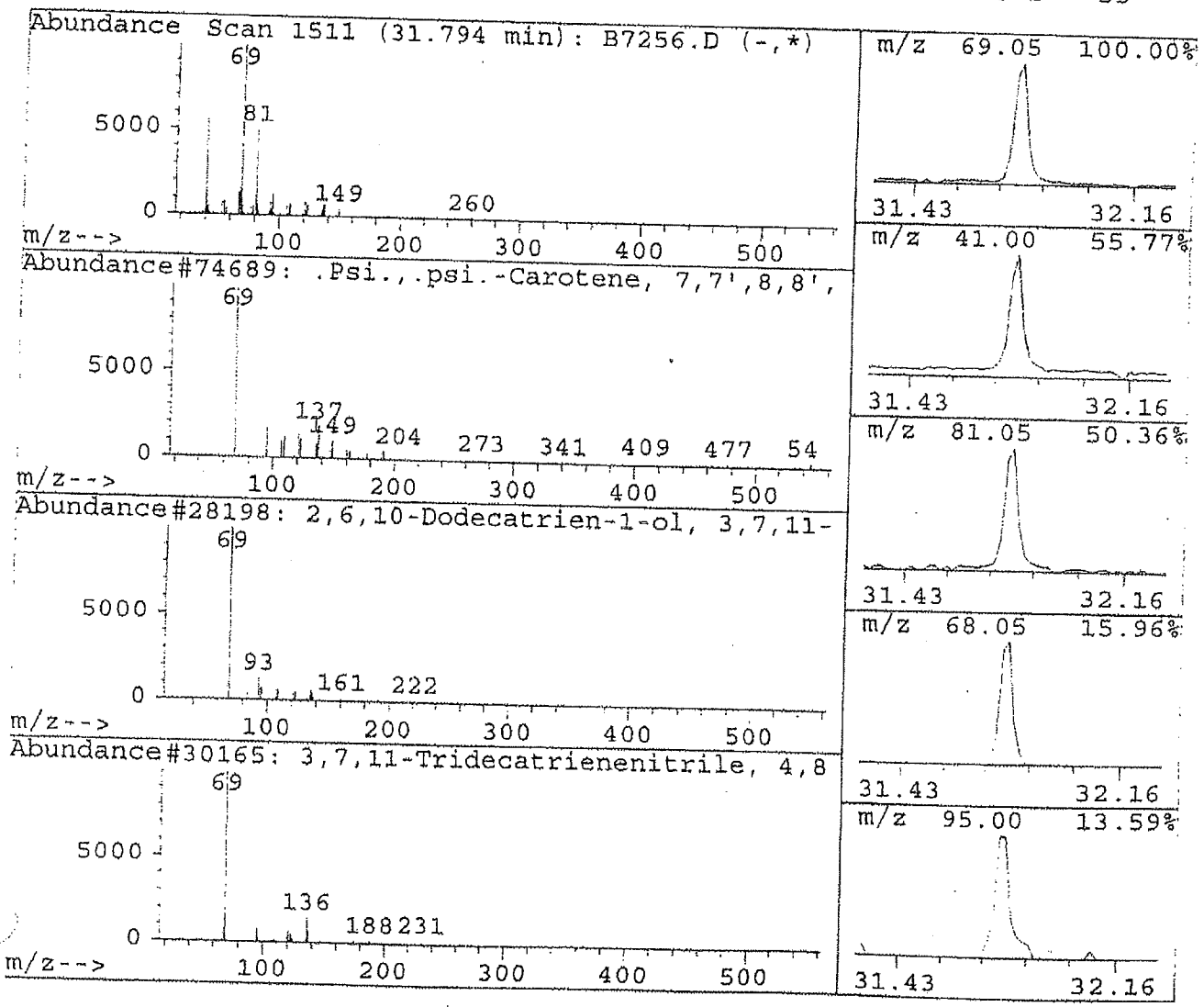
Data File : c:\hpchem\1\data2\b7256.d
Acq On : 24 Nov 97 3:40 pm
Sample : 85736.....
Misc :

Vial: 9
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
31.79	38.68 ug/mL	67386	Perylene-d12	32.18

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	.Psi.,.psi.-Carotene, 7,7',8,8',11,	74689	000502-62-5	83
2	2,6,10-Dodecatrien-1-ol, 3,7,11-tri	28198	000106-28-5	78
3	3,7,11-Tridecatrienenitrile, 4,8,12	30165	006006-01-5	72
4	2,6,10-Dodecatrien-1-ol, 3,7,11-tri	28243	004602-84-0	64
5	2,6-Octadien-1-ol, 3,7-dimethyl-, (	67079	000106-25-2	53



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785737B

MW-9

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785737B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7257.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785737B 3.23
mw-9

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785737B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7257.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785737B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785737B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7257.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.91	9	J
2.	Unknown	31.77	34	J
3.				
4.				
5.				
6.				
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29.				
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Quantitation Report

Data File : c:\hpchem\1\data2\b7257.d
Acq On : 24 Nov 97 4:28 pm
Sample : 85737.....
Misc :
Quant Time: Nov 25 11:05 1997

Vial: 10
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	13227	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.72	136	57607	40.00	ug/mL	-0.19
33) Acenaphthene-d10	15.97	164	45619	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.28	188	94184	40.00	ug/ml	-0.21
65) Chrysene-d12	28.22	240	62707	40.00	ug/mL	-0.22
74) Perylene-d12	32.18	264	23021	40.00	ug/mL	-0.22
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.61	112	3329	40.11	ug/mL	40.11%
3) Phenol-d5	6.88	99	24824	50.05	ug/mL	50.05%
19) Nitrobenzene-d5	8.79	82	20689	38.97	ug/mL	38.97%
37) 2-Fluorobiphenyl	14.20	172	60865	49.07	ug/mL	49.07%
55) 2,4,6-Tribromophenol	18.41	330	24329	56.06	ug/mL	56.06%
68) Terphenyl-d14	25.37	244	109980	68.07	ug/mL	68.07%
Target Compounds						Qvalue
73) bis(2-Ethylhexyl)phthalate	29.21	149	3173	2.54	ug/mL#	31

(#) = qualifier out of range (m) = manual integration

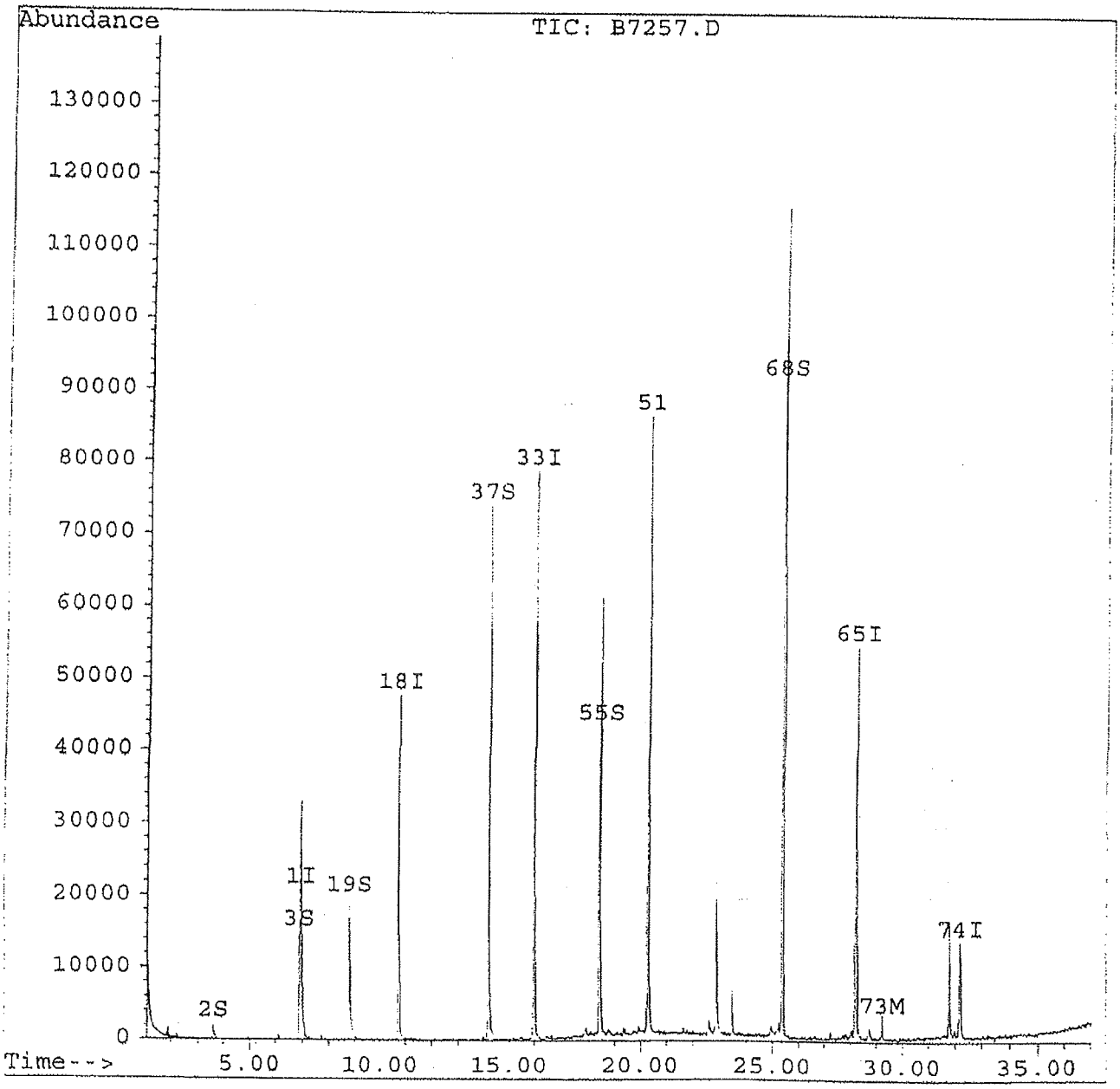
Quantitation Report

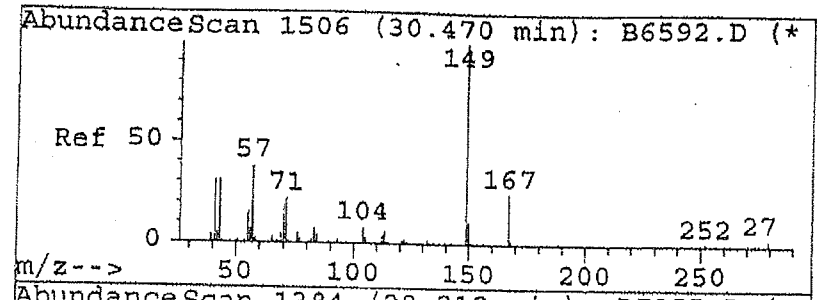
Data File : c:\hpchem\1\data2\b7257.d
Acq On : 24 Nov 97 4:28 pm
Sample : 85737.....
Misc :
Quant Time: Nov 25 11:05 1997

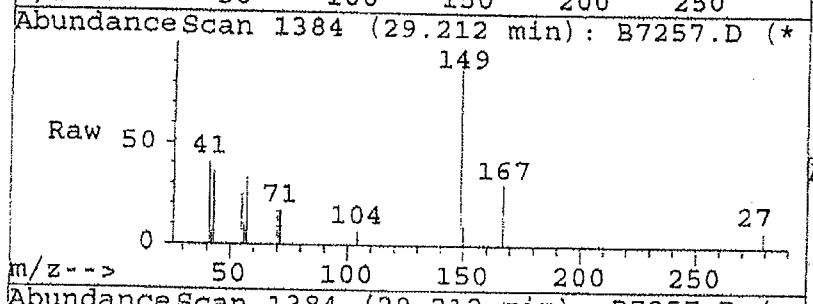
Converted from RTE d

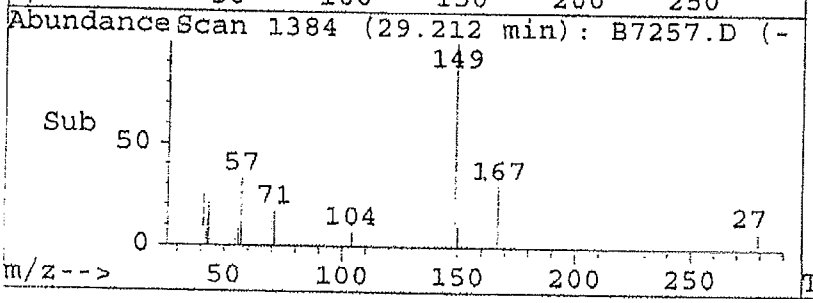
Vial: 10
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration





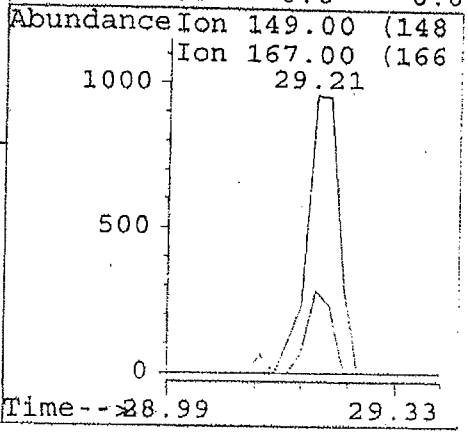




#73 335
bis(2-Ethylhexyl)phthalate
Concen: 2.54 ug/mL
RT: 29.21 min Scan# 1384
Delta R.T. -0.15 min
Lab File: b7257.d
Acq: 24 Nov 97 4:28 pm

Tgt Ion:149 Resp: 3173

Ion	Ratio	Lower	Upper
149	100		
167	29.6	1.0	1.5#
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

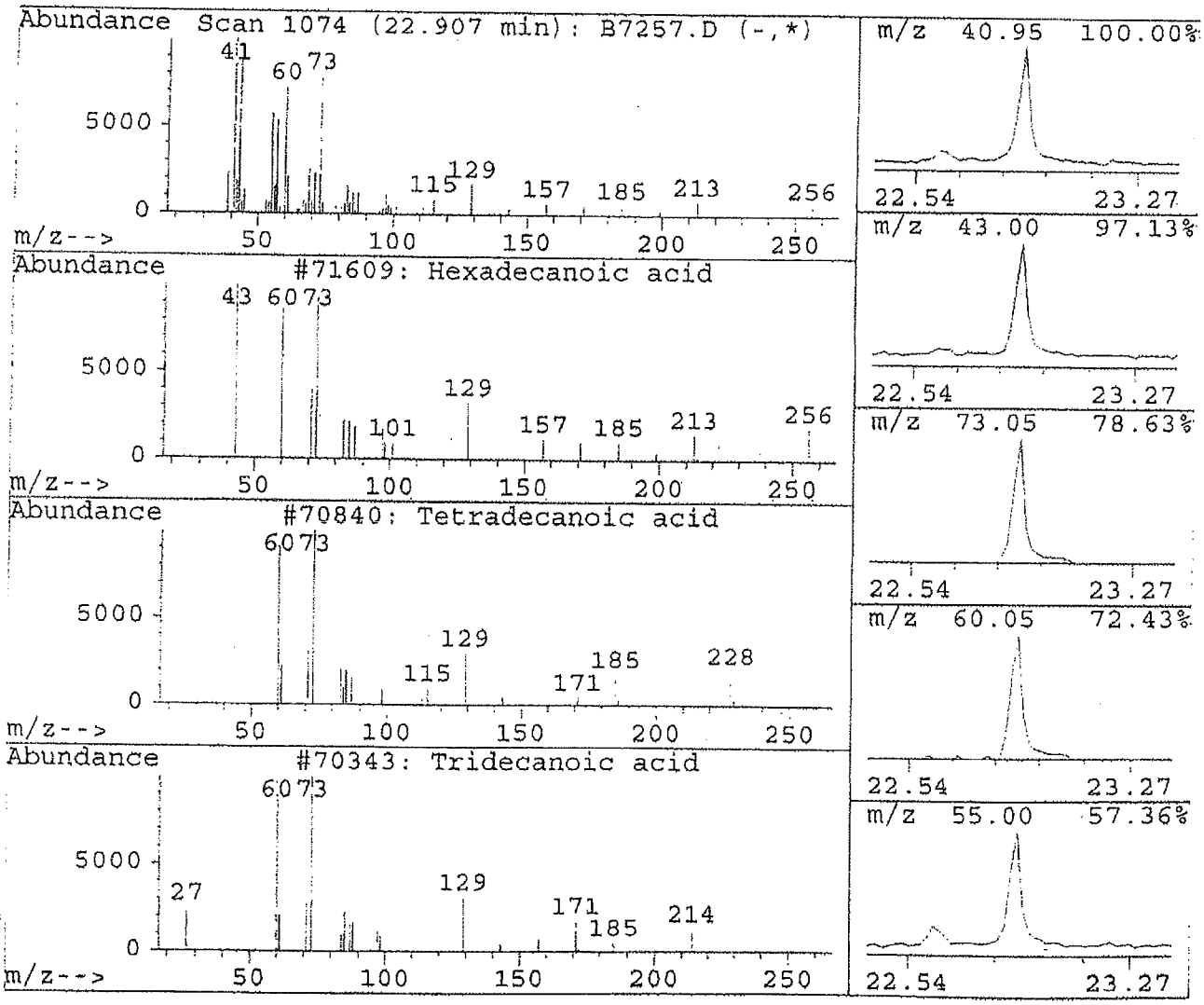
Data File : c:\hpchem\1\data2\b7257.d
Acq On : 24 Nov 97 4:28 pm
Sample : 85737.....
Misc :

Vial: 10
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.91	10.63 ug/mL	66704	Phenanthrene-d10	20.28

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71609	000057-10-3	97
2	Tetradecanoic acid	70840	000544-63-8	83
3	Tridecanoic acid	70343	000638-53-9	72
4	Pentadecanoic acid	32396	001002-84-2	72
5	Glycine, N-methyl-N-(1-oxododecyl)-	37917	000097-78-9	64



Library Search Compound Report

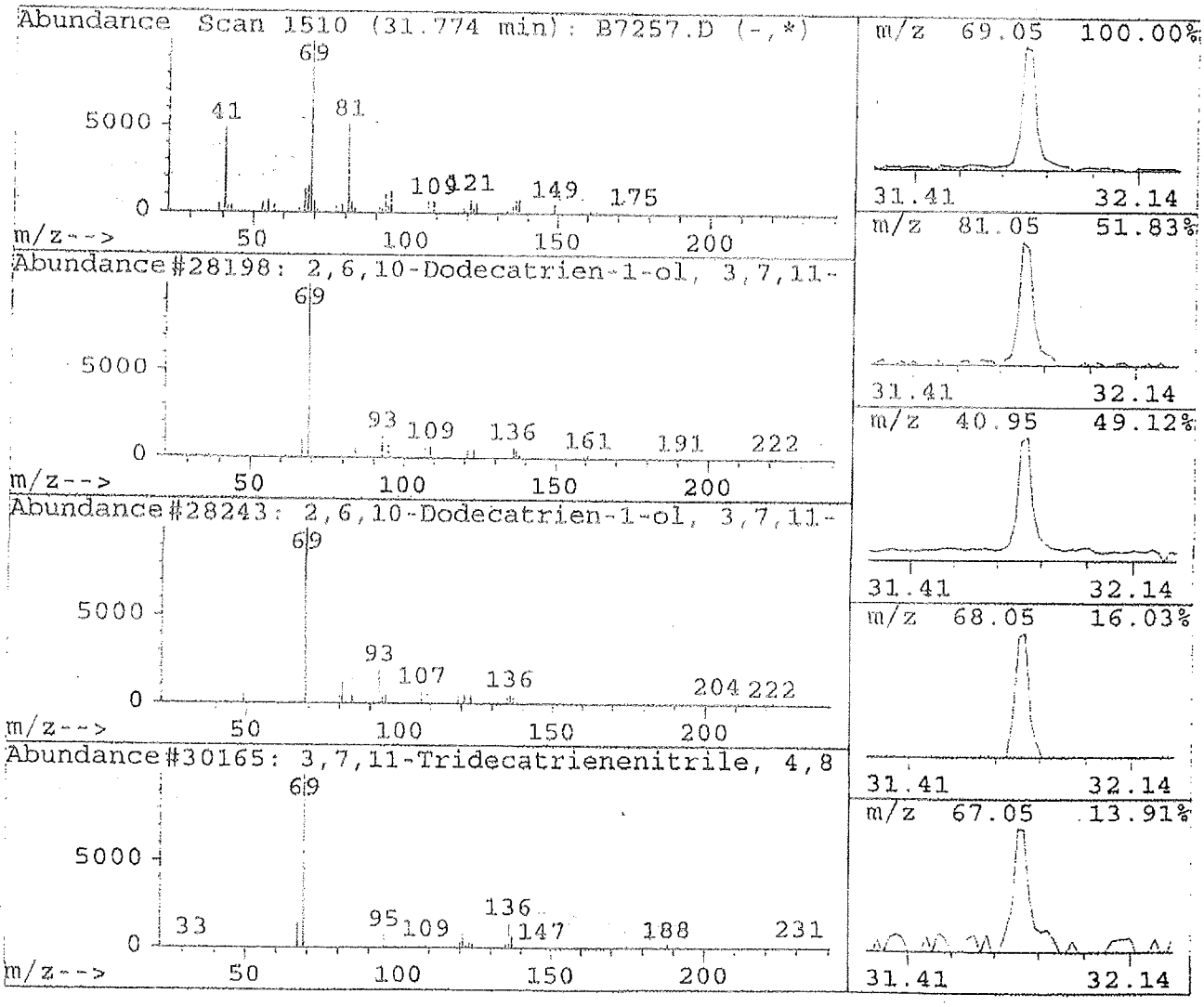
Data File : c:\hpchem\1\data2\b7257.d
Acq On : 24 Nov 97 4:28 pm
Sample : 85737.....
Misc :

Vial: 10
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
31.77	41.01 ug/mL	55569	Perylene-d12	32.18

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	2,6,10-Dodecatrien-1-ol, 3,7,11-tri	28198	000106-28-5	90
2	2,6,10-Dodecatrien-1-ol, 3,7,11-tri	28243	004602-84-0	74
3	3,7,11-Tridecatrienenitrile, 4,8,12	30165	006006-01-5	56
4	2,6-Octadien-1-ol, 3,7-dimethyl-, (	67079	000106-25-2	53
5	4-Methyl-1,5-Heptadiene	2326	000998-94-7	50



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785738B

MW-9B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785738B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7258.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785738B
MW-9A

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785738B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7258.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785738B
MW-9A

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785738B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7258.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.91	8	J
2.				
3.				
4.				
5.				
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30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7258.d
Acq On : 24 Nov 97 5:16 pm
Sample : 85738.....
Misc :
Quant Time: Nov 25 11:05 1997

Converted from RTE d

Vial: 11
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	12591	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.73	136	54049	40.00	ug/mL	-0.18
33) Acenaphthene-d10	15.97	164	45171	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.29	188	93322	40.00	ug/ml	-0.21
65) Chrysene-d12	28.22	240	62917	40.00	ug/mL	-0.21
74) Perylene-d12	32.18	264	23011	40.00	ug/mL	-0.22
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.59	112	3556	45.01	ug/mL	45.01%
3) Phenol-d5	6.88	99	25885	54.83	ug/mL	54.83%
19) Nitrobenzene-d5	8.79	82	22527	45.22	ug/mL	45.22%
37) 2-Fluorobiphenyl	14.20	172	60263	49.06	ug/mL	49.06%
55) 2,4,6-Tribromophenol	18.41	330	25588	59.50	ug/mL	59.50%
68) Terphenyl-d14	25.37	244	102664	63.33	ug/mL	63.33%

Target Compounds Qvalue

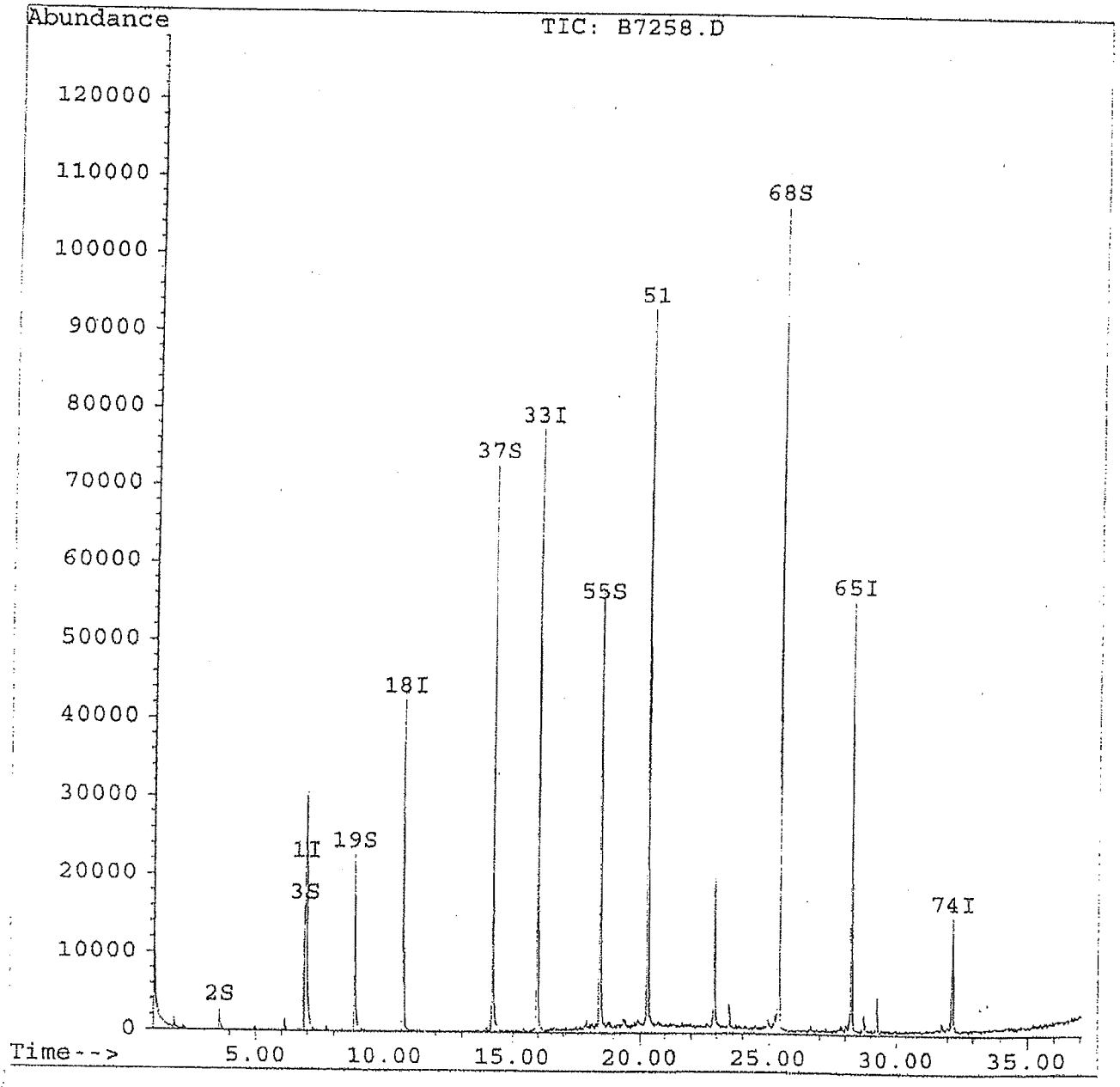
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7258.d
Acq On : 24 Nov 97 5:16 pm
Sample : 85738.....
Misc :
Quant Time: Nov 25 11:05 1997

Vial: 11
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

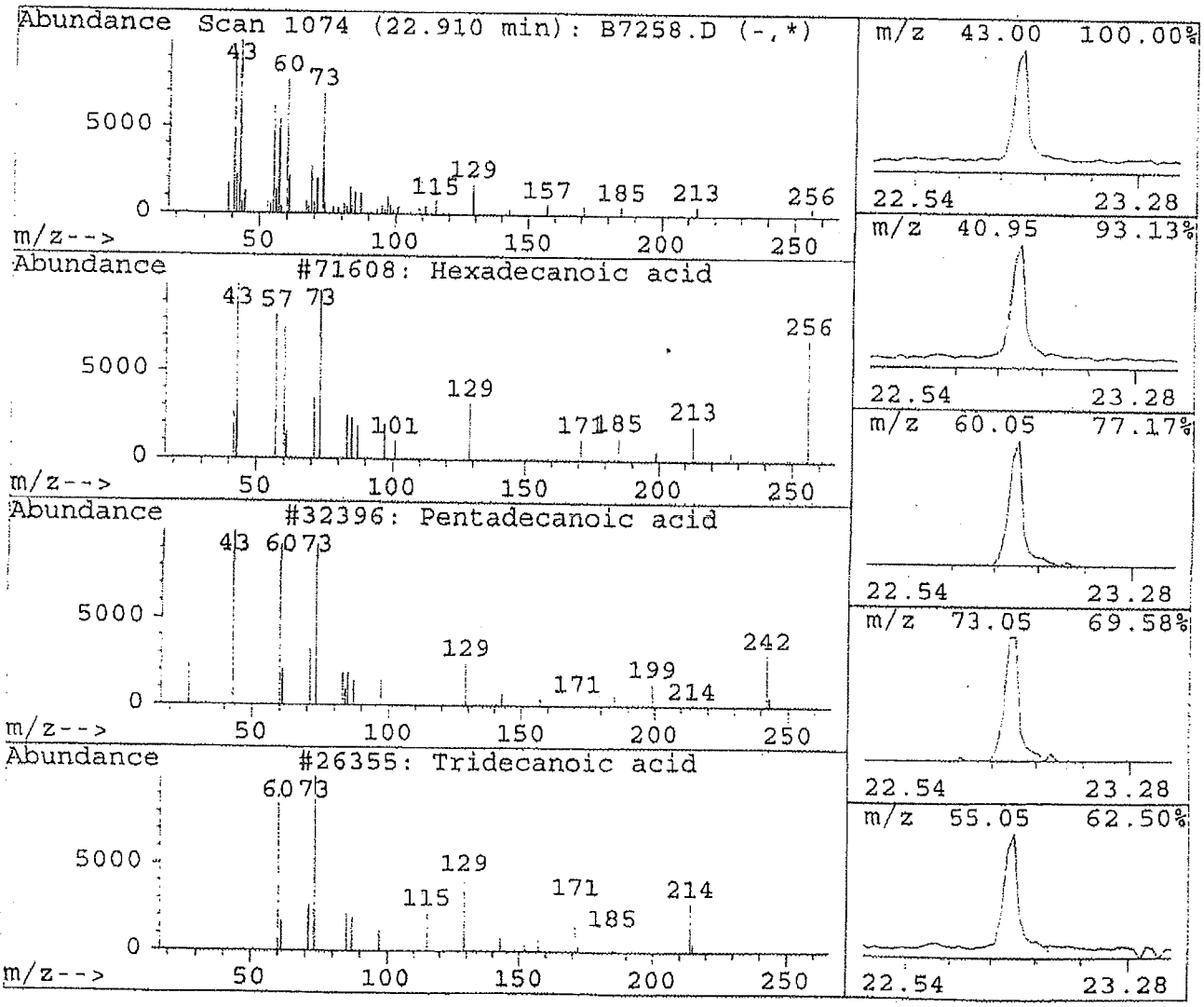
Data File : c:\hpchem\1\data2\b7258.d
Acq On : 24 Nov 97 5:16 pm
Sample : 85738.....
Misc :

Vial: 11
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.91	9.67 ug/mL	60017	Phenanthrene-d10	20.29

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71608	000057-10-3	95
2	Pentadecanoic acid	32396	001002-84-2	64
3	Tridecanoic acid	26355	000638-53-9	64
4	Glycine, N-methyl-N-(1-oxododecyl)-	37917	000097-78-9	56
5	Decanoic acid	15788	000334-48-5	53



1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. 9785739B FB

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

Matrix: (soil/water) WATER Lab Sample ID: 9785739B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7259.D

Level: (low/med) _____ Date Received: 11/18/97

% Moisture: _____ decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785739B
FB

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785739B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7259.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	1	U
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785739B
FB

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785739B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7259.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1.	NONE FOUND			
2.				
3.				
4.				
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27.				
28.				
29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7259.d
Acq On : 24 Nov 97 6:03 pm
Sample : 85739.....
Misc :
Quant Time: Nov 25 14:14 1997

Converted from RTE d

Vial: 12
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.95	152	12708	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.71	136	58050	40.00	ug/mL	-0.20
33) Acenaphthene-d10	15.98	164	45961	40.00	ug/mL	-0.18
51) Phenanthrene-d10	20.29	188	94472	40.00	ug/ml	-0.21
65) Chrysene-d12	28.22	240	87806	40.00	ug/mL	-0.21
74) Perylene-d12	32.18	264	22359	40.00	ug/mL	-0.22
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.61	112	3382	42.42	ug/mL	42.42%
3) Phenol-d5	6.89	99	21716	45.58	ug/mL	45.58%
19) Nitrobenzene-d5	8.80	82	21397	39.99	ug/mL	39.99%
37) 2-Fluorobiphenyl	14.21	172	51189	40.96	ug/mL	40.96%
55) 2,4,6-Tribromophenol	18.42	330	21692	49.83	ug/mL	49.83%
68) Terphenyl-d14	25.37	244	117653	52.01	ug/mL	52.01%
Target Compounds						Qvalue

(#) = qualifier out of range (m) = manual integration

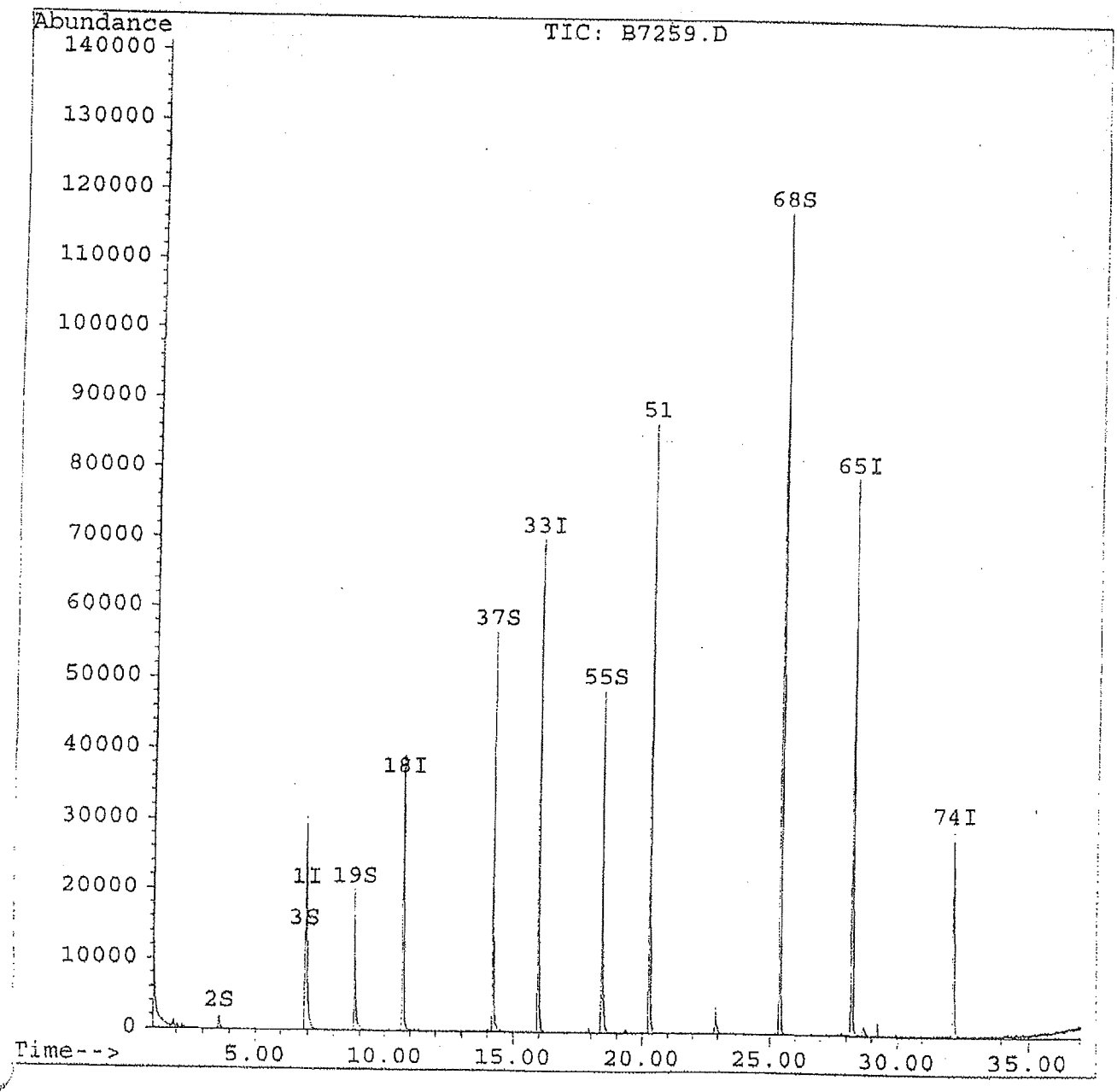
Quantitation Report

Data File : c:\hpchem\1\data2\b7259.d
Acq On : 24 Nov 97 6:03 pm
Sample : 85739.....
Misc :
Quant Time: Nov 25 14:14 1997

Converted from RTE d

Vial: 12
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Library Search Compound Report

Data File : c:\hpchem\1\data2\b7259.d
Acq On : 24 Nov 97 6:03 pm
Sample : 85739.....
Misc :

Converted from RTE d

Vial: 12
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785741B

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785741B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7260.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

9785741B

MW-16

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785741B

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7260.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	3	B
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.
9785741B
MW3-10

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: 9785741B

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7260.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 1 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1. 57-10-3	Hexadecanoic acid	22.89	6	J
2.				
3.				
4.				
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6.				
7.				
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30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7260.d
Acq On : 24 Nov 97 6:50 pm
Sample : 85741.....
Misc :
Quant Time: Nov 25 11:06 1997

Converted from RTE d

Vial: 13
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	12774	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.72	136	57033	40.00	ug/mL	-0.18
33) Acenaphthene-d10	15.97	164	45476	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.28	188	94824	40.00	ug/ml	-0.21
65) Chrysene-d12	28.21	240	69660	40.00	ug/mL	-0.22
74) Perylene-d12	32.18	264	28706	40.00	ug/mL	-0.22
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.59	112	2869	35.80	ug/mL	35.80%
3) Phenol-d5	6.88	99	22866	47.74	ug/mL	47.74%
19) Nitrobenzene-d5	8.79	82	21555	41.01	ug/mL	41.01%
37) 2-Fluorobiphenyl	14.20	172	56542	45.72	ug/mL	45.72%
55) 2,4,6-Tribromophenol	18.41	330	22392	51.24	ug/mL	51.24%
68) Terphenyl-d14	25.37	244	113342	63.15	ug/mL	63.15%
Target Compounds						Qvalue
73) bis(2-Ethylhexyl)phthalate	29.21	149	4317	3.11	ug/mL#	39

(#) = qualifier out of range (m) = manual integration

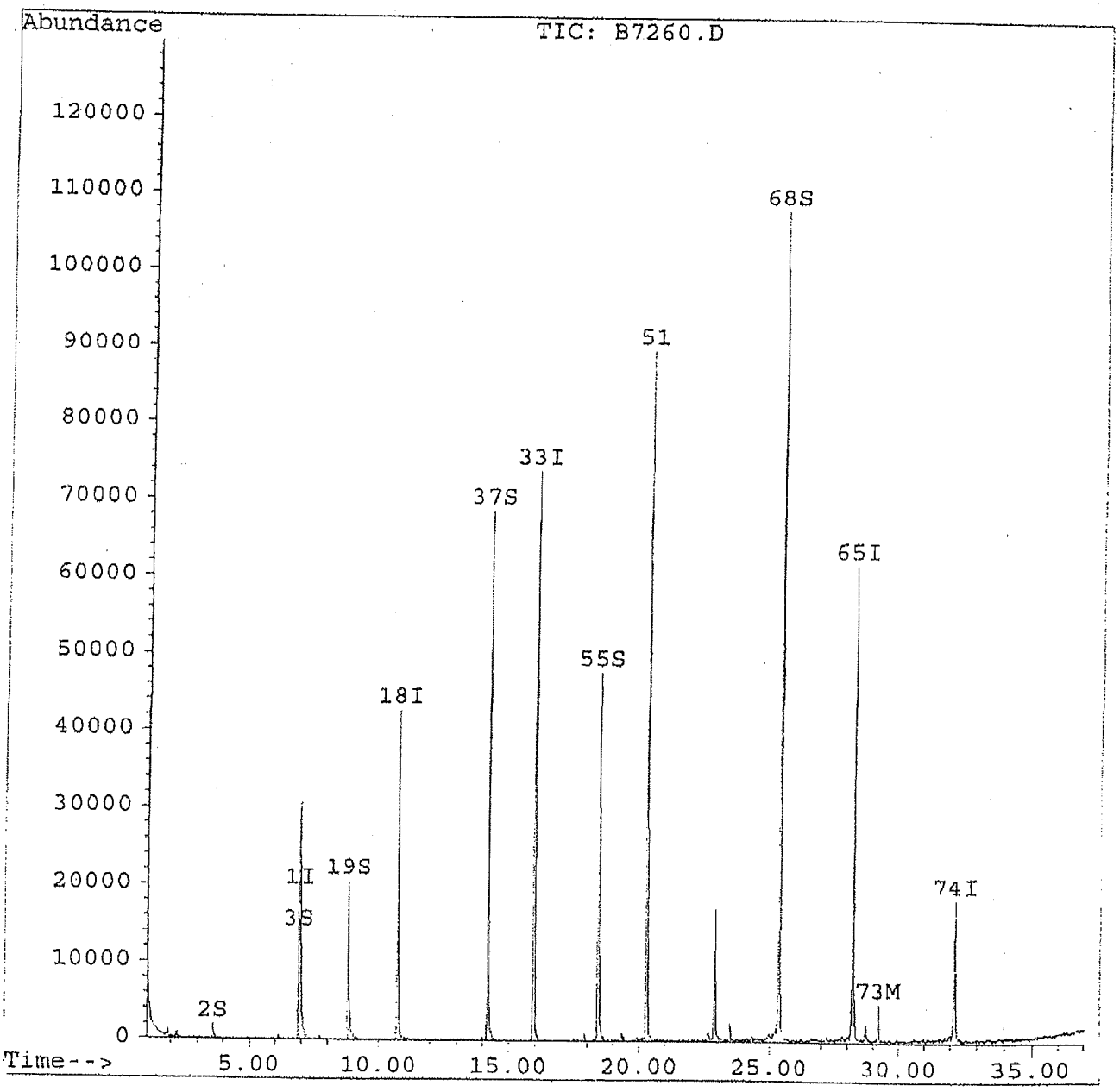
Quantitation Report

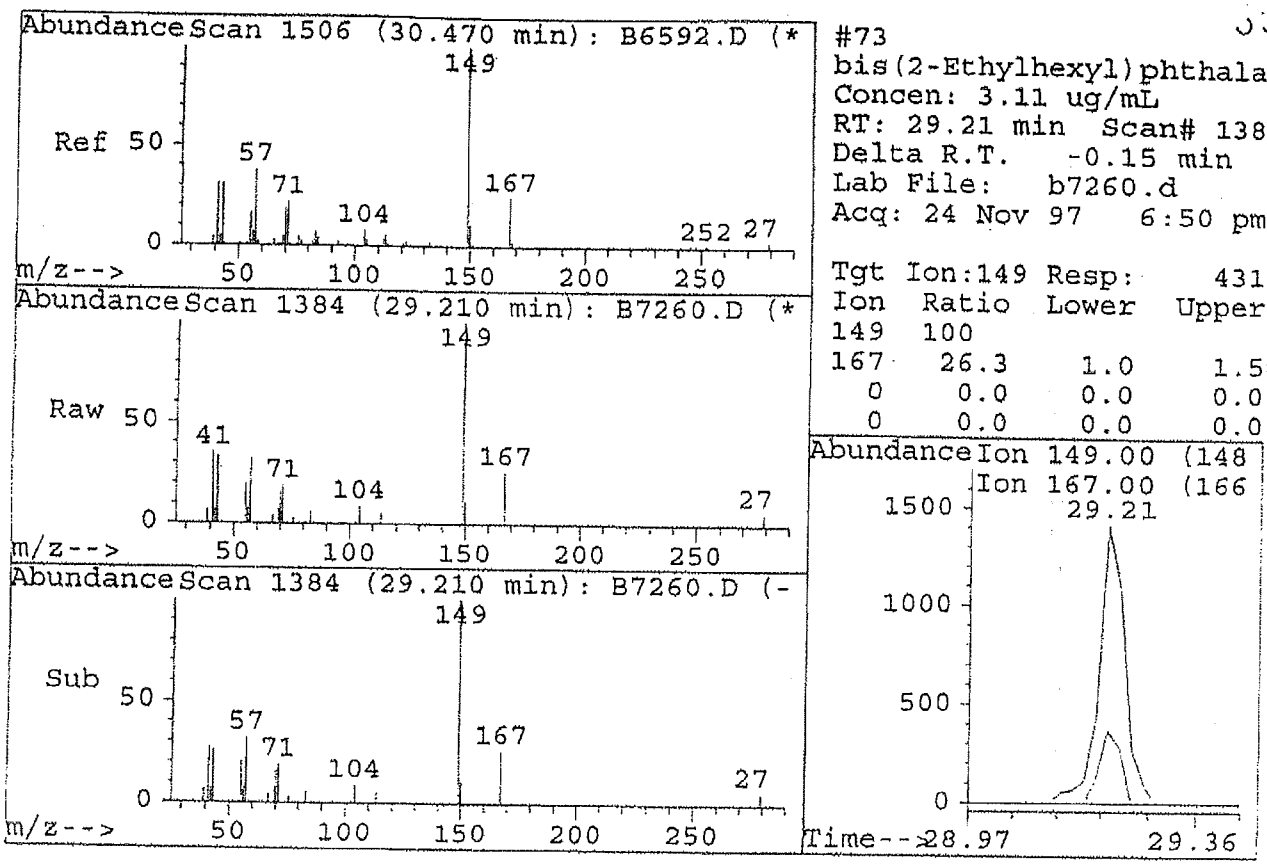
Data File : c:\hpchem\1\data2\b7260.d
Acq On : 24 Nov 97 6:50 pm
Sample : 85741.....
Misc :
Quant Time: Nov 25 11:06 1997

Converted from RTE d

Vial: 13
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration





#73
bis(2-Ethylhexyl)phthalate
Concen: 3.11 ug/mL
RT: 29.21 min Scan# 1384
Delta R.T. -0.15 min
Lab File: b7260.d
Acq: 24 Nov 97 6:50 pm

Tgt Ion:149 Resp: 4317

Ion	Ratio	Lower	Upper
149	100		
167	26.3	1.0	1.5#
0	0.0	0.0	0.0
0	0.0	0.0	0.0

Library Search Compound Report

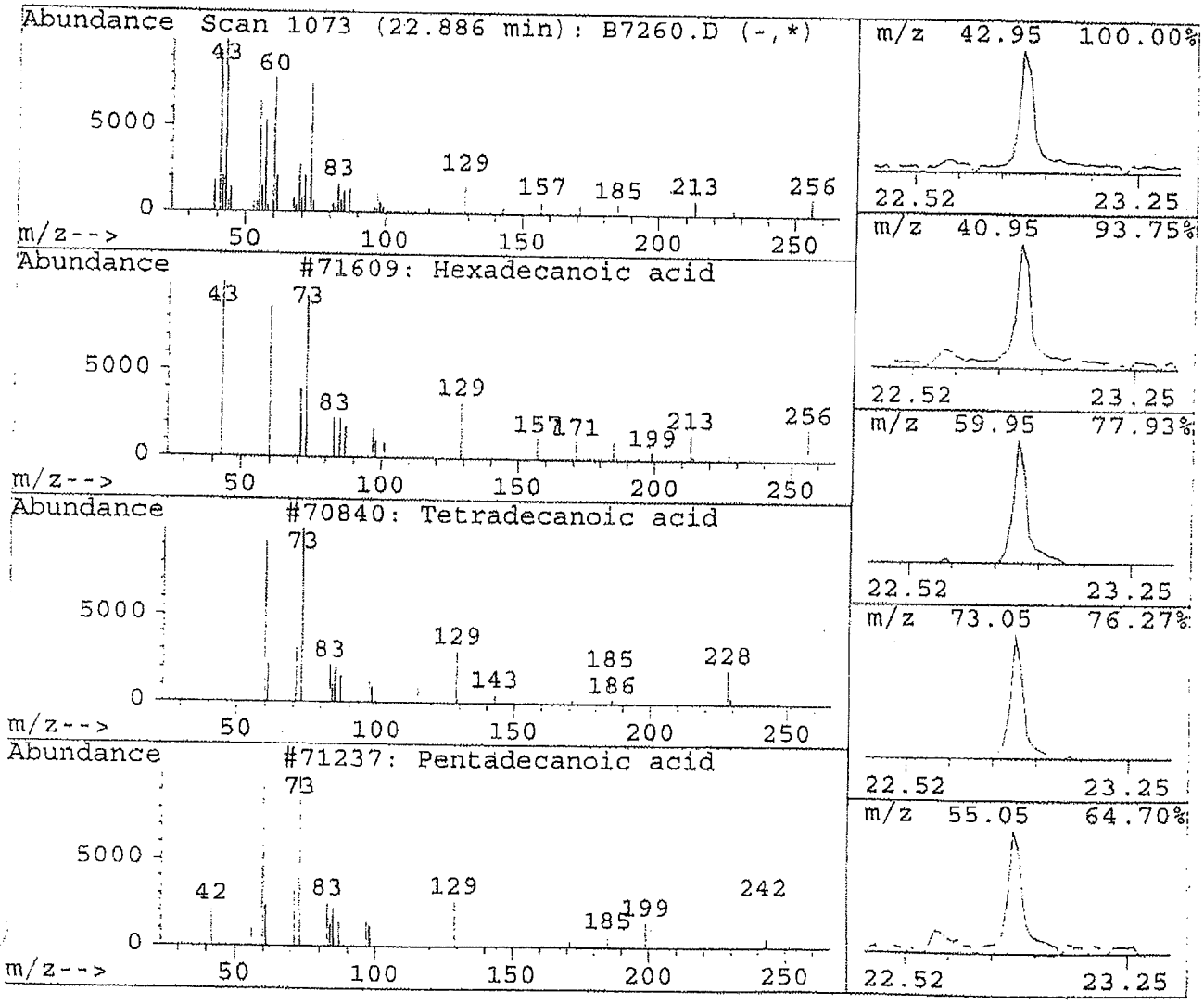
Data File : c:\hpchem\1\data2\b7260.d
Acq On : 24 Nov 97 6:50 pm
Sample : 85741.....
Misc :

Vial: 13
Operator: SCOTTV
Converted from RTE d Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : C:\DATABASE\NBS75K.L

R.T.	Conc	Area	Relative to ISTD	R.T.
22.89	6.73 ug/mL	40366	Phenanthrene-d10	20.28

Hit# of 20	Tentative ID	Ref#	CAS#	Qual
1	Hexadecanoic acid	71609	000057-10-3	97
2	Tetradecanoic acid	70840	000544-63-8	83
3	Pentadecanoic acid	71237	001002-84-2	80
4	Tridecanoic acid	70343	000638-53-9	80
5	Decanoic acid	68356	000334-48-5	64



2C

WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: EMSL ANALYTICAL Contract: _____

Project No.: _____ Site: _____ Location: _____ Group: _____

	SAMPLE NO.	S1 (2FP) #	S2 (PHL) #	S3 (NBZ) #	S4 (FBP) #	S5 (TBP) #	S6 (TPH) #	#	#	TOT OUT
01	SBLK01	44	48	48	45	56	65			
02	9785731B	34	52	41	49	54	59			
03	9785732B	49	61	48	57	67	56			
04	9785733B	52	60	14 *	49	63	62			1
05	9785734B	25	34	37	41	36	57			
06	9785735B	44	52	40	46	56	57			
07	9785736B	39	53	39	46	57	58			
08	9785737B	40	50	39	49	56	68			
09	9785738B	45	55	45	49	60	63			
10	9785739B	42	46	40	41	50	52			
11	9785741B	36	48	41	46	51	63			
12	85741MS	34	45	37	40	51	58			
13	85741MSD	45	49	42	43	61	62			
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

	QC LIMITS
S1 (2FP) = 2-Fluorophenol	(4-106)
S2 (PHL) = Phenol-d5	(5-87)
S3 (NBZ) = Nitrobenzene-d5	(22-101)
S4 (FBP) = 2-Fluorobiphenyl	(20-94)
S5 (TBP) = 2,4,6-Tribromophenol	(17-126)
S6 (TPH) = Terphenyl-d14	(35-127)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

4B

SEMIVOLATILE METHOD BLANK SUMMARY

SAMPLE NO.

SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Lab File ID: B7250.D Lab Sample ID: BLANK1

Instrument ID: ABNA Date Extracted: 11/19/97

Matrix: (soil/water) WATER Date Analyzed: 11/24/97

Level: (low/med) Time Analyzed: 1055

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	9785731B	9785731B	B7251.D	11/24/97
02	9785732B	9785732B	B7252.D	11/24/97
03	9785733B	9785733B	B7253.D	11/24/97
04	9785734B	9785734B	B7254.D	11/24/97
05	9785735B	9785735B	B7255.D	11/24/97
06	9785736B	9785736B	B7256.D	11/24/97
07	9785737B	9785737B	B7257.D	11/24/97
08	9785738B	9785738B	B7258.D	11/24/97
09	9785739B	9785739B	B7259.D	11/24/97
10	9785741B	9785741B	B7260.D	11/24/97
11	85741MS	85741MS	B7261.D	11/24/97
12	85741MSD	85741MSD	B7262.D	11/24/97
13				
14				
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COMMENTS:

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: BLANK1

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7250.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
62-75-9	N-nitrosodimethylamine	5	U
108-95-2	Phenol	1	U
111-44-4	bis(2-Chloroethyl)ether	1	U
95-57-8	2-Chlorophenol	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U
108-60-1	bis(2-chloroisopropyl)ether	1	U
621-64-7	N-Nitroso-Di-n-propylamine	1	U
67-72-1	Hexachloroethane	1	U
98-95-3	Nitrobenzene	1	U
78-59-1	Isophorone	1	U
88-75-5	2-Nitrophenol	1	U
105-67-9	2,4-Dimethylphenol	1	U
111-91-1	bis(2-Chloroethoxy)methane	1	U
120-83-2	2,4-Dichlorophenol	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
91-20-3	Naphthalene	1	U
87-68-3	Hexachlorobutadiene	1	U
59-50-7	4-Chloro-3-methylphenol	2	U
77-47-4	Hexachlorocyclopentadiene	1	U
88-06-2	2,4,6-Trichlorophenol	2	U
91-58-7	2-Chloronaphthalene	1	U
131-11-3	Dimethylphthalate	1	U
208-96-8	Acenaphthylene	1	U
606-20-2	2,6-Dinitrotoluene	1	U
83-32-9	Acenaphthene	1	U
51-28-5	2,4-Dinitrophenol	1	U
100-02-7	4-Nitrophenol	2	U
121-14-2	2,4-Dinitrotoluene	1	U
84-66-2	Diethylphthalate	1	U
86-73-7	Fluorene	1	U
7005-72-3	4-Chlorophenyl-phenylether	2	U

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO. SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: BLANK1

Sample wt/vol: 1200.0 (g/mL ML Lab File ID: B7250.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N): N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
534-52-1	4,6-Dinitro-2-methylphenol	1	U
86-30-6	n-Nitrosodiphenylamine	1	U
122-66-7	1,2-Diphenylhydrazine(as azo)	1	U
101-55-3	4-Bromophenyl-phenylether	1	U
118-74-1	Hexachlorobenzene	1	U
87-86-5	Pentachlorophenol	1	U
85-01-08	Phenanthrene	1	U
120-12-7	Anthracene	1	U
84-74-2	Di-n-butylphthalate	1	U
206-44-0	Fluoranthene	1	U
92-87-5	Benzidine	1	U
129-00-0	Pyrene	4	U
85-68-7	Butylbenzylphthalate	1	U
56-55-3	Benzo[a]anthracene	1	U
91-94-1	3,3'-Dichlorobenzidine	1	U
218-01-9	Chrysene	1	U
117-81-7	bis(2-Ethylhexyl)phthalate	2	
117-84-0	Di-n-octylphthalate	3	U
205-99-2	Benzo[b]fluoranthene	1	U
207-08-9	Benzo[k]fluoranthene	2	U
50-32-8	Benzo[a]pyrene	1	U
193-39-5	Indeno[1,2,3-cd]pyrene	1	U
53-70-3	Dibenz[a,h]anthracene	1	U
191-24-2	Benzo[g,h,i]perylene	1	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SAMPLE NO.

SBLK01

Lab Name: EMSL ANALYTICAL Contract:

Project No.: Site: Location: Group:

Matrix: (soil/water) WATER Lab Sample ID: BLANK1

Sample wt/vol: 1200.0 (g/mL) ML Lab File ID: B7250.D

Level: (low/med) Date Received: 11/18/97

% Moisture: decanted: (Y/N) N Date Extracted: 11/19/97

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 11/24/97

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 0 Concentration Units: (ug/L or ug/Kg) ug/L

CAS Number	Compound Name	RT	Est. Conc	Q
1.				
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27.				
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29.				
30.				

