VOLUME I OF II

FINAL REPORT
PHASE II SITE INVESTIGATION OF EXTERIOR AREAS
LOCKHEED MARTIN MIDDLE RIVER COMPLEX

2323 Eastern Boulevard
Middle River, Maryland

LOCKHEED MARTIN

Tetra Tech
Environmental Engineers & Scientists
TC#13724-02

Final Report
Phase II Site Investigation of Exterior Areas
Lockheed Martin Middle River Complex
2323 Eastern Boulevard
Middle River, Maryland

Prepared for:

Lockheed Martin Corporation

Prepared by:

Tetra Tech, Inc.

Nisha Bansal
Program Manager

Michael Martin
Project Manager, P.G.

Brett Brodersen
Project Geologist, P.G.

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Section 1
Introduction

On behalf of Lockheed Martin Corporation (LMC), Tetra Tech, Inc. has prepared the following report summarizing the Phase II site investigation conducted at the exterior areas of the Lockheed Martin Middle River Complex located in Middle River, Maryland. The objective of the investigation program was to evaluate specific areas of recognized environmental conditions (RECs) located at the southern portion of the site as identified in the Phase I Environmental Site Assessment prepared by Earth Tech (February 2003). The investigation was limited to areas located outside of the main facility (i.e., parking and waterfront lots). The investigation was primarily conducted through soil and groundwater sampling.

This report is organized into the following sections:

- Section 2 – Site Overview: Presents a brief description of site history and subsurface conditions;
- Section 3 – Investigation Approach and Methodology: Presents the technical approach to the soil and groundwater investigation program and a description of the field methodology employed;
- Section 4 – Data Evaluation Criteria: Presents the Maryland Department of the Environment (MDE) criteria used in the evaluation of soil and groundwater data;
- Section 5 – Phase II Investigation Results: Presents a description of the investigation activities and analytical results for each REC.
- Section 6 – Data Evaluation and Recommendations: Presents an evaluation of the soil and groundwater data collected and recommendations for each REC;
- Section 7 – References: Lists references and citations used for compiling this Phase II report.

Supporting documentation, including the geophysical survey report, soil boring logs, monitoring well logs, analytical data tables, laboratory analytical data reports, and a limited statistical evaluation are included as Appendices to this report.

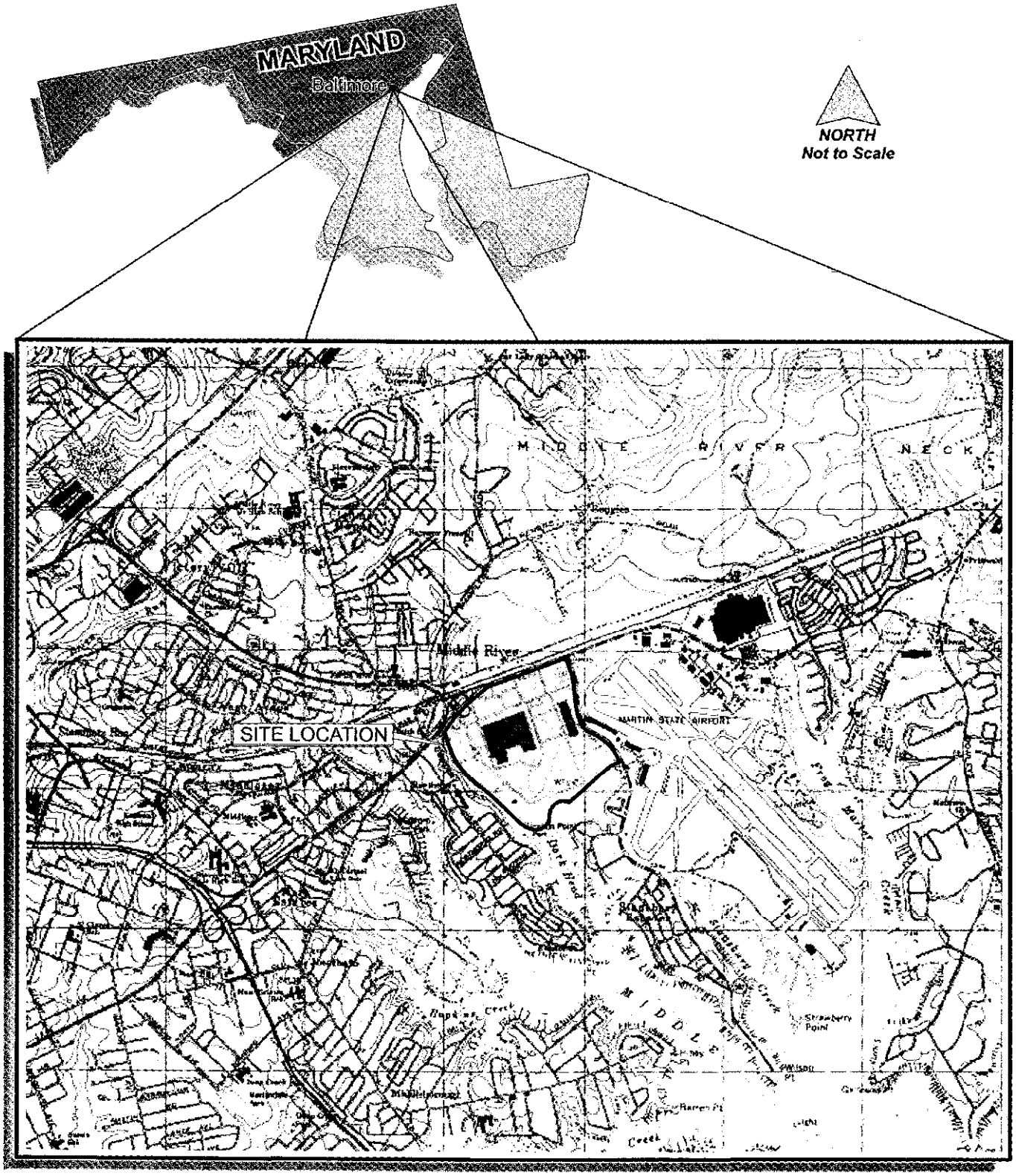
Section 2
Site Overview

2.1 SITE LOCATION AND DESCRIPTION

The Lockheed Martin Middle River Complex is located at 2323 Eastern Boulevard in Middle River, Maryland. The site consists of approximately 180 acres of land and twelve main buildings. The property also includes perimeter parking lots, an athletic field, Lot D (presently a vacant lot with a concrete foundation from former Building D), a trailer and parts storage lot, and a vacant waterfront lot. The site is bounded by Eastern Boulevard (Route 150) to the north, Dark Head Creek to the south, Cow Pen Creek to the west and Martin State Airport to the east. The location of the site is shown in Figure 2-1.

Currently, Lockheed Martin's activities at the site are limited to facility and building management and maintenance. There are two main tenants at the site, Middle River Aircraft Systems (MRAS) and Naval Electronics & Surveillance Systems (NE&SS), also referred to as Vertical Launch Systems. MRAS conducts design, manufacturing, fabrication, testing, overhaul, and repair and maintenance of aeronautical structures, parts, and components for military and commercial applications. NE&SS conducts fabrication, assembly, testing and support of vertical launch systems. Historically, the property has been used for aircraft and missile launching systems design, development, and sales.

FIGURE 2-1
SITE LOCATION MAP



2.2 SUBSURFACE CONDITIONS

2.2.1 Soils

Soils underlying Middle River Complex have been mapped as Mattapex-Urban Land Complex and Sassafras-Urban Land Complex by the United States Department of Agriculture Soil Conservation Service. Mattapex-Urban Land soils consist of deep, well drained silty soils whose original texture has been disturbed, graded over, or otherwise altered prior to construction. Sassafras-Urban Land soils consist of deep, well drained sandy soils whose original texture has been disturbed, graded over, or otherwise altered prior to construction.

2.2.2 Geology

The Middle River Complex is located in the Western Shore of the Coastal Plain Physiographic Province. Based on geologic mapping of Baltimore County, the Middle River facility is underlain by the Potomac Group, a Cretaceous age interbedded gravel, sand, silt, and clay unit ranging in thickness from 0 to 800 feet. The Potomac Group is composed of three units: the Raritan and Patapsco Formations, the Arundel Clay, and the Patuxent Formation. The Raritan and Patapsco Formations range up to 400 feet thick and are composed of a gray, brown, and red variegated silt and clay unit with lenticular lenses of sand and few gravels. The Arundel Clay is composed of dark gray and maroon lignitic clays and ranges in thickness from 0 to 100 feet. The Patuxent Formation is described as a white or light gray to orange brown, moderately sorted sand unit with quartz gravels, silts and clays and ranges up to 250 feet in thickness.

The Potomac Group has not been subdivided in the vicinity of the Middle River Complex nor has the unit's total thickness been well mapped in the area of the facility. The expected depth to bedrock may exceed 100 feet (Earth Tech, February 2003).

2.2.3 Hydrogeology

Sand and gravel zones within the unconsolidated surficial deposits, where present, may form an unconfined or water table aquifer system. Based on regional hydrologic data, groundwater is expected to be encountered less than 15 feet below ground surface (bgs), with flow expected toward the southeast.

2.3 DESCRIPTION OF INVESTIGATION AREAS

This Phase II investigation was limited to exterior areas primarily located at the southern portion of the site. Based on the Phase I ESA prepared by Earth Tech (February 2003), a total of seven RECs were identified. The location of the seven RECs is shown in Figure 2-2, and described as follows:

1) *Former Building "D"* – Building D consisted of approximately 400,000 square feet of floor space and was used for final assembly of metal carcasses onto aircraft frames. Building D was demolished in the early 1970's. Based on the former operations, chemicals may have potentially been used, stored, or dispensed in this building. [According to the Phase I ESA, unknown nuclear activities were previously conducted in Building D. Therefore, a radiation survey will be conducted and the results will be presented in a separate report.]

2) *Product Pipeline* – A pipeline associated with a former 500,000-gallon #2 fuel oil aboveground storage tank (AST) in Lot D runs from the former AST location to the Power House. In 2002, a 40-foot section of the pipeline leaked and contaminated soil was excavated and removed under supervision by Maryland Department of the Environment (MDE). The remaining 1,815 feet of piping was not previously assessed.

3) *Former 500,000-Gallon AST and Associated Tanks* – A former 500-gallon underground storage tank (UST) was used to collect excess oil from the pressurized lines after filling the 500,000-gallon AST. A 275-gallon diesel fuel AST at the fire pump building in Lot D and the former 500,000-gallon AST did not have any secondary containment.

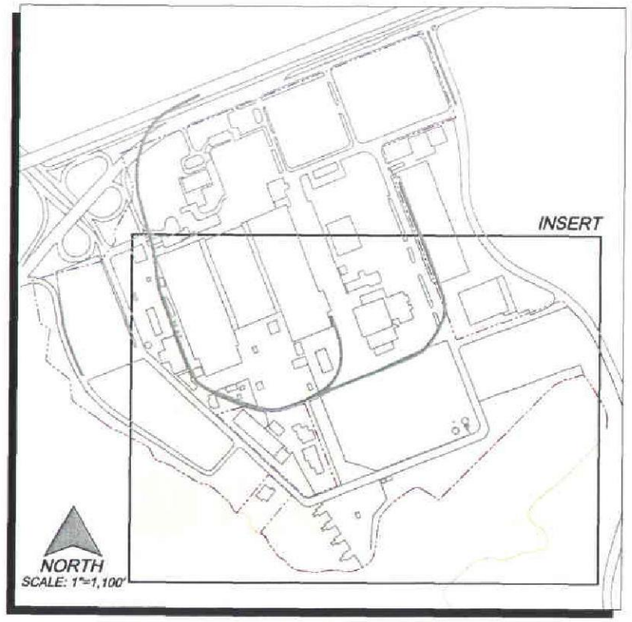
4) *Boat Launch Area* – Based on information provided in the Phase I Environmental Site Assessment, structures (i.e., wind tunnel, naval barracks, hydraulic and field test building, and boat house) were present in the boat launch area to support assembly, testing, and maintenance of seaplanes. Historically, this area has been used for staging, fueling, and launching military seaplanes.

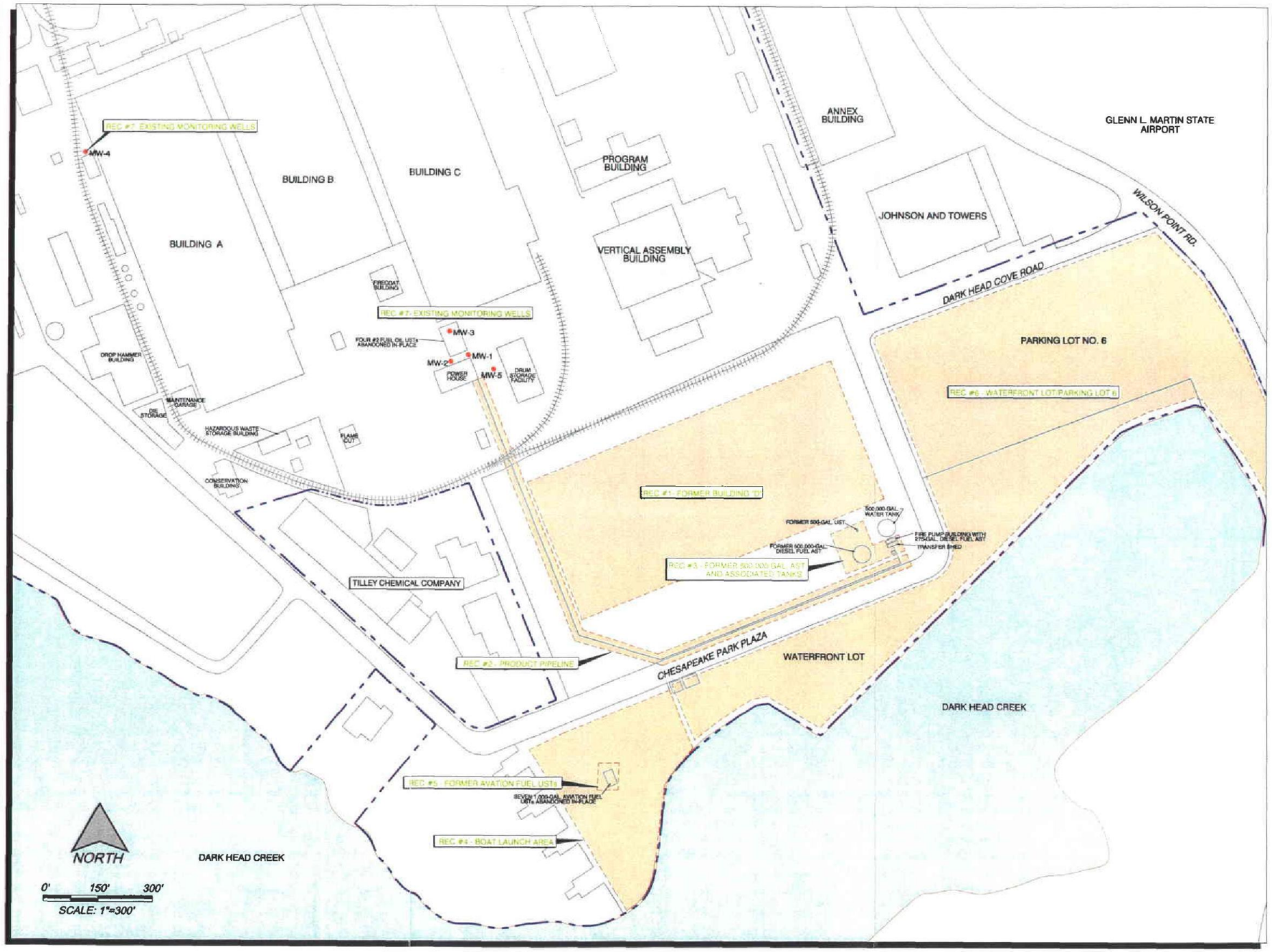
5) *Former Aviation Fuel USTs* – Seven 1,000-gallon aviation fuel USTs were previously closed in-place in the late 1980's. The tanks are located in the concrete tarmac of the waterfront lot.

6) *Waterfront Lot / Parking Lot 6* – Based on historical aerial photographs, it appears a portion of the Waterfront Lot and Parking Lot 6 may have been constructed on fill material. This area encompasses approximately 15 acres.

7) Existing Monitoring Wells – A total of five existing monitoring wells are located near former USTs near the Power House and Building L. Four of the groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-5) are located near four closed in-place #2 fuel oil USTs outside the Power House. One monitoring well (MW-4) is located near the former 4,000-gallon gasoline UST north of Building L.

FIGURE 2-2
LOCATIONS OF RECs





LEGEND

- MW-5 Existing Groundwater Monitoring Well Location
- Property Boundary
- Estimated Location of REC

Section 3
Investigation Approach and Methodology

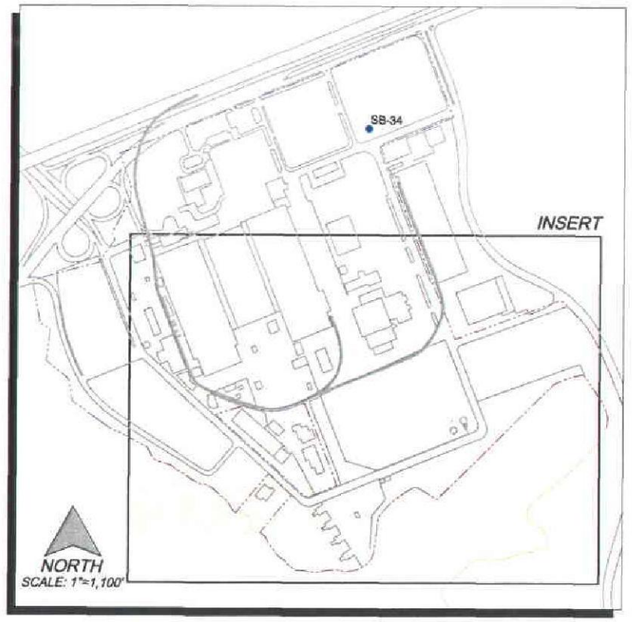
As presented in Section 2, seven RECs have been identified for investigation. These RECs will be investigated through a soil and groundwater sampling program. The soil and groundwater sampling locations are shown in Figure 3-1. A summary of the assessment methods is presented in Table 3-1.

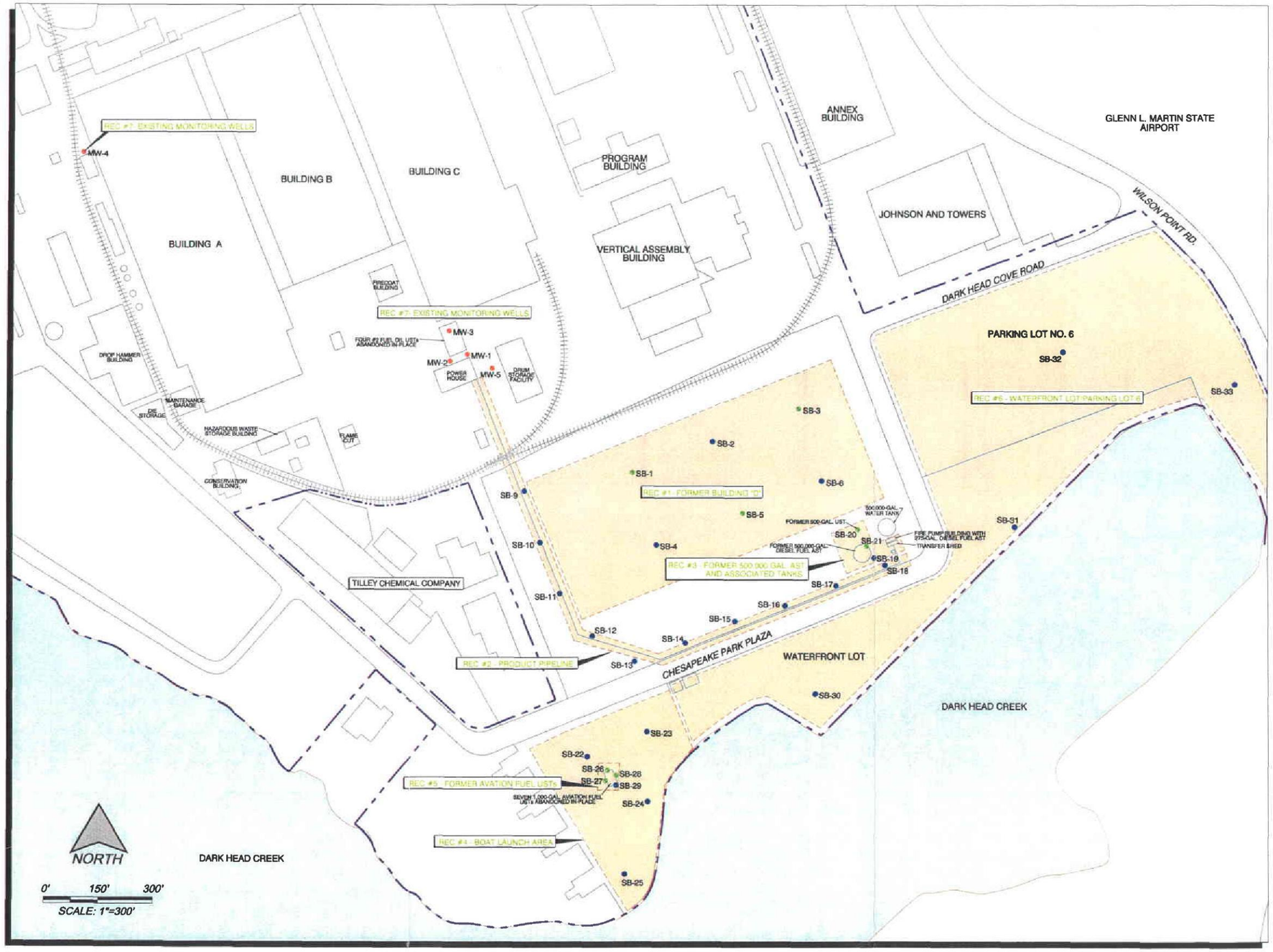
Table 3-1
Summary of Assessment Methods

No.	REC	Assessment Method
1	Former Building "D"	Soil and Groundwater Sampling
2	Product Pipeline	Soil and Groundwater Sampling
3	Former 500,000-Gallon AST and Associated Tanks	Soil and Groundwater Sampling
4	Boat Launch Area	Soil and Groundwater Sampling
5	Former Aviation Fuel USTs	Soil and Groundwater Sampling
6	Waterfront Lot / Parking Lot 6	Soil and Groundwater Sampling / Geophysical Survey
7	Existing Monitoring Wells	Well Sampling

RECs 1 through 6 will be assessed through soil and groundwater sampling as described in Sections 3.3 and 3.4. In addition, REC #6 will also be investigated through a geophysical survey as described in Section 3.2. REC #7 will be assessed through well sampling as described in Section 3.5. The investigation was conducted in accordance with the Soil and Groundwater Investigation Work Plan (Tetra Tech, November 2003).

FIGURE 3-1
SOIL AND GROUNDWATER SAMPLING LOCATIONS





LEGEND

- SB-1 Soil Sampling Locations
- SB-34 Soil and Groundwater Sampling Locations
- MW-5 Existing Groundwater Monitoring Well Location
- Property Boundary
- Estimated Location of REC

3.1 SUBSURFACE OBSTRUCTION CLEARANCE

Prior to initiating drilling activities, utilities were identified through a site clearance program. An underground utility location center (*Miss Utility of Delmarva*) was notified to identify the locations of all utilities (*electrical, gas, water, communications, etc.*) at the site.

A geophysical survey was conducted by Enviroscan, Inc. to locate and mark all underground utility lines at the proposed soil boring locations. The product pipeline was also located during the geophysical survey. A combination of electromagnetic resistivity / conductivity and line locating, and GPR were used to assure that all proposed sampling locations did not encounter underground utilities. Borings that required relocation due to subsurface obstructions were positioned as close as possible to the original location identified.

3.2 GEOPHYSICAL SURVEY OF REC #6

A reconnaissance-level electromagnetic survey of the Waterfront Lot and Parking Lot 6 (REC#6) consisting of an area approximately 15.3 acres in size was conducted in order to detect areas of waste disposal and buried drums or other metallic debris that may be present in the fill material - *see Section 5.6.3.* A copy of the geophysical survey report is included in Appendix A. The survey was performed using a Geonics EM-31 instrument in the vertical dipole mode. The EM-31 employs an electromagnetic transmitter coil to induce an electric current in the earth. This current creates a secondary electromagnetic field that is measured by a receiver coil at a fixed separation of approximately 12 feet from the transmitter coil. The secondary electromagnetic field has two components: the quadrature component, which is proportional to the bulk electromagnetic conductivity or terrain conductivity of the subsurface materials, and the inphase component, which is primarily a measure of the relative concentration of metallic material in the subsurface.

The EM-31 in the vertical dipole mode is almost completely insensitive to ground surface material with a peak sensitivity to material approximately five feet bgs. Below five feet, the sensitivity diminishes approximately logarithmically. Therefore, the terrain conductivity and inphase response measured by the EM-31 in vertical dipole mode represents primarily subsurface electrical

properties at a depth of five feet bgs with little contribution from material at the ground surface and diminished contribution from materials down to approximately 25 feet.

For the reconnaissance-level survey, survey profiles were spaced approximately 10 feet apart. Along the profile lines, measurement stations were defined by automatically triggering matching inphase and conductivity readings at two second intervals, as the instrument was hand-carried. Based on the varying walking speed of the operator, the station spacing along the profiles was approximately 4 to 6 feet. The actual location of each measurement station was digitally recorded using a Trimble Pathfinder global positioning system receiver.

Portions of the site where the EM-31 reconnaissance-level survey indicated the presence of an anomaly were further delineated using a TW-6 metal locator. The TW-6 redefined anomaly boundaries were then scanned with GPR. Scanning was performed by hand-towing the GPR antenna along profiles crossing the footprints of the selected anomalies.

3.3 DRILLING AND SAMPLING PROCEDURES

A total of 32 soil borings were to be completed to the top of the local water bearing zone using a direct-push technology (DPT) drill rig. All boring locations were cleared for the presence of utilities by Enviroscan. Prior to conducting drilling activities, two of the borings (SB-7 and SB-8) due to physical site conditions were removed from the sampling program (see Section 5.2.1 for details). The 32 borings were completed to maximum depths ranging between 8 and 28 feet bgs. The locations of the 32 borings are depicted on Figure 3-1.

During borehole advancement, continuous soil sampling was conducted using a 4-foot long, 2-inch diameter, stainless steel macrocore sampler fitted with disposable acetate liners. The collected soils were retrieved from the borings for lithologic characterization, field screened with a photoionization detector, and selected samples were submitted for laboratory analysis. Field screening was conducted to evaluate the presence or absence of volatile organic compounds (VOCs) – see Section 3.2.1. Once sampling activities were completed, the boreholes were backfilled with bentonite, hydrated, and finished to grade with like material (i.e., asphalt, concrete, or soil).

3.3.1 Lithological Logging and Field Screening

During the drilling program, a field geologist logged all boreholes using professionally accepted techniques and procedures in accordance with ASTM Method D2488-00. Soil was logged to describe the color, moisture, sorting, grain size, and any other pertinent soil characteristics observed. Textural properties of the soil were determined by using tables specified in the ASTM method. Sorting was determined by observing the grain-size distribution. Grain size was determined by comparing grains of soil to a plastic grain-size chart. All information was documented on a soil boring log form. Boring logs for the 32 soil borings completed during the Phase II investigation have been included as Appendix B.

Head-space analyses were performed as a field screening technique using calibrated organic vapor detectors. Each soil sample was placed in a sealed container and filled with an approximately equal volume of clean air. After being left at ambient temperature for approximately 10 minutes, the head-space in the container was analyzed using a Photovac Microtip photoionization detector (PID). The PID registers the concentrations of total organic vapors in the head-space, which is an indication of the presence of volatile organic materials in the soil. The head-space readings were recorded on the boring logs.

3.4 HYDROPUNCH GROUNDWATER SAMPLING

Groundwater samples were retrieved from the 24 soil borings using a 2-foot long, stainless steel hydropunch sampler. After the macrocore sampler was removed from the soil boring, the hydropunch sampler was advanced to the bottom of the borehole, which in general corresponded to 2 to 3 feet below the top of the underlying water table. Once installed, the exterior casing of the hydropunch sampler was pulled back to expose a 1-inch diameter, stainless steel well screen to the surrounding groundwater. Groundwater was then extracted from the borehole through the hydropunch sampler using a peristaltic pump and disposable Teflon-lined tubing. Groundwater samples were collected by pumping the groundwater directly into the appropriate sample containers. After groundwater sampling activities were completed, the hydropunch sampler was removed from the borehole and decontaminated. The borehole was then backfilled with bentonite, hydrated, and finished to grade with like surface material (i.e., concrete, asphalt, or soil).

Analytical methods required during the Phase II investigation varied according to the REC and are discussed in Section 5. Both total and dissolved samples were submitted for Priority Pollutant Metals analysis when required. A total metals sample was collected by direct filling of the appropriate sample container. A dissolved metals sample was collected by pumping the collected groundwater through a 0.45-micron in-line filter prior to containerization within the appropriate bottle.

3.5 GROUNDWATER MONITORING WELL SAMPLING

Five existing groundwater monitoring wells (designated MW-1 through MW-5) were sampled as part of the Phase II investigation.

3.5.1 Water Level Measurements

Water level measurements were collected from all five monitoring wells prior to groundwater sampling. The water levels were measured using an electronic oil/water (O/W) interface probe which also provided an evaluation of the presence of free product in the wells. Once groundwater was encountered, the depth to water measured from the top of the polyvinyl chloride riser pipe was read to the nearest 0.01 foot. Water level measurements were recorded on a water level measurement sheet provided in Appendix C. Free product was not encountered in any of the wells.

3.5.2 Well Purging and Sampling

Prior to sampling, all five monitoring wells were purged using low flow purging techniques. A peristaltic pump, fitted with disposable Teflon-lined tubing, running between 100 and 150 milliliters per minute was used to purge all five monitoring wells. During purging, groundwater field parameters (i.e., temperature, pH, specific conductance, turbidity, dissolved oxygen, and oxidation reduction potential) were measured using a portable water quality meter. Purging was conducted until stabilization of the groundwater field parameters, defined as three consecutive field readings taken 3 to 5 minutes apart were the variation in readings was equal to or less than ±

0.1 units for pH, ± 3 percent for specific conductance, and ± 10 percent for the remaining parameters, was achieved. Low-flow purge data sheets have been included as part of Appendix C.

Once stabilization had been achieved, the water quality meter was disconnected and the appropriate sample containers filled. Analyses conducted on the groundwater samples were site-specific and are discussed in Section 11.0 of this report.

3.6 SAMPLE HANDLING

Upon collection, samples were containerized within the appropriate, laboratory certified clean sample containers supplied by Phase Separation Science, Inc. of Baltimore, Maryland. Proper custody procedures were followed throughout all phases of sample collection and handling. A completed Chain-of-Custody form accompanied each shipment of samples to the laboratory to insure accountability for the samples from the time of collection to the time they are analyzed.

3.7 SOIL BORING SURVEYING

All 32 soil boring locations were surveyed using a hand held Trimble Pathfinder GPS receiver in contact with five to nine position-fixing satellites. The GPS positions were differentially corrected using data from a continually operating base station located in close proximity to Washington D.C. The resulting differential GPS positions have a nominal accuracy of better than ± 2 feet.

3.8 INVESTIGTATION-DERIVED WASTE MANAGEMENT

Investigation-derived waste (IDW) generated during the Phase II field investigation included soil cuttings from the completion of 32 soil borings, decontamination fluids from the decontamination of the DPT drill rig and associated samplers (i.e., macrocore and hydropunch), and purge water generated during groundwater monitoring well sampling. All of the IDW waste was containerized in 55-gallon steel drums and properly labeled. The IDW will be characterized and disposed of in accordance with applicable state and federal regulations.

Section 4
Data Evaluation Criteria

This section presents a brief discussion of the criteria used in evaluating the analytical data obtained during the site investigation. Criteria used in data evaluation included MDE soil and groundwater numeric clean-up standards (MDE, August 2001) and a facility-specific background data set generated during this investigation.

4.1 MDE SOIL AND GROUNDWATER CLEANUP STANDARDS

Generic numeric cleanup standards for groundwater and soils have been provided by the MDE in the State of Maryland Department of the Environment Cleanup Standards for Soil and Groundwater Interim Final Guidance (Update No. 1) document dated August 2001. Exceedance determination was based on a direct comparison of the site-specific data to the MDE cleanup criteria.

4.1.1 Soil Cleanup Standards

Two cleanup criteria data sets have been provided by the MDE to evaluate site soils. Both data sets were used in the evaluation of the site data and have been included on the site-specific soil analytical summary tables presented in Appendix D. Constituents detected above background and exceeding one or both of the MDE soil cleanup criteria data sets have been shaded on the tables.

The first soil cleanup data set includes cleanup values that are protective of residential and non-residential land use scenarios. Due to the industrial nature of the Middle River Complex since its initial development in the 1930s (Earth Tech, February 2003) and current land use zoning designations, non-residential land use soil cleanup values were used to evaluate the soil data.

The second data set includes cleanup values that are protective of the underlying groundwater. Evaluation of the soil data against this data set indicates the potential for the detected constituents to migrate and possibly impact the underlying groundwater system. This data set is based on the U.S. Environmental Protection Agency Region III's Soil Screening Levels for groundwater migration using a dilution attenuation factor of 20.

4.1.2 Groundwater Cleanup Standards

The groundwater cleanup standards are to be applied to groundwater from Type I and Type II aquifers and groundwater use areas. In addition, the cleanup standards are generally applicable to groundwater when, at the interface of a surface water body, mass loading calculations indicated that exceedance of the State of Maryland's Surface Water Quality Criteria will occur across the groundwater/surface water interface or a nearby surface water body is either used for drinking water or may be used for drinking water in the future.

Although the facility is supplied by the City of Baltimore and neither the underlying groundwater nor the surface waters of Dark Head Creek are used for drinking water, the groundwater cleanup standards provided by MDE allow for an initial evaluation of the groundwater data. The initial evaluation will identify potential areas of groundwater impact that may necessitate additional investigation to determine the applicability of the clean-up criteria.

The MDE groundwater cleanup standards have been included on the site-specific groundwater analytical summary tables presented in Appendix D. Constituents detected above background and exceeding the MDE groundwater cleanup criteria have been shaded on their respective tables.

4.2 GROUNDWATER METAL CONCENTRATION DETERMINATION

Elevated turbidity in groundwater samples is a typical problem associated with hydropunch sampling and may result in erroneous reporting of elevated metal concentrations. Filtering groundwater samples results in the removal of suspended solids larger than 0.45-microns in size which may typically be captured and analyzed in the total (unfiltered) samples. The removal of these soil particles allows for a determination of a constituent's dissolved concentration and is

generally more representative of water quality which would be extracted from a potable well (since turbidity of drinking water is aesthetically unpleasant and creates distribution problems). Since groundwater beneath the facility is not used as a potable water source (Earth Tech, February 2003) and elevated turbidity is typically a result of the sampling method, only the dissolved metals data was used for data evaluation. Total metal concentrations detected in the groundwater samples were provided in the analytical summary tables included in Appendix D.

4.3 BACKGROUND STUDY

Background samples were collected during the Phase II field investigation to provide site-specific data for use in evaluating the potential for the presence of metals to be attributed to natural conditions rather than site operations. Two soil samples, collected from 5 and 10 feet bgs, and one groundwater sample were collected from soil boring SB-34. Soil boring SB-34 was completed behind a dugout of a baseball field/athletic field located in the northeast corner of the Middle River Complex. Based on a review of aerial photographs, the baseball/athletic field was constructed prior to 1949 and no evidence of any industrial activities was observed or known to have occurred in this area.

Both soil samples and the groundwater sample were submitted for Priority Pollutant Metals analysis only. A dissolved groundwater sample (i.e., filtered in the field with a 0.45-micron in-line filter) was also submitted for Priority Pollutant Metals analysis. A summary of the background data set for both soil and groundwater is included in Table A-1 of Appendix D. Given the small data set, the maximum concentrations of the detected metals in soil were used as the soil background levels. As discussed in Section 4.2, the dissolved metal concentrations detected in the background groundwater samples were used for comparison to site-specific data.

Section 5
Phase II Investigation Results

This section describes the results of the Phase II investigation program conducted at Lockheed Martin's Middle River Complex. The following section describes the field activities and presents the investigation results from each REC. Soil and groundwater data collected have been compared to the preliminary evaluation criteria utilized for this Phase II investigation – *see Section 4.* Analytical data summary tables are included in Appendix D and laboratory analytical data reports are included in Appendix E. The sampling locations that reported concentrations of constituents exceeding the applicable evaluation criteria are shown on Figures 5-1 (soils) and 5-2 (groundwater).

5.1 REC #1 – FORMER BUILDING "D"

As described in Section 2, Building "D" was formerly located in the southern portion of the Middle River Complex. The building encompassed approximately 400,000 square feet of floor space and was used for aircraft construction. Specifically, the building was used for the final assembly of metal carcasses and riveting of carcasses on to aircraft frames. No additional information regarding the building's interior layout or the chemical usage, storage, or disposal practices were obtained during the Phase I ESA.

5.1.1 Phase II Investigation Activities

To assess the feature, six soil borings (SB-1 through SB-6) were completed within the footprint of the former building to depths ranging between 10 and 24 feet bgs. Due to the absence of information regarding the building's interior layout, the borings were positioned equidistantly in two rows along the building's footprint length.

FIGURE 5-1
CHEMICALS AND METALS DETECTED IN SOIL EXCEEDING SCREENING LEVELS

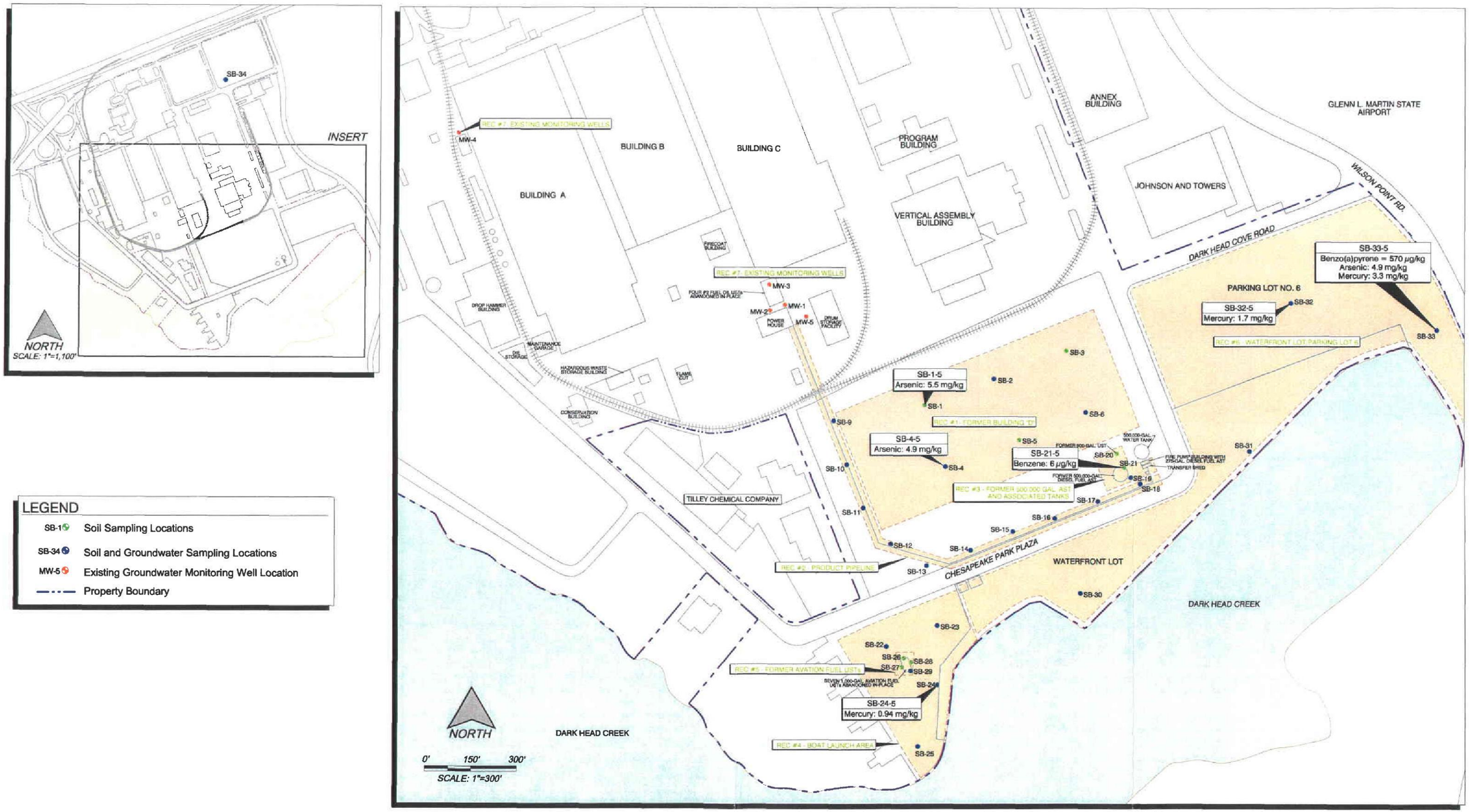
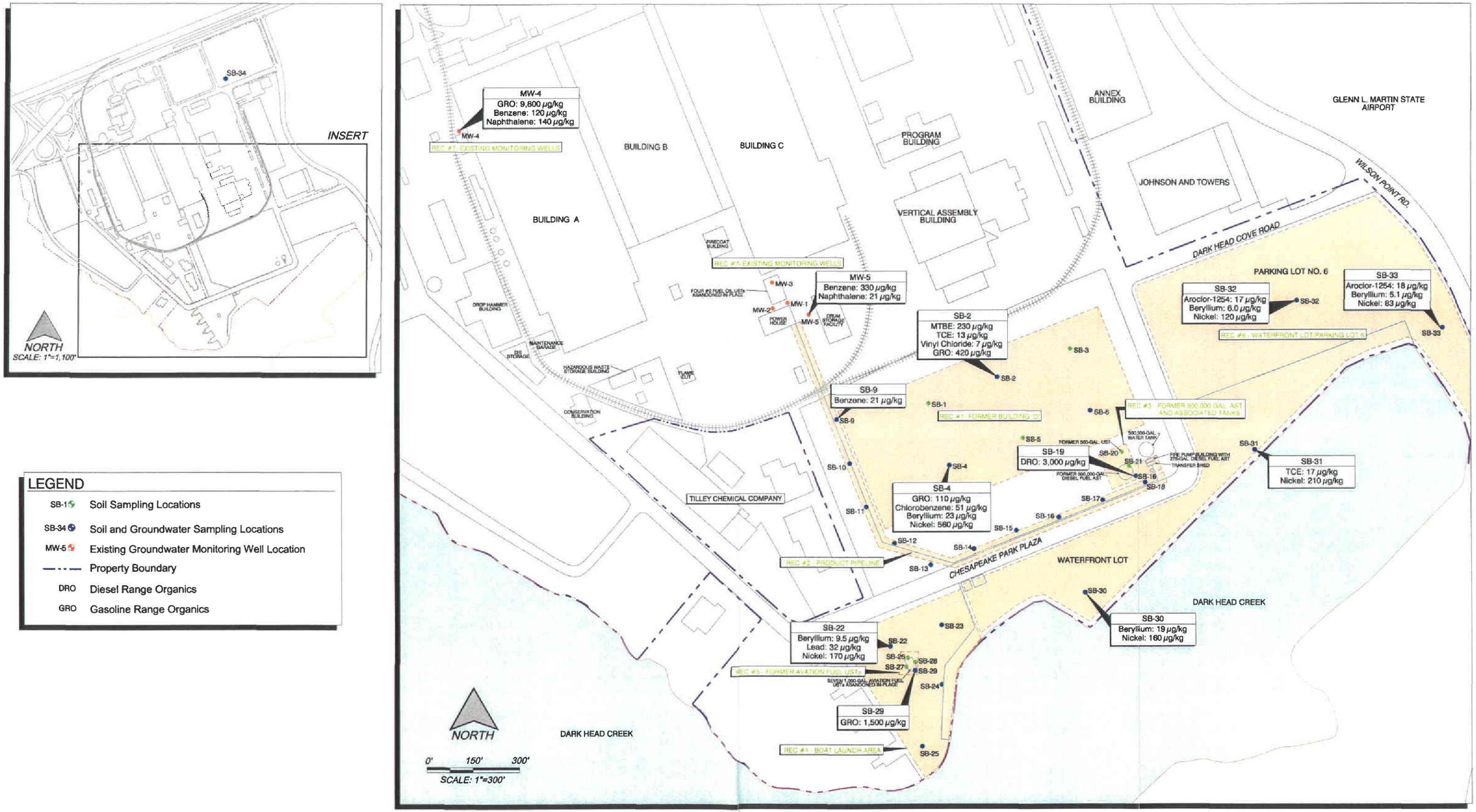


FIGURE 5-2
CHEMICALS AND METALS DETECTED IN GROUNDWATER EXCEEDING SCREENING LEVELS



In each boring, two soil samples were collected at 5 and 10 feet bgs for laboratory analysis. In addition, a groundwater sample was collected from three of the six soil borings (SB-2, SB-4, and SB-6) for analyses. All of the samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), gasoline range organics (GRO), diesel range organics (DRO)-extended, polychlorinated biphenyls (PCBs), and Priority Pollutant Metals. In addition, field filtered groundwater samples were also collected and submitted for Priority Pollutant Metals analysis. Table 5-1 provides a summary of the sampling and analytical scheme conducted at the Former Building "D" site.