Quantitation Report

Data File : c:\hpchem\1\data2\b7250.d
Acq On : 24 Nov 97 10:55 am
Sample : BLANK.....
Misc :
Quant Time: Nov 24 15:42 1997

Converted from RTE d

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	13000	40.00	ug/mL	-0.19
18) Naphthalene-d8	10.72	136	55823	40.00	ug/mL	-0.19
33) Acenaphthene-d10	15.97	164	46583	40.00	ug/mL	-0.19
51) Phenanthrene-d10	20.30	188	99527	40.00	ug/ml	-0.20
65) Chrysene-d12	28.23	240	87592	40.00	ug/mL	-0.20
74) Perylene-d12	32.19	264	24588	40.00	ug/mL	-0.21
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.60	112	3620	44.38	ug/mL	44.38%
3) Phenol-d5	6.90	99	23533	48.28	ug/mL	48.28%
19) Nitrobenzene-d5	8.81	82	24482	47.59	ug/mL	47.59%
37) 2-Fluorobiphenyl	14.22	172	56951	44.96	ug/mL	44.96%
55) 2,4,6-Tribromophenol	18.43	330	25546	55.70	ug/mL	55.70%
68) Terphenyl-d14	25.38	244	146214	64.79	ug/mL	64.79%
Target Compounds						Qvalue
73) bis(2-Ethylhexyl)phthalate	29.22	149	3732	2.14	ug/mL#	37

(#) = qualifier out of range (m) = manual integration

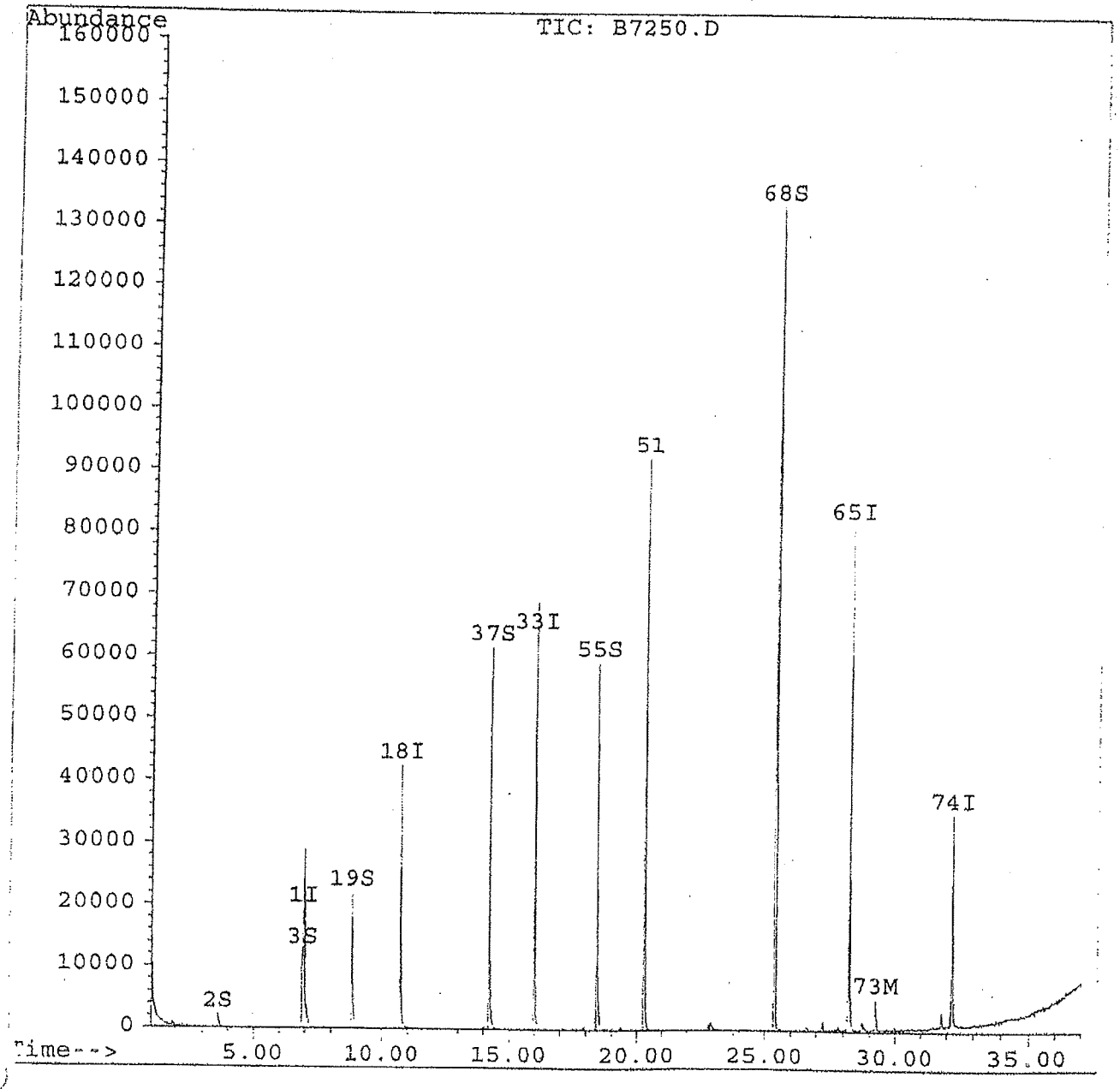
Quantitation Report

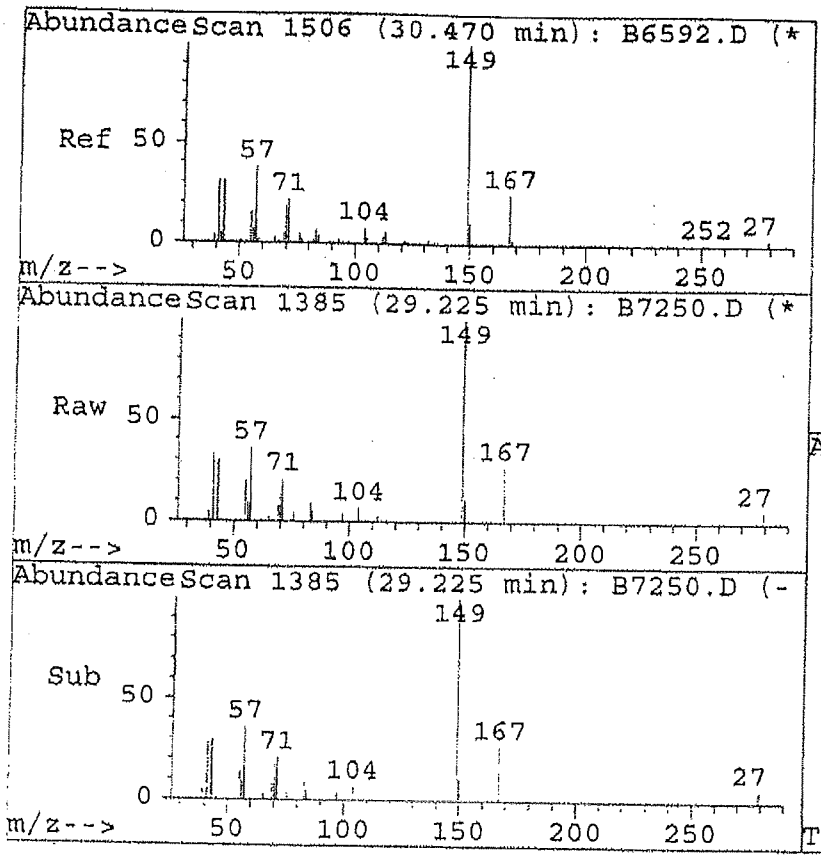
Data File : c:\hpchem\1\data2\b7250.d
Acq On : 24 Nov 97 10:55 am
Sample : BLANK.....
Misc :
Quant Time: Nov 24 15:42 1997

Converted from RTE d

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

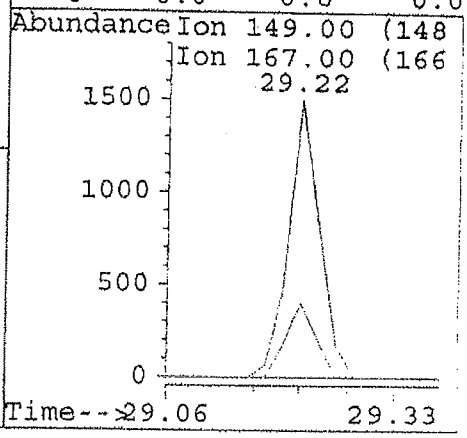




#73
bis(2-Ethylhexyl)phthalate
Concen: 2.14 ug/mL
RT: 29.22 min Scan# 1385
Delta R.T. -0.14 min
Lab File: b7250.d
Acq: 24 Nov 97 10:55 am

Tgt Ion:149 Resp: 3732

Ion	Ratio	Lower	Upper
149	100		
167	27.0	1.0	1.5#
0	0.0	0.0	0.0
0	0.0	0.0	0.0



Library Search Compound Report

365

Data File : c:\hpchem\1\data2\b7250.d
Acq On : 24 Nov 97 10:55 am
Sample : BLANK.....
Misc :

Converted from RTE d

Vial: 3
Operator: SCOTTV
Inst : ABNA
BT Multiplr: 1.00

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Library : NBS75K.L

No Library Search Compounds Detected

Spike Recovery and RPD Summary Report - WATER(ANALYZED 11/24/97)

Method : C:\HPCHEM\1\METHODS\BNACLP.M
File : CLP BNA Calibration
Update : Wed Nov 05 12:20:55 1997
Response via : Initial Calibration

Non-Spiked Sample: B7260.D

	Spike Sample	Spike Duplicate Sample
File ID :	B7261.D	B7262.D
Sample :	85741MS.....	Converted from RTE data file >B7261::D5

Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD	QC Limits RPD	QC Limits % Rec
N-nitrosodimethylami	0.0	100	23	27	23	27	18	100	1-300
Phenol	0.0	100	40	44	40	44	9	23	5-112
bis(2-Chloroethyl)et	0.0	100	40	50	40	50	21	55	12-158
2-Chlorophenol	0.0	100	32	43	32	43	27	29	23-134
1,3-Dichlorobenzene	0.0	100	31	41	31	41	28	42	1-172
1,4-Dichlorobenzene	0.0	100	31	42	31	42	29	32	20-124
1,2-Dichlorobenzene	0.0	100	37	42	37	42	13	31	32-129
bis(2-chloroisopropy	0.0	100	39	50	39	50	23	46	36-166
N-Nitroso-Di-n-propy	0.0	100	44	52	44	52	15	55	1-230
Hexachloroethane	0.0	100	48	48	48	48	1	25	40-113
Nitrobenzene	0.0	100	40	50	40	50	22	39	35-180
phorone	0.0	100	47	53	47	53	11	63	21-196
itrophenol	0.0	100	30	37	30	37	21	35	29-182
2,4-Dimethylphenol	0.0	100	30	37	30#	37	21	26	32-119
bis(2-Chloroethoxy)m	0.0	100	41	49	41	49	18	35	33-184
2,4-Dichlorophenol	0.0	100	45	45	45	45	0	26	39-135
1,2,4-Trichlorobenze	0.0	100	46	55	46	55	16	28	44-142
Naphthalene	0.0	100	35	42	35	42	19	30	21-133
Hexachlorobutadiene	0.0	100	31	38	31	38	21	26	24-116
4-Chloro-3-methylphe	0.0	100	43	49	43	49	13	37	22-147
2-Chloronaphthalene	0.0	100	82	88	82	88	8	13	60-118
2,4,6-Trichloropheno	0.0	100	46	54	46	54	16	32	37-144
Dimethylphthalate	0.0	100	26	25	26	25	3	23	1-112
Acenaphthylene	0.0	100	45	51	45	51	11	40	33-145
2,6-Dinitrotoluene	0.0	100	68	73	68	73	7	30	50-158
Acenaphthene	0.0	100	54	50	54	50	6	28	47-145
2,4-Dinitrophenol	0.0	100	39	47	39	47	19	50	1-191
4-Nitrophenol	0.0	100	48	50	48	50	5	47	1-132
2,4-Dinitrotoluene	0.0	100	82	88	82	88	7	22	39-139
Diethylphthalate	0.2	100	42	46	42	46	8	27	1-114
Fluorene	0.0	100	59	60	59	60	1	21	59-121
4-Chlorophenyl-pheny	0.0	100	45	50	45	50	10	33	25-158
4,6-Dinitro-2-methyl	0.3	100	47	55	46	54	16	93	1-181
4-Bromophenyl-phenyl	0.0	100	54	57	54	57	6	23	53-127
Hexachlorobenzene	0.0	100	45	52	45	52	14	25	1-152
Pentachlorophenol	0.0	100	48	54	48	54	13	49	14-176
anthrene	0.0	100	61	58	61	58	5	21	54-120
hracene	0.0	100	61	70	61	70	13	32	52-115
-n-butylphthalate	0.6	100	57	62	57	62	8	17	1-118
uoranthene	0.0	100	49	53	49	53	8	33	26-137
Pyrene	0.0	100	60	71	60	71	16	25	52-115
Butylbenzylphthalate	0.3	100	71	80	71	80	11	23	1-152
Benzo[a]anthracene	0.2	100	60	64	60	64	6	28	33-143
3,3'-Dichlorobenzidi	0.0	100	20	24	20	24	19	71	1-262

Chrysene	0.4	100	77	86	77	85	11	48	17-168
bis(2-Ethylhexyl)pht	3.1	100	80	88	77	85	10	41	8-158
Di-n-octylphthalate	0.3	100	81	88	81	88	9	31	4-146
Benzo[b]fluoranthene	0.1	100	65	67	65	67	2	39	24-159
Benzo[k]fluoranthene	0.2	100	48	51	48	50	6	32	11-162
Benzo[a]pyrene	0.0	100	53	59	53	59	10	39	17-163
Indeno[1,2,3-cd]pyre	0.0	100	73	86	73	86	16	45	1-171
Dibenz[a,h]anthracen	0.0	100	74	86	74	86	14	70	1-227
Benzo[g,h,i]perylene	0.0	100	85	101	85	101	18	59	1-219

Quantitation Report

Data File : c:\hpchem\1\data2\b7261.d Vial: 14
Acq On : 24 Nov 97 7:37 pm Operator: SCOTTV
Sample : 85741MS..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 25 14:38 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.94	152	13340	40.00	ug/mL	-0.18
18) Naphthalene-d8	10.73	136	58490	40.00	ug/mL	-0.18
33) Acenaphthene-d10	15.98	164	47567	40.00	ug/mL	-0.18
51) Phenanthrene-d10	20.29	188	99141	40.00	ug/ml	-0.21
65) Chrysene-d12	28.23	240	67614	40.00	ug/mL	-0.20
74) Perylene-d12	32.18	264	26651	40.00	ug/mL	-0.22
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.59	112	2866	34.24	ug/mL	34.24%
3) Phenol-d5	6.86	99	22336	44.66	ug/mL	44.66%
19) Nitrobenzene-d5	8.79	82	19729	36.60	ug/mL	36.60%
37) 2-Fluorobiphenyl	14.20	172	52078	40.26	ug/mL	40.26%
55) 2,4,6-Tribromophenol	18.42	330	23180	50.74	ug/mL	50.74%
68) Terphenyl-d14	25.36	244	101428	58.22	ug/mL	58.22%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.39	74	4116	22.56	ug/ml	100
6) Phenol	6.90	94	22142	40.01	ug/mLm	100
7) Benzyl alcohol	7.82	79	14629	39.15	ug/ml	94
8) bis(2-Chloroethyl)ether	6.62	93	11296	40.12	ug/mL	99
9) 2-Chlorophenol	6.60	128	14536	32.48	ug/mL	99
10) 1,3-Dichlorobenzene	6.78	146	11954	30.94	ug/mL	95
11) 1,4-Dichlorobenzene	6.98	146	13087	31.45	ug/mL	99
12) 1,2-Dichlorobenzene	7.51	146	15159	36.74	ug/mLm	100
13) 2-Methylphenol	8.59	108	14733	35.60	ug/mL	99
14) bis(2-chloroisopropyl)ethe	8.24	45	30312	39.42	ug/mL	100
15) 4-Methylphenol	9.06	108	17646	39.06	ug/mL	99
16) N-Nitroso-Di-n-propylamine	8.71	70	15269	44.28	ug/mL#	96
17) Hexachloroethane	8.34	117	11346	47.92	ug/mLm	88
20) Nitrobenzene	8.85	77	19579	39.96	ug/mL	93
21) Isophorone	9.63	82	44922	47.28	ug/mL	97
22) 2-Nitrophenol	9.81	139	11560	30.00	ug/mL	95
23) 2,4-Dimethylphenol	10.46	107	20205	29.81	ug/mLm	98
24) bis(2-Chloroethoxy)methane	10.56	93	23430	40.82	ug/mL	98
25) 2,4-Dichlorophenol	10.73	162	23344	44.81	ug/mLm	93
26) 1,2,4-Trichlorobenzene	10.68	180	22237	46.47	ug/mLm	99
27) Naphthalene	10.77	128	50644	34.72	ug/mL	97
28) 4-Chloroaniline	11.34	127	22821	31.08	ug/mL	96
29) Hexachlorobutadiene	11.46	225	10908	30.94	ug/mL	98
30) 4-Chloro-3-methylphenol	13.21	107	27351	43.12	ug/mL	97
31) 2-Chloronaphthalene	14.29	162	97720	81.62	ug/mlm	98
32) 2-Methylnaphthalene	12.86	142	40400	35.66	ug/mL	97
35) 2,4,6-Trichlorophenol	14.06	196	21847	46.13	ug/mLm	100
36) 2,4,5-Trichlorophenol	14.25	196	24658	47.55	ug/mL	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7261.d Vial: 14
Acq On : 24 Nov 97 7:37 pm Operator: SCOTTV
Sample : 85741MS..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 25 14:38 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

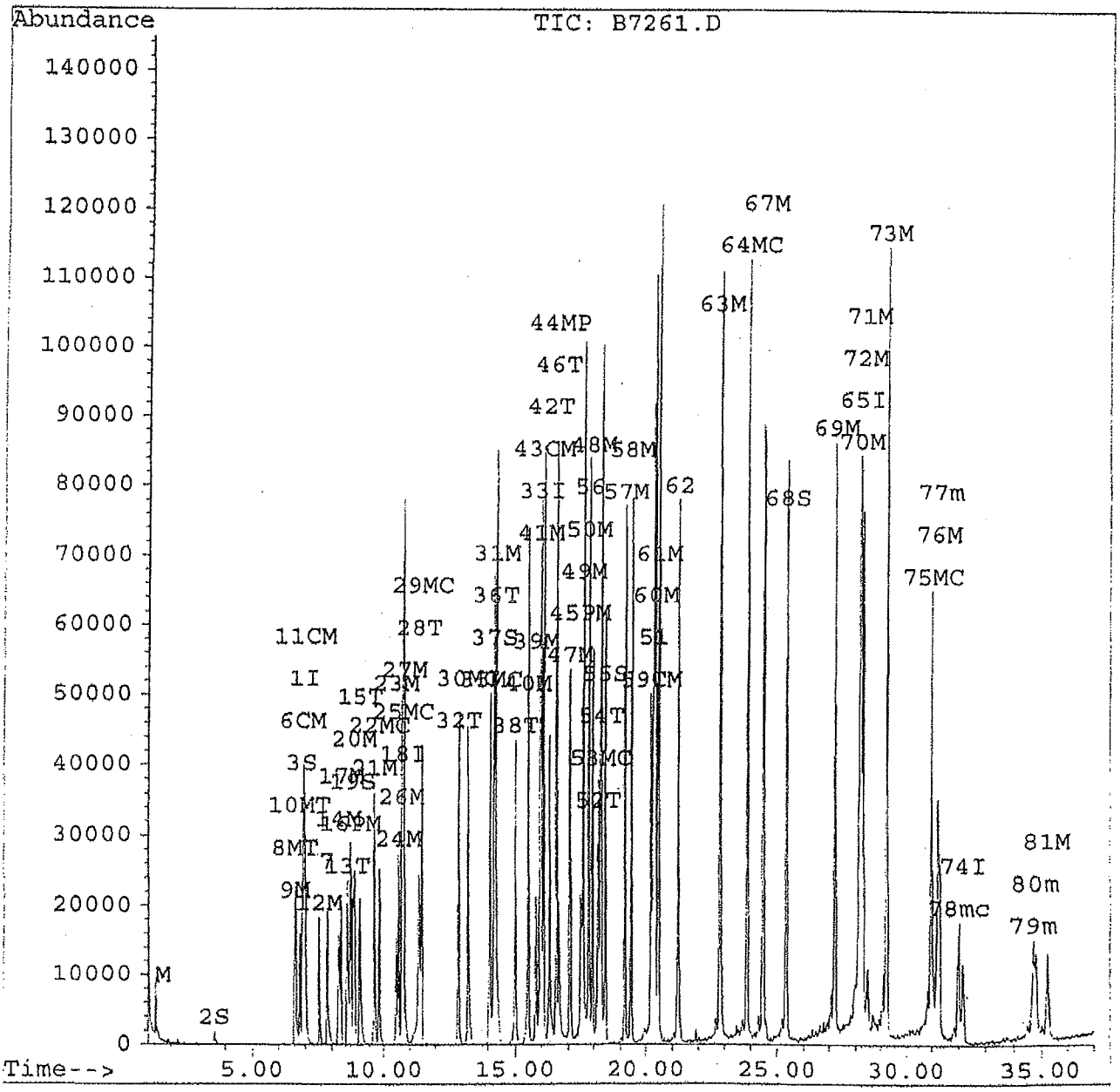
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38)	2-Nitroaniline	15.00	65	26687	46.69	ug/mL	97
39)	Dimethylphthalate	15.77	163	25453	26.01	ug/mLm	0
40)	Acenaphthylene	15.49	152	92124	45.14	ug/mL#	98
41)	2,6-Dinitrotoluene	15.93	165	21619	68.24	ug/mLm	0
42)	3-Nitroaniline	16.30	138	18623	43.76	ug/mL	87
43)	Acenaphthene	16.06	153	73713	53.71	ug/mLm	98
44)	2,4-Dinitrophenol	16.63	184	11011	38.73	ug/mL	94
45)	4-Nitrophenol	17.44	109	13153	47.89	ug/mL	95
46)	Dibenzofuran	16.57	168	91666	41.21	ug/mL	95
47)	2,4-Dinitrotoluene	17.07	165	27011	82.03	ug/mLm	0
48)	Diethylphthalate	17.95	149	62479	42.45	ug/mL	96
49)	Fluorene	17.58	166	91363	59.43	ug/mLm	98
50)	4-Chlorophenyl-phenylether	17.79	204	36089	44.98	ug/mL	98
52)	4-Nitroaniline	18.15	138	20477	58.27	ug/mL	96
53)	4,6-Dinitro-2-methylphenol	18.26	198	17726	46.73	ug/mL	100
54)	n-Nitrosodiphenylamine	18.28	169	52585	55.86	ug/mL	97
56)	1,2-Diphenylhydrazine (as	17.81	77	18818	8.85	ug/ml	100
57)	4-Bromophenyl-phenylether	19.19	248	28762	54.25	ug/mLm	96
58)	Hexachlorobenzene	19.44	284	35782	44.84	ug/mL	99
59)	Pentachlorophenol	20.19	266	21899	47.65	ug/mL	97
60)	Phenanthrene	20.35	178	153454	60.69	ug/mLm	99
61)	Anthracene	20.50	178	126406	61.24	ug/mLm	0
62)	Carbazole	21.25	167	111327	51.11	ug/ml	98
63)	Di-n-butylphthalate	22.83	149	188511	57.45	ug/mL	100
64)	Fluoranthene	23.89	202	140058	48.79	ug/mL#	93
67)	Pyrene	24.48	202	147269	60.41	ug/mL	99
69)	Butylbenzylphthalate	27.23	149	70766	71.42	ug/mL	89
70)	Benzo[a]anthracene	28.19	228	120601	60.20	ug/mL	99
71)	3,3'-Dichlorobenzidine	28.47	252	10383	19.75	ug/mL	97
72)	Chrysene	28.29	228	88424	77.13	ug/mLm	100
73)	bis(2-Ethylhexyl)phthalate	29.23	149	107984	80.15	ug/mL#	41
75)	Di-n-octylphthalate	30.98	149	107512	80.94	ug/mL	100
76)	Benzo[b]fluoranthene	31.22	252	79048	65.32	ug/mLm	97
77)	Benzo[k]fluoranthene	31.28	252	35392	47.87	ug/mLm	97
78)	Benzo[a]pyrene	32.01	252	35826	53.30	ug/mL	97
79)	Indeno[1,2,3-cd]pyrene	34.72	276	34594	72.58	ug/mL#	87
80)	Dibenz[a,h]anthracene	34.80	278	29446	74.07	ug/mL	97
81)	Benzo[g,h,i]perylene	35.23	276	32578	84.70	ug/mLm	0

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7261.d Vial: 14
Acq On : 24 Nov 97 7:37 pm Operator: SCOTTV
Sample : 85741MS..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 25 14:38 1997

Method : C:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration



Quantitation Report

Data File : c:\hpchem\1\data2\b7262.d Vial: 15
Acq On : 24 Nov 97 8:24 pm Operator: SCOTTV
Sample : 85741MSD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 25 14:41 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	6.92	152	12945	40.00	ug/mL	-0.20
18) Naphthalene-d8	10.73	136	56726	40.00	ug/mL	-0.18
33) Acenaphthene-d10	15.98	164	46974	40.00	ug/mL	-0.18
51) Phenanthrene-d10	20.29	188	94442	40.00	ug/ml	-0.20
65) Chrysene-d12	28.23	240	59420	40.00	ug/mL	-0.20
74) Perylene-d12	32.18	264	23747	40.00	ug/mL	-0.23
System Monitoring Compounds						%Recovery
2) 2-Fluorophenol	3.59	112	3648	44.92	ug/mL	44.92%
3) Phenol-d5	6.86	99	23841	49.12	ug/mL	49.12%
19) Nitrobenzene-d5	8.79	82	22111	42.29	ug/mL	42.29%
37) 2-Fluorobiphenyl	14.21	172	55290	43.29	ug/mL	43.29%
55) 2,4,6-Tribromophenol	18.42	330	26427	60.72	ug/mL	60.72%
68) Terphenyl-d14	25.36	244	94514	61.74	ug/mL	61.74%
Target Compounds						Qvalue
4) N-nitrosodimethylamine	1.39	74	4802	27.12	ug/mlm	100
6) Phenol	6.90	94	23585	43.92	ug/mL	100
7) Benzyl alcohol	7.82	79	16297	44.95	ug/ml	95
8) bis(2-Chloroethyl)ether	6.62	93	13535	49.54	ug/mL	99
9) 2-Chlorophenol	6.60	128	18523	42.65	ug/mL	98
10) 1,3-Dichlorobenzene	6.78	146	15363	40.98	ug/mL	98
11) 1,4-Dichlorobenzene	6.98	146	17086	42.31	ug/mL	99
12) 1,2-Dichlorobenzene	7.51	146	16678	41.66	ug/mL#	98
13) 2-Methylphenol	8.57	108	17330	43.15	ug/mL	99
14) bis(2-chloroisopropyl)ethe	8.24	45	37151	49.78	ug/mL	97
15) 4-Methylphenol	9.04	108	19503	44.49	ug/mL	97
16) N-Nitroso-Di-n-propylamine	8.71	70	17234	51.50	ug/mL	95
17) Hexachloroethane	8.35	117	10936	47.60	ug/mLm	83
20) Nitrobenzene	8.85	77	23707	49.89	ug/mL	91
21) Isophorone	9.63	82	48698	52.85	ug/mL	97
22) 2-Nitrophenol	9.81	139	13819	36.98	ug/mL	95
23) 2,4-Dimethylphenol	10.46	107	24271	36.92	ug/mLm	99
24) bis(2-Chloroethoxy)methane	10.56	93	27295	49.03	ug/mL	96
25) 2,4-Dichlorophenol	10.71	162	22675	44.88	ug/mL	96
26) 1,2,4-Trichlorobenzene	10.69	180	25434	54.80	ug/mLm	99
27) Naphthalene	10.77	128	59636	42.16	ug/mL	97
28) 4-Chloroaniline	11.34	127	26490	37.20	ug/mL	97
29) Hexachlorobutadiene	11.46	225	13099	38.31	ug/mL	97
30) 4-Chloro-3-methylphenol	13.21	107	30287	49.24	ug/mL	94
31) 2-Chloronaphthalene	14.29	162	102460	88.24	ug/mlm	95
32) 2-Methylnaphthalene	12.86	142	45299	41.23	ug/mL	100
35) 2,4,6-Trichlorophenol	14.04	196	25310	54.11	ug/mLm	100
36) 2,4,5-Trichlorophenol	14.25	196	28740	56.13	ug/mL	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7262.d Vial: 15
Acq On : 24 Nov 97 8:24 pm Operator: SCOTTV
Sample : 85741MSD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 25 14:41 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

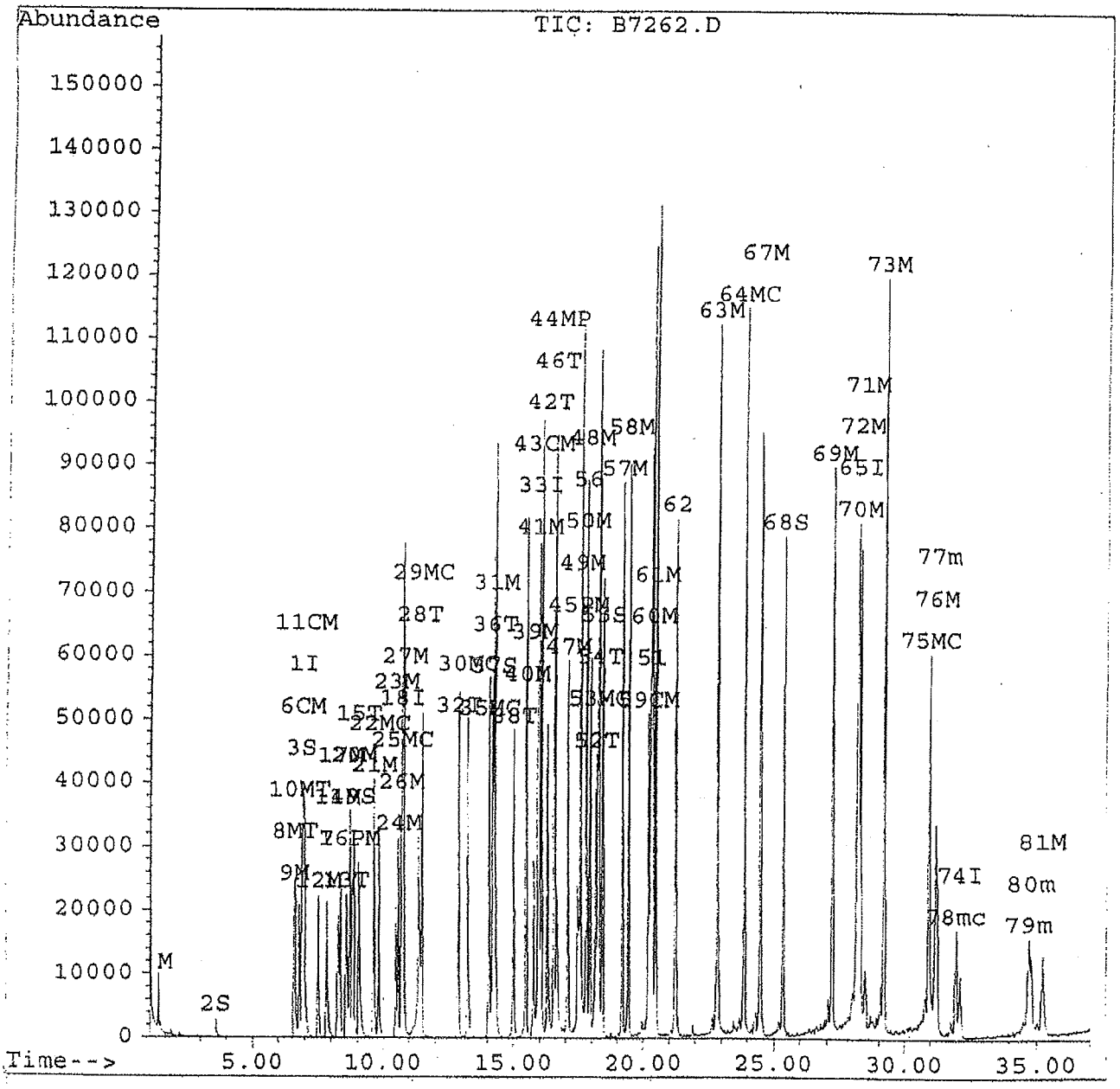
	Compound	R.T.	QIon	Response	Conc	Unit	Qvalue
38)	2-Nitroaniline	15.00	65	29725	52.66	ug/mL	99
39)	Dimethylphthalate	15.77	163	24322	25.17	ug/mLm	0
40)	Acenaphthylene	15.49	152	102071	50.64	ug/mL#	98
41)	2,6-Dinitrotoluene	15.93	165	22865	73.09	ug/mLm	0
42)	3-Nitroaniline	16.30	138	20908	49.75	ug/mL	95
43)	Acenaphthene	16.06	153	68336	50.42	ug/mL	99
44)	2,4-Dinitrophenol	16.63	184	13164	46.89	ug/mL	91
45)	4-Nitrophenol	17.44	109	13644	50.31	ug/mL	90
46)	Dibenzofuran	16.57	168	101775	46.33	ug/mL	96
47)	2,4-Dinitrotoluene	17.08	165	28593	87.93	ug/mLm	0
48)	Diethylphthalate	17.95	149	66587	45.82	ug/mL	98
49)	Fluorene	17.58	166	91139	60.04	ug/mLm	98
50)	4-Chlorophenyl-phenylether	17.79	204	39478	49.82	ug/mL	99
52)	4-Nitroaniline	18.17	138	20969	62.64	ug/mL	89
53)	4,6-Dinitro-2-methylphenol	18.26	198	19722	54.58	ug/mL	100
54)	n-Nitrosodiphenylamine	18.28	169	57439	64.05	ug/mL	98
56)	1,2-Diphenylhydrazine (as	17.81	77	19860	9.81	ug/ml	100
57)	4-Bromophenyl-phenylether	19.19	248	29034	57.49	ug/mL	97
58)	Hexachlorobenzene	19.44	284	39212	51.59	ug/mL	96
59)	Pentachlorophenol	20.19	266	23694	54.12	ug/mL	98
60)	Phenanthrene	20.35	178	138727	57.59	ug/mL	99
61)	Anthracene	20.50	178	137192	69.77	ug/mLm	0
62)	Carbazole	21.25	167	117482	56.62	ug/ml	99
63)	Di-n-butylphthalate	22.83	149	194124	62.10	ug/mL	100
64)	Fluoranthene	23.89	202	145069	53.05	ug/mL	94
67)	Pyrene	24.48	202	151499	70.72	ug/mL	100
69)	Butylbenzylphthalate	27.23	149	69702	80.04	ug/mL	90
70)	Benzo[a]anthracene	28.19	228	112821	64.08	ug/mL	99
71)	3,3'-Dichlorobenzidine	28.47	252	11057	23.93	ug/mL	90
72)	Chrysene	28.29	228	86454	85.82	ug/mLm	99
73)	bis(2-Ethylhexyl)phthalate	29.23	149	104471	88.23	ug/mL#	40
75)	Di-n-octylphthalate	30.98	149	104631	88.40	ug/mL	100
76)	Benzo[b]fluoranthene	31.22	252	72027	66.80	ug/mLm	99
77)	Benzo[k]fluoranthene	31.28	252	33367	50.65	ug/mLm	98
78)	Benzo[a]pyrene	32.01	252	35126	58.64	ug/mL	97
79)	Indeno[1,2,3-cd]pyrene	34.72	276	36334	85.55	ug/mL	95
80)	Dibenz[a,h]anthracene	34.80	278	30307	85.56	ug/mL	96
81)	Benzo[g,h,i]perylene	35.23	276	34693	101.23	ug/mLm	0

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : c:\hpchem\1\data2\b7262.d Vial: 15
Acq On : 24 Nov 97 8:24 pm Operator: SCOTTV
Sample : 85741MSD..... Converted from RTE d Inst : ABNA
Misc : BT Multiplr: 1.00
Quant Time: Nov 25 14:41 1997

Method : c:\HPCHEM\1\METHODS\BNACLP.M
Title : CLP BNA Calibration
Last Update : Wed Nov 05 12:20:55 1997
Response via : Multiple Level Calibration

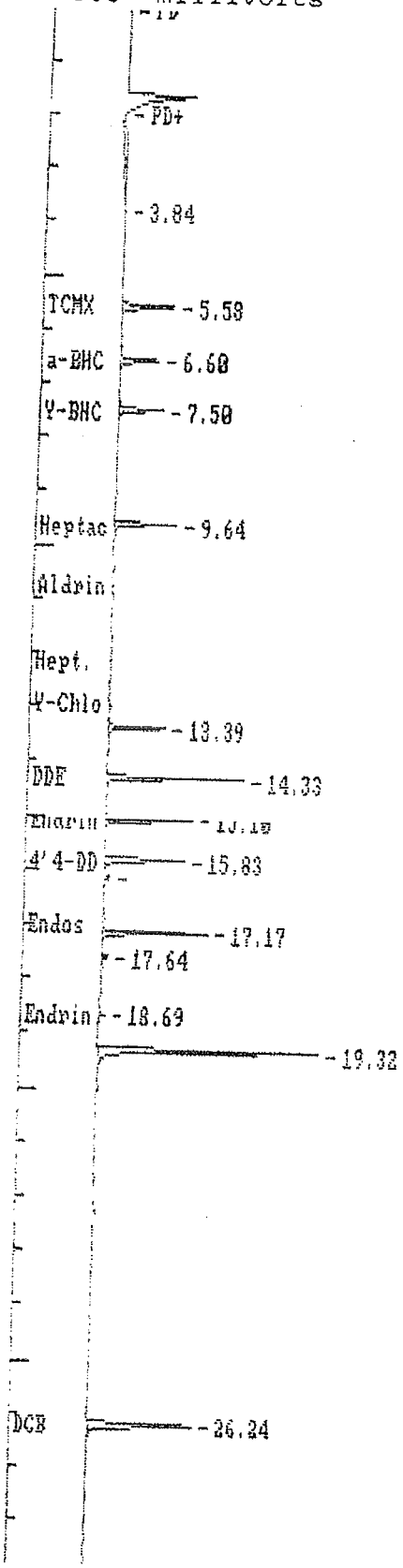


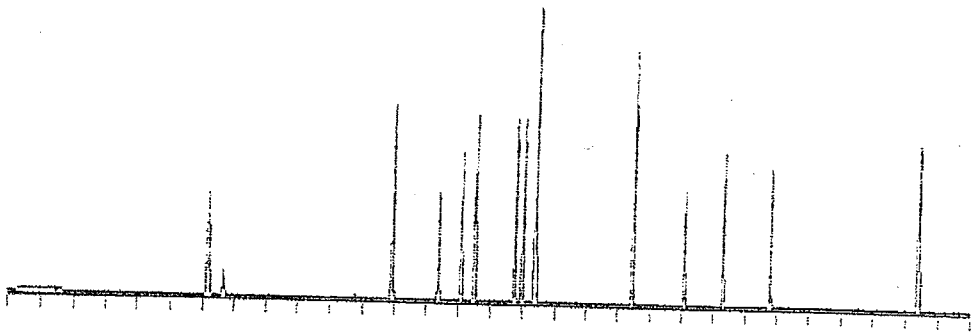
6	13.393	Endosulfan I	19.8340	3.8395%	J	72513	20626	3.5 1	0	0	2.7352E-04
7	14.329	Dieldrin	40.0312	7.7494%	J	168451	49680	3.4 1	0	0	2.3764E-04
8	15.097	Endrin	37.9400	7.3446%	J	111126	31503	3.5 1	0	0	3.4141E-04
9	15.832	4'4-DDD	38.5265	7.4581%	J	114115	29099	3.9 2	0	0	3.3761E-04
10	16.166	Endrin ald	3.1120	0.6024%		9336	2170	4.3 2	0	1027	3.3333E-04
	17.168	DDT	42.7859	8.2826%	J	135289	37977	3.6 1	0	0	3.1626E-04
	17.635		0.0000	0.0000%		9779	2289	4.3 1			1.0000E-09
13	18.687	Endrin ket.	2.8570	0.5531%		8182	2175	3.8 1	0	0	3.4916E-04
14	19.322	Methoxychlor	211.0378	40.8534%	J	328586	80677	4.1 1	0	0	6.4226E-04
15	26.236	DCB	39.3247	7.6126%	J	203191	37944	5.4 1	0	0	1.9354E-04

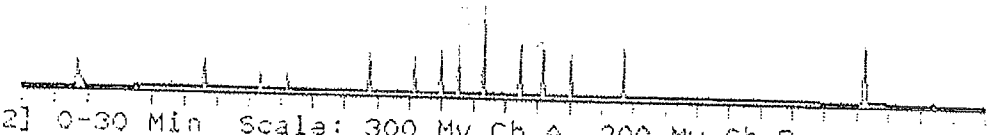
TOTAL AMOUNT = 516.5736

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E182.ATB
ta File = D:NV14E182.PTS Printed on 11-25-1997 at 20:02:28
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
INDB 20-40 Processed: 11-25-1997 19:28:13, segment 8, cycle 181
RAW DATA SAVED IN FILE D:NV14E181.PTS Second Channel Stored in D:NV14E181.PTS

EXTERNAL STANDARD TABLE

11-25-1997 19:29:20 Version 5.1.5

Sample Name: INDB 20-40
Data File: D:NV14E181
Date: 11-25-1997 18:57:36 Method: M:APES-E 11-25-1997 14:16:36 # 399
Interface: 2 Cycle#: 181 Operator JJK Channel#: 0 Vial#: N.A.
Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0: Detector 1: ECD
Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

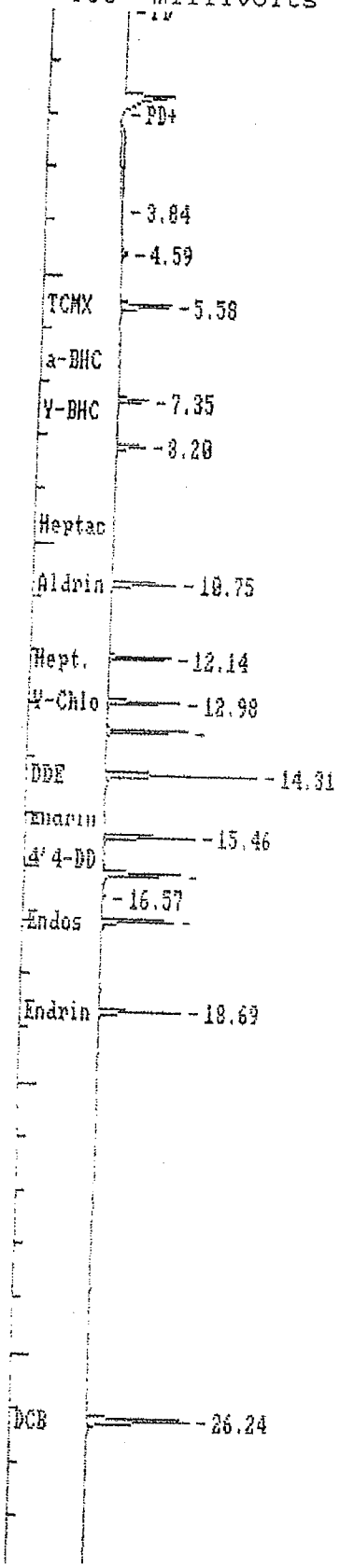
NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.841		0.0001	0.0000%	121270	803	151.1 2			1.0000E-09
2	4.592		0.0000	0.0000%	11078	1912	5.8 2			1.0000E-09
3	5.578	TCMX	21.0515	5.7194%	93132	18802	5.0 1	0	.3201	2.2604E-04

6	10.755 Aldrin	19.3949	5.2693%	√	87200	23890	3.7 1	0	0	2.2242E-04
7	12.141 Hept. epox.	19.5456	5.3102%	√	79629	22729	3.5 1	0	0	2.4546E-04
8	12.976 Y-Chlordane	20.1939	5.4864%	√	101353	26966	3.8 1	0	.1304	1.9924E-04
9	13.510 a-Chlordane	20.2201	5.4935%	√	104073	29884	3.5 1	0	0	1.9429E-04
10	14.312 DDE	39.2777	10.6711%	√	202359	56131	3.6 1	0	0	1.9410E-04
11	15.464 Endosif II	37.9717	10.3163%	√	118510	33442	3.5 1	0	.1113	3.2041E-04
12	16.166 Endrin ald	37.6655	10.2331%	√	112997	28594	4.0 1	0	.1027	3.3333E-04
13	16.566	0.0000	0.0000%		4933	1298	3.8 1			1.0000E-09
14	17.017 Endos sulf	36.9254	10.0320%	√	100733	26575	3.8 1	0	0	3.6657E-04
15	18.687 Endrin ket.	37.7055	10.2440%	√	107989	30466	3.5 1	0	0	3.4916E-04
16	26.236 DCB	39.0821	10.6180%	√	201937	37768	5.3 1	0	0	1.9354E-04

TOTAL AMOUNT = 368.0751

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E181.ATB
Data File = D:NV14E181.PTS Printed on 11-25-1997 at 19:29:44
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-25-1997 20:20:48 Version 5.1.5

* Sample Name: INDA 20-200
* Date: 11-25-1997 19:30:18 Method: M:BPES-E 11-25-1997 14:16:47 # 392
* Interface: 2 Cycle#: 182 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Data File: D:\V14E182

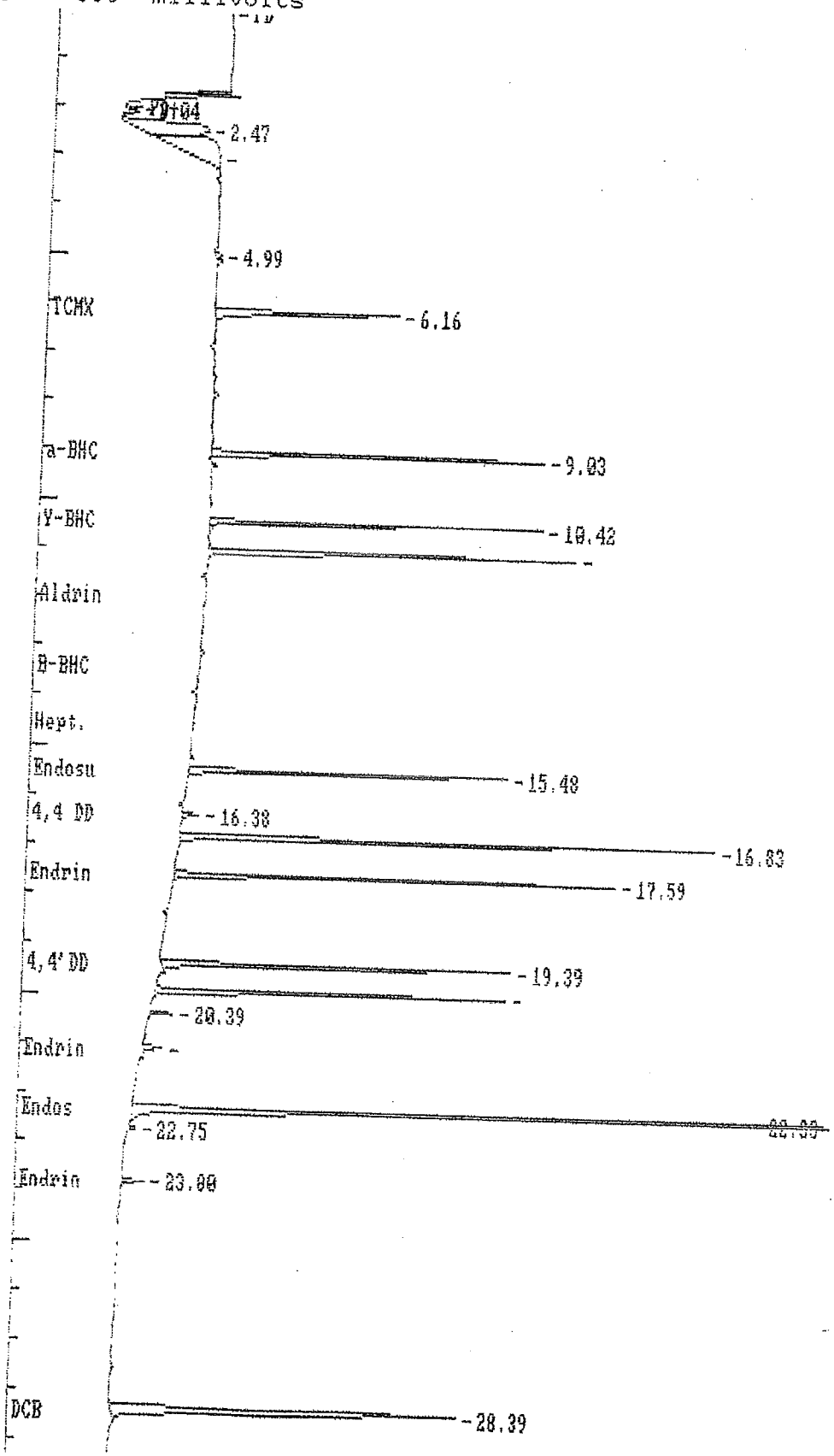
Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.037		0.0000	0.0000%	9179	2489	3.7	1			1.0000E-09
2	2.472		0.0004	0.0001%	400563	25677	15.6	2			1.0000E-09
3	3.023		0.0005	0.0001%	469608	7707	60.9	2			1.0000E-09
4	4.993		0.0000	0.0000%	10721	2103	5.1	1			1.0000E-09
	6.162	TCMX	22.5407	4.0778%	✓354204	74175	4.8	1	0	.5269	6.3638E-05
6	9.035	a-BHC	21.4353	3.8779%	✓469133	133769	3.5	1	0	0	4.5691E-05
7	10.421	Y-BHC	22.0375	3.9868%	✓459129	133350	3.4	1	0	0	4.7998E-05
8	11.022	Heptachlor	22.3860	4.0499%	✓542995	147020	3.7	1	0	0	4.1227E-05
9	15.481	Endosulf I	22.0419	3.9876%	✓441918	127387	3.5	1	0	0	4.9878E-05
10	16.382	4,4 DDE	1.3438	0.2440%	24027	6691	3.6	1	0	0	5.6139E-05
11	16.834	Dieldrin	44.1162	7.9811%	✓777989	213989	3.6	1	0	0	5.6705E-05
12	17.565	Endrin	42.1217	7.6202%	✓610428	175620	3.5	1	0	0	6.9004E-05
13	19.389	4,4'DDD	40.6870	7.3607%	✓491816	139166	3.5	1	0	0	8.4445E-05
14	19.923	4,4 DDT	44.3835	8.0294%	✓491592	139462	3.5	1	0	0	9.0285E-05
15	20.391		0.0000	0.0000%	28001	9232	3.0	1			1.0000E-09
16	21.092	Endrin ald	3.0310	0.5483%	30441	7668	4.0	1	0	0	9.9572E-05
17	22.328	Methoxychl	221.7220	40.1118%	✓1207720	301069	4.0	1	0	0	1.8359E-04
18	22.745		0.0000	0.0000%	10343	3003	3.4	1			1.0000E-09
19	23.797	Endrin ket	2.9661	0.5366%	35560	8827	4.0	1	0	0	8.3410E-05
20	28.390	DCB	41.9419	7.5877%	✓ 858048	137281	6.3	1	0	0	4.8881E-05

TOTAL AMOUNT = 552.7606

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E182.PTS Printed on 11-25-1997 at 20:20:57 460
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-25-1997 20:19:57 Version 5.1.5 **********

* Sample Name: INDB 20-40
* Date: 11-25-1997 18:57:36 Method: M:BPES-E 11-25-1997 14:16:47 # 392
* Interface: 2 Cycle#: 181 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Data File: D:OV14E181

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

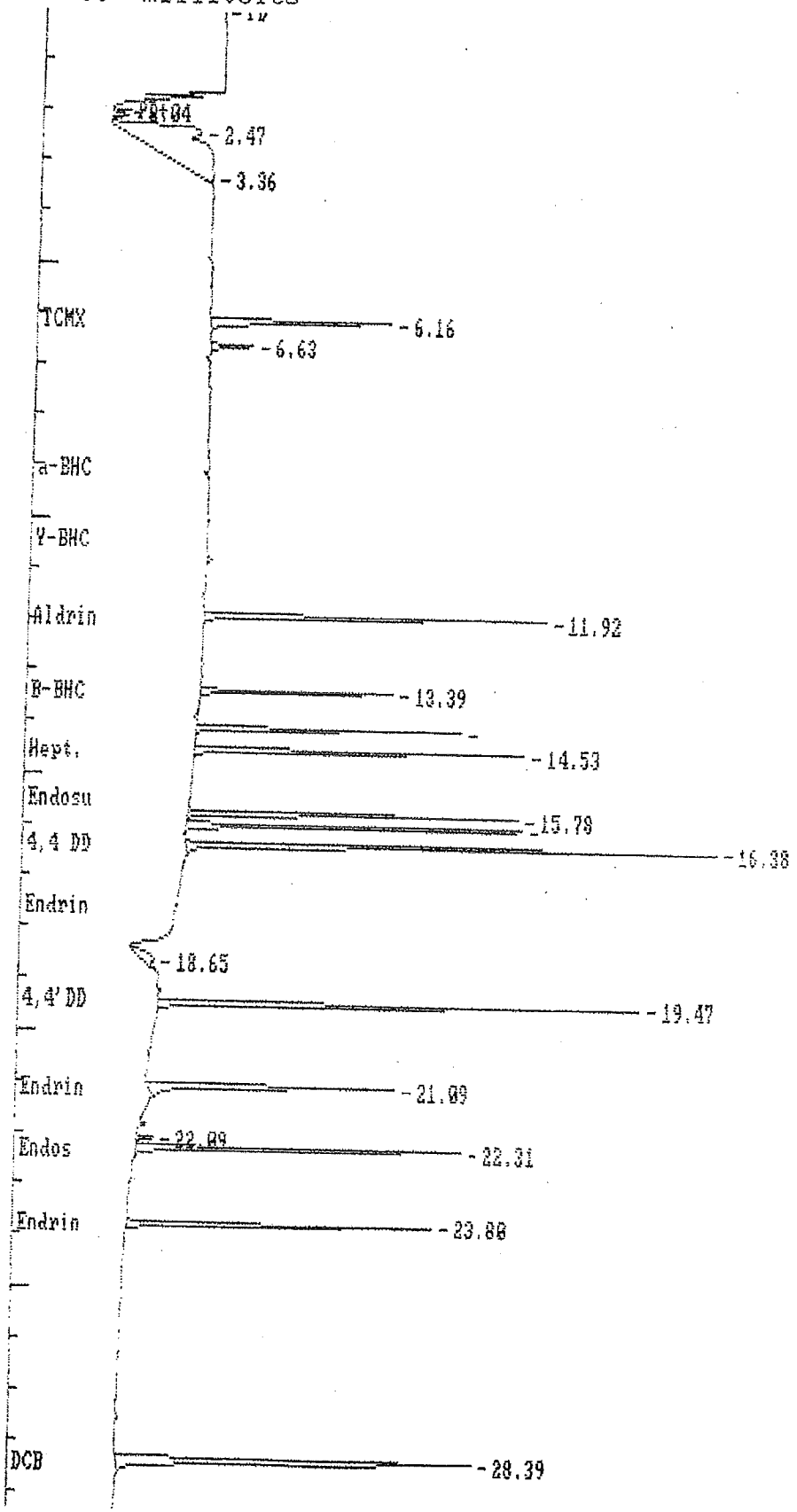
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.037		0.0000	0.0000%	9766	2491	3.9	1			1.0000E-09
2	2.472		0.0004	0.0001%	424296	27389	15.5	3			1.0000E-09
3	3.357		0.0007	0.0002%	721427	3043	236.7	4			1.0000E-09
4	6.162 TCMX		22.3189	5.5700%	J 350718	71008	4.9	1	0	.5269	6.3638E-05
5	6.630		0.0001	0.0000%	70917	17017	4.2	1			1.0000E-09
	11.924 Aldrin		21.7014	5.4160%	J 480210	133325	3.6	1	0	0	4.5190E-05
	13.393 B-BHC		21.6410	5.4009%	J 247162	74795	3.3	1	0	0	8.7558E-05
8	14.111 D-BHC		21.0691	5.2582%	J 334093	102940	3.2	1	0	0	6.3064E-05
9	14.529 Hept. epox.		21.6805	5.4107%	J 458976	128208	3.6	1	0	0	4.7237E-05
10	15.731 Y-Chlordane		21.5861	5.3872%	J 467576	128697	3.6	2	0	.1046	4.6165E-05
11	15.999 A-Chlordane		21.7825	5.4362%	J 488648	131064	3.7	2	0	0	4.4577E-05
12	16.383 4,4 DDE		42.4848	10.6028%	J 756782	205211	3.7	1	0	0	5.6139E-05
13	19.634		0.0001	0.0000%	58300	3483	16.7	1			1.0000E-09
14	19.472 EndosIfII		41.9711	10.4746%	J 672923	186312	3.6	1	0	0	6.2371E-05
15	21.092 Endrin ald		39.9894	9.9800%	J 401613	95615	4.2	1	0	0	9.9572E-05
16	22.094		0.0000	0.0000%	27274	6592	4.1	2			1.0000E-09
17	22.311 Endos sulf		40.9994	10.2321%	J 461120	126245	3.7	2	0	0	8.8913E-05
18	23.797 Endrin ket		41.6872	10.4038%	J 499788	118382	4.2	1	0	0	8.3410E-05
19	28.390 DCB		41.7812	10.4272%	J 854760	137879	6.2	1	0	0	4.8881E-05

TOTAL AMOUNT = 400.6938

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E181.PTS Printed on 11-25-1997 at 20:20:02
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ull Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-2

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85731

Sample wt/vol: 1000 (g/mL) mL Lab File ID: D:NV14E161

% Moisture N/A decanted: (Y/N) N Date Received:

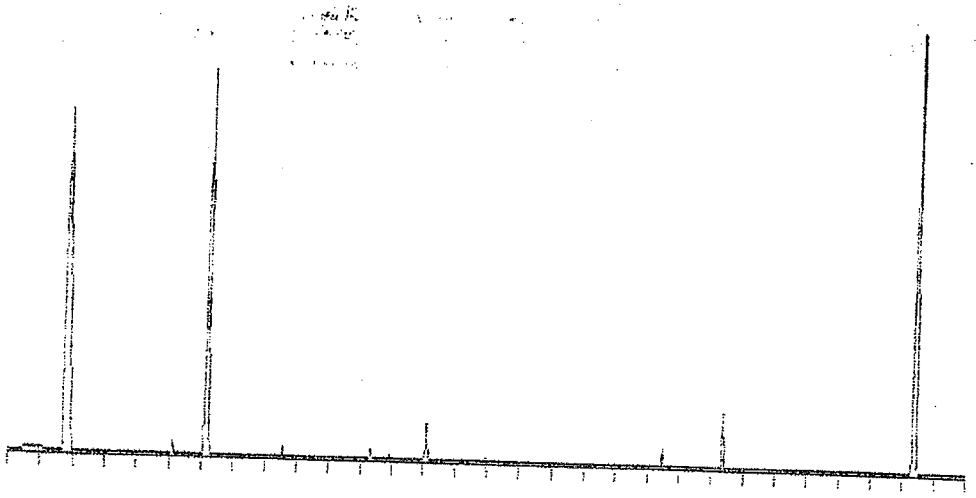
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

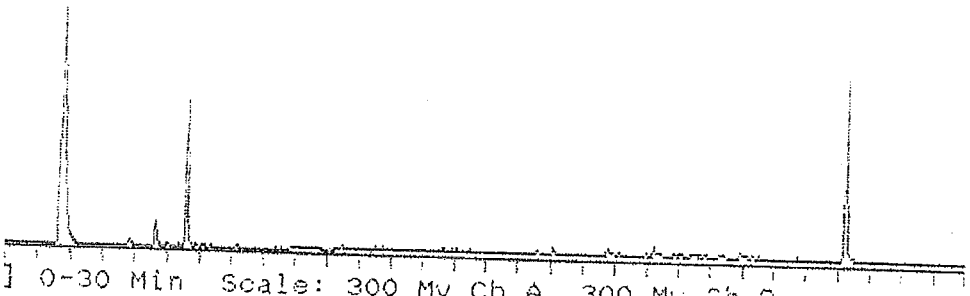
Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U



clean



[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85731 P/P Processed: 11-25-1997 00:42:31, segment 3, cycle 161
RAW DATA SAVED IN FILE D:NV14E161.PTS Second Channel Stored in D:NV14E161.PTS

EXTERNAL STANDARD TABLE

11-25-1997 00:43:36 Version 5.1.5

Sample Name: 85731 P/P
Data File: D:NV14E161
Date: 11-25-1997 00:11:53 Method: M:APES-E 11-21-1997 22:31:52 # 393
Interface: 2 Cycle#: 161 Operator JJK Channel#: 0 Vial#: N.A.
Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0: Detector 1: ECD
Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

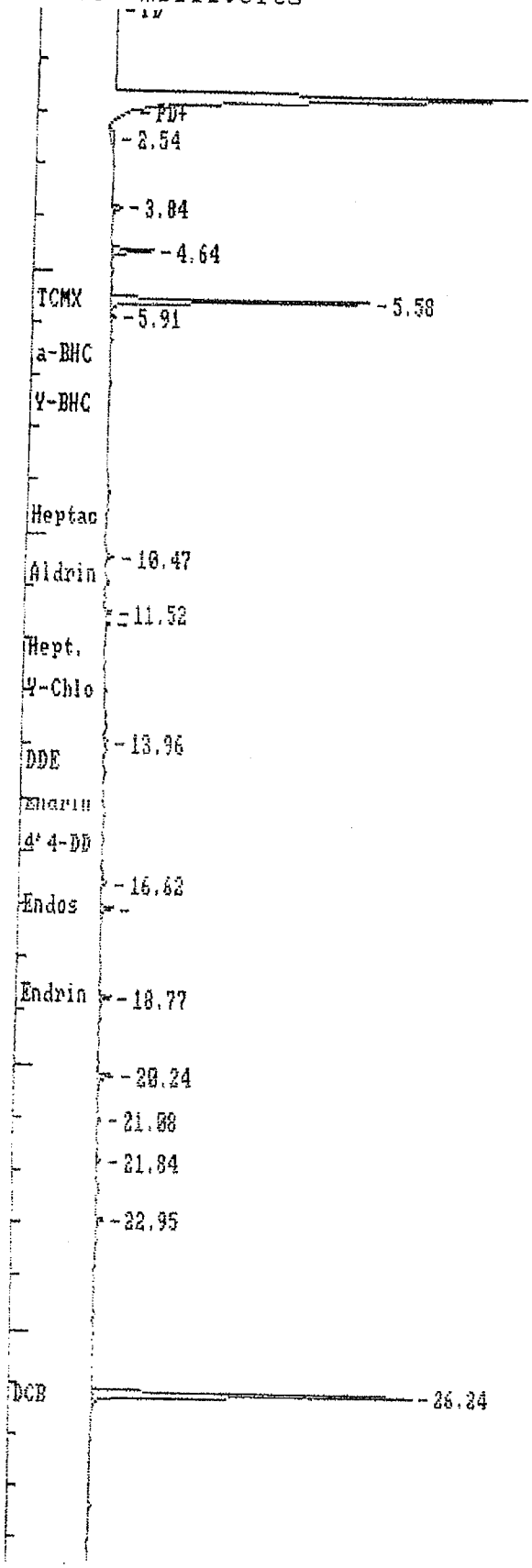
	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
	2.538		0.0000	0.0000%	31502	1369	23.0	1			1.0000E-09
2	3.841		0.0000	0.0000%	21847	3710	5.9	1			1.0000E-09
3	4.643		0.0001	0.0000%	79604	15891	5.0	1			1.0000E-09
4	5.578	TCMX	104.6807	43.8960%	463108	97601	4.7	2	0	.3201	2.2604E-04

7	11.523	0.0000	0.0000%	11498	2534	4.5	1			1.0000E-09
8	11.757	0.0000	0.0000%	8028	1831	4.4	1			1.0000E-09
9	13.961	0.0000	0.0000%	7282	1678	4.3	1			1.0000E-09
10	16.616	0.0000	0.0000%	10460	2199	4.8	1			1.0000E-09
11	17.101 DBT	6.4529	2.7059%	20404	4595	4.4	1	0	-.3914	3.1626E-04
	18.771 Endrin ket.	5.6530	2.3705%	16190	3969	4.1	1	0	.4484	3.4916E-04
	20.240	0.0000	0.0000%	28805	5999	4.8	1			1.0000E-09
14	21.075	0.0000	0.0000%	5726	1378	4.2	1			1.0000E-09
15	21.844	0.0000	0.0000%	6811	1594	4.3	1			1.0000E-09
16	22.946	0.0000	0.0000%	13790	2420	4.5	1			1.0000E-09
17	26.036 DDB	121.6873	51.0274%	608759	120842	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 238.4743

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E161.ATB
Data File = D:NV14E161.PTS Printed on 11-25-1997 at 00:43:59
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-3

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85732

Sample wt/vol: 990 (g/mL) mL Lab File ID: D:NV14E162

% Moisture N/A decanted: (Y/N) N Date Received:

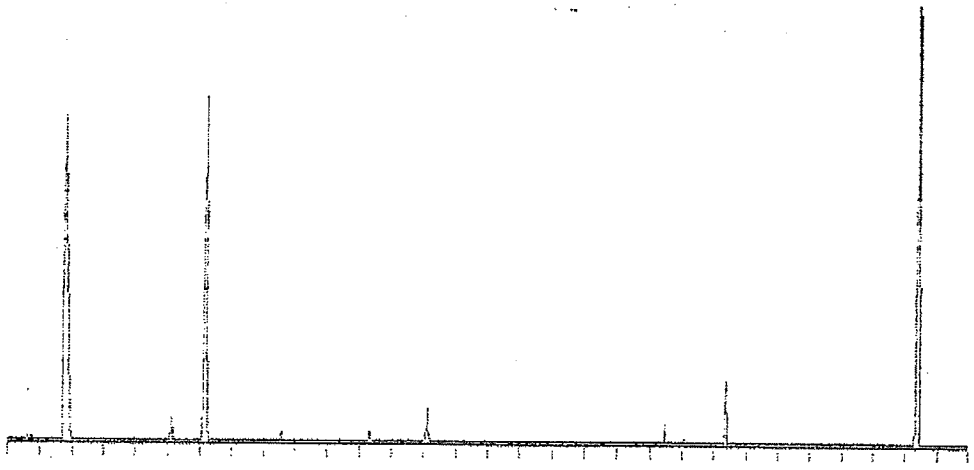
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

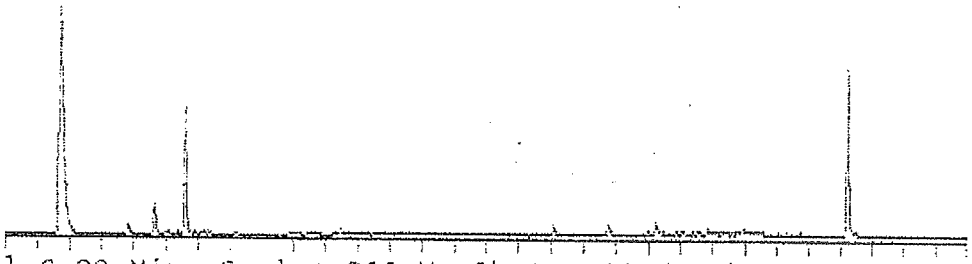
Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85732 P/P Processed: 11-25-1997 01:15:12, segment 4, cycle 162
RAW DATA SAVED IN FILE D:NV14E162.PTS Second Channel Stored in D:\V14E162.PTS

EXTERNAL STANDARD TABLE

11-25-1997 01:16:17 Version 5.1.5

Sample Name: 85732 P/P Data File: D:NV14E162

Date: 11-25-1997 00:44:35 Method: M:APES-E 11-21-1997 22:31:52 # 398

Interface: 2 Cycle#: 162 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

Sample Weight: 1.00000

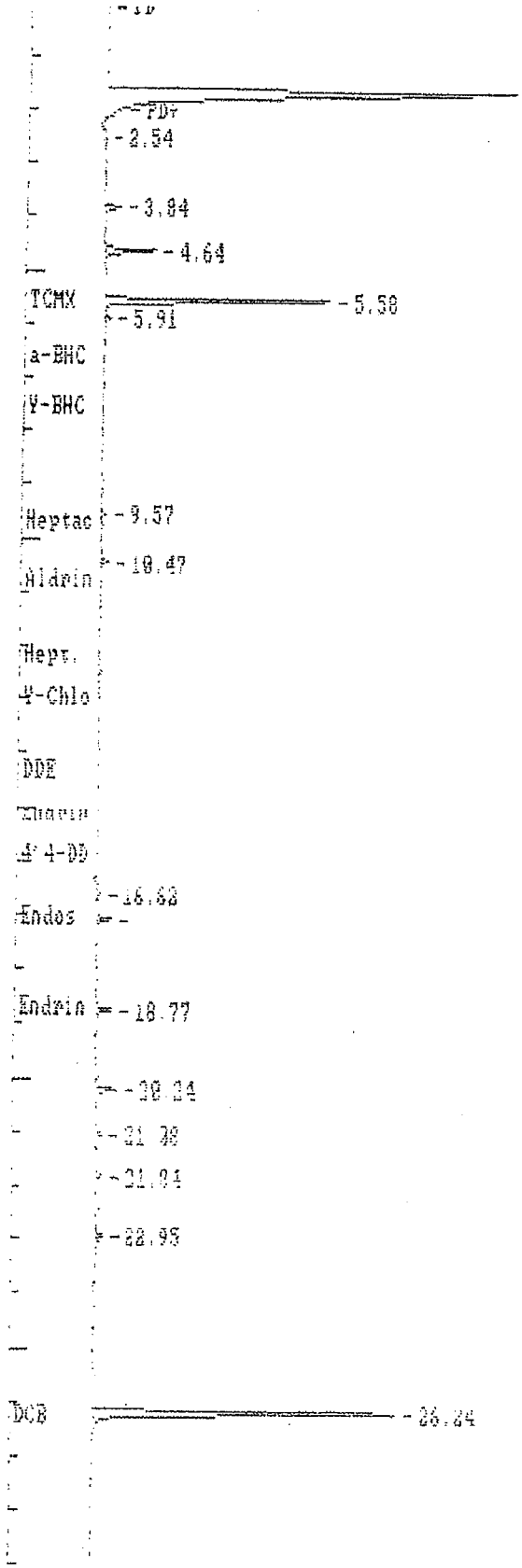
NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.538		0.0000	0.0000%	27356	1210	22.6	1			1.0000E-09
2	3.841		0.0000	0.0000%	33858	5893	5.7	1			1.0000E-09
3	4.643		0.0001	0.0000%	93336	19058	4.9	1			1.0000E-09
4	5.578	TCMX	88.5038	40.7950%	391541	83197	4.7	2	0	.3201	2.2604E-04

7	10.471	0.0000	0.0000%	12032	2815	4.3	1			1.0000E-09
8	16.616	0.0000	0.0000%	5229	1369	3.8	1			1.0000E-09
9	17.101 DDT	7.0764	3.2618%	22376	5269	4.2	1	0	-.3914	3.1626E-04
10	18.771 Endrin ket.	7.7823	3.5872%	22288	5464	4.1	1	0	.4484	3.4916E-04
11	20.240	0.0000	0.0000%	36901	7542	4.9	1			1.0000E-09
	21.075	0.0000	0.0000%	7471	1939	3.9	1			1.0000E-09
	21.844	0.0000	0.0000%	9485	2235	4.2	1			1.0000E-09
14	22.946	0.0000	0.0000%	9773	2190	4.5	1			1.0000E-09
15	26.236 DDE	111.5559	51.4207%	576410	110746	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 216.9475

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E162.ATB
ta File = D:NV14E162.PTS Printed on 11-25-1997 at 01:16:40
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ll Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-5

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85733

Sample wt/vol: 930 (g/mL) mL Lab File ID: D:NV14E163

% Moisture N/A decanted: (Y/N) N Date Received:

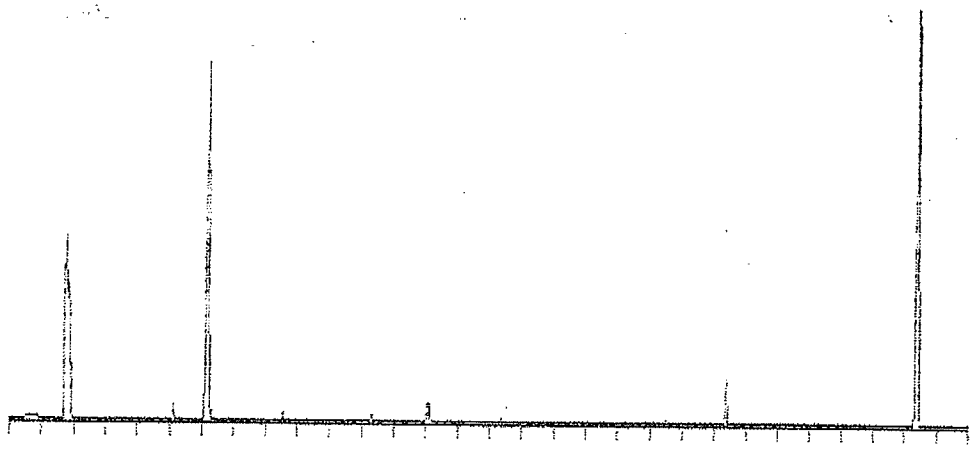
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U



[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85733 P/P Processed: 11-25-1997 01:47:50, segment 5, cycle 163
RAW DATA SAVED IN FILE D:NV14E163.PTS Second Channel Stored in D:CV14E163.PTS

***** EXTERNAL STANDARD TABLE *****

********** 11-25-1997 01:48:57 Version 5.1.5 **********

* Sample Name: 85733 P/P Data File: D:NV14E163 *
* Date: 11-25-1997 01:17:14 Method: M:APES-E 11-21-1997 22:31:52 # 393 *
* Interface: 2 Cycle#: 163 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

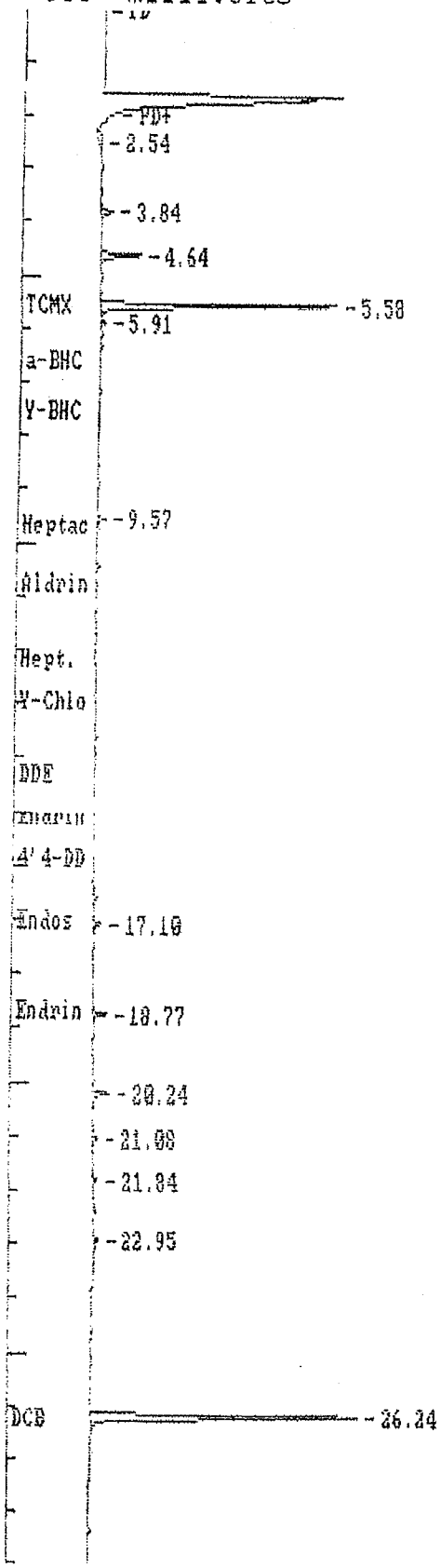
PK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.538		0.0000	0.0000%	27403	1275	21.5	1			1.0000E-09
2	3.841		0.0000	0.0000%	25024	4372	5.7	1			1.0000E-09
3	4.643		0.0001	0.0000%	73122	15011	4.9	1			1.0000E-09
4	5.578	TCMX	92.4121	45.0081%	408832	87727	4.7	2	0	.3201	2.2604E-04