Table 5-1
Former Building "D"
Sampling and Analytical Scheme Summary

Boring ID	Boring Depth (feet)	Media Sampled	Sample Depth (feet)	Analytical Scheme
SB-1	11	Soil	5 and 10	GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
SB-2	12	Soil / Groundwater	5 and 10 plus groundwater grab sample	Soil: GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
				Groundwater: GRO, DRO-extended, VOCs, SVOCs, Total Metals, Dissolved Metals, and PCBs
SB-3	10	Soil	5 and 10	GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
SB-4	16	Soil / Groundwater	5 and 10 plus groundwater grab sample	Soil: GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
				Groundwater: GRO, DRO-extended, VOCs, SVOCs, Total Metals, Dissolved Metals, and PCBs
SB-5	10	Soil	5 and 10	GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
SB-6	24	Soil / Groundwater	5 and 10 plus groundwater grab sample	Soil: GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
				Groundwater: GRO, DRO-extended, VOCs, SVOCs, Total Metals, Dissolved Metals, and PCBs

5.1.2 Investigation Results

Soil and Groundwater Conditions

Based on lithologic logging of the soil borings, the subsurface soils were highly heterogeneous, consisting of sands, silts, and clays. Groundwater was encountered in the borings at depths ranging from 5 to 13 feet bgs. Groundwater generally occurred at 5 feet bgs in the borings where sand was the dominant soil type (SB-2, SB-3, and SB-5). Groundwater generally occurred at 12 to 13 feet bgs in the borings where silt / clay was the dominant soil type (SB-4, and SB-6). No organic vapors were detected in the soil borings during field screening activities.

Soil Analytical Data

One VOC, three polynuclear aromatic hydrocarbons (PAHs), GRO, and eight metals were detected above background in the 12 soil samples. With the exception of arsenic, none of the identified constituents were detected at concentrations exceeding their screening criteria. Arsenic exceedances were detected in the 5-foot depth samples from SB-1 and SB-4, at concentrations of 5.5 and 4.9 mg/kg, respectively. The arsenic exceedance locations and concentrations are summarized in Table 5-2 and shown on Figure 5-1.

Groundwater Analytical Data

Three groundwater samples were collected from former Building "D" during the Phase II ESA. Based on the analytical data, eleven VOCs, one phthalate compound, GRO, and several metals were detected in the samples. Groundwater samples from borings SB-2 and SB-4 each identified four constituents above the preliminary screening criteria. The sample from SB-2 identified groundwater exceedances for GRO, methyl tert-butyl ether (MTBE), trichloroethene (TCE), and vinyl chloride. The sample from SB-4 identified groundwater exceedances for beryllium, chlorobenzene, GRO, and nickel. The sample from SB-6 did not report any constituents above the preliminary screening criteria for groundwater. The groundwater exceedance locations and concentrations are summarized in Table 5-2 and shown on Figure 5-1.

Table 5-2
Former Building "D"
Summary of Soil and Groundwater Sample Exceedances

Media	Boring ID	Sample Depth (feet)	Constituent and Detected Concentration	Preliminary Screening Criteria
Soil	SB-1	5	Arsenic 5.5 mg/kg	MDE non-residential standard - 3.8 mg/kg Site-Specific Background – 1.7 mg/kg
	SB-4	5	Arsenic 4.9 mg/kg	MDE non-residential standard - 3.8 mg/kg Site-Specific Background – 1.7 mg/kg
Groundwater	SB-2	12	MTBE 230 µg/L[1]	MDE groundwater standard - 20 µg/L
			TCE 13 µg/L	MDE groundwater standard - 5 µg/L
			Vinyl Chloride 7 µg/L	MDE groundwater standard - 2 µg/L
			GRO 420 µg/L	MDE groundwater standard - 47 µg/L
	SB-4	16	Beryllium 23 µg/L	MDE groundwater standard - 4 µg/L Site-Specific Background – ND µg/L
			Nickel 560 µg/L	MDE groundwater standard - 73 µg/L Site-Specific Background – 71 µg/L
			Chlorobenzene 51 µg/L	MDE groundwater standard - 11 µg/L
			GRO 110 µg/L	MDE groundwater standard - 47 µg/L

[1] MTBE concentration of 230 µg/L was flagged with an "E" qualifier – estimated value exceeds calibration range.
ND – Not Detected

5.2 REC #2 – PRODUCT PIPELINE

The former Product Pipeline is a 1,815-foot long, 2-inch diameter pipe that formerly supplied the Power House with #2 fuel oil stored in a 500,000-gallon above ground storage tank (AST) located in the southeast corner of the Former Building D lot. The pipeline runs along the southern and eastern edge of Lot D and is buried approximately three feet bgs. In 2002, a 40-foot section of the pipeline leaked and contaminated soil was excavated and removed under the supervision of MDE.

5.2.1 Phase II Investigation Activities

To assess the feature, a total of 10 soil borings (designated as SB-9 through SB-18) were completed along the former Product Pipeline. A total of 12 soil borings were originally proposed. However, during the site reconnaissance, approximately 300 linear feet of the pipeline adjacent to the Power House was observed to be within a concrete-lined access tunnel. Based on no visual evidence of leakage along the visible pipeline, soil borings SB-7 and SB-8 were not drilled as originally proposed.

The 10 soil borings were completed along the pipeline spaced approximately 150 feet apart. The borings were completed to depths ranging between 8 and 16 feet bgs. In each boring, one soil sample was collected at 5 feet bgs and one groundwater sample was collected for laboratory analysis. All of the samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) plus naphthalene and DRO-extended parameters. Table 5-3 provides a summary of the sampling and analytical scheme conducted at the former Product Pipeline.

Table 5-3
Product Pipeline
Sampling and Analytical Scheme Summary

Boring ID	Boring Depth (feet)	Media Sampled	Sample Depth (feet)	Analytical Scheme
SB-9 thru SB-18	8 - 16	Soil / Groundwater	5 plus groundwater grab sample	Soil: DRO-extended, BTEX + Naphthalene
				Groundwater: DRO-extended, BTEX + Naphthalene

5.2.2 Investigation Results

Soil and Groundwater Conditions

Based on lithologic logging of the soil borings, the subsurface soils were highly heterogeneous, consisting of sands, silts, and clays. No evidence of the pipeline or the pipeline's utility trench backfill was encountered in any of the borings. No organic vapors were detected in the soil borings during field screening activities.

Soil Analytical Data

Low concentrations of naphthalene, toluene, and total xylenes were detected in two soil samples. Concentrations of the three compounds were well below MDE non-residential soil cleanup standards. The remaining BTEX compounds, as well as DRO-extended constituents, were not detected in any soil samples.

Groundwater Analytical Data

Ten groundwater samples were collected from former Product Pipeline during the Phase II investigation. Based on the analytical data, BTEX compounds were detected in two groundwater samples: SB-9 and SB-12. Benzene was detected at a concentration of 21 µg/L in sample SB-9, above the Maryland cleanup standard of 5 µg/L. None of the other compounds or the benzene concentration in SB-12 exceeded MDE cleanup standards. Naphthalene and DRO-extended compounds were not detected in any groundwater samples. The groundwater exceedance locations and concentrations are summarized in Table 5-4 and shown on Figure 5-1.

Table 5-4
Product Pipeline
Summary of Groundwater Sample Exceedances

Media	Boring ID	Sample Depth (feet)	Constituent and Detected Concentration	Preliminary Screening Criteria
Groundwater	SB-9	5	Benzene 21 µg/L	MDE groundwater standard – 5 µg/L

5.3 REC #3 – FORMER 500,000-GALLON AST AND ASSOCIATED TANKS

The former 500,000 gallon #2 fuel oil AST was located in the southeast corner of Former Building D lot near the Fire Pump Building. The AST, approximately 25 to 30 years old, was historically used as a supplemental fuel source for the Power House. The #2 fuel oil was supplied to the Power House from the 500,000-gallon AST via the former product pipeline discussed in Section 5.2. A 500-gallon UST was reportedly used in conjunction with the 500,000-gallon AST. The UST was used to collect excess oil from the pressurized lines filling the 500,000-gallon AST. Both the 500,000-gallon AST and 500-gallon UST were permanently removed on November 7, 2002. Based on available documentation, no evidence of soil or groundwater impacts was identified during UST closure.

An active 275-gallon diesel fuel AST associated with the Fire Pump Building is currently present in the immediate vicinity of the former 500,000-gallon AST. The 275-gallon diesel fuel AST was, therefore, included in the Phase II investigation to provide more complete coverage of the area.

5.3.1 Phase II Investigation Activities

To assess the feature, three soil borings (SB-19 through SB-21) were completed at the former AST and associated structures. Soil borings SB-19 and SB-20 was completed within the footprint of the 500,000-gallon AST, and the 500-gallon UST, respectively. The SB-21 location was originally proposed adjacent to the 275-gallon AST. However, during initial the site reconnaissance, the active 275-gallon diesel fuel AST was observed to be located within the Fire Pump Building, and no visual evidence of releases was evident. Consequently, soil boring SB-21 was moved to the footprint of the former 500,000 gallon AST.

Boring SB-19 was completed to a maximum depth of 20 feet bgs, while borings SB-20 and SB-21 were completed to 16 feet bgs. In each boring, soil samples were collected at 5 and 10 feet bgs. In addition, a groundwater sample was collected from boring SB-19. All samples were analyzed for BTEX plus naphthalene and DRO-extended analyses. Table 5-5 provides a summary of the sampling and analytical scheme conducted at the former AST and associated structures.

Table 5-5
Former 500,000-Gallon AST and Associated Tanks
Sampling and Analytical Scheme Summary

Boring ID	Boring Depth (feet)	Media Sampled	Sample Depth (feet)	Analytical Scheme
SB-19	20	Soil / Groundwater	5 and 10 plus groundwater grab sample	Soil: DRO-extended, BTEX + Naphthalene
				Groundwater: DRO-extended, BTEX + Naphthalene
SB-20	16	Soil	5 and 10	DRO-extended, BTEX + Naphthalene
SB-21	16	Soil	5 and 10	DRO-extended, BTEX + Naphthalene

5.3.2 Investigation Results

Soil and Groundwater Conditions

Based on lithologic logging of the soil borings, the subsurface soils were highly variable and complex. Boring SB-19 consisted of fine-grained sand to silty sand to the maximum depth of 13.5 feet bgs. Borings SB-20 and SB-21 consisted primarily of silt and silty clay. Groundwater was encountered in all of the soil borings at varying depths. No organic vapors were detected in the soil borings during field screening activities.

Soil Analytical Data

Benzene was detected in one sample, SB-21-10, at a concentration of 6 µg/kg. The reported concentration was slightly above the 5 µg/kg MDE cleanup standard for the protection of groundwater. The benzene exceedance location and associated concentration is summarized in Table 5-2 and shown on Figure 5-1.

DRO-extended compounds were detected solely in the 5-foot sample from SB-19-5 at a concentration of 56 mg/kg. The DRO-extended concentration was well below the MDE non-residential soil cleanup standard. No other BTEX constituents or naphthalene were detected in the soil samples.

Groundwater Analytical Data

One groundwater sample was collected from former 500,000 gallon AST and associated tanks during the Phase II ESA. Based on the analytical data, naphthalene and DRO-extended constituents were the only constituents detected in the SB-19 groundwater sample. Naphthalene was detected at 1 µg/L, well below its 10 µg/L MDE groundwater standard. DRO-extended compounds were detected at 3 mg/L, which is higher than its MDE groundwater standard. The groundwater exceedance location and concentration are summarized in Table 5-6 and shown on Figure 5-2.

Table 5-6
Former 500,000-Gallon AST and Associated Tanks
Summary of Soil and Groundwater Sample Exceedances

Media	Boring ID	Sample Depth (feet)	Constituent and Detected Concentration	Preliminary Screening Criteria
Soil	SB-21	10	Benzene 6 µg/kg	MDE groundwater protection standard – 5 µg/kg
Groundwater	SB-19	20	DRO 3000 µg/L	MDE groundwater standard – 47 µg/L

5.4 REC #4 – BOAT LAUNCH AREA

The Boat Launch Area is a concrete-covered tarmac located along the facility's waterfront. The site was initially used during World War II for the staging, fueling, and launching of military seaplanes. After World War II, the area was used for the fueling, maintenance, testing, and prototype evaluation of Chase boats along with staging of vehicles, equipment, and dry materials. By 1957, the site had been improved with the concrete tarmac. By 1969, the area was abandoned and all onsite structures were demolished. Currently, no structures other than the concrete tarmac exist on the site.

5.4.1 Phase II Investigation Activities

To assess the feature, four soil borings (SB-22 through SB-25) were completed within the concrete tarmac to a maximum depth of 16 feet bgs. Due to the absence of information regarding specific features of potential concern, the borings were positioned for general geographic coverage across the site.

In each boring, two soil samples were collected at 5 and 10 feet bgs for laboratory analysis. In addition, one groundwater sample was collected from each boring for laboratory analysis. All of the samples were analyzed for VOCs, SVOCs, GRO, DRO-extended, PCBs, and Priority Pollutant Metals. In addition, a field filtered groundwater sample was also collected and submitted for Priority Pollutant Metals analysis. Table 5-7 provides a summary of the sampling and analytical scheme conducted at the former Boat Launch Area.

Table 5-7
Boat Launch Area
Sampling and Analytical Scheme Summary

Boring ID	Boring Depth (feet)	Media Sampled	Sample Depth (feet)	Analytical Scheme
SB-22 thru SB-25	16	Soil / Groundwater	Sand 10 plus groundwater grab sample	Soil: GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
				Groundwater: GRO, DRO-extended, VOCs, SVOCs, Total Metals, Dissolved Metals, and PCBs

5.4.2 Investigation Results

Soil and Groundwater Conditions

Based on lithologic logging of the soil borings, the subsurface soils were highly heterogeneous, consisting of sands, silts, and clays. Several water-bearing zones were observed within borings SB-22 and SB-23. However, a sufficient volume of groundwater for sampling was not obtained until 13 feet. No evidence of groundwater was found in borings SB-24 and SB-25. No organic vapors were detected in the soil borings during field screening activities.

Soil Analytical Data

Based on the analytical data, Two VOCs (acetone and methylene chloride) and eight metals were detected in the soil samples obtained from the Boat Launch Area. During laboratory validation activities, all of the methylene chloride concentrations were flagged with a "B" qualifier, indicating that the presence of methylene chloride was attributable to laboratory blank contamination rather than associated with site-related activities. Acetone was detected at concentrations well below MDE screening criteria. SVOCs, GRO, DRO-extended, and PCBs compounds were not detected in any soil samples.

With the exception of mercury, none of the identified metals were detected at concentrations exceeding their MDE screening criteria. Mercury exceedances were detected in the 5- and 10-foot samples from boring SB-24. Mercury was detected at a concentration of 0.94 mg/kg in sample SB-24-5 and at a concentration of 0.17 mg/kg in sample SB-24-10. Both concentrations are slightly above the mercury MDE non-residential soil cleanup standard of 0.12 mg/kg. However, the concentration in sample SB-24-10 does not exceed the Anticipated Typical Concentration (ATC) of 0.51 mg/kg for Eastern Maryland (MDE, August 2001). The mercury exceedance locations and concentrations are summarized in Table 5-8 and shown on Figure 5-1.

Groundwater Analytical Data

Two VOCs, MTBE and naphthalene; one phthalate compound; and six dissolved metals were detected above background in the groundwater samples. None of the detected organic compounds exceeded evaluation criteria. GRO, DRO-extended, and PCBs compounds were not detected in any of the groundwater samples obtained from the site.

Of the detected metals, beryllium, lead, and nickel were detected at concentrations exceeding MDE evaluation criteria in one sample (SB-22). The groundwater exceedance locations and concentrations are summarized in Table 5-8 and shown on Figure 5-2.

Table 5-8
~~Former~~ Boat Launch Area
Summary of Soil and Groundwater Sample Exceedances

Media	Boring ID	Sample Depth (feet)	Constituent and Detected Concentration	Preliminary Screening Criteria
Soil	SB-24	5	Mercury 0.94 mg/kg	MDE non-residential standard – 0.12 mg/kg Site-Specific Background – ND
		10	Mercury 0.17 mg/kg	MDE non-residential standard – 0.12 mg/kg ATC for Eastern Maryland – 0.51 mg/kg Site-Specific Background – ND mg/kg
Groundwater	SB-22	13	Beryllium 9.5 µg/L	MDE groundwater standard - 4 µg/L Site-Specific Background – ND µg/L
			Lead 32 µg/L	MDE groundwater standard - 15 µg/L Site-Specific Background – ND µg/L
			Nickel 170 µg/L	MDE groundwater standard - 73 µg/L Site-Specific Background – 71 µg/L

ND – Not Detected

5.5 REC #5 – FORMER AVIATION FUEL USTS

Seven former 1,000-gallon aviation fuel USTs were located beneath the concrete tarmac covering the Boat Launch Area section of the Waterfront Lot. These tanks were reportedly last used in 1954 and closed in-place in 1986-1987. No UST closure records were available for these USTs and facility personnel were unaware whether confirmatory soil sampling had been conducted as part of the tank closure activities (Earth Tech, February 2003).

5.5.1 Phase II Investigation Activities

To assess the feature, four soil borings, SB-26 through SB-29, were completed on all four sides of the former tank farm. All four borings were completed to a maximum depth of 12 feet bgs.

In borings SB-26 through SB-28, one soil sample was collected at 10 feet bgs for laboratory analysis. In boring SB-29, a soil sample was collected at 6 feet bgs, due to poor sample recovery at

deeper depths. In addition to the soil sampling, one groundwater sample was collected from SB-29 for laboratory analysis. All of the samples were analyzed for VOCs and GRO. Table 5-9 provides a summary of the sampling and analytical scheme conducted at the former Aviation Fuel Tank Farm.

Table 5-9
Former Aviation Fuel USTs
Sampling and Analytical Scheme Summary

Boring ID	Boring Depth (feet)	Media Sampled	Sample Depth (feet)	Analytical Scheme
SB-26	12	Soil	10	GRO and VOCs
SB-27	12	Soil	10	GRO and VOCs
SB-28	12	Soil	10	GRO and VOCs
SB-29	12	Soil / Groundwater	6 plus groundwater grab sample	Soil: GRO and VOCs
				Groundwater: GRO and VOCs

5.5.2 Investigation Results

Soil and Groundwater Conditions

Based on lithologic logging of the soil borings, the subsurface soils consisted of silty clay and silty sand. Groundwater was encountered in all of the soil borings. No organic vapors were detected in the soil borings during field screening activities.

Soil Analytical Data

Three VOCs (2-butanone, acetone, and methylene chloride) were detected in soil samples collected around the closed in-place tank field. Methylene chloride concentrations were flagged with a 'B' qualifier, indicating that its reported concentrations are indicative of blank contamination and are not associated with former site activities. The concentrations of the other two VOCs are well below applicable MDE cleanup standards. GRO compounds were not detected in any of the soil samples.

Groundwater Analytical Data

Fourteen VOCs and GRO were detected above background in the groundwater sample collected from boring SB-29. None of the detected VOC compounds exceeded their applicable evaluation criteria. GRO were detected at 1500 µg/L in the sample, which is above its MDE groundwater cleanup standard of 47 µg/L. The GRO groundwater exceedance location and concentration is summarized in Table 5-10 and shown on Figure 5-2.

Table 5-10
Former Aviation Fuel USTs
Summary of Groundwater Sample Exceedances

Media	Boring ID	Sample Depth (feet)	Constituent and Detected Concentration	Preliminary Screening Criteria
Groundwater	SB-29	12	GRO 1500 µg/L	MDE groundwater standard – 47 µg/L

5.6 REC #6 – WATERFRONT LOT / PARKING LOT 6

Based on limited information provided in the Phase I ESA and historical aerial photographs, filling of the Waterfront Lot / Parking Lot 6 may have occurred between 1938 and 1949, extending the facility's property to its current layout. A metal-reinforced bulkhead currently bounds the waterfront area near the Boat Launch Area and southeast of Parking Lot 6. The waterfront area is currently covered with grass and Lot 6 is generally characterized by deteriorated asphalt.

5.6.1 Phase II Investigation Activities

Soil and Groundwater Investigation

To assess the feature, four soil borings (SB-30 through SB-33) were completed within the confines of the Waterfront Lot and Parking Lot 6 to depths ranging between 16 to 28 feet bgs. Soil borings SB-30 and SB-31 were completed in the grass covered areas of the Waterfront Lot, while borings

SB-32 and SB-33 were completed within Parking Lot 6. Due to the absence of specific-site information and usage, the borings were spaced across the site for geographic coverage. Soil boring SB-32 lies just to the south of Anomaly 6, as identified in the geophysical survey discussed in Section 5.6.3.

One soil sample, obtained from 5 feet bgs and one groundwater sample were collected from all four soil borings and submitted for laboratory analysis. All of the samples were analyzed for VOCs, SVOCs, GRO, DRO-extended, PCBs, and Priority Pollutant Metals. In addition, field filtered groundwater samples were collected and submitted for Priority Pollutant Metals analysis. Table 5-11 summarizes the sampling and analysis scheme conducted at the former Waterfront Lot and Parking Lot 6 Area.

Table 5-11
Waterfront Lot / Parking Lot 6
Sampling and Analytical Scheme Summary

Boring ID	Boring Depth (feet)	Media Sampled	Sample Depth (feet)	Analytical Scheme
SB-31	16	Soil / Groundwater	5 plus groundwater grab sample	Soil: GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
				Groundwater: GRO, DRO-extended, VOCs, SVOCs, Total Metals, Dissolved Metals, and PCBs
SB-32	28	Soil / Groundwater	5 plus groundwater grab sample	Soil: GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
				Groundwater: GRO, DRO-extended, VOCs, SVOCs, Total Metals, Dissolved Metals, and PCBs
SB-33	20	Soil / Groundwater	5 plus groundwater grab sample	Soil: GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
				Groundwater: GRO, DRO-extended, VOCs, SVOCs, Total Metals, Dissolved Metals, and PCBs
SB-33	24	Soil / Groundwater	5 plus groundwater grab sample	Soil: GRO, DRO-extended, VOCs, SVOCs, Total Metals, and PCBs
				Groundwater: GRO, DRO-extended, VOCs, SVOCs, Total Metals, Dissolved Metals, and PCBs

5.6.2 Investigation Results

Soil and Groundwater Conditions

Based on lithologic logging of the soil borings, the subsurface soils consisted of silty clay underlain by sand. The lithology of the subsurface soils appeared to be relatively consistent between the soil borings. Groundwater was encountered at approximately 18 to 23.5 feet bgs in borings SB-31 through SB-33. However, boring SB-30 encountered saturation at approximately 12 to 14 feet bgs. No organic vapors were detected in the soil borings during field screening activities.