7	17.101	OBJ	4.1948	2.0430%	13264	3055	4.3	1	0	-.3914	3.1626E-04
8	18.771	Endrin ket.	6.8797	3.3506%	19703	4816	4.1	1	0	.4484	3.4916E-04
9	20.240		0.0000	0.0000%	29178	6089	4.8	1			1.0000E-09
10	21.075		0.0000	0.0000%	6845	1727	4.0	1			1.0000E-09
11	21.844		0.0000	0.0000%	8509	1956	4.4	1			1.0000E-09
	22.946		0.0000	0.0000%	8219	1853	4.4	1			1.0000E-09
	26.236	DCB	98.9631	48.1985%	511342	98354	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 205.3240

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E163.ATB
Data File = D:NV14E163.PTS Printed on 11-25-1997 at 01:49:21
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-6

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85734

Sample wt/vol: 990 (g/mL) mL Lab File ID: D:NV14E164

% Moisture N/A decanted: (Y/N) N Date Received:

Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

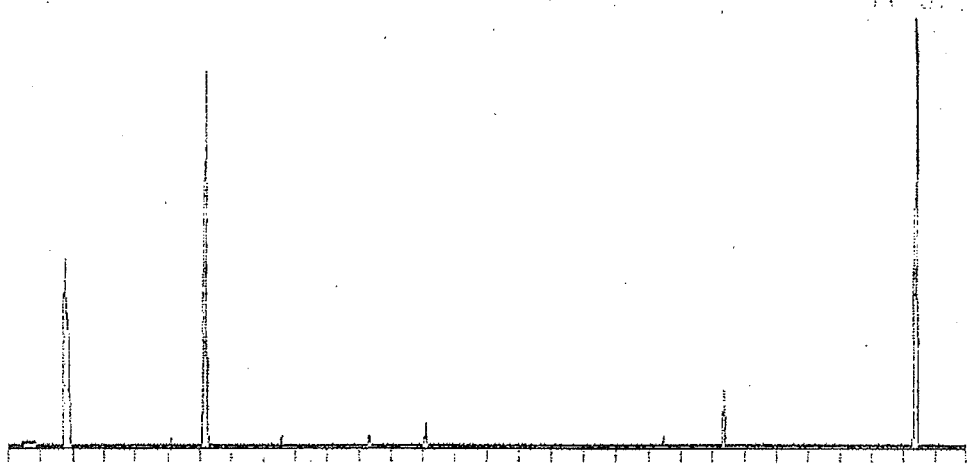
Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

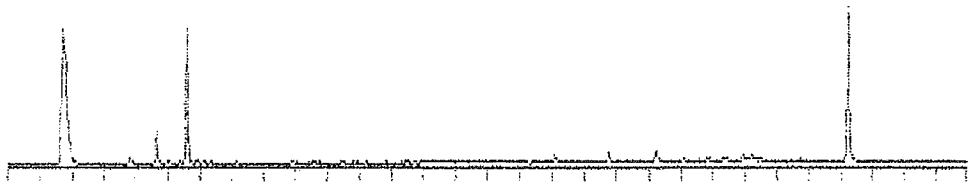
GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.05	
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U

470



~ 0.05



[Interface 2] 0-30 Min Scale: 300 MV Ch.A, 300 Mv Ch.B
85734 P/P Processed: 11-25-1997 02:20:32, segment 6, cycle 164
RAW DATA SAVED IN FILE D:NV14E164.PTS Second Channel Stored in D:0V14E164.PTS

EXTERNAL STANDARD TABLE

********** 11-25-1997 02:21:39 Version 5.1.5 **********

* Sample Name: 85734 P/P Data File: D:NV14E164 *
* Date: 11-25-1997 01:49:55 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 164 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

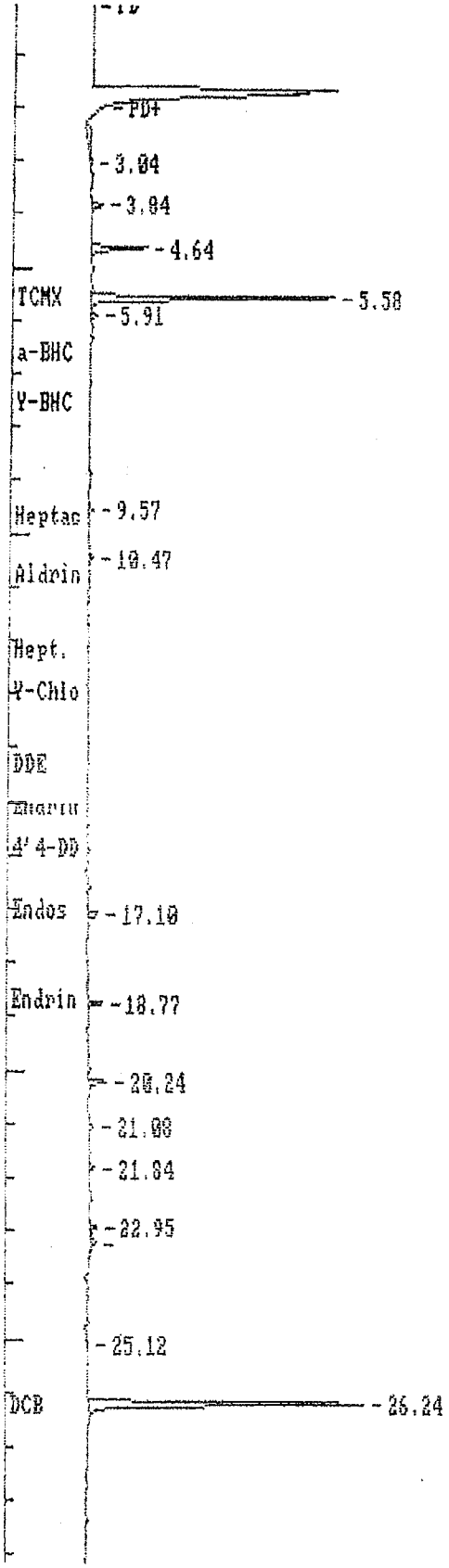
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC.	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.039		0.0001	0.0000%	52747	798	66.1	1			1.0000E-09
2	3.841		0.0000	0.0000%	25094	4294	5.8	1			1.0000E-09
3	4.643		0.0001	0.0000%	100354	20497	4.9	1			1.0000E-09

7	10.471	0.0000	0.0000%	6580	1619	4.1	1			1.0000E-09
8	17.101 DDT	7.5248	3.4895%	23793	3886	6.1	1	0	-.3914	3.1626E-04
9	18.771 Endrin ket.	7.4503	3.4550%	21338	5247	4.1	1	0	.4484	3.4916E-04
10	20.240	0.0000	0.0000%	32685	6754	4.8	1			1.0000E-09
11	21.075	0.0000	0.0000%	7482	1851	4.0	1			1.0000E-09
	21.844	0.0000	0.0000%	9528	2180	4.4	1			1.0000E-09
	22.946	0.0000	0.0000%	12117	2702	4.5	1			1.0000E-09
14	23.230	0.0000	0.0000%	9841	2125	4.6	1			1.0000E-09
15	25.117	0.0000	0.0000%	13913	697	19.9	1			1.0000E-09
16	26.236 DCB	102.5573	47.5597%	529914	102548	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 215.6391

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E164.ATB
Data File = D:NV14E164.PTS Printed on 11-25-1997 at 02:22:03 481
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mV.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

********** 11-25-1997 02:22:12 Version 5.1.5 **********

* Sample Name: 85734 P/P Data File: D:0V14E164 *
* Date: 11-25-1997 01:49:55 Method: M:BPES-E 11-03-1997 18:46:51 # 389 *
* Interface: 2 Cycle#: 164 Operator JJK Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

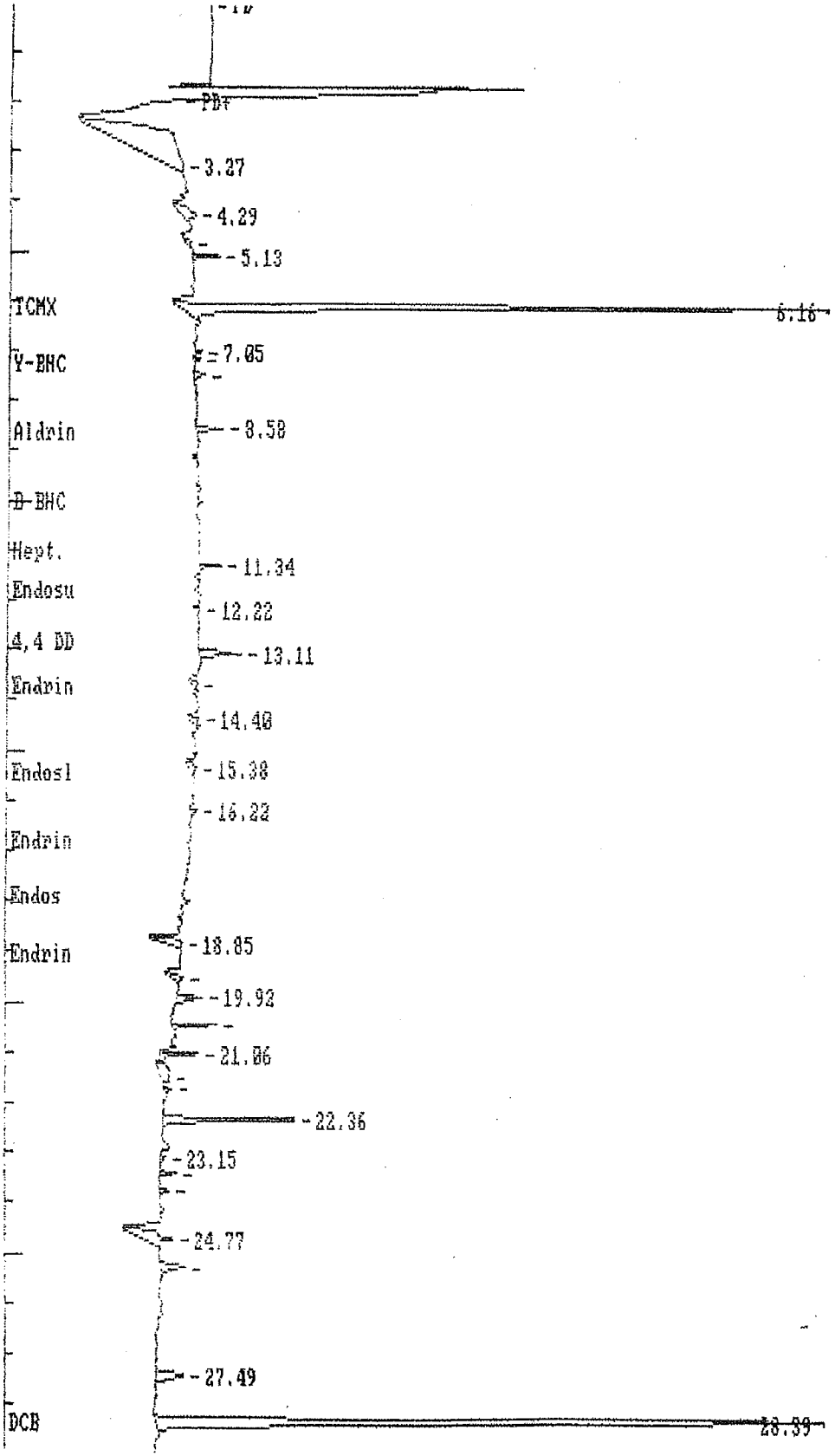
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.273		0.0001	0.0001%	895788	5218	171.7	1			1.0000E-09
2	4.292		0.0001	0.0000%	81041	5273	15.4	1			1.0000E-09
3	4.843		0.0000	0.0000%	8560	1507	5.7	1			1.0000E-09
4	5.127		0.0000	0.0000%	39671	11163	3.6	1			1.0000E-09
	6.162	TCMX	462.3661	50.9647%	1440270	262035	5.5	1	0	.5269	3.2103E-04
	7.047		0.0000	0.0000%	11920	3273	3.6	1			1.0000E-09
7	7.181	Y-BHC	4.3555	0.4801%	11455	2654	4.3	1	0	-.9243	3.8023E-04
8	7.498		0.0000	0.0000%	23266	4943	4.7	1			1.0000E-09
9	8.584	Aldrin	13.3526	1.4718%	40392	11193	3.6	1	0	-.1883	3.3058E-04
10	11.339		0.0000	0.0000%	37311	8830	4.2	1			1.0000E-09
11	12.224	Y-Chlordane	3.7004	0.4079%	13947	2017	6.9	1	0	.3696	2.6532E-04
12	13.109	Dieldrin	30.6035	3.3733%	91688	16745	5.5	1	0	.5093	3.3378E-04
13	13.694	Endrin	5.1036	0.5626%	13872	1899	7.3	1	0	0	3.6792E-04
14	14.395		0.0000	0.0000%	16277	3187	5.1	1			1.0000E-09
15	15.381	EndoslfII	9.4685	1.0437%	28813	2611	11.0	1	0	-.4292	3.2862E-04
16	16.216	4,4 DDT	6.4150	0.7071%	11643	2798	4.2	1	0	.9380	5.5096E-04
17	18.854	Endrin ket	18.6503	2.0558%	53750	4532	11.9	1	0	-.9649	3.4698E-04
18	19.539		0.0000	0.0000%	28075	3472	8.1	1			1.0000E-09
19	19.923	DDT 5.29	0.0001 0.05	0.0000%	58668	10674	5.5	1			1.0000E-09
20	20.491		0.0001	0.0000%	70166	18071	3.9	1			1.0000E-09
21	21.059		0.0001	0.0000%	75490	16117	4.7	1			1.0000E-09
22	21.310		0.0001	0.0000%	85546	3693	23.2	1			1.0000E-09
23	21.760		0.0000	0.0000%	13071	2839	4.6	1			1.0000E-09
24	22.361		0.0002	0.0000%	243964	52017	4.7	1			1.0000E-09
25	23.146		0.0000	0.0000%	11052	2104	5.3	1			1.0000E-09
26	23.447		0.0000	0.0000%	27023	6906	3.9	1			1.0000E-09
27	23.781		0.0000	0.0000%	18408	4085	4.5	1			1.0000E-09
28	24.766		0.0001	0.0000%	139188	9338	14.9	1			1.0000E-09
29	25.317		0.0001	0.0000%	62413	9581	6.5	1			1.0000E-09
	27.486		0.0001	0.0000%	106052	11162	9.5	1			1.0000E-09
	28.390	DCB	353.2137	38.9330%	1896389	307399	6.2	1	0	.1057	1.8625E-04
32	29.826		0.0001	0.0000%	114906	3249	35.4	1		-	1.0000E-09

TOTAL AMOUNT = 907.2282

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:0V14E164.ATB
Data File = D:0V14E164.PTS Printed on 11-25-1997 at 02:22:43
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mV.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MB-7

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85735

Sample wt/vol: 950 (g/mL) mL Lab File ID: D:NV14E165

% Moisture N/A decanted: (Y/N) N Date Received:

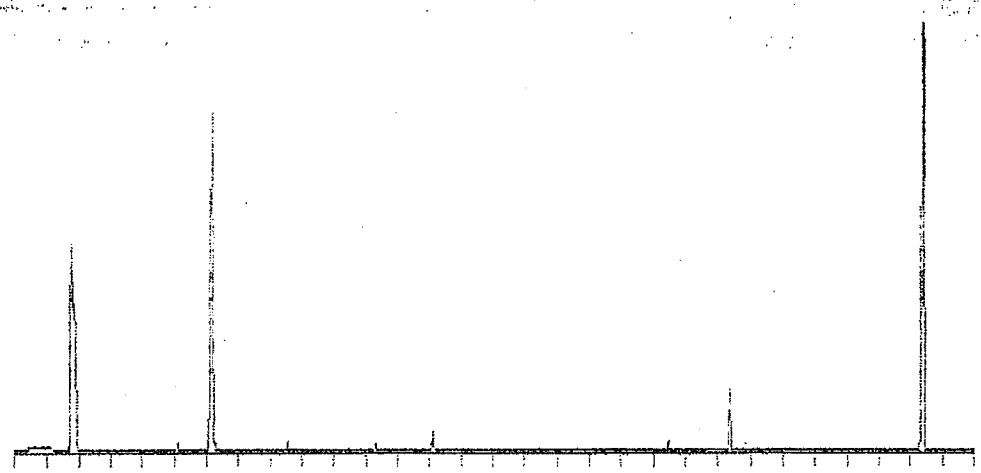
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

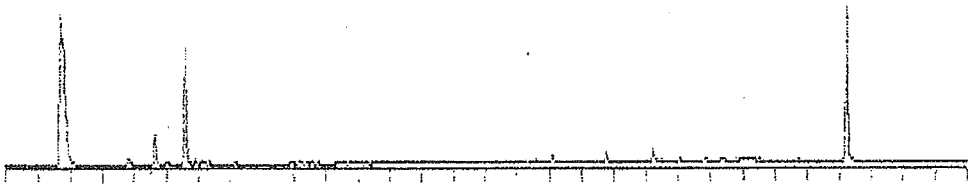
Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85735 P/P Processed: 11-25-1997 02:53:08, segment 7, cycle 165
RAW DATA SAVED IN FILE D:NV14E165.PTS Second Channel Stored in D:OV14E165.PTS

EXTERNAL STANDARD TABLE

********** 11-25-1997 02:54:15 Version 5.1.5 **********

* Sample Name: 85735 P/P Data File: D:NV14E165 *
* Date: 11-25-1997 02:22:31 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 165 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.039		0.0001	0.0000%	52715	880	59.9	1			1.0000E-09
2	3.841		0.0000	0.0000%	23022	3996	5.8	1			1.0000E-09
3	4.643		0.0001	0.0001%	99036	20248	4.9	1			1.0000E-09
[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	.3201	2.2604E-04

7	11.523	0.0000	0.0000%	6600	1426	4.6	1			1.0000E-09
8	16.616	0.0000	0.0000%	6081	1494	4.1	1			1.0000E-09
9	17.101 DAI	5.5723	2.8174%	17620	4119	4.3	1	0	-.3914	3.1626E-04
10	18.771 Endrin ket.	6.9598	3.5189%	19933	4918	4.1	1	0	.4484	3.4916E-04
11	20.240	0.0000	0.0000%	34451	7212	4.8	1			1.0000E-09
12	.075	0.0000	0.0000%	6836	1764	3.9	1			1.0000E-09
13	1.844	0.0000	0.0000%	8945	2057	4.3	1			1.0000E-09
14	22.946	0.0000	0.0000%	8751	1947	4.5	1			1.0000E-09
15	26.236 DCB	103.0818	52.1184%	532624	103005	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 197.7841

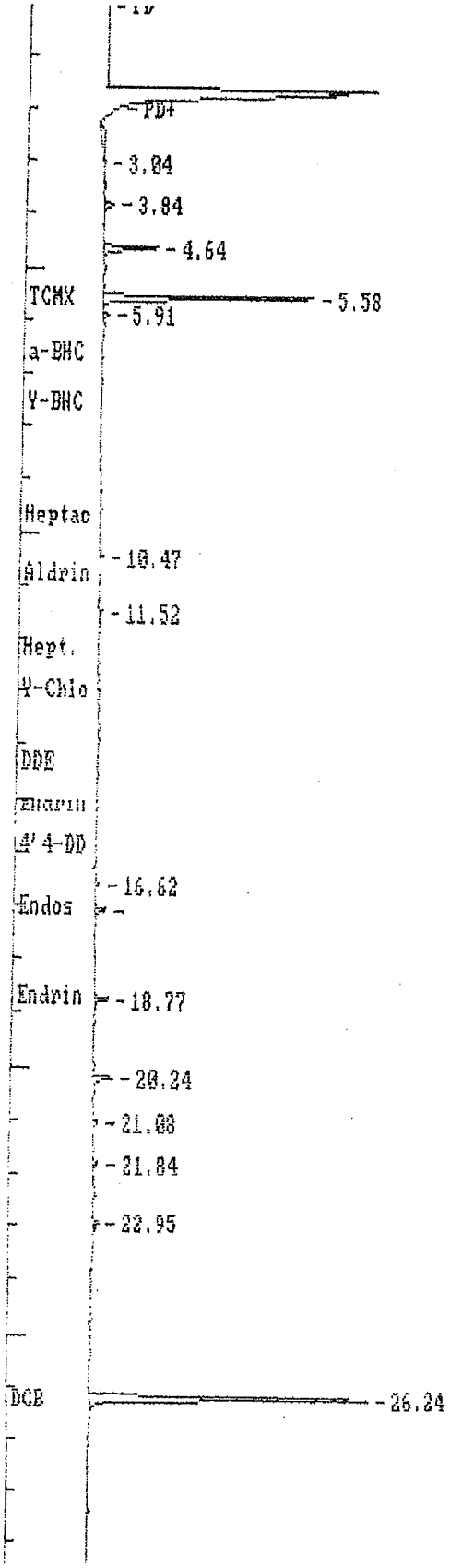
GROUP NUMBER GROUP AMOUNT GROUP PERCENT

7	11.523	0.0000	0.0000%	6600	1426	4.6	1			1.0000E-09
8	16.616	0.0000	0.0000%	6081	1494	4.1	1			1.0000E-09
9	17.101 DDT	5.5723	2.8174%	17620	4119	4.3	1	0	-.3914	3.1626E-04
10	18.771 Endrin ket.	6.9598	3.5189%	19933	4918	4.1	1	0	.4484	3.4916E-04
11	[illegible].240	0.0000	0.0000%	34451	7212	4.8	1			1.0000E-09
12	.075	0.0000	0.0000%	6836	1764	3.9	1			1.0000E-09
13	1.844	0.0000	0.0000%	8945	2057	4.3	1			1.0000E-09
14	22.946	0.0000	0.0000%	8751	1947	4.5	1			1.0000E-09
15	26.236 DCB	103.0818	52.1184%	532624	103005	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 197.7841

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E165.ATB
Data File = D:NV14E165.PTS Printed on 11-25-1997 at 02:54:39
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv
ll Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-8

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85736

Sample wt/vol: 1000 (g/mL) mL Lab File ID: D:NV14E166

% Moisture N/A decanted: (Y/N) N Date Received:

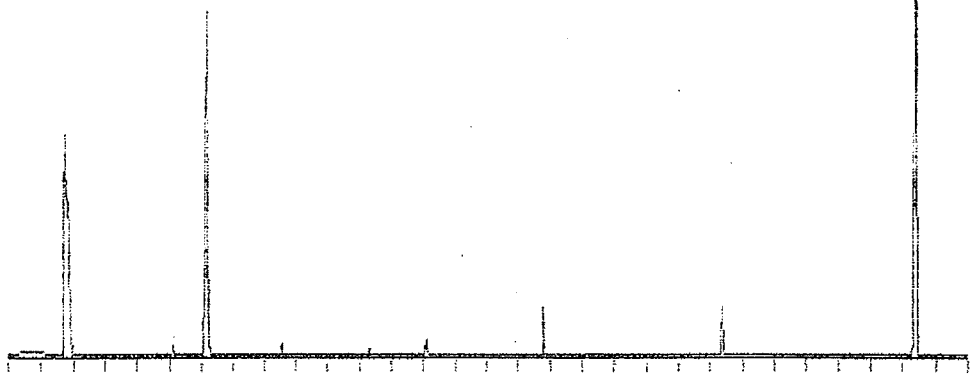
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

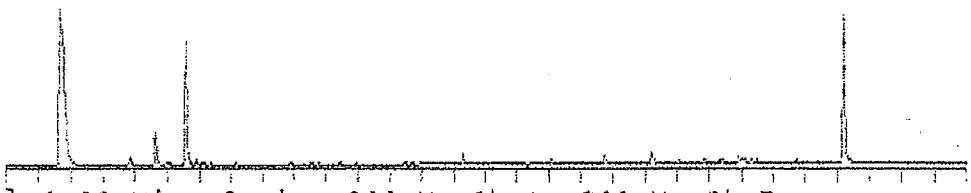
Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.06	
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85736 P/P Processed: 11-25-1997 03:25:47, segment 8, cycle 166
RAW DATA SAVED IN FILE D:NV14E166.PTS Second Channel Stored in D:OV14E166.PTS

EXTERNAL STANDARD TABLE

11-25-1997 03:26:54 Version 5.1.5

Sample Name: 85736 P/P Data File: D:NV14E166

Date: 11-25-1997 02:55:11 Method: M:APES-E 11-21-1997 22:31:52 # 398

Interface: 2 Cycle#: 166 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

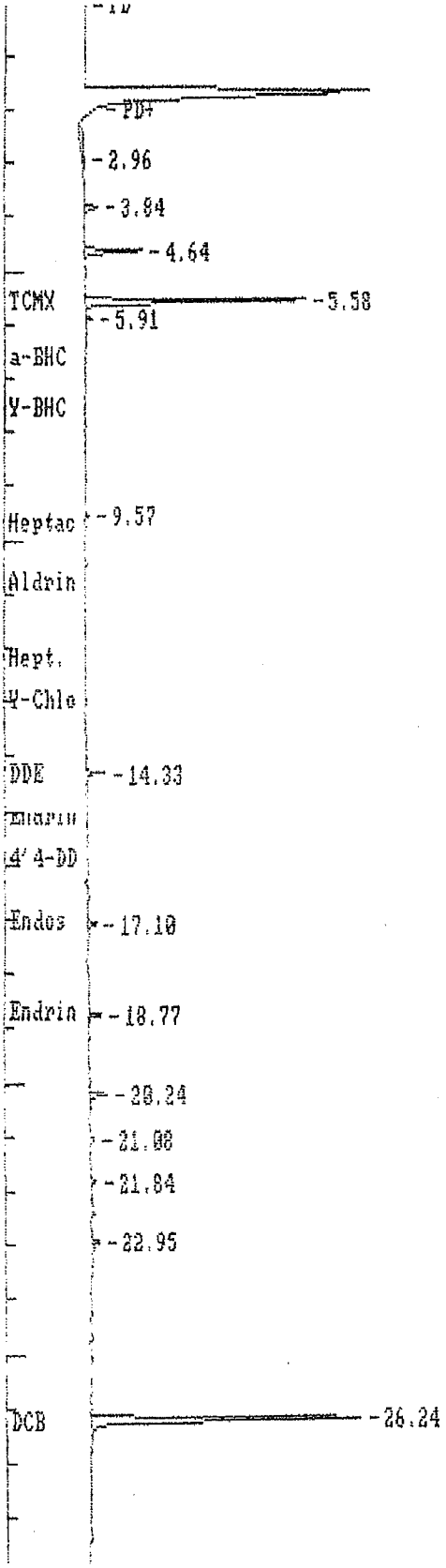
PK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET-TIME	CONC/AREA
1	2.956		0.0001	0.0000%	57205	1124	50.9	1			1.0000E-09
2	3.841		0.0000	0.0000%	29850	5075	5.9	1			1.0000E-09
3	4.643		0.0001	0.0001%	106442	21275	5.0	1			1.0000E-09
[illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	2.2604E-04

7	14.329	Dieldrin	5.8790	2.8784%	24739	6923	3.6 1	0	0	2.3764E-04
8	17.101	DDT	4.8893	2.3938%	15460	3405	4.5 1	0	-.3914	3.1626E-04
9	18.771	Endrin ket.	6.7460	3.3028%	19321	4787	4.0 1	0	.4484	3.4916E-04
10	20.240		0.0000	0.0000%	31864	6655	4.8 1			1.0000E-09
11	21.075		0.0000	0.0000%	7366	1756	4.2 1			1.0000E-09
12	21.844		0.0000	0.0000%	8826	2005	4.4 1			1.0000E-09
	22.946		0.0000	0.0000%	11568	2585	4.5 1			1.0000E-09
4	26.236	DCB	98.6183	48.2833%	509561	98996	5.1 1	0	0	1.9354E-04

TOTAL AMOUNT = 204.2492

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

reas, times, and heights stored in: D:NV14E166.ATB
a File = D:NV14E166.PTS Printed on 11-25-1997 at 03:27:18
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-25-1997 03:27:27 Version 5.1.5

* Sample Name: 85736 P/P
* Data File: D:0V14E166
* Date: 11-25-1997 02:55:11 Method: M:BPES-E 11-03-1997 18:46:51 # 389
* Interface: 2 Cycle#: 166 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.257		0.0010	0.0001%	950213	6784	140.1	1			1.0000E-09
2	4.259		0.0001	0.0000%	73759	4082	18.1	1			1.0000E-09
3	4.843		0.0000	0.0000%	10320	2113	4.9	1			1.0000E-09
4	5.127		0.0001	0.0000%	58742	13355	4.4	1			1.0000E-09
5	6.162	TCMX	442.7380	48.5279%	1379129	243029	5.7	1	0	.5269	3.2103E-04
	7.047		0.0000	0.0000%	36816	4635	7.9	2			1.0000E-09
	7.181	Y-BHC	5.0525	0.5538%	13288	3050	4.4	2	0	-.9243	3.8023E-04
8	7.515		0.0000	0.0000%	39628	6771	5.9	1			1.0000E-09
9	8.584	Aldrin	13.4076	1.4696%	40558	11806	3.4	1	0	-.1883	3.3058E-04
10	9.235		0.0000	0.0000%	26784	2121	12.6	1			1.0000E-09
11	11.339		0.0000	0.0000%	30540	7319	4.2	1			1.0000E-09
12	11.640	Endosulf I	6.2007	0.6796%	19414	1979	9.8	1	0	-1.413	3.1939E-04
13	13.126	Dieldrin	26.9239	2.9518%	80682	13849	5.8	1	0	.6378	3.3378E-04
14	14.398		0.0000	0.0000%	13074	3212	4.1	1			1.0000E-09
15	16.232	4,4 DDT	7.8656	0.8621%	14276	3057	4.7	1	0	1.342	5.5096E-04
16	16.817	~~Endrin ald~~ Dieldrin 7.7	51.4342	5.6376%	135220	38788	3.5	1	0	.1005	3.8037E-04
17	18.854	Endrin ket	18.2123	1.9962%	52488	4441	11.8	1	0	-.9649	3.4698E-04
18	19.539		0.0000	0.0000%	27654	3366	8.2	1			1.0000E-09
19	20.007		0.0000	0.0000%	17913	6255	2.9	1			1.0000E-09
20	20.491		0.0001	0.0000%	61728	15547	4.0	1			1.0000E-09
21	21.059		0.0000	0.0000%	46209	12597	3.7	1			1.0000E-09
22	22.361		0.0002	0.0000%	241355	50941	4.7	1			1.0000E-09
23	23.447		0.0000	0.0000%	25989	6273	4.1	1			1.0000E-09
24	23.731		0.0000	0.0000%	17504	3810	4.6	1			1.0000E-09
25	24.766		0.0001	0.0000%	83855	7272	11.5	1			1.0000E-09
26	27.488		0.0001	0.0000%	97391	10154	9.6	1			1.0000E-09
27	29.390	DCB	340.4949	37.3212%	1828117	294820	6.2	1	0	.1057	1.8625E-04
28	29.642		0.0000	0.0000%	21998	1715	12.8	1			1.0000E-09

TOTAL AMOUNT = 912.3374

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:0V14E166.ATB
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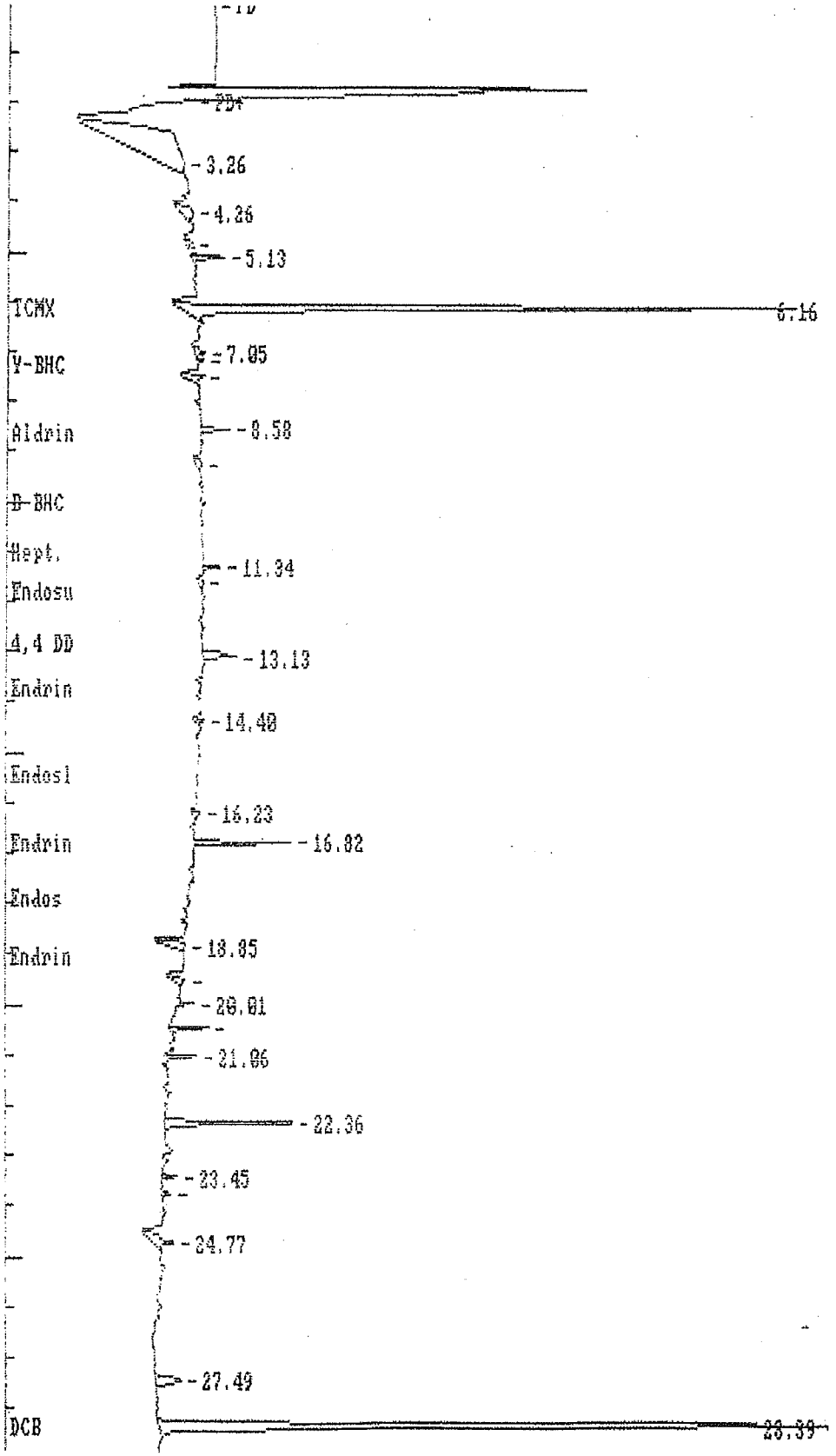
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-9

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85737

Sample wt/vol: 990 (g/mL) mL Lab File ID: D:NV14E167

% Moisture N/A decanted: (Y/N) N Date Received:

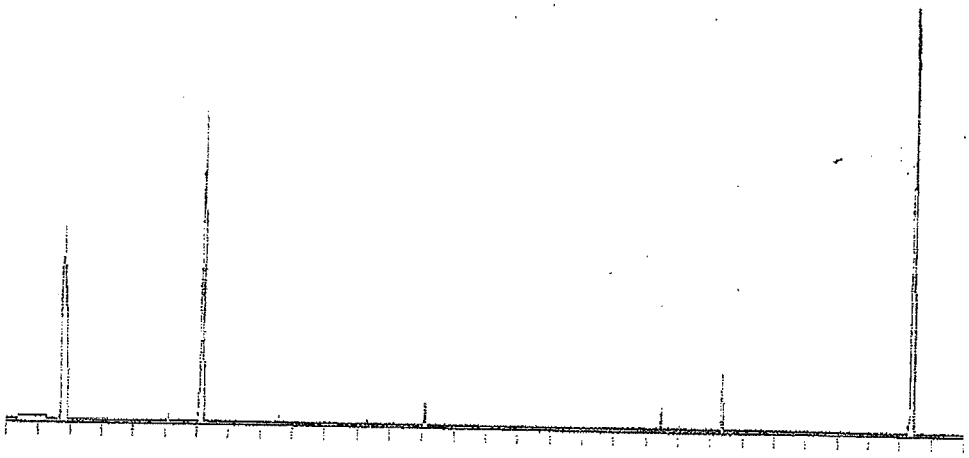
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U



[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85737 P/P Processed: 11-25-1997 03:58:25, segment 9, cycle 167
RAW DATA SAVED IN FILE D:NV14E167.PTS Second Channel Stored in D:OV14E167.PTS

***** EXTERNAL STANDARD TABLE *****

```
******************** 11-25-1997 03:59:33 Version 5.1.5 ********************
* Sample Name: 85737 P/P                                Data File: D:NV14E167   *
* Date: 11-25-1997 03:27:49 Method: M:APES-E  11-21-1997 22:31:52  #  398 *
* Interface: 2   Cycle#:  167  Operator JJK Channel#: 0    Vial#: N.A.    *
* Starting Peak Width:  10   Threshold: 20  Area Threshold: 2000          *
*************************************************************************
* Instrument Type: PE 8500                 Column Type: RTX 5/1701          *
*              Solvent Description:                                       *
* Conditions:                                                             *
*            Detector 0:                        Detector 1: ECD            *
* Misc. Information:                                                      *
*************************************************************************
Starting Delay:    0.00                    Ending retention time:    30.00
Area reject:       2000                    One sample per    1.002 sec.
Amount injected:          1.00             Dilution factor:          1.00
Sample Weight:            1.00000
```

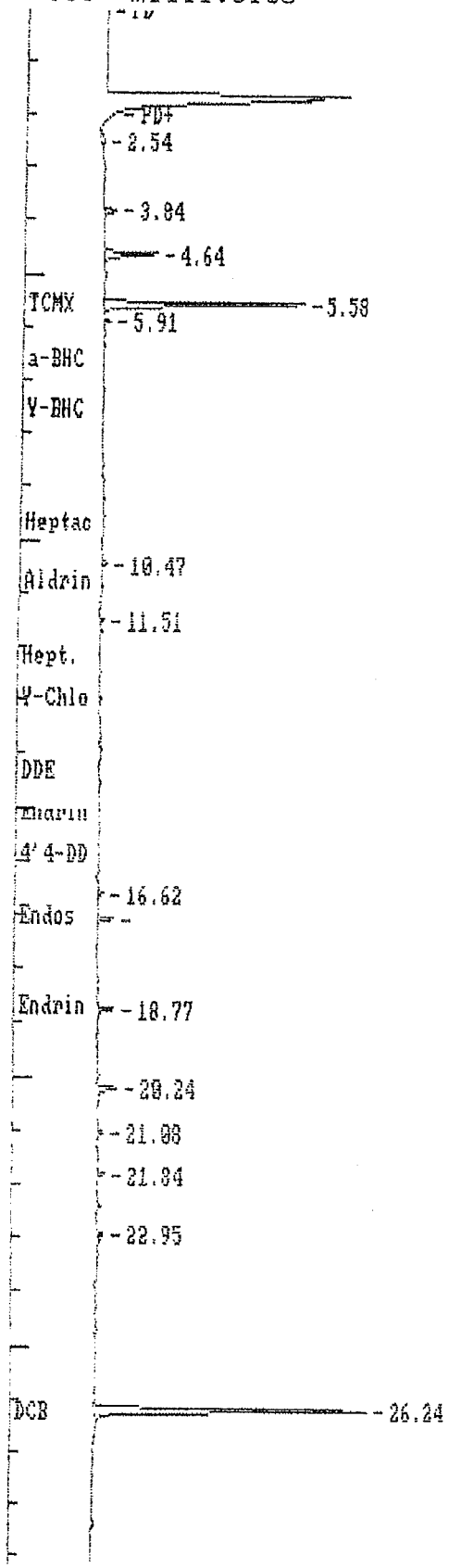
	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.538		0.0000	0.0000%	17971	940	19.1	1			1.0000E-09
2	3.841		0.0000	0.0000%	26600	4571	5.8	1			1.0000E-09
3	4.643		0.0001	0.0000%	95003	19400	4.9	1			1.0000E-09
4	5.578	TCMX	78.3849	39.9501%	346775	74477	4.7	2	0	.3201	2.2604E-04
5	5.912		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]

7	11.506	0.0000	0.0000%	7074	1575	4.5	1			1.0000E-09
8	16.616	0.0000	0.0000%	7962	1952	4.1	1			1.0000E-09
9	17.101 DBI	7.6254	3.8864%	24112	5814	4.1	1	0	-.3914	3.1626E-04
10	18.771 Endrin ket.	8.4386	4.3009%	24168	5945	4.1	1	0	.4484	3.4916E-04
	20.240	0.0000	0.0000%	34822	7222	4.8	1			1.0000E-09
	21.075	0.0000	0.0000%	8073	2104	3.8	1			1.0000E-09
13	21.844	0.0000	0.0000%	11154	2512	4.4	1			1.0000E-09
14	22.946	0.0000	0.0000%	8979	2053	4.4	1			1.0000E-09
15	26.236 DCB	101.7578	51.8625%	525782	101219	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 196.2069

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E167.ATB
ta File = D:NV14E167.PTS Printed on 11-25-1997 at 03:59:56
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
ull Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MB-98

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85738

Sample wt/vol: 990 (g/mL) mL Lab File ID: D:NV14E168

% Moisture N/A decanted: (Y/N) N Date Received:

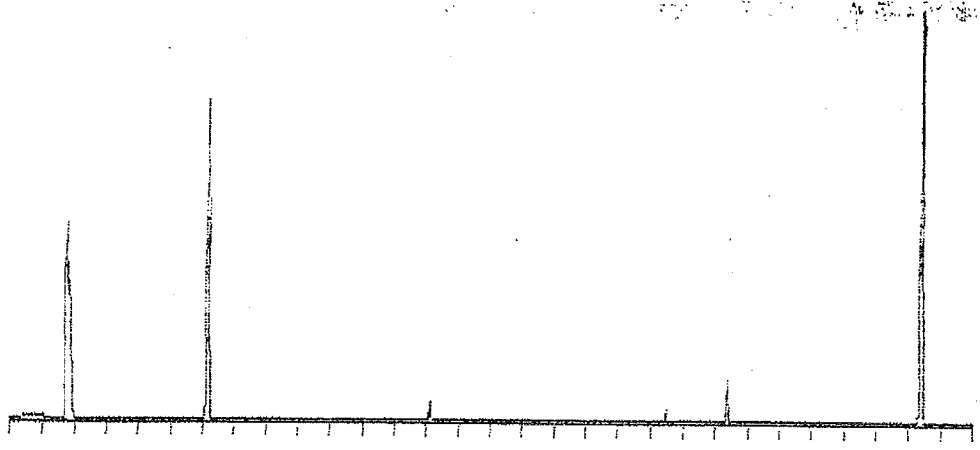
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U



[Interfsce 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85738 P/P Processed: 11-25-1997 04:31:06, segment 10, cycle 168
RAW DATA SAVED IN FILE D:NV14E168.PTS Second Channel Stored in D:OV14E168.PTS

EXTERNAL STANDARD TABLE

********** 11-25-1997 04:32:14 Version 5.1.5 **********
* Sample Name: 85738 P/P Data File: D:NV14E168 *
* Date: 11-25-1997 04:00:30 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 168 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *
****
* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *
****

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

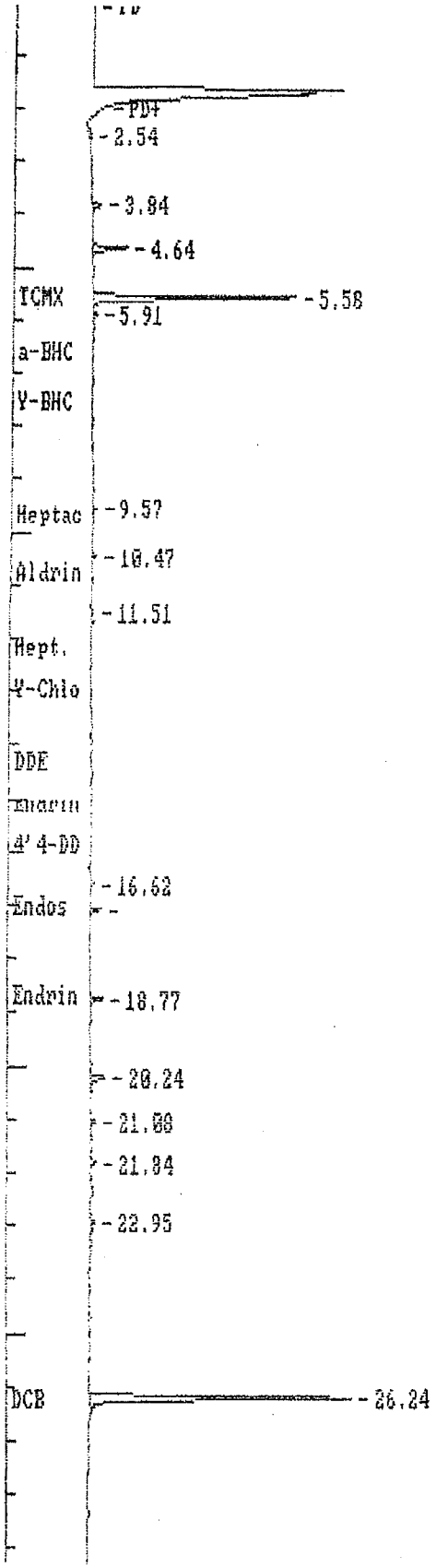
NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.538		0.0000	0.0000%	17440	934	18.7	1			1.0000E-09
2	3.841		0.0000	0.0000%	21682	3693	5.9	1			1.0000E-09
3	4.643		0.0001	0.0000%	64653	13147	4.9	1			1.0000E-09
4	5.578	TCMX	80.6009	42.0030%	356579	76358	4.7	2	0	.3201	2.2604E-04

7	10.471	0.0000	0.0000%	6031	1514	4.0	1			1.0000E-09
8	11.506	0.0000	0.0000%	5850	1306	4.5	1			1.0000E-09
9	16.616	0.0000	0.0000%	5700	1415	4.0	1			1.0000E-09
10	17.101 DOT	5.5302	2.8819%	17486	4192	4.2	1	0	-.3914	3.1626E-04
11	18.771 Endrin ket.	6.6316	3.4559%	18993	4677	4.1	1	0	-.4484	3.4916E-04
	20.240	0.0000	0.0000%	26872	5638	4.8	1			1.0000E-09
	21.075	0.0000	0.0000%	6134	1607	3.8	1			1.0000E-09
14	21.844	0.0000	0.0000%	7963	1820	4.4	1			1.0000E-09
15	22.946	0.0000	0.0000%	6215	1413	4.4	1			1.0000E-09
16	26.236 DCB	97.6239	50.8740%	504423	97917	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 191.8935

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E168.ATB
Data File = D:NV14E168.PTS Printed on 11-25-1997 at 04:32:37
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Field Blank

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85739

Sample wt/vol: 940 (g/mL) mL Lab File ID: D:NV14E169

% Moisture N/A decanted: (Y/N) N Date Received:

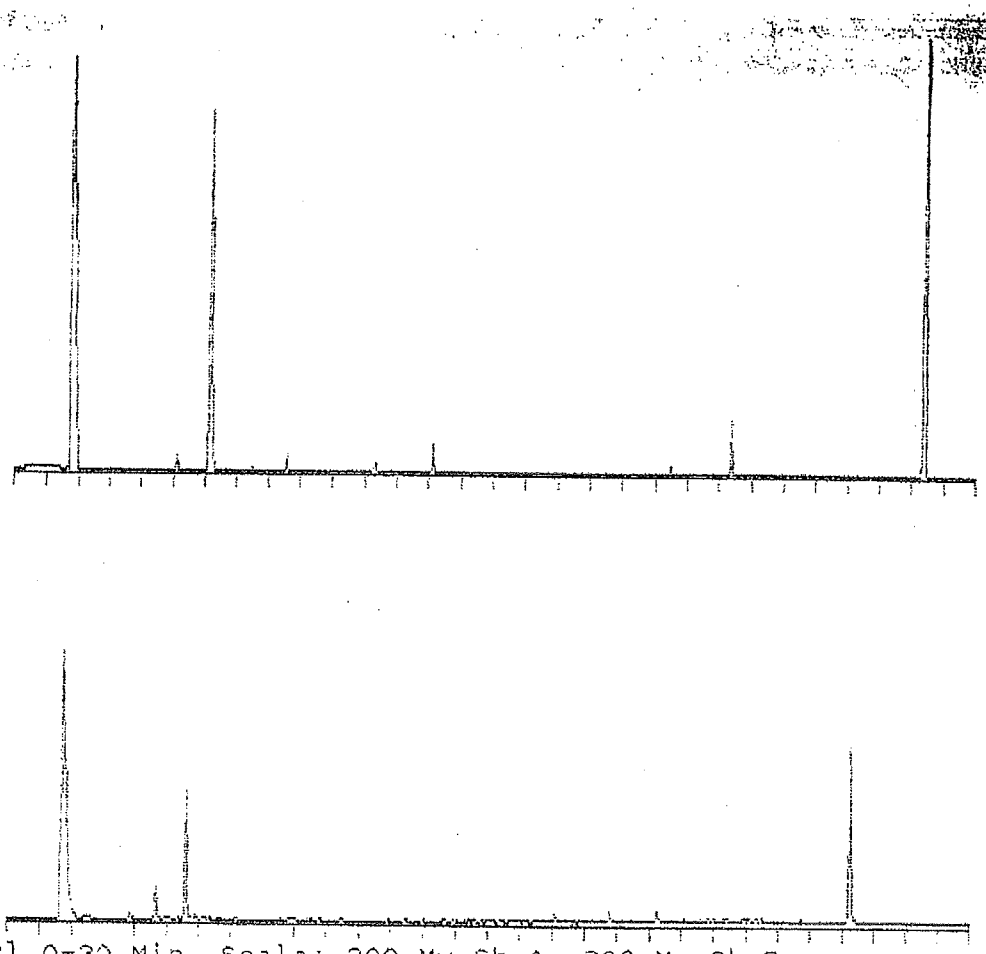
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U



[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85739 P/P Processed: 11-25-1997 05:03:45, segment 11, cycle 169
RAW DATA SAVED IN FILE D:NV14E169.PTS Second Channel Stored in D:CV14E169.PTS

EXTERNAL STANDARD TABLE

********** 11-25-1997 05:04:53 Version 5.1.5 **********

* Sample Name: 85739 P/P Data File: D:NV14E169 *
* Date: 11-25-1997 04:33:07 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 169 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

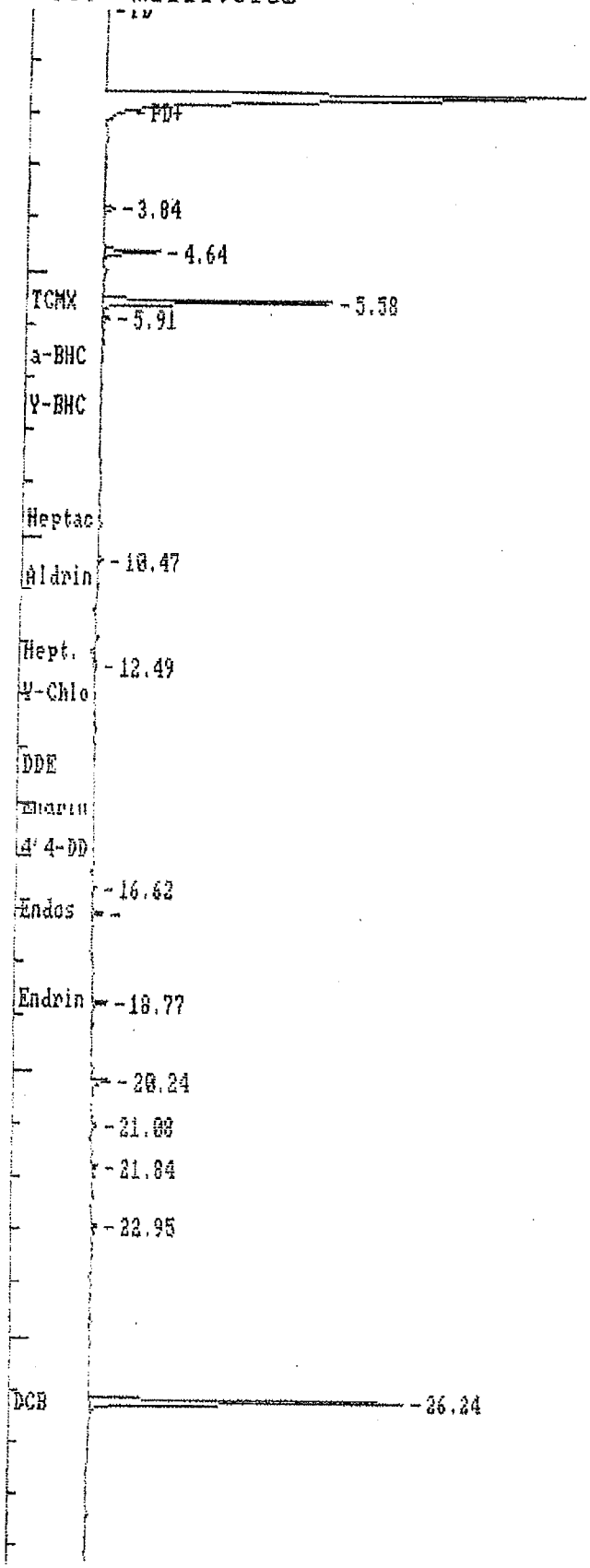
NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.841		0.0000	0.0000%	22346	3983	5.6	1			1.0000E-09
2	4.643		0.0001	0.0000%	102590	21035	4.9	1			1.0000E-09
3	5.578	TCMX	91.2055	41.0619%	403493	85551	4.7	2	0	.3201	2.2604E-04
4	5.912		0.0000	0.0000%	13370	3076	4.3	2			1.0000E-09

7	16.616	0.0000	0.0000%	5257	1428	3.7	1			1.0000E-09
8	17.101 DQI	5.7544	2.5907%	18195	4350	4.2	1	0	-.3914	3.1626E-04
9	18.771 Endrin ket.	7.7226	3.4768%	22118	5547	4.0	1	0	.4484	3.4916E-04
10	20.240	0.0000	0.0000%	34558	7103	4.9	1			1.0000E-09
11	21.075	0.0000	0.0000%	7823	1952	4.0	1			1.0000E-09
	21.844	0.0000	0.0000%	9989	2285	4.4	1			-1.0000E-09
13	22.946	0.0000	0.0000%	9153	2082	4.4	1			1.0000E-09
14	26.236 DCB	117.4344	52.8705%	606784	117062	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 222.1172

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E169.ATB
Data File = D:NV14E169.PTS Printed on 11-25-1997 at 05:05:16
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mV.
Full Range: 300 millivolts



1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-16

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: 97-85741

Sample wt/vol: 950 (g/mL) mL Lab File ID: D:NV14E170

% Moisture N/A decanted: (Y/N) N Date Received:

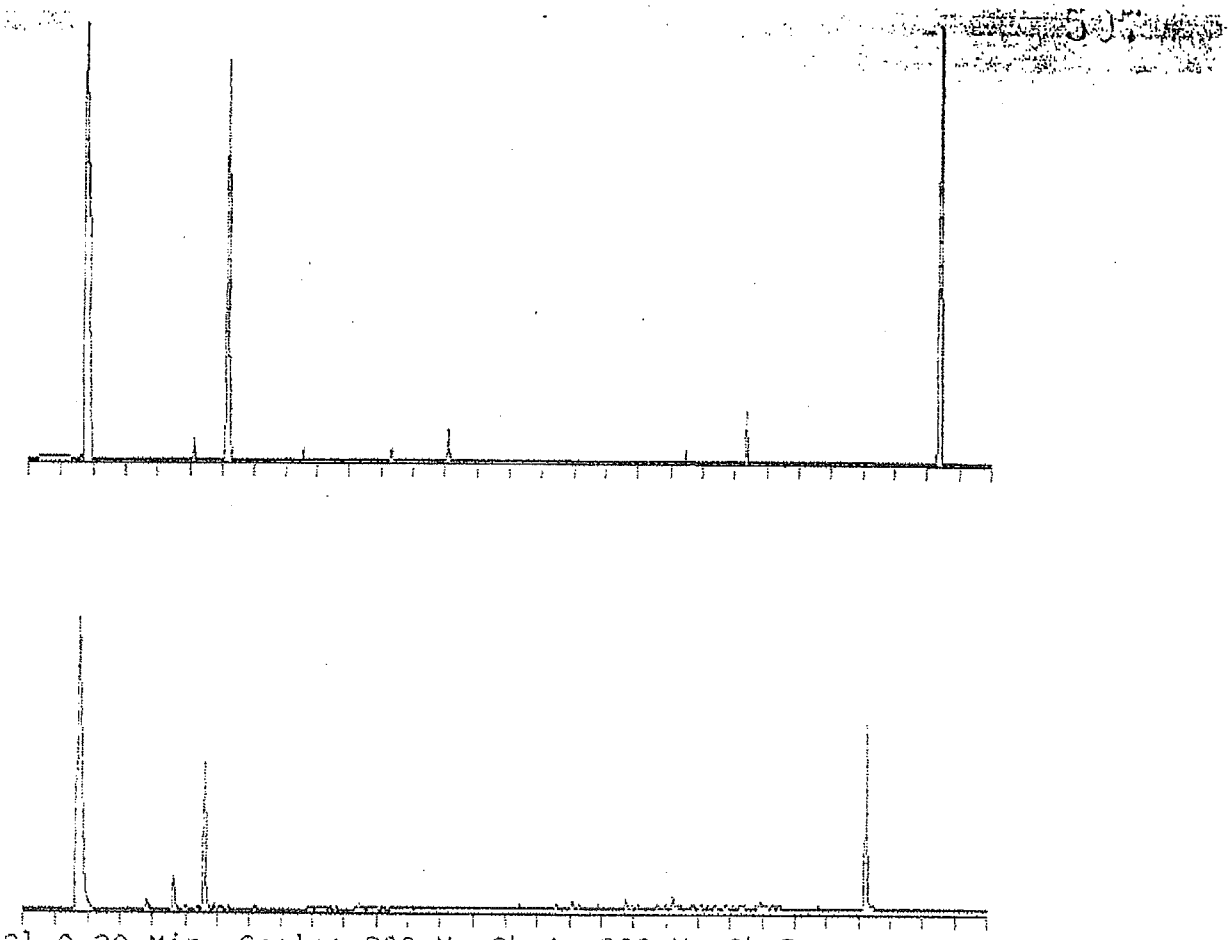
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U



[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85741 P/P Processed: 11-25-1997 05:36:24, segment 12, cycle 170
RAW DATA SAVED IN FILE D:NV14E170.PTS Second Channel Stored in D:OV14E170.PTS

EXTERNAL STANDARD TABLE

********** 11-25-1997 05:37:31 Version 5.1.5 **********

* Sample Name: 85741 P/P Data File: D:NV14E170 *
* Date: 11-25-1997 05:05:45 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 170 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

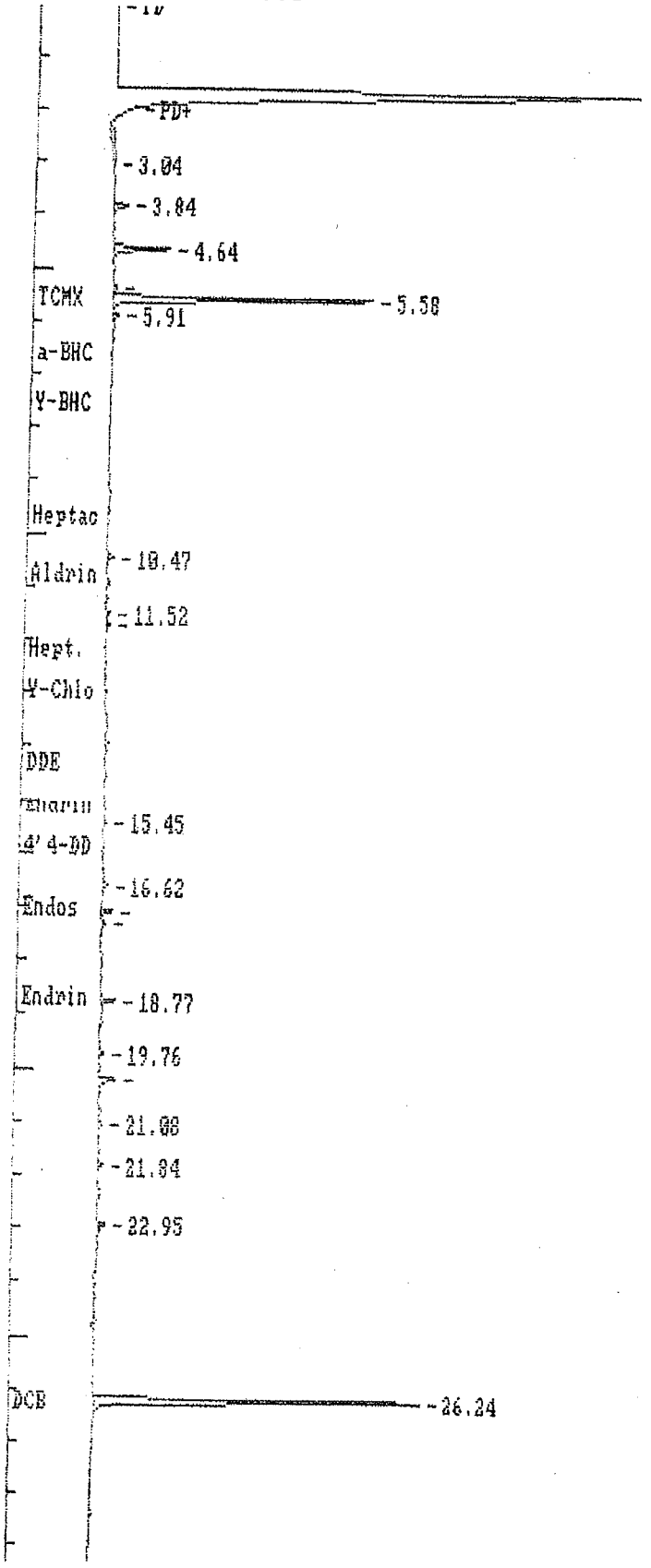
NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.039		0.0001	0.0000%	58260	878	66.4	1			1.0000E-09
2	3.841		0.0000	0.0000%	33052	5694	5.8	1			1.0000E-09
3	4.643		0.0001	0.0000%	106521	21454	5.0	1			1.0000E-09
4	5.394		0.0000	0.0000%	10553	1974	5.3	2			1.0000E-09

7	10.471	0.0000	0.0000%	10049	2480	4.1	1			1.0000E-09
8	11.523	0.0000	0.0000%	8828	1898	4.7	1			1.0000E-09
9	11.757	0.0000	0.0000%	6415	1461	4.4	1			1.0000E-09
10	15.447 Endoslf II	1.7292	0.7106%	5397	1346	4.0	1	0	0	3.2041E-04
11	16.616	0.0000	0.0000%	9823	2188	4.5	1			1.0000E-09
	17.101 DBI	6.3168	2.5961%	19974	4615	4.3	1	0	-.3914	3.1626E-04
	17.318	0.0000	0.0000%	8475	1726	4.9	1			1.0000E-09
14	18.771 Endrin ket.	7.5335	3.0961%	21576	5401	4.0	1	0	.4484	3.4916E-04
15	19.756	0.0000	0.0000%	7031	1989	3.5	1			1.0000E-09
16	20.240	0.0000	0.0000%	31533	6571	4.8	1			1.0000E-09
17	21.075	0.0000	0.0000%	8194	1765	4.6	1			1.0000E-09
18	21.844	0.0000	0.0000%	8681	2005	4.3	1			1.0000E-09
19	22.946	0.0000	0.0000%	13092	2903	4.5	1			1.0000E-09
20	26.236 DCB	122.8645	50.4940%	634841	121559	5.2	1	0	0	1.9354E-04

TOTAL AMOUNT = 243.3251

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E170.ATB
Data File = D:NV14E170.PTS Printed on 11-25-1997 at 05:37:55
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



2E

WATER PESTICIDE SURROGATE RECOVERY

515

Lab Name: EMSL ANALYTICAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

LAB SAMPLE ID.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
MB 452-3	36		117				0
97-85731	85		125				0
97-85732	72		114				0
97-85733	75		102				0
97-85734	78	92	105	110			0
97-85735	66		106				0
97-85736	70	89	101	106			0
97-85737	64		104				0
97-85738	65		100				0
97-85739	74		120				0
97-85741	85		126				0
97-85734MS	*		*				2
97-85734MSD	*		*				2

gatev. 4/1/97

	ADVISORY QC LIMITS
TXC = Tetrachloro-m-xylene	(30-150)
DCB = Decachlorobiphenyl	(30-150)

\# Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

4C

PESTICIDE METHOD BLANK SUMMARY

SAMPLE NO. 511

Lab Nam EMSL ANALYTICAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID: MB 452-3 Lab File ID: D:NV14E172

Matrix: (soil/wate water Extraction: (SepF/Cont/ Cont

Sulfur Cleanup: (Y Y Date Extracte 11/24/97

Date Analyzed (1): 11/25/97 Date Analyzed _____

Time Analyzed (1): 6:11 Time Analyzed _____

Instrument ID (1): _____ Instrument ID _____

GC Column DB-5 D 0.32 (mm) GC Column DB-1701 D .32 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AN

	SAMPLE NO	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
#		97-85731	11/25/97	
#		97-85732	11/25/97	
#		97-85733	11/25/97	
#		97-85734	11/25/97	
#		97-85735	11/25/97	
#		97-85736	11/25/97	
#		97-85737	11/25/97	
#		97-85738	11/25/97	
#		97-85739	11/25/97	
#		97-85741	11/25/97	
#		85734MS	11/25/97	
#		85734MSD	11/25/97	
#				
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COMMENTS: _____

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

512

Lab Name: EMSL Contract:

Lab Code: Case No.: SAS No.: SDG No.:

Matrix: (soil/water) water Lab Sample ID: MB 11/24

Sample wt/vol: 1000 (g/mL) mL Lab File ID: D:NV14E172

% Moisture N/A decanted: (Y/N) N Date Received:

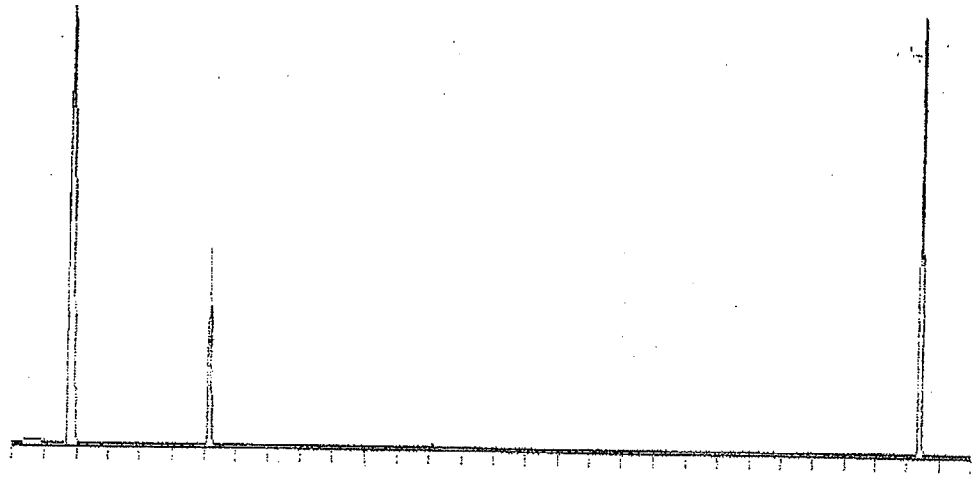
Extraction: (SepF/Cont/Sonc) SepF Date Extracted: 11/24/97