Soil Analytical Data

Three VOCs, 16 SVOCs, 9 metals, and DRO were detected in the soil samples. GRO and PCB compounds were not detected in the site soils. Of the detected organic compounds, only benzo(a)pyrene in sample SB-33-5 was detected at a concentration that exceeded its MDE soil cleanup standard for groundwater protection, but was below the non-residential cleanup standard.

Nine metals were detected at concentrations that exceeded background. Of the nine metals, only arsenic in sample SB-33-5 and mercury in samples SB-32-5 and SB33-5 were detected at concentrations that exceeded MDE non-residential soil cleanup standards. The exceedance locations and concentrations are summarized in Table 5-11 and shown on Figure 5-1.

Groundwater Analytical Data

Two VOCs, one phthalate, Aroclor 1254, and six dissolved metals were detected in the groundwater samples obtained from the Waterfront Lot and Parking Lot 6. Four constituents were detected above preliminary screening criteria: TCE, Aroclor-1254, beryllium, and nickel. TCE was detected at 17 µg/L, above its MDE groundwater cleanup standard of 5 µg/L. Aroclor-1254 (a PCB) was detected in groundwater samples SB-32 and SB-33 at concentrations of 17 µg/L and 18 µg/L, respectively. The PCB concentration in both samples exceeded its MDE groundwater cleanup level of 0.5 µg/L. Nickel was exceeded its groundwater cleanup standard in all four samples while beryllium exceeded its groundwater cleanup standard in three of the four samples. The exceedance locations and concentrations are summarized in Table 5-12 and shown on Figure 5-2.

Table 5-12
Waterfront Lot / Parking Lot 6
Summary of Soil and Groundwater Sample Exceedances

Media	Boring ID	Sample Depth (feet)	Constituent and Detected Concentration	Preliminary Screening Criteria
Soil	SB-32	5	Mercury 1.7 mg/kg	MDE non-residential standard – 0.12 mg/kg Site-Specific Background – ND
	SB-33	5	Mercury 3.3 mg/kg	MDE non-residential standard – 0.12 mg/kg Site-Specific Background – ND
			Arsenic 4.9 mg/kg	MDE non-residential standard - 3.8 mg/kg Site-Specific Background – 1.7 mg/kg
			Benzo(a)pyrene 570 µg/kg	MDE non-residential standard –780 µg/kg Protection of groundwater – 370 µg/kg
Groundwater	SB-30	16	Beryllium 19 µg/L	MDE groundwater standard - 4 µg/L Site-Specific Background – ND
			Nickel 160 µg/L	MDE groundwater standard - 73 µg/L Site-Specific Background – 71 µg/L
	SB-31	24	TCE 17 µg/L	MDE groundwater standard - 5 µg/L
			Nickel 210 µg/L	MDE groundwater standard - 73 µg/L Site-Specific Background – 71 µg/L
	SB-32	20	Aroclor-1254 17 µg/L	MDE groundwater standard – 0.5 µg/L
			Beryllium 6 µg/L	MDE groundwater standard - 4 µg/L Site-Specific Background – ND
			Nickel 120 µg/L	MDE groundwater standard - 73 µg/L Site-Specific Background – 71 µg/L
	SB-33	24	Aroclor-1254 18 µg/L	MDE groundwater standard – 0.5 µg/L
			Beryllium 5.1 µg/L	MDE groundwater standard - 4 µg/L Site-Specific Background – ND
			Nickel 83 µg/L	MDE groundwater standard - 73 µg/L Site-Specific Background – 71 µg/L

ND – Not Detected

5.6.3 Geophysical Survey

In order to detect areas of waste disposal and buried drums or other metallic debris that may be present in the fill material of the Waterfront Lot and Parking Lot 6, an electromagnetic survey was conducted using a 10-foot grid line interval to determine metallic and non-metallic anomalies. The reconnaissance-level electromagnetic survey conducted on December 1 and 2, 2003 encompassed approximately 15 acres – *see Figure 1 in Appendix A*. Based on the terrain conductivity and in-phase response data, a total of nine anomalies were identified throughout the survey area. A follow-up GPR survey of the identified anomalies was conducted on December 15, 2003. Based on GPR scanning results, anomalies 1 through 5 and 7 through 9 were found to be associated with utilities (primarily storm drains). GPR imaging of anomaly 6, located running essentially northwest to southeast through the center of Parking Lot 6, did not produce any definitive source for the anomaly - *see Figure 2 in Appendix A*. Anomaly 6 was not considered consistent with any known potential subsurface metallic objects or utilities. Further details of the survey are provided in the geophysical survey report provided in Appendix A.

5.7 REC #7 – EXISTING MONITORING WELLS

This section presents the sampling results conducted on the existing five groundwater monitoring wells present at the Middle River Complex during the Phase II investigation. Sampling of the existing monitoring wells was recommended during the Phase I ESA due to discrepancies within the state databases regarding historic leaking UST sites and the potential open status of one or both UST sites (Earth Tech, February 2003).

5.7.1 Background

Power House Area

Monitoring wells MW-1, MW-2, and MW-3 were identified during the Phase I ESA surrounding the former tank farm immediately north of the Power House. On October 1, 1991, free phase hydrocarbons and petroleum-contaminated soil were observed during abandonment of two 15,000-gallon #2 fuel oil USTs. The three monitoring wells were required to monitor groundwater around the UST cavity. The wells were to be sampled for total petroleum hydrocarbons and naphthalene;

however, no analytical results were obtained as part of the Phase I ESA. In addition, no MDE monitoring requirements were noted for this leaking UST case and the status of the leaking UST case was not determined during the Phase I (Earth Tech, February 2003).

Another monitoring well, MW-5, was identified during initial site scoping activities for the Phase II investigation. MW-5 is located immediately east of the Power House and southeast of the MW-1, MW-2, and MW-3 well cluster. The well was not identified during the Phase I ESA. The installation date and reason for the well's installation were not determined.

Building L Monitoring Well

Monitoring well MW-4 is located northeast of Building L and was installed to evaluate the groundwater quality in the vicinity of a former 4,000-gallon gasoline UST. The UST, historically used to fuel facility vehicles, was permanently removed in 1988. During UST abandonment, impacted soil and groundwater were encountered. After the impacted soil had been removed, MDE required the installation and monitoring of one groundwater monitoring well. After installation, free phase hydrocarbons were detected in the monitoring well and MDE required the facility to monitor and purge the free phase hydrocarbons from the well. Over time, the quantity of free phase hydrocarbons in the well was reduced. A review of the state databases indicates this leaking UST case may still be open; however, no information regarding the continued monitoring of the well was obtained during the Phase I ESA (Earth Tech, February 2003).

5.7.2 Phase II Investigation Activities

Groundwater samples were collected from the three monitoring wells surrounding the Power House tank field (MW-1 through MW-3), a monitoring well southeast of the Power House (MW-5), and the former gasoline UST monitoring well (MW-4). The groundwater samples obtained from MW-1 through MW-3 and MW-5 were submitted for BTEX plus naphthalene and DRO-extended analyses while the groundwater sample obtained from MW-4 was submitted for BTEX plus naphthalene, GRO, total lead, and dissolved lead analyses. Free phase hydrocarbons were not observed in any of the wells but a petroleum odor was evident in MW-4 and MW-5. Table 5-13 provides a summary of the sampling and analysis scheme conducted on the five monitoring wells.

Table 5-13
Existing Monitoring Wells
Sampling and Analytical Scheme Summary

Monitoring Well ID	Well Depth (feet)	Static Water Level (feet)	Media Sampled	Analytical Scheme
MW-1	14.30	11.94	Groundwater	Groundwater (MW-1, MW-2, MW-3 and MW-5) BTEX plus naphthalene, DRO-extended
MW-2	15.10	10.81		
MW-3	16.87	12.32		
MW-5	13.44	9.78		
MW-4	29.59	16.15	Groundwater	Groundwater (MW-4) BTEX plus naphthalene, GRO, DRO-extended, total lead, and dissolved lead

5.7.3 Investigation Results

Power House Area

All four BTEX compounds and naphthalene were detected in the groundwater sample obtained from monitoring well MW-5. Of the detected constituents, both benzene and naphthalene were detected at concentrations exceeding their MDE groundwater cleanup levels. Benzene was detected at a concentration of 330 µg/L, which is above its cleanup level of 5 µg/L, while naphthalene was detected at 21 µg/L, slightly over its cleanup level of 10 µg/L. The locations and concentrations of groundwater exceedances are summarized in Table 5-14 and shown on Figure 5-2.

Building L Monitoring Well

All four BTEX compounds, naphthalene, and GRO were detected in the groundwater sample obtained from monitoring well MW-4. Of the detected compounds, benzene, naphthalene, and GRO were detected at concentrations over MDE cleanup standards. None of the other compounds exceeded cleanup standards. The locations and concentrations of groundwater exceedances are summarized in Table 5-14 and shown on Figure 5-2.

Table 5-14
Existing Monitoring Wells
Summary of Groundwater Sample Exceedances

Media	Well ID	Constituent and Detected Concentration	Preliminary Screening Criteria
Groundwater	MW-5	Benzene 330 µg/L	MDE groundwater standard – 5 µg/L
		Naphthalene 21 µg/L	MDE groundwater standard – 10 µg/L
Groundwater	MW-4	Benzene 120 µg/L	MDE groundwater standard – 5 µg/L
		Naphthalene 140 µg/L	MDE groundwater standard – 10 µg/L
		GRO 9800 µg/L	MDE groundwater standard - 47 µg/L

Section 6
Data Evaluation and Recommendations

As outlined in Section 5, inorganic and organic constituents have been identified at the Middle River Complex above the preliminary screening levels established for this Phase II site investigation. A summary of the constituents detected above the screening levels at each REC area is presented in Table 6-1.

This section presents an evaluation of the soil and groundwater data collected from the Phase II investigation program. This section discusses potential chemicals of concern, evaluates the areal extent of chemicals at the site, and presents recommendations for further action at each REC area.

Table 6-1
Summary of Chemicals Detected Above Preliminary Screening Levels
Phase II Site Investigation at Middle River Complex

REC	REC Description	Media	Chemical	Maximum Detected Concentration	Preliminary Screening Criteria
#1	Former Building "D"	Soil	Arsenic	5.5 mg/kg	3.8 mg/kg
		Groundwater	Chlorobenzene	51 µg/L	11 µg/L
		Groundwater	MTBE	230 µg/L	20 µg/L
		Groundwater	TCE	13 µg/L	5 µg/L
		Groundwater	Vinyl Chloride	7 µg/L	2 µg/L
		Groundwater	GRO	420 µg/L	47 µg/L
		Groundwater	Beryllium	23 µg/L	4 µg/L
		Groundwater	Nickel	560 µg/L	73 µg/L
#2	Product Pipeline	Groundwater	Benzene	21 µg/L	5 µg/L
#3	Former 500,000-Gallon AST and Associated Tanks	Soil	Benzene	6 µg/kg	5 µg/kg
		Groundwater	GRO	3000 µg/L	47 µg/L
#4	Boat Launch Area	Soil	Mercury	0.94 mg/kg	0.12 mg/kg
		Groundwater	Beryllium	9.5 µg/L	4 µg/L
		Groundwater	Lead	32 µg/L	15 µg/L
		Groundwater	Nickel	170 µg/L	73 µg/L
#5	Former Aviation Fuel USTs	Groundwater	GRO	1500 µg/L	47 µg/L
#6	Waterfront Lot / Parking Lot 6	Soil	Arsenic	4.9 mg/kg	3.8 mg/kg
		Soil	Mercury	3.3 mg/kg	0.12 mg/kg
		Soil	Benzo(a)pyrene	570 µg/kg	370 µg/kg
		Groundwater	Aroclor-1254	18 µg/L	0.5 µg/L
		Groundwater	TCE	17 µg/L	5 µg/L
		Groundwater	Beryllium	6 µg/L	4 µg/L
		Groundwater	Nickel	210 µg/L	73 µg/L
#7	Existing Monitoring Wells	Groundwater	Benzene	330 µg/L	5 µg/L
		Groundwater	Naphthalene	140 µg/L	10 µg/L
		Groundwater	GRO	9800 µg/L	47 µg/L

6.1 REC #1 – FORMER BUILDING "D"

6.1.1 Organic Compounds and Metals in Soil

A total of 12 soil samples were collected from six borings completed at the former Building "D" area. Arsenic was the only constituent detected above the preliminary screening criteria for soil at former Building "D". No VOCs, SVOCs, GRO, DRO-extended, or PCBs were detected above the screening criteria in the soil samples collected from this area.

The arsenic data was further evaluated through a statistical evaluation based on attainment of clean-up goals presented in the MDE clean-up standards guidance. The mean arsenic concentration was determined to be 2.16 milligrams per kilogram (mg/kg) and have a 95 percent upper confidence limit (UCL) of the arithmetic mean of 3.26 mg/kg. The 95 percent UCL is below the Maryland arsenic cleanup standard of 3.8 mg/kg, which is acceptable based on the MDE guidance parameters. Therefore arsenic is not considered to be a chemical of concern at Building "D". The statistical evaluation data is included as Appendix F.

6.1.2 Organic Compounds and Metals in Groundwater

A total of three groundwater samples were collected at the former Building "D" area. Groundwater samples collected from this REC area identified concentrations of chlorobenzene, TCE, vinyl chloride, MTBE, GRO, beryllium, and nickel above MDE groundwater cleanup standards. The fuel hydrocarbons detected in groundwater could potentially be related to a known release from the former Powerhouse USTs (located ~ 600 feet northwest of the site). Due to the limited soil borings completed during this phase of investigation and the lack of historical operations data at the former Building "D" area, the sources of these subsurface impacts are not currently known.

Dissolved beryllium and nickel concentrations were detected above the site background concentrations. These metals were also detected above MDE screening criteria at the Boat Launch Area (REC#4) and Waterfront Lot / Parking Lot 6 (REC #6), located south of the former Building "D" area. However, no potential point sources of beryllium and nickel in groundwater have been

identified that may be directly attributed to past site operations. Further data would be required to determine if these concentrations represent a source or if they represent naturally-occurring conditions.

6.1.3 Recommendations

Based on the analytical results of this Phase II site investigation, further groundwater investigation at the Former Building "D" area is recommended. The groundwater investigation should be conducted to determine the source or sources of the elevated VOCs, fuel hydrocarbons and metals and determine the lateral extent and potential migration pathways of the constituents. Further evaluation should be conducted to determine whether identified metals concentrations represent background conditions or potential point sources related to site operations.

6.2 REC #2 – PRODUCT PIPELINE

6.2.1 Hydrocarbon Compounds in Soil

A total of five soil samples were collected from five borings completed at the former product pipeline area. No BTEX, naphthalene, DRO-extended compounds were detected above the screening criteria in the soil samples collected from this area.

6.2.2 Hydrocarbon Compounds in Groundwater

A total of five groundwater samples were collected at the former Building "D" area. One groundwater sample collected from this REC area (SB-9) identified benzene above the preliminary screening criteria. The 5- and 10-foot depth soil samples collected from this boring did not detect benzene or any other hydrocarbon compounds. The benzene detection in groundwater may be related to a known petroleum release from the former Powerhouse USTs (located ~ 375 feet north of boring SB-9). However, due to the limited soil borings completed during this phase of investigation, the source of the subsurface impacts is not currently known.

6.2.3 Recommendations

Based on the analytical results of this Phase II investigation, further groundwater investigation at the Former Product Pipeline may be necessary. The groundwater investigation should be conducted to determine the source or sources of the fuel hydrocarbons and determine the lateral extent and potential migration pathways of the constituents.

6.3 REC #3 – FORMER 500,000-GALLON AST AND ASSOCIATED TANKS

6.3.1 Hydrocarbon Compounds in Soil

A total of six soil samples were collected from three borings completed at the former 500,000 gallon AST area. Benzene was detected in one soil sample (SB-21-5') at slightly above its preliminary screening criterion for soil. No naphthalene, DRO-extended compounds, or other BTEX constituents were detected above the screening criteria in the soil samples collected from this area.

6.3.2 Hydrocarbon Compounds in Groundwater

One groundwater sample was collected at the former 500,000 gallon AST and associated tank structures. The sample identified DRO-extended compounds at concentrations two orders of magnitude higher than the MDE groundwater cleanup standard. A groundwater sample collected from boring SB-18 (associated with the Product Pipeline investigation, but located approximately 40 feet at the suspected down-gradient direction from the former AST) did not identify DRO-extended compounds. Therefore, the elevated DRO-extended concentrations may be limited in lateral extent.

6.3.3 Recommendations

Since the full extent of petroleum impacts has not been determined, further groundwater investigation at the Former 500,000 gallon AST may be necessary. The groundwater investigation

should be conducted to determine the source or sources of the fuel hydrocarbons and determine the lateral extent and potential migration pathways of the constituents.

6.4 REC #4 – BOAT LAUNCH AREA

6.4.1 Organic Compounds and Metals in Soil

A total of eight soil samples were collected from four borings completed at the former Boat Launch Area. Mercury was detected in the two soil samples collected from boring SB-24 at concentrations above its preliminary screening criterion for soil. No VOCs, SVOCs, PCBs, GRO, DRO-extended compounds, or other metals were detected above the screening criteria in the soil samples collected from this area.

A comparison of the site-specific mercury data against the Anticipated Typical Concentration (ATC) for Eastern Maryland (0.51 mg/kg) (MDE, August 2001) indicates only the concentration in SB-24-5 exceeds this value. The ATC is based on a compilation and statistically analysis of background data sets generated at many sites in Maryland within similar geologic provinces. MDE guidance indicates the ATCs represent an appropriate alternative to the risk-based criteria. Furthermore, the groundwater sample obtained from boring SB-24 did not contain detectable concentrations of mercury. Therefore, mercury is not considered to be a chemical of concern at the Former Boat Launch Area.

6.4.2 Organic Compounds and Metals in Groundwater

A total of four groundwater samples were collected at the former Boat Launch Area. One groundwater sample collected from this REC area (SB-22) identified three metals (beryllium, lead, and nickel) with concentrations above the preliminary screening criteria. The concentrations were also above the site background concentrations. The remaining three groundwater samples in this REC area, including at suspected down-gradient locations, did not contain detectable concentrations of these metals above background.

Beryllium and nickel were also detected above MDE screening criteria at the Former Building "D" Area (REC#1) and Waterfront Lot / Parking Lot 6 (REC #6). No potential point sources of beryllium, lead, and nickel in groundwater have been identified that may be directly attributed to past site operations. Due to the limited soil borings completed during this phase of investigation and the lack of historical operations data at the former Building "D" area, the sources of these subsurface impacts are not currently known. Further data would be required to determine if these concentrations represent a source or if they represent naturally-occurring conditions.

6.4.3 Recommendations

Based on the analytical results of this Phase II investigation, further groundwater investigation at the Former Boat Launch Area is recommended. The groundwater investigation should be conducted to determine the source or sources of the elevated metals and determine the lateral extent and potential migration pathways of the constituents. Further evaluation should be conducted to determine whether identified metals concentrations represent background conditions or potential point sources related to site operations.

6.5 REC #5 – FORMER AVIATION FUEL USTS

6.5.1 Hydrocarbon Compounds in Soil

A total of four soil samples were collected from four borings completed at the former aviation fuel tanks. No VOCs or GRO compounds were detected above the screening criteria in the soil samples collected from this area.

6.5.2 Hydrocarbon Compounds in Groundwater

One groundwater sample was collected at the south end of the former aviation fuel tanks. The sample identified GRO compounds above the preliminary screening criteria. Groundwater samples collected from borings SB-24 and SB-25 (associated with the Former Boat Launch Area investigation, but located at the suspected down-gradient direction from the former aviation fuel

tanks) did not identify GRO compounds. Therefore, the elevated GRO concentrations may be limited in lateral extent.

6.5.3 Recommendations

The elevated GRO compounds in the groundwater adjacent to the former aviation fuel tanks indicates a release has likely occurred in the past. Downgradient migration does not appear to be evident but site-specific local flow direction of groundwater was not established. Further investigation of the extent and magnitude of the release may be warranted.

6.6 REC #6 – WATERFRONT LOT / PARKING LOT 6

6.6.1 Organic Compounds and Metals in Soil

A total of four soil samples were collected from four borings completed at the Waterfront Lot / Parking Lot 6. Arsenic, mercury, and benzo(a)pyrene are the only constituents detected above the preliminary screening criteria for soil at the Waterfront Lot / Parking Lot 6. Benzo(a)pyrene was the only PAH detected above the MDE soil standard for protection of groundwater, however, the non-residential soil standard was not exceeded. The groundwater samples collected from borings completed in this area did not contain detectable levels of arsenic, mercury or benzo(a)pyrene. In addition, no VOCs, GRO, DRO-extended, or PCBs were detected above the screening criteria in the soil samples collected from this area.

6.6.2 Organic Compounds and Metals in Groundwater

A total of four groundwater samples were collected from the Waterfront Lot / Parking Lot 6. Groundwater samples collected from this REC area identified Aroclor-1254, TCE, beryllium, and nickel with concentrations above the preliminary screening criteria. The Aroclor-1254 was only detected in borings (SB-32 and SB-33) conducted in Parking Lot 6. None of the elevated groundwater constituents were detected in soil samples collected from this area.

Beryllium and nickel were also detected above MDE screening criteria at the Former Building "D" Area (REC#1) and the Boat Launch Area (REC #4). No potential point sources of beryllium, and nickel in groundwater have been identified that may be directly attributed to past site operations. Due to the limited soil borings completed during this phase of investigation and the lack of historical operations data at the former Building "D" area, the sources of these subsurface impacts are not currently known. Further data would be required to determine if these concentrations represent a source or if they represent naturally-occurring conditions.

6.6.3 Recommendations

Based on the analytical and geophysical survey results, further investigation at the Waterfront Lot and Parking Lot 6 is recommended. A groundwater investigation should be conducted to determine the source or sources of the elevated TCE, PCBs, and metals and determine the lateral extent and potential migration pathways of the constituents. Further evaluation should be conducted to determine whether identified metals concentrations represent background conditions or potential point sources related to site operations. Additional soil sampling is also recommended to evaluate the anomaly detected in Parking Lot 6 and determine whether subsurface soils have been impacted.

6.7 REC #7 – EXISTING MONITORING WELLS

6.7.1 Hydrocarbon Compounds in Groundwater

A total of five existing monitoring wells were sampled in the vicinity of the former USTs located near the Power House and Building L. Elevated concentrations of benzene and naphthalene were detected above the preliminary screening criteria in one monitoring well (MW-5) near the Power House. In addition, elevated concentrations of benzene, naphthalene, and GRO were detected above the preliminary screening criteria in MW-4 associated with the former gasoline UST near Building L.