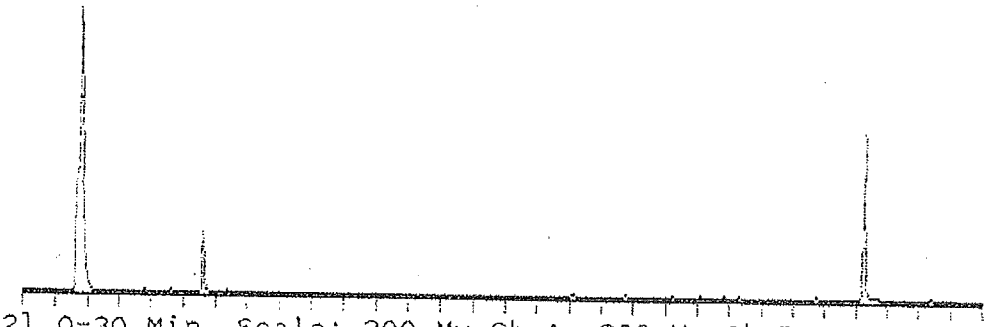
Concentrated Extract Volume: 10 (ml) Date Analyzed: 11/25/97

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L	Q
319-84-6	alpha-BHC	0.02	U
319-85-7	beta-BHC	0.04	U
319-86-8	delta-BHC	0.02	U
58-89-9	gamma-BHC (Lindane)	0.03	U
76-44-8	Heptachlor	0.02	U
309-00-2	Aldrin	0.04	U
1024-57-3	Heptachlor epoxide	0.05	U
959-98-8	Endosulfan I	0.02	U
60-57-1	Dieldrin	0.03	U
72-55-9	4,4'-DDE	0.04	U
72-20-8	Endrin	0.04	U
33213-65-9	Endosulfan II	0.04	U
72-54-8	4,4'-DDD	0.04	U
1031-07-8	Endosulfan sulfate	0.08	U
50-29-3	4,4'-DDT	0.04	U
72-43-5	Methoxychlor	0.2	U
53494-70-5	Endrin ketone	0.1	U
7421-36-3	Endrin aldehyde	0.1	U
57-74-9	Chlordane	0.2	U
8001-35-2	Toxaphene	1	U
12674-11-2	Aroclor-1016	0.5	U
11104-28-2	Aroclor-1221	0.5	U
11141-16-5	Aroclor-1232	0.5	U
53469-21-9	Aroclor-1242	0.5	U
12672-29-6	Aroclor-1248	0.5	U
11097-69-1	Aroclor-1254	0.5	U
11096-82-5	Aroclor-1260	0.5	U





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.8
MB 11/24 P Processed: 11-25-1997 06:41:40, segment 14, cycle 172
End of sequence file reached at cycle 172
RAW DATA SAVED IN FILE D:NV14E172.PTS Second Channel Stored in D:OV14E172.PTS

EXTERNAL STANDARD TABLE

11-25-1997 06:42:47 Version 5.1.5

Sample Name: MB 11/24 P/P AQ
Data File: D:NV14E172
Date: 11-25-1997 06:11:03 Method: M:APES-E 11-21-1997 22:31:52 # 398
Interface: 2 Cycle#: 172 Operator JJK Channel#: 0 Vial#: N.A.
Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0: Detector 1: ECD
Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

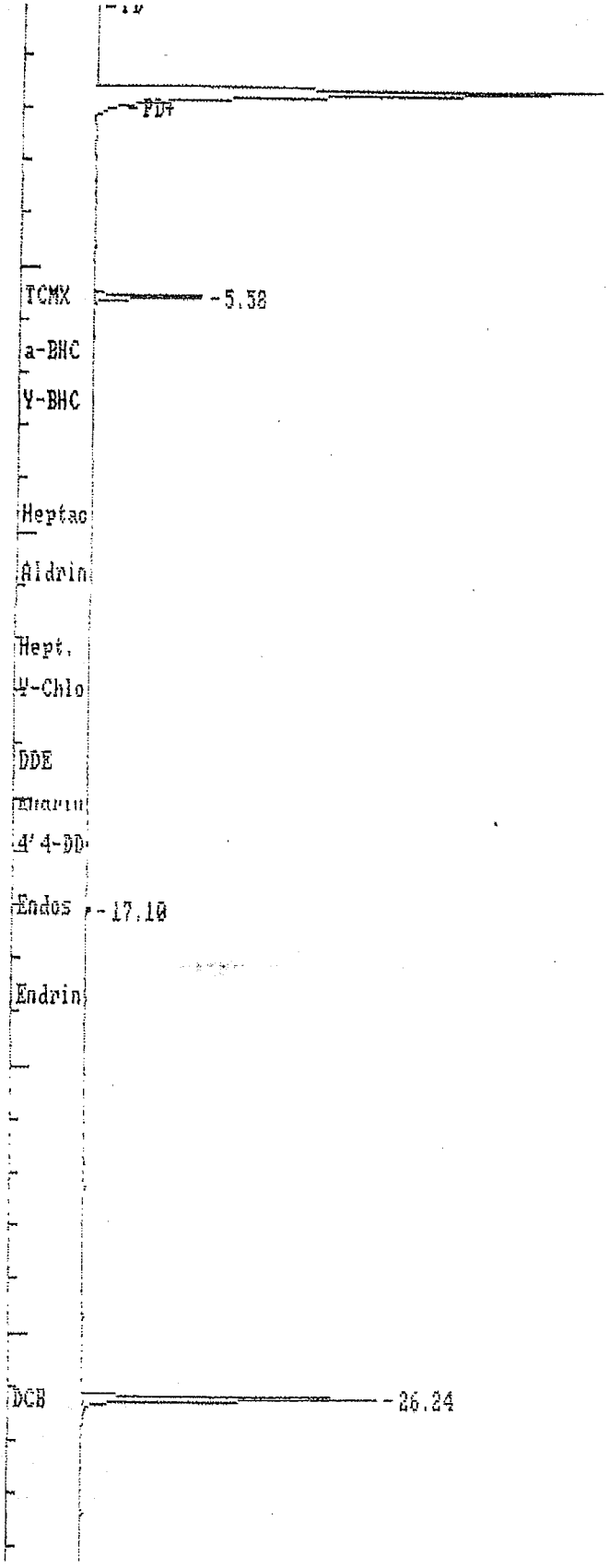
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.578	TCMX	44.1022	27.4738%	195108	40353	4.8	1	0	.3201	2.2604E-04
2	17.101	DDT	1.9463	1.2125%	6154	1378	4.5	1	0	-.3914	3.1626E-04
3	26.236	DC8	114.4760	71.3137%	591498	110391	5.4	1	0	0	1.9354E-04

GROUP NUMBER GROUP AMOUNT

Areas, times, and heights stored in: D:NV14E172.ATB
Data File = D:NV14E172.PTS Printed on 11-25-1997 at 06:43:10
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts

514



3E

ATER PESTICIDE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Na EMSL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix Spike - EPA Samp 97-85734

COMPOUND	SPIKE ADDED UG/L	SAMPLE CONCENTRATION UG/L	MS CONCENTRATIO UG/L	MS % REC	QC. LIMITS REC.
gamma-BHC(Lind	0.400	U	0.316	79	56-123
Heptachlor	0.400	U	0.415	104	40-131
Aldrin	0.400	U	0.380	95	40-120
Dieldrin	0.400	U	0.386	96	52-126
Endrin	0.400	U	0.398	100	56-121
4,4'-DDT	0.400	0.053	0.405	88	38-127

COMPOUND	SPIKE ADDED UG/L	MSD NCENTRATI UG/L	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC.
gamma-BHC(Lind	0.400	0.335	84	5.8	15	56-123
Heptachlor	0.400	0.425	106	2.4	20	40-131
Aldrin	0.400	0.385	96	1	22	40-120
Dieldrin	0.400	0.419	105	8.2	18	52-126
Endrin	0.400	0.393	98	1	21	56-121
4,4'-DDT	0.400	0.394	85	2.8	27	38-127

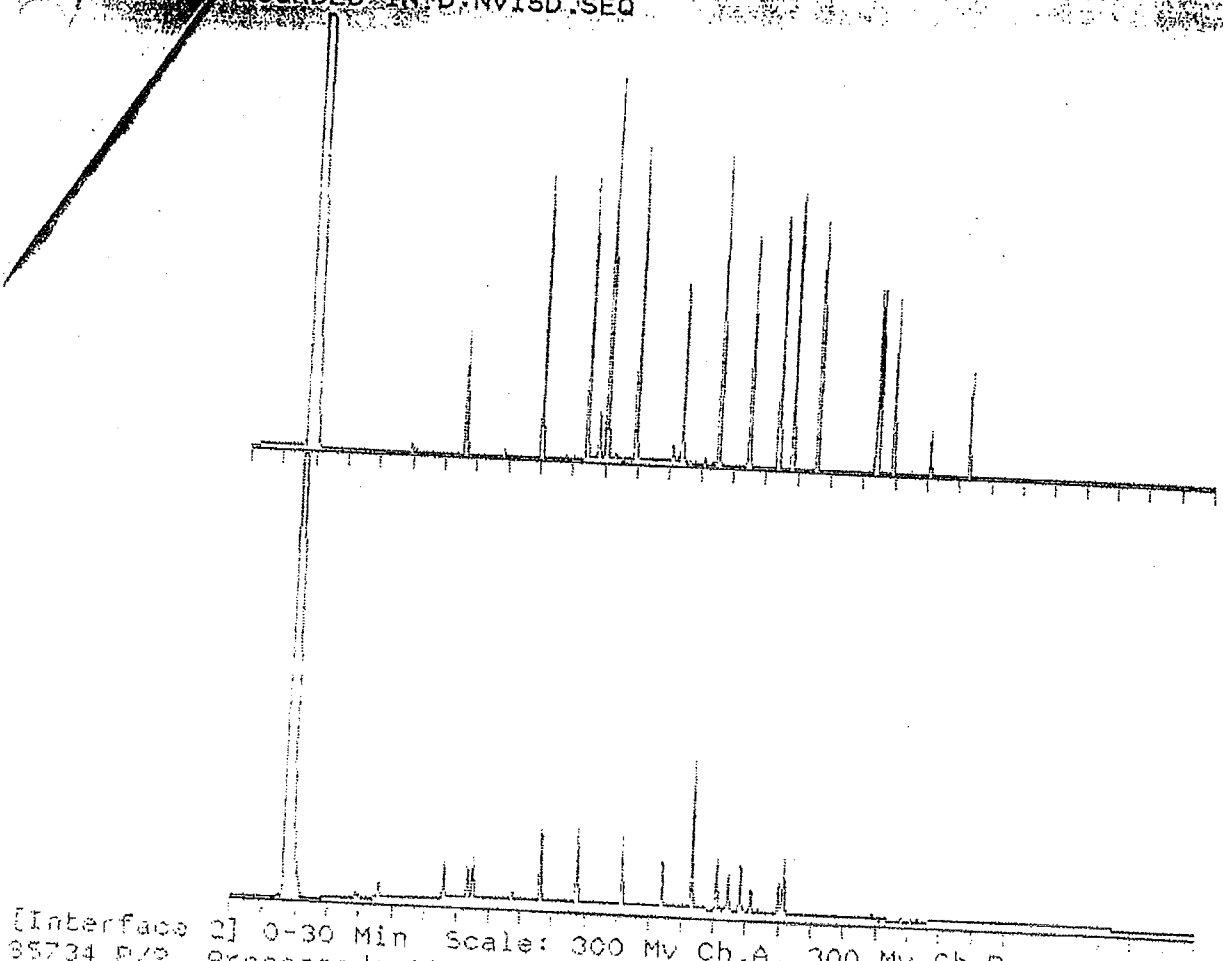
\# Column to be used to flag recovery and RPD values with an aster

* Values outside of QC limits

RPD: 0 out of 6 outside limits
Spike Recovery 0 out of 12 outside limits

COMMENTS: _____

RECORDED IN D:NV15D.SEQ



[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85734 P/P Processed: 11-25-1997 16:44:51, segment 3, cycle 176
RAW DATA SAVED IN FILE D:NV14E176.PT3 Second Channel Stored in D:OV14E176.PT3

EXTERNAL STANDARD TABLE

11-25-1997 16:45:57 Version 5.1.5

Sample Name: 85734 P/P MS
Date: 11-25-1997 16:14:13 Method: M:APES-E 11-25-1997 14:16:36 # 399
Data File: D:NV14E176
Interface: 2 Cycle#: 176 Operator JJK Channel#: 0 Vial#: N.A.
Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0:
Misc. Information: Detector 1: ECD

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

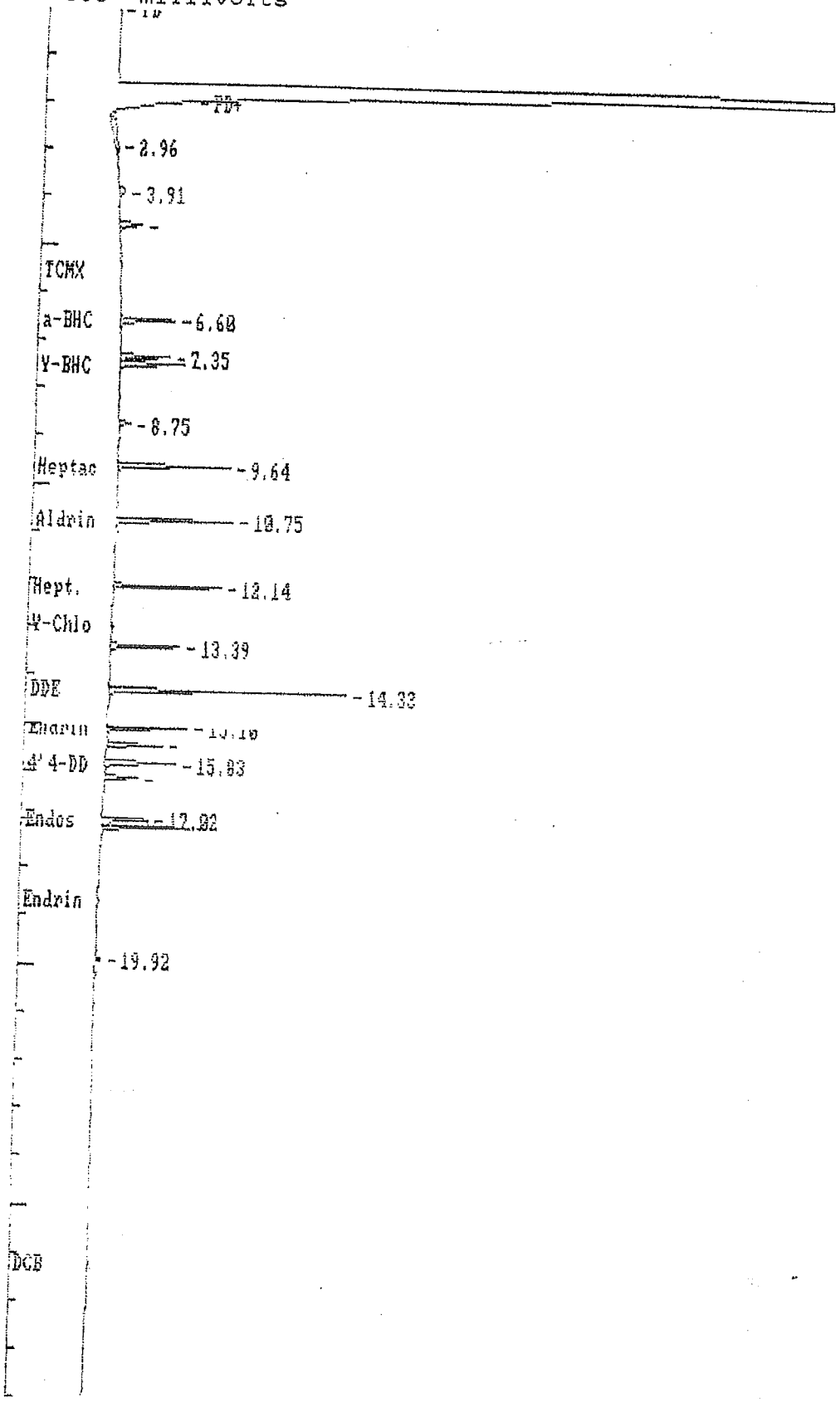
#	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.956		0.0001	0.0000%	66562	1136	58.6	1			
2	3.908		0.0000	0.0000%	26287	2625	10.0	1			1.0000E-09
3	4.576										1.0000E-09

6	7.498 Y-BHC	31.6083	6.1560%	102190	26649	3.8	2	0	.2318	3.8760E-04
7	8.751	0.0000	0.0000%	19668	4813	4.1	1		0	3.0931E-04
8	9.636 Heptachlor	41.4735	8.0774%	160337	46269	3.5	1	0	0	1.0000E-09
9	10.755 Aldrin	37.9561	7.3923%	170651	48172	3.5	1	0	0	2.5867E-04
10	12.141 Hept. epox.	36.7056	7.1488%	149538	44267	3.4	1	0	0	2.2242E-04
	13.393 Endosulfan I	26.7240	5.2048%	97703	28397	3.4	1	0	0	2.4546E-04
	14.329 Dieldrin	84.0566	16.3708%	353710	97549	3.6	1	0	0	2.7352E-04
13	15.097 Endrin	39.8269	7.7567%	116653	33090	3.5	1	0	0	2.3764E-04
14	15.464 Endoslf II	25.9605	5.0561%	81023	22775	3.6	1	0	0	3.4141E-04
15	15.832 4'4-DDD	37.6013	7.3232%	111375	29098	3.8	2	0	.1113	3.2041E-04
16	16.149 Endrin ald	17.3172	3.4116%	52552	13699	3.8	2	0	0	3.3761E-04
17	17.017 Endos sulf	26.8789	5.2349%	73226	18944	3.9	2	0	0	3.3333E-04
18	17.168 DDT	41.7616	8.1335%	132050	35697	3.7	2	0	0	3.6657E-04
19	19.923	0.0000	0.0000%	10952	2214	4.9	1		0	3.1626E-04
										1.0000E-09

TOTAL AMOUNT = 513.4535

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E176.ATB
Data File = D:NV14E176.PTS Printed on 11-25-1997 at 16:46:22
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-25-1997 22:03:00 Version 5.1.5

* Sample Name: 85734 P/P MS
* Date: 11-25-1997 16:14:13 Method: M:BPES-E 11-25-1997 20:41:01 # 393
* Interface: 2 Cycle#: 176 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Data File: D:OV14E176

* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0:
* Misc. Information: Detector 1: ECD

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

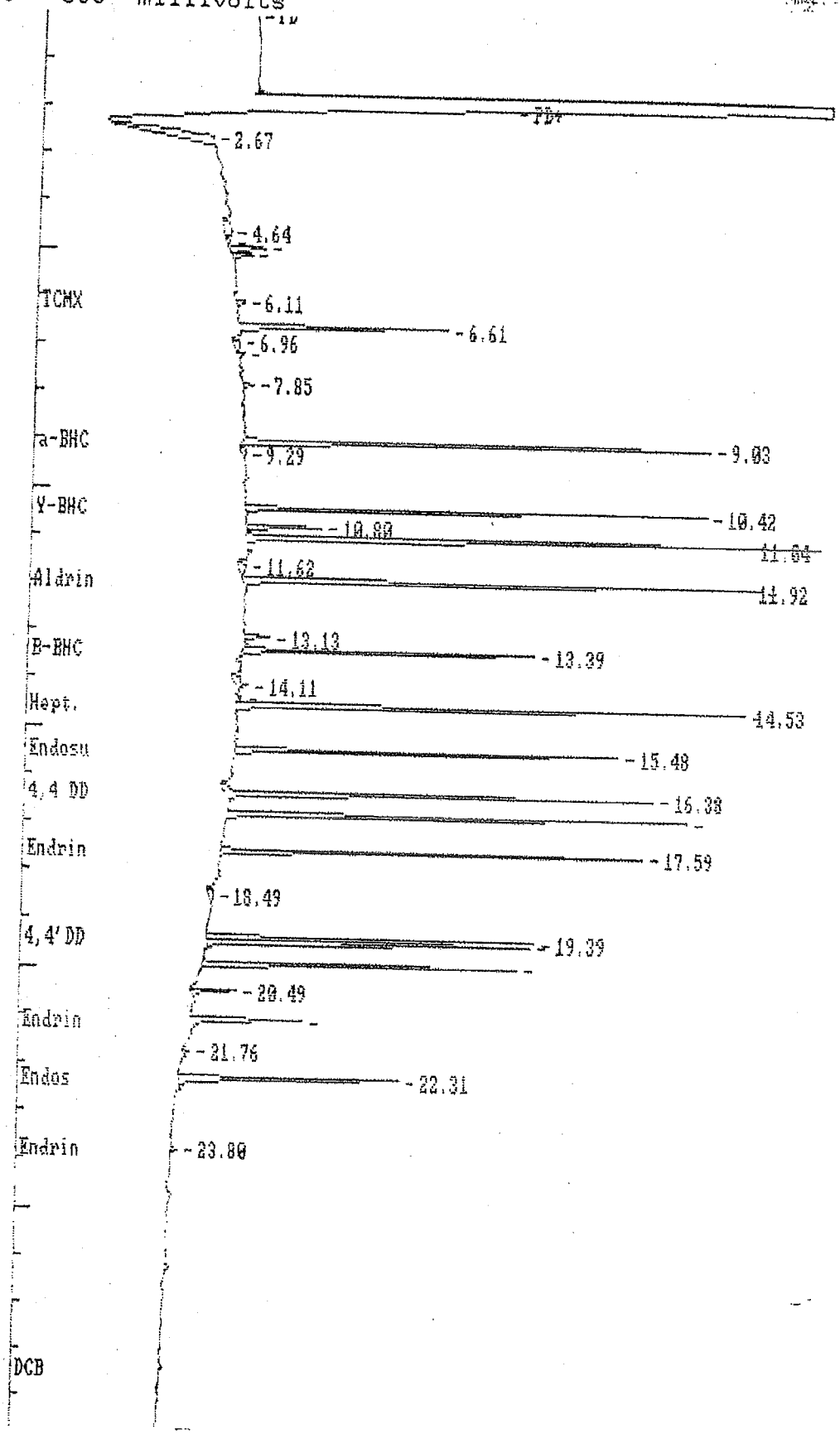
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.672		0.0002	0.0000%	210762	9420	22.4	1			1.0000E-09
2	4.543		0.0001	0.0000%	59236	3439	17.2	1			1.0000E-09
3	4.843		0.0000	0.0000%	10165	2222	4.6	2			1.0000E-09
4	4.977		0.0001	0.0000%	85616	15655	5.5	2			1.0000E-09
	5.127		0.0000	0.0000%	41538	8906	4.7	2			1.0000E-09
	6.112 TCMX		1.1438	0.2192%	18052	3713	4.9	1	0	-.2903	6.3638E-05
7	6.613		0.0004	0.0001%	350799	86940	4.0	1			1.0000E-09
8	6.964		0.0000	0.0000%	30480	2883	10.6	2			1.0000E-09
9	7.136		0.0000	0.0000%	13551	2732	5.0	2			1.0000E-09
10	7.849		0.0000	0.0000%	21049	4876	4.3	1			1.0000E-09
11	9.035 a-BHC		31.3544	6.9819%	686222	193671	3.5	1	0	0	4.5691E-05
12	9.285		0.0000	0.0000%	20143	1696	11.9	1			1.0000E-09
13	10.421 Y-BHC		31.9829	6.1019%	666333	190387	3.5	1	0	0	4.7998E-05
14	10.305		0.0001	0.0000%	124410	31914	3.9	2			1.0000E-09
15	11.039 Heptachlor		40.6265	7.7509%	985435	259509	3.8	2	0	.1515	4.1227E-05
16	11.623		0.0000	0.0000%	37894	3329	11.4	2			1.0000E-09
17	11.924 Aldrin		35.9217	6.8533%	794875	214148	3.7	2	0	0	4.5192E-05
18	13.126		0.0000	0.0000%	40367	10790	3.7	1			1.0000E-09
19	13.393 B-BHC		36.5976	6.9823%	417981	121330	3.4	1	0	0	8.7558E-05
20	14.111 D-BHC		2.6856	0.5124%	42586	5003	8.5	1	0	0	6.3064E-05
21	14.399		0.0000	0.0000%	11625	2489	4.7	2			1.0000E-09
22	14.529 Hept. epox.		36.6302	6.9891%	775524	210731	3.7	2	0	0	4.7237E-05
23	15.481 Endosulf I		27.2404	5.1971%	546143	158501	3.4	1	0	0	4.9878E-05
24	16.383 4,4 DDE		37.4072	7.1367%	666334	176594	3.8	1	0	0	5.6139E-05
25	16.834 Dieldrin		38.5860 96%	7.3616%	680464	190212	3.6	1	0	0	5.6705E-05
26	17.586 Endrin		41.6947	7.9547%	604239	174566	3.5	1	0	0	6.9004E-05
27	18.487		0.0000	0.0000%	27774	2172	12.8	1			1.0000E-09
28	19.389 4,4'DDD		38.2573	7.2989%	453043	136056	3.3	2	0	0	8.4445E-05
29	19.472 EndosulfII		30.1762	5.7572%	483814	134269	3.6	2	0	0	6.2371E-05
	19.923 4,4 DDT		40.4548 ~5.3%	7.7182%	443077	131073	3.4	1	0	0	9.0293E-05
	20.491		0.0001 35.2	0.0000%	79230	19031	4.2	1			1.0000E-09
	21.092 Endrin ald		18.6905 96%	3.5659%	187709	46588	4.0	1	0	0	9.9572E-05
	21.760		0.0000	0.0000%	8036	2457	3.3	1			1.0000E-09
34	22.311 Endos sulf		33.8316	6.4546%	380504	91862	4.1	1	0	0	8.8913E-05
35	23.797 Endrin ket		0.8594	0.1640%	10304	2680	3.8	1	0	0	8.3410E-05

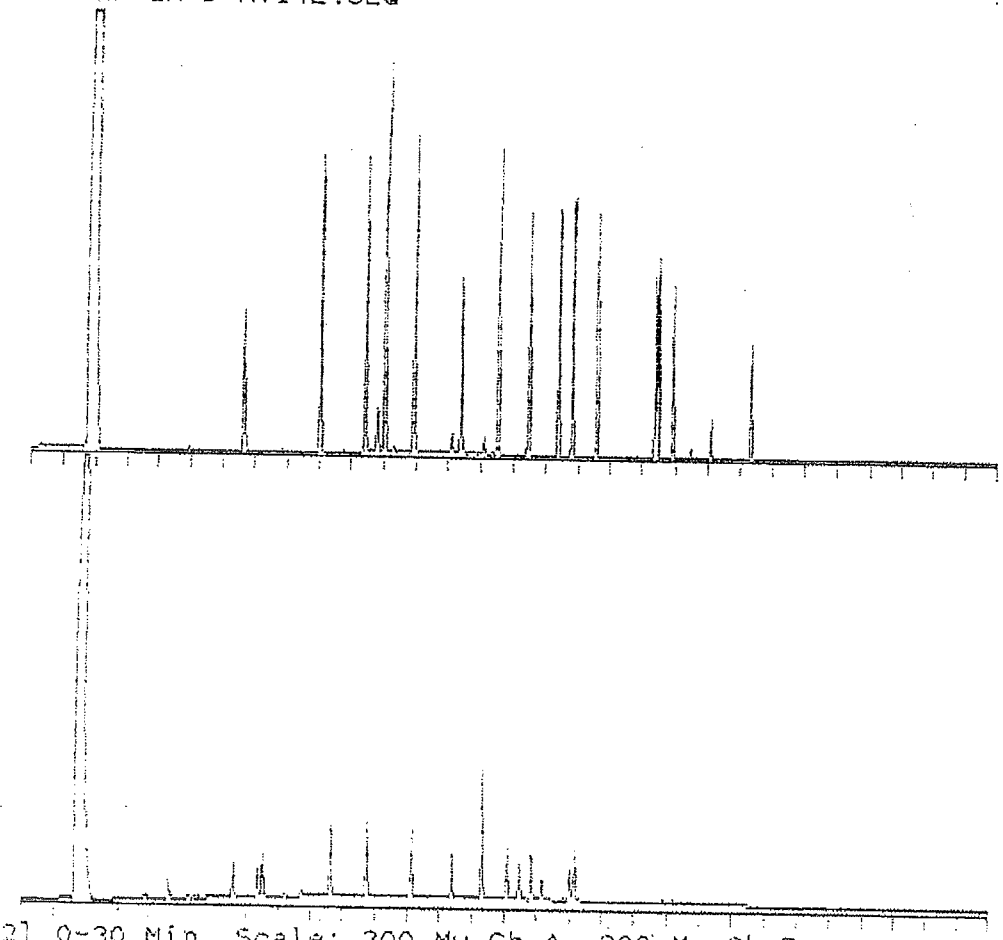
TOTAL AMOUNT = 524.1499

GROUP AMOUNT GROUP PERCENT

Data File = D:0V14E176.PTS Printed on 11-25-1997 at 22:03:08
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mV.
Full Range: 300 millivolts



QUENCE RECORDED IN D:NV15D.SEQ
QUENCE RECORDED IN D:NV14E.SEQ
EQUENCE RECORDED IN D:NV14E.SEQ
SEQUENCE RECORDED IN D:NV14E.SEQ
SEQUENCE RECORDED IN D:NV14E.SEQ



[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
85734 P/P Processed: 11-25-1997 17:17:04, segment 4, cycle 177
RAW DATA SAVED IN FILE D:NV14E177.PTS Second Channel Stored in D:0V14E177.PTS

EXTERNAL STANDARD TABLE

11-25-1997 17:18:11 Version 5.1.5

Sample Name: 85734 P/P MSD
Data File: D:NV14E177
Date: 11-25-1997 16:46:51 Method: M:APES-E 11-25-1997 14:16:36 # 399
Interface: 2 Cycle#: 177 Operator JJK Channel#: 0 Vial#: N.A.
Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701
Solvent Description:
Conditions:
Detector 0: Detector 1: ECD
Misc. Information:

arting Delay: 0.00
rea reject: 2000
mount injected: 1.00
Sample Weight: 1.00000

Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

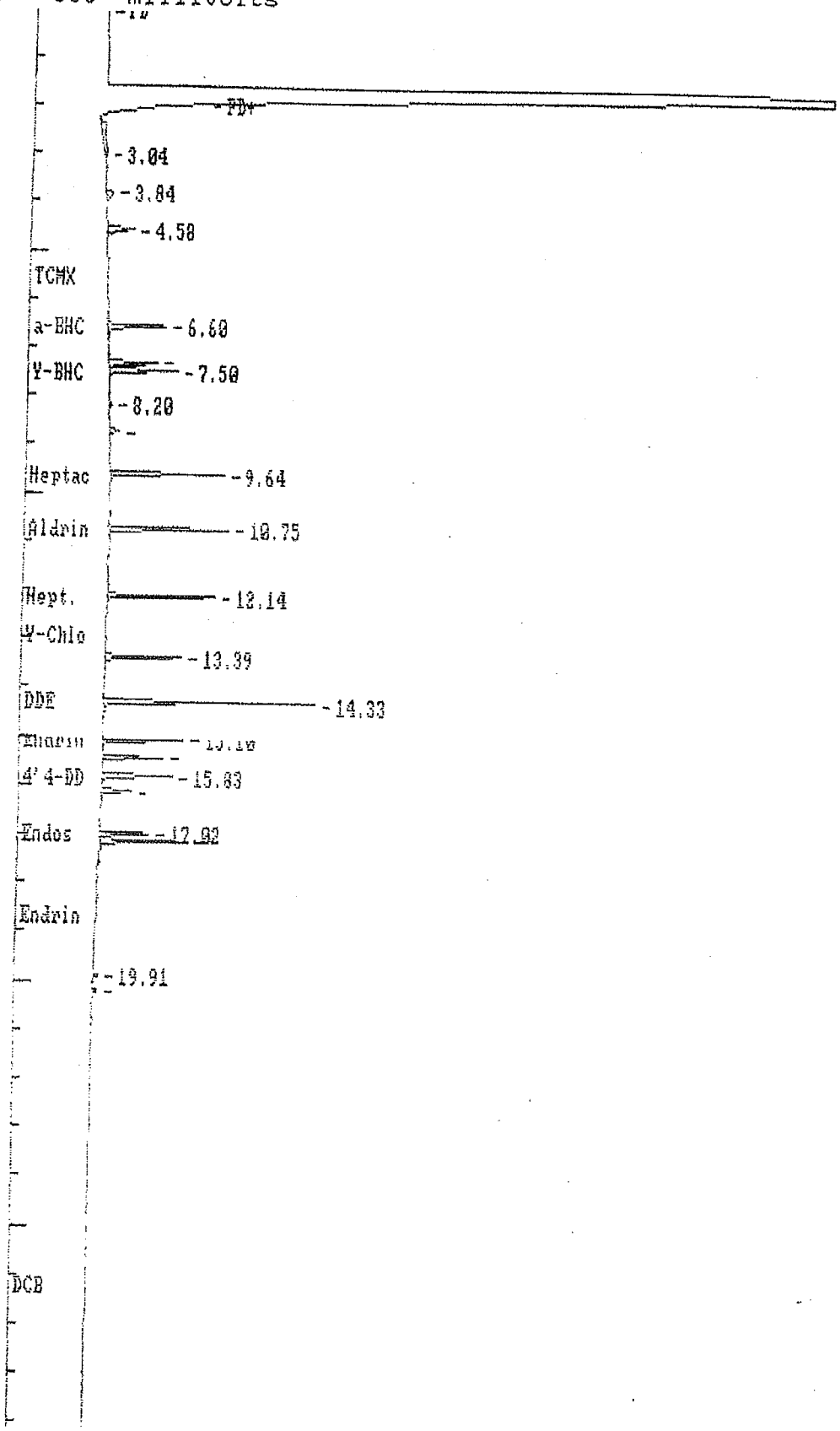
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in	NORMALIZED	AREA/	REF	% DELTA

1	3.039	0.0001	0.0000%	63114	793	79.6	1			1.0000E-09
2	3.841	0.0000	0.0000%	22807	2782	8.2	1			1.0000E-09
3	4.576	0.0001	0.0000%	61489	11198	5.5	1			1.0000E-09
4	6.596 a-BHC	33.1843	6.4416%	101146	23704	4.3	1	0	.5104	3.2808E-04
5	7.331 B-BHC	33.5047	6.5038%	86442	19932	4.3	2	0	0	3.8760E-04
6	7.498 Y-BHC	33.5196	6.5066%	108369	28008	3.9	2	0	0	3.0931E-04
7	8.200 d-BHC	2.1259	0.4127%	4979	1269	3.9	1	0	0	4.2699E-04
8	8.751	0.0000	0.0000%	18110	4337	4.2	1			1.0000E-09
9	9.636 Heptachlor	42.5293	8.2556%	164418	46809	3.5	1	0	0	2.5867E-04
10	10.755 Aldrin	38.5216	7.4776%	173193	48933	3.5	1	0	0	2.2242E-04
11	12.141 Hept. epox.	36.5233	7.0897%	148796	43882	3.4	1	0	0	2.4546E-04
12	13.393 Endosulfan I	28.9906	5.6275%	105990	31064	3.4	1	0	0	2.7352E-04
13	14.329 Dieldrin	75.0277	14.5640%	315717	85662	3.7	1	0	0	2.3764E-04
14	15.097 Endrin	39.3332	7.6352%	115207	32862	3.5	1	0	0	3.4141E-04
15	15.464 Endoslf II	28.6111	5.5538%	89295	24675	3.6	1	0	.1113	3.2041E-04
16	15.832 4'4-DDD	37.1754	7.2163%	110114	28810	3.8	2	0	0	3.3761E-04
17	16.149 Endrin ald	15.8818	3.0829%	47645	12378	3.8	2	0	0	3.3333E-04
18	17.017 Endos sulf	27.3338	5.3059%	74567	20041	3.7	2	0	0	3.6657E-04
19	17.168 DDT	42.8966	8.3269%	135639	35462	3.8	2	0	0	3.1625E-04
20	19.906	0.0000	0.0000%	10157	2062	4.9	1			1.0000E-09
21	20.240	0.0000	0.0000%	8089	1911	4.2	1			1.0000E-09

TOTAL AMOUNT = 515.1591

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E177.ATB
Data File = D:NV14E177.PTS Printed on 11-25-1997 at 17:18:36
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-25-1997 22:04:22 Version 5.1.5 **********

* Sample Name: 85734 P/P MSD Data File: D:OV14E177 *
* Date: 11-25-1997 16:46:51 Method: M:BPES-E 11-25-1997 20:41:01 # 393 *
* Interface: 2 Cycle#: 177 Operator JJK Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *
* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

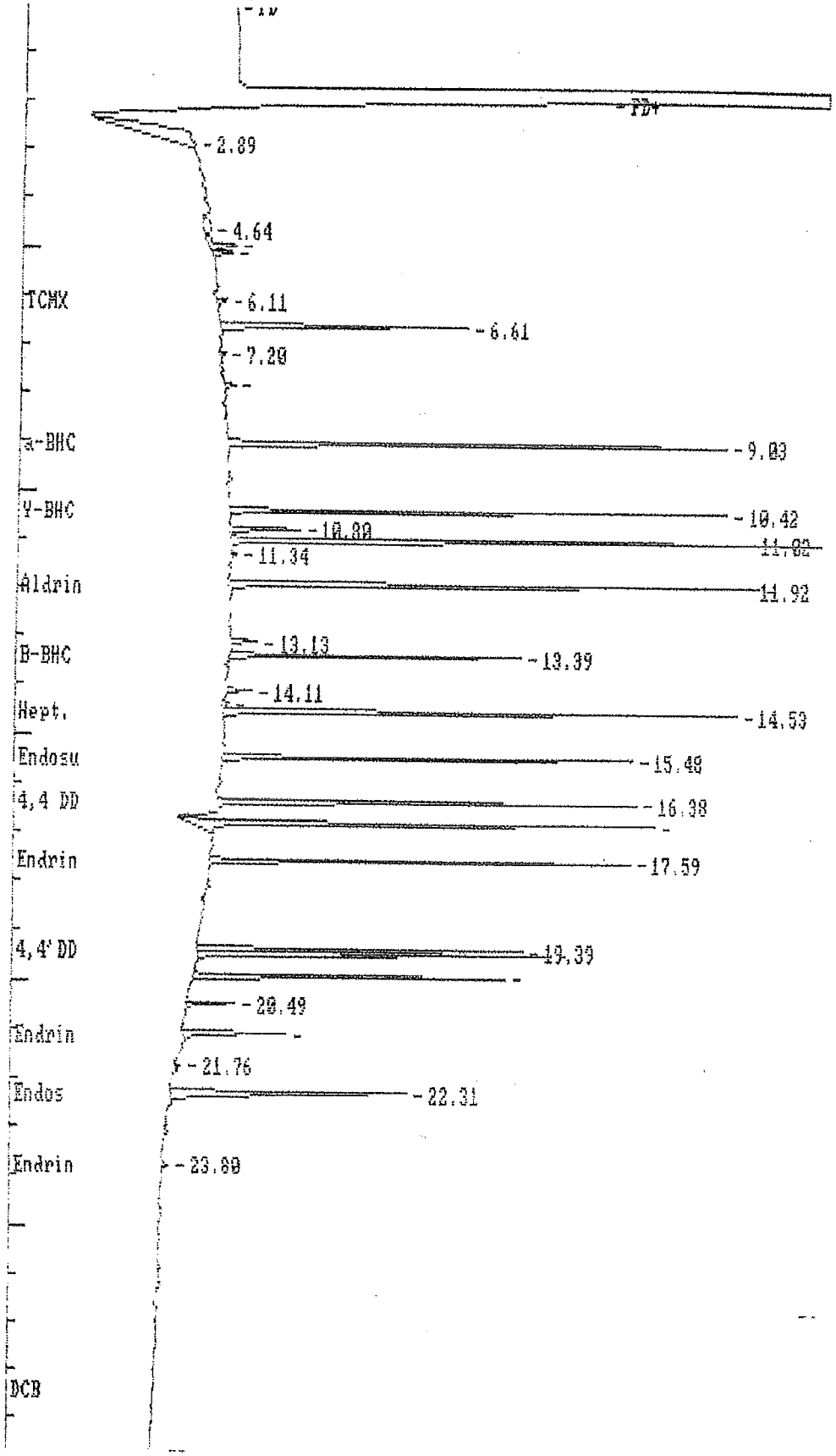
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.889		0.0004	0.0001%	404545	5133	78.8	1			1.0000E-09
2	4.643		0.0001	0.0000%	62890	3058	17.3	1			1.0000E-09
3	4.977		0.0001	0.0000%	80090	11560	6.9	2			1.0000E-09
4	5.127		0.0000	0.0000%	40043	8619	4.6	2			1.0000E-09
	6.112	TCMX	1.2293	0.2322%	19318	4062	4.8	1	0	-.2903	6.3638E-05
	6.613		0.0004	0.0001%	408166	100602	4.1	1			1.0000E-09
7	7.198		0.0000	0.0000%	10785	2357	4.6	1			1.0000E-09
8	7.849		0.0000	0.0000%	21060	4792	4.4	1			1.0000E-09
9	9.035	a-BHC	32.7604	6.1870%	716994	202434	3.5	1	0	0	4.5691E-05
10	10.421	Y-BHC	33.6921	6.3630%	701941	201919	3.5	1	0	0	4.7998E-05
11	10.305		0.0001	0.0000%	113896	28992	3.9	2			1.0000E-09
12	11.022	Heptachlor	40.3471	7.7143%	390738	264516	3.7	2	0	0	4.1327E-05
13	11.039		0.0000	0.0000%	9742	2253	4.3	1			1.0000E-09
14	11.924	Aldrin	35.8354	6.7678%	792966	215588	3.7	1	0	0	4.5192E-05
15	13.126		0.0000	0.0000%	43725	11387	3.8	1			1.0000E-09
16	13.393	B-BHC	34.6314	6.5404%	395525	118343	3.3	1	0	0	8.7558E-05
17	14.111	d-BHC	2.1399	0.4041%	33932	10617	3.2	1	0	0	6.3064E-05
18	14.395		0.0000	0.0000%	13897	2901	4.8	2			1.0000E-09
19	14.529	Hept. epox.	35.9945	6.7978%	762003	208822	3.6	2	0	0	4.7237E-05
20	15.481	Endosulf I	29.8102	5.4410%	577615	166465	3.5	1	0	0	4.9873E-05
21	16.383	4,4 DDE	34.2066	6.4602%	609321	169745	3.6	1	0	0	5.6139E-05
22	16.834	Dieldrin	41.8609	7.9095%	738570	186469	4.0	1	0	0	5.6705E-05
23	17.585	Endrin	40.4875	7.6464%	586745	170579	3.4	1	0	0	6.9004E-05
24	18.389	4,4'DDD	37.3318	7.0504%	442083	132154	3.3	2	0	0	8.4445E-05
25	19.472	Endosulfil	31.8719	6.0192%	511002	143374	3.6	2	0	0	6.2371E-05
26	19.923	4,4 DDT	39.4374	7.4480%	436809	126736	3.4	1	0	0	9.0285E-05
27	20.491		0.0001	0.0000%	79610	20181	3.9	1			1.0000E-09
28	21.092	Endrin ald	18.7705	3.5672%	168426	42019	4.0	1	0	0	9.9572E-05
29	21.760		0.0000	0.0000%	7821	2367	3.3	1			1.0000E-09
	22.311	Endos sulf	40.7666	7.6991%	458502	95976	4.8	1	0	0	8.8913E-05
	23.797	Endrin ket	0.8053	0.1521%	9655	2610	3.7	1	0	0	8.3410E-05

TOTAL AMOUNT = 529.5001

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E177.PTS Printed on 11-25-1997 at 22:04:31
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv
11 Range: 300 millivolts



METALS DATA PACKAGE

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK British Airways

Project #: 97123007
Date Received: 11/18/97 15:00

The following results are for Silver

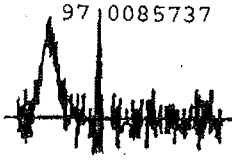
Lab #	Conc.	Unit	Client Designation
97 0085731	<0.050	mg/l	MW-2
97 0085732	<0.050	mg/l	MW-3
97 0085733	<0.050	mg/l	MW-5
97 0085734	<0.050	mg/l	MW-6
97 0085735	<0.050	mg/l	MW-7
97 0085736	<0.050	mg/l	MW-8
97 0085737	<0.050	mg/l	MW-9
97 0085738	<0.050	mg/l	MW-9A
97 0085739	<0.050	mg/l	Field Blank
97 0085741	<0.050	mg/l	MW-10

The following results are for Arsenic

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.0080	mg/l	MW-2
97 0085732	<0.0080	mg/l	MW-3
97 0085733	<0.0080	mg/l	MW-5
97 0085734	<0.0080	mg/l	MW-6
97 0085735	<0.0080	mg/l	MW-7
97 0085736	<0.0080	mg/l	MW-8
97 0085737	<0.0080	mg/l	MW-9
97 0085738	<0.0080	mg/l	MW-9A
97 0085739	<0.0080	mg/l	Field Blank
97 0085741	<0.0080	mg/l	MW-10

The following results are for Beryllium

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.010	mg/l	MW-2
97 0085732	<0.010	mg/l	MW-3
97 0085733	0.016	mg/l	MW-5
97 0085734	<0.010	mg/l	MW-6
97 0085735	<0.010	mg/l	MW-7
97 0085736	<0.010	mg/l	MW-8
97 0085737	<0.010	mg/l	MW-9



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Project #: 97123007
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97 0085738	<0.010	mg/l	MW-9A
97 0085739	<0.010	mg/l	Field Blank
97 0085741	<0.010	mg/l	MW-10

The following results are for Cadmium

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.020	mg/l	MW-2
97 0085732	<0.020	mg/l	MW-3
97 0085733	0.025	mg/l	MW-5
97 0085734	<0.020	mg/l	MW-6
97 0085735	<0.020	mg/l	MW-7
97 0085736	<0.020	mg/l	MW-8
97 0085737	<0.020	mg/l	MW-9
97 0085738	<0.020	mg/l	MW-9A
97 0085739	<0.020	mg/l	Field Blank
97 0085741	<0.020	mg/l	MW-10

The following results are for Chromium

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.050	mg/l	MW-2
97 0085732	<0.050	mg/l	MW-3
97 0085733	<0.050	mg/l	MW-5
97 0085734	<0.050	mg/l	MW-6
97 0085735	<0.050	mg/l	MW-7
97 0085736	<0.050	mg/l	MW-8
97 0085737	<0.050	mg/l	MW-9
97 0085738	<0.050	mg/l	MW-9A
97 0085739	<0.050	mg/l	Field Blank
97 0085741	<0.050	mg/l	MW-10

The following results are for Copper

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.050	mg/l	MW-2
97 0085732	<0.050	mg/l	MW-3
97 0085733	<0.050	mg/l	MW-5
97 0085734	<0.050	mg/l	MW-6

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97 0085735	<0.050	mg/l	MW-7
97 0085736	<0.050	mg/l	MW-8
97 0085737	<0.050	mg/l	MW-9
97 0085738	<0.050	mg/l	MW-9A
97 0085739	<0.050	mg/l	Field Blank
97 0085741	<0.050	mg/l	MW-10

The following results are for Mercury

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.00020	mg/l	MW-2
97 0085732	<0.00020	mg/l	MW-3
97 0085733	<0.00020	mg/l	MW-5
97 0085734	<0.00020	mg/l	MW-6
97 0085735	<0.00020	mg/l	MW-7
97 0085736	<0.00020	mg/l	MW-8
97 0085737	<0.00020	mg/l	MW-9
97 0085738	<0.00020	mg/l	MW-9A
97 0085739	<0.00020	mg/l	Field Blank
97 0085741	<0.00020	mg/l	MW-10

The following results are for Nickel

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.050	mg/l	MW-2
97 0085732	<0.050	mg/l	MW-3
97 0085733	<0.050	mg/l	MW-5
97 0085734	<0.050	mg/l	MW-6
97 0085735	<0.050	mg/l	MW-7
97 0085736	<0.050	mg/l	MW-8
97 0085737	<0.050	mg/l	MW-9
97 0085738	<0.050	mg/l	MW-9A
97 0085739	<0.050	mg/l	Field Blank
97 0085741	<0.050	mg/l	MW-10

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Project #: 97123007
Date Received: 11/18/97 15:00

The following results are for Lead

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.0050	mg/l	MW-2
97 0085732	<0.0050	mg/l	MW-3
97 0085733	<0.0050	mg/l	MW-5
97 0085734	<0.0050	mg/l	MW-6
97 0085735	<0.0050	mg/l	MW-7
97 0085736	<0.0050	mg/l	MW-8
97 0085737	<0.0050	mg/l	MW-9
97 0085738	<0.0050	mg/l	MW-9A
97 0085739	<0.0050	mg/l	Field Blank
97 0085741	<0.0050	mg/l	MW-10

The following results are for Antimony

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.0050	mg/l	MW-2
97 0085732	<0.0050	mg/l	MW-3
97 0085733	<0.0050	mg/l	MW-5
97 0085734	<0.0050	mg/l	MW-6
97 0085735	<0.0050	mg/l	MW-7
97 0085736	<0.0050	mg/l	MW-8
97 0085737	<0.0050	mg/l	MW-9
97 0085738	<0.0050	mg/l	MW-9A
97 0085739	<0.0050	mg/l	Field Blank
97 0085741	<0.0050	mg/l	MW-10

The following results are for Selenium

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.0050	mg/l	MW-2
97 0085732	<0.0050	mg/l	MW-3
97 0085733	<0.0050	mg/l	MW-5
97 0085734	<0.0050	mg/l	MW-6
97 0085735	<0.0050	mg/l	MW-7
97 0085736	<0.0050	mg/l	MW-8
97 0085737	<0.0050	mg/l	MW-9

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Jersey City, NJ 07310-1397

Project #: 97123007
Date Received: 11/18/97 15:00

Customer Project No. JFK British Airways

97 0085738	<0.0050	mg/l	MW-9A
97 0085739	<0.0050	mg/l	Field Blank
97 0085741	<0.0050	mg/l	MW-10

The following results are for Thallium

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.0050	mg/l	MW-2
97 0085732	<0.0050	mg/l	MW-3
97 0085733	<0.0050	mg/l	MW-5
97 0085734	<0.0050	mg/l	MW-6
97 0085735	<0.0050	mg/l	MW-7
97 0085736	<0.0050	mg/l	MW-8
97 0085737	<0.0050	mg/l	MW-9
97 0085738	<0.0050	mg/l	MW-9A
97 0085739	<0.0050	mg/l	Field Blank
97 0085741	<0.0050	mg/l	MW-10

The following results are for Zinc

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.050	mg/l	MW-2
97 0085732	<0.050	mg/l	MW-3
97 0085733	0.064	mg/l	MW-5
97 0085734	<0.050	mg/l	MW-6
97 0085735	<0.050	mg/l	MW-7
97 0085736	<0.050	mg/l	MW-8
97 0085737	0.058	mg/l	MW-9
97 0085738	0.057	mg/l	MW-9A
97 0085739	<0.050	mg/l	Field Blank
97 0085741	<0.050	mg/l	MW-10

EMSL Anal I Services

Sample Digestion Chain of Custody

Digestion Date Begin: 11/19/97

Tech(s): TL

Matrix:	Aqueous	Soil	Sludge	Oil	Filter	Paintchips	Cassette	TCLP	Other:
	X								

Analysis: X ICP X GFAA

Batch Number: B656 Book: 277 Page: 5 Temp. (C) 95

#	EMSL Sample ID	Prep Amount Volume(ml)	Volume(ml)	Analysis Date/s Element(s) Required	Due
A10C	85731	50.00	50.00		
A11	85732	50.00	50.00		
A12	85733	50.00	50.00		
A13	85734	50.00	50.00		
A14	85735	50.00	50.00		
A15	85736	50.00	50.00		
A16	85737	50.00	50.00		
A17	85738	50.00	50.00		
A18	85739	50.00	50.00		
A19	85741	50.00	50.00		
A20	85742	50.00	50.00		
A21	85743	50.00	50.00		
A22					
A23					
A24					
A25					
A26					
A27					
A28					
A29					

#			Batch QC Provided: Initial Wt(g)/Vol(ml)	Final Vol(ml)
A2,3	2	Prep Blank	50	50
A4	1	Control #1 ICP	50	50
A6	1	Sample Dup	50	50
A7	1	Matrix Spike #1 ICP	50	50
A8	1	M.Spike DuP #1 ICP	50	50
A5	1	Control #2 GFAA	50	50
		SampleDup #2		
A9	1	Matrix Spike#2 GFAA	50	50
A10	1	M.Spike Dup#2 GFAA	50	50

Digestion Method:

	SW-846 3005		SW-846 3051
	SW-846 3010	X	DIG 200 for ICP/GFAA
	SW-846 3015		NIOSH
	SW-846 3020	Other:	
	SW-846 3040		
	SW-846 3050		

Amount Spike Added (ml)	Standard Serial ID	
0.5	ICP	109-23-D
0.5	GFAA	257-27-G

Lot # HNO3 Lot # HCL Lot # H2O2

Lot # 1+1HNO3 Lot # 1+1HCL

Relinquished By: Date: Received By: Date:

ICP Check Standard

Batch Number B656

Matrix: Aqueous

Analyte	ICV Result mg/l	True Conc mg/l	% Rec 90-110	ICB Result mg/l	CCV-1 Result mg/l	True Conc mg/l	% Rec 95-105	CCB-1 Result mg/l	CCV-F Result mg/l	True Conc mg/l	% Rec 90-110	CCB-F Result mg/l
Ag	0.514	0.5	103	< 0.050	0.514	0.5	103	< 0.050	0.517	0.5	103	< 0.050
Al		5.0		<		5.0		<		5.0		<
As		2.0		<		2.5		<		2.5		<
B		/	ERR	<		/	ERR	<		/	ERR	<
Ba		10.0		<		10.0		<		10.0		<
Be	0.208	0.2	104	< 0.010	0.263	0.25	105	< 0.010	0.255	0.25	102	< 0.010
Ca		25.0		<		25.0		<		25.0		<
Cd	0.495	0.5	99	< 0.020	0.514	0.5	103	< 0.020	0.498	0.5	100	< 0.020
Co		0.5		<		0.5		<		0.5		<
Cr	2.077	2.0	104	< 0.050	2.601	2.5	104	< 0.050	2.546	2.5	102	< 0.050
Cu	1.978	2.0	99	< 0.050	2.620	2.5	105	< 0.050	2.594	2.5	104	< 0.050
Fe		5.0		<		5.0		<		5.0		<
K		25.0		<		25.0		<		25.0		<
Mg		25.0		<		25.0		<		25.0		<
Mn		2.0		<		2.5		<		2.5		<
Mo		1.0		<		1.0		<		1.0		<
Na		25.0		<		25.0		<		25.0		<
Ni	2.067	2.0	103	< 0.050	2.544	2.5	102	< 0.050	2.507	2.5	100	< 0.050
Pb		10.0		<		10.0		<		10.0		<
Sb		2.0		<		2.5		<		2.5		<
Se		2.0		<		2.5		<		2.5		<
Si		/	ERR	<		/	ERR	<		/	ERR	<
Sn		/	ERR	<		/	ERR	<		/	ERR	<
Tl		2.0		<		2.5		<		2.5		<
Ti		2.0		<		2.5		<		2.5		<
V		0.5		<		0.5		<		0.5		<
Zn	2.065	2.0	103	< 0.050	2.561	2.5	102	< 0.050	2.520	2.5	101	< 0.050

ICP Interference Check Standard

EMSL Standard ID ICSAB-1 | Check Standard Source Spex
Batch # B656 | Matrix: Aqueous

Analyte	Control Limits Mean	Control Limits Std.Dev.	True Value mg/l	Initial Measured mg/l	% R	Final Measured mg/l	% R
Ag			1.0	0.959	95.9	0.952	95.2
Al			500.0				
As					ERR		ERR
B					ERR		ERR
Ba			0.5				
Be			0.5	0.520	104.0	0.507	101.3
Ca			500.0				
Cd			1.0	0.883	88.3	0.877	87.7
Co			0.5				
Cr			0.5	0.474	94.9	0.473	94.6
Cu			0.5	0.437	87.4	0.434	86.8
Fe			200.0				
K					ERR		ERR
Mg			500.0				
Mn			0.5				
Mo					ERR		ERR
Na					ERR		ERR
Ni			1.0	0.894	89.4	0.893	89.3
Pb			1.0				
Sb					ERR		ERR
Se					ERR		ERR
Si					ERR		ERR
Sn					ERR		ERR
Tl					ERR		ERR
Ti					ERR		ERR
V			0.5				
Zn			1.0	0.949	94.9	0.930	93.0

EMSL ... al Services

QC Sample 85731 Matrix: Aqueous Batch Numb. B656

	Blank/DL		Duplicate			Dilution		Spike								Control		
Analyte	Prep Blank mg/l	Detection Limit mg/l	Sample Result mg/l	Dup Samp Result mg/l	RPD %	1:5 Serial Dilution mg/l	% Diff.	True Conc mg/l	MS Result mg/l	% Rec 70-130	MSD Result mg/l	% Rec 70-130	RPD %	PostSpike Result mg/l	% Rec 85-115	Control Result mg/l	True Conc mg/l	% Rec 85-115
Ag	< 0.05	0.05	< 0.0500	< 0.0500		< 0.2500	400.00	0.1	0.0901	90	0.0867	87	3.8	0.0859	86	0.0989	0.1	99
Al	<				ERR		ERR	2					ERR				2	
As	<				ERR		ERR	2					ERR				2	
B	<				ERR		ERR			ERR		ERR	ERR		ERR			ERR
Ba	<				ERR		ERR	2					ERR				2	
Be	< 0.01	0.01	< 0.0100	< 0.0100		< 0.0500	400.00	0.05	0.0560	112	0.0553	111	1.3	0.0552	110	0.0519	0.05	104
Ca	<				ERR		ERR	20					ERR				20	
Cd	< 0.02	0.02	< 0.0200	< 0.0200		< 0.1000	400.00	0.2	0.1949	97	0.1971	99	1.1	0.1920	96	0.1981	0.2	99
Co	<				ERR		ERR	0.5					ERR				0.5	
Cr	< 0.05	0.05	< 0.0500	< 0.0500		< 0.2500	400.00	0.5	0.4747	95	0.4628	93	2.5	0.4912	98	0.5013	0.5	100
Cu	< 0.05	0.05	< 0.0500	< 0.0500		< 0.2500	400.00	0.5	0.4785	96	0.4553	91	5.0	0.4610	92	0.4913	0.5	98
Fe	<						ERR	2					ERR				2	
K	<				ERR		ERR	20					ERR				20	
Mg	<				ERR		ERR	20					ERR				20	
Mn	<						ERR	0.5					ERR				0.5	
Mo	<				ERR		ERR	0.5					ERR				0.5	
Na	<				ERR		ERR	20					ERR				20	
Ni	< 0.05	0.05	< 0.0500	< 0.0500		< 0.2500	400.00	0.5	0.5260	105	0.4929	99	6.5	0.4934	99	0.5227	0.5	105
Pb	<				ERR		ERR	2					ERR				2	
Sb	<				ERR		ERR	5					ERR				5	
Se	<				ERR		ERR	2					ERR				2	
Si	<				ERR		ERR			ERR		ERR	ERR		ERR			ERR
Sn	<				ERR		ERR			ERR		ERR	ERR		ERR			ERR
Tl	<				ERR		ERR	5					ERR				5	
Ti	<				ERR		ERR	2					ERR				2	
V	<				ERR		ERR	0.5					ERR				0.5	
Zn	< 0.05	0.05	< 0.0500	< 0.0500		< 0.2500	400.00	0.5	0.5316	106	0.5244	105	1.4	0.5719	114	0.5074	0.5	101

EMSL Analytical Services

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Graphite Furnace QC Results Report

Samples in batch:	
85731	85738
85732	85739
85733	85741
85734	85742
85735	85743
85736	
85737	

Batch Number B656

Matrix: Aqueous

Analyte	Analysis Date	ICV Result mg/l	True Conc mg/l	% Rec 90-110	ICB Result mg/l	CCV-1 Result mg/l	True Conc mg/l	% Rec 80-120	CCB-1 Result mg/l	CCV-F Result mg/l	True Conc mg/l	% Rec 80-120	CCB-F Result mg/l
As	11/25/97	0.040	0.040	101	< 0.0080	0.039	0.040	98	< 0.0080	0.039	0.040	97	< 0.0080
Se	11/20/97	0.018	0.020	90	< 0.0050	0.020	0.020	99	< 0.0050	0.019	0.020	93	< 0.0050
Pb	11/25/97	0.041	0.040	103	< 0.0050	0.041	0.040	102	< 0.0050	0.041	0.040	103	< 0.0050
Sb	11/22/97	0.020	0.020	98	< 0.0050	0.021	0.020	104	< 0.0050	0.021	0.020	105	< 0.0050
Tl	11/20/97	0.021	0.020	104	< 0.0050	0.021	0.020	103	< 0.0050	0.018	0.020	92	< 0.0050
Cd			0.002		0.0005		0.002		0.0005		0.002		0.0005

Comment:

NR = No Recovery

#1 = Matrix Interference

#2 = High Analyte

Graphite Furnace QC Results Report

Samples in batch:	
85731	85738
85732	85739
85733	85741
85734	85742
85735	85743
85736	
85737	

QC Sample 85731 Matrix: Aqueous Batch Numb. B656

		Blank/DL		Duplicate					Spike										Control		
Analyte	Analysis Date	Prep Blank mg/l	Detection Limit mg/l	Sample Result mg/l	Dup Samp Result mg/l	RPD %	1:5 Serial Dilution mg/l	% Diff.	MS Result mg/l	True Conc mg/l	% Rec 80-120	MSD Result mg/l	True Conc mg/l	% Rec 80-120	RPD %	1:5 PostSpk Result mg/l	True Conc mg/l	% Rec 85-115	Control Result mg/l	True Conc mg/l	% Rec 80-120
As	11/25/97	< 0.008	0.008	< 0.008	0.008		< 0.008		0.008	0.040	20	0.008	0.040	20		0.931	0.020	93	0.035	0.040	88
Se	11/20/97	< 0.005	0.005	< 0.005	< 0.005		< 0.005		0.009	0.020	43	0.009	0.020	47	4.4	0.086	0.020	86	0.019	0.020	96
Pb	11/25/97	< 0.005	0.005	< 0.005	< 0.005		< 0.005		0.005	0.020	25	0.005	0.020	25		0.102	0.020	102	0.020	0.020	102
Sb	11/22/97	< 0.005	0.005	< 0.005	< 0.005		< 0.005		0.019	0.020	93	0.019	0.020	94	1.0	0.023	0.021	108	0.021	0.020	103
Tl	11/20/97	< 0.005	0.005	< 0.005	< 0.005		< 0.005		0.019	0.020	96	0.019	0.020	93	1.5	0.019	0.020	97	0.019	0.020	96
Cd		0.001	0.001			ERR		ERR		0.002	-250		0.002	-250			0.002			0.002	

Comment:

NR = No Recovery

#1 = Matrix Interference

#2 = High Analyte

Mercury CVAA QC Results Report-Aqueous

Samples in batch:

85741	85733
85739	85732
85738	85731
85737	
85736	
85735	
85734	

Analyte	Analysis Date	ICV Result mg/l	True Conc mg/l	% Rec 90-110	ICB Result mg/l	CCV-1 Result mg/l	True Conc mg/l	% Rec 90-110	CCB-1 Result mg/l	CCV-F Result mg/l	True Conc mg/l	% Rec 90-110	CCB-F Result mg/l
Hg	11/19/97	0.00198	0.0020	99	< 0.00020	0.00191	0.0020	95	< 0.00020	0.00188	0.0020	94	< 0.00020

Comment:

NR = No Recovery

#1 = Matrix Interference

#2 = High Analyte

E. [illegible]lytical Services

Mercury CVAA QC Results Report-Aqueous

Samples in batch:

85741	85733
85739	85732
85738	85731
85737	
85736	
85735	
85734	

QC Sample 85741

		Blank/DL		Duplicate					Spike										Control		
Analyte	Analysis Date	Prep Blank mg/l	Detection Limit mg/l	Sample Result mg/l	Dup Samp Result mg/l	RPD %	1:5 Serial Dilution mg/l	% Diff.	MS Result mg/l	True Conc mg/l	% Rec 80-120	MSD Result mg/l	True Conc mg/l	% Rec 80-120	RPD %	1:5 PostSpk Result mg/l	True Conc mg/l	% Rec 85-115	Control Result mg/l	True Conc mg/l	% Rec 80-120
Hg	11/19/97	< 0.0002	0.0002	< 0.00020	< 0.00020		NA		0.00192	0.0020	96	0.00192	0.0020	96	0.2	NA	NA	NA	0.00194	0.0020	97

Comment:

NR = No Recovery

#1 = Matrix Interference

#2 = High Analyte

PETROLEUM HYDROCARBON DATA PACKAGE

511

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397
Customer Project No. JFK British Airways

Project #: 97123007
Date Received: 11/18/97 15:00

The following results are for Petroleum Hydrocarbons, Total (I.R)

Lab #	Conc.	Unit	Client Designation
97 0085731	<1.0	mg/l	MW-2
97 0085732	<1.0	mg/l	MW-3
97 0085733	<1.0	mg/l	MW-5
97 0085734	<1.0	mg/l	MW-6
97 0085735	<1.0	mg/l	MW-7
97 0085736	<1.0	mg/l	MW-8
97 0085737	<1.0	mg/l	MW-9
97 0085738	<1.0	mg/l	MW-9A
97 0085739	<1.0	mg/l	Field Blank
97 0085741	<1.0	mg/l	MW-10

EMSL

BLANKS

Lab Name: EMSL Analytical Contract: ______

Lab Code: ______ Case No.: ______ AS No.: ______ SDG No.: ______

Preparation Blank Matrix (Soil/Water): Water

Preparation Blank Concentration Units (mg/l or mg/kg): mg/l

Analyte	Initial Calib. Blank (mg/l)	C	Continuing Calibration Blank (mg/l) 1	C	2	C	3	C	Preparation Blank	C	M
Total Petroleum Hydrocarbons									<1		

PETROLEUM HYDROCARBON MATRIX SPIKE RECOVERY

Lab Name: EMSL ANALYTICAL, INC.

Lab Code: _____

Lab Sample ID: _____97-85742_____

Concentration Units (mg/l or mg/kg dry weight): ___mg/l_____

Compound	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Total Petroleum Hydrocarbons	80-120	2.35		0.22		2.49	86		

*VALUES OUTSIDE OF QC LIMITS

Spike Recovery:____0_____ out of _____1_____ outside limits

COMMENTS:_____

EMSL

PETROLEUM HYDROCARBON RESULT/DUPLICATE RECOVERY

Lab Name: **EMSL ANALYTICAL, INC.**

Lab Code: _____

Lab Sample ID: ___97-85741_____

Parameter	Units	Sample Result	Conc. Duplicate	RPD %	QC Limits Recovery
Total Petroleum Hydrocarbons	**mg/l**	**<1**	**<1**	**NC**	**+/-20%**

* Values outside of QC limits.

RPD:___0_____ out of _____1_____ outside limits

Comments:_____

EMSL

PETROLEUM HYDROCARBON CONTROL RECOVERY

Lab Name: **EMSL ANALYTICAL, INC.**

Lab Code: _____

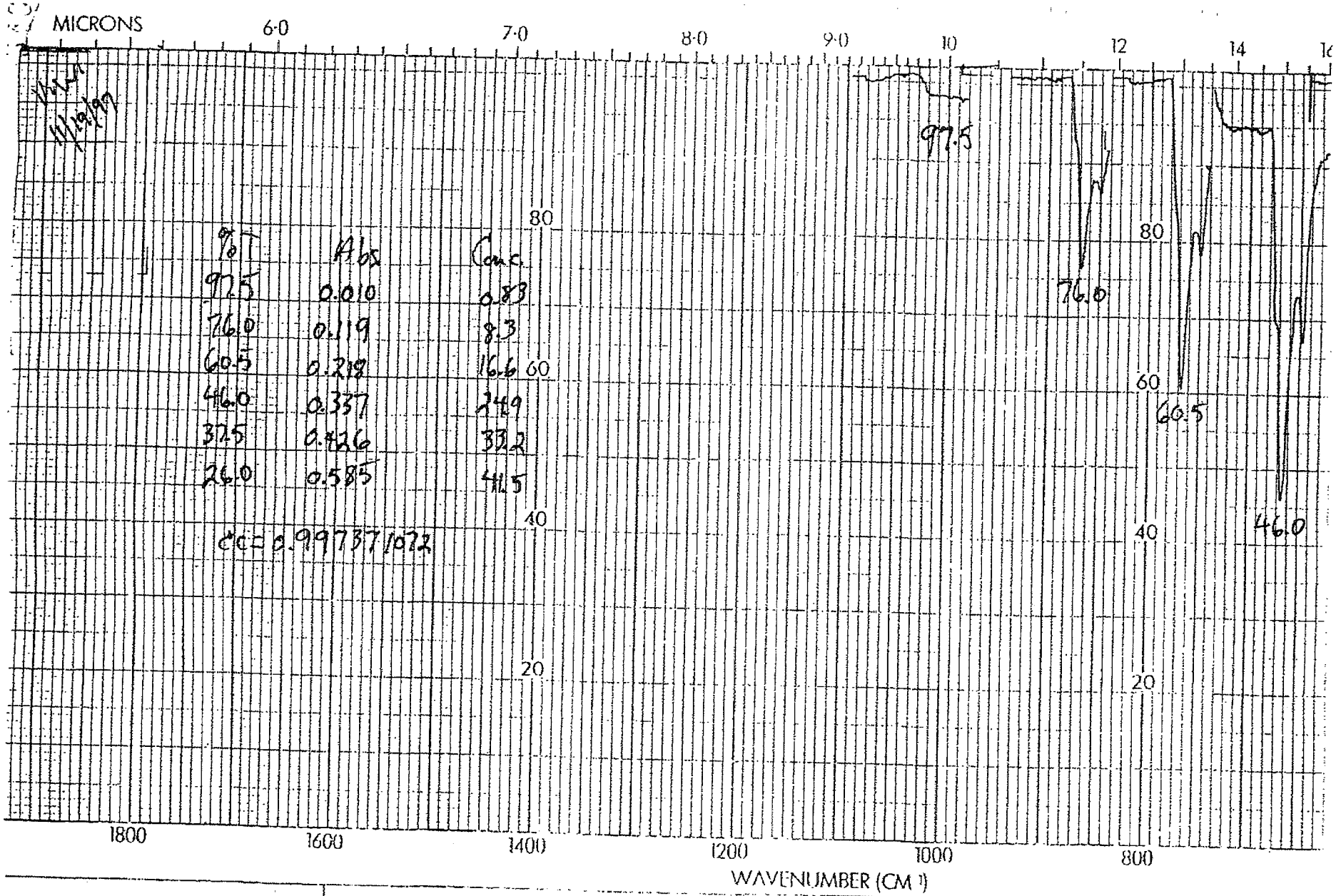
Lab Sample ID: _____**Control**_____

Compound	Control Actual Value mg	Control Theoretical Value, mg	% Recovery	QC Limits Recovery
Total Petroleum Hydrocarbons	**2.52**	**2.49**	**101**	**80-120**

* VALUES OUTSIDE OF QC LIMITS

Control Recovery: ____**0**_____ out of _____**1**_____ outside limits

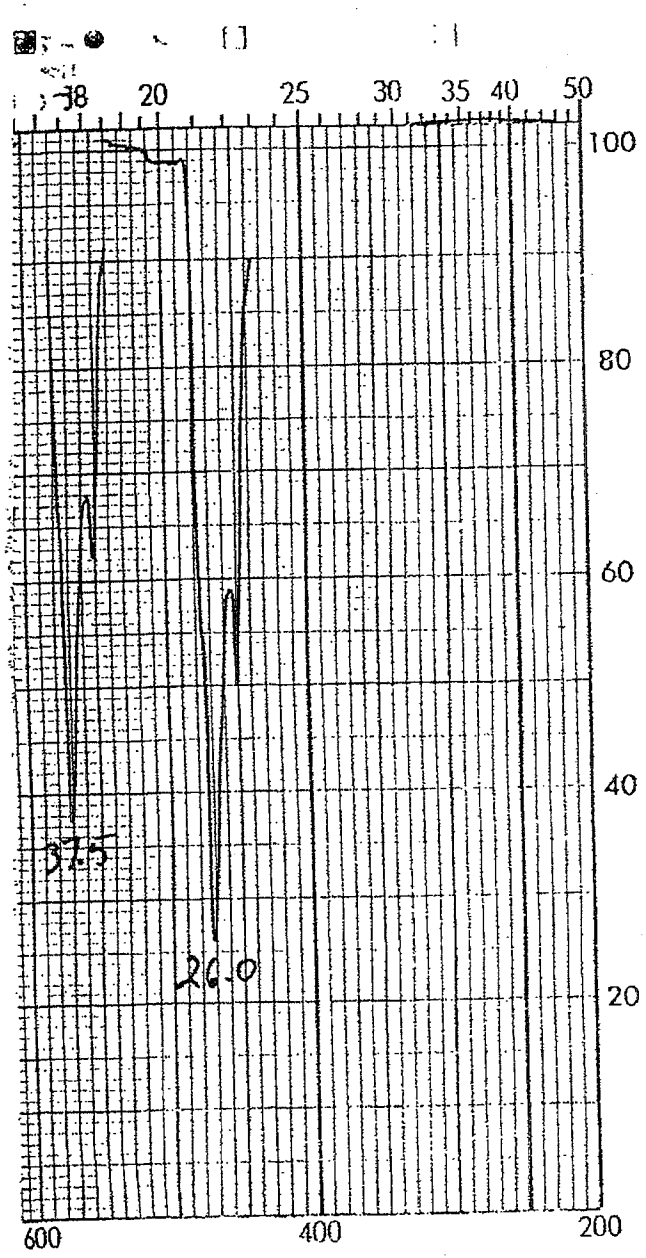
COMMENTS:_____



REMARKS

SCAN MODE

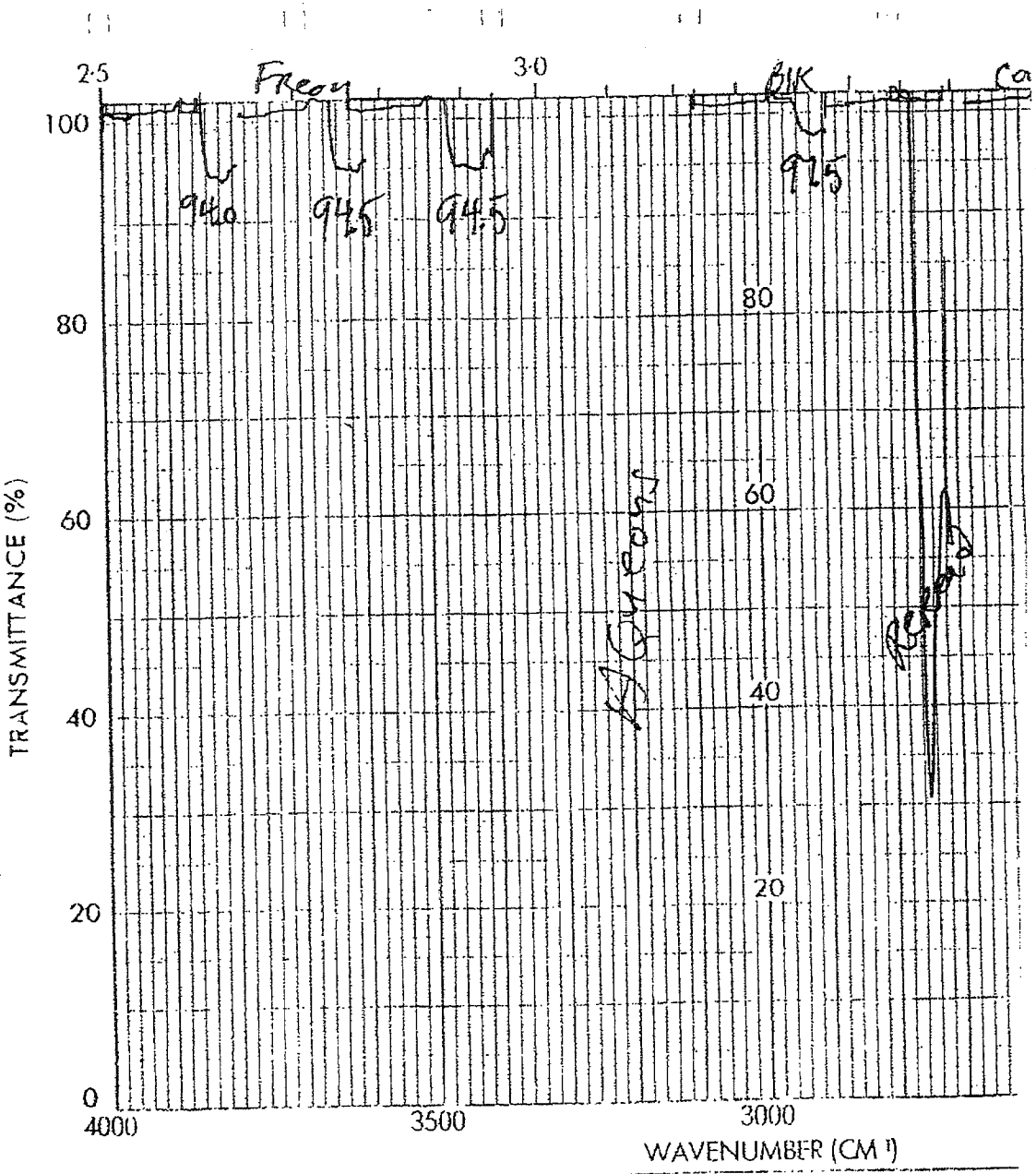
SLIT TIME CONSTANT



OPERATOR

DATE

No.



SAMPLE

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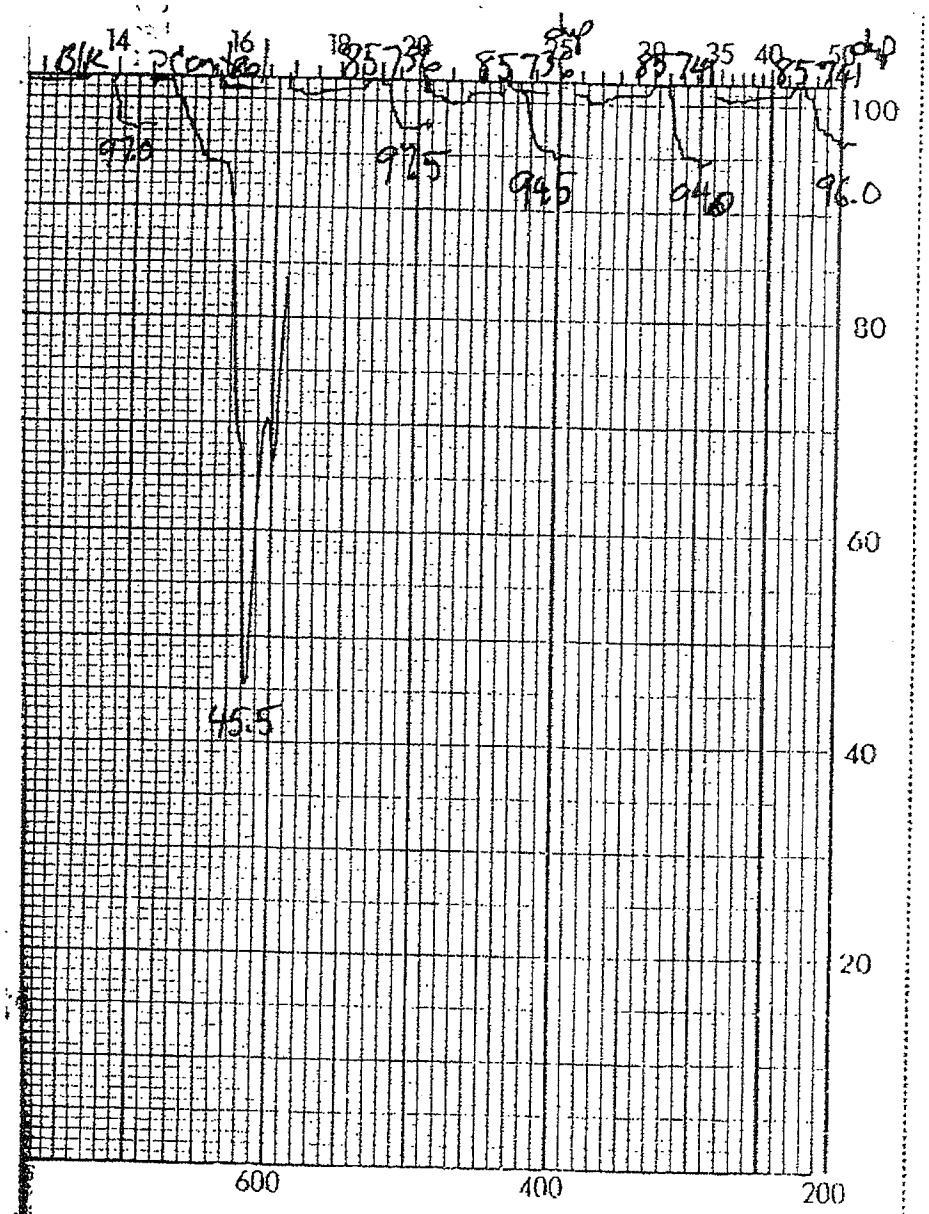
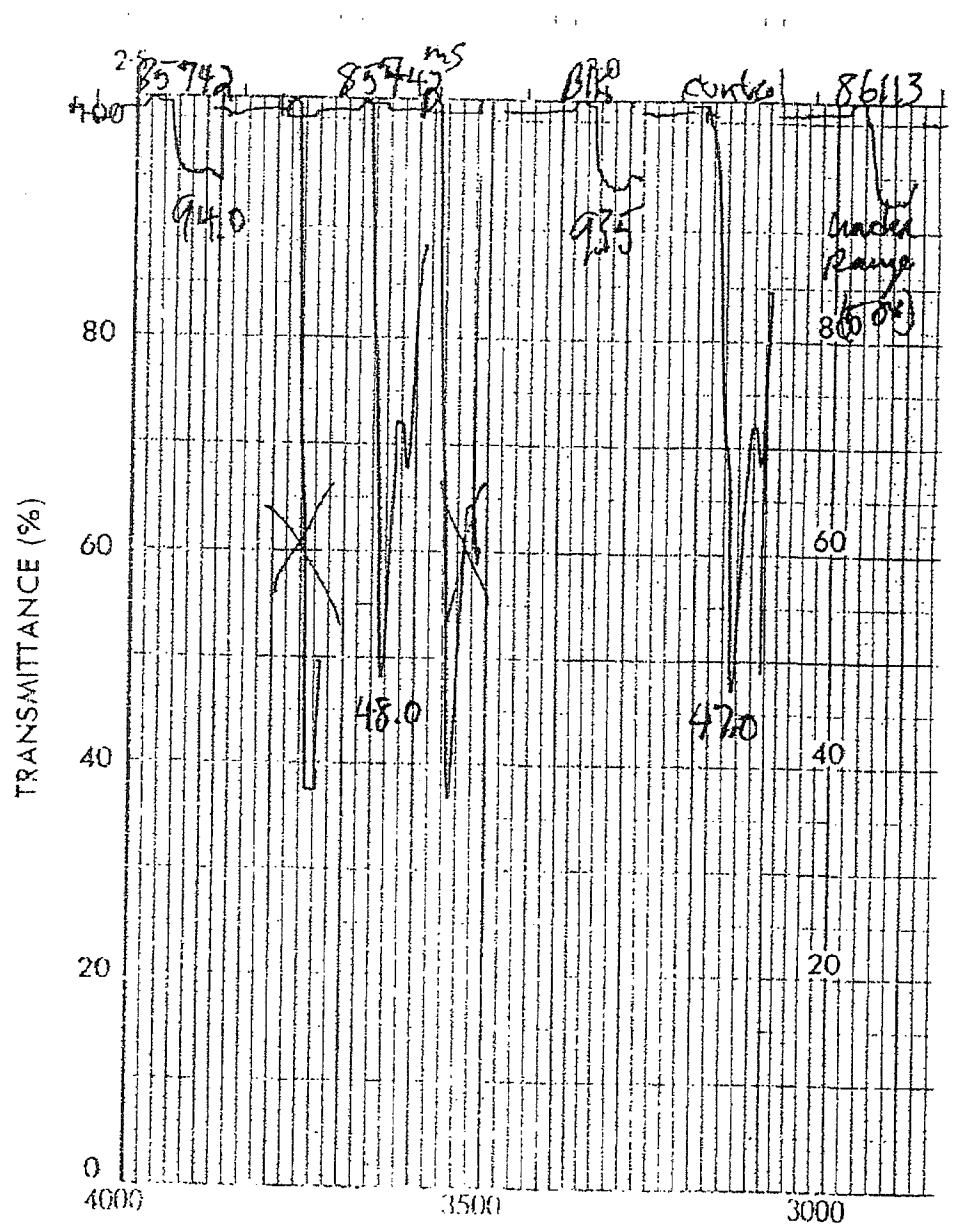
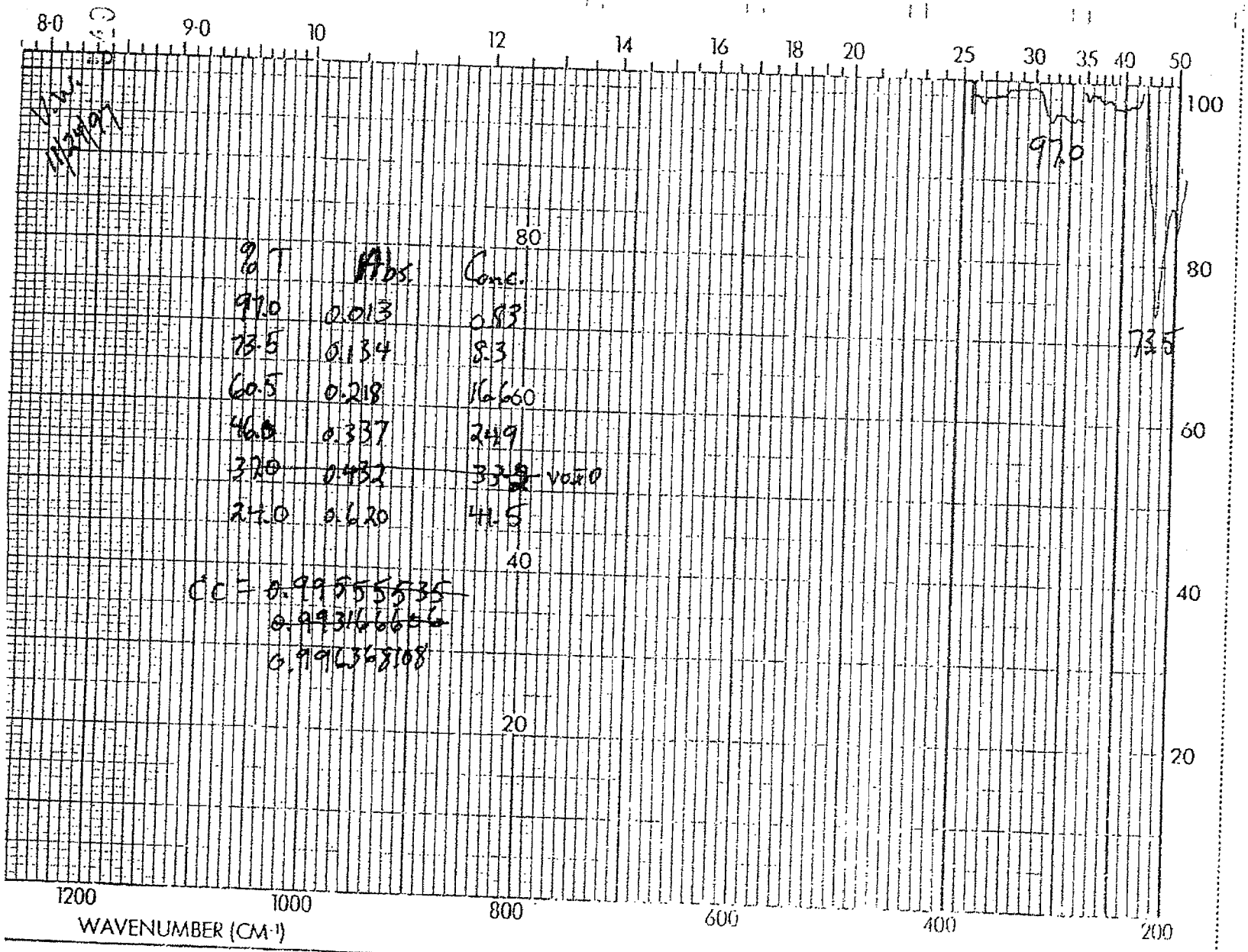
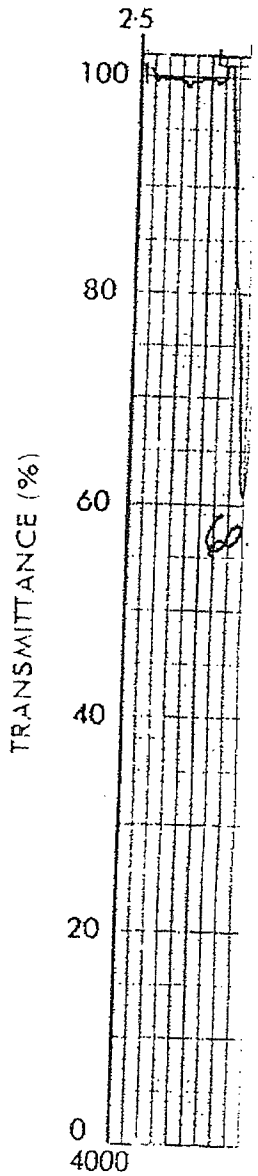


E CONSTANT	OPERATOR DATE
CONTROLS CORPORATION BUFFALO NEW YORK PR 5100-4367	REF No.



SAMPLE
ORIGIN

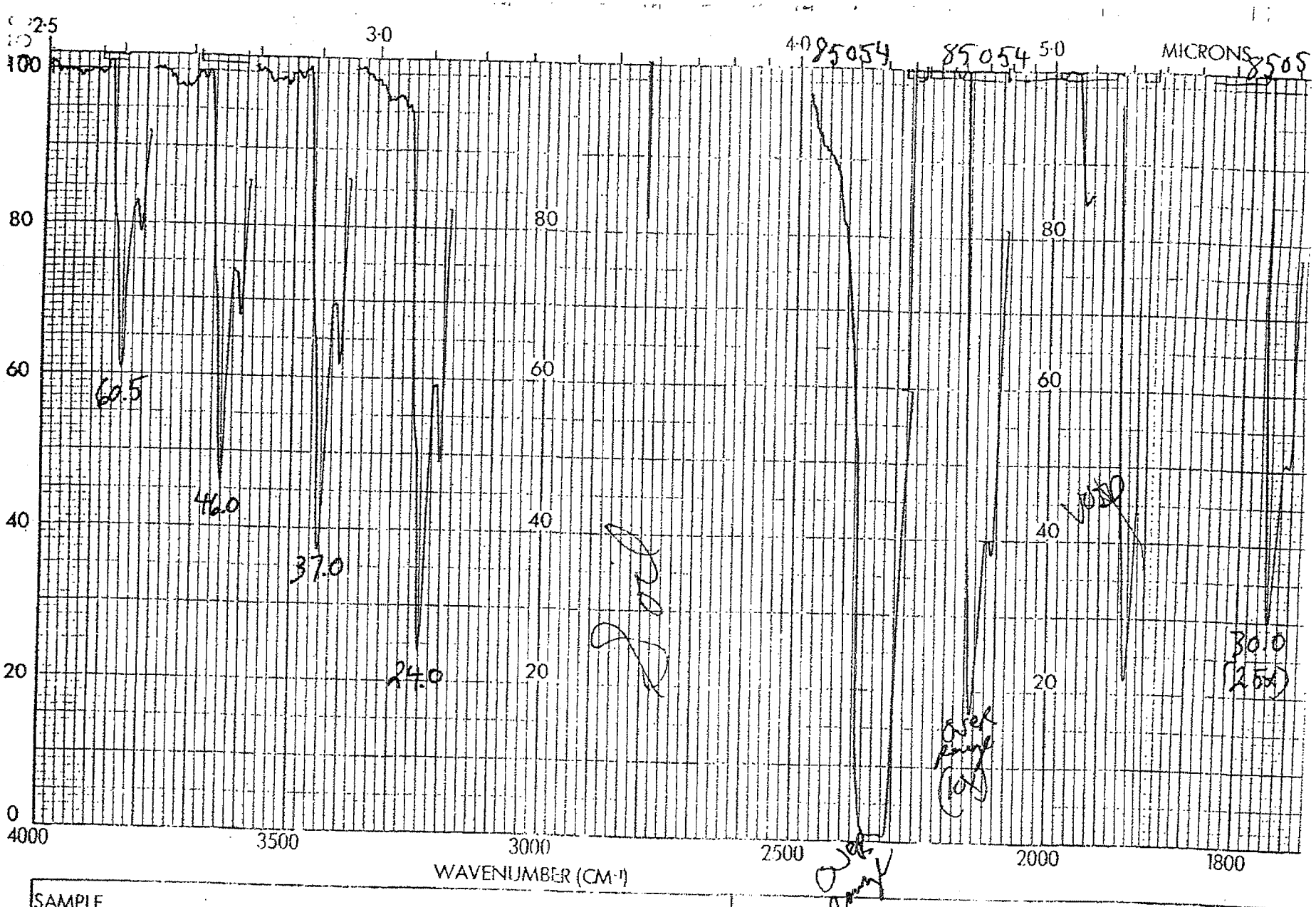


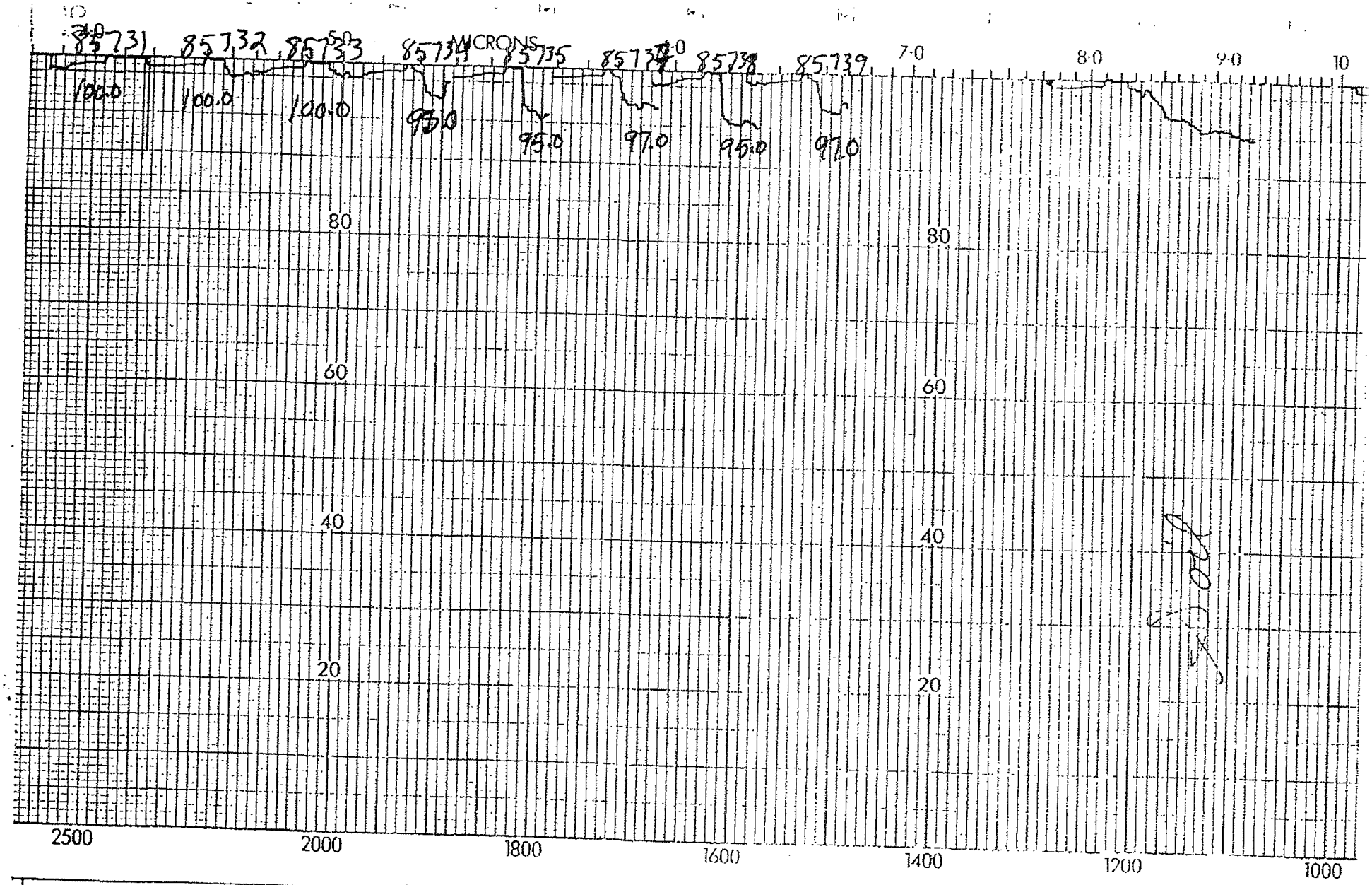


	SCAN MODE SLIT TIME CONSTANT	OPERATOR DATE
	GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK No. PR 5100-4367	REF No.

SAMPLE

ORIGIN


2·5
3·0
4·0
5·0
MICRONS
85054
85054
85054
100
80
60
40
20
0
TRANSMITTANCE (%)
60.5
46.0
37.0
24.0
30.0
(265)
4000
3500
3000
2500
2000
1800
WAVENUMBER (CM⁻¹)
SAMPLE
SOLVENT
CONCENTRATION
CELL PATH
REFERENCE



SOLVENT

CONCENTRATION

CELL PATH

REFEREN(

REMARKS

GENERAL CHEMISTRY ANALYSIS DATA PACKAGE

Attention: Dorian A. Bailey
Port Authority of NY & NJ
Engineering Department
241 Erie St., Room 234
Jersey City, NJ 07310-1397

Project #: 97123007
Date Received: 11/18/97 15:00

Customer Project No. JFK British Airways

The following results are for Phenolics as phenol

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.050	mg/l	MW-2
97 0085732	<0.050	mg/l	MW-3
97 0085733	<0.050	mg/l	MW-5
97 0085734	<0.050	mg/l	MW-6
97 0085735	<0.050	mg/l	MW-7
97 0085736	<0.050	mg/l	MW-8
97 0085737	<0.050	mg/l	MW-9
97 0085738	<0.050	mg/l	MW-9A
97 0085739	<0.050	mg/l	Field Blank
97 0085741	<0.050	mg/l	MW-10

The following results are for Total Cyanide

Lab #	Conc.	Unit	Client Designation
97 0085731	<0.010	mg/l	MW-2
97 0085732	<0.010	mg/l	MW-3
97 0085733	<0.010	mg/l	MW-5
97 0085734	<0.010	mg/l	MW-6
97 0085735	<0.010	mg/l	MW-7
97 0085736	<0.010	mg/l	MW-8
97 0085737	<0.010	mg/l	MW-9
97 0085738	<0.010	mg/l	MW-9A
97 0085739	<0.010	mg/l	Field Blank
97 0085741	<0.010	mg/l	MW-10

BLANKS

Lab Name: EMSL Analytical Contract: _____

Lab Code: _____ Case No.: _____ AS No.: _____ SDG No.: _____

Preparation Blank Matrix (Soil/Water): Water

Preparation Blank Concentration Units (ug/l or mg/kg): mg/l

Analyte	Initial Calib. Blank (ug/l)	C	Continuing Calibration Blank (ug/l) 1	C	2	C	3	C	Preparation Blank	C	M
Phenolics									**<0.05**		
Total Cyanide									**<0.01**		

SPIKE SAMPLE RECOVERY

Lab Name: **EMSL Analytical** Contract: _____ Lab Sample No.: **97-85739, 97-81282**

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix (soil/water): **Water** Level (low/med) : _____

% Solids for Sample: _____

Concentration Units (mg/l or mg/kg dry weight): **mg/l**

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Phenolics	**75-125**	**0.478**		**0**		**0.500**	**96.0**		
Total Cyanide	**75-125**	**0.370**		**0**		**0.400**	**93.0**		

Comments: _____

EMSL

DUPLICATES

Lab Name: **EMSL ANALYTICAL** Contract: _____ Lab Sample No.: **97-81187, 97-81279**

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix (soil/water): **Water** :Level (low/med.): _____

% Solids for Sample: _____ % Solids for Duplicate: _____

Concentration units (mg/l or mg/kg dry weight) **mg/l**

Analyte	Control Limit	Sample(S)	C	Duplicate(D)	C	RPD	Q	M
Phenolics	**+/-20%**	**5.20**		**5.37**		**3**		
Total Cyanide	**+/-20%**	**<0.01**		**<0.01**		**NC**		

LABORATORY CONTROL SAMPLE

Lab Name: **EMSL Analytical** Contract: _____

Lab Code: _____ Case No.: _____ SAS No: _____ SDG No: _____

Solid LCS Source: _____

Aqueous LCS Source: _____ Various _____

Analyte	Aqueous (mg/l)			Solid (mg/kg)				
	True	Found	%R	True	Found	C	Limits	%R
Phenolics	**0.500**	**0.472**	**94.4**				**80-120**	
Total Cyanide	**0.400**	**0.394**	**98.5**				**80-120**	

New Jersey Department of Environmental Protection
Division of Water Resources
Bureau of Underground Storage Tanks
CN-029, Trenton, New Jersey 08625

LABORATORY AUTHENTICATION STATEMENT

I certify under penalty of law, where applicable, this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18, 40 CFR Part 136 for Water and Wastewater Analyses and SW 846 for Solid Waste Analyses. I have personally examined and am familiar with the information contained in this report, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, complete, and meets the standards specified in N.J.A.C. 7:18, 40 CFR Part 136, and/or SW 846. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Laboratory Manager (as defined in N.J.A.C. 7:18)

PESTICIDE/PCB DATA PACKAGE

6E

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: EMSL
Instrument ID: HP 5890
GC Column:DB-5 ID: 0.32 Date(s) Analyzed:11/18/97-11/19/97

CALIBRATION FACTORS

COMPOUND	1	2	3	4	5	MEAN	%RSD
alpha-BHC	2789.6	2716	2905	3254.275	3575.417	3048	12
beta-BHC	2495.2	2518.6	2532.5	2625.25	2728.2	2580	4
delta-BHC	2167.4	2212.8	2215.8	2405.35	2709.267	2342	10
gamma-BHC (Lindane)	2924.8	2857.6	3067.4	3447.825	3868.533	3233	13
Heptachlor	3844.8	3755.4	3792.6	3937.525	4000.15	3866	3
Aldrin	3855	3898.5	4162.25	4960.025	5602.367	4496	17
Heptachlor epoxide	3829	3780.2	3842.3	4280.25	4636.533	4074	9
Endosulfan I	3439.8	3313.8	3518.45	3888.95	4116.783	3656	9
Dieldrin	3413.8	3433.05	4053.05	4909.05	5231.117	4208	20
4,4'-DDE	4304.5	4504.4	4990.7	5798.275	6162.667	5152	16
Endrin	2774.9	2683.8	2816.35	3135.025	3235.333	2929	8
Endosulfan II	3029.3	2995.55	2996.425	3218.2	3363.1	3121	5
4,4'-DDD	2717.6	2732.6	2931.025	3175.088	3252.25	2962	8
Endosulfan sulfate	2502.8	2588.55	2627.775	2830.2	3088.4	2728	9
4,4'-DDT	2818.7	2759.95	3045.95	3463.65	3720.925	3162	13
Methoxychlor	1625.74	1566.28	1572.42	1532.318	1486.895	1557	3
Endrin ketone	2772	2875.65	2840.175	2897.013	2937.35	2864	2
Endrin aldehyde	2985.6	2967.45	2926.775	2968.263	3150.117	3000	3
alpha-Chlordane	4625.8	4622.2	4894.05	5571.825	6022.717	5147	12
gamma-Chlordane	4621.2	4606.4	4769.55	5337.275	5763	5019	10
Tetrachloro-m-xylene	4131.2	3970.1	4365.35	4753.475	4897.667	4424	9
Decachlorobiphenyl	5004	4880.75	4997.875	5384.925	5568.875	5167	6

6E

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: EMSL
Instrument ID: HP 5890
GC Column:DB-1701 ID: 0.32 Date(s) Analyzed:11/18/97-11/19/97

CALIBRATION FACTORS

COMPOUND	1	2	3	4	5	MEAN	%RSD
alpha-BHC	25326.8	19152.7	20956.25	21802.3	22189.48	21886	10
beta-BHC	11683.2	11531.3	11424.3	11241.7	11222.37	11421	2
delta-BHC	14177.6	14814.1	15605.35	16619.08	18069.3	15857	10
gamma-BHC (Lindane)	22779.2	18567	20309.8	21112.38	21401.38	20834	7
Heptachlor	28037.2	22873.3	23865.3	23580.65	22921.48	24256	9
Aldrin	22949.6	21944.4	21751.3	21762.55	22233.67	22128	2
Heptachlor epoxide	22370.8	21475.3	21010.55	20661.13	20331.68	21170	4
Endosulfan I	22208.6	19305.2	19926.15	19662.65	19142.13	20049	6
Dieldrin	19068.2	16693.55	17638.78	17614.9	17160.67	17635	5
4,4'-DDE	18164.8	17622.8	17709.85	17859.3	17708	17813	1
Endrin	16290.7	14221.35	14262.98	14101.36	13585	14492	7
Endosulfan II	16182.1	16403.4	16094.6	15845.13	15641.13	16033	2
4,4'-DDD	12165.2	11405.45	11729.75	12006.34	11905.73	11842	2
Endosulfan sulfate	10382.7	11604.1	11115.6	11494.38	11638.84	11247	5
4,4'-DDT	11109	10176.9	10875.33	11469.83	11748.71	11076	5
Methoxychlor	6183.1	5527.82	5458.215	5149.038	4915.78	5447	9
Endrin ketone	11161.8	12004.5	12176.53	12265.54	12334.85	11989	4
Endrin aldehyde	9692.4	9791.4	9780.375	10004.61	10945.62	10043	5
alpha-Chlordane	23249.4	22220.8	22505.45	21971.53	22216.13	22433	2
gamma-Chlordane	22271.8	21621.5	21564.85	21389.88	21458.02	21661	2
Tetrachloro-m-xylene	18334.4	14333.2	15666.55	15346.43	14889.28	15714	10
Decachlorobiphenyl	22615.8	20939.85	20391.43	19674.45	18666.88	20458	7

***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:42:25 Version 5.1.5 **********

* Sample Name: INDA 5-50 UG/L Data File: D:NV14E68 *
* Date: 11-18-1997 21:50:33 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 68 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.561	TCMX	4.6691	4.0618%	20656	4442	4.7	1	0	0	2.2604E-04
2	6.563	α-BHC	0.0000	0.0000%	13948	3339	4.2	1			1.9000E-09
3	7.482	Y-BHC	4.5234	3.9351%	14624	3710	3.9	1	0	-.2187	3.0931E-04
4	9.619	Heptachlor	4.9727	4.3259%	19224	5127	3.7	1	0	-.1743	2.5867E-04
5	13.377	Endosulfan I	4.7043	4.0924%	17199	4907	3.5	1	0	-.1217	2.7352E-04
6	14.295	~~BOE~~ Dieldrin	6.6261	5.7643%	34138	9444	3.6	1	0	-.1173	1.9410E-04
7	15.080	Endrin	9.4738	8.2416%	27749	7655	3.6	1	0	-.1119	3.4141E-04
8	15.798	4'4-DDD	9.1750	7.9816%	27176	6957	3.9	1	0	-.2134	3.3761E-04
9	17.134	DDT	8.9144	7.7549%	28187	7393	3.8	1	0	-.1968	3.1626E-04
10	19.305	Methoxychlor	52.2076	45.4173%	81287	22507	3.6	1	0	0	6.4226E-04
11	26.186	DCB	9.6846	8.4250%	50040	9659	5.2	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 114.9510

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E68.PTS Printed on 11-21-1997 at 21:42:29
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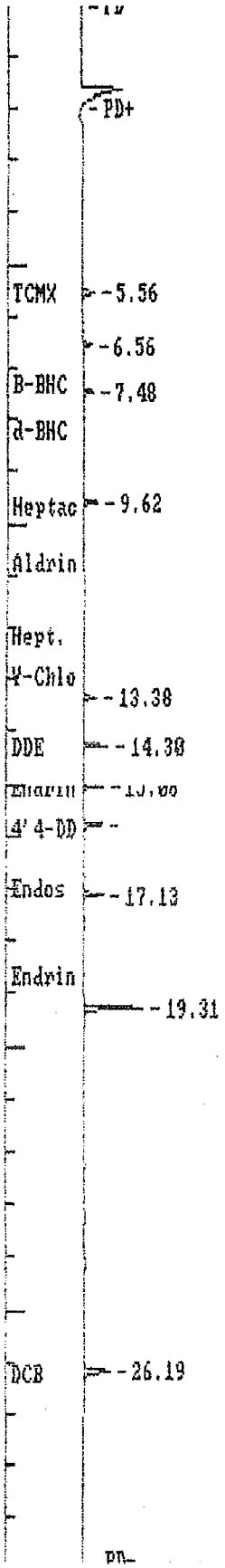
11 Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:43:08 Version 5.1.5 **********

* Sample Name: INDB 5-10 UG/L Data File: D:NV14E69 *
* Date: 11-18-1997 22:23:16 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 69 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

****

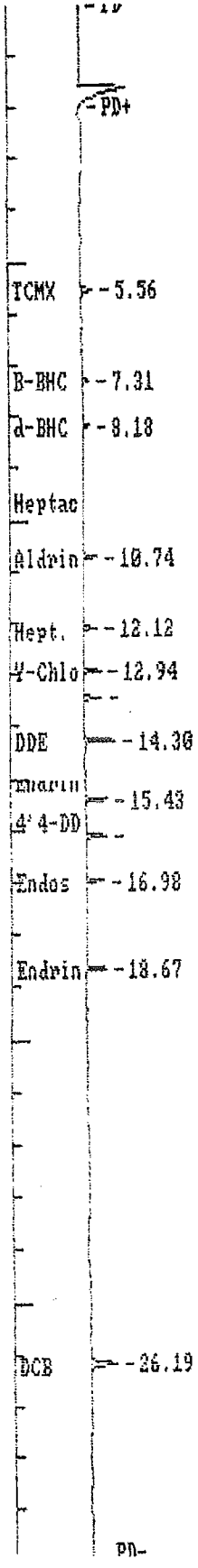
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.561	TCMX	4.8604	5.4505%	21502	4585	4.7	1	0	0	2.2604E-04
2	7.315	B-BHC	4.8356	5.4227%	12476	2984	4.2	1	0	-.2237	3.8760E-04
3	9.183	d-BHC	4.6271	5.1889%	10837	2683	4.0	1	0	-.2073	4.2699E-04
4	10.738	Aldrin	4.2871	4.8077%	19275	5369	3.6	1	0	-.1571	2.2242E-04
5	12.124	Hept. epox.	4.6992	5.2698%	19145	5336	3.6	1	0	-.1383	2.4546E-04
6	12.943	Y-Chlordane	4.6037	5.1627%	23106	6403	3.6	1	0	-.1273	1.9924E-04
7	13.477	a-Chlordane	4.4937	5.0393%	23129	6480	3.6	1	0	-.2450	1.9429E-04
8	14.295	DDE	8.3550	9.3694%	43045	11781	3.7	1	0	-.1173	1.9410E-04
9	15.431	Endoslf II	9.7063	10.8848%	30293	8547	3.5	1	0	-.1048	3.2041E-04
10	16.132	Endrin ald	9.9519	11.1602%	29856	8031	3.7	1	0	-.1040	3.3333E-04
11	16.984	Endos sulf	9.1745	10.2884%	25028	6924	3.6	1	0	-.1005	3.6657E-04
12	18.671	Endrin ket.	9.6797	10.8539%	27720	7473	3.7	1	0	0	3.4916E-04
13	26.186	DCB	9.8997	11.1016%	51152	9729	5.3	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 89.1730

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E69.PTS Printed on 11-21-1997 at 21:43:20
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Cal Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:44:11 Version 5.1.5 **********

* Sample Name: INDA 10-100 UG/L Data File: D:NV14E70 *
* Date: 11-18-1997 22:55:56 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 70 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

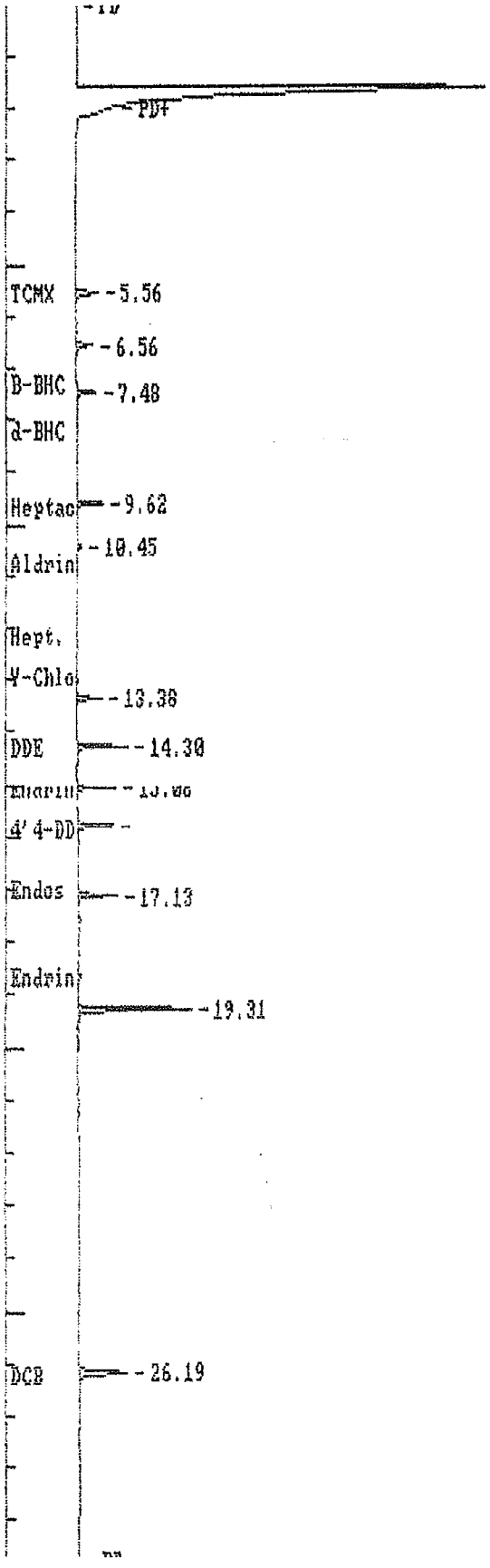
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.561	TCMX	8.9741	4.0127%	39701	8584	4.6	1	0	0	2.2604E-04
2	6.563	α-BHC	0.0000	0.0000%	27160	6576	4.1	1			1.0000E-09
3	7.482	Y-BHC	8.8387	3.9522%	28576	7357	3.9	1	0	-.2137	3.0931E-04
4	9.619	Heptachlor	9.7139	4.3436%	37554	9871	3.8	1	0	-.1743	2.5867E-04
5	10.454		0.0000	0.0000%	7116	1562	4.6	1			1.0000E-09
	13.377	Endosulfan I	9.0640	4.0530%	33138	9352	3.5	1	0	-.1217	2.7352E-04
7	14.295	~~DDE~~ Dieldrin	13.3270	5.9591%	68661	19113	3.6	1	0	-.1173	1.9410E-04
8	15.080	Endrin	18.3258	8.1943%	53676	14782	3.6	1	0	-.1119	3.4141E-04
9	15.798	4'4-DDD	18.4511	8.2504%	54652	13774	4.0	1	0	-.2134	3.3761E-04
10	17.134	DDT	17.4570	7.8059%	55199	14896	3.7	1	0	-.1968	3.1626E-04
11	19.305	Methoxychlor	100.5958	44.9813%	156628	42616	3.7	1	0	0	6.4226E-04
12	26.186	DCB	18.8929	8.4475%	97615	18262	5.3	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 223.6393

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E70.PTS Printed on 11-21-1997 at 21:44:23
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
il Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 21:45:17 Version 5.1.5

Sample Name: INDB 10-20 UG/L Data File: D:NV14E71

Date: 11-18-1997 23:28:38 Method: M:APES-E 11-21-1997 21:15:10 # 396

Interface: 2 Cycle#: 71 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

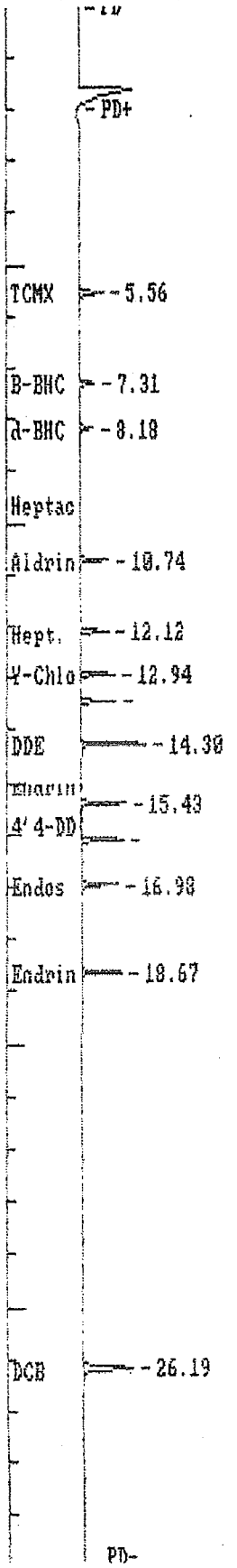
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.561	TCMX	9.7156	5.3847%	42982	9257	4.6	1	0	0	2.2604E-04
2	7.315	a-BHC	9.7519	5.4104%	25186	6039	4.2	1	0	-.2237	3.8760E-04
3	8.183	d-BHC	9.4484	5.2366%	22128	5469	4.0	1	0	-.2073	4.2699E-04
4	10.738	Aldrin	8.6719	4.8057%	38985	10946	3.6	1	0	-.1571	2.2242E-04
5	12.124	Hept. epox.	9.2790	5.1427%	37802	10501	3.6	1	0	-.1383	2.4546E-04
	12.943	Y-Chlordane	9.1779	5.0867%	46064	12921	3.6	1	0	-.1273	1.9924E-04
7	13.477	a-Chlordane	9.0580	5.0202%	46622	13235	3.5	1	0	-.2450	1.9429E-04
8	14.295	ODE	17.4860	9.6913%	90088	24783	3.6	1	0	-.1173	1.9410E-04
9	15.431	Endosulf II	19.1960	10.6390%	59911	17188	3.5	1	0	-.1048	3.2041E-04
10	16.132	Endrin ald	19.7832	10.9644%	59349	16086	3.7	1	0	-.1040	3.3333E-04
11	16.984	Endos sulf	18.9775	10.5181%	51771	14080	3.7	1	0	-.1005	3.6657E-04
12	18.671	Endrin ket.	20.0813	11.1297%	57513	15373	3.7	1	0	0	3.4916E-04
13	26.186	DCB	19.7943	10.9706%	102277	19027	5.4	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 180.4302

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E71.PTS Printed on 11-21-1997 at 21:45:28
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:46:20 Version 5.1.5 **********

* Sample Name: INDA 20-200 UG/L Data File: D:NV14E72 *
* Date: 11-19-1997 00:01:18 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 72 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.388		0.0000	0.0000%	22283	1077	20.7	1			1.0000E-09
2	5.561	TCMX	19.7348	4.1855%	87307	18797	4.6	1	0	0	2.2604E-04
3	6.563	α-BHC	0.0001	0.0000%	58100	14223	4.1	1			1.0000E-09
4	7.482	Y-BHC	18.9757	4.0245%	61348	15557	3.9	1	0	-.2137	3.0931E-04
5	9.602	Heptachlor	19.6204	4.1612%	75852	19783	3.8	1	0	-.3476	2.5867E-04
6	13.377	Endosulfan I	19.2477	4.0822%	70369	19933	3.5	1	0	-.1217	2.7352E-04
7	14.295	~~DDE~~ Dieldrin	31.4677	6.6739%	162122	46498	3.5	1	0	-.1173	1.9410E-04
8	15.080	Endrin	38.4617	8.1572%	112654	31079	3.6	1	0	-.1119	3.4141E-04
9	15.798	4'4-DDD	39.5817	8.3947%	117241	29583	4.0	2	0	-.2134	3.3761E-04
10	16.132	Endrin ald	2.4488	0.5194%	7346	1848	4.0	2	0	-.1040	3.3333E-04
11	17.134	DDT	38.5320	8.1721%	121838	32847	3.7	1	0	-.1968	3.1625E-04
12	17.602		0.0000	0.0000%	8859	2136	4.1	1			1.0000E-09
13	18.871	Endrin ket.	2.7639	0.5862%	7916	2065	3.8	1	0	0	3.4916E-04
14	19.305	Methoxychlor	201.9806	42.8374%	314484	83786	3.8	1	0	0	6.4225E-04
15	26.202	DCB	38.6906	8.2058%	199915	36946	5.4	1	0	-.1436	1.9354E-04

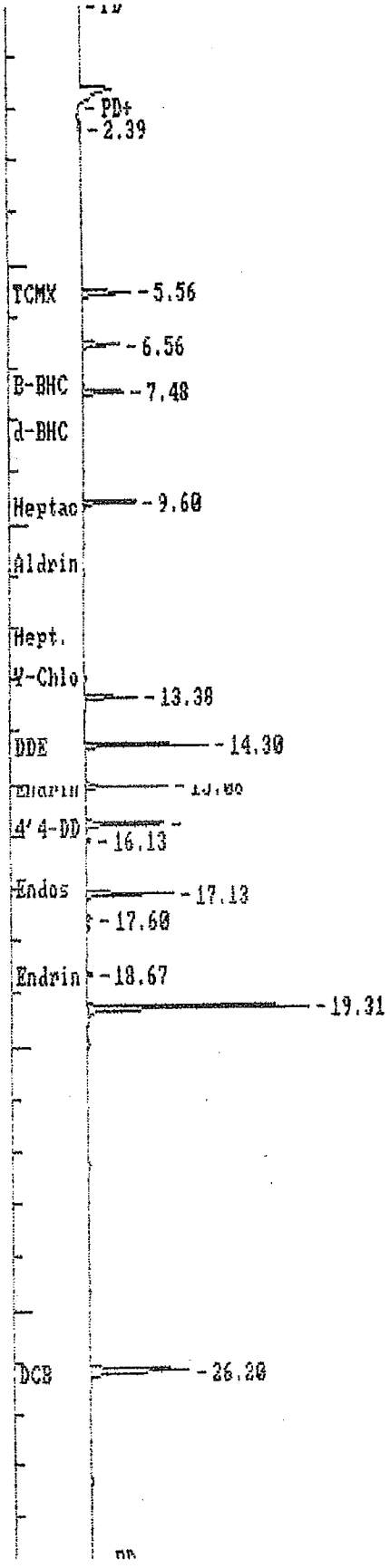
TOTAL AMOUNT = 471.5057

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E72.PTS Printed on 11-21-1997 at 21:46:32

Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.