6.7.2 Recommendations

Based on the analytical results, further groundwater investigation near MW-5 and MW-4 is recommended to determine the extent of impacts. In order to confirm contaminated soils were removed from these areas and do not represent a continuing source to groundwater impacts, limited confirmatory soil sampling may be warranted.

Section 7
References

1. Earth Tech, Inc., Draft Phase I Environmental Assessment, Chesapeake Industrial Park. February 2003.

2. Enviroscan, Inc., Final Report, Geophysical Survey Utility/Structure Clearance and Debris Detection/Delineation at the Lockheed Martin Middle River Complex. January 12, 2004.

3. State of Maryland Department of the Environment, Interim Final Guidance (Update No. 1) Cleanup Standards for Soil and Groundwater. August 2003.

4. State of Maryland Geological Survey, Geologic Map of Maryland. 1968.

5. Tetra Tech, Inc., Soil and Groundwater Investigation Work Plan, Lockheed Martin Middle River Complex. November 12, 2003.

6. United States Department of Agriculture Soil Conservation Service, Soil Survey of Baltimore County, Maryland. September 1993.

APPENDIX A

ENVIROSCAN, INC.

Final Report
Geophysical Survey
Utility/Structure Clearance and
Debris Detection/Delineation
35 Proposed Boring Locations and
a 15.3-Acre Area
Lockheed Martin Middle River Complex
Middle River, MD
Enviroscan Project Number 090338a

Prepared For: Tetra Tech, Inc.
Prepared By: Enviroscan, Inc.
January 12, 2004

MARINE SEARCH AND SURVEY
a division of ENVIROSCAN, INC.

1051 Columbia Avenue • Lancaster, Pennsylvania 17603 • 717/396 8922 • Fax 717/396 8746 • email@enviroscan.com • www.enviroscan.com

ENVIROSCAN, INC.

January 12, 2004

Ms. Nisha Bansal
Tetra Tech, Inc.
3475 East Foothill Boulevard
Pasadena, CA 91107

RE: Geophysical Survey
Utility/Structure Clearance and Debris Detection/Delineation
35 Proposed Boring Locations and a 15.3-Acre Area
Lockheed Martin Middle River Complex
Middle River, MD
Enviroscan Project Number 090338a

Dear Ms. Bansal:

Pursuant to our proposal dated September 22, 2003, Enviroscan, Inc. (Enviroscan) has completed a geophysical survey of the above-referenced site. The survey consisted of 1) clearing approximately 35 boring locations and locating an abandoned fuel line on November 13-14, 2003, 2) a reconnaissance-level electromagnetic (EM) survey on December 1-2, 2003, and 3) a follow-up ground penetrating radar (GPR) survey of identified EM anomalies on December 15, 2003. The methods and results of the survey are described below.

Survey Purpose and Site Description

The survey consisted of three phases. The first phase consisted of a borehole clearance survey of approximately 35 boring locations at the Middle River Complex, as well as the detection of an abandoned fuel line. Phase II was a reconnaissance-level EM survey to detect and delineate the horizontal boundaries of any potential debris-filled areas. Phase III consisted of a follow-up GPR survey to more accurately delineate and/or identify anomalies detected by the EM survey. The GPR survey centered mainly on anomalies characteristic of subsurface metal detected during the EM survey.

The site consisted primarily of a paved parking lot with perimeter fencing, and grass-covered areas containing sections of reinforced concrete.

1051 Columbia Avenue • Lancaster, Pennsylvania 17603 • 717/396 8922 • Fax 717/396 8746 • email@enviroscan.com • www.enviroscan.com

Survey Methods

The borehole clearance and utility detection phase of the project was conducted using standard utility locating and imaging instruments, including GPR and TW-6. In order to provide high-resolution, cost-effective mapping of the fill boundaries, Enviroscan completed an EM terrain conductivity survey in all accessible portions of the survey areas using a Geonics, Ltd. EM-31 instrument. A follow-up ground penetrating radar and TW-6 metal detector survey was also performed to further characterize the fill material, focusing on any singular EM anomaly or clusters of such anomalies resulting from unknown sources. The principles and scopes of work for each technique are described below.

Phase I

TW-6

In pipe and cable search mode, the TW-6 is essentially a deep-sensing metal detector that detects any highly electrically conductive materials (e.g. metals) by creating an electromagnetic field with a transmitting coil. A receiving coil at a fixed separation from the transmitter measures the field strength. As the instrument is swept along the ground surface, subsurface metallic bodies distort the transmitted field. The change in field strength/orientation is sensed by the receiver, setting off an audible alarm and/or causing deflection of an analog meter. The TW-6 can nominally detect a 2-inch metal pipe to a depth of 8 feet and a 10-inch metal pipe to a depth of 14 feet.

GPR

GPR systems produce cross-sectional images of subsurface features and layers by continuously emitting pulses of radar frequency energy from a scanning antenna as it is towed along a survey profile. The radar pulses are reflected by interfaces between materials with differing dielectric properties. The reflections return to the antenna and are displayed on a color monitor as a continuous cross section in real time. Since the electrical properties of metal are distinctly different from soil and backfill materials, metallic pipes and other structures produce dramatic and characteristic reflections. Fiberglass, plastic, concrete, and terra-cotta pipes and structures also produce recognizable, but less dramatic reflections. Scanning was performed using a GSSI SIR-2000 GPR unit with a VGA color monitor and internal hard-drive, and a 500 megaHertz (MHz) antenna nominally capable of scanning to depths of up to 10 feet, depending on soil conditions. A 200 MHz antenna capable of scanning to nominal depths of 12 to 15 feet was also mobilized for use in areas where conductive soils might be found to limit GPR signal penetration.

C.A.T. and Genny

The survey areas were also scanned with a Radiodetection C.A.T. and Genny pipe and cable locator and tracer. In Power mode, the C.A.T. detects the 50 to 60 Hertz (Hz) electromagnetic field generated by live power cables and other metallic utilities to which a live line is grounded. In Radio mode, the C.A.T. detects buried conductors (cables or metallic pipes) as they conduct and re-transmit commercial broadcast radio energy. In Genny mode, the C.A.T. detects signal generated by the Genny transmitter. The Genny transmitter can be coupled directly (conductively) to exposed portions of a metallic pipe, cable, or wire or inductively to a subsurface metallic utility with known location and orientation. In addition, the C.A.T. can be used to track a miniature, waterproof sonde or "mole" inserted into any accessible pipe by a variety of means – including floating it down a fluid-filled pipe (often called "pigging"), pushing it through the pipe with flexible fiberglass rods (typically limited to approximately 200 feet of insertion), or hand-carrying it through an evacuated pipe (with proper confined space entry controls).

RD4000

Utility tracing was also conducted using a Radiodetection RD4000 digital cable and pipe tracer and transmitter. Similar to the TW-6 and C.A.T./Genny, the transmitter can be directly coupled to exposed portions of a metallic pipe, cable, or wire or indirectly (inductively) to a subsurface metallic utility of known location/orientation. The transmitter remains stationary and energizes the metallic utility at a frequency selected by the operator (512 Hz, 8 kHz, 33 kHz, or 65 kHz), which is received at the ground surface by the RD4000 receiver. When the transmitter is coupled directly to the metallic utility, the RD4000 digital receiver can also calculate the depth of the utility to an accuracy of ±10% of the actual depth of the utility. Please note the close proximity to bends in the traced line or poor signal strength can result in erroneous depth estimations. The RD4000 can also trace a "mole" in the same fashion as the C.A.T., as described above.

Phase II

EM-31

Enviroscan performed EM mapping of the site using a Geonics EM-31 instrument. The EM-31 was selected since (as described below) it is sensitive to buried metal, but is also sensitive to minor changes in the electrical conductivity of subsurface materials in the absence of metal (i.e. due to non-metallic debris and/or anomalous ionic content of any soil moisture).

The EM-31 employs an electromagnetic transmitter coil to induce an electric current in the earth. This current creates a secondary electromagnetic field that is measured by a receiver coil at a fixed separation of 3.7 meters from the transmitter coil. The secondary electromagnetic field has two components: the quadrature component, which is proportional to the bulk electrical conductivity or terrain conductivity (in millimhos per meter) of the subsurface materials, and the inphase component (in parts per thousand or ppt), which is primarily a measure of the relative concentration of metallic material in the subsurface. Note that in the presence of extremely high terrain conductivity material, the dynamic range of the EM-31 can be exceeded (or "saturated"), and the instrument will register spurious negative conductivities (a physical impossibility). These negative conductivities therefore actually represent very high positive conductivities. Similar saturation in the presence of significant metal can cause a spurious negative inphase response that should also be interpreted as a very high positive value.

For this survey, Enviroscan employed an EM-31 in vertical dipole mode. The effective survey depth of the EM-31 is depicted in Appendix A. The instrument is almost completely insensitive to material at the ground surface, and has a peak sensitivity to material at a depth of approximately five feet (see incremental sensitivity curve in Appendix A). Below five feet, the sensitivity diminishes approximately logarithmically. The cumulative effect of this varying sensitivity is also depicted in Appendix A. As the cumulative sensitivity curve shows, approximately 80 percent of the signal originates at depths less than 25 feet. Therefore, the terrain conductivity or inphase response measured by the EM-31 in vertical dipole mode represents primarily subsurface electrical properties at a depth of five feet (plus or minus), with little contribution from material at the ground surface, and moderate (and diminishing) contribution from materials down to approximately 25 feet. The vertical dipole EM-31 was selected to screen out the potentially time-varying effects of surficial variations in ground cover (noted above), while maintaining a significant effective survey depth.

The EM survey was completed by collecting vertical dipole mode terrain conductivity and inphase data along profiles spaced approximately 10 feet apart. Along survey profiles, measurement stations were defined by automatically triggering matching inphase and conductivity readings at two-second intervals, as the instrument was hand-carried. Based on the varying walking speed of the operator, this resulted in a station spacing along profiles of approximately 4 to 6 feet.

The actual location of each measurement station was digitally recorded using a backpack-mounted Trimble Pathfinder global positioning system (GPS) receiver in contact with five to nine position-fixing satellites. The GPS positions were differentially corrected using data from a continually operating base station located at the U.S. Naval Observatory in Gaithersburg, MD. The resulting differential GPS (DGPS) positions have a nominal accuracy of better than 2 feet (+/-). The EM stations are depicted as black circles in Figure 1. Note that only every other station is depicted for clarity.

The EM inphase and terrain conductivity data were contoured using the statistical kriging routine in SURFER by Golden Software. The inphase response and terrain conductivity contours area are depicted in Figure 2. Note that the conductivity contour levels are presented as shades of green to red for increasing positive values and green to blue for increasingly negative values (the equivalent of very high positive values — see above). The inphase contour levels are presented as shades of green to blue and purple for increasing negative values and green to yellow and red for increasingly positive values (the equivalent of very high positive values — see above).

Phase III

GPR / TW-6

Portions of the site where the EM-31 data indicated subsurface anomalies were re-located using DGPS coordinates and delineated with the TW-6 handheld metal detector. The operational specifications are mentioned above in the Phase I survey methods.

Identified EM-31 targets were then scanned with GPR and inspected in real time to identify any continuous, high-amplitude parabolic reflections of the type commonly associated with intact underground storage tanks (USTs) or drums. Scanning was performed by hand-towing the antenna along profiles crossing the footprints of the selected anomalies labeled 1 through 9 in Figure 2.

Results

Phase I

All pre-determined locations for boring locations were scanned using the aforementioned techniques. Utility traces were marked in the field as the survey progressed using semi-permanent pavement paint. Note that GPR scanning was attempted; however, signal penetration was severely limited, possibly due to the presence of conductive soil or backfill material and reinforced concrete pads.

Phase II

The EM survey results are depicted in Figure 2, showing the terrain conductivity and inphase results, respectively. The contoured terrain conductivity data were inspected for areas of elevated conductivity response. The contoured inphase data were inspected for singular and clustered anomalies resulting from subsurface metallic debris or debris pits. A total of 15.3 acres were surveyed during this phase of the project

The data show several linear anomalies suspected to be utilities (see anomalies on Figure 2 labeled 1 through 9). These anomalies were investigated further during Phase III and are discussed below.

Phase III

In order to better delineate and identify the anomalies detected in the EM survey of Phase II, GPR was used. Signal penetration varied across the site; however, it was sufficient to effectively image the above-mentioned targets. The nine target anomalies were scanned with GPR, and all – with the exception of Anomaly 6, were attributed to and identified as utility-related. Anomaly 6 was delineated with the TW-6 metal detector, and subsequently scanned with GPR. The GPR imaging did not produce any definitive source for the anomaly, and recommendations are discussed below. The resultant GPR profile is shown on Figure 3, with its location and orientation illustrated on Figure 2.

Conclusions and Recommendations

The EM survey results show that Lot No.6 and the waterfront lot consists mainly of linear anomalies. The GPR survey results indicated that many of the singular and linear EM anomalies were limited to storm drain outfall pipes and trenches. No anomalies scanned with GPR were consistent in size, shape, or amplitude with intact underground storage tanks. Anomaly 6 was not consistent with any known potential subsurface metallic objects or utilities, and therefore it is recommended that the client investigate this anomaly further.

Limitations

The geophysical survey described above was completed using standard and/or routinely accepted practices of the geophysical industry and equipment representing the best available technology. Enviroscan does not accept responsibility for survey limitations due to inherent technological limitations or site-specific conditions. However, we make every effort to identify and notify the client of such limitations or conditions.

We have appreciated this opportunity to work with you. If you have any questions, please do not hesitate to contact us.

Sincerely,
Enviroscan, Inc.

Christopher F. Buckman, M.Sc.
Geophysics Project Manager

Technical Review By:
Enviroscan, Inc.

Felicia Kegel Bechtel

Felicia Kegel Bechtel, M.Sc., P.G.
President

enc.: Figure 1: EM-31 Geophysical Survey Data Coverage
Figure 2: EM-31 Terrain Conductivity and Inphase Response Data Contours
Figure 3: Ground Penetrating Radar Profile A-A'
Appendix A: EM-31 Vertical Dipole Mode Depth Response

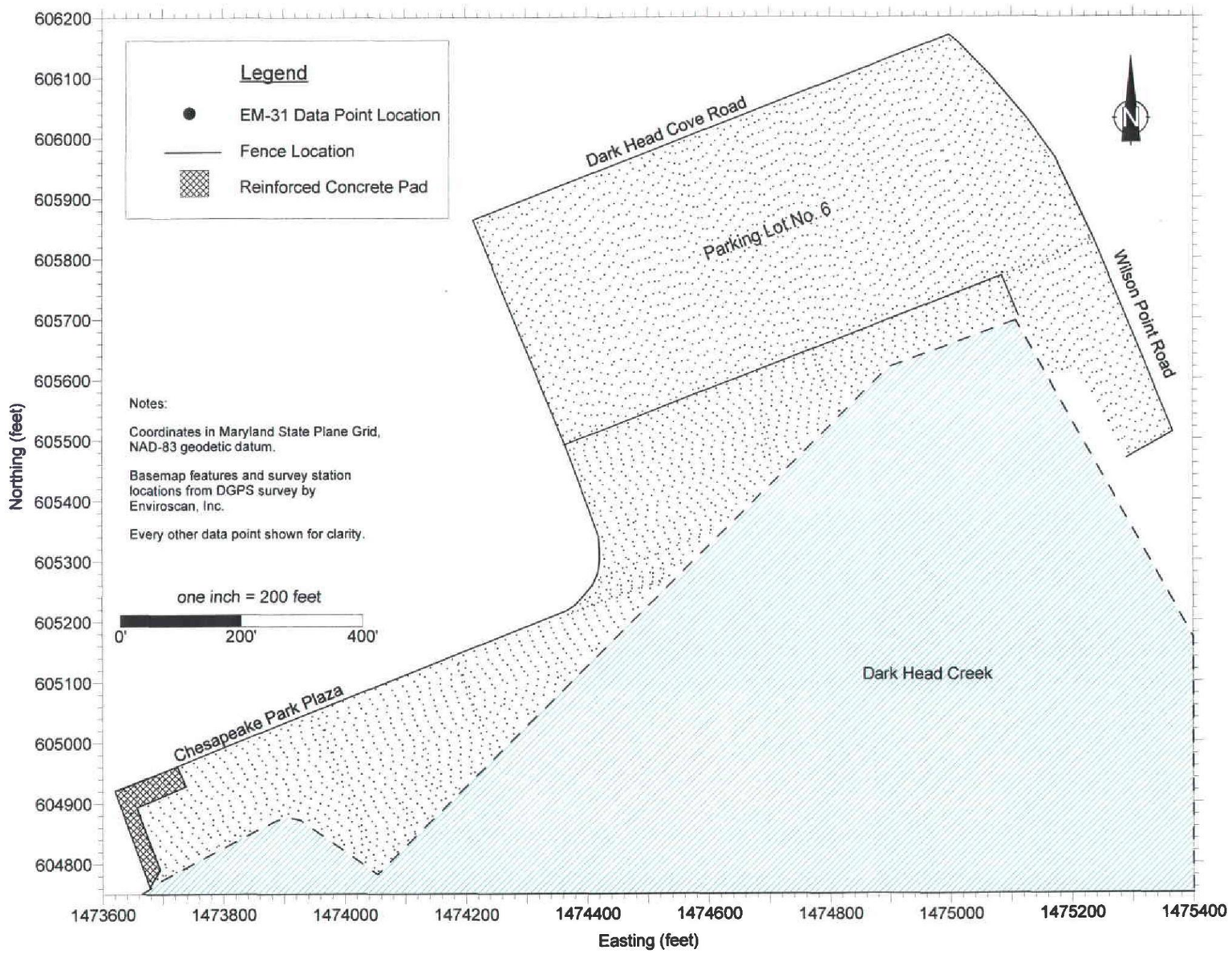


Figure 1

EM-31
Geophysical Survey
Data Coverage

Lockheed Martin
Middle River Complex
Middle River, MD

Enviroscan, Inc.
Project No. 090338a
Rev. 01/05/04

ENVIROSCAN, INC.

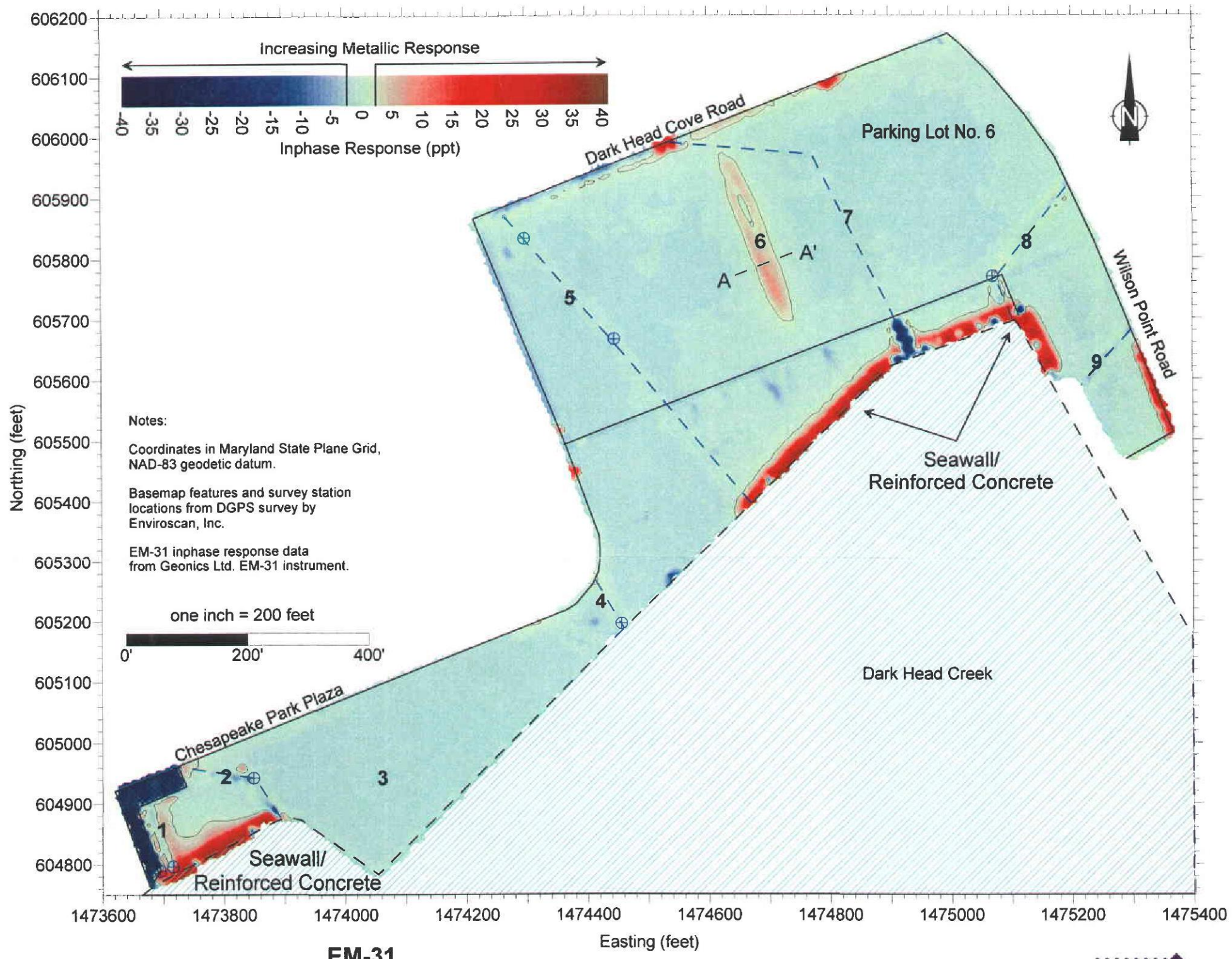


Figure 2

EM-31 Terrain Conductivity and Inphase Response Data Contours

Lockheed Martin Middle River Complex Middle River, MD

Enviroscan, Inc. Project No. 090338a Rev. 01/05/04

ENVIROSCAN, INC.