Full Range: 300 millivolts



JJC

***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:47:30 Version 5.1.5 **********

* Sample Name: INDB 20-40 UG/L Data File: D:NV14E73 *
* Date: 11-19-1997 00:34:02 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 73 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.388		0.0000	0.0000%	25495	1133	22.5	1			1.0000E-09
2	4.576		0.0000	0.0000%	9105	1659	5.5	1			1.0000E-09
3	5.561	TCMX	19.9343	5.4172%	88190	18809	4.7	1	0	0	2.2604E-04
4	7.315	B-BHC	19.6316	5.3350%	50650	12109	4.2	1	0	-.2237	3.8760E-04
5	8.183	d-BHC	18.9225	5.1422%	44316	11190	4.0	1	0	-.2073	4.2699E-04
6	10.738	Aldrin	18.5154	5.0316%	83245	23949	3.5	1	0	-.1571	2.2242E-04
7	12.124	Hept. epox.	18.8626	5.1260%	76846	21968	3.5	1	0	-.1383	2.4546E-04
8	12.943	Y-Chlordane	19.0061	5.1650%	95391	27224	3.5	1	0	-.1273	1.9924E-04
9	13.477	a-Chlordane	19.0172	5.1680%	97881	27708	3.5	1	0	-.2450	1.9429E-04
10	14.295	DDE	38.7478	10.5298%	199628	56786	3.5	1	0	-.1173	1.9410E-04
11	15.431	Endoslf II	38.4033	10.4362%	119857	35159	3.4	1	0	-.1048	3.2041E-04
12	16.132	Endrin ald	39.0236	10.6048%	117071	31922	3.7	1	0	-.1040	3.3333E-04
13	16.984	Endos sulf	38.5303	10.4707%	105111	28667	3.7	1	0	-.1005	3.6657E-04
14	18.671	Endrin ket.	39.6672	10.7797%	113607	30620	3.7	1	0	0	3.4916E-04
15	26.186	DCB	39.7195	10.7939%	205231	38411	5.3	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 367.9813

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

)ata File = D:NV14E73.PTS Printed on 11-21-1997 at 21:47:45 373
rt time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
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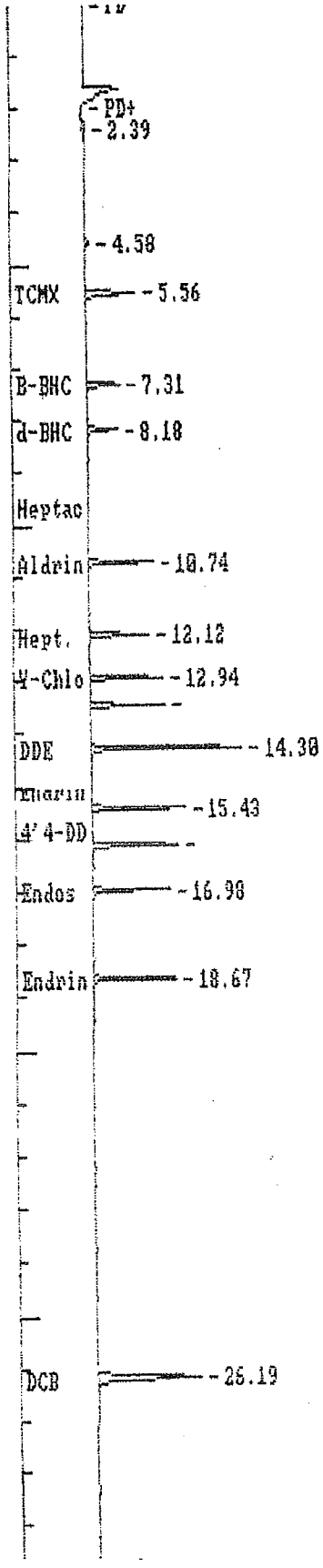


***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:48:40 Version 5.1.5 **********

* Sample Name: INDA 40-400 UG/L Data File: D:NV14E74 *
* Date: 11-19-1997 01:06:41 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 74 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

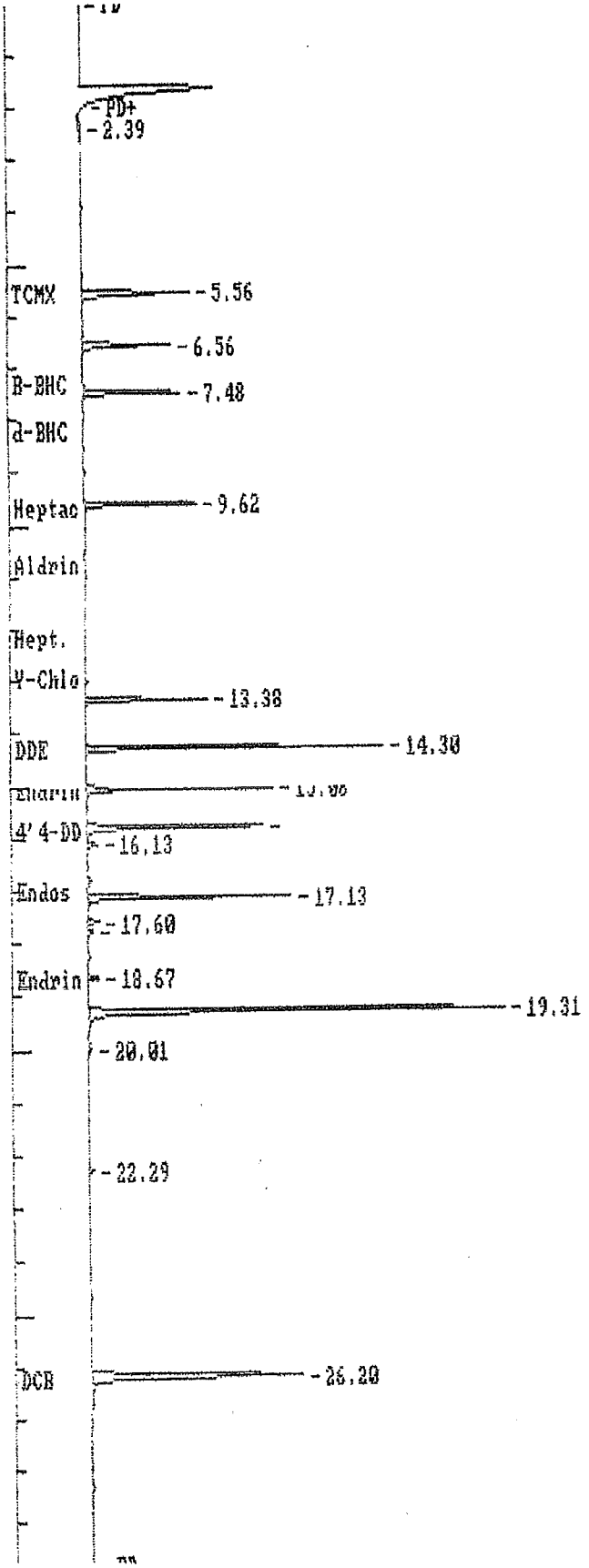
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.388		0.0000	0.0000%	24390	1138	21.4	1			1.0000E-09
2	5.561	TCMX	42.9789	4.3325%	190139	40949	4.6	1	0	0	2.2604E-04
3	6.563	α-BHC	0.0001	0.0000%	130171	33401	3.9	1			1.0000E-09
4	7.482	Y-BHC	42.6578	4.3001%	137913	36853	3.7	1	0	-.2187	3.0931E-04
5	9.619	Heptachlor	40.7400	4.1068%	157501	42296	3.7	1	0	-.1743	2.5867E-04
6	13.377	Endosulfan I	42.5487	4.2891%	155558	46277	3.4	1	0	-.1217	2.7352E-04
7	14.295	~~DDE~~ Dieldrin	76.2275	7.6841%	392724	113033	3.5	1	0	-.1173	1.9410E-04
8	15.080	Endrin	85.6271	8.6316%	250802	70865	3.5	1	0	-.1119	3.4141E-04
9	15.798	4'4-DDD	85.7554	8.6445%	254007	67182	3.8	2	0	-.2134	3.3761E-04
10	16.132	Endrin ald	5.3471	0.5390%	16041	3937	4.1	2	0	-.1040	3.3333E-04
11	17.134	DDT	87.6319	8.8337%	277092	77309	3.6	1	0	-.1968	3.1626E-04
12	17.602		0.0000	0.0000%	17697	4269	4.1	2			1.0000E-09
13	17.785		0.0000	0.0000%	9173	2122	4.3	2			1.0000E-09
14	18.671	Endrin ket.	5.4722	0.5516%	15672	4137	3.8	1	0	0	3.4916E-04
15	19.305	Methoxychlor	393.6589	39.6826%	612927	157281	3.9	1	0	0	6.4226E-04
16	20.007		0.0000	0.0000%	4984	1487	3.4	1			1.0000E-09
17	22.294		0.0000	0.0000%	6973	1775	3.9	1			1.0000E-09
18	26.202	DCB	83.3741	8.4045%	430794	79394	5.4	1	0	-.1436	1.9354E-04

TOTAL AMOUNT = 992.0196

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E74.PTS Printed on 11-21-1997 at 21:48:57
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:49:54 Version 5.1.5 **********

* Sample Name: INDB 40-80 UG/L Data File: D:NV14E75 *
* Date: 11-19-1997 01:39:23 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 75 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

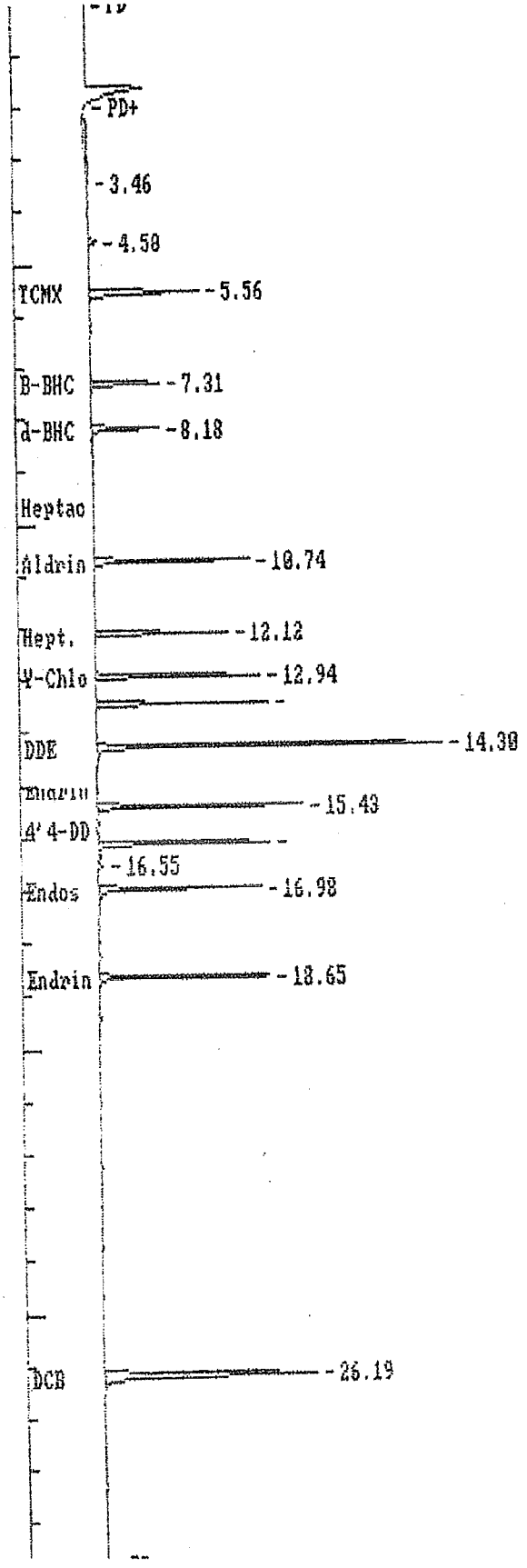
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.457		0.0001	0.0000%	69470	375	185.4	1			1.0000E-09
2	4.576		0.0000	0.0000%	16386	3012	5.4	1			1.0000E-09
3	5.561	TCMX	42.7911	5.3673%	189308	41574	4.6	1	0	0	2.2604E-04
4	7.315	B-BHC	40.7014	5.1052%	105010	26010	4.0	1	0	-.2237	3.8760E-04
5	8.183	d-BHC	41.0820	5.1529%	96214	25555	3.8	1	0	-.2073	4.2699E-04
6	10.738	Aldrin	44.1283	5.5350%	198401	59213	3.4	1	0	-.1571	2.2242E-04
7	12.124	Hept. epox.	42.0250	5.2712%	171210	50497	3.4	1	0	-.1383	2.4546E-04
8	12.943	Y-Chlordane	42.5366	5.3354%	213491	62439	3.4	1	0	-.1273	1.9924E-04
9	13.477	a-Chlordane	43.3016	5.4313%	222873	65013	3.4	1	0	-.2450	1.9429E-04
10	14.295	DDE	90.0003	11.2883%	463682	130800	3.5	1	0	-.1173	1.9410E-04
11	15.431	Endosif II	82.4915	10.3470%	257456	77753	3.3	1	0	-.1048	3.2041E-04
12	16.132	Endrin ald	79.1538	9.9283%	237461	65189	3.6	1	0	-.1040	3.3333E-04
13	16.550		0.0000	0.0000%	7597	1992	3.8	1			1.0000E-09
14	16.984	Endos sulf	82.9981	10.4105%	226419	61346	3.7	1	0	-.1005	3.6657E-04
15	18.654	Endrin ket.	80.9220	10.1501%	231761	64424	3.6	1	0	-.1771	3.4916E-04
16	26.186	DCB	85.1215	10.6768%	439823	80127	5.5	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 797.2533

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:NV14E75.PTS Printed on 11-21-1997 at 21:50:20
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:51:08 Version 5.1.5 **********

* Sample Name: INDA 60-600 UG/L Data File: D:NV14E76 *
* Date: 11-19-1997 02:12:01 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 76 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.457		0.0001	0.0000%	71704	436	164.6	1			1.0000E-09
2	5.561	TCMX	66.4241	4.3857%	293860	64831	4.5	1	0	0	2.2604E-04
3	6.563	α-BHC	0.0002	0.0000%	214525	58673	3.7	1			1.0000E-09
4	7.482	Y-BHC	71.7947	4.7402%	232112	62935	3.7	1	0	-.2187	3.0931E-04
5	9.602	Heptachlor	62.0820	4.0990%	240009	66490	3.6	1	0	-.3476	2.5867E-04
6	13.377	Endosulfan I	67.5621	4.4608%	247007	73803	3.3	1	0	-.1217	2.7352E-04
7	14.295	~~DDE~~ Dieldrin	121.8429	8.0447%	627734	182226	3.4	1	0	-.1173	1.9410E-04
8	15.080	Endrin	132.5504	8.7516%	388240	108560	3.6	1	0	-.1119	3.4141E-04
9	15.798	4'4-DDD	131.7588	8.6994%	390270	106104	3.7	2	0	-.2134	3.3761E-04
10	16.132	Endrin ald	8.5020	0.5679%	25806	6303	4.1	2	0	-.1040	3.3333E-04
11	16.800		0.0000	0.0000%	4739	1498	3.2	1			1.0000E-09
12	17.134	DDT	141.2116	9.3235%	446511	124981	3.6	1	0	-.1968	3.1625E-04
13	17.602		0.0000	0.0000%	26132	6311	4.1	2			1.0000E-09
14	17.785		0.0000	0.0000%	11070	2519	4.4	2			1.0000E-09
15	18.671	Endrin ket.	8.4299	0.5566%	24143	6285	3.8	1	0	0	3.4916E-04
16	19.305	Methoxychlor	572.9844	37.8313%	892137	225582	4.0	1	0	0	6.4226E-04
17	20.007		0.0000	0.0000%	7422	2245	3.3	1			1.0000E-09
18	22.294		0.0000	0.0000%	9890	2479	4.0	1			1.0000E-09
19	26.202	DCB	129.3333	8.5392%	668265	121089	5.5	1	0	-.1436	1.9354E-04

TOTAL AMOUNT = 1514.5763

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:NV14E76.PTS Printed on 11-21-1997 at 21:51:40
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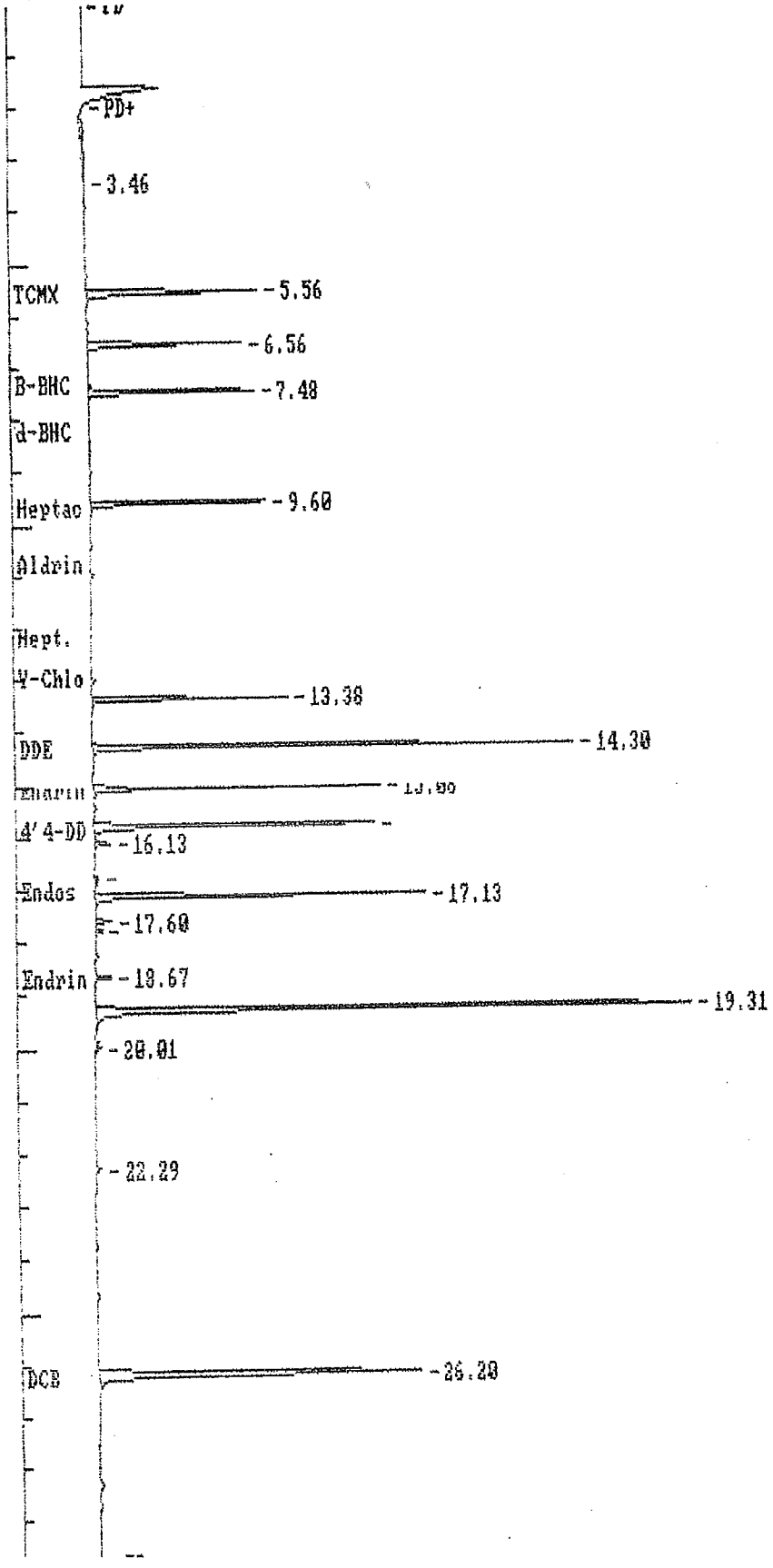
al Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 21:52:32 Version 5.1.5 **********

* Sample Name: INDB 60-120 UG/L Data File: D:NV14E77 *
* Date: 11-19-1997 02:44:44 Method: M:APES-E 11-21-1997 21:15:10 # 396 *
* Interface: 2 Cycle#: 77 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.572		0.0000	0.0000%	28411	802	35.4	1			1.0000E-09
2	4.576		0.0000	0.0000%	24931	4561	5.5	1			1.0000E-09
3	5.561	TCMX	67.5944	5.2943%	299037	65528	4.6	1	0	0	2.2604E-04
4	7.315	B-BHC	63.4464	4.9694%	163692	40820	4.0	1	0	-.2237	3.8760E-04
	8.166	d-BHC	69.4090	5.4364%	162556	44186	3.7	1	0	-.4109	4.2699E-04
6	10.738	Aldrin	74.7648	5.8559%	336142	100417	3.3	1	0	-.1571	2.2243E-04
7	12.124	Hept. epox.	68.2848	5.3483%	278192	82621	3.4	1	0	-.1383	2.4546E-04
8	12.943	Y-Chlordane	68.8942	5.3961%	345780	101293	3.4	1	0	-.1273	1.9924E-04
9	13.477	a-Chlordane	70.2084	5.4990%	361363	104575	3.5	1	0	-.2450	1.9429E-04
10	14.295	ODE	143.5404	11.2427%	739520	204549	3.6	1	0	-.1173	1.9410E-04
11	15.431	Endoslf II	129.3084	10.1280%	403572	121998	3.3	1	0	-.1048	3.2041E-04
12	16.132	Endrin ald	126.0048	9.8692%	378014	102173	3.7	2	0	-.1040	3.3333E-04
13	16.366		0.0000	0.0000%	7190	1972	3.6	2			1.0000E-09
14	16.550		0.0000	0.0000%	11328	2947	3.8	2			1.0000E-09
15	16.984	Endos sulf	135.8534	10.6406%	370608	98451	3.8	1	0	-.1005	3.6657E-04
16	18.270		0.0000	0.0000%	8745	1819	4.8	1			1.0000E-09
17	18.654	Endrin ket.	123.0732	9.6396%	352482	98304	3.6	1	0	-.1771	3.4916E-04
18	19.455	Methoxychlor	3.6341	0.2846%	5658	1571	3.6	1	0	.6909	6.4226E-04
19	22.278		0.0000	0.0000%	5583	1458	3.8	1			1.0000E-09
20	26.186	DCB	132.7306	10.3960%	685819	124003	5.5	1	0	-.2073	1.9354E-04

TOTAL AMOUNT = 1276.7471

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

-ta File = D:NV14E77.PTS Printed on 11-21-1997 at 21:53:06
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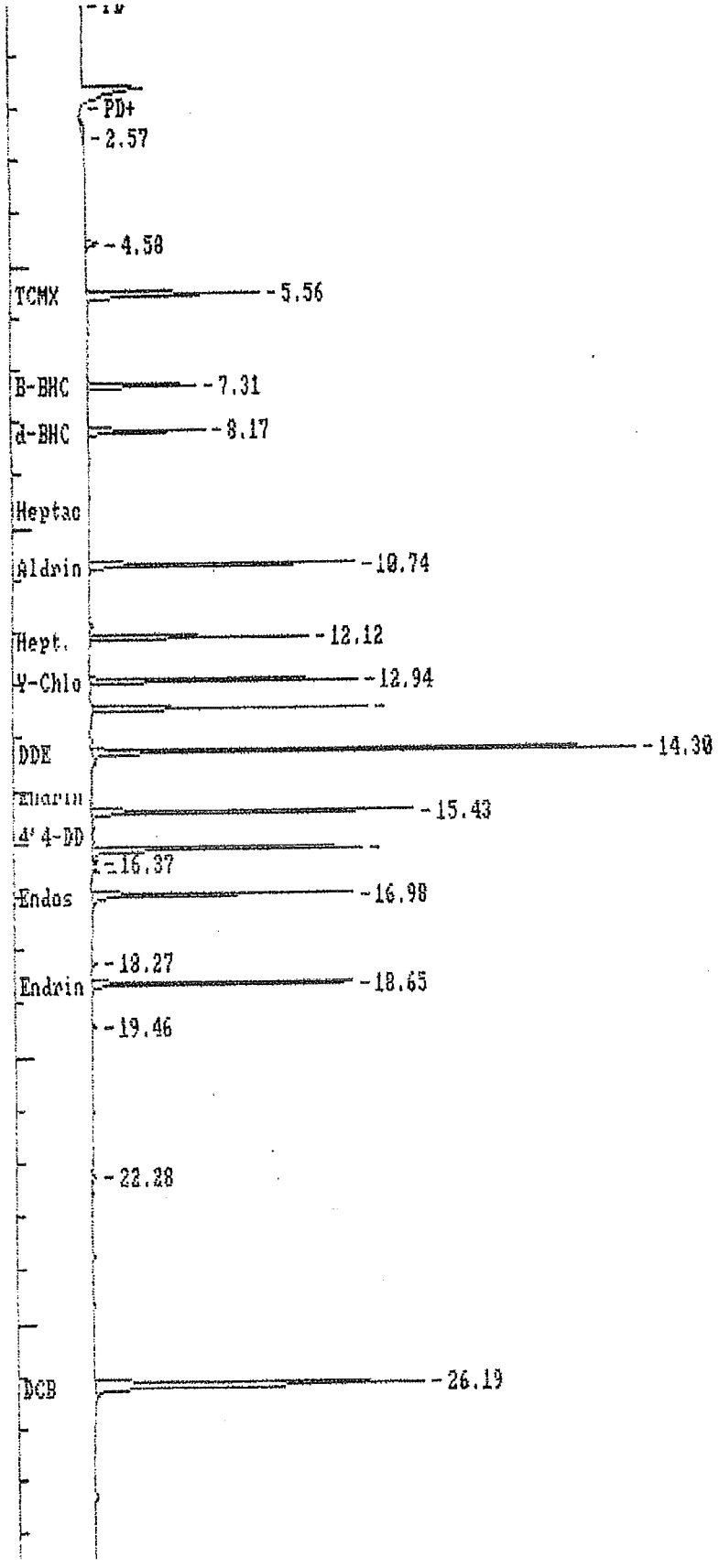
Full Range: 300 millivolts



****** EXTERNAL STANDARD TABLE ******

********** 11-21-1997 22:00:51 Version 5.1.5 **********

* Sample Name: INDA 5-50 UG/L Data File: D:0V14E68 *

* Date: 11-18-1997 21:50:33 Method: M:BPES-E 11-21-1997 21:24:54 # 390 *

* Interface: 2 Cycle#: 68 Operator JJK Channel#: 1 Vial#: N.A. *

* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *

* Solvent Description: *

* Conditions: *

* Detector 0: Detector 1: ECD *

* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

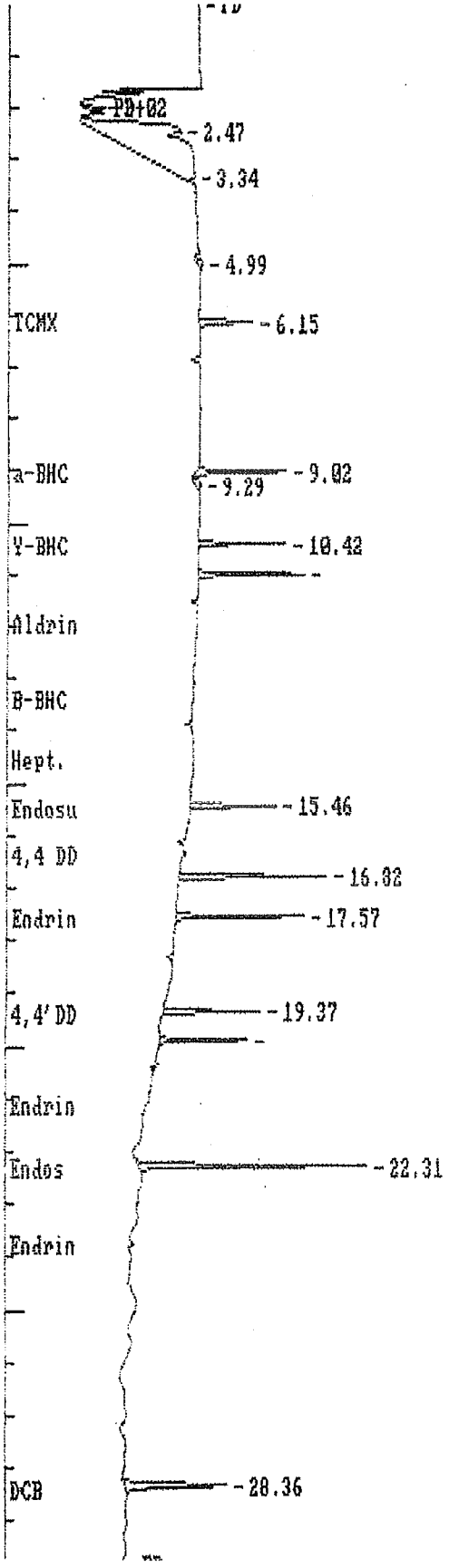
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	14968	4016	3.7	1			1.0000E-09
2	2.472		0.0005	0.0004%	459910	29474	15.6	3			1.0000E-09
3	3.340		0.0008	0.0007%	779760	4204	185.5	4			1.0000E-09
4	4.993		0.0000	0.0000%	13323	1872	7.1	1			1.0000E-09
5	6.146	TCMX	5.8338	5.3372%	91672	20901	4.4	1	0	.2544	6.3638E-05
6	9.018	a-BHC	5.7861	5.2935%	126634	34582	3.7	1	0	-.1881	4.5691E-05
7	9.285		0.0000	0.0000%	20190	1702	11.9	1			1.0000E-09
8	10.421	Y-BHC	5.4669	5.0015%	113896	33585	3.4	1	0	0	4.7998E-05
9	11.022	Heptachlor	5.7794	5.2874%	140186	40693	3.4	1	0	0	4.1227E-05
10	15.464	Endosulf I	5.5386	5.0671%	111043	32940	3.4	1	0	-.1085	4.9878E-05
11	16.817	Dieldrin	10.8127	9.8922%	190682	55685	3.4	1	0	0	5.6705E-05
12	17.568	Endrin	11.2418	10.2842%	162907	48600	3.4	1	0	0	6.9004E-05
13	19.372	4,4'DDD	10.2729	9.3984%	121652	37355	3.3	1	0	0	8.4445E-05
14	19.906	4,4 DDT	10.0298	9.1759%	111090	33150	3.4	1	0	0	9.0285E-05
15	22.311	~~Endos sulf~~ Methoxy	27.4878	25.1478%	309155	85358	3.6	1	0	0	8.8913E-05
16	28.357	DCB	11.0548	10.1137%	226158	38089	5.9	1	0	-.1176	4.8881E-05

TOTAL AMOUNT = 109.3051

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:OV14E68.PTS Printed on 11-21-1997 at 22:01:01
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 22:01:49 Version 5.1.5 **********

* Sample Name: INDB 5-10 UG/L Data File: D:OV14E69 *

* Date: 11-18-1997 22:23:16 Method: M:BPES-E 11-21-1997 21:24:54 # 390 *

* Interface: 2 Cycle#: 69 Operator JJK Channel#: 1 Vial#: N.A. *

* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *

* Solvent Description: *

* Conditions: *

* Detector 0: Detector 1: ECD *

* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

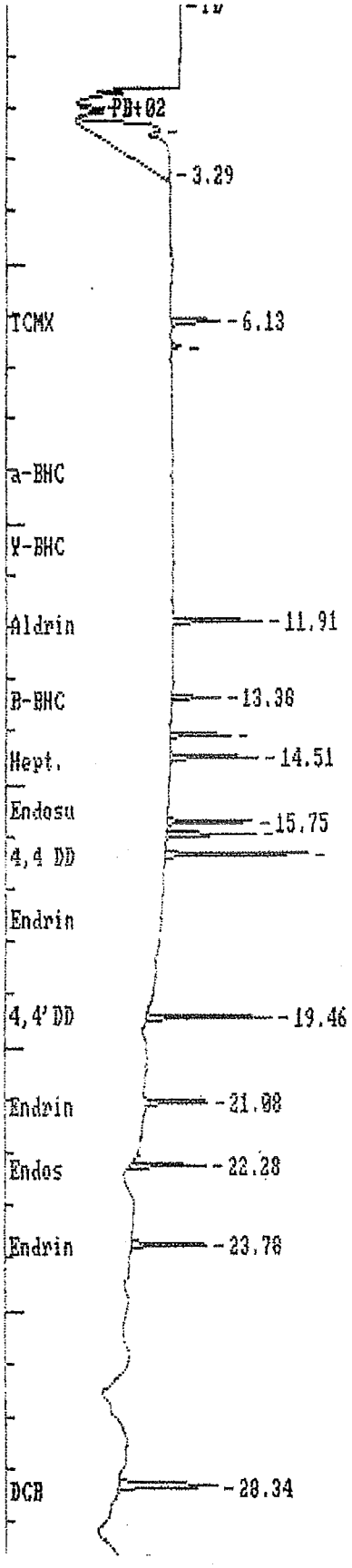
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16571	4288	3.9	1			1.0000E-09
2	2.472		0.0004	0.0004%	389114	24941	15.6	3			1.0000E-09
3	3.290		0.0006	0.0007%	633829	4160	152.4	4			1.0000E-09
4	6.129	TCMX	5.4953	5.7358%	86353	19011	4.5	1	0	0	6.3638E-05
	6.613		0.0000	0.0000%	14651	3701	4.0	1			1.0000E-09
6	11.907	Aldrin	5.1856	5.4126%	114748	34063	3.4	1	0	-.1417	4.5192E-05
7	13.377	B-BHC	5.1148	5.3386%	58416	18334	3.2	1	0	-.1217	8.7558E-05
8	14.095	d-BHC	4.4705	4.6661%	70888	23158	3.1	1	0	-.1148	6.3064E-05
9	14.512	Hept. epox.	5.2836	5.5148%	111854	33587	3.3	1	0	-.1149	4.7237E-05
10	15.748	Y-Chlordane	5.1410	5.3660%	111359	32730	3.4	2	0	-.1072	4.6165E-05
11	15.982	a-Chlordane	5.1820	5.4087%	116247	34324	3.4	2	0	-.1068	4.4577E-05
12	16.366	4,4 DDE	10.1975	10.6437%	181648	54581	3.3	1	0	-.1037	5.6139E-05
13	19.455	EndosulfII	10.0930	10.5346%	161821	47836	3.4	1	0	0	6.2371E-05
14	21.075	Endrin ald	9.6509	10.0732%	96924	23936	4.0	1	0	0	9.9572E-05
15	22.278	Endos sulf	9.2315	9.6355%	103827	28988	3.6	1	0	-.1488	8.8913E-05
16	23.781	Endrin ket	9.8939	10.3269%	118618	28786	4.1	1	0	0	8.3410E-05
17	28.340	DCB	10.8670	11.3425%	222317	37359	6.0	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 95.8077

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:0V14E69.PTS Printed on 11-21-1997 at 22:02:15
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
11 Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:02:57 Version 5.1.5

* Sample Name: INDA 10-100 UG/L Data File: D:0V14E70
* Date: 11-18-1997 22:55:56 Method: M:8PES-E 11-21-1997 21:24:54 # 390
* Interface: 2 Cycle#: 70 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

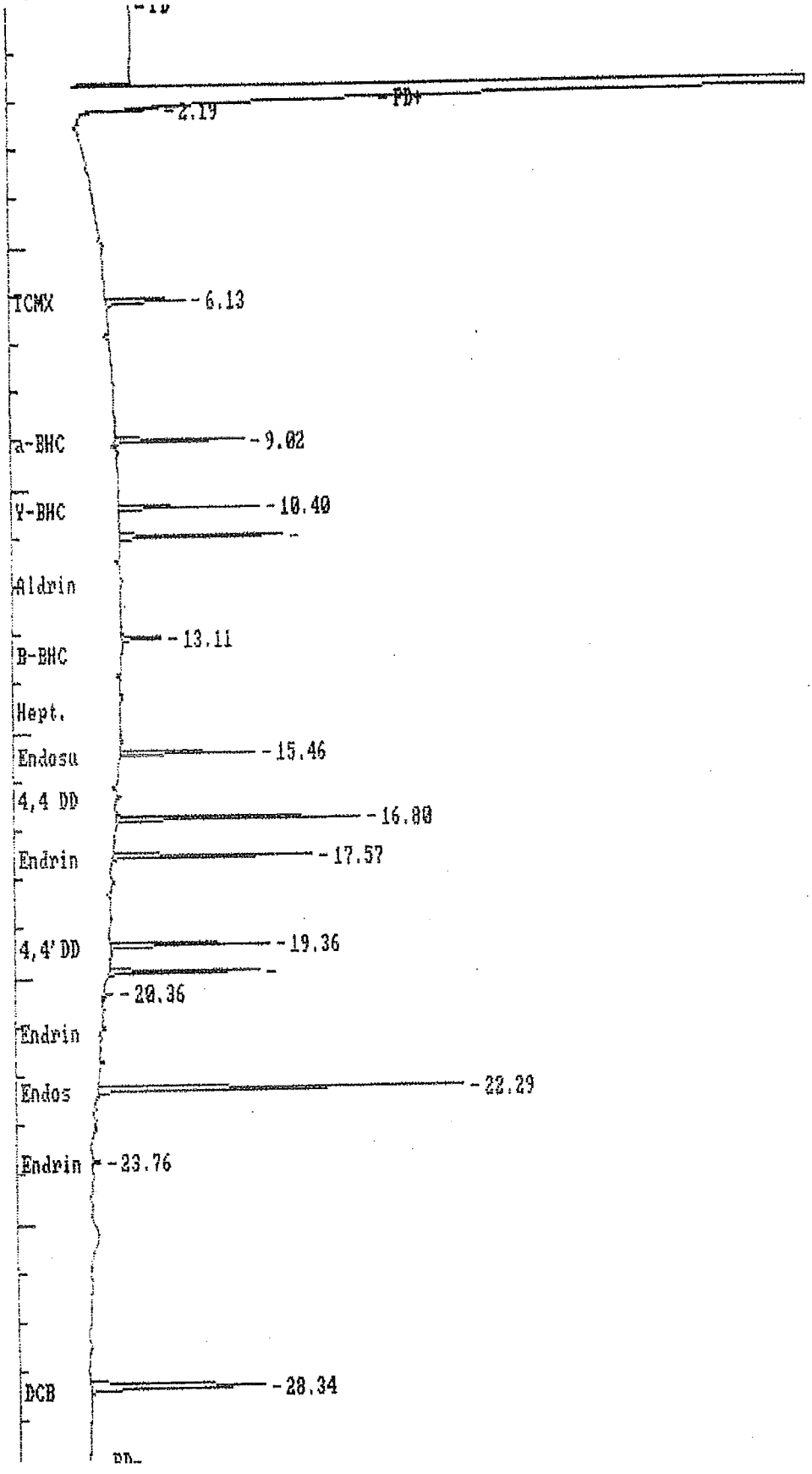
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.188		0.0000	0.0000%	35515	10677	3.3	1			1.0000E-09
2	6.129	TCMX	9.1213	4.7330%	143332	31849	4.5	1	0	0	6.3638E-05
3	9.018	a-BHC	8.7511	4.5409%	191527	53125	3.6	1	0	-.1881	4.5691E-05
4	10.404	Y-BHC	8.9119	4.6243%	185670	57058	3.3	1	0	-.1621	4.7996E-05
5	11.005	Heptachlor	9.4299	4.8932%	228733	66306	3.4	1	0	-.1515	4.1227E-05
6	13.109		0.0001	0.0000%	62071	15664	4.0	1			1.0000E-09
7	15.464	Endosulf I	9.6290	4.9965%	193052	54537	3.5	1	0	-.1085	4.9878E-05
8	16.800	Dieldrin	18.9323	9.8239%	333871	98458	3.4	1	0	0	5.6705E-05
9	17.568	Endrin	19.6265	10.1841%	284427	80379	3.5	1	0	0	6.9004E-05
10	19.355	4,4'DDD	19.2627	9.9954%	228109	64222	3.6	1	0	-.1738	8.4445E-05
11	19.906	4,4 DDT	18.3765	9.5355%	203538	60825	3.3	1	0	0	9.0285E-05
12	20.357		0.0000	0.0000%	10967	3846	2.9	1			1.0000E-09
13	22.294	~~Endos sulf~~ Methoxy	49.1493	25.5034%	552782	147668	3.7	1	0	0	8.8913E-05
14	23.764	~~Endrin ket~~	1.0546	0.5472%	12644	3104	4.1	1	0	-.1382	8.3410E-05
15	28.340	DCB	20.4711	10.6224%	418797	69624	6.0	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 192.7164

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:0V14E70.PTS Printed on 11-21-1997 at 22:03:28
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:04:12 Version 5.1.5

Sample Name: INDB 10-20 UG/L Data File: D:0V14E71

Date: 11-18-1997 23:28:38 Method: M:BPES-E 11-21-1997 21:24:54 # 390

Interface: 2 Cycle#: 71 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

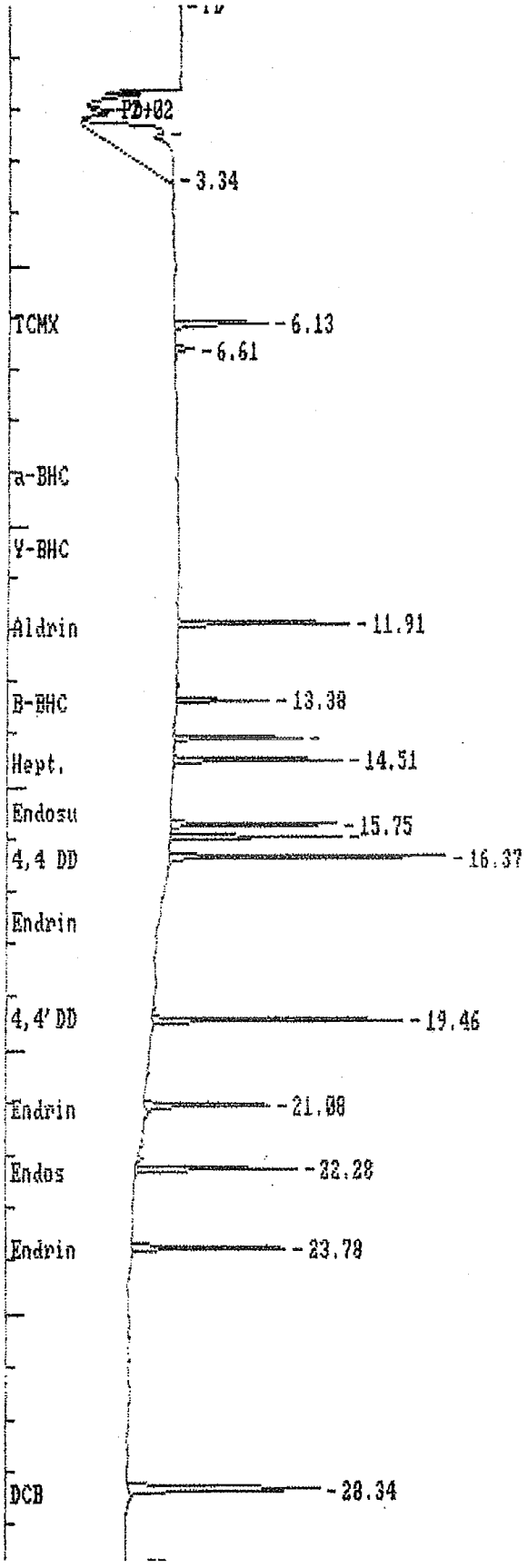
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16303	4372	3.7	1			1.0000E-09
2	2.472		0.0004	0.0002%	379224	24201	15.7	3			1.0000E-09
3	3.340		0.0006	0.0003%	611446	2461	248.5	4			1.0000E-09
4	6.129	TCMX	10.2510	5.3578%	161084	36021	4.5	1	0	0	6.3638E-05
5	6.613		0.0000	0.0000%	28560	7191	4.0	1			1.0000E-09
6	11.907	Aldrin	9.9170	5.1833%	219444	65279	3.4	1	0	-.1417	4.5192E-05
7	13.377	B-BHC	10.0966	5.2771%	115313	35784	3.2	1	0	-.1217	8.7558E-05
8	14.095	d-BHC	9.3423	4.8829%	148141	48670	3.0	1	0	-.1148	6.3064E-05
9	14.512	Hept. epox.	10.1442	5.3020%	214753	63959	3.4	1	0	-.1149	4.7237E-05
10	15.748	Y-Chlordane	9.9817	5.2171%	216216	63256	3.4	2	0	-.1072	4.6166E-05
11	15.982	a-Chlordane	9.9054	5.1772%	222208	65512	3.4	2	0	-.1068	4.4577E-05
12	16.366	4,4 DDE	19.7864	10.3416%	352456	105025	3.4	1	0	-.1037	5.6139E-05
13	19.455	EndosIfII	20.4629	10.6948%	328068	94812	3.5	1	0	0	6.2371E-05
14	21.075	Endrin ald	19.4989	10.1914%	195828	47364	4.1	1	0	0	9.9572E-05
15	22.278	Endos sulf	20.6350	10.7852%	232082	61171	3.8	1	0	-.1488	8.8913E-05
16	23.781	Endrin ket	20.0258	10.4668%	240090	58267	4.1	1	0	0	8.3410E-05
17	28.340	DCB	21.2802	11.1224%	436351	71994	6.0	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 191.3277

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E71.PTS Printed on 11-21-1997 at 22:04:40
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
11 Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:05:36 Version 5.1.5

Data File: D:0V14E72

* Sample Name: INDA 20-200 UG/L
* Date: 11-19-1997 00:01:18 Method: M:BPES-E 11-21-1997 21:24:54 # 390
* Interface: 2 Cycle#: 72 Operator JJK Channel#: 1 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

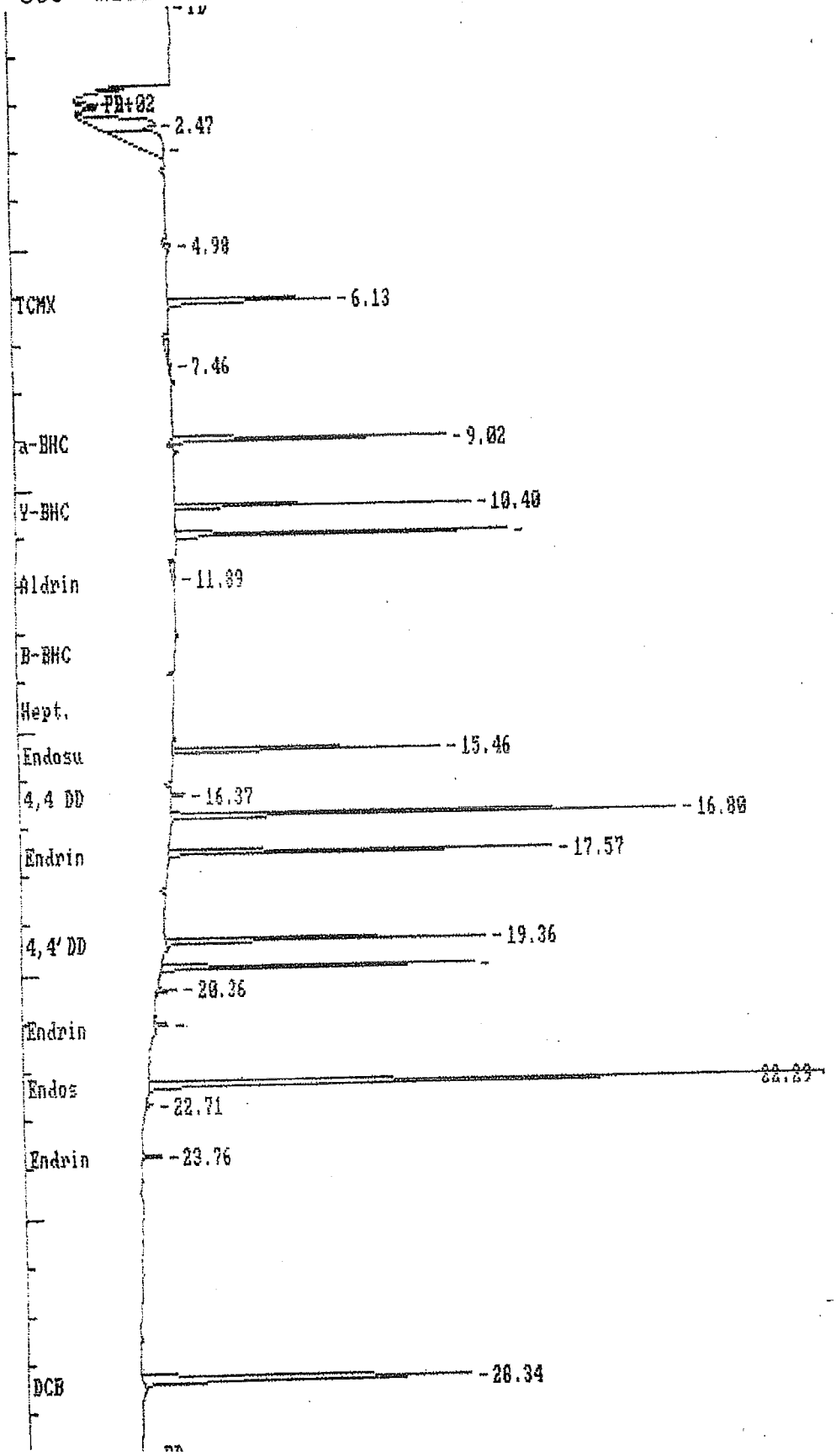
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16893	4445	3.8	1			1.0000E-09
2	2.472		0.0004	0.0001%	361936	22940	15.8	2			1.0000E-09
3	2.989		0.0004	0.0001%	350561	5692	61.6	2			1.0000E-09
4	4.977		0.0000	0.0000%	13891	2437	5.7	1			1.0000E-09
5	6.129	TCMX	19.9396	4.9683%	313331	68119	4.6	1	0	0	6.3638E-05
6	7.465		0.0001	0.0000%	58008	1318	44.0	1			1.0000E-09
7	9.018	a-BHC	19.1504	4.7716%	419125	114106	3.7	1	0	-.1881	4.5691E-05
8	10.404	Y-BHC	19.4968	4.8579%	406196	121997	3.3	1	0	-.1621	4.7998E-05
9	11.905	Heptachlor	19.6778	4.9030%	477306	136682	3.5	1	0	-.1515	4.1227E-05
10	11.890	Aldrin	2.0438	0.5093%	45226	1177	38.4	1	0	-.2817	4.5192E-05
11	15.464	Endosulf I	19.8775	4.9528%	398523	110427	3.6	1	0	-.1085	4.9878E-05
12	16.366	4,4 DDE	1.0097	0.2516%	17986	5480	3.3	1	0	-.1037	5.6139E-05
13	16.800	Dieldrin	40.0086	9.9688%	705551	206131	3.4	1	0	0	5.6705E-05
14	17.568	Endrin	39.3678	9.8091%	570519	157254	3.6	1	0	0	6.9004E-05
15	19.355	4,4'DDD	39.6208	9.8722%	469190	131395	3.6	1	0	-.1738	8.4445E-05
16	19.906	4,4 DDT	39.2753	9.7861%	435013	127987	3.4	1	0	0	9.0285E-05
17	20.357		0.0000	0.0000%	26211	8321	3.2	1			1.0000E-09
18	21.075	Endrin ald	2.2441	0.5592%	22538	5707	3.9	1	0	0	9.9572E-05
19	22.294	~~Endos sulf~~ Methoxy	97.0608	24.1842%	1091643	279632	3.9	1	0	0	8.8913E-05
20	22.712		0.0000	0.0000%	10073	2791	3.6	1			1.0000E-09
21	23.764	Endrin ket	2.6951	0.6715%	32311	7785	4.2	1	0	-.1382	8.3412E-05
22	28.340	DCB	39.8698	9.9342%	815657	134114	6.1	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 401.3389

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E72.PTS Printed on 11-21-1997 at 22:06:04
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



EXTERNAL STANDARD TABLE

11-21-1997 22:07:23 Version 5.1.5

Sample Name: INDB 20-40 UG/L Data File: D:0V14E73

Date: 11-19-1997 00:34:02 Method: M:BPES-E 11-21-1997 21:24:54 # 390

Interface: 2 Cycle#: 73 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

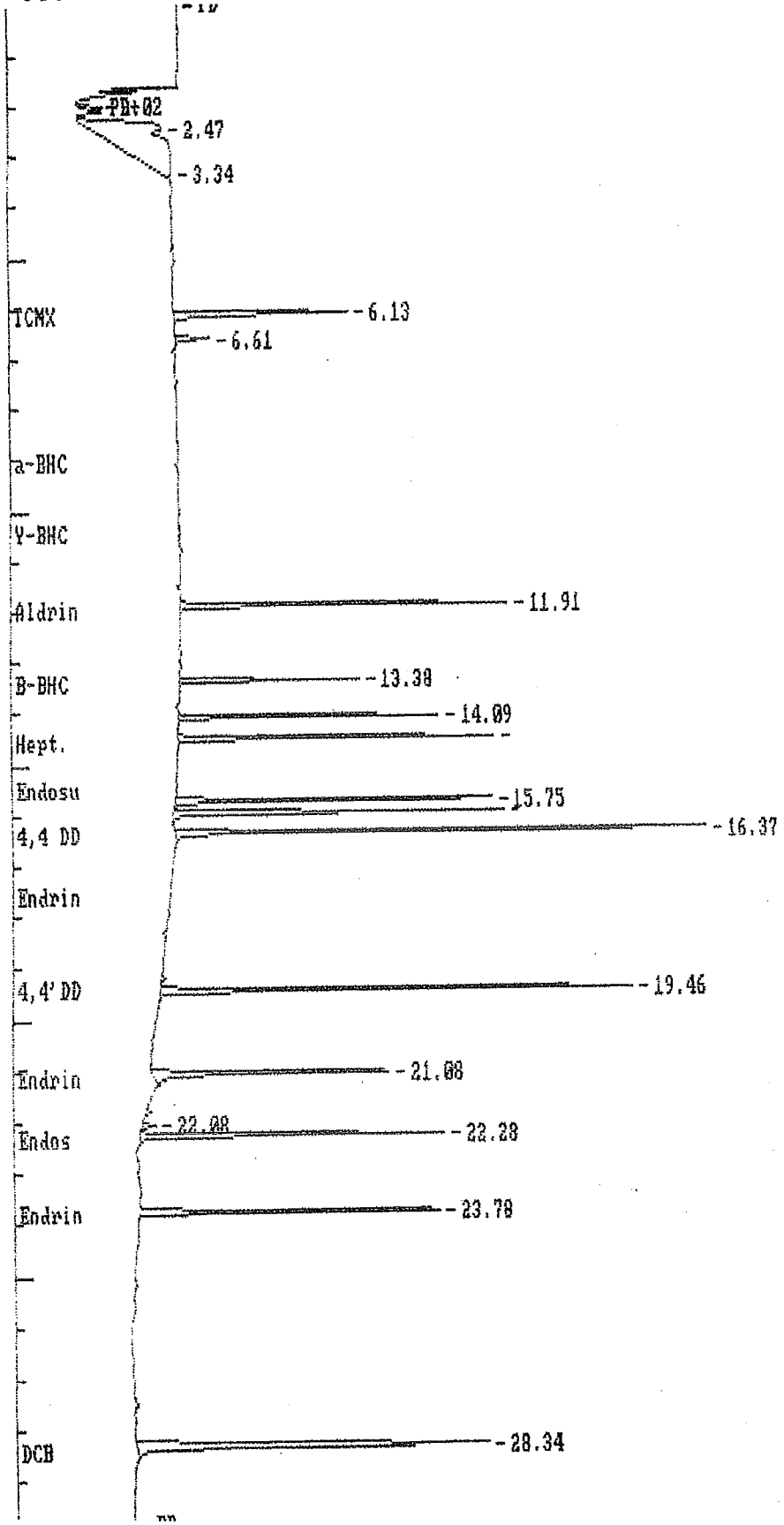
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	17042	4531	3.8	1			1.0000E-09
2	2.472		0.0004	0.0001%	399472	25534	15.6	3			1.0000E-09
3	3.340		0.0007	0.0002%	653635	3041	214.9	4			1.0000E-09
4	6.129	TCMX	20.1100	5.3081%	316009	68264	4.6	1	0	0	6.3636E-05
5	6.613		0.0001	0.0000%	56265	13856	4.1	1			1.0000E-09
6	11.907	Aldrin	19.6595	5.1892%	435026	127607	3.4	1	0	-.1417	4.5192E-05
7	13.377	B-BHC	20.0057	5.2806%	228486	69944	3.3	1	0	-.1217	8.7558E-05
8	14.095	d-BHC	19.6826	5.1953%	312107	101164	3.1	1	0	-.1148	6.3064E-05
9	14.512	Hept. epox.	19.8494	5.2393%	420211	122907	3.4	1	0	-.1149	4.7237E-05
10	15.748	Y-Chlordane	19.9112	5.2557%	431297	123248	3.5	2	0	-.1072	4.6166E-05
11	15.982	a-Chlordane	20.0646	5.2962%	450109	128444	3.5	2	0	-.1068	4.4577E-05
12	16.366	4,4 DDE	39.7684	10.4971%	708394	206541	3.4	1	0	-.1037	5.6139E-05
13	19.455	EndoslfII	40.1537	10.5988%	643784	183313	3.5	1	0	0	6.2371E-05
14	21.075	Endrin ald	38.9540	10.2821%	391215	91180	4.3	1	0	0	9.9572E-05
15	22.077		0.0000	0.0000%	21361	5483	3.9	1			1.0000E-09
16	22.278	Endos sulf	39.5327	10.4349%	444624	117795	3.8	1	0	-.1488	8.8913E-05
17	23.781	Endrin ket	40.6256	10.7234%	487061	115878	4.2	1	0	0	8.3410E-05
18	28.340	DCB	40.5333	10.6990%	829230	135649	6.1	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 378.8519

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E73.PTS Printed on 11-21-1997 at 22:07:33
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 22:08:43 Version 5.1.5 **********

* Sample Name: INDA 40-400 UG/L Data File: D:OV14E74 *
* Date: 11-19-1997 01:06:41 Method: M:BPES-E 11-21-1997 21:24:54 # 390 *
* Interface: 2 Cycle#: 74 Operator JJK Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

****

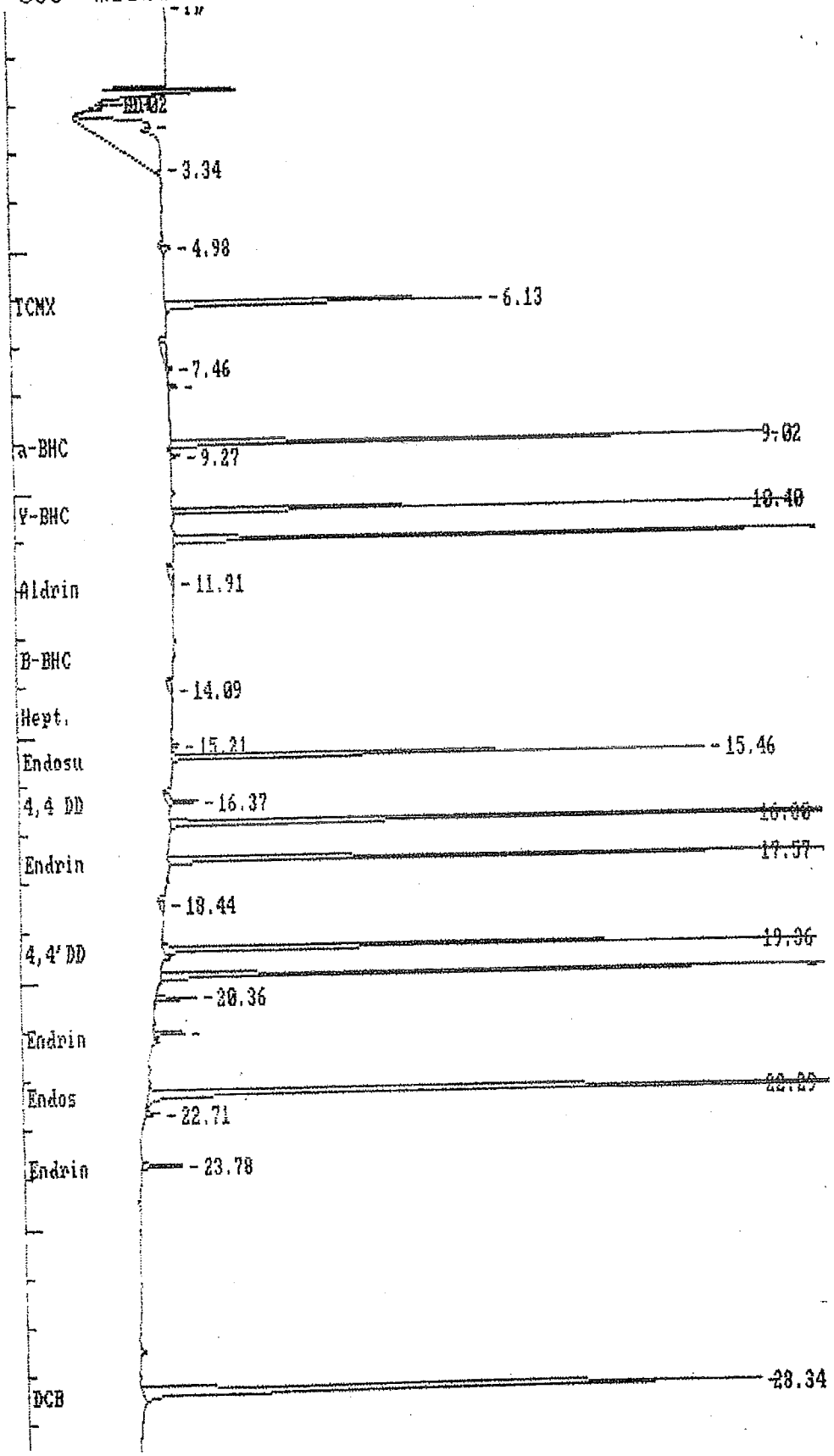
Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	39557	5444	7.3	1			1.0000E-09
2	2.472		0.0004	0.0000%	384359	25118	15.3	3			1.0000E-09
3	3.340		0.0007	0.0001%	679057	4245	160.0	4			1.0000E-09
4	4.977		0.0000	0.0000%	21551	4011	5.4	1			1.0000E-09
5	6.129	TCMX	39.0643	4.9011%	613857	129881	4.7	1	0	0	6.3638E-05
6	7.465		0.0001	0.0000%	66849	2332	28.7	1			1.0000E-09
7	7.849		0.0000	0.0000%	14305	3647	3.9	1			1.0000E-09
8	9.018	a-BHC	39.8470	4.9993%	872092	242437	3.6	1	0	-.1881	4.5691E-05
9	9.268		0.0000	0.0000%	13864	3823	3.6	1			1.0000E-09
10	10.404	Y-BHC	40.5345	5.0856%	844495	251012	3.4	1	0	-.1621	4.7998E-05
11	11.005	Heptachlor	38.8863	4.8788%	943226	264593	3.6	1	0	-.1515	4.1227E-05
12	11.907	Aldrin	1.8744	0.2352%	41476	1072	38.7	1	0	-.1417	4.5192E-05
13	14.095	d-BHC	1.7213	0.2160%	27294	1435	19.0	1	0	-.1148	6.3064E-05
14	15.214		0.0000	0.0000%	10302	2986	3.4	1			1.0000E-09
15	15.464	Endosulf I	39.2292	4.9218%	786506	216660	3.6	1	0	-.1085	4.9878E-05
16	16.366	4,4 DDE	3.4857	0.4373%	62091	12433	5.0	1	0	-.1037	5.6139E-05
17	16.800	Dieldrin	79.9088	10.0256%	1409192	403194	3.5	1	0	0	5.6705E-05
18	17.568	Endrin	77.8436	9.7665%	1128109	310555	3.6	1	0	0	6.9004E-05
19	18.437		0.0000	0.0000%	22057	1885	11.7	1			1.0000E-09
20	19.355	4,4'DDD	81.1102	10.1764%	960507	263551	3.6	1	0	-.1738	8.4445E-05
21	19.906	4,4 DDT	82.8445	10.3940%	917586	268202	3.4	1	0	0	9.0285E-05
22	20.357		0.0001	0.0000%	55291	16880	3.3	1			1.0000E-09
23	21.075	Endrin ald	4.8756	0.6117%	48966	12454	3.9	1	0	0	9.9572E-05
24	22.294	~~Endos sulf~~ Methoxy	183.1257	22.9756%	2059615	516273	4.0	2	0	0	8.8913E-05
25	22.712		0.0000	0.0000%	20662	5948	3.5	2			1.0000E-09
26	23.781	Endrin ket	5.7558	0.7221%	69007	16392	4.2	1	0	0	8.3410E-05
27	28.340	DCB	76.9359	9.6527%	1573956	249638	6.3	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 797.0442

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:OV14E74.PTS Printed on 11-21-1997 at 22:08:57
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 22:10:25 Version 5.1.5 **********

* Sample Name: INDB 40-80 UG/L Data File: D:0V14E75 *
* Date: 11-19-1997 01:39:23 Method: M:BPES-E 11-21-1997 21:24:54 # 390 *
* Interface: 2 Cycle#: 75 Operator JJK Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	17111	4822	3.5	1			1.0000E-09
2	2.472		0.0004	0.0000%	376786	23850	15.8	2			1.0000E-09
3	2.989		0.0004	0.0001%	393205	6806	57.8	2			1.0000E-09
4	6.129	TCMX	39.0731	5.1562%	613995	133600	4.6	1	0	0	6.3638E-05
5	6.613		0.0001	0.0000%	107002	26456	4.0	1			1.0000E-09
6	10.788		0.0000	0.0000%	12065	2549	4.7	1			1.0000E-09
7	11.907	Aldrin	39.3394	5.1913%	870502	252084	3.5	1	0	-.1417	4.5192E-05
8	13.377	B-BHC	39.3720	5.1956%	449668	135571	3.3	1	0	-.1217	8.7558E-05
9	14.095	d-BHC	41.9224	5.5322%	664763	213637	3.1	1	0	-.1148	6.3064E-05
10	14.512	Hept. epox.	39.0385	5.1516%	826445	241613	3.4	1	0	-.1149	4.7237E-05
11	15.748	Y-Chlordane	39.4993	5.2124%	855595	245568	3.5	2	0	-.1072	4.6166E-05
12	15.982	a-Chlordane	39.1771	5.1699%	878861	252879	3.5	2	0	-.1068	4.4577E-05
13	16.366	4,4 DDE	80.2079	10.5844%	1428744	408099	3.5	1	0	-.1037	5.6139E-05
14	19.222		0.0000	0.0000%	10689	3015	3.5	1			1.0000E-09
15	19.455	EndoslfII	79.0626	10.4333%	1267610	352293	3.6	1	0	0	6.2371E-05
16	21.075	Endrin ald	79.6942	10.5166%	800369	173145	4.6	1	0	0	9.9572E-05
17	21.827		0.0000	0.0000%	13324	4105	3.2	1			1.0000E-09
18	22.077		0.0000	0.0000%	46450	10781	4.3	2			1.0000E-09
19	22.278	Endos sulf	81.7596	10.7892%	919550	238824	3.9	2	0	-.1488	8.8913E-05
20	23.781	Endrin ket	81.8452	10.8005%	981243	230142	4.3	1	0	0	8.3410E-05
21	27.522		0.0000	0.0000%	11964	2270	5.3	1			1.0000E-09
22	29.340	DCB	77.8004	10.2667%	1591641	256780	6.2	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 757.7926

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Data File = D:OV14E75.PTS Printed on 11-21-1997 at 22:10:35
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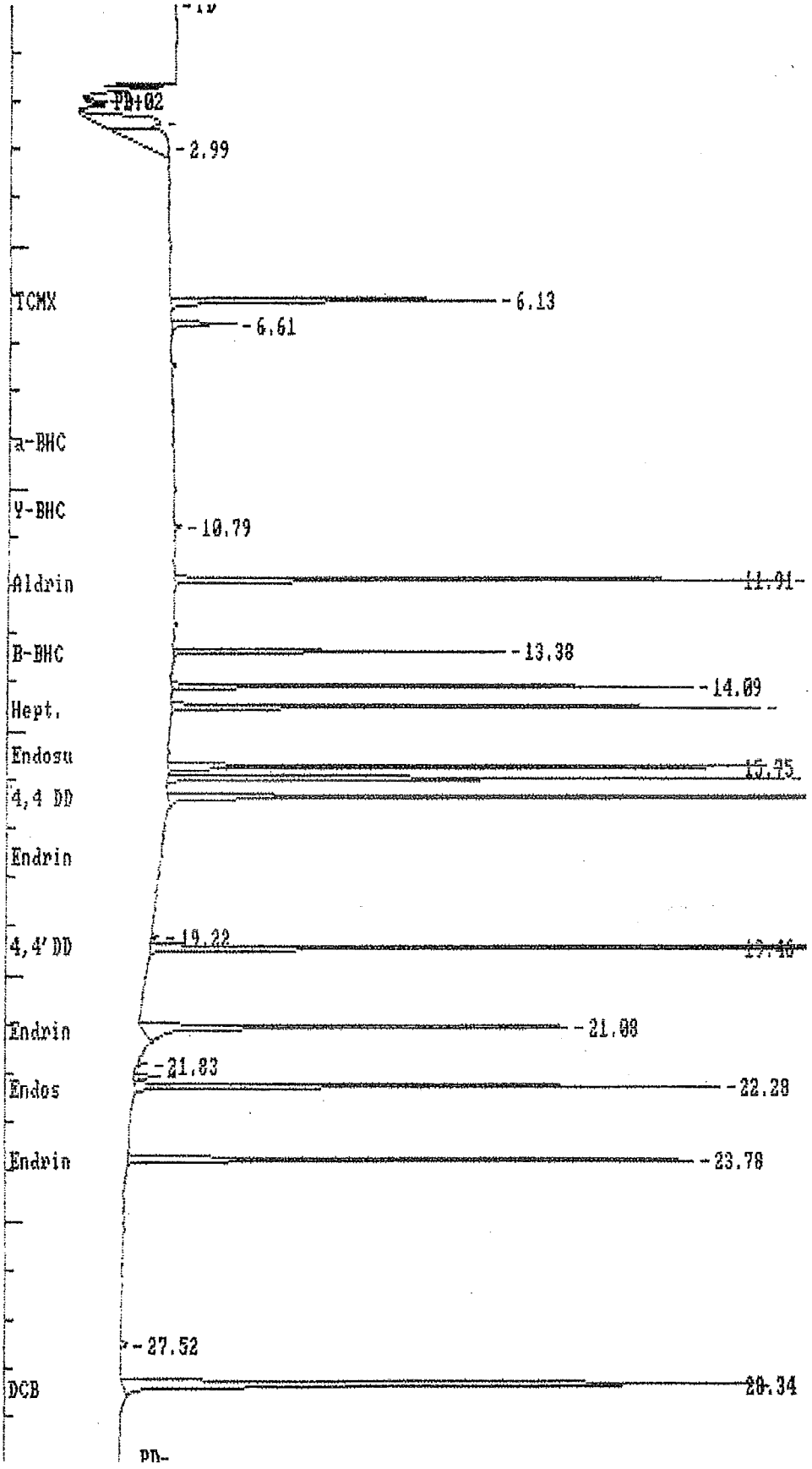
11 Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 22:11:57 Version 5.1.5 **********

* Sample Name: INDA 60-600 UG/L Data File: D:0V14E76 *
* Date: 11-19-1997 02:12:01 Method: M:BPES-E 11-21-1997 21:24:54 # 390 *
* Interface: 2 Cycle#: 76 Operator JJK Channel#: 1 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16370	4893	3.3	1			1.0000E-09
2	2.455		0.0004	0.0000%	394568	26550	14.9	3			1.0000E-09
3	3.340		0.0007	0.0001%	701033	4219	166.1	4			1.0000E-09
4	4.977		0.0000	0.0000%	27047	5102	5.3	1			1.0000E-09
5	6.129	TCMX	56.8510	4.8918%	893357	192169	4.6	1	0	0	6.3638E-05
6	7.465		0.0000	0.0000%	12192	3076	4.0	1			1.0000E-09
7	7.849		0.0000	0.0000%	19798	5131	3.9	1			1.0000E-09
8	9.018	a-BHC	60.8320	5.2344%	1331369	372577	3.6	1	0	-.1881	4.5691E-05
9	9.268		0.0000	0.0000%	20689	5915	3.5	1			1.0000E-09
10	10.404	Y-BHC	61.6340	5.3034%	1284083	381877	3.4	1	0	-.1621	4.7998E-05
11	11.005	Heptachlor	56.6989	4.8787%	1375289	385385	3.6	1	0	-.1515	4.1227E-05
12	11.673		0.0000	0.0000%	19986	1371	14.6	1			1.0000E-09
13	15.214		0.0000	0.0000%	14089	4050	3.5	1			1.0000E-09
14	15.464	Endosulf I	57.2860	4.9293%	1148528	313244	3.7	1	0	-.1085	4.9878E-05
15	16.366	4,4 DDE	2.8902	0.2487%	51484	15215	3.4	1	0	-.1037	5.6139E-05
16	16.800	Dieldrin	116.7723	10.0478%	2059280	578570	3.6	1	0	0	5.6705E-05
17	17.568	Endrin	112.4896	9.6793%	1630200	438063	3.7	1	0	0	6.9004E-05
18	19.355	4,4'DDD	120.6458	10.3811%	1428688	391761	3.6	1	0	-.1738	8.4445E-05
19	19.906	4,4 DDT	127.2883	10.9527%	1409845	401919	3.5	1	0	0	9.0285E-05
20	20.357		0.0001	0.0000%	84747	25348	3.3	1			1.0000E-09
21	21.075	Endrin ald	8.1212	0.6988%	81561	20484	4.0	1	0	0	9.9573E-05
22	22.294	~~Endos sulf~~ Methoxy	262.2448	22.5652%	2949468	724375	4.1	2	0	0	8.8913E-05
23	22.712		0.0000	0.0000%	33029	9286	3.6	2			1.0000E-09
24	23.764	Endrin ket	8.9145	0.7671%	106876	25478	4.2	1	0	-.1382	8.3410E-05
25	27.522		0.0000	0.0000%	17611	3369	5.2	1			1.0000E-09
26	28.340	OCB	109.4938	9.4215%	2240025	359907	6.2	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 1162.1639

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

***** EXTERNAL STANDARD TABLE *****

********** 11-21-1997 22:13:32 Version 5.1.5 **********

* Sample Name: INDB 60-120 UG/L Data File: D:0V14E77 *

* Date: 11-19-1997 02:44:44 Method: M:BPES-E 11-21-1997 21:24:54 # 390 *

* Interface: 2 Cycle#: 77 Operator JJK Channel#: 1 Vial#: N.A. *

* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *

* Solvent Description: *

* Conditions: *

* Detector 0: Detector 1: ECD *

* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.021		0.0000	0.0000%	16961	4797	3.5	1			1.0000E-09
2	2.455		0.0004	0.0000%	406431	26978	15.1	2			1.0000E-09
3	3.290		0.0007	0.0001%	704060	5717	123.1	2			1.0000E-09
4	6.129	TCMX	57.8924	5.0348%	909722	196226	4.6	1	0	0	6.3638E-05
5	6.613		0.0002	0.0000%	164060	40369	4.1	1			1.0000E-09
6	6.930		0.0000	0.0000%	10449	1814	5.8	1			1.0000E-09
7	7.465		0.0000	0.0000%	11209	2885	3.9	1			1.0000E-09
8	10.788		0.0000	0.0000%	19586	3989	4.9	1			1.0000E-09
9	11.907	Aldrin	60.2865	5.2430%	1334020	372741	3.6	1	0	-.1417	4.5192E-05
10	13.377	B-BHC	58.9565	5.1273%	673342	199399	3.4	1	0	-.1217	8.7558E-05
11	14.095	d-BHC	68.3709	5.9461%	1084158	337751	3.2	1	0	-.1148	6.3064E-05
12	14.512	Hept. epox.	57.6240	5.0115%	1219901	346593	3.5	1	0	-.1149	4.7237E-05
13	15.748	Y-Chlordane	59.4377	5.1692%	1287481	365639	3.5	2	0	-.1072	4.6166E-05
14	15.982	a-Chlordane	59.4200	5.1677%	1332968	374745	3.6	2	0	-.1068	4.4577E-05
15	16.366	4,4 DDE	119.2926	10.3747%	2124960	599317	3.5	1	0	-.1037	5.6139E-05
16	18.387		0.0000	0.0000%	10938	2040	5.4	1			1.0000E-09
17	19.238		0.0000	0.0000%	15897	4414	3.6	1			1.0000E-09
18	19.456	EndoslfII	117.0671	10.1811%	1876936	513730	3.7	1	0	0	6.2371E-05
19	20.474		0.0000	0.0000%	10491	1780	5.9	1			1.0000E-09
20	21.075	Endrin ald	130.7850	11.3741%	1313474	263703	5.0	1	0	0	9.9572E-05
21	21.827		0.0000	0.0000%	21848	6750	3.2	1			1.0000E-09
22	22.077		0.0001	0.0000%	72123	16656	4.3	2			1.0000E-09
23	22.278	Endos sulf	124.1808	10.7998%	1396661	358399	3.9	2	0	-.1488	8.8913E-05
24	23.781	Endrin ket	123.4617	10.7373%	1480182	340382	4.3	1	0	0	8.3410E-05
25	27.522		0.0000	0.0000%	18750	3583	5.2	1			1.0000E-09
26	28.340	DCB	113.0677	9.8333%	2313138	365739	6.3	1	0	-.1764	4.8881E-05

TOTAL AMOUNT = 1149.8442

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

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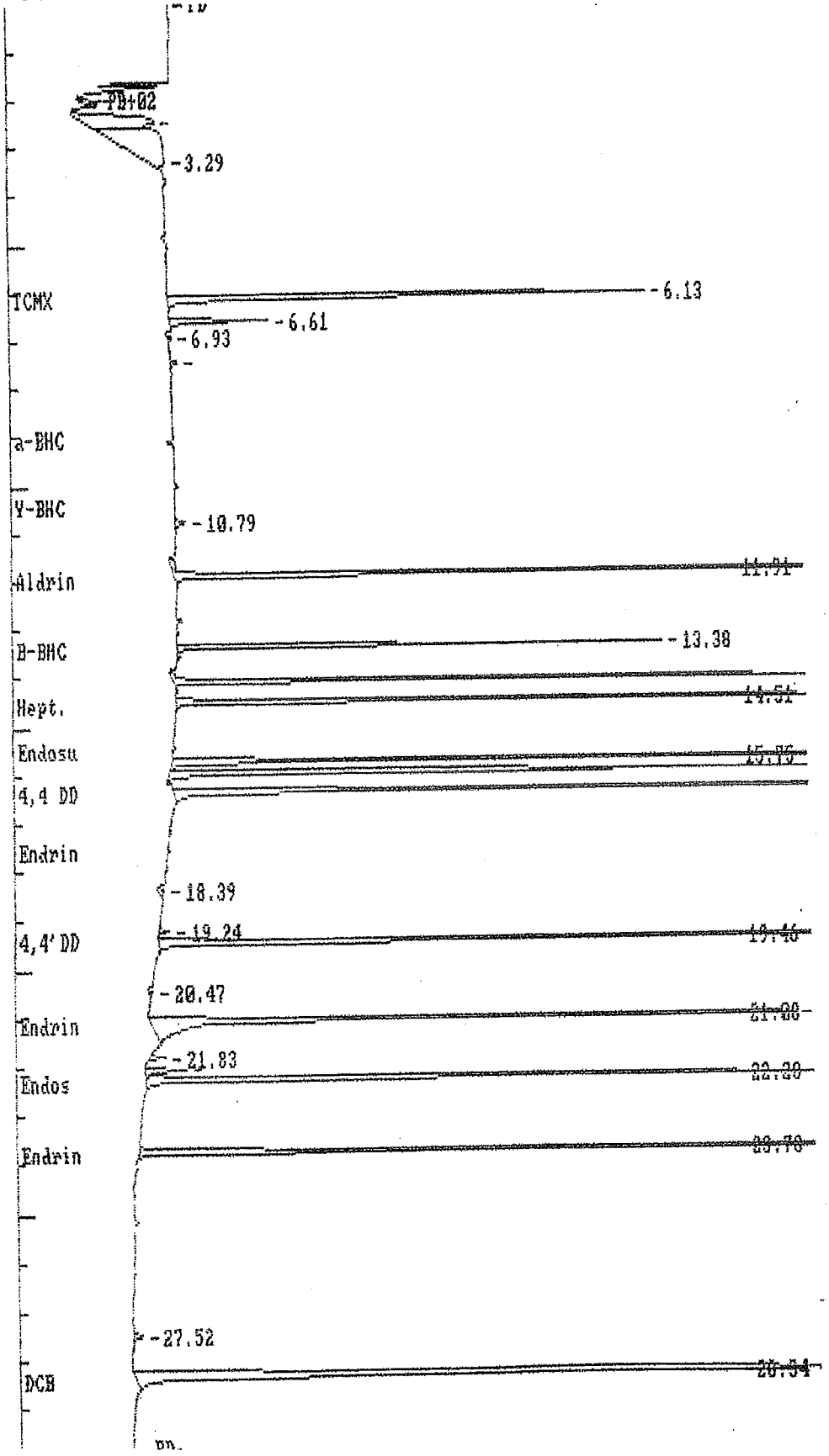

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4 17

EPA SAMPLE NO.