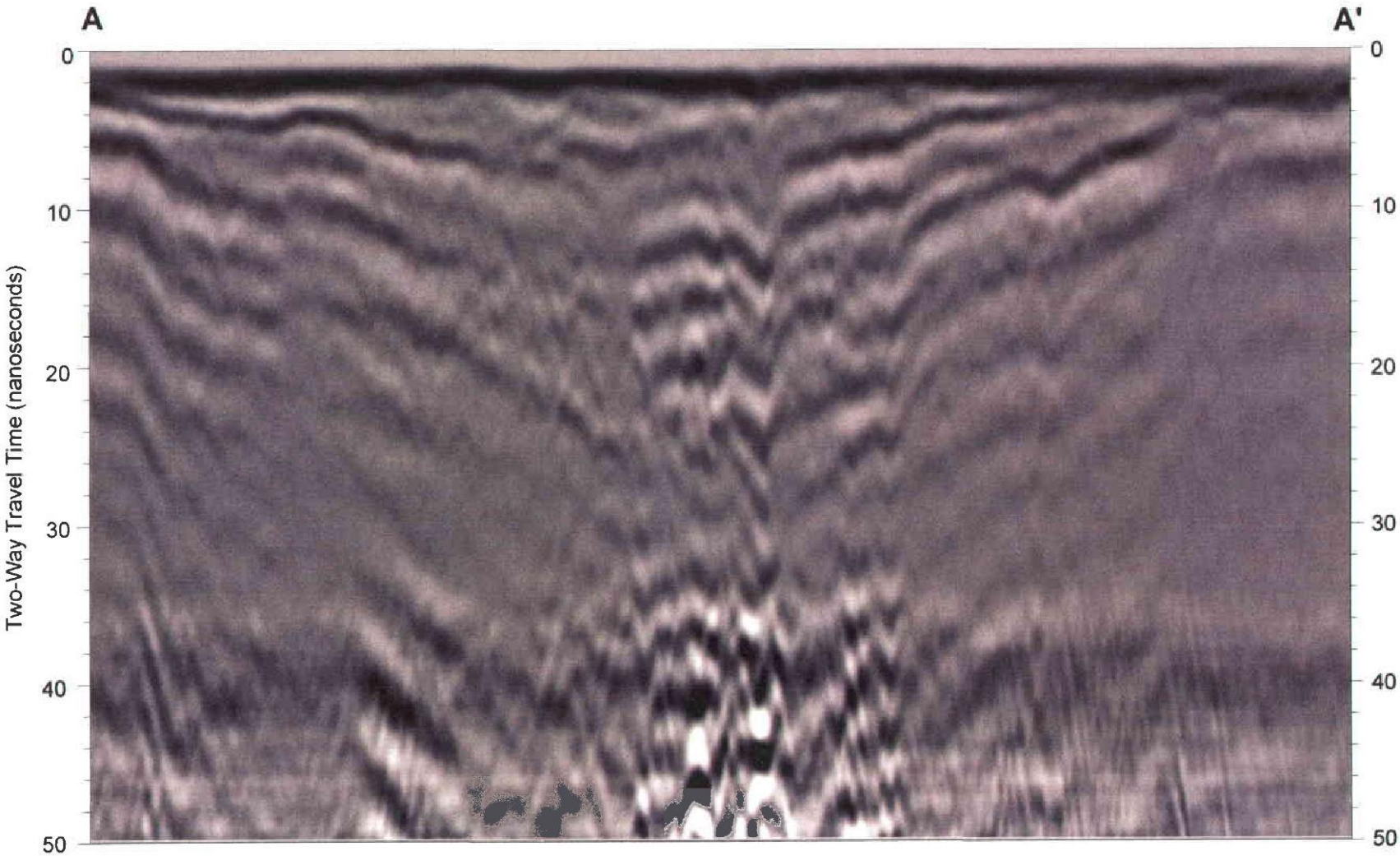


Figure 3

Ground Penetrating Radar Profile A-A'

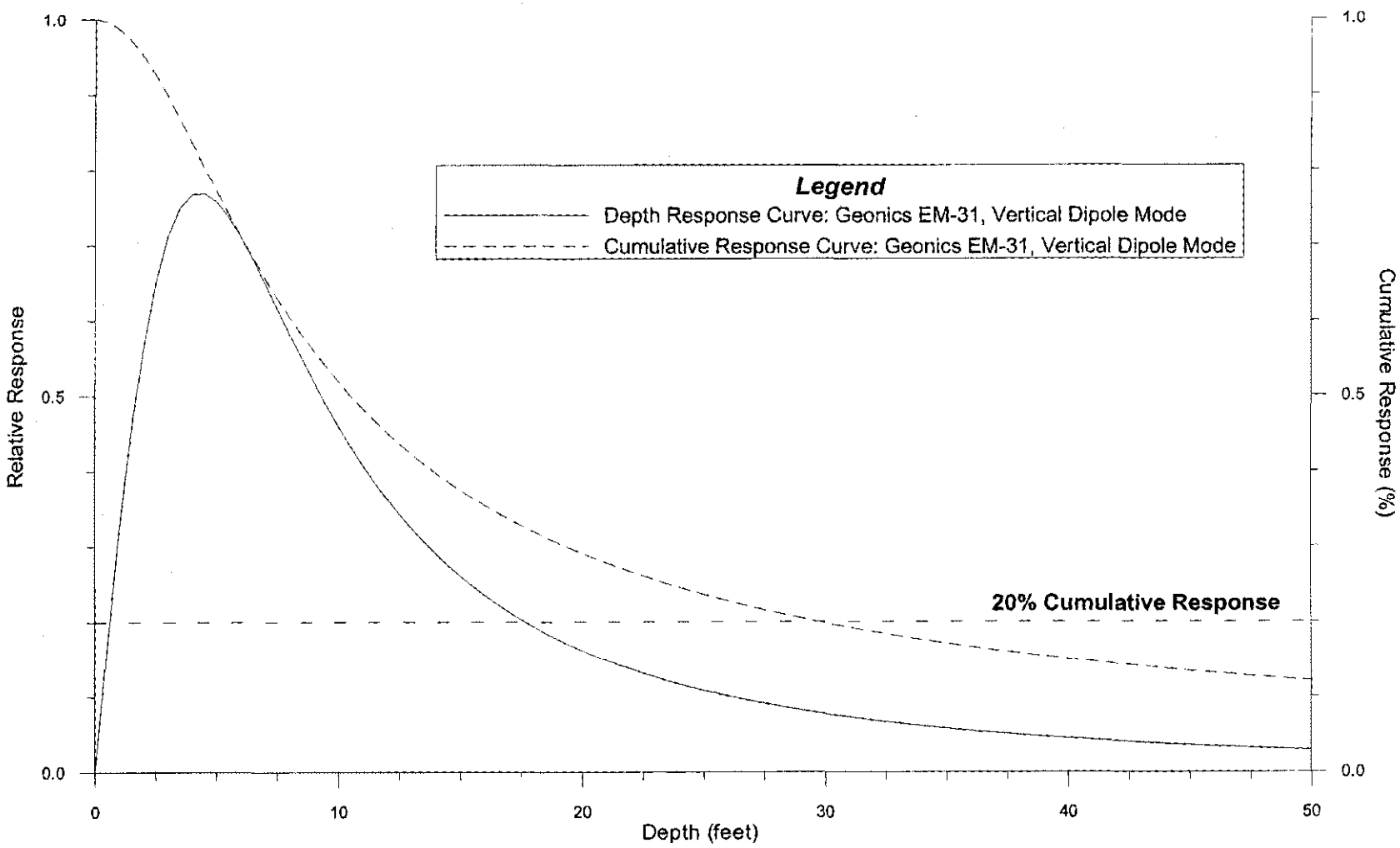
Lockheed Martin
Middle River Complex
Middle River, MD

Enviroscan, Inc.
Project No. 090338a
Rev. 01/05/04

ENVIROSCAN, INC.

Appendix A

EM-31 Vertical Dipole Mode Depth Response



EM-31 Vertical Dipole Mode Depth Response

Revised 01/2001

ENVIROSCAN, INC.

APPENDIX B

TETRA TECH BORING LOG

BORING I.D. No. *SB-1*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/20/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Concrete 2".
						CL	GRAVEL AND SAND - Gray, Gravel and Sand.
						CL	SANDY CLAY - Light Gray/Brown, Sandy Clay, dry.
							Same as above, color change to Orange Brown/Mottled White.
						CL	SILTY CLAY - Orange Brown/Mottled White, Silty Clay, dry.
2.5							
							No Recovery.
						CL	SILTY CLAY - Orange Brown/Mottled Gray, Silty Clay, plastic, moist.
5						CL	Same as above.
						ML	SILT - Dark Orange Brown, Silt, < 5% sand, moist.
							No Recovery.
7.5							
						ML	SILT - Dark Orange Brown, Silt, plastic, moist.
10						ML	Same as above.
							Total Depth = 11.0' bgs.
							NOTE: 5' bgs soil sample collected @ 0915. 10' bgs soil sample collected @ 0920.
12.5							
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. SB-2

CLIENT Lockheed Martin **T.C.** 13724-01 **LOCATION** Middle River Complex **DATE** 11/20/03

DRILL METHOD DPT **AUGER DIAMETER** 2" **FIELD GEOLOGIST** Charles C. Laney III

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
							Concrete 6".
						SP	SAND - Dark Brown, Sand, medium grained, saturated.
						SP	Same as above, color change to Orange Brown.
2.5						SP	Same as above, color change to Light Brown.
							No Recovery.
						SP	SAND - Light Brown, Sand, fine grained, < 5% Gravel, wet.
5							
						SP	Same as above.
7.5						SP	Same as above.
						SP	Same as above.
10						SP	Same as above.
12.5							Total Depth = 12.0' bgs. NOTE: 5' bgs soil sample collected @ 1150. 10' bgs soil sample collected @ 1200. Growndwater sample collected @ 1210.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-3*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/20/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
							Concrete 6".
						SP	SAND - Orange Brown, Sand, fine grained, wet.
						SP	SAND - Orange Brown, Sand, fine grained, < 5% Gravel, wet.
						SP	Same as above, color change to Light Gray.
						SP	Same as above, color change to Dark Gray.
2.5						SP	Same as above, color change to Brown.
							No Recovery.
						SP	SAND - Brown, Sand, fine grained, < 5% Gravel, wet.
5						SP	Same as above.
						ML	SILT - Dark Orange Brown, Silt, stiff, dry.
7.5						ML	Same as above.
						SP	SAND - Brown, Sand, medium grained, < 5% Gravel, wet.
						SP	Same as above.
10							Total Depth = 10.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1235. 10' bgs soil sample collected @ 1245.
12.5							
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-4*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/20/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
							Concrete 6".
						GP-SP	GRAVEL AND SAND - Light Gray, Gravel and Sand.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, soft, moist.
2.5							No Recovery.
							No Recovery.
						ML	SILT - Orange Brown, Silt, plastic, moist.
5						ML	Same as above.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
7.5							No Recovery.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
10						CL	Same as above.
							No Recovery.
12.5						SP	SAND - Orange Brown, Sand, medium grained, wet.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, dry.
							No Recovery.
15							No Recovery.
							Total Depth = 16.0' bgs.
17.5							NOTE: 5' bgs soil sample collected @ 0950. 10' bgs soil sample collected @ 1000. Growndwater sample collected @ 1015.
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.**

TETRA TECH BORING LOG

BORING I.D. No. *SB-5*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/20/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Concrete 2".
						SP	GRAVEL AND SAND - Light Gray, Gravel and Sand.
						SP	SAND - Orange Brown, Sand, fine grained, moist.
							SAND - Orange Brown, Sand, coarse grained, < 5% Gravel, wet.
							No Recovery.
2.5							
							No Recovery.
						SP	SAND - Dark Orange Brown, Sand, coarse grained, < 5% Gravel, wet.
5							
						SP	SAND - Dark Orange Brown, Sand, fine grained, wet.
							Same as above.
							No Recovery.
7.5							
						SP	SAND - Dark Orange Brown, Sand, coarse grained, < 5% Gravel, wet.
						SP	SAND - Orange Brown, Sand, fine grained, moist..
10							Total Depth = 10.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1105.
							10' bgs soil sample collected @ 1110.
12.5							
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. Laney III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-6*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/20/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Concrete 2".
						CL	GRAVEL AND SAND - Light Gray, Gravel and Sand.
						CL	SILTY CLAY - Orange Brown, Silty Clay, stiff, dry. Silt content increases with depth. Same as above.
2.5						CL	Same as above.
						CL	SILTY CLAY - Orange Brown, Silty Clay, dry.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
5						SP	SAND - Light Brown, Sand, fine grained, moist.
						CL	SILTY CLAY - Dark Orange Brown, Silty Clay, stiff, dry.
7.5							Same as above.
						ML	SILT - Dark Orange Brown, Silt, stiff, dry.
10						ML	Same as above.
12.5						ML	SILT - Dark Orange Brown, Silt, wet.
						ML	Same as above, saturated.
15						ML	Same as above, stiff, dry.
						ML	Same as above, moist.
17.5						ML	Same as above, stiff, dry.
						ML	Same as above.
20						SP	SAND - Light Orange Brown, Sand, fine grained, wet.

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. SB-6

CLIENT Lockheed Martin **T.C.** 13724-01 **LOCATION** Middle River Complex **DATE** 11/20/03

DRILL METHOD DPT **AUGER DIAMETER** 2" **FIELD GEOLOGIST** Charles C. Laney III

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
22.5						CL	SILTY CLAY - Dark Orange Brown, Silty Clay, plastic, moist.
25							Total Depth = 24.0' bgs. NOTE: 5' bgs soil sample collected @ 1303. 10' bgs soil sample collected @ 1308. Groundwater sample collected @ 1445.
27.5							
30							
32.5							
35							
37.5							
40							

REVIEWING GEOLOGIST Charles C. Laney III **SIGNATURE** [signature] **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. SB-9

CLIENT Lockheed Martin **T.C.** 13724-01 **LOCATION** Middle River Complex **DATE** 11/18/03

DRILL METHOD DPT **AUGER DIAMETER** 2" **FIELD GEOLOGIST** Charles C. Laney III

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Grass. GRAVEL WITH SAND - Light Orange Brown, Gravel with Sand, wet.
						SP	Same as above, wood with Gray color. SAND - Light Orange Brown, Sand, fine grained, dry.
2.5							No Recovery.
							No Recovery.
						SP	SAND AND GRAVEL - Dark Gray, medium Sand and Gravel, moist.
5						ML	SILT - Orange Brown, silt, moist.
7.5						ML	SILT - Orange Brown, silt, dry.
						ML	SILT - Orange Brown, silt, saturated.
							No Recovery.
10							No Recovery.
							No Recovery.
12.5							Total Depth = 12.0' bgs. NOTE: 5' bgs soil sample collected @ 1504. Groundwater sample collected @ 1530.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. SB-10

CLIENT Lockheed Martin **T.C.** 13724-01 **LOCATION** Middle River Complex **DATE** 11/18/03

DRILL METHOD DPT **AUGER DIAMETER** 2" **FIELD GEOLOGIST** Charles C. Laney III

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
							Marsh Reeds. Concrete 6".
						ML	SILT - Orange Brown, Silt, < 5% sand, stiff, moist.
2.5						CL	SILTY CLAY - Orange Brown, Silty Clay, stiff, dry.
							No Recovery.
						GP	GRAVEL WITH SAND - Orange Brown, Gravel with fine grained Sand, saturated.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, wet.
5						CL	Same as above, moist.
7.5							
							Total Depth = 8.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1555.
10							
12.5							
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-11*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/19/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Marsh. Top Soil - Brown, Top Soil, covered with Marsh. SILTY CLAY - Brown, Silty Clay, plastic, moist.
						SP	SAND - Olive Brown, Sand, medium grained, saturated.
							No Recovery.
2.5							No Recovery.
						SP	SAND - Olive Brown, Sand, medium grained, < 5% Gravel, saturated.
5						ML	SILT - Brown, Silt, saturated.
						CL	SILTY CLAY - Orange Brown/Purple Hue, Silty Clay, plastic, wet.
						CL	Same as above, moist.
7.5							
							Total Depth = 8.0' bgs. NOTE: 5' bgs soil sample collected @ 0919. Groundwater sample collected @ 1030.
10							
12.5							
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-12*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/19/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass covered Top Soil - Dark Gray, Top soil 2". SILTY CLAY - Brown, Silty Clay, plastic, moist.
						SP	SAND - Orange Brown, Sand, fine grained, < 5% silt, moist..
							No Recovery.
2.5							No Recovery.
						SM	SILTY SAND - Orange Brown, Silty Sand, moist.
5						GP-SP	GRAVEL AND SAND - Dark Gray, Gravel and fine grained Sand.
						CL	SILTY CLAY - Orange Brown/Mottled White, Silty Clay, stiff, dry.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist, fine Sand lamination, wet.
7.5							
						ML	SILT - Orange Brown, Silt, saturated.
10						SP	SAND - Orange Brown, Sand, fine grained, saturated.
						SP	SAND - Orange Brown, Sand, coarse grained, moist.
12.5							Total Depth = 12.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1100. Groundwater sample collected @ 1115.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-13*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/19/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						SP	Grass covered Top Soil - Brown, Top soil 2". SAND - Orange Brown, Sand, fine grained, moist.
						GP-SP	GRAVEL AND SAND - Dark Gray, Gravel and fine grained Sand, moist.
						SP	SAND WITH GRAVEL - Orange Brown, fine grained sand with gravel, dry.
						SP	SAND - Orange Brown, Sand, fine grained, loose.
2.5							No Recovery.
						CL	SILTY CLAY - Light Orange Brown, Silty Clay, plastic, moist with fine grained sand lamination, wet.
5							
						CL	Same as above.
7.5							
						SP	SAND - Orange Brown, Sand, fine grained, saturated.
10						ML	SILT - Orange Brown, Silt, saturated.
						GP-SP	GRAVEL AND SAND - Orange Brown, Gravel and fine grained Sand, saturated.
						SP	SAND - Orange Brown, Sand, fine grained, saturated.
12.5							Total Depth = 12.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1130. Groundwater sample collected @ 1144.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. SB-14

CLIENT Lockheed Martin **T.C.** 13724-01 **LOCATION** Middle River Complex **DATE** 11/19/03

DRILL METHOD DPT **AUGER DIAMETER** 2" **FIELD GEOLOGIST** Charles C. Laney III

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass covered Top Soil - Brown, Top soil 2". CLAY - Orange Brown/Mottled White, Clay, plastic, moist.
2.5						CL	Same as above, metal fragments at 2.5' bgs.
							No Recovery.
						ML	SILT - Light Gray, Silt, dry.
5						SP	SAND - Light Olive Brown, Sand, fine grained, moist.
						SP	SAND - Light Olive Brown, Sand, medium grained, moist.
7.5							No Recovery.
						SP	SAND - Olive Brown, Sand, medium grained, < 5% Gravel, wet.
10						SP	Same as above.
12.5							Total Depth = 12.0' bgs. NOTE: 5' bgs soil sample collected @ 1210. Groundwater sample collected @ 1220.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.**

TETRA TECH BORING LOG

BORING I.D. No. *SB-15*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/19/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass covered Top Soil - Brown, Top soil 2". SILTY CLAY - Brown, Silty Clay, plastic, moist.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, < 5% Gravel, moist.
						GP-SP	GRAVEL AND SAND - Dark Gray, Gravel and Sand, moist.
2.5						CL	SILTY CLAY - Olive Brown, Silty Clay, plastic, moist.
							No Recovery.
						CL	SILTY CLAY - Olive Brown/Mottled Dark Orange Brown, Silty Clay, plastic, < 5% Gravel, moist.
5							
						CL	SILTY CLAY - Olive Brown/Mottled Dark Orange Brown, Silty Clay, plastic, dry.
7.5							No Recovery.
						CL	SILTY CLAY - Olive Brown/Mottled Dark Orange Brown, Silty Clay, plastic, moist.
							Dark Gray Wood fragments @ 9.5' bgs.
10						CL	SILTY CLAY - Olive Brown, Silty Clay, plastic, moist.
						ML	SILT - Olive Brown, Silt, saturated.
						ML	SILT - Dark Gray, Silt, moist.
12.5						ML	SILT - Olive Brown/Mottled Orange Brown, Silt, wet.
						SP	SAND - Light Gray, Sand, fine grained, saturated.
15						SP	Same as above, moist.
							Total Depth = 16.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1246. Groundwater sample collected @ 1256.
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** [signature] **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-16*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/19/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Gravel.
						SP	GRAVEL AND SAND - Dark gray, Gravel and Sand.
							SAND - Orange Brown, Sand, fine grained, stiff, dry.
							Same as above, moist.
						CL	SILTY CLAY - Orange Brown, Silty Clay, dry.
2.5							No Recovery.
							No Recovery.
						CL	SILTY CLAY - Orange Brown/Mottled White, Silty Clay, moist.
5						SP	SAND - Orange Brown, Sand, fine grained, wet.
						CL	SILTY CLAY - Orange Brown/Mottled White, Silty Clay, stiff, dry.
7.5						SP	SAND - Dark Orange Brown, Sand, fine grained, wet.
						SP	SAND - Light Orange Brown, Sand, fine grained, saturated.
10						SP	SAND - Dark Orange brown, Sand, medium grained, wet.
						SP	Same as above, moist.
12.5							Total Depth = 12.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1315. Groundwater sample collected @ 1325.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-17*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/19/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass covered Top Soil - Brown, Top soil 2". SILTY CLAY - Olive Brown, Silty Clay, plastic, soft.
							Same as above.
2.5						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
							Same as above.
						ML	SILT - Orange Brown, Silt, moist.
5						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, Dry.
7.5							Same as above.
						ML	SILT - Olive brown, Silt, saturated.
10						CL	SILTY CLAY - Orange Brown/Mottled White, Silty Clay, plastic, moist.
12.5							Total Depth = 12.0' bgs. NOTE: 5' bgs soil sample collected @ 1347. Groundwater sample collected @ 1357.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. Laney III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-18*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/19/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass covered Top Soil - Brown, Top soil 2". SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
							Same as above.
3							
						CL	Same as above, dry.
6						CL	Same as above.
						CL	Same as above, color change to Dark Orange Brown.
9							
						CL	Same as above.
12						CL	Same as above.
						CL	Same as above.
15							
						ML	SILT - Light Orange Brown, Silt, saturated.
						CL	SILTY CLAY - Light Orange Brown, Silty Clay, plastic, dry.
18							
						CL	Same as above.
							Total Depth = 20.0' bgs.
21							NOTE: 5' bgs soil sample collected @ 1430. Groundwater sample collected @ 1500.
24							

REVIEWING GEOLOGIST Charles C. Laney III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-19*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/21/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass. CLAY - Brown, Clay with Roots, plastic, soft, moist.
						GP-SP	GRAVEL AND SAND - Light Brown, Gravel and Sand.
						SP	SAND - Light Brown, Sand, fine grained, moist, wood fragments.
							No Recovery.
3							No Recovery.
						SP	SAND - Light Brown, Sand, fine grained, wet.
						GP-SP	GRAVEL AND SAND - Dark Gray, Gravel and Sand.
						SP	SAND - Orange brown, Sand, fine grained, moist.
6						ML	SILT - Orange Brown, Silt, fine graind sand lamination, moist.
							No Recovery.
						SP	SAND - Orange Brown, Sand, fine grained, moist.
9						SM	SILTY SAND - Light Gray, Silty Sand, wet.
						ML	SILT - Orange Brown, Silt, plastic, soft, moist.
12						SP	SAND - Light Brown, Sand, fine grained, moist.
						SP	Same as above, color change to Orange Brown.
						SM	SILTY SAND - Orange Brown, Silty Sand, wet.
						CL	SILTY CLAY - Orange Brown, Silty Clay, stiff, dry.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist, fine Sand lamination, wet.
15						CL	Same as above, moist.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, dry.
						CL	Same as above.
18							No Recovery.
							No Recovery.
							Total Depth = 20.0' bgs.
21							NOTE: 5' bgs soil sample collected @ 0920. 10' bgs soil sample collected @ 0930. Groundwater sample collected @ 1030.
24							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.**

TETRA TECH BORING LOG

BORING I.D. No. *SB-20*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/20/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass. SILTY CLAY - Light Orange Brown, Silty Clay, plastic, soft, moist.
						GP-SP	GRAVEL AND SAND - Dark gray, Gravel and Sand.
2.5						CL	SILTY CLAY - Olive Brown, Silty Clay, plastic, moist.
							No Recovery.
						SP	SAND - Dark Orange Brown, Sand, fine grained, dry.
5						ML	SILT - Dark Orange brown, Silt, stiff, dry.
						ML	Same as above.
7.5							No Recovery.
						CL	SILTY CLAY - Dark Orange Brown, Silty Clay, moist.
10						SP	SAND - Light Brown, Sand, fine grained grained, < 5% silt, wet.
						SM	SILTY SAND - Brown, Silty Sand, wet.
12.5						SM	Same as above, saturated.
						SM	Same as above, color change to Orange Brown.
15						SM	Same as above, moist.
17.5							Total Depth = 16.0' bgs. NOTE: 5' bgs soil sample collected @ 1525. 10' bgs soil sample collected @ 1530.
20							

REVIEWING GEOLOGIST CHARLES C. LANEY IV **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-21*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/20/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass covered Top Soil - Brown, Top soil 2". CLAY - Orange Brown, Clay, plastic, soft, moist.
						SP	SAND - Light Gray, Sand, fine grained, < 5% Gravel, moist.
						GP-SP	GRAVEL AND SAND - Light Gray, Gravel and Sand, wet.
						SP	SAND - Dark Gray, Sand, fine grained, stiff, dry.
3							No Recovery.
						ML	SILT - Orange Brown/Mottled Light Gray, Silt, dry.
						ML	SILT - Dark Orange Brown, Silt, moist.
6						ML	SILT - Dark Orange Brown, Silt, plastic, dry.
						ML	SILT - Light Gray, Silt, wet.
9						ML	Same as above, color change to Dark Orange Brown.
						CL	SILTY CLAY - Dark Orang Brown, Silty Clay, plastic, dry.
12						ML	SILT - Dark Orange Brown, Silt, saturated.
						ML	Same as above.
15						CL	SILTY CLAY - Dark Orange Brown, Silty Clay, stiff, dry.
							Total Depth = 16.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1550. 10' bgs soil sample collected @ 1600.
18							
21							
24							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-22*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/17/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Concrete 2". GRAVEL WITH SAND - Light Brown, Gravel with Sand.
						CL	CLAY - Orange Brown, Clay, hard, dry.
2.5						SP	SAND - Brown, Sand, fine grained, dry.
							Same as above, color change to Olive Brown.
5						CL	SILTY CLAY - Olive Brown, Silty Clay, plastic, soft, moist.
							Same as above.
						CL	CLAY - Orange Brown/Mottled White, Clay, dry, stiff.
7.5							NO Recovery.
						CL	SILTY CLAY - Olive Brown, Silty Clay, plastic, soft, moist.
10						ML	SILT - Orange Brown/Mottled White, Silt, < 5% Clay, Dry.
12.5							Same as above, saturated.
						SM	SILTY SAND - Orange Brown/Mottled White, Silty Sand, moist.
15							Same as above, dry.
							Total Depth = 16.0' bgs.
17.5							NOTE: 5' bgs soil sample collected @ 1209. 10' bgs soil sample collected @ 1215. Groundwater sample collected @ 1250.
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-23*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/18/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Grass. GRAVEL WITH SAND - Light Brown, Gravel with Sand.
						ML	SILT - Dark Gray, Silt, soft, moist.
						CL	CLAY - Orange Brown, Clay, stiff, dry.
						CL	SILTY CLAY - Olive Brown, Silty Clay, plastic, moist.
2.5						SP	SAND - Olive Brown, Sand, medium grained, moist.
							No Recovery.
						SP	SAND - Light Brown, Sand, medium grained, wet.
5							Same as above, color change to Light Olive Brown.
						ML	SILT - Light Olive Brown, Silt, moist.
7.5							No Recovery.
						SP	SAND - Light Olive Brown, Sand, fine grained, saturated.
10						SP	SAND - Light Olive Brown, Sand, medium grained, saturated.
						ML	SILT - Orange Brown, Silt, moist.
12.5						SP	SAND - Orange Brown, Sand, fine grained, saturated.
						SP	SAND - Orange Brown, Sand, medium grained, wet.
15						SP	SAND - Orange Brown, Sand, medium grained, < 5% silt, moist.
							Total Depth = 16.0' bgs.
17.5							NOTE: 5' bgs soil sample collected @ 0904. 10' bgs soil sample collected @ 0910. Groundwater sample collected @ 0921.
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-24*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/17/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Grass. GRAVEL WITH SAND - Dark Gray, Gravel with Fine Sand.
						CL	SILTY CLAY - Orange Brown, Silty Clay, stiff, dry.
						CL	SILTY CLAY - Dark Gray, Silty Clay, plastic, soft, moist.
2.5							No Recovery.
						ML	SILT - Dark Gray, Silt, < 5% Clay, glass fragments, wet.
5						CL	SILTY CLAY - Dark Gray, Silty Clay, stiff, dry.
						CL	SILTY CLAY - Dark Gray, Silty Clay, plastic, soft, moist.
7.5							
						ML	SILT - Olive Gray, Silt, saturated.
						ML	Same as above.
10						SM	SILTY SAND - Light Brown, Silty sand, < 5% Clay, moist.
						CL	CLAY - Orange Brown, Clay, stiff, dry.
12.5						CL	SANDY CLAY - Orange Brown, Sandy Clay, moist.
						SP	SAND - Orange Brown, Sand, fine grained, < 5% Clay, stiff, dry.
15							
							Total Depth = 16.0' bgs.
17.5							NOTE: 5' bgs soil sample collected @ 1425. 10' bgs soil sample collected @ 1434. Groundwater sample collected @ 1500.
20							

REVIEWING GEOLOGIST CHARLES C. Laney III **SIGNATURE** Charles C. Laney III **REG. NO.**

TETRA TECH BORING LOG

BORING I.D. No. *SB-25*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/17/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						GP-SP	Grass. GRAVEL WITH SAND - Light Gray, Gravel with Fine Sand, moist.
						CL	SILTY CLAY - Orange Brown, Silty Clay, stiff, dry.
2.5							No Recovery.
						CL	CLAY - Orange Brown, Clay, stiff, dry.
5							
							No Recovery.
7.5							
						CL	CLAY - Orange Brown, Clay, stiff, dry.
10							
							No Recovery.
						CL	SILTY CLAY - Orange Brown, Silty Clay, soft, moist.
12.5							
						CL	SILTY CLAY - Orange Brown, Silty Clay, stiff, dry.
15							
							Total Depth = 16.0' bgs.
17.5							NOTE: 5' bgs soil sample collected @ 1531. 10' bgs soil sample collected @ 1537. Groundwater sample collected @ 1630.
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. SB-26

CLIENT Lockheed Martin **T.C.** 13724-01 **LOCATION** Middle River Complex **DATE** 11/17/03

DRILL METHOD DPT **AUGER DIAMETER** 2" **FIELD GEOLOGIST** Charles C. Laney III

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Concrete 2". SILTY CLAY - Olive Brown, Silty Clay, plastic, soft, moist.
							No Recovery.
							No Recovery.
2.5							No Recovery.
						CL	SILTY CLAY - Olive Brown, Silty Clay, plastic, soft, moist.
5							No Recovery.
							No Recovery.
							No Recovery.
7.5							No Recovery.
							No Recovery.
10							No Recovery.
							No Recovery.
12.5							Total Depth = 12.0' bgs.
15							
17.5							
20							

REVIEWING GEOLOGIST Charles C. Laney III **SIGNATURE** Charles C. Laney III **REG. NO.**

TETRA TECH BORING LOG

BORING I.D. No. *SB-26B*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/17/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Concrete 2". SILTY CLAY - Olive Brown, Silty Clay, Plastic, soft, moist.
						SP	SAND - Dark Gray, Sand, fine grained, dry.
2.5							Same as above, color change to Light Gray.
							No Recovery.
						CL	SILTY CLAY - Olive Brown, Silty Clay, Plastic, soft, moist.
5							
7.5							No Recovery.
						CL	SILTY CLAY - Olive Brown, Silty Clay, Plastic, soft, moist.
10							
12.5							Total Depth = 12.0' bgs. NOTE: Soil sample collected @ 1030.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-27*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/17/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Concrete 2". CLAY - Olive Brown, Silty Clay, plastic, < 5% roots.
							Same as above.
2.5							No Recovery.
							No Recovery.
						CL	SILTY CLAY - Light Gray, Silty Clay, plastic, moist.
5							
7.5						CL	CLAY - Orange Brown, Clay, dry, stiff.
						SM	SILTY SAND - Orange Brown, Silty Sand, saturated to 9.5' bgs.
10						CL	CLAY - Orange Brown/Mottled White, Clay, dry, stiff.
12.5							Total Depth = 12.0' bgs. NOTE: Soil sample collected @ 0958.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-28*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/17/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						SP	Concrete 2". SAND WITH GRAVEL - Light Brown, coarse grained Sand with Gravel.
						ML	SILT - Light Gray, Silt, < 5% Clay, < 5% roots, moist.
2.5							No Recovery.
							No Recovery.
						SP	SAND WITH GRAVEL - Light Brown, coarse grained Sand with Gravel, wet.
5						ML	SILT - Light Gray/Mottled Olive Brown, Silt, < 5% Clay, moist
						CL	SILTY CLAY - Light Gray/Mottled Olive Brown, Silty Clay, dry, stiff.
							Same as above, plastic, soft, moist.
7.5							Same as above, color change to Orange Brown.
						SM	SILTY SAND - Light Gray/Mottled Olive Brown, Silty Sand, saturated to 9.5' bgs.
10						SM	SILTY SAND - Light Gray/Mottled Olive Brown, Silty Sand, < 5% Clay, moist.
						CL	CLAY - Orange Brown/Mottled White, Clay, dry, stiff.
12.5							Total Depth = 12.0' bgs.
							NOTE: Soil sample collected @ 1026.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-29*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/17/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Concrete 2". SILTY CLAY - Olive Brown/Mottled Dark Gray, Silty Clay, plastic, soft, moist.
						CL	SILTY CLAY - Olive Brown/Mottled Orange Brown, Silty Clay, plastic, dry.
2.5							Same as above.
							No Recovery.
5							No Recovery.
7.5							
10							No Recovery.
12.5							Total Depth = 12.0' bgs. NOTE: Water sample collected @ 1130.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-29B*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/17/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Concrete 2". SILTY CLAY - Olive Brown/Mottled Light Gray, Silty Clay, plastic, soft, moist.
						CL	Same as above.
2.5							No Recovery.
						SP	SAND - Olive Brown/Mottled Light Gray, Sand, fine grained, saturated.
5						SP	Same as above.
							No Recovery.
7.5							
							No Recovery.
10							
12.5							Total Depth = 12.0' bgs. NOTE: Soil sample collected @ 1150.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-30*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/18/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass covered Top Soil - Dark Gray, Top soil 2". SILTY CLAY - Olive Brown, Silty Clay, plastic, moist.
						CL	SANDY CLAY - Orange Brown, Sandy Clay, dry.
2.5						CL	CLAY - Orange Brown, Clay, stiff, dry.
						CL	CLAY - Orange Brown, Clay, plastic, dry.
5							
7.5							
						CL	SILTY CLAY - Brown, Silty Clay, plastic, moist.
							Same as above, color change to Orange Brown.
10						CL	SILTY CLAY - Orange Brown, Silty Clay, stiff, dry.
12.5						ML	SILT - Orange Brown, Silt, saturated.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, wet.
15						CL	Same as above, moist.
							Total Depth = 16.0' bgs.
							NOTE: 5' bgs soil sample collected @ 1006. Groundwater sample collected @ 1135.
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. Laney III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-31*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/18/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						CL	Grass covered Top Soil - Dark Gray, Top soil 2". SILTY CLAY - Dark Brown, Silty Clay, plastic, moist.
						CL	Same as above, color change to Orange Brown.
2.5						CL	SILTY CLAY - Dark Orange Brown, Silty Clay, stiff, dry.
						CL	Same as above.
5							
7.5						CL	Same as above.
10						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
12.5							Same as above.
						CL	SILTY CLAY - Dark Orange Brown, Silty Clay, stiff, dry.
15							
17.5						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
						CL	SILTY CLAY - Dark Orange Brown, Silty Clay, stiff, dry.
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-31*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/18/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
22.5						SP	SAND - Dark Orange Brown, Sand, medium grained, wet. Same as above.
25							
27.5							
							Total Depth = 28.0' bgs.
30							
32.5							
35							
37.5							
40							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** [signature] **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-32*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/21/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
							Asphalt.
						GP-SP	GRAVEL AND SAND - Dark Gray, Gravel and Sand.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, dry.
						CL	SILTY CLAY - Brown, Silty Clay, plastic, moist.
3							No Recovery.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
						CL	Same as above.
6							No Recovery.
							No Recovery.
						CL	SILTY CLAY - Gray, Silty Clay, plastic, soft, moist.
9							
						CL	Same as above.
							No Recovery.
12						CL	SILTY CLAY - Gray, Silty Clay, plastic, soft, moist.
						ML	SILT - Orange Brown, Silt, dry.
							No Recovery.
15							No Recovery.
						CL	SILTY CLAY - Gray, Silty Clay, plastic soft, moist.
						SP	SAND - Orange Brown, Sand, coarse grained, saturated.
18						SP	SAND - Orange Brown, Sand, fine grained, wet.
							No Recovery.
							Total Depth = 20.0' bgs.
21							NOTE: 5' bgs soil sample collected @ 1235. Groundwater sample collected @ 1250.
24							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. *SB-33*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/21/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
							Asphalt.
						GP-SP	GRAVEL AND SAND - Dark Gray, Gravel and Sand.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, dry.
2.5						CL	SILTY CLAY - Brown, Silty Clay, plastic, moist.
						CL	Same as above.
						CL	SILTY CLAY - Orange Brown, Silty Clay, plastic, moist.
5						CL	Same as above, color change to Gray.
						CL	Same as above, color change to Brown.
7.5							No Recovery.
						CL	SILTY CLAY - Gray, Silty Clay, plastic, moist.
10						CL	SILTY CLAY - Orange Brown, Silty Clay, stiff, dry.
							No Recovery.
							No Recovery.
12.5						CL	SILTY CLAY - Orange Brown, Mottled White, Silty Clay, stiff, dry.
15						CL	Same as above.
17.5						CL	Same as above.
						CL	Same as above.
20						CL	Same as above.

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.** _____

TETRA TECH BORING LOG

BORING I.D. No. SB-33

CLIENT Lockheed Martin **T.C.** 13724-01 **LOCATION** Middle River Complex **DATE** 11/21/03

DRILL METHOD DPT **AUGER DIAMETER** 2" **FIELD GEOLOGIST** Charles C. Laney III

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
22.5						CL	Same as above.
						SP	SAND - Light Orange Brown, Sand, fine grained, saturate.
							Total Depth = 24.0' bgs.
25							NOTE: 5' bgs soil sample collected @ 1320. Groundwater sample collected @ 1350. Groundwater sample collected from 24'-27' bgs.
27.5							
30							
32.5							
35							
37.5							
40							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** Charles C. Laney III **REG. NO.**

TETRA TECH BORING LOG

BORING I.D. No. *SB-34*

CLIENT *Lockheed Martin* **T.C.** *13724-01* **LOCATION** *Middle River Complex* **DATE** *11/21/03*

DRILL METHOD *DPT* **AUGER DIAMETER** *2"* **FIELD GEOLOGIST** *Charles C. Laney III*

DEPTH (feet)	WATER	BLOW COUNT	OVA (ppm)	SAMPLE	GRAPHIC COLUMN	USCS	GEOLOGIC DESCRIPTION
						SP	Grass covered asphalt. SAND - Orange Brown, Sand, fine grained, dry.
						SP	Same as above, color change to Olive Brown.
						SP	Same as above, color change to Orange Brown.
2.5							
						SP	Same as above, Color change to Light Gray.
						SP	SAND - Orange Brown, Sand, fine grained, moist.
						SP	Same as above, color change to Light Brown, saturated.
5						SP	SAND - Orange Brown, Sand, medium grained, wet.
7.5						SM	SILTY SAND - Light Gray, Silty Sand, wet.
						SP	SAND - Light Brown, Sand, fine grained, wet.
						SP	Same as above, color change to Orange Brown.
10							
						SM	SILTY SAND - Light Gray, Silty sand, moist.
12.5							Total Depth = 12.0' bgs. NOTE: 5' bgs soil sample collected @ 1420. 10' bgs soil sample collected @ 1430. Groundwater sample collected.
15							
17.5							
20							

REVIEWING GEOLOGIST CHARLES C. LANEY III **SIGNATURE** *Charles C. Laney III* **REG. NO.** _____

APPENDIX C

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LM Middle River
Project No.: NI60S

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-01
Sample Location: MW-01
Sampled By: M. Martin
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 12/2/03								
Time: 11:10								
Method: Pump		See Low Flow Data Sheet						

PURGE DATA

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 12/2/03								
Method: Per. Static Pump								
Monitor Reading (ppm): NA								
Well Casing Diameter & Material Type: 4" PVC								
Total Well Depth (TD): 14.30		See Low Flow Data Sheet						
Static Water Level (WL): 11.94								
One Casing Volume(gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DRO - Extended	HCl	1, 1L AG	✓
BTEX + Naphthalene	HCl	3, 40ml g	✓

OBSERVATIONS/NOTES:

Flushmount well with signs of surface water entering well. Petroleum odor prevalent.

Circle if Applicable:

MS/MSD | Duplicate ID No.: —

Signature(s): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Lm Middle River
PROJECT NUMBER: N1605

WELL ID.: MW-01
DATE: 12/2/03

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
10:30	12.18	150	7.05	0.548	2.41	7.11	17.6	-66	0.0	TDS=0.35
10:40	12.58	150	6.64	0.440	1.68	7.45	16.2	-62	0.0	=0.28
10:50	12.92	150	6.57	0.449	1.20	7.87	15.0	-60	0.0	=0.29
10:55	13.07	100	6.53	0.438	1.03	7.33	16.3	-73	0.0	=0.28
11:00	13.24	100	6.49	0.461	0.85	7.26	16.3	-80	0.0	=0.30
11:05	13.41	100	6.51	0.464	1.17	7.46	16.0	-74	0.0	=0.30
11:10	13.57	100	6.49	0.466	1.26	7.41	16.2	-80	0.0	=0.30

SIGNATURE(S):

PAGE 1 OF 1

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LM Middle River Complex
Project No.: N1605

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-02
Sample Location: MW-02
Sampled By: M. Martin
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA

Date: 12/1/03	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 15:25								
Method: Pump		See	Low	flow	data	Sheet		

PURGE DATA

Date: 12/1/03	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic Pump								
Monitor Reading (ppm): N/A								
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 15.10		See	Low	Flow	data	Sheet		
Static Water Level (WL): 10.81								
One Casing Volume(gal/L): —								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DRO - Extended	HCl	1, 1 ltr AG	✓
BTEX + N	HCl	3, 40 ml g	

OBSERVATIONS / NOTES:

Flush mount well - evidence of road debris in well.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): M. Martin

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Lockheed Middle River
PROJECT NUMBER: N1605
WELL ID.: MW-02
DATE: 12/1/03

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1425	10.81	150	6.80	1.75	1.59	9.01	16.3	-97	0.0	TDS = 1.1
14:30	10.88	150	6.55	1.79	0.66	8.75	16.5	-88	0.0	= 1.1
14:35	10.86	150	6.46	1.80	1.17	8.71	16.4	-84	0.0	= 1.1
14:40	10.86	150	6.45	1.86	0.44	8.42	17.0	-90	0.0	= 2.0
14:45	10.85	150	6.38	1.79	0.57	8.73	16.1	-80	0.0	= 1.1
14:50	10.85	150	6.46	1.80	0.46	8.77	15.9	-83	0.0	= 1.1
14:55	10.85	150	6.48	1.82	0.43	8.70	16.1	-82	0.0	= 1.1
15:00	10.85	150	6.53	1.85	0.46	8.37	17.1	-88	0.0	= 1.2
1505	10.85	150	6.44	1.60	0.45	7.96	16.8	-80	0.0	= 1.1
15:10	10.85	150	6.50	1.79	0.46	7.51	17.2	-87	0.0	= 1.1
15:15	10.85	150	6.46	1.76	0.51	7.02	16.9	-78	0.0	= 1.1
15:20	10.86	150	6.47	1.81	0.58	7.04	16.8	-82	0.0	= 1.1
15:25	10.86	150	6.46	1.84	0.57	7.11	16.7	-84	0.0	= 1.1

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PAGE 1 OF 1

FROM : FAX NO. : Feb. 10 2004 05:43PM P4

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Lockheed Middle Run Complex
Project No.: N1605

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-03
Sample Location: MW-03
Sampled By: M. Martin
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 12/1/03								
Time: 13:50								
Method: Pump		See	Low	Flow	Sheet			

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 12/1/03								
Method: Peristaltic Pump								
Monitor Reading (ppm): NA								
Well Casing Diameter & Material Type: 4" PVC								
Total Well Depth (TD): 16.87		See	Low	Flow	Data			
Static Water Level (WL): 12.32				Sheet				
One Casing Volume(gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
DRO-Extended	HCl	1, 1 ltr Amber	✓
BTEX + N	HCl	3, 40 ml g	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
NA		[signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Lockheed Martin Middle River
PROJECT NUMBER: N1605
WELL ID.: MW03
DATE: 12/1/03

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
13:05	12.37	150	7.03	0.455	50.2	9.75	16.0	84	0.0	TDS = 0.30
13:10	12.38	150	7.20	0.455	69.4	9.83	15.4	91	0.0	= 0.30
13:15	12.38	150	7.26	0.461	75.6	9.71	15.4	94	0.0	= 0.30
13:20	12.38	150	7.29	0.453	78.2	9.61	15.4	97	0.0	= 0.29
13:25	12.39	150	7.31	0.466	87.3	9.58	15.1	105	0.0	= 0.30
13:30	12.39	150	7.32	0.475	101.6	9.44	15.4	109	0.0	= 0.31
13:35	12.40	150	7.30	0.490	119	9.78	14.2	127	0.0	= 0.32
13:40	12.40	150	7.29	0.495	112	9.47	14.9	128	0.0	= 0.32
13:45	12.40	150	7.32	0.499	115	9.32	15.1	125	0.0	= 0.32
13:50	12.41	150	7.32	0.502	121	9.34	15.1	126	0.0	= 0.33