108

PESTICIDE IDENTIFICATION SUMMARY FOR MULTICOMPONENT ANALYTES

Lab Name: EMSL Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID : _____ Date(s) Analyzed: 11/22/97

Instrument ID (1): HP5890SII Instrument ID (2): _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	Calib. Factor	Cont. Calib Factor	%D
Aroclor 1016	1	7.72	7.67	7.77	1408100	1398000	0.7
	2	8.30	8.25	8.35			
	3	9.14	9.09	9.19			
COLUMN 1	4	9.45	9.40	9.50			
	5	11.37	11.32	11.42			
(11/19/97)							
	1						
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1260	1	15.43	15.36	15.50	~~1408100~~ MJH 12/5/97	2323000	0.5
	2	16.30	16.23	16.37	2311900		
	3	18.74	18.67	18.81			
COLUMN 1	4	19.74	19.67	19.81			
	5	20.79	20.72	20.86			
(11/19/97)							
	1						
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1221	1	4.24	4.19	4.29	363133	352200	3
	2	6.11	6.06	6.16			
	3	6.38	6.33	6.43			
COLUMN 1	4	6.53	6.48	6.58			
	5	7.78	7.73	7.83			
(10/30/97)							
	1						
	2						
	3						
COLUMN 2	4						
	5						

E145

At least 3 peaks for each column are required for identification of multicomponent analytes

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FORM X PEST-2

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10B

PESTICIDE IDENTIFICATION SUMMARY FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

Lab Name: Fmsl Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID : _____ Date(s) Analyzed: 11/22/97

Instrument ID (1): HP5890SII Instrument ID (2): _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	Calib. Factor	Cont. Calib Factor	%D
Aroclor 1232	1	6.53	6.48	6.58	620093	683400	10
	2	7.72	7.67	7.77			
	3	8.30	8.25	8.35			
COLUMN 1	4	9.14	9.09	9.19			
	5	9.45	9.40	9.50			
(10/30/97)	1						
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1242	1	7.72	7.67	7.77	853700	937000	10
	2	8.28	8.23	8.33			
	3	8.83	8.78	8.88			
COLUMN 1	4	9.14	9.09	9.19			
	5	9.45	9.40	9.50			
(10/30/97)	1						
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1248	1	9.14	9.09	9.19	810000	923000	14
	2	9.45	9.40	9.57			
	3	10.96	10.91	11.01			
COLUMN 1	4	11.07	11.02	11.12			
	5	11.37	11.32	11.42			
(10/30/97)	1						
	2						
	3						
COLUMN 2	4						
	5						

E147

E148

E149

At least 3 peaks for each column are required for identification of multicomponent analytes

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108

PESTICIDE IDENTIFICATION SUMMARY FOR MULTICOMPONENT ANALYTES

EPA SAMPLE NO.

Lab Name: EMSL Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID : _____ Date(s) Analyzed: 11/23/97

Instrument ID (1): HP5890SII Instrument ID (2): _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	Calib. Factor	Cont. Calib Factor	%D
Aroclor 1254	1	12.29-.44	12.24	12.49	2052800	2240000	9
	2	13.26	13.21	13.31			
	3	14.55	14.50	14.60			
COLUMN 1	4	15.48	15.43	15.53			
	5	16.30-.42	16.25	16.47			
(10/29/97)	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

E150

At least 3 peaks for each column are required for identification of multicomponent analytes

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FORM X PEST-2

E

410

EPA SAMPLE NO.

10B
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

Lab Name: Emsl Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID : _____ Date(s) Analyzed: 11/25/97

Instrument ID (1): HP5890SII Instrument ID (2): _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	Calib. Factor	Cont. Calib Factor	%D
Aroclor 1016	1	7.72	7.67	7.77	1408100	1397000	1
	2	8.30	8.25	8.35			
	3	9.14	9.09	9.19			
COLUMN 1	4	9.45	9.40	9.50			
	5	11.37	11.32	11.42			
(11/19/97)							
	1						
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1260	1	15.43	15.36	15.50	~~1408100~~	2301000	0
	2	16.30	16.23	16.37	2311900		
	3	18.74	18.67	18.81	[illegible] 12/1/9		
COLUMN 1	4	19.74	19.67	19.81			
	5	20.79	20.72	20.86			
(11/19/97)							
	1						
	2						
	3						
COLUMN 2	4						
	5						
Aroclor 1221	1	4.24	4.19	4.29	363133		
	2	6.11	6.06	6.16			
	3	6.38	6.33	6.43			
COLUMN 1	4	6.53	6.48	6.58			
	5	7.78	7.73	7.83			
(10/30/97)							
	1						
	2						
	3						
COLUMN 2	4						
	5						

E171

At least 3 peaks for each column are required for identification of multicomponent analytes

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FORM X PEST-2

E 411

EPA SAMPLE NO.

108
PESTICIDE IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

Lab Name: FMSL Analytical Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Lab Sample ID : _____ Date(s) Analyzed: 11/23/97

Instrument ID (1): HP5890SII Instrument ID (2): _____

GC Column(1): DB-5 ID: 0.32 (mm) GC Column(2): DB-1701 ID: 0.32 (mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	Calib. Factor	Cont. Calib Factor	%D
Chlordane	1	9.00	8.93	9.09	1683400	1744000	4
	2	12.94	12.87	13.01			
	3	13.48	13.41	13.55			
COLUMN 1	4	13.64	13.57	13.71			
(11/20/97)	5	16.20	16.13	16.27			
	1						
	2						
	3						
COLUMN 2	4						
	5						
Toxaphene	1	17.78	17.71	17.85	431207	412312	4
	2	18.27	18.20	18.34			
	3	18.52	18.45	18.59			
COLUMN 1	4	18.79	18.70	18.87			
(11/20/97)	5	20.16	20.09	20.23			
	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

E151

At least 3 peaks for each column are required for identification of multicomponent analytes

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FORM X PEST-2

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: EMSL
Instrument ID: HP 5890 Series II
GC Column:DB-5 ID: 0.32

Init. Calibration Date:11/19/97-11/20/97
Date Analyzed:11/24/97
Time Analyzed:2339

Lab File ID: D:NV14E160

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
alpha-BHC	6.56	6.51	6.61	2905	2726	6.6-	6
gamma-BHC (Lindane)	7.48	7.43	7.53	3067	2894	7.50	6
Heptachlor	9.60	9.55	9.65	3793	4087	9.64	8
Endosulfan I	13.38	13.31	13.45	3518	3474	13.39	1
Dieldrin	14.30	14.23	14.37	4053	4027	14.33	1
Endrin	15.08	15.01	15.15	2816	2926	15.10	4
4,4'-DDD	15.80	15.73	15.87	2931	2731	15.83	7
4,4'-DDT	17.13	17.06	17.20	3046	3228	17.17	6
Methoxychlor	19.30	19.23	19.37	1572	1691	19.32	8
Tetrachloro-m-xylene	5.56	5.51	5.61	4365	4252	5.58	3
Decachlorobiphenyl	26.20	26.10	26.30	4998	5066	26.24	1

Date Analyzed:11/24/97
Time Analyzed:2306

Lab File ID: D:NV14E159

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
beta-BHC	7.32	7.27	7.37	2533	2440	7.33	4
delta-BHC	8.18	8.13	8.23	2216	2061	8.20	7
Aldrin	10.74	10.69	10.79	4162	4178	10.76	0
Heptachlor epoxide	12.12	12.05	12.19	3842	3942	12.14	3
4,4'-DDE	14.30	14.23	14.37	4991	5090	14.31	2
Endosulfan II	15.43	15.36	15.50	2996	3016	15.46	1
Endosulfan sulfate	16.98	16.91	17.05	2628	2646	17.02	1
Endrin ketone	18.67	18.60	18.74	2840	2779	18.69	2
Endrin aldehyde	16.13	16.06	16.20	2927	2925	16.15	0
alpha-Chlordane	13.48	13.41	13.55	4894	5070	13.51	4
gamma-Chlordane	12.94	12.87	13.01	4770	4962	12.96	4
Tetrachloro-m-xylene	5.56	5.51	5.61	4410	4316	5.58	2
Decachlorobiphenyl	26.19	26.09	26.29	5131	5132	26.24	0

QC LIMITS: RPD of amounts in the Individual Mixes must be less than or equal to 25.0%.

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: EMSL
Instrument ID: HP 5890 Series II
GC Column:DB-1701 ID: 0.32

Init. Calibration Date:11/19/97-11/20/97
Date Analyzed:11/24/97
Time Analyzed:2339

Lab File ID:OV14E160

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
alpha-BHC	9.02	8.97	9.07	20956	20842	9.04	1
gamma-BHC (Lindane)	10.40	10.35	10.45	20310	20152	10.42	1
Heptachlor	11.00	10.95	11.05	23865	24567	11.02	3
Endosulfan I	15.46	15.39	15.53	19928	20206	15.48	1
Dieldrin	16.80	16.73	16.87	17639	17743	16.83	1
Endrin	17.57	17.50	17.64	14263	14925	17.58	5
4,4'-DDD	19.36	19.29	19.43	11730	11209	19.39	4
4,4'-DDT	19.91	19.84	19.98	10875	11440	19.92	5
Methoxychlor	22.29	22.22	22.36	5458	5722	22.33	5
Tetrachloro-m-xylene	6.13	6.08	6.18	15667	15540	6.16	1
Decachlorobiphenyl	28.34	28.24	28.44	20391	20373	28.39	0

Date Analyzed:11/24/97
Time Analyzed:2306

Lab File ID:OV14E159

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
beta-BHC	13.38	13.33	13.43	11424	11329	13.39	1
delta-BHC	14.10	14.05	14.15	15605	18164	14.11	16
Aldrin	11.91	11.86	11.96	21751	21910	11.92	1
Heptachlor epoxide	14.51	14.44	14.58	21011	21364	14.53	2
4,4'-DDE	16.37	16.30	16.44	17710	19639	16.38	11
Endosulfan II	19.46	19.39	19.53	16095	16427	19.47	2
Endosulfan sulfate	22.28	22.21	22.35	11116	10975	22.31	1
Endrin ketone	23.78	23.71	23.85	12177	11979	23.80	2
Endrin aldehyde	21.08	21.01	21.15	9780	9814	21.09	0
alpha-Chlordane	15.98	15.91	16.05	22505	25194	16.00	12
gamma-Chlordane	15.75	15.68	15.82	21565	22617	15.78	5
Tetrachloro-m-xylene	6.13	6.08	6.18	15800	15787	6.16	0
Decachlorobiphenyl	28.34	28.24	28.44	20731	20491	28.39	1

QC LIMITS: RPD of amounts in the Individual Mixes must be less than or equal to 25.0%.

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

Lab Name: EMSL
Instrument ID: HP 5890 Series II
GC Column:DB-5 ID: 0.32

Init. Calibration Date:11/19/97-11/20/97
Date Analyzed:11/25/97
Time Analyzed:1930

Lab File ID: D:NV14E182

INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
alpha-BHC	6.56	6.51	6.61	2905	2981	6.60	3
gamma-BHC (Lindane)	7.48	7.43	7.53	3067	3146	7.50	3
Heptachlor	9.60	9.55	9.65	3793	4068	9.64	7
Endosulfan I	13.38	13.31	13.45	3518	3626	13.39	3
Dieldrin	14.30	14.23	14.37	4053	4211	14.33	4
Endrin	15.08	15.01	15.15	2816	2778	15.10	1
4,4'-DDD	15.80	15.73	15.87	2931	2853	15.83	3
4,4'-DDT	17.13	17.06	17.20	3046	3382	17.17	11
Methoxychlor	19.30	19.23	19.37	1572	1643	19.32	4
Tetrachloro-m-xylene	5.56	5.51	5.61	4365	4659	5.58	7
Decachlorobiphenyl	26.20	26.10	26.30	4998	5080	26.24	2

Date Analyzed:11/25/97
Time Analyzed:1857

Lab File ID: D:NV14E181

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
beta-BHC	7.32	7.27	7.37	2533	2593	7.35	2
delta-BHC	8.18	8.13	8.23	2216	2218	8.20	0
Aldrin	10.74	10.69	10.79	4162	4360	10.76	5
Heptachlor epoxide	12.12	12.05	12.19	3842	3981	12.14	4
4,4'-DDE	14.30	14.23	14.37	4991	5059	14.31	1
Endosulfan II	15.43	15.36	15.50	2996	2963	15.46	1
Endosulfan sulfate	16.98	16.91	17.05	2628	2518	17.02	4
Endrin ketone	18.67	18.60	18.74	2840	2700	18.69	5
Endrin aldehyde	16.13	16.06	16.20	2927	2825	16.17	3
alpha-Chlordane	13.48	13.41	13.55	4894	5204	13.51	6
gamma-Chlordane	12.94	12.87	13.01	4770	5068	12.98	6
Tetrachloro-m-xylene	5.56	5.51	5.61	4410	4657	5.58	6
Decachlorobiphenyl	26.19	26.09	26.29	5131	5273	26.24	3

QC LIMITS: RPD of amounts in the Individual Mixes must be less than or equal to 25.0%.

7E

PESTICIDE CALIBRATION VERIFICATION SUMMARY

415

Lab Name: EMSL
Instrument ID: HP 5890 Series II
GC Column:DB-1701 ID: 0.32

Init. Calibration Date:11/19/97-11/20/97
Date Analyzed:11/25/97
Time Analyzed:1930

Lab File ID:OV14E182

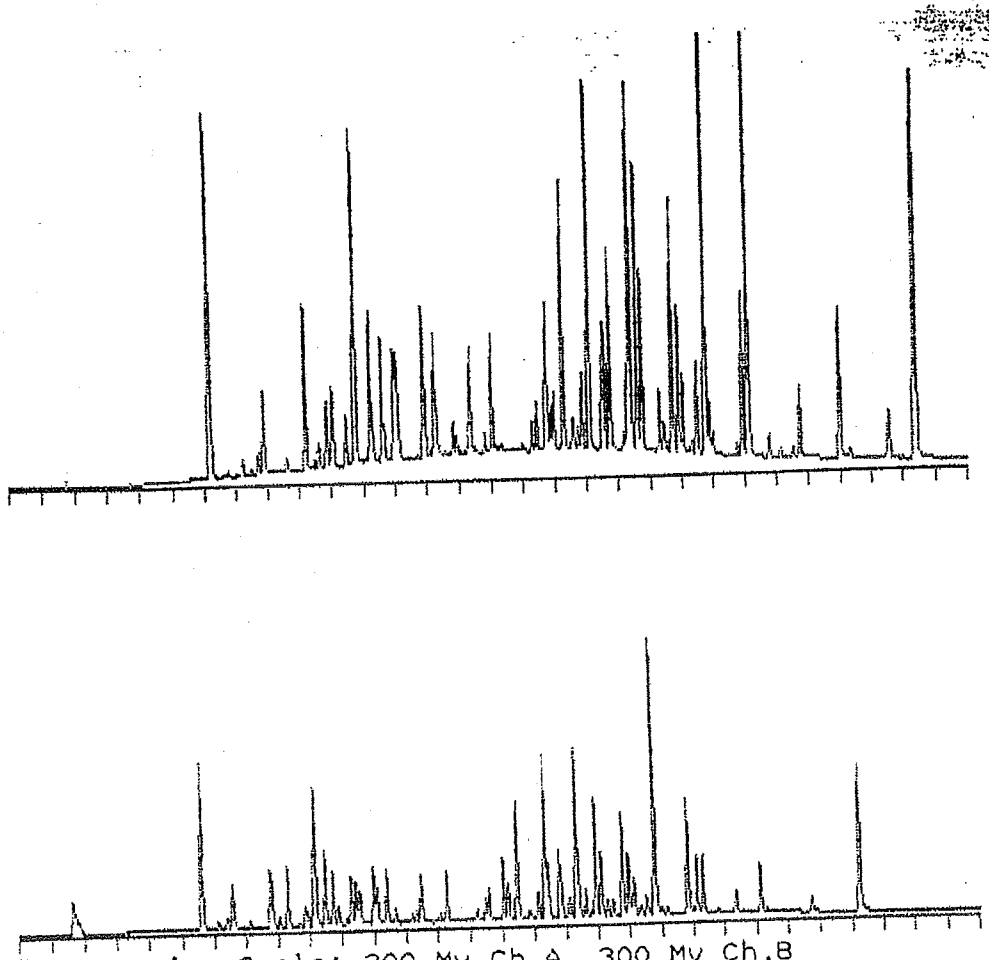
INDIVIDUAL MIX A COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
alpha-BHC	9.02	8.97	9.07	20956	23457	9.04	12
gamma-BHC (Lindane)	10.40	10.35	10.45	20310	22956	10.42	13
Heptachlor	11.00	10.95	11.05	23865	27150	11.02	14
Endosulfan I	15.46	15.39	15.53	19926	22096	15.48	11
Dieldrin	16.80	16.73	16.87	17639	19450	16.83	10
Endrin	17.57	17.50	17.64	14263	15261	17.58	7
4,4'-DDD	19.36	19.29	19.43	11730	12045	19.39	3
4,4'-DDT	19.91	19.84	19.98	10875	12290	19.92	13
Methoxychlor	22.29	22.22	22.36	5458	6039	22.33	11
Tetrachloro-m-xylene	6.13	6.08	6.18	15667	17710	6.16	13
Decachlorobiphenyl	28.34	28.24	28.44	20391	21451	28.39	5

Date Analyzed:11/25/97
Time Analyzed:1857

Lab File ID:OV14E181

INDIVIDUAL MIX B COMPOUND	RT	RT WINDOW FROM	TO	INIT. CAL. FACTOR	CONT.CAL FACTOR	RT	%D
beta-BHC	13.38	13.33	13.43	11424	12358	13.39	8
delta-BHC	14.10	14.05	14.15	15605	16705	14.11	7
Aldrin	11.91	11.86	11.96	21751	24011	11.92	10
Heptachlor epoxide	14.51	14.44	14.58	21011	22949	14.53	9
4,4'-DDE	16.37	16.30	16.44	17710	18920	16.38	7
Endosulfan II	19.46	19.39	19.53	16095	16823	19.47	5
Endosulfan sulfate	22.28	22.21	22.35	11116	11528	22.31	4
Endrin ketone	23.78	23.71	23.85	12177	12495	23.80	3
Endrin aldehyde	21.08	21.01	21.15	9780	10040	21.09	3
alpha-Chlordane	15.98	15.91	16.05	22505	24432	16.00	9
gamma-Chlordane	15.75	15.68	15.82	21565	23379	15.78	8
Tetrachloro-m-xylene	6.13	6.08	6.18	15800	17536	6.16	11
Decachlorobiphenyl	28.34	28.24	28.44	20731	21369	28.39	3

QC LIMITS: RPD of amounts in the Individual Mixes must be less than or equal to 25.0%.



[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1660 1PPM Processed: 11-22-1997 21:54:12, segment 1, cycle 145
RAW DATA SAVED IN FILE D:NV14E145.PTS Second Channel Stored in D:OV14E145.PTS

EXTERNAL STANDARD TABLE

11-22-1997 21:55:18 Version 5.1.5

Data File: D:NV14E145

* Sample Name: A1660 1PPM
* Date: 11-22-1997 21:23:32 Method: M:APES-E 11-21-1997 22:31:52 # 398
* Interface: 2 Cycle#: 145 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000

Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

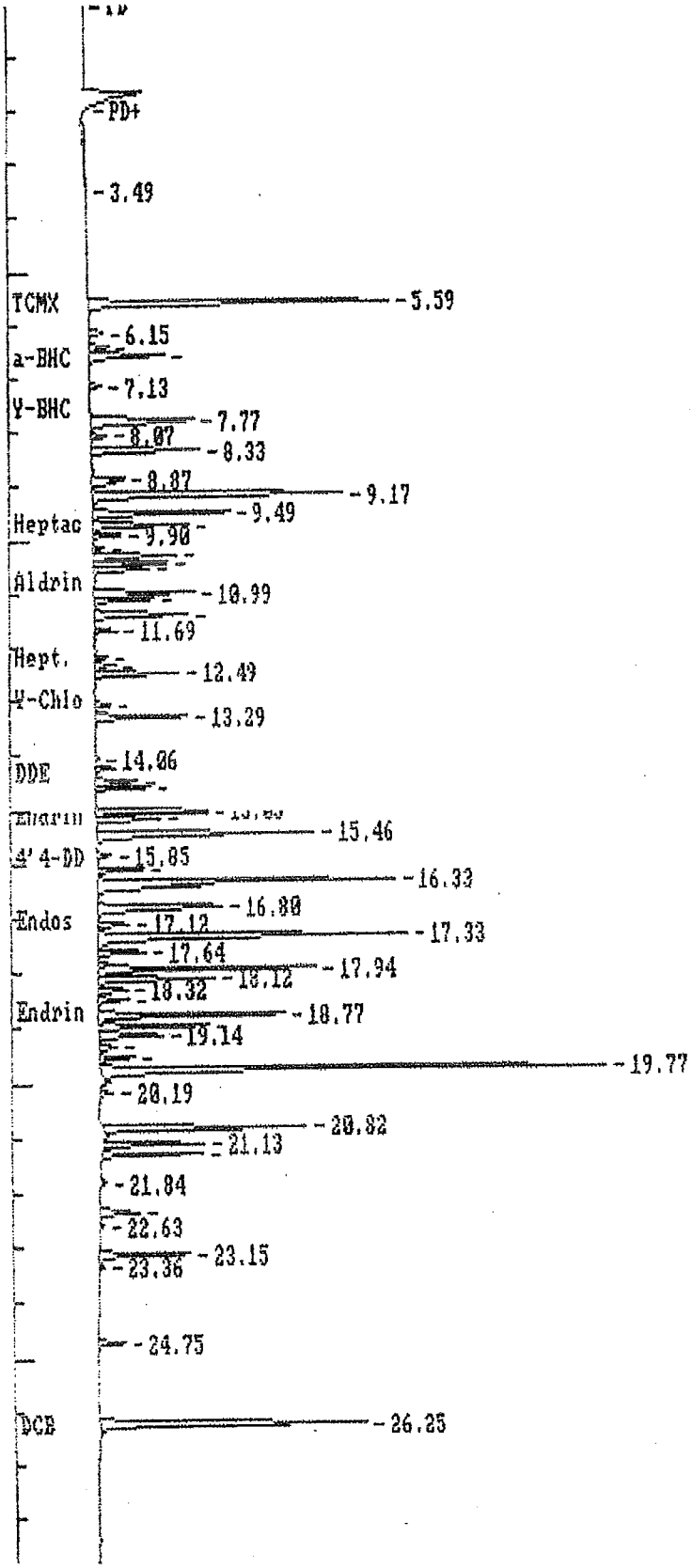
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.490		0.0001	0.0000%	66274	476	139.1	1			1.0000E-09
2	5.594	TCMX	122.2927	15.2593%	541023	110476	4.9	1	0	.6204	2.2604E-04
3	6.146		0.0000	0.0000%	27622	5215	5.3	2			1.0000E-09

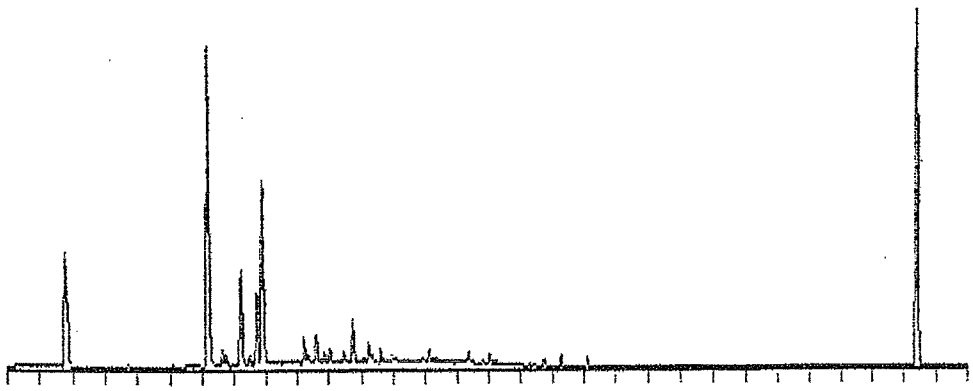
7	7.766	0.0003	0.0000%	281588	37526	7.5	1			1.0000E-09
8	8.066	0.0000	0.0000%	25104	5815	4.3	1			1.0000E-09
9	8.333 d-BHC	75.3248	9.3988%	176411	39906	4.4	1	0	1.625	4.2699E-04
10	8.868	0.0001	0.0000%	81798	12015	6.8	2			1.0000E-09
	9.168	0.0005	0.0001%	536285	92214	5.8	2			1.0000E-09
	9.486	0.0002	0.0000%	231582	50431	4.6	2			1.0000E-09
13	9.736 Heptachlor	39.5592	4.9361%	152936	34964	4.4	2	0	1.038	2.5867E-04
14	9.903	0.0000	0.0000%	43049	10481	4.1	2			1.0000E-09
15	10.170	0.0000	0.0000%	16664	4107	4.1	2			1.0000E-09
16	10.304	0.0001	0.0000%	130229	30458	4.3	2			1.0000E-09
17	10.438	0.0001	0.0000%	119920	27344	4.4	2			1.0000E-09
18	10.554 Aldrin	23.6239	2.9477%	106213	20556	5.2	2	0	-1.865	2.2242E-04
19	10.989	0.0002	0.0000%	157990	36647	4.3	2			1.0000E-09
20	11.105	0.0001	0.0000%	103058	22088	4.7	2			1.0000E-09
21	11.406	0.0002	0.0000%	172323	34162	5.0	2			1.0000E-09
22	11.690	0.0000	0.0000%	31431	8131	3.9	1			1.0000E-09
23	12.208 Hept. epox.	4.1515	0.5180%	16913	4631	3.7	2	0	.5493	2.4546E-04
24	12.341	0.0000	0.0000%	30333	7630	4.0	2			1.0000E-09
25	12.492	0.0001	0.0000%	133759	30689	4.4	2			1.0000E-09
26	13.093 Y-Chlordane	5.0983	0.6361%	25588	5724	4.5	2	0	1.032	1.9924E-04
27	13.293 Endosulfan I	39.7036	4.9541%	145157	33511	4.3	2	0	-.7451	2.7352E-04
28	14.061	0.0000	0.0000%	5868	1591	3.7	1			1.0000E-09
29	14.245 DDE	5.2266	0.6522%	26927	7195	3.7	1	0	-.4674	1.9410E-04
30	14.496	0.0001	0.0000%	60217	15471	3.9	2			1.0000E-09
31	14.596	0.0001	0.0000%	79286	19924	4.0	2			1.0000E-09
32	15.030 Endrin	56.1314	7.0039%	164409	40656	4.0	2	0	-.4437	3.4141E-04
33	15.197	0.0001	0.0000%	102048	23686	4.3	2			1.0000E-09
34	15.464 Endoslf II	116.3654	14.5197%	363176	79837	4.5	2	0	.1113	3.2041E-04
35	15.848 4'4-DDD	8.4172	1.0503%	24932	5305	4.7	1	0	.1029	3.3761E-04
36	16.115 Endrin ald	22.8798	2.8549%	68640	17028	4.0	2	0	-.2074	3.3333E-04
	16.333	0.0006	0.0001%	601879	108973	5.5	2			1.0000E-09
	16.800	0.0003	0.0000%	273549	45564	6.0	2			1.0000E-09
39	17.117 ODT	16.9036	2.1092%	53449	11560	4.6	2	0	-.2941	3.1626E-04
40	17.335	0.0006	0.0001%	572569	112817	5.1	2			1.0000E-09
41	17.635	0.0001	0.0000%	69054	17308	4.0	2			1.0000E-09
42	17.836	0.0000	0.0000%	14432	3736	3.9	2			1.0000E-09
43	17.936	0.0003	0.0000%	315450	79654	4.0	2			1.0000E-09
44	18.119	0.0002	0.0000%	166236	42341	3.9	2			1.0000E-09
45	18.320	0.0000	0.0000%	48545	10495	4.6	2			1.0000E-09
46	18.504	0.0000	0.0000%	43804	11058	4.0	2			1.0000E-09
47	18.771 Endrin ket.	100.1153	12.4920%	286730	68337	4.2	2	0	.4484	3.4916E-04
48	18.971	0.0002	0.0000%	163207	40151	4.1	2			1.0000E-09
49	19.138	0.0001	0.0000%	131629	23404	5.6	2			1.0000E-09
50	19.372 Methoxychlor	18.3760	2.2929%	28611	6288	4.6	2	0	.2587	6.4226E-04
51	19.539	0.0001	0.0000%	51488	12680	4.1	2			1.0000E-09
52	19.773	0.0007	0.0001%	740893	183618	4.0	1			1.0000E-09
53	20.190	0.0000	0.0000%	17454	4637	3.8	1			1.0000E-09
54	20.825	0.0003	0.0000%	329889	74462	4.4	1			1.0000E-09
55	21.125	0.0001	0.0000%	135132	36807	3.7	2			1.0000E-09
56	21.326	0.0002	0.0000%	154732	36784	4.2	2			1.0000E-09
57	21.844	0.0000	0.0000%	12383	2250	5.5	1			1.0000E-09
58	22.378	0.0001	0.0000%	72407	14719	4.9	2			1.0000E-09
59	22.629	0.0000	0.0000%	6308	1569	4.0	2			1.0000E-09
60	23.146	0.0001	0.0000%	142692	32998	4.3	3			1.0000E-09
61	23.363	0.0000	0.0000%	7716	1780	4.3	4			1.0000E-09
62	24.749	0.0000	0.0000%	43408	9442	4.6	1			1.0000E-09
	26.252 DCB	100.9322	12.5940%	521516	97239	5.4	1	0	0	1.9354E-04

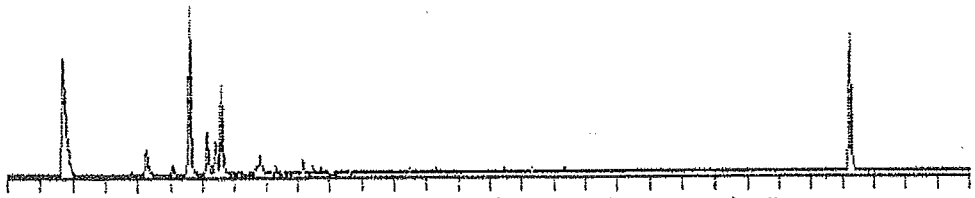
TOTAL AMOUNT = 801.4325

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E145.ATB
Data File = D:NV14E145.PTS Printed on 11-22-1997 at 21:55:46
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1221 2PPM Processed: 11-22-1997 22:26:53, segment 2, cycle 146
RAW DATA SAVED IN FILE D:NV14E146.PTS Second Channel Stored in D:OV14E146.PTS

EXTERNAL STANDARD TABLE

11-22-1997 22:27:58 Version 5.1.5

Sample Name: A1221 2PPM Data File: D:NV14E146

Date: 11-22-1997 21:56:16 Method: M:APES-E 11-21-1997 22:31:52 # 398

Interface: 2 Cycle#: 146 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.371		0.0000	0.0000%	18792	1105	17.0	1			1.0000E-09
2	4.275		0.0001	0.0000%	93468	15134	6.2	1			1.0000E-09
3	5.077		0.0000	0.0000%	27108	4723	5.7	1			1.0000E-09
4	5.594	TCMX	132.6106	36.4638%	586669	112187	5.2	1	0	.6204	2.2604E-04

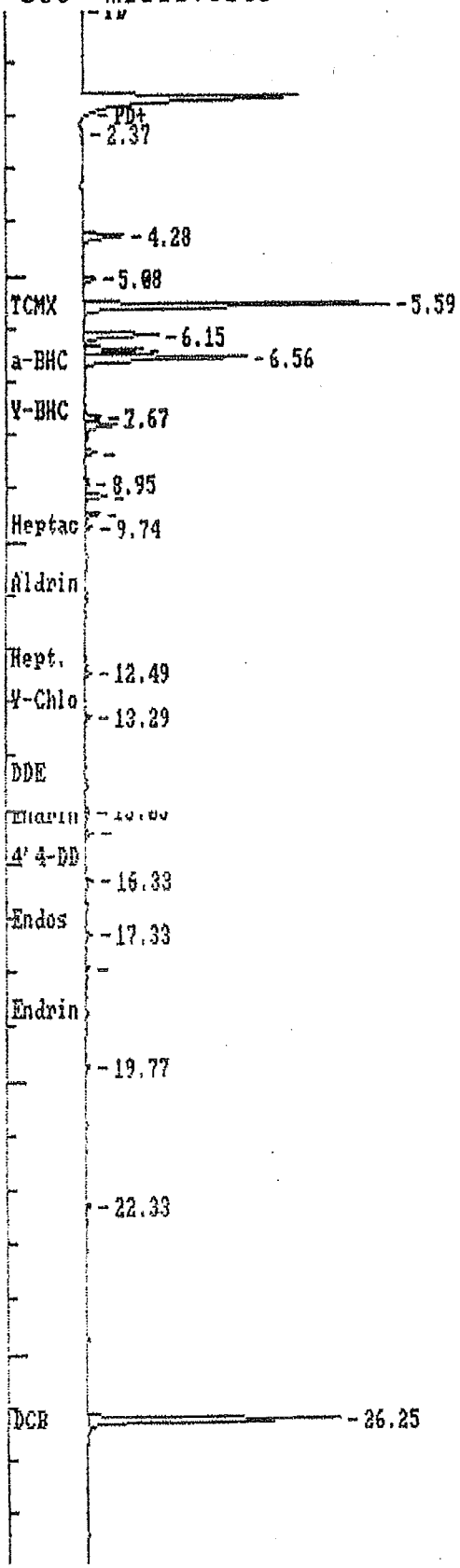
704400
10470

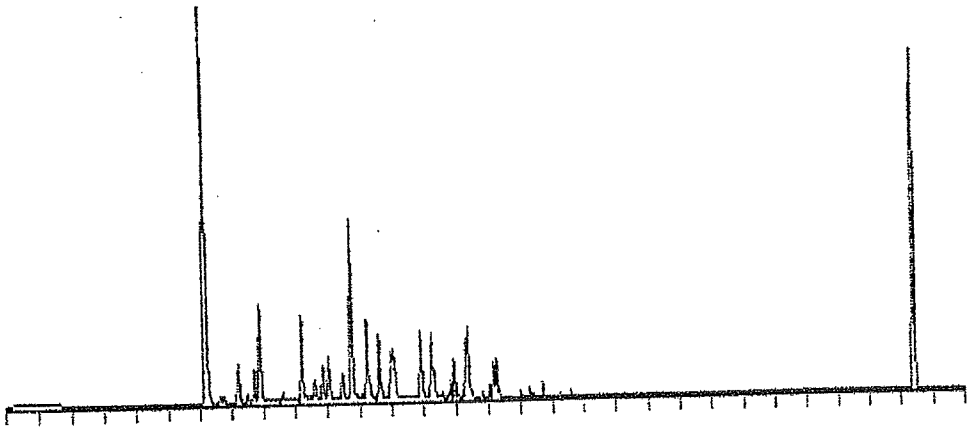
7	6.563 a-BHC	108.8788	29.9383%	331863	59861	5.5	2	0	0	3.2808E-04
8	7.665	0.0000	0.0000%	26082	5947	4.4	2			1.0000E-09
9	7.832	0.0001	0.0000%	78381	11581	6.8	2			1.0000E-09
10	8.333 d-BHC	8.4776	2.3311%	19855	4601	4.3	1	0	1.625	4.2699E-04
11	8.951	0.0000	0.0000%	12032	1573	7.6	1			1.0000E-09
12	9.168	0.0000	0.0000%	45091	8069	5.6	1			1.0000E-09
13	9.486	0.0000	0.0000%	23381	5254	4.5	2			1.0000E-09
14	9.736 Heptachlor	2.8927	0.7954%	11183	2775	4.0	2	0	1.038	2.5867E-04
15	12.492	0.0000	0.0000%	10186	2451	4.2	1			1.0000E-09
16	13.293 Endosulfan I	2.4664	0.6782%	9017	2241	4.0	1	0	-.7451	2.7352E-04
17	15.030 Endrin	2.0191	0.5552%	5914	1544	3.8	1	0	-.4437	3.4141E-04
18	15.464 Endoslf II	4.5605	1.2540%	14233	3200	4.4	1	0	.1113	3.2041E-04
19	16.333 Endrin ald	2.9559	0.8128%	8868	2552	3.5	1	0	1.136	3.3333E-04
20	17.335 DDT	2.9794	0.8192%	9421	2264	4.2	1	0	.9704	3.1626E-04
21	17.936	0.0000	0.0000%	4895	1352	3.6	1			1.0000E-09
22	19.773	0.0000	0.0000%	5774	1564	3.7	1			1.0000E-09
23	22.328	0.0000	0.0000%	5983	1504	4.0	1			1.0000E-09
24	26.252 DCB	95.8358	26.3519%	495183	91547	5.4	1	0	0	1.9354E-04

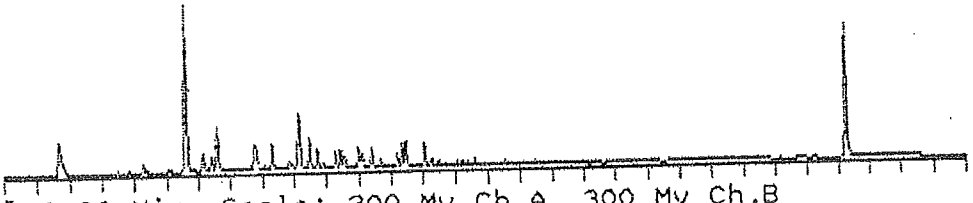
TOTAL AMOUNT = 363.6772

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

reas, times, and heights stored in: D:NV14E146.ATB
a File = D:NV14E146.PTS Printed on 11-22-1997 at 22:28:23
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1232 1PPM Processed: 11-22-1997 22:59:31, segment 3, cycle 147
RAW DATA SAVED IN FILE D:NV14E147.PTS Second Channel Stored in D:OV14E147.PTS

EXTERNAL STANDARD TABLE

11-22-1997 23:00:36 Version 5.1.5

Data File: D:NV14E147

Sample Name: A1232 1PPM

Date: 11-22-1997 22:28:55 Method: M:APES-E 11-21-1997 22:31:52 # 398

Interface: 2 Cycle#: 147 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
ple Weight: 1.00000

Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

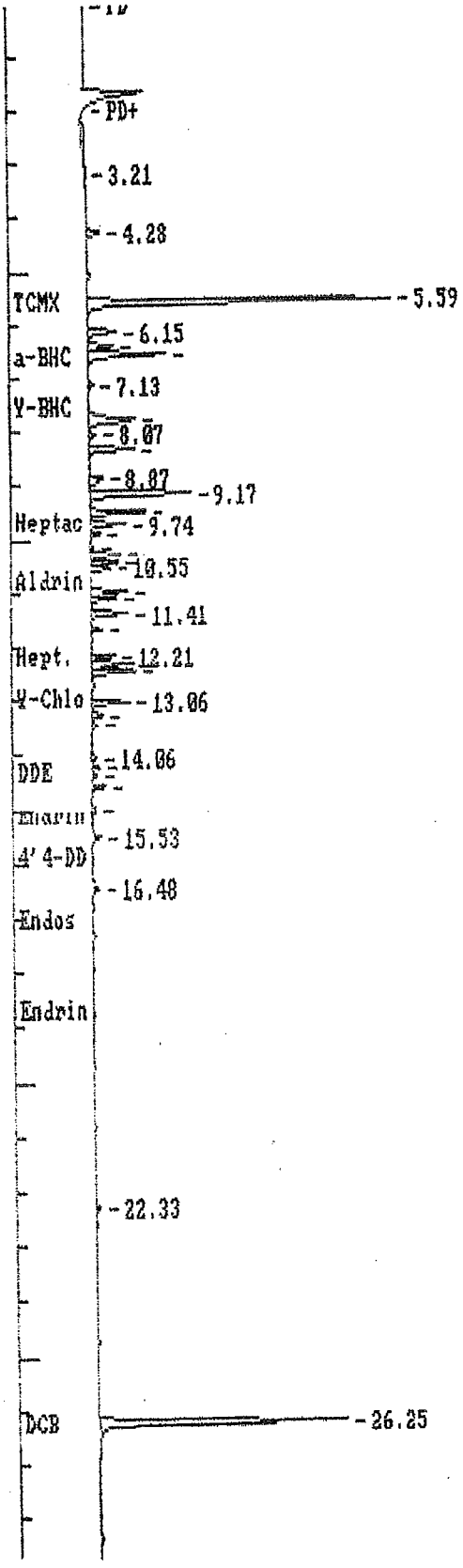
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.206		0.0001	0.0000%	67736	608	111.4	1			1.0000E-09
2	4.275		0.0000	0.0000%	29099	4820	6.0	1			1.0000E-09
			125.5075	35.2634%	555245	110871	5.0	1	0	.6204	2.2604E-04
											1.0000E-09

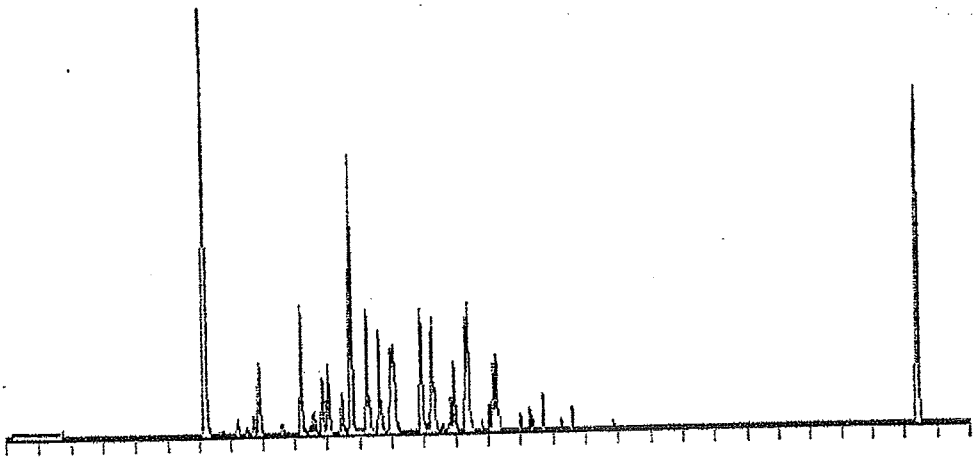
7	7.131		0.0000	0.0000%	8103	1771	4.6	1			1.0000E-09
8	7.766		0.0001	0.0000%	146075	16852	8.7	2			1.0000E-09
9	8.066		0.0000	0.0000%	11303	2475	4.6	2			1.0000E-09
10	8.333	d-BHC	31.2786	8.7882%	73254	16627	4.4	2	0	1.625	4.2699E-04
	8.868		0.0000	0.0000%	34266	4929	7.0	2			1.0000E-09
	9.168		0.0002	0.0001%	216219	36860	5.9	2			1.0000E-09
13	9.486		0.0001	0.0000%	95199	20279	4.7	2			1.0000E-09
14	9.736	Heptachlor	15.0973	4.2418%	58366	13036	4.5	2	0	1.038	2.5867E-04
15	9.903		0.0000	0.0000%	14770	3622	4.1	2			1.0000E-09
16	10.170		0.0000	0.0000%	5833	1447	4.0	2			1.0000E-09
17	10.304		0.0000	0.0000%	47354	11264	4.2	2			1.0000E-09
18	10.454		0.0000	0.0000%	44420	10067	4.4	2			1.0000E-09
19	10.554	Aldrin	8.2188	2.3092%	36952	7239	5.1	2	0	-1.865	2.2242E-04
20	10.989		0.0001	0.0000%	58958	13628	4.3	2			1.0000E-09
21	11.105		0.0000	0.0000%	48280	9558	5.1	2			1.0000E-09
22	11.406		0.0001	0.0000%	68533	13583	5.0	2			1.0000E-09
23	11.690		0.0000	0.0000%	16114	4111	3.9	1			1.0000E-09
24	12.208	Hept. epox.	8.2281	2.3118%	33521	8617	3.9	2	0	.5493	2.4546E-04
25	12.341		0.0001	0.0000%	64391	15466	4.2	2			1.0000E-09
26	12.475		0.0001	0.0000%	74732	16095	4.6	2			1.0000E-09
27	13.059	Y-Chlordane	12.2533	3.4428%	61499	13889	4.4	2	0	.7747	1.9924E-04
28	13.293		0.0000	0.0000%	24514	4078	6.0	2			1.0000E-09
29	13.477	a-Chlordane	1.8189	0.5110%	9362	2372	3.9	2	0	-.2450	1.9429E-04
30	14.061		0.0000	0.0000%	8278	2054	4.0	2			1.0000E-09
31	14.245	DDE	2.3769	0.6678%	12246	2991	4.1	2	0	-.4674	1.9410E-04
32	14.395	Dieldrin	1.7080	0.4799%	7187	1904	3.8	2	0	.4633	2.3764E-04
33	14.596		0.0000	0.0000%	20248	4889	4.1	1			1.0000E-09
34	14.997	Endrin	2.3139	0.6501%	6778	1553	4.4	1	0	-.6650	3.4141E-04
35	15.531	Endoslf II	3.3361	0.9373%	10412	2768	3.8	1	0	.5437	3.2041E-04
36	16.483		0.0000	0.0000%	9360	2170	4.3	1			1.0000E-09
	22.328		0.0000	0.0000%	5769	1454	4.0	1			1.0000E-09
	26.252	OCS	93.7179	26.3316%	484241	89325	5.4	1	0	0	1.9354E-04

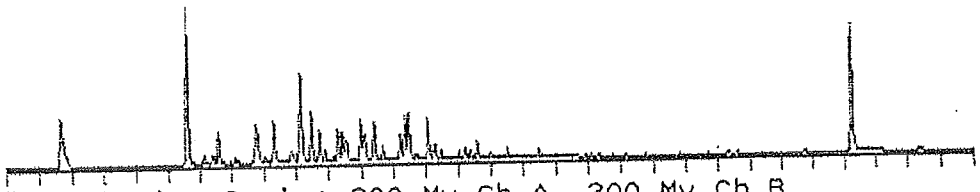
TOTAL AMOUNT = 355.9140

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E147.ATB
Data File = D:NV14E147.PTS Printed on 11-22-1997 at 23:01:03
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1242 1PPM Processed: 11-22-1997 23:32:15, segment 4, cycle 148
RAW DATA SAVED IN FILE D:NV14E148.PTS Second Channel Stored in D:OV14E148.PTS

****** EXTERNAL STANDARD TABLE ******
******************** 11-22-1997 23:33:20 Version 5.1.5 ********************
Data File: D:NV14E148
* Sample Name: A1242 1PPM
* Date: 11-22-1997 23:01:39 Method: M:APES-E 11-21-1997 22:31:52 # 398
* Interface: 2 Cycle#: 148 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
ple Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

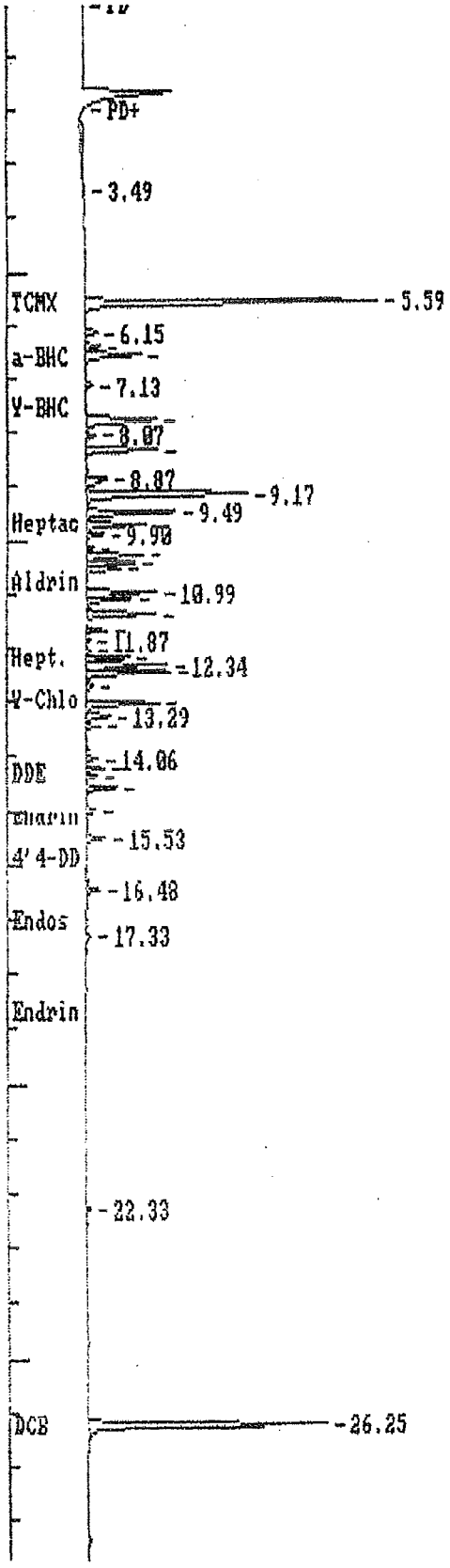
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.490		0.0001	0.0000%	69892	499	140.1	1			1.0000E-09
2	5.594	TCMX	121.1390	29.8442%	535919	106826	5.0	1	0	.6204	2.2604E-04
			0.0000	0.0000%	23865	4497	5.3	2			1.0000E-09
											1.0000E-09

7	7.766		0.0002	0.0000%	190465	25447	7.5	2			1.0000E-09
8	8.066		0.0000	0.0000%	15885	3647	4.4	2			1.0000E-09
9	8.333	d-BHC	50.2057	12.3689%	117582	26242	4.5	1	0	1.625	4.2699E-04
10	8.868		0.0001	0.0000%	53036	7667	6.9	2			1.0000E-09
	9.168		0.0004	0.0001%	350298	59022	5.9	2			1.0000E-09
	9.486		0.0002	0.0000%	152844	32298	4.7	2			1.0000E-09
13	9.736	Heptachlor	25.3843	6.2538%	98136	21767	4.5	2	0	1.038	2.5867E-04
14	9.903		0.0000	0.0000%	25681	6201	4.1	2			1.0000E-09
15	10.170		0.0000	0.0000%	9996	2600	3.8	2			1.0000E-09
16	10.304		0.0001	0.0000%	89062	20613	4.3	2			1.0000E-09
17	10.438		0.0001	0.0000%	78497	17764	4.4	2			1.0000E-09
18	10.554	Aldrin	14.3024	3.5236%	64304	12473	5.2	2	0	-1.865	2.2242E-04
19	10.989		0.0001	0.0000%	110627	25772	4.3	2			1.0000E-09
20	11.105		0.0001	0.0000%	82865	16481	5.0	2			1.0000E-09
21	11.406		0.0001	0.0000%	126462	24980	5.1	2			1.0000E-09
22	11.690		0.0000	0.0000%	30737	7761	4.0	1			1.0000E-09
23	11.874		0.0000	0.0000%	4924	1329	3.7	1			1.0000E-09
24	12.074		0.0000	0.0000%	5520	1514	3.6	2			1.0000E-09
25	12.208	Hept. epox.	15.3841	3.7901%	62675	15696	4.0	2	0	.5493	2.4546E-04
26	12.341		0.0001	0.0000%	124372	29412	4.2	2			1.0000E-09
27	12.475		0.0001	0.0000%	148400	30460	4.9	2			1.0000E-09
28	12.725		0.0000	0.0000%	13329	2416	5.5	2			1.0000E-09
29	13.059	Y-Chlordane	23.6478	5.8259%	118688	26571	4.5	2	0	.7747	1.9924E-04
30	13.293		0.0001	0.0000%	52820	8652	6.1	2			1.0000E-09
31	13.477	a-Chlordane	4.0000	0.9854%	20588	5056	4.1	2	0	-.2450	1.9429E-04
32	14.061		0.0000	0.0000%	18042	4443	4.1	2			1.0000E-09
33	14.245	DDE	5.2299	1.2885%	26945	6514	4.1	2	0	-.4674	1.9410E-04
34	14.395	Dieldrin	3.6801	0.9066%	15486	4004	3.9	2	0	.4633	2.3764E-04
35	14.596		0.0000	0.0000%	46388	10925	4.2	1			1.0000E-09
36	14.997	Endrin	4.5188	1.1133%	13235	3210	4.1	1	0	-.6650	3.4141E-04
	15.531	Endoslf II	10.2542	2.5263%	32003	6828	4.7	1	0	.5437	3.2041E-04
	16.483		0.0000	0.0000%	20594	4654	4.4	1			1.0000E-09
39	17.335	DDT	1.9237	0.4739%	6083	1510	4.0	1	0	.9704	3.1626E-04
40	22.328		0.0000	0.0000%	5487	1421	3.9	1			1.0000E-09
41	26.252	DCB	90.8488	22.3819%	469416	86295	5.4	1	0	0	1.9354E-04

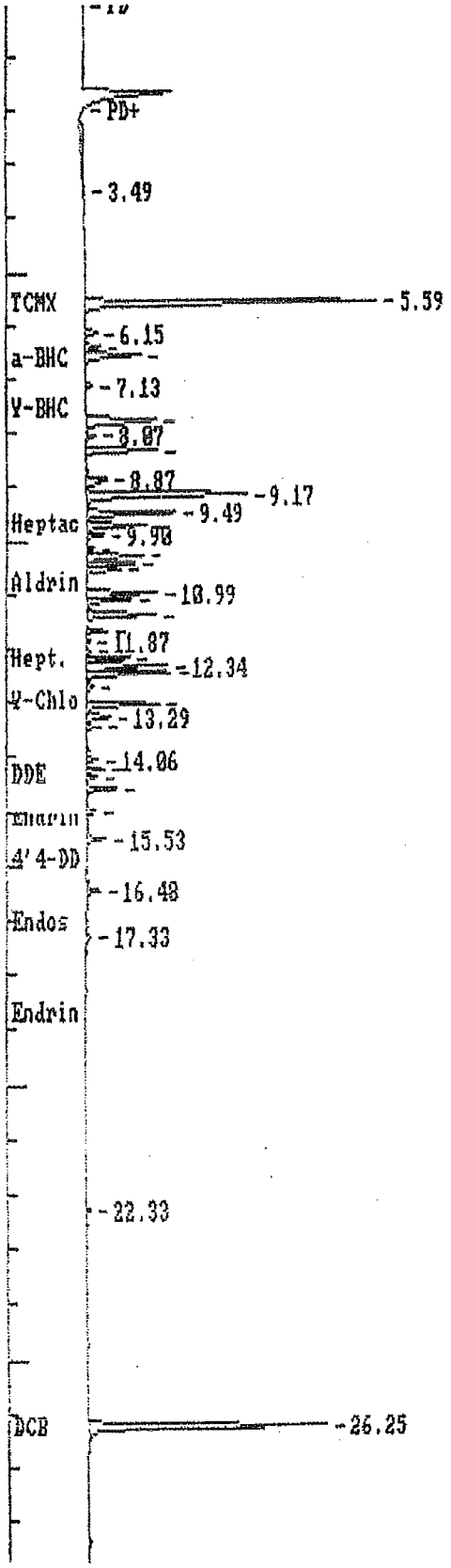
TOTAL AMOUNT = 405.9041

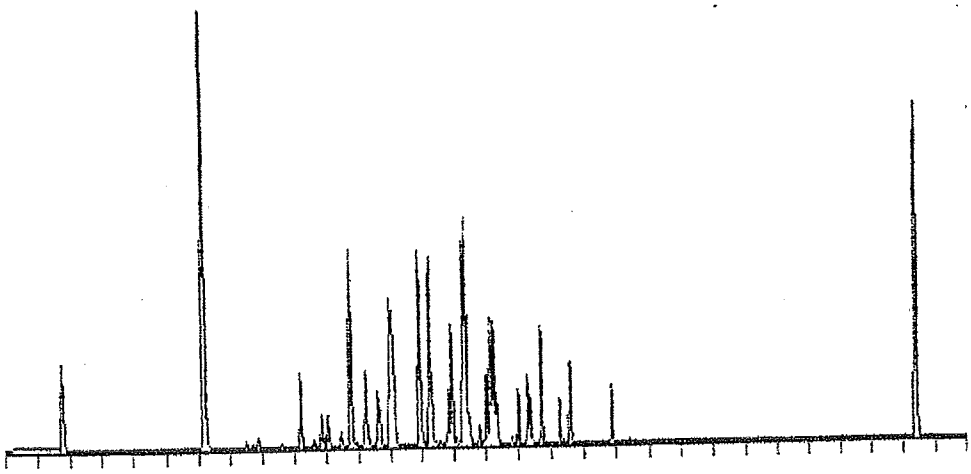
GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

eas, times, and heights stored in: D:NV14E148.ATB
a File = D:NV14E148.PTS Printed on 11-22-1997 at 23:33:47
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



Areas, times, and heights stored in: D:NV14E148.ATB
Data File = D:NV14E148.PTS Printed on 11-22-1997 at 23:33:47
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1248 1PPM Processed: 11-23-1997 00:05:41, segment 5, cycle 149
RAW DATA SAVED IN FILE D:NV14E149.PTS Second Channel Stored in D:OV14E149.PTS

EXTERNAL STANDARD TABLE

********** 11-23-1997 00:06:46 Version 5.1.5 **********
Data File: D:NV14E149
* Sample Name: A1248 1PPM
* Date: 11-22-1997 23:34:20 Method: M:APES-E 11-21-1997 22:31:52 # 398
* Interface: 2 Cycle#: 149 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

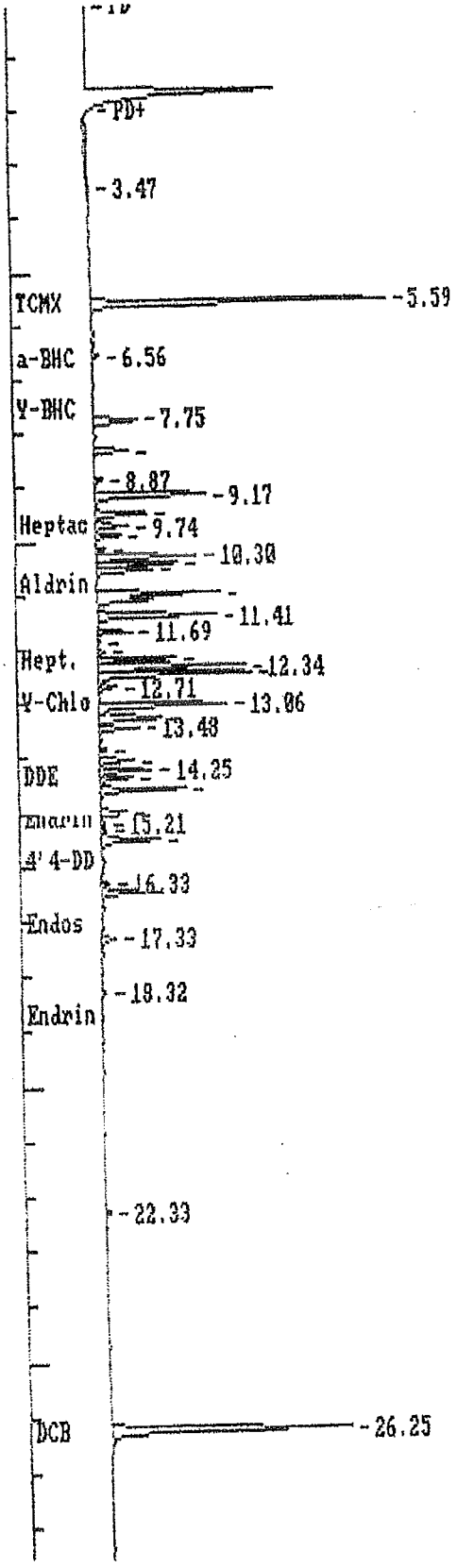
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
											1.0000E-09
1	3.474		0.0001	0.0000%	71027	529	134.2	1			2.2604E-04
2	5.594	TCMX	117.9686	26.6984%	521893	107386	4.9	1	0	.6204	3.2808E-04
3	6.569	a-BHC	3.9847	0.9018%	12145	2574	4.7	1	0	0	1.0000E-09

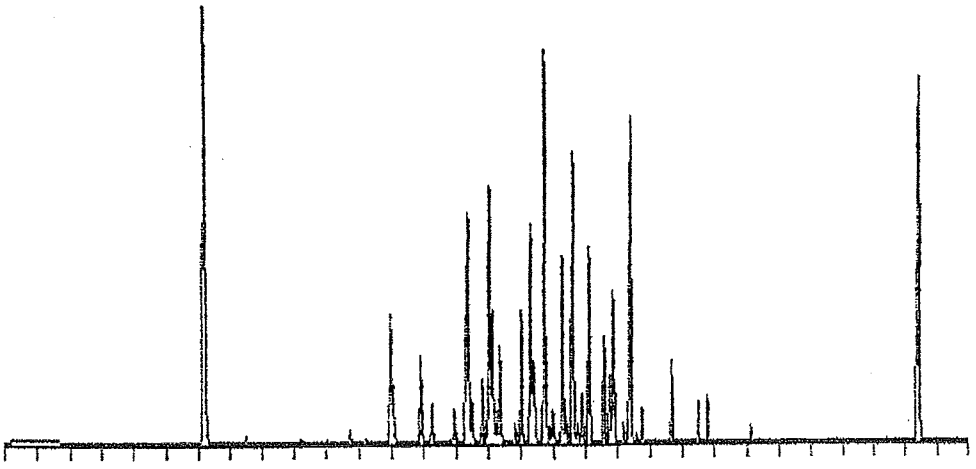
6	8.000		0.0000	0.0000%	16755	3080	5.4 1			1.0000E-09
7	9.168		0.0002	0.0001%	242365	40074	6.0 2			1.0000E-09
8	9.502		0.0001	0.0000%	93279	18804	5.0 2			1.0000E-09
9	9.736	Heptachlor	15.1025	3.4180%	58386	11989	4.9 2	0	1.038	2.5867E-04
	9.903		0.0000	0.0000%	37720	9010	4.2 2			1.0000E-09
	10.170		0.0000	0.0000%	14649	3744	3.9 2			1.0000E-09
	10.304		0.0002	0.0000%	158636	36024	4.4 2			1.0000E-09
13	10.438		0.0001	0.0000%	128014	29339	4.4 2			1.0000E-09
14	10.554	Aldrin	22.8259	5.1659%	102625	20236	5.1 2	0	-1.865	2.2242E-04
15	10.989		0.0003	0.0001%	276071	44474	6.2 1			1.0000E-09
16	11.406		0.0002	0.0000%	208570	42339	4.9 1			1.0000E-09
17	11.690		0.0000	0.0000%	47534	12151	3.9 1			1.0000E-09
18	11.874		0.0000	0.0000%	4707	1367	3.4 1			1.0000E-09
19	12.074		0.0000	0.0000%	9488	2672	3.6 2			1.0000E-09
20	12.208	Hept. epox.	27.7803	6.2872%	113177	28038	4.0 2	0	.5493	2.4546E-04
21	12.341		0.0002	0.0001%	225815	52897	4.3 2			1.0000E-09
22	12.475		0.0003	0.0001%	275367	55124	5.0 2			1.0000E-09
23	12.709		0.0000	0.0000%	29698	6539	4.5 2			1.0000E-09
24	13.059	Y-Chlordane	41.1327	9.3090%	206445	45882	4.5 2	0	.7747	1.9924E-04
25	13.293		0.0001	0.0000%	137126	22473	6.1 2			1.0000E-09
26	13.477	a-Chlordane	11.5558	2.6153%	59477	14276	4.2 2	0	-.2450	1.9429E-04
27	13.878		0.0000	0.0000%	9952	2733	3.6 1			1.0000E-09
28	14.061		0.0001	0.0000%	52574	12517	4.2 2			1.0000E-09
29	14.245	DDE	15.2038	3.4409%	78330	18524	4.2 2	0	-.4674	1.9410E-04
30	14.395	Dieldrin	11.6188	2.6295%	48892	11911	4.1 2	0	.4633	2.3764E-04
31	14.596		0.0001	0.0000%	127046	30552	4.2 2			1.0000E-09
32	14.997	Endrin	13.2939	3.0086%	38938	9283	4.2 2	0	-.6650	3.4141E-04
33	15.214		0.0000	0.0000%	8059	1557	5.2 2			1.0000E-09
34	15.347		0.0000	0.0000%	7754	2133	3.6 2			1.0000E-09
35	15.531	Endosif II	33.0695	7.4842%	103210	20994	4.9 2	0	.5437	3.2041E-04
36	16.333	Endrin ald	3.8055	0.8613%	11417	2939	3.9 2	0	1.136	3.3333E-04
	16.483		0.0001	0.0000%	75406	15611	4.8 2			1.0000E-09
38	17.335	DDT	7.9182	1.7920%	25037	5092	4.9 1	0	.9704	3.1626E-04
39	18.320	Endrin ket.	2.2790	0.5158%	6527	1536	4.2 1	0	-1.964	3.4916E-04
40	22.328		0.0000	0.0000%	5613	1411	4.0 1			1.0000E-09
41	26.252	DCB	90.6107	20.5068%	468186	86291	5.4 1	0	0	1.9354E-04

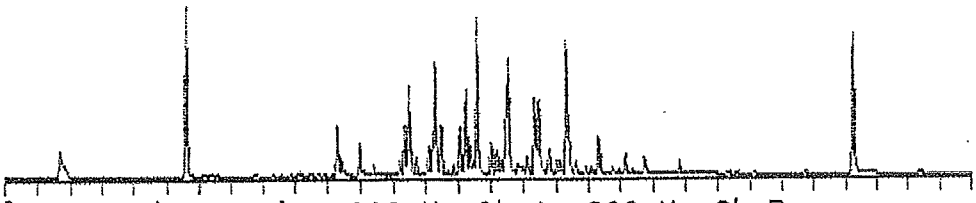
TOTAL AMOUNT = 441.3574

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E149.ATB
Data File = D:NV14E149.PTS Printed on 11-23-1997 at 00:07:12
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1254 1PPM Processed: 11-23-1997 00:39:52, segment 6, cycle 150
RAW DATA SAVED IN FILE D:NV14E150.PTS Second Channel Stored in D:OV14E150.PTS

EXTERNAL STANDARD TABLE

********** 11-23-1997 00:40:57 Version 5.1.5 **********
* Sample Name: A1254 1PPM Data File: D:NV14E150 *
* Date: 11-23-1997 00:07:05 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 150 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *
****
* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *
****

Starting Delay: 0.00 Ending retention time: 30.00
Area reject: 2000 One sample per 1.002 sec.
Amount injected: 1.00 Dilution factor: 1.00
Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.474		0.0001	0.0000%	67290	538	125.2	1			1.0000E-09
2	5.594	TCMX	123.4706	20.9050%	546234	114066	4.8	1	0	.6204	2.2604E-04
3	6.363		0.0000	0.0000%	5897	1274	4.6	1			1.0000E-09
											1.0000E-09

7	10.438		0.0001	0.0000%	54179	10229	5.3	2			1.0000E-09
8	10.989		0.0001	0.0000%	96704	21179	4.6	1			1.0000E-09
9	11.406		0.0000	0.0000%	35545	7899	4.5	1			1.0000E-09
10	11.690		0.0000	0.0000%	7189	1960	3.7	1			1.0000E-09
	12.208	Hept. epox.	8.4798	1.4357%	34547	8604	4.0	2	0	.5493	2.4546E-04
	12.341		0.0001	0.0000%	143148	32860	4.4	2			1.0000E-09
13	12.492		0.0003	0.0000%	264209	59872	4.4	2			1.0000E-09
14	12.709		0.0000	0.0000%	46136	10958	4.2	2			1.0000E-09
15	13.093	Y-Chlordane	18.5258	3.1366%	92981	19765	4.7	2	0	1.032	1.9924E-04
16	13.293		0.0004	0.0001%	398378	75041	5.3	2			1.0000E-09
17	13.477	a-Chlordane	27.3185	4.6253%	140609	33021	4.3	2	0	-.2450	1.9429E-04
18	13.711		0.0000	0.0000%	7068	1761	4.0	2			1.0000E-09
19	13.878		0.0000	0.0000%	22644	6044	3.7	2			1.0000E-09
20	14.061		0.0001	0.0000%	121591	29639	4.1	2			1.0000E-09
21	14.245	DDE	46.7566	7.9164%	240890	57245	4.2	2	0	-.4674	1.9410E-04
22	14.395	Dieldrin	16.9244	2.8655%	71218	19088	3.7	2	0	.4633	2.3764E-04
23	14.496		0.0000	0.0000%	32894	8561	3.8	2			1.0000E-09
24	14.596		0.0004	0.0001%	429007	103794	4.1	2			1.0000E-09
25	15.013	Endrin	32.2760	5.4647%	94536	19896	4.8	2	0	-.5544	3.4141E-04
26	15.197		0.0001	0.0000%	62128	12988	4.8	2			1.0000E-09
27	15.347		0.0000	0.0000%	29592	7048	4.2	2			1.0000E-09
28	15.531	Endoslf II	157.8585	26.7272%	492676	76186	6.5	2	0	.5437	3.2041E-04
29	15.832	4'4-DDD	7.7342	1.3095%	22909	4680	4.9	1	0	0	3.3761E-04
30	16.115	Endrin ald	12.4492	2.1078%	37348	9919	3.8	1	0	-.2074	3.3333E-04
31	16.333		0.0002	0.0000%	215505	51429	4.2	2			1.0000E-09
32	16.466		0.0003	0.0001%	297498	49464	6.0	2			1.0000E-09
33	16.800		0.0001	0.0000%	81446	17164	4.7	2			1.0000E-09
34	17.034	Endos sulf	10.6574	1.8044%	29073	7430	3.9	2	0	.1941	3.6657E-04
35	17.134	DDT	10.2158	1.7297%	32303	8056	4.0	2	0	-.1968	3.1626E-04
36	17.335		0.0005	0.0001%	456183	88031	5.2	2			1.0000E-09
	17.618		0.0000	0.0000%	38763	9066	4.3	2			1.0000E-09
	17.936		0.0000	0.0000%	13347	4019	3.3	1			1.0000E-09
39	18.119		0.0000	0.0000%	15373	4058	3.8	1			1.0000E-09
40	18.320		0.0001	0.0000%	110636	24667	4.5	1			1.0000E-09
41	18.771	Endrin ket.	8.5328	1.4447%	24438	5610	4.4	2	0	.4484	3.4916E-04
42	18.971		0.0000	0.0000%	13233	3559	3.7	2			1.0000E-09
43	19.172		0.0001	0.0000%	61424	12481	4.9	2			1.0000E-09
44	19.372	Methoxychlor	10.1037	1.7107%	15731	3182	4.9	2	0	.2587	6.4226E-04
45	19.773		0.0000	0.0000%	45239	11129	4.1	1			1.0000E-09
46	20.825		0.0000	0.0000%	39609	8820	4.5	1			1.0000E-09
47	22.328		0.0000	0.0000%	6596	1548	4.3	1			1.0000E-09
48	26.252	OCB	97.4564	16.5005%	503557	93007	5.4	1	0	0	1.9354E-04

TOTAL AMOUNT = 590.6278

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

***** EXTERNAL STANDARD TABLE *****

********** 11-23-1997 00:41:35 Version 5.1.5 **********

* Sample Name: A1254 1PPM Data File: D:\DV14E150 *

* Date: 11-23-1997 00:07:05 Method: M:\BPES-E 11-03-1997 18:46:51 # 389 *

* Interface: 2 Cycle#: 150 Operator JJK Channel#: 1 Vial#: N.A. *

* Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000 *

****

* Instrument Type: PE 8500 Column Type: RTX 5/1701 *

* Solvent Description: *

* Conditions: *

* Detector 0: Detector 1: ECD *

* Misc. Information: *

****

Starting Delay: 0.00 Ending retention time: 30.00

Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

Sample Weight: 1.00000

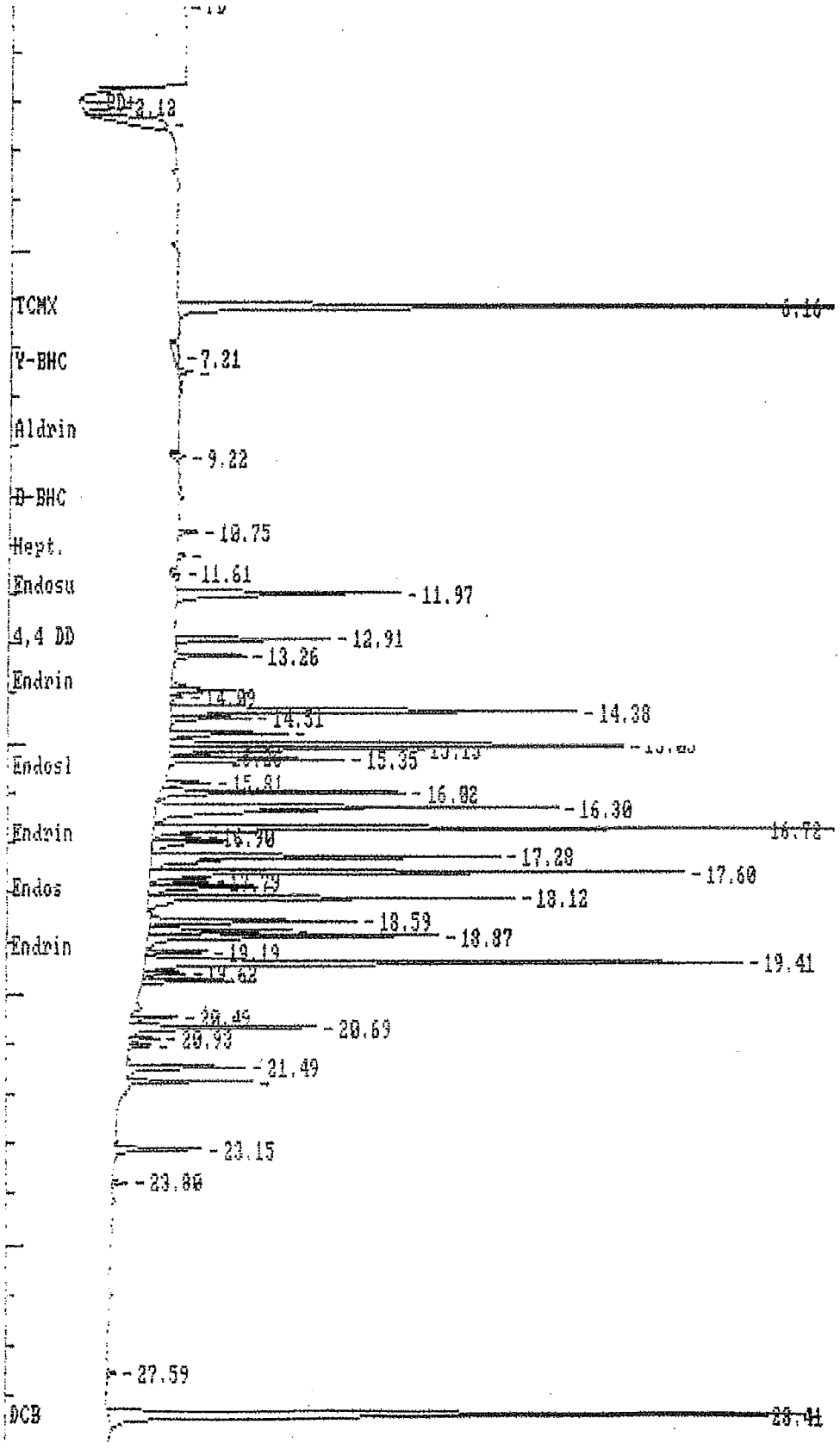
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.121		0.0001	0.0000%	113810	12350	9.2	1			1.0000E-09
2	2.439		0.0001	0.0000%	200687	8396	23.9	1			1.0000E-09
3	6.162	TCMX	499.7529	22.1362%	1556728	320464	4.9	1	0	.5269	3.2103E-04
4	7.214	Y-BHC	22.7543	1.0080%	53870	2261	26.5	2	0	-.4635	3.3023E-04
	7.498		0.0000	0.0000%	26104	5893	4.4	2			1.0000E-09
6	9.218		0.0000	0.0000%	23264	4742	4.9	1			1.0000E-09
7	10.755	d-BHC	18.7686	0.8313%	32357	7890	4.1	1	0	.7852	5.8005E-04
8	11.222		0.0000	0.0000%	14919	2930	5.1	1			1.0000E-09
9	11.606		0.0000	0.0000%	17510	3383	5.2	1			1.0000E-09
10	11.974	Y-Chlordane	124.7622	5.5263%	470229	88442	5.3	1	0	-1.099	2.6535E-04
11	12.309	4,4 DDE	98.9925	4.3848%	240453	61399	3.9	1	0	.3896	4.1159E-04
12	13.240		0.0001	0.0000%	108522	28629	3.8	1			1.0000E-09
13	13.661	Endrin	6.5611	0.2908%	17944	5559	3.2	1	0	1.213	3.6572E-04
14	13.961		0.0001	0.0000%	93920	26276	3.6	2			1.0000E-09
15	14.095		0.0000	0.0000%	22634	5213	4.3	2			1.0000E-09
16	14.379		0.0001	0.0000%	961441	159489	6.0	2			1.0000E-09
17	14.512		0.0001	0.0000%	125418	31662	4.0	2			1.0000E-09
18	14.830		0.0002	0.0000%	176849	47062	3.8	2			1.0000E-09
19	15.030		0.0007	0.0000%	740567	177826	4.2	2			1.0000E-09
20	15.147		0.0004	0.0000%	376660	93837	4.0	3			1.0000E-09
21	15.264		0.0001	0.0000%	51143	14782	3.5	4			1.0000E-09
22	15.347	Endosulfan I	90.7394	4.0192%	276113	63957	4.3	2	0	-.6434	3.2863E-04
23	15.819	4,4-DDD	49.7487	2.2032%	74121	18269	4.1	2	0	1.280	6.7103E-04
24	16.016	4,4 DDT	224.1573	9.9289%	476847	96570	4.9	2	0	-.3093	4.7010E-04
25	16.299		0.0001	0.0000%	937481	158174	5.9	2			1.0000E-09
26	16.717	Endrin ald	457.0219	20.2435%	1201511	277456	4.3	2	0	-.4958	3.8037E-04
27	16.900		0.0001	0.0000%	76864	17525	4.4	4			1.0000E-09
28	17.001		0.0001	0.0000%	134217	29886	4.5	4			1.0000E-09
29	17.284		0.0001	0.0000%	729219	136881	5.3	2			1.0000E-09
30	17.601		0.0001	0.0000%	920004	209447	4.4	3			1.0000E-09
31	17.785		0.0001	0.0000%	99328	21715	4.6	4			1.0000E-09
32	17.902	Endos sulf	196.1423	8.6913%	431173	43226	5.0	2	0	0	4.5491E-04
33	18.119		0.0006	0.0000%	617779	144000	4.3	2			1.0000E-09
34	18.587	Methoxychl	215.2229	9.5332%	326924	81229	4.0	2	0	1.088	6.5833E-04
35	18.771		0.0002	0.0000%	221630	56203	3.9	2			1.0000E-09
36	18.871		0.0006	0.0000%	555925	113996	4.9	2			1.0000E-09
37	19.199	Endrin ket	31.5797	1.3988%	91013	24229	3.8	2	0	.7894	3.4698E-04

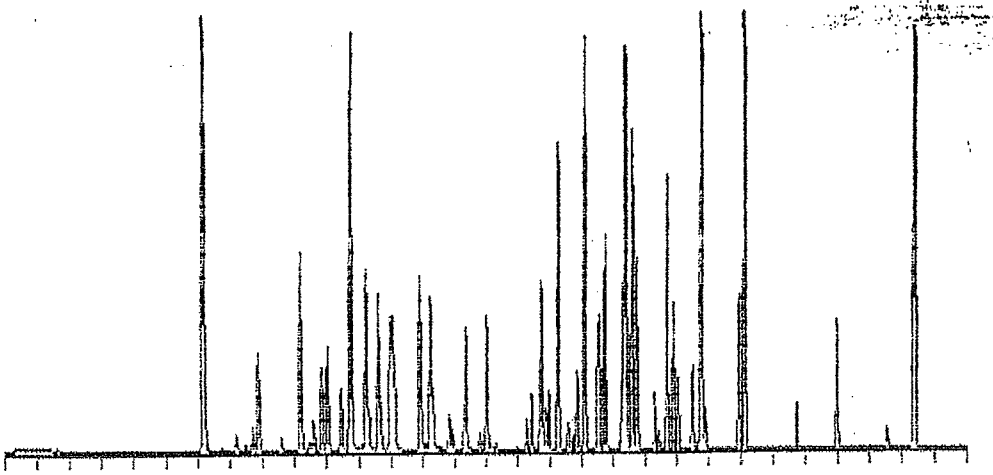
40	19.773	0.0001	0.0000%	140231	36444	3.8	2			1.0000E-09
41	20.491	0.0001	0.0000%	87053	18964	4.6	2			1.0000E-09
42	20.691	0.0003	0.0000%	343786	73623	4.7	2			1.0000E-09
[illegible]	20.925	0.0001	0.0000%	50382	12234	4.1	2			1.0000E-09
	21.059	0.0000	0.0000%	34452	9110	3.8	2			1.0000E-09
	21.493	0.0002	0.0000%	212246	47091	4.5	1			1.0000E-09
[illegible]	21.777	0.0002	0.0000%	185892	49725	3.7	1			1.0000E-09
47	23.146	0.0001	0.0000%	143658	34032	4.2	1			1.0000E-09
48	23.797	0.0000	0.0000%	25201	6143	4.1	1			1.0000E-09
49	27.588	0.0000	0.0000%	18884	3453	5.5	1			1.0000E-09
50	28.407 OC8	320.3422	14.1894%	1719917	272538	6.3	1	0	.1646	1.8625E-04

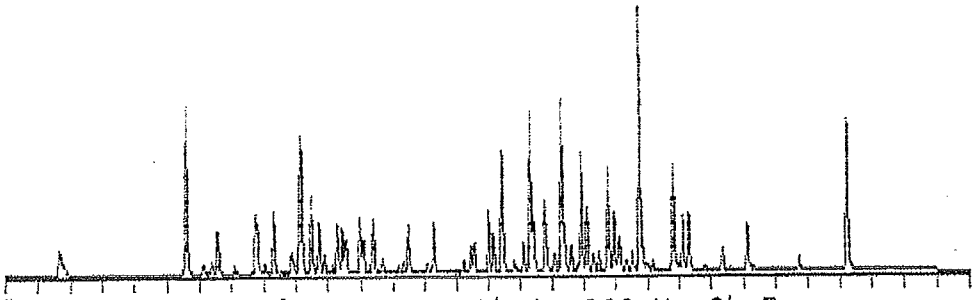
TOTAL AMOUNT = 2257.6199

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:0V14E150.ATB
Data File = D:0V14E150.PTS Printed on 11-23-1997 at 00:42:48
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
A1660 1PPM Processed: 11-25-1997 06:09:01, segment 13, cycle 171
RAW DATA SAVED IN FILE D:NV14E171.PTS Second Channel Stored in D:CV14E171.PTS

EXTERNAL STANDARD TABLE

********** 11-25-1997 06:10:08 Version 5.1.5 **********
* Sample Name: A1660 1PPM Data File: D:NV14E171 *
* Date: 11-25-1997 05:38:21 Method: M:APES-E 11-21-1997 22:31:52 # 398 *
* Interface: 2 Cycle#: 171 Operator JJK Channel#: 0 Vial#: N.A. *
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000 *
****
* Instrument Type: PE 8500 Column Type: RTX 5/1701 *
* Solvent Description: *
* Conditions: *
* Detector 0: Detector 1: ECD *
* Misc. Information: *
****

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.578	TCMX	123.3153	15.7917%	545547	112470	4.9	1	0	.3201	2.2604E-04
2	6.129		0.0000	0.0000%	29159	5702	5.1	2			1.0000E-09
3	6.396		0.0000	0.0000%	36202	7229	5.0	2			1.0000E-09
4	6.563	a-BHC	46.5350	5.9592%	141839	28225	5.0	2	0	0	3.2808E-04

7	8.066	0.0000	0.0000%	26132	6099	4.3	2			1.0000E-09
8	8.317 d-BHC	75.2970	9.6425%	176345	41426	4.3	1	0	1.421	4.2699E-04
9	8.868	0.0001	0.0000%	81919	12370	6.6	2			1.0000E-09
10	9.152	0.0005	0.0001%	534001	91200	5.9	2			1.0000E-09
	9.486	0.0002	0.0000%	231424	50756	4.6	2			1.0000E-09
	9.719 Heptachlor	38.8392	4.9737%	150152	33368	4.5	2	0	.8655	2.5867E-04
	9.886	0.0000	0.0000%	43614	10374	4.2	2			1.0000E-09
14	10.154	0.0000	0.0000%	16710	4237	3.9	2			1.0000E-09
15	10.287	0.0001	0.0000%	128633	31468	4.1	2			1.0000E-09
16	10.438	0.0001	0.0000%	118531	28111	4.2	2			1.0000E-09
17	10.554 Aldrin	23.8780	3.0578%	107355	21052	5.1	2	0	-1.865	2.2242E-04
18	10.989	0.0002	0.0000%	166222	37570	4.4	2			1.0000E-09
19	11.105	0.0001	0.0000%	92667	21103	4.4	2			1.0000E-09
20	11.406	0.0002	0.0000%	170102	34478	4.9	2			1.0000E-09
21	11.690	0.0000	0.0000%	31366	8087	3.9	1			1.0000E-09
22	12.191 Hept. epox.	4.1777	0.5350%	17020	4401	3.9	2	0	.4118	2.4546E-04
23	12.325	0.0000	0.0000%	29563	7329	4.0	2			1.0000E-09
24	12.475	0.0001	0.0000%	132719	31071	4.3	2			1.0000E-09
25	13.076 Y-Chlordane	5.1139	0.6551%	25677	5684	4.5	2	0	.9036	1.9924E-04
26	13.276 Endosulfan I	39.6067	5.0720%	144802	32871	4.4	2	0	-.8698	2.7352E-04
27	14.045	0.0000	0.0000%	6082	1632	3.7	1			1.0000E-09
28	14.228 DDE	5.1920	0.6649%	26749	7055	3.8	1	0	-.5841	1.9410E-04
29	14.479	0.0001	0.0000%	59812	15881	3.8	2			1.0000E-09
30	14.596	0.0001	0.0000%	78497	18866	4.2	2			1.0000E-09
31	15.013	0.0002	0.0000%	162894	40363	4.0	2			1.0000E-09
32	15.180 Endrin	34.6319	4.4349%	101437	24237	4.2	2	0	.5517	3.4141E-04
33	15.447 Endosif II	114.0682	14.6075%	356007	81163	4.4	2	0	0	3.2041E-04
34	15.832 4'4-DDD	8.3731	1.0722%	24801	5530	4.5	1	0	0	3.3761E-04
35	16.115 Endrin ald	22.8452	2.9255%	68536	17824	3.8	2	0	-.2074	3.3333E-04
36	16.316	0.0006	0.0001%	596951	106957	5.6	2			1.0000E-09
37	16.783	0.0003	0.0000%	273350	46152	5.9	2			1.0000E-09
	17.101 DDT	17.3846	2.2263%	54970	11390	4.8	2	0	-.3914	3.1626E-04
39	17.318	0.0006	0.0001%	563659	115446	4.9	2			1.0000E-09
40	17.618	0.0001	0.0000%	71143	17133	4.2	2			1.0000E-09
41	17.819	0.0000	0.0000%	14710	3949	3.7	2			1.0000E-09
42	17.919	0.0003	0.0000%	314068	79391	4.0	2			1.0000E-09
43	18.103	0.0002	0.0000%	168435	42591	4.0	2			1.0000E-09
44	18.320	0.0000	0.0000%	49985	9995	5.0	2			1.0000E-09
45	18.487	0.0000	0.0000%	46063	11664	3.9	2			1.0000E-09
46	18.771 Endrin ket.	98.1748	12.5722%	281173	68991	4.1	2	0	.4484	3.4916E-04
47	18.955	0.0002	0.0000%	160479	38570	4.2	2			1.0000E-09
48	19.121	0.0001	0.0000%	131932	22191	5.9	2			1.0000E-09
49	19.355 Methoxychlor	19.9415	2.5537%	31049	6767	4.6	2	0	.1723	6.4226E-04
50	19.522	0.0001	0.0000%	51872	11671	4.4	2			1.0000E-09
51	19.756	0.0007	0.0001%	721655	177056	4.1	1			1.0000E-09
52	20.190	0.0000	0.0000%	17160	4878	3.5	1			1.0000E-09
53	20.825	0.0003	0.0000%	345208	70564	4.9	2			1.0000E-09
54	21.125	0.0001	0.0000%	142848	35834	4.0	2			1.0000E-09
55	21.309	0.0002	0.0000%	158046	38067	4.2	2			1.0000E-09
56	21.827	0.0000	0.0000%	12017	1831	6.6	1			1.0000E-09
57	22.378	0.0001	0.0000%	72637	14382	5.1	2			1.0000E-09
58	22.612	0.0000	0.0000%	6192	1603	3.9	2			1.0000E-09
59	23.146	0.0001	0.0000%	133087	31148	4.3	1			1.0000E-09
60	24.733	0.0000	0.0000%	43905	9154	4.8	1			1.0000E-09
61	26.236 DCB	103.5062	13.2549%	534817	101348	5.3	1	0	0	1.9354E-04

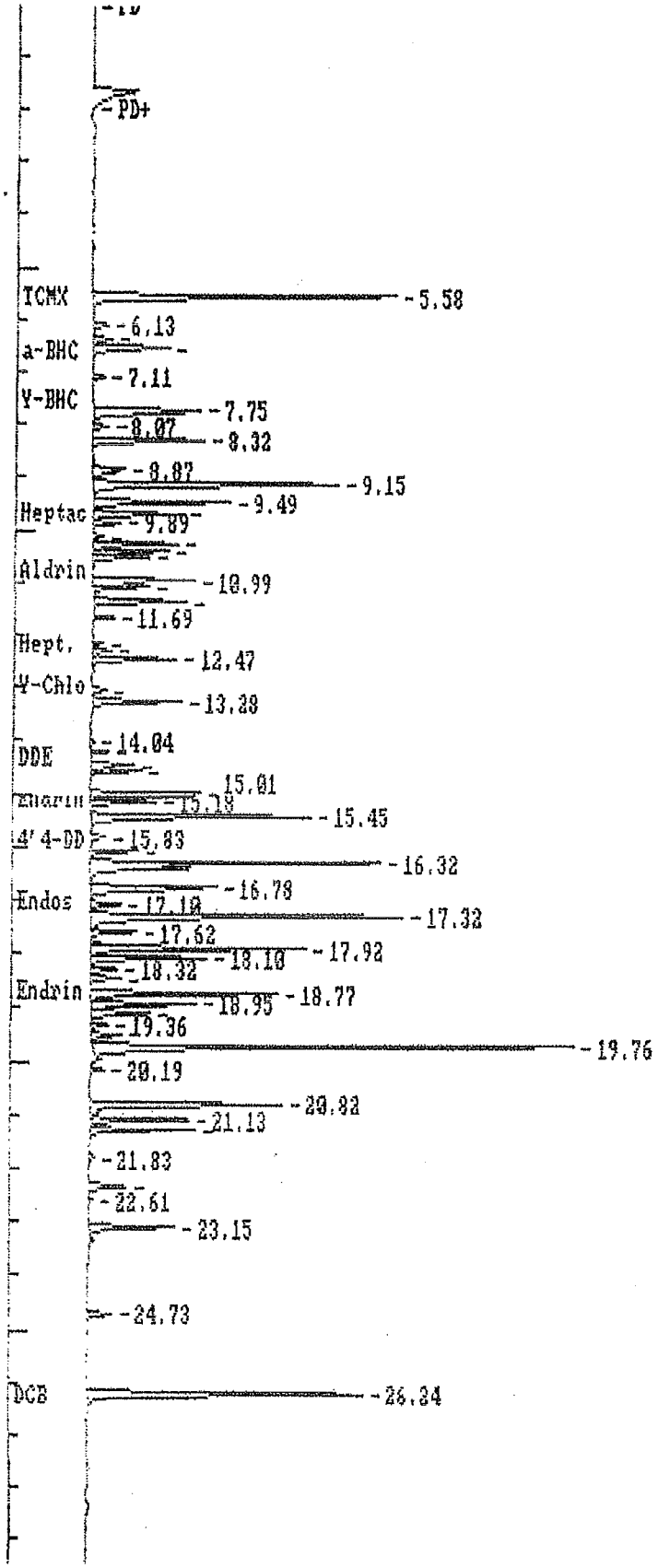
1397000
99%

2301000
100%

TOTAL AMOUNT = 780.8890

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E171.ATB
Data File = D:NV14E171.PTS Printed on 11-25-1997 at 06:10:36
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



```
[Interface 2] 0-30 Min  Scale: 300 Mv Ch.A, 300 Mv Ch.B
CHLORDANE  Processed: 11-23-1997 01:13:24, segment 7, cycle 151
RAW DATA SAVED IN FILE D:NV14E151.PTS  Second Channel Stored in D:OV14E151.PTS
```

```
*****     EXTERNAL STANDARD TABLE     *****
******************* 11-23-1997 01:14:29 Version 5.1.5 *******************
*                                                  Data File: D:NV14E151   *
* Sample Name: CHLORDANE 1PPM
* Date: 11-23-1997 00:39:45 Method: M:APES-E  11-21-1997 22:31:52  #  398 *
* Interface: 2   Cycle#:  151  Operator JJK Channel#: 0   Vial#: N.A.     *
* Starting Peak Width:  10   Threshold: 20  Area Threshold: 2000          *
**************************************************************************
* Instrument Type: PE 8500               Column Type: RTX 5/1701          *
*             Solvent Description:                                        *
* Conditions:                                                             *
*             Detector 0:                       Detector 1: ECD           *
* Misc. Information:                                                      *
**************************************************************************
Starting Delay:   0.00                Ending retention time:   30.00
Area reject:     2000                 One sample per    1.002 sec.
Amount injected:        1.00          Dilution factor:        1.00
Sample Weight:          1.00000
```

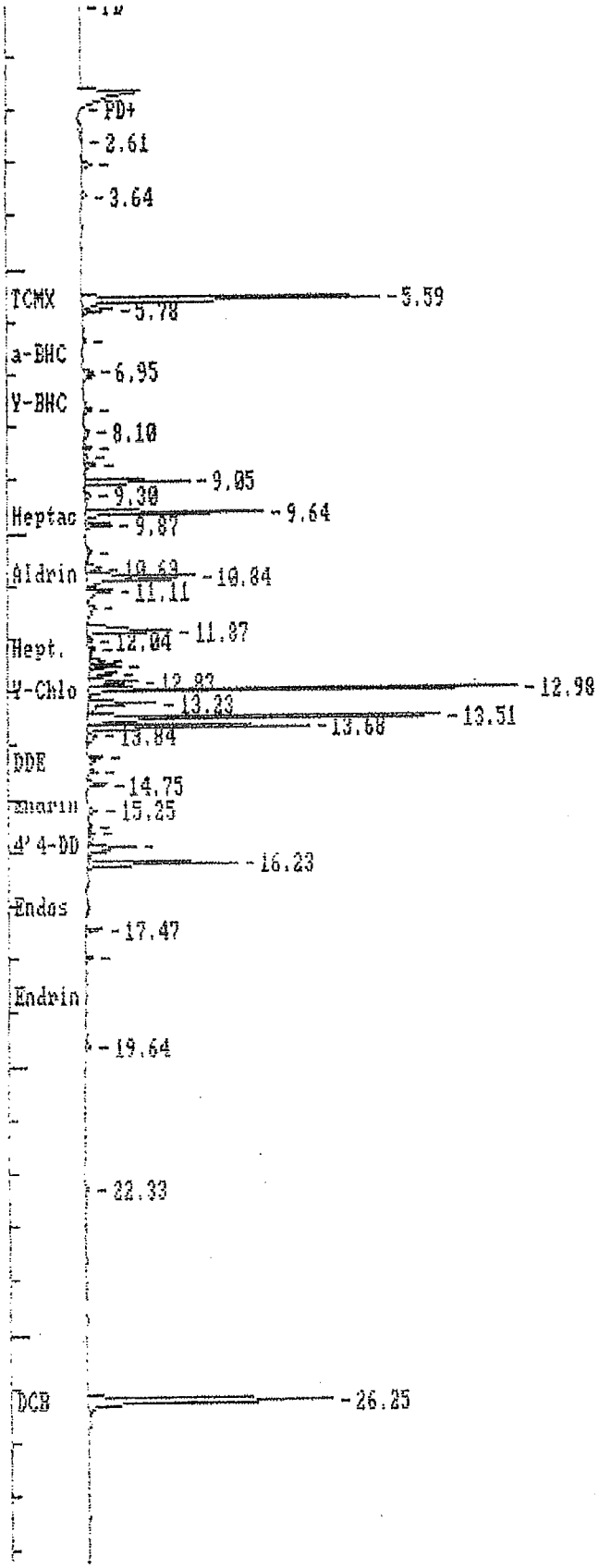
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.605		0.0000	0.0000%	25842	805	32.1	1			1.0000E-09
2	3.056		0.0000	0.0000%	20875	3550	5.9	1			1.0000E-09
3	3.641		0.0000	0.0000%	12530	2155	5.8	1			1.0000E-09
[illegible]	[illegible]	[illegible]	122.5365	19.2030%	546525	111603	4.9	3	0	.6204	2.2604E-04

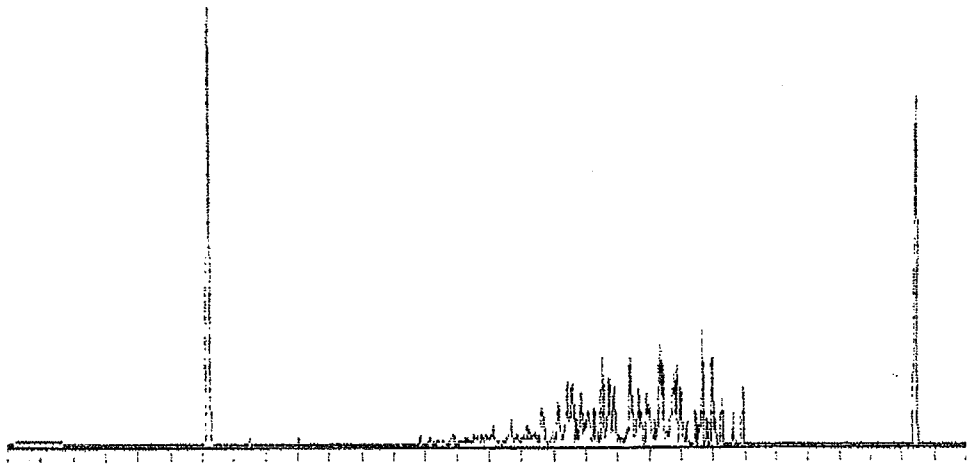
7	6.947	0.0000	0.0000%	9226	2707	3.4	1			1.0000E-09
8	7.665	0.0000	0.0000%	14693	3036	4.8	1			1.0000E-09
9	8.099 d-BHC	5.8496	0.9093%	13700	1941	7.1	1	0	-1.225	4.2699E-04
10	8.400	0.0000	0.0000%	12952	3264	4.0	1			1.0000E-09
11	8.567	0.0000	0.0000%	6485	1597	4.1	1			1.0000E-09
	8.734	0.0000	0.0000%	18772	4472	4.2	1			1.0000E-09
	9.051	0.0001	0.0000%	146557	39270	3.7	1			1.0000E-09
14	9.302	0.0000	0.0000%	9788	2229	4.4	1			1.0000E-09
15	9.636 Heptachlor	68.9472	10.7174%	266550	66698	4.0	2	0	0	2.5867E-04
16	9.870	0.0000	0.0000%	40524	9990	4.1	2			1.0000E-09
17	10.371	0.0000	0.0000%	14560	2344	6.2	1			1.0000E-09
18	10.688 Aldrin	6.6091	1.0273%	29714	5690	5.2	2	0	-.6229	2.2242E-04
19	10.838	0.0003	0.0000%	278847	40303	6.9	2			1.0000E-09
20	11.105	0.0000	0.0000%	49077	9624	5.1	2			1.0000E-09
21	11.439	0.0000	0.0000%	10781	2344	4.6	1			1.0000E-09
22	11.874	0.0002	0.0000%	162919	31529	5.2	1			1.0000E-09
23	12.041	0.0000	0.0000%	7105	2262	3.1	1			1.0000E-09
24	12.208 Hept. epox.	2.2988	0.3573%	9365	2616	3.6	1	0	.5493	2.4846E-04
25	12.425	0.0000	0.0000%	22744	5708	4.0	2			1.0000E-09
26	12.525	0.0000	0.0000%	40649	12097	3.4	2			1.0000E-09
27	12.659	0.0001	0.0000%	55885	10382	5.4	2			1.0000E-09
28	12.826	0.0001	0.0000%	77434	18369	4.2	2			1.0000E-09
29	12.976 Y-Chlordane	113.9846	17.7183%	572089	160649	3.6	2	0	.1304	1.9924E-04
30	13.226	0.0001	0.0000%	108617	25671	4.2	2			1.0000E-09
31	13.510 a-Chlordane	102.3861	15.9153%	526982	131921	4.0	2	0	0	1.9429E-04
32	13.677	0.0003	0.0000%	288750	83018	3.5	3			1.0000E-09
33	13.844	0.0000	0.0000%	28880	3883	7.4	4			1.0000E-09
34	14.228 DDE	3.3853	0.5262%	17441	5178	3.4	1	0	-.5841	1.9410E-04
35	14.512	0.0000	0.0000%	11719	3512	3.3	1			1.0000E-09
36	14.746	0.0002	0.0000%	38344	7319	5.2	1			1.0000E-09
37	15.247 Endrin	5.1133	0.7947%	14974	3448	4.3	1	0	.9942	3.4141E-04
	15.331 Endos'f II	2.1565	0.3352%	6730	1761	3.8	1	0	.5437	3.2041E-04
39	15.665	0.0000	0.0000%	8582	2720	3.2	1			1.0000E-09
40	15.932 4'4-DDD	28.3615	4.4087%	34007	18116	4.6	2	0	.6303	2.3761E-04
41	16.232 Endrin ald	69.6019	10.8192%	208806	55914	3.7	2	0	.5164	3.3333E-04
42	17.468 DDT	7.1121	1.1055%	22488	5998	3.7	1	0	1.748	3.1525E-04
43	17.986	0.0000	0.0000%	10956	2496	4.4	1			1.0000E-09
44	19.637 Methoxychlor	8.5894	1.3352%	13374	2256	5.9	1	0	1.641	6.4226E-04
45	22.328	0.0000	0.0000%	6309	1547	4.1	1			1.0000E-09
46	26.252 DCB	95.3846	14.8270%	492852	90700	5.4	1	0	0	1.9364E-04

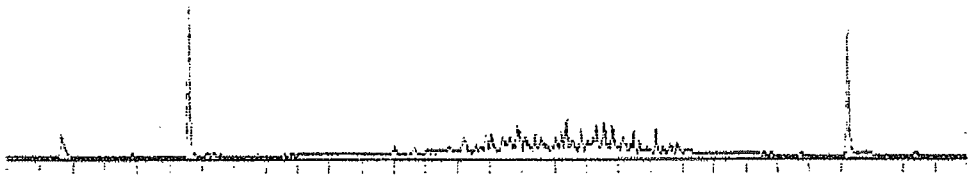
TOTAL AMOUNT = 643.3171

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E151.ATB
Data File = D:NV14E151.PTS Printed on 11-23-1997 at 01:14:56
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts







[Interface: 2] 0-20 Min Scale: 300 Mv Ch.A, 300 MV Ch.B
TOXAPHENE Processed: 11-23-1997 01:47:28, segment 8, cycle 152
End of sequence file reached at cycle# 152
RAW DATA SAVED IN FILE D:\NV14E152.RTS Second Channel Stored in D:\NV14E152.RT2

EXTERNAL STANDARD TABLE

11-23-1997 01:48:32 Version 5.1.5

Sample Name: TOXAPHENE 1PPM Data File: D:NV14E152

Date: 11-23-1997 01:12:27 Method: M:APES-E 11-21-1997 22:31:52 # 398

Interface: 2 Cycle#: 152 Operator JJK Channel#: 0 Vial#: N.A.

Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000

Instrument Type: PE AS11 Column Type: RTX 5.1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

Area Reject: 2000 One sample per 1.000 min.

Amount Injected: 1.00 Dilution Factor: 1.00

ISTD Weight: 1.0000

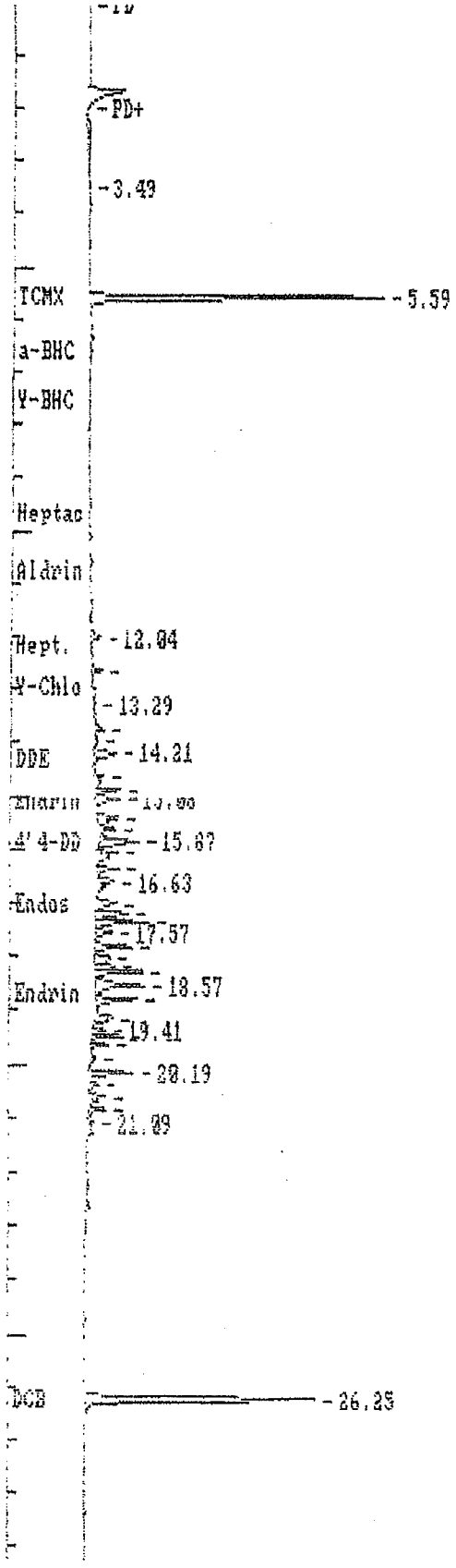
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	3.490		0.0001	0.0000%	65360	423	154.7	1			1.0000E-09
2	5.594	TCMX	121.8559	30.6759%	539091	110080	4.9	1	0	.6204	2.2604E-04
3	12.041	Hept. epox.	5.7833	1.4559%	23561	3633	6.5	1	0	-.8261	2.4546E-04

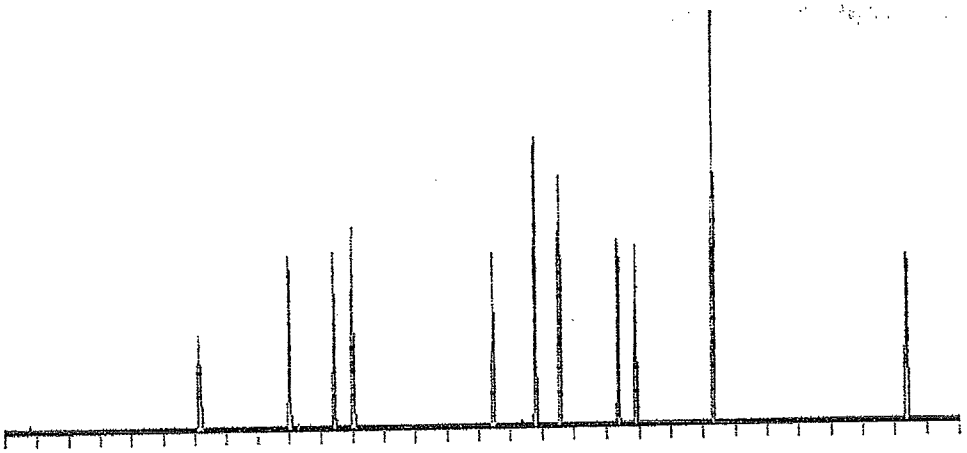
6	13.777		0.0000	0.0000%	15206	3157	4.8	1		1.0000E-09
7	13.995		0.0000	0.0000%	8526	1588	5.4	1		1.0000E-09
8	14.212	DDE	11.2736	2.8380%	58081	7996	7.3	1	0 -.7008	1.9410E-04
9	14.646		0.0000	0.0000%	32061	3715	8.6	2		1.0000E-09
10	14.913		0.0000	0.0000%	36485	9419	3.9	2		1.0000E-09
	15.080	Endrin	20.0929	5.0582%	58852	9125	6.4	2	0 -.1119	3.4141E-04
	15.431	Endoslf II	17.8055	4.4823%	55571	8151	6.8	2	0 -.1048	3.2041E-04
13	15.648		0.0000	0.0000%	33344	6066	5.5	2		1.0000E-09
14	15.865	4'4-DDD	28.7143	7.2285%	85052	14261	6.0	1	0 .2084	3.3751E-04
15	16.082	Endrin ald	6.4539	1.6247%	19362	5888	3.3	1	0 -.4142	3.3333E-04
16	16.399		0.0000	0.0000%	31498	8253	3.8	1		1.0000E-09
17	16.633		0.0000	0.0000%	29559	5194	5.7	1		1.0000E-09
18	17.034	Endos sulf	20.2537	5.0986%	55252	8173	6.8	2	0 .1941	3.6657E-04
19	17.218	DDT	21.1128	5.3149%	66759	12209	5.5	2	0 .2394	3.1626E-04
20	17.385		0.0001	0.0000%	95457	19987	4.8	2		1.0000E-09
21	17.568		0.0000	0.0000%	42101	6569	6.4	2		1.0000E-09
22	17.836		0.0001	0.0000%	70250 ✓	14051	5.0	2		1.0000E-09
23	18.053		0.0000	0.0000%	48166	6093	7.9	2		1.0000E-09
24	18.203		0.0000	0.0000%	35997	7514	4.8	2		1.0000E-09
25	18.320		0.0001	0.0000%	84605 ✓	18108	4.7	2		1.0000E-09
26	18.570	Endrin ket.	38.1131	9.5946%	109156 ✓	18215	6.0	2	0 -.6239	3.4916E-04
27	18.821		0.0001	0.0000%	75360 ✓	15459	4.9	1		1.0000E-09
28	19.172		0.0001	0.0000%	63949	7100	9.0	1		1.0000E-09
29	19.405	Methoxychlor	13.7330	3.4571%	21382	5127	4.2	2	0 .4316	6.4226E-04
30	19.506		0.0000	0.0000%	40069	12057	3.3	2		1.0000E-09
31	19.673		0.0000	0.0000%	26054	6656	3.9	1		1.0000E-09
32	19.923		0.0000	0.0000%	13340	2267	5.9	1		1.0000E-09
33	20.190		0.0001	0.0000%	72941 ✓	16687	4.4	1		1.0000E-09
34	20.391		0.0000	0.0000%	20834	3717	5.6	1		1.0000E-09
35	20.625		0.0000	0.0000%	17896	4914	3.6	1		1.0000E-09
36	20.858		0.0000	0.0000%	36205	6329	5.7	1		1.0000E-09
	21.092		0.0000	0.0000%	5531	1745	3.2	1		1.0000E-09
[illegible]	26.252	DCB	90.7306	22.8404%	468805	86129	5.4	1	0 0	1.9354E-04

TOTAL AMOUNT = 397.2369

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E152.ATB
Data File = D:NV14E152.PTS Printed on 11-23-1997 at 01:48:57
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
INDA 20-20 Processed: 11-25-1997 00:09:52, segment 2, cycle 160
RAW DATA SAVED IN FILE D:NV14E160.PTS Second Channel Stored in D:0V14E160.PTS

EXTERNAL STANDARD TABLE

********** 11-25-1997 00:10:58 Version 5.1.5 **********
Data File: D:NV14E160
* Sample Name: INDA 20-200
* Date: 11-24-1997 23:39:16 Method: M:APES-E 11-21-1997 22:31:52 # 398
* Interface: 2 Cycle#: 160 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
Sample Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

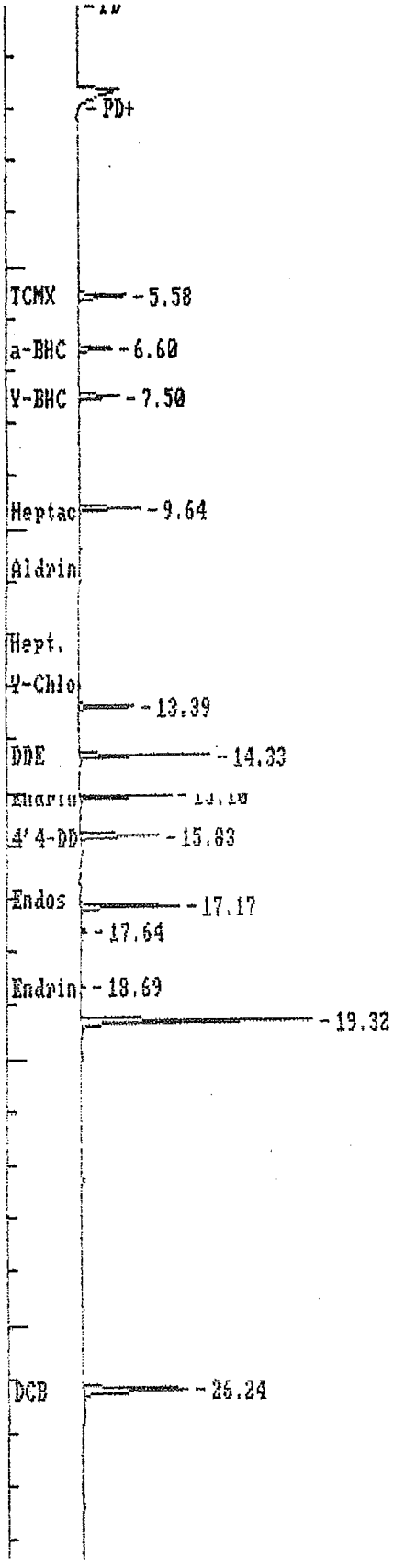
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	5.578	TCMX	19.2229	3.7730%	J 85042	17759	4.8	1	0	.3201	2.2604E-04
2	6.596	a-BHC	17.8856	3.5105%	J 54515	12460	4.4	1	0	.5104	3.2808E-04
3	7.498	Y-BHC	17.9027	3.5139%	J 57880	14899	3.9	1	0	0	3.0931E-04
			21.1410	4.1494%	J 81731	22631	3.6	1	0	0	2.5867E-04

7	15.097	Endrin	39.9545	7.8420%	J	117027	33706	3.5	1	0	0	3.4141E-04
8	15.832	4'4-DDD	36.8856	7.2397%	J	109255	28955	3.8	1	0	0	3.3761E-04
9	17.168	DDT	40.8321	8.0143%	J	129111	36736	3.5	1	0	0	3.1626E-04
10	17.635		0.0000	0.0000%		9132	2136	4.3	1			1.0000E-09
11	18.687	Endrin ket.	2.0087	0.3943%		5753	1563	3.7	1	0	0	3.4916E-04
	19.322	Methoxychlor	217.1554	42.6221%	J	338111	86159	3.9	1	0	0	6.4226E-04
	26.236	DCB	39.2188	7.6976%	J	202643	38404	5.3	1	0	0	1.9354E-04

TOTAL AMOUNT = 509.4905

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Areas, times, and heights stored in: D:NV14E160.ATB
Data File = D:NV14E160.PTS Printed on 11-25-1997 at 00:11:21
Start time: 0.00 min. Stop time: 30.00 min. Offset: 1 mv.
Full Range: 300 millivolts



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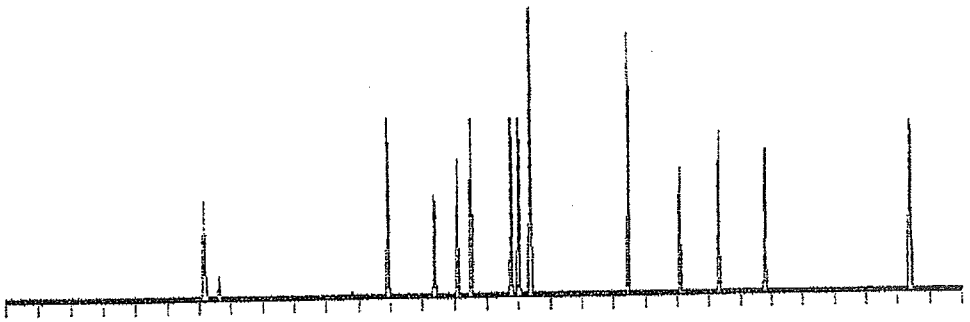
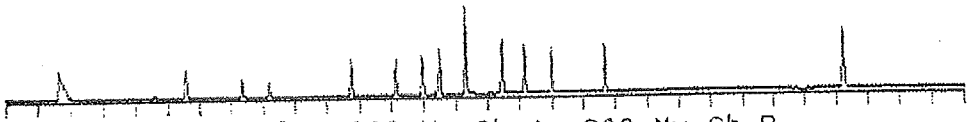
QUENCE RECORDED IN D:NV14E.SEQ





[Interface 2] 0-30 Min Scale: 300 Mv Ch.A, 300 Mv Ch.B
IND8 20-40 Processed: 11-24-1997 23:37:12, segment 1, cycle 159
RAW DATA SAVED IN FILE D:NV14E159.PTS Second Channel Stored in D:OV14E159.PTS

EXTERNAL STANDARD TABLE

11-24-1997 23:38:17 Version 5.1.5

Data File: D:NV14E159

* Sample Name: IND8 20-40
* Date: 11-24-1997 23:06:37 Method: M:APES-E 11-21-1997 22:31:52 # 398
* Interface: 2 Cycle#: 159 Operator JJK Channel#: 0 Vial#: N.A.
* Starting Peak Width: 10 Threshold: 20 Area Threshold: 2000
* Instrument Type: PE 8500 Column Type: RTX 5/1701
* Solvent Description:
* Conditions:
* Detector 0: Detector 1: ECD
* Misc. Information:

Starting Delay: 0.00
Area reject: 2000
Amount injected: 1.00
mple Weight: 1.00000
Ending retention time: 30.00
One sample per 1.002 sec.
Dilution factor: 1.00

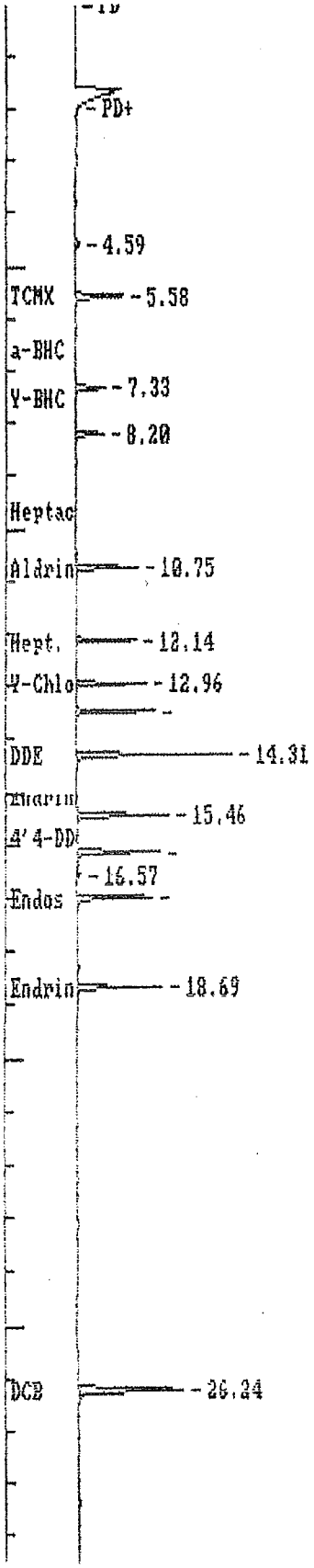
PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	4.592		0.0000	0.0000%	9547	1706	5.6	1			1.0000E-09
2	5.578	TCMX	19.5102	5.3025%	86313	18062	4.8	1	0	.3201	2.2604E-04
3	7.331	R-BHC	18.9116	5.1398%	48792	11048	4.4	1	0	0	3.8760E-04

6	12.141	Hept. epox.	19.3536	5.2599%	J 78846	22617	3.5 1	0	0	1.9924E-04
7	12.959	Y-Chlordane	19.7713	5.3734%	J 99232	26250	3.8 1	0	0	1.9429E-04
8	13.510	a-Chlordane	19.7015	5.3545%	J 101403	29444	3.4 1	0	0	1.9410E-04
9	14.312	DDE	39.5212	10.7411%	J 203613	58299	3.5 1	0	0	1.9410E-04
10	15.464	Endosl f-II	38.6510	10.5046%	J 120630	34337	3.5 1	0	1113	3.2041E-04
	16.149	Endrin ald	39.0007	10.5996%	J 117002	30966	3.8 1	0	0	3.3333E-04
12	16.566		0.0000	0.0000%	5724	1524	3.8 1			1.0000E-09
13	17.017	Endos sulf	38.7970	10.5442%	J 105838	28145	3.8 1	0	0	3.6657E-04
14	18.687	Endrin ket.	38.8142	10.5489%	J 111164	31751	3.5 1	0	0	3.4916E-04
15	26.236	DCB	39.7305	10.7980%	J 205288	39085	5.3 1	0	0	1.9354E-04

TOTAL AMOUNT = 367.9450

GROUP NUMBER GROUP AMOUNT GROUP PERCENT

Areas, times, and heights stored in: D:NV14E159.ATB
Data File = D:NV14E159.PTS Printed on 11-24-1997 at 23:38:40
art time: 0.00 min. Stop time: 30.00 min. Offset: 1 mV
Full Range: 300 millivolts



***** EXTERNAL STANDARD TABLE *****

********** 11-25-1997 14:21:44 Version 5.1.5 **********

Sample Name: INDA 20-200 Data File: D:0V14E160

Date: 11-24-1997 23:39:16 Method: M:BPES-E 11-25-1997 14:16:47 # 392

Interface: 2 Cycle#: 160 Operator JJK Channel#: 1 Vial#: N.A.

Starting Peak Width: 10 Threshold: 50 Area Threshold: 2000

Instrument Type: PE 8500 Column Type: RTX 5/1701

Solvent Description:

Conditions:

Detector 0: Detector 1: ECD

Misc. Information:

Starting Delay: 0.00 Ending retention time: 30.00

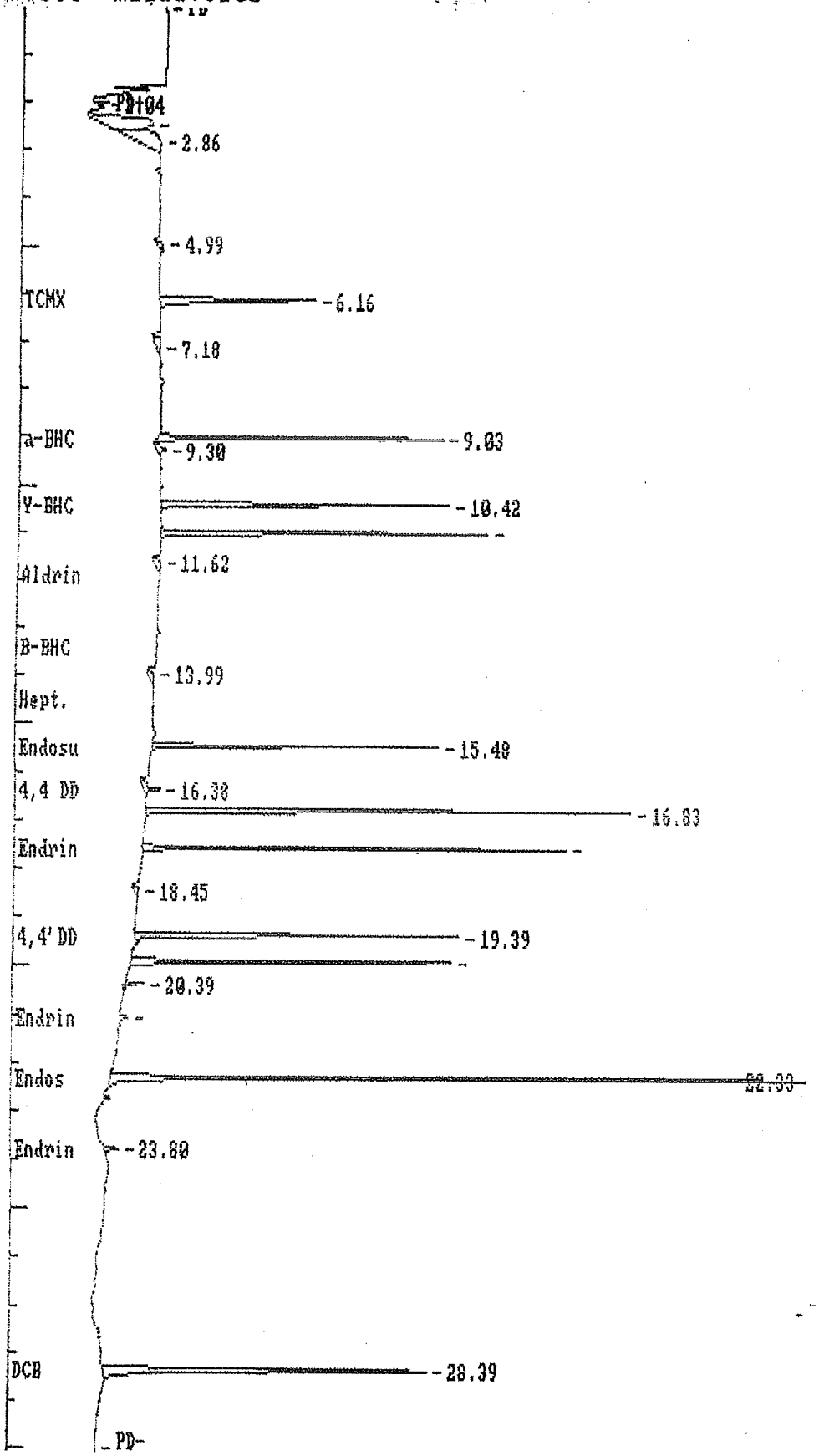
Area reject: 2000 One sample per 1.002 sec.

Amount injected: 1.00 Dilution factor: 1.00

Sample Weight: 1.00000

PEAK NUM	RET TIME	PEAK NAME	CONCENTRATION in ppb	NORMALIZED CONC	AREA	HEIGHT	AREA/ HEIGHT	BL	REF PEAK	% DELTA RET TIME	CONC/AREA
1	2.037		0.0000	0.0000%	10244	2756	3.7	1			1.0000E-09
2	2.472		0.0003	0.0001%	292841	18773	15.6	2			1.0000E-09
3	2.856		0.0002	0.0000%	241779	7729	31.3	2			1.0000E-09
4	4.993		0.0000	0.0000%	13052	2182	6.0	1			1.0000E-09
5	6.162	TCMX	19.7786	3.8271%	J 310800	64279	4.8	1	0	.5269	6.3638E-05
6	7.181		0.0000	0.0000%	45222	1443	31.3	1			1.0000E-09
	9.035	a-BHC	19.0456	3.6853%	J 416832	117321	3.6	1	0	0	4.5691E-05
8	9.302		0.0000	0.0000%	25098	2977	8.4	1			1.0000E-09
9	10.421	Y-BHC	19.3453	3.7433%	J 403040	118376	3.4	1	0	0	4.7998E-05
10	11.022	Heptachlor	20.2561	3.9195%	J 491332	134013	3.7	1	0	0	4.1227E-05
11	11.623		0.0000	0.0000%	26603	2549	10.4	1			1.0000E-09
12	13.995	d-BHC	1.5808	0.3059%	25067	2284	11.0	1	0	-.8248	6.3064E-05
13	15.481	Endosulf I	20.1565	3.9002%	J 404118	117294	3.4	1	0	0	4.9878E-05
14	16.383	4,4 DDE	2.4693	0.4778%	43985	6220	7.1	1	0	0	5.6139E-05
15	16.834	Dieldrin	40.2442	7.7872%	J 709706	198040	3.6	1	0	0	5.6705E-05
16	17.585	Endrin	41.1949	7.9711%	J 596996	172763	3.5	1	0	0	6.9004E-05
17	18.453		0.0000	0.0000%	25472	2060	12.4	1			1.0000E-09
18	19.389	4,4'DDD	37.8625	7.3263%	J 448368	132143	3.4	1	0	0	8.4445E-05
19	19.923	4,4 DDT	41.3159	7.9945%	J 457615	131060	3.5	1	0	0	9.0285E-05
20	20.391		0.0000	0.0000%	24096	8206	2.9	1			1.0000E-09
21	21.092	Endrin ald	1.4332	0.2773%	14394	3600	4.0	1	0	0	9.9572E-05
22	22.328	Methoxychl	210.0889	40.6517%	J 1144354	292594	3.9	1	0	0	1.8359E-04
23	23.797	Endrin ket	2.1956	0.4248%	26323	6139	4.3	1	0	0	8.3410E-05
24	28.390	DCB	39.8338	7.7078%	J 814921	132197	6.2	1	0	0	4.8881E-05

TOTAL AMOUNT = 516.8019

GROUP NUMBER	GROUP AMOUNT	GROUP PERCENT

Data File = D:OV14E160.PTS Printed on 11-25-1997 at 14:22:37
Start time: 0.00 min. Stop time: 30.03 min. Offset: 1 mv.
Full Range: 300 millivolts