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PAGE 1 OF 1

FROM : FAX NO. : Feb. 10 2004 05:44PM P6

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: LM Middle River Complex
Project No.: N1605

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-04
Sample Location: MW-04
Sampled By: M. Martin
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 12/1/03								
Time: 10:56								
Method: Direct Fill		See	low	flow	Sheet			

PURGE DATA

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 12/1/03								
Method: Peristaltic Pump								
Monitor Reading (ppm): NA								
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 29.56								
Static Water Level (WL): 16.13								
One Casing Volume(gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

Cell Low Flow Data Sheet

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
16RO	HCl	3, 40ml g	10:56
BTEX + N	HCl	3, 40ml g	10:56
Total Lead	HNO_3	1, 1ltr p	10:56
Field Filtered Lead (140micron filter)	HNO_3	1, 1ltr p	10:56

OBSERVATIONS / NOTES:

Interface probe used for water level. No free product indicated. No visual observation of petroleum on probe

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
NA		Mark Martin

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Complex
PROJECT NUMBER: N1605
WELL ID.: MW-04
DATE: 12/1/03

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
10:05	16.41	200	5.93	0.584	13.6	8.96	14.4	38	0.0	TDS = 0.36
10:15	16.62	150	6.25	0.530	10.74	8.84	14.7	30	0.0	= 0.33
10:20	16.61	150	6.35	0.512	10.74	9.06	14.7	9	0.0	= 0.33
10:25	16.61	150	6.44	0.500	8.63	9.11	150	-8	0.0	= 0.32
10:30	16.60	150	6.48	0.508	9.11	9.40	14.8	-23	0.0	= 0.32
10:35	16.60	150	6.55	0.509	7.52	9.55	14.7	-31	0.0	= 0.32
10:40	16.60	150	6.58	0.511	6.74	9.66	14.5	-39	0.0	= 0.33
10:46	16.60	150	6.60	0.512	6.45	9.60	14.4	-46	0.0	= 0.32
10:51	16.60	150	6.62	0.516	7.16	9.56	14.6	-50	0.0	0.33
10:56	16.60	151	6.62	0.520	6.83	9.61	14.7	-52	0.0	0.33

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PAGE 1 OF 1

FROM : FAX NO. : Feb. 10 2004 05:46PM P8

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: LM Middle River
Project No.: N1605

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MW-05
Sample Location: MW-05
Sampled By: M. Martin
C.O.C. No.:
Type of Sample:
[] Low Concentration
[X] High Concentration

SAMPLING DATA

Date: 12/2/03 Time: 9:20 Method: Pump	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
		See Low Flow Data Sheet						

PURGE DATA

Date: 12/2/03	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic Pump								
Monitor Reading (ppm): NA								
Well Casing Diameter & Material								
Type: 4" PVC								
Total Well Depth (TD): 13.44		See Low Flow Data Sheet						
Static Water Level (WL): 9.78								
One Casing Volume(gal/L):								
Start Purge (hrs):								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION

Analysis	Preservative	Container Requirements	Collected
DRO - Extracted	HCl	1, 1Lt AG	✓
BTEX + Naphthalene	HCl	3, 40ml G	✓

OBSERVATIONS / NOTES:

Flush mount well with obvious runoff from parking lot entering well.
Manhole cover busted, vault filled with sediment.
Petroleum odor strong during sampling.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Lm Middle River
PROJECT NUMBER: N1605
WELL ID.: MW-05
DATE: 12/2/03

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
8:35	9.93	175	7.25	2.66	3.34	7.64	15.5	-81	0.0	TDS = 1.6
8:45	10.50	150	6.85	2.64	2.22	7.69	15.5	-104	0.0	= 1.7
8:55	10.91	150	6.82	2.35	2.15	7.29	17.2	-107	0.0	= 1.5
9:00	11.08	150	6.77	2.18	3.37	7.38	17.2	-108	0.0	= 1.4
9:05	11.45	150	6.89	2.35	3.00	7.29	17.6	-112	0.0	= 1.5
9:10	11.83	150	6.86	2.25	5.14	7.35	18.0	-115	0.0	= 1.4
9:15	12.18	100	6.90	2.14	9.79	7.74	17.7	-107	0.0	= 1.4
9:20	12.37	100	6.86	2.30	8.90	7.99	18.0	-109	0.0	= 1.5
9:33										

SIGNATURE(S): [illegible]

PAGE 1 OF 1

APPENDIX D

TABLE A-1

BACKGROUND ANALYTICAL DATA SET
SUBSURFACE SOILS AND GROUNDWATER
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

	SUBSURFACE SOIL BACKGROUND			GROUNDWATER BACKGROUND		
SAMPLE ID:	SB-34-05	SB-34-10	BACKGROUND	SB-34	SB-34-F[2]	BACKGROUND
LABORATORY ID:	03112414-48	03112414-49	SOIL	03112414-50	03112414-51	GROUNDWATER
SAMPLE DATE:	11/21/2003	11/21/2003	DATA	11/21/2003	11/21/2003	DATA
LOCATION:	SB-34-05	SB-34-10	SET[1]	SB-34	SB-34-F	SET[3]
	(mg/kg)	(mg/kg)	mg/kg	(ug/L)	(ug/L)	(ug/L)
INORGANICS						
ARSENIC	1.4	1.7	1.7	20	--	--
BERYLLIUM	--	--	NA	26	--	--
CHROMIUM	6.3	12	12	1000	--	--
COPPER	4.8	--	4.8	820	--	--
LEAD	--	--	NA	510	--	--
MERCURY	--	--	NA	1.9	--	--
NICKEL	--	--	NA	670	71	71
SELENIUM	--	--	NA	33	--	--
ZINC	--	--	NA	750	--	--

Background samples submitted for Priority Pollutant Metals analysis only.

(1) Maximum constituent concentration detected in soil boring SB-34 used for background soil comparisons.

(2) Field-filtered sample.

(3) Dissolved metal concentrations used for background groundwater comparisons.

-- - Not detected

NA - Not Applicable.

mg/kg - milligram per kilogram

ug/L - microgram per liter

TABLE A-3

GROUNDWATER ANALYTICAL RESULTS
REC#1 - FORMER BUILDING D
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:			SB-2	SB-4	SB-6
LABORATORY ID:	MDE		03112414-27	03112414-21	03112414-33
SAMPLE DATE:	Groundwater	Site-Specific	11/20/2003	11/20/2003	11/20/2003
LOCATION:	Standards[1]	Background[2]	SB-2	SB-4	SB-6
VOLATILES (ug/L)					
1,1-DICHLOROETHANE	80	NA	6	--	--
1,1-DICHLOROETHENE	7	NA	2	--	--
BENZENE	5	NA	1	2	--
CARBON TETRACHLORIDE	5	NA	--	--	4
CHLOROBENZENE	11	NA	--	**5**	--
CHLOROFORM	80	NA	--	--	2
CIS-1,2-DICHLOROETHENE	70	NA	65	2	7
METHYL-T-BUTYL ETHER	20	NA	**[illegible]**	--	4
TRANS-1,2-DICHLOROETHENE	100	NA	2	--	--
TRICHLOROETHENE	5	NA	**[illegible]**	--	5
VINYL CHLORIDE	2	NA	**[illegible]**	--	--
SEMIVOLATILES (ug/L)					
DIETHYL PHTHALATE	24	NA	--	--	5 J
TOTAL PETROLEUM HYDROCARBONS (ug/L)					
GASOLINE RANGE ORGANICS	47	NA	**[illegible]**	**[illegible]**	--
INORGANICS (ug/L)					
ARSENIC	50	20	6.5	--	--
BERYLLIUM	4	26	8.9	47	10
CHROMIUM	100[3]	1000	75	110	230
COPPER	1300	820	99	180	130
LEAD	15	510	24	52	27
NICKEL	73	670	81	600	160
SELENIUM	50	33	--	9	12
ZINC	1100	750	200	880	340
FILTERED INORGANICS (ug/L)					
BERYLLIUM	4	--	--	**[illegible]**	--
CHROMIUM	100[3]	--	7.3	--	--
COPPER	1300	--	39	31	--
NICKEL	73	71	61	**580**	55
ZINC	1100	--	120	610	67

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

(2) Maximum constituent concentration detected in sample SB-34.

(3) Chromium VI cleanup standard.

Shaded/bolded text indicates constituent concentration, above background, exceeding Maryland cleanup standards.

-- - Not detected

NA - Not Analyzed.

MDE - Maryland Department of the Environment

ug/L - microgram per liter

E - Estimated value, exceeds calibration range.

J - Estimated value, less than quantitation limit.

TABLE A-4

SUBSURFACE SOIL ANALYTICAL RESULTS
REC #2 - PRODUCT PIPELINE
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	MDE Clean-up Standard[1]		SB-9-05	SB-10-05	SB-11-05	SB-12-05	SB-13-05
LABORATORY ID:			03111913-28	03111913-32	03112414-01	03112414-03	03112414-05
SAMPLE DATE:	Non-residential	Protection of Groundwater	11/18/2003	11/18/2003	11/19/2003	11/19/2003	11/19/2003
LOCATION:			SB-9-05	SB-10-05	SB-11-05	SB-12-05	SB-13-05
VOLATILE SOILS (ug/kg)							
NAPHTHALENE	4100000	330	--	--	--	--	--
TOLUENE	41000000	8800	2	--	--	--	--
TOTAL XYLENES	410000000	170000	10	--	--	--	--

SAMPLE ID:	MDE Clean-up Standard[1]		SB-14-05	SB-15-05	SB-16-05	SB-17-05	SB-18-05
LABORATORY ID:			03112414-07	03112414-09	03112414-11	03112414-13	03112414-15
SAMPLE DATE:	Non-residential	Protection of Groundwater	11/19/2003	11/19/2003	11/19/2003	11/19/2003	11/19/2003
LOCATION:			SB-14-05	SB-15-05	SB-16-05	SB-17-05	SB-18-05
VOLATILE SOILS (ug/kg)							
NAPHTHALENE	4100000	330	--	2	--	--	--
TOLUENE	41000000	8800	--	--	--	--	--
TOTAL XYLENES	410000000	170000	--	3	--	--	--

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

-- - Not detected

MDE - Maryland Department of the Environment

ug/kg - microgram per kilogram

TABLE A-5

GROUNDWATER ANALYTICAL RESULTS
REC #2 - PRODUCT PIPELINE
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:		SB-9	SB-10	SB-11	SB-12	SB-13	SB-14
LABORATORY ID:	MDE	03111913-29	03111913-32	03112414-02	03112414-04	03112414-06	03112414-08
SAMPLE DATE:	Groundwater	11/18/2003	11/18/2003	11/19/2003	11/19/2003	11/19/2003	11/19/2003
LOCATION:	Standards[1]	SB-9	SB-10	SB-11	SB-12	SB-13	SB-14
VOLATILES (ug/L)							
BENZENE	5	**9**	--	--	1	--	--
ETHYLBENZENE	700	13	--	--	2	--	--
TOLUENE	1000	76	--	--	--	--	--
TOTAL XYLENES	10000	120	--	--	--	--	--

SAMPLE ID:		SB-15	SB-16	SB-17	SB-18
LABORATORY ID:	MDE	03112414-10	03112414-12	03112414-14	03112414-16
SAMPLE DATE:	Groundwater	11/19/2003	11/19/2003	11/19/2003	11/19/2003
LOCATION:	Standards[1]	SB-15	SB-16	SB-17	SB-18
VOLATILES (ug/L)					
BENZENE	5	--	--	--	--
ETHYLBENZENE	700	--	--	--	--
TOLUENE	1000	--	--	--	--
TOTAL XYLENES	10000	--	--	--	--

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

Shaded/bolded text indicates constituent concentration exceeding Maryland cleanup standards.

-- - Not detected

MDE - Maryland Department of the Environment

ug/L - microgram per liter

TABLE A-6

SUBSURFACE SOIL ANALYTICAL RESULTS
REC #3 - FORMER 500,000 GALLON AST AND ASSOCIATED TANKS
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	MDE Clean-up Standard[1]		SB-19-05	SB-19-10	SB-20-05	SB-20-10	SB-21-05
LABORATORY ID:			03112414-39	03112414-40	03112414-35	03112414-36	3112414-37
SAMPLE DATE:	Non-Residential	Protection of Groundwater	11/21/2003	11/21/2003	11/20/2003	11/20/2003	11/20/2003
LOCATION:			SB-19-05	SB-19-10	SB-20-05	SB-20-10	SB-21-05
VOLATILE SOILS (ug/kg)							
BENZENE	100000	5	--	--	--	--	--
TOTAL PETROLEUM HYDROCARBONS (mg/kg)							
DIESEL AND RESIDUAL RANGE ORGANICS	620	NA	56	--	--	--	--

SAMPLE ID:	MDE Clean-up Standard[1]		SB-21-10
LABORATORY ID:			3112414-38
SAMPLE DATE:	Non-Residential	Protection of Groundwater	11/20/2003
LOCATION:			SB-21-10
VOLATILE SOILS (ug/kg)			
BENZENE	100000	5	[illegible]
TOTAL PETROLEUM HYDROCARBONS (mg/kg)			
DIESEL AND RESIDUAL RANGE ORGANICS	620	NA	--

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

Shaded/bolded text indicates constituent concentration, above background, exceeding Maryland soil cleanup standards.

-- - Not detected

MDE - Maryland Department of the Environment

ug/kg - microgram per kilogram

mg/kg - milligram per kilogram

TABLE A-7

GROUNDWATER ANALYTICAL RESULTS
REC #3 - FORMER 500,000 GALLON AST AND ASSOCIATED TANKS
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:		SB-19
LABORATORY ID:	MDE	03112414-41
SAMPLE DATE:	Groundwater	11/21/2003
LOCATION:	Standards[1]	SB-19
VOLATILES (ug/L)		
NAPHTHALENE	10	1
TOTAL PETROLEUM HYDROCARBONS (mg/L)		
DIESEL AND RESIDUAL RANGE ORGANICS	0.047	

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

Shaded/bolded text indicates constituent concentration, above background, exceeding Maryland cleanup standards.

MDE - Maryland Department of the Environment

ug/L - microgram per liter

mg/L - milligram per liter

TABLE A-8

SUBSURFACE ANALYTICAL RESULTS
REC #4 - BOAT LAUNCH AREA
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	MDE Clean-up Standard[1]			SB-22-05	SB-22-10	SB-23-05	SB-23-10	SB-24-05	SB-24-10	SB-25-05	SB-25-10
LABORATORY ID:				03111913-06	03111913-07	03111913-18	03111913-19	03111913-10	03111913-11	03111913-14	03111913-15
SAMPLE DATE:	Non-Residential	Protection of Groundwater	Site-Specific Background[2]	11/17/2003	11/17/2003	11/18/2003	11/18/2003	11/17/2003	11/17/2003	11/17/2003	11/17/2003
DEPTH INTERVAL (FEET):				SB-22-05	SB-22-10	SB-23-05	SB-23-10	SB-24-05	SB-24-10	SB-25-05	SB-25-10
VOLATILE SOILS (ug/kg)											
ACETONE	20000000	2500	NA	40 J	11 J	16 J	9 J	28 J	27 J	--	--
METHYLENE CHLORIDE	760000	19	NA	--	5 JB	6 JB	5 JB	--	--	5 JB	8 JB
INORGANICS (mg/kg)											
ARSENIC	3.8	NA	1.7	2.9	2.7	1.5	1.0	3.5	2.3	0.92	1.7
BERYLLIUM	410	NA	--	--	--	--	--	--	--	--	4.6
CHROMIUM	510[3]	NA	12	13	16	5.3	--	13	12	11	16
COPPER	8200	NA	4.8	10	13	--	--	28	7.8	8.0	19
LEAD	400	NA	--	10	5.0	--	--	46	12	6.6	14
MERCURY	0.12	NA	--	--	--	--	--	[illegible]	[illegible]	--	--
NICKEL	4100	NA	--	8.9	14	3.6	--	12	6.7	24	46
ZINC	61000	NA	--	--	--	--	--	100	--	--	110

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

(2) Maximum constituent concentration detected in samples SB-34-05 and SB-34-10.

(3) Chromium VI cleanup standard.

Shaded/bolded text indicates constituent concentration, above background, exceeding Maryland soil cleanup standards.

-- - Not detected

NA - Not analyzed/applicable.

MDE - Maryland Department of the Environment

ug/kg - microgram per kilogram

mg/kg - milligram per kilogram

B - Constituent found in blank sample/ suspected lab artifact.

J - Estimated value, less than quantitation limit.

TABLE A-9

GROUNDWATER ANALYTICAL RESULTS
REC #4 - BOAT LAUNCH AREA
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID: LABORATORY ID: SAMPLE DATE: DEPTH INTERVAL (FEET):	MDE Groundwater Standards[1]	Site-Specific Background[2]	SB-22 03111913-08 11/17/2003 SB-22	SB-23 03111913-20 11/18/2003 SB-23	SB-24 03111913-12 11/17/2003 SB-24	SB-25 03111913-16 11/17/2003 SB-25
VOLATILES (ug/L)						
METHYL-T-BUTYL ETHER	20	NA	--	2	--	--
NAPHTHALENE	10	NA	1	1	--	--
SEMIVOLATILES (ug/L)						
DI-N-BUTYL PHTHALATE	370	NA	--	2 J	--	--
INORGANICS (ug/L)						
ARSENIC	50	20	--	5.2	--	--
BERYLLIUM	4	26	**49**	13	18	11
CHROMIUM	100[3]	1000	150	270	82	99
COPPER	1300	820	660	250	92	83
LEAD	15	510	160	83	200	98
MERCURY	2	1.9	--	--	1.4	--
NICKEL	73	670	360	370	140	190
SELENIUM	50	33	10	6.5	7.3	--
ZINC	1100	750	1100	**3700**	620	920
INORGANICS FILTERED (ug/L)						
BERYLLIUM	4	--	**9.8**	--	--	--
CHROMIUM	100[3]	--	25	7.8	--	--
COPPER	1300	--	140	9.1	--	--
LEAD	15	--	**38**	--	--	--
NICKEL	73	71	**150**	69	35	44
ZINC	1100	--	380	960	92	--

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

(2) Maximum constituent concentration detected in sample SB-34.

(3) Chromium VI cleanup standard.

Shaded/bolded text indicates constituent concentration, above background, exceeding Maryland cleanup standards.

-- - Not detected

NA - Not analyzed/applicable.

MDE - Maryland Department of the Environment

ug/L - microgram per liter

J - Estimated value, less than quantitation limit.

TABLE A-10

SUBSURFACE SOIL ANALYTICAL RESULTS
REC #5 - FORMER AVIATION FUEL USTs
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	MDE Clean-up Standard[1]		SB-26-10	SB-27-10	SB-28-10	SB-29-10
LABORATORY ID:			03111913-03	03111913-01	03111913-02	03111913-05
SAMPLE DATE:	Non-Residential	Protection of Groundwater	11/17/2003	11/17/2003	11/17/2003	11/17/2003
LOCATION:			SB-26-10	SB-27-10	SB-28-10	SB-29-10
VOLATILE SOILS (ug/kg)						
2-BUTANONE (MEK)	120000000	7900	6 J	--	--	9 J
ACETONE	20000000	2500	48 J	29 J	14 J	45 J
METHYLENE CHLORIDE	760000	19	--	7 B	6 JB	--

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

-- - Not detected
MDE - Maryland Department of the Environment
ug/kg - microgram per kilogram
B - Constituent found in blank sample/ suspected lab artifact.
J - Estimated value, less than quantitation limit.

TABLE A-11

GROUNDWATER ANALYTICAL RESULTS
REC #5 - FORMER AVIATION FUEL USTs
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	MDE Groundwater Standards[1]	SB-29
LABORATORY ID:		03111913-04
SAMPLE DATE:		11/17/2003
LOCATION:		SB-29
VOLATILES (ug/L)		
1,2,4-TRIMETHYLBENZENE	NA	35
1,3,5-TRIMETHYLBENZENE	NA	14
2-BUTANONE (MEK)	190	7 J
ACETONE	61	56
BENZENE	5	2
ETHYLBENZENE	700	8
ISOPROPYLBENZENE	66	5
M&P-XYLENE	10000	30
NAPHTHALENE	10	6
N-PROPYLBENZENE	NA	6
O-XYLENE	10000	7
P-ISOPROPYLTOLUENE	NA	4
SEC-BUTYLBENZENE	NA	2
TOLUENE	1000	1
TOTAL PETROLEUM HYDROCARBONS (ug/L)		
GASOLINE RANGE ORGANICS	47	**500**

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).
Shaded/bolded text indicates constituent concentration, above background, exceeding Maryland cleanup standards.

-- - Not detected
NA - Not Applicable.
MDE - Maryland Department of the Environment
ug/L - microgram per liter
J - Estimated value, less than quantitation limit.

TABLE A-12

SUBSURFACE SOIL ANALYTICAL RESULTS
REC #6 - WATERFRONT LOT / PARKING LOT 6
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	MDE Clean-up Standard[1]			SB-30-05	SB-31-05	SB-32-05	SB-33-05
LABORATORY ID:				03111913-22	03111913-25	03112414-42	03112414-45
SAMPLE DATE:	Non-Residential	Protection of Groundwater	Site-Specific Background[2]	11/18/2003	11/18/2003	11/21/2003	11/21/2003
LOCATION:				SB-30-05	SB-31-05	SB-32-05	SB-33-05
VOLATILE SOILS (ug/kg)							
2-BUTANONE (MEK)	120000000	7900	NA	--	--	13 J	6 J
ACETONE	20000000	2500	NA	--	--	77	59 J
METHYLENE CHLORIDE	760000	19	NA	6 JB	5 JB	12 B	11 B
SEMIVOLATILE SOIL (ug/kg)							
ACENAPHTHENE	12000000	100000	NA	--	--	110 J	110 J
ANTHRACENE	61000000	470000	NA	--	--	84 J	260 J
BENZO(A)ANTHRACENE	7800	1500	NA	--	--	190 J	640
BENZO(A)PYRENE	780	370	NA	--	--	170 J	620
BENZO(B)FLUORANTHENE	7800	4500	NA	--	--	170 J	560
BENZO(G,H,I)PERYLENE	6100000	680000	NA	--	--	--	220 J
BENZO(K)FLUORANTHENE	78000	45000	NA	--	--	180 J	580
CARBAZOLE	290000	470	NA	--	--	--	120 J
CHRYSENE	780000	150000	NA	--	--	200 J	610
DIBENZOFURAN	820000	7700	NA	--	--	--	65 J
FLUORANTHENE	8200000	6300000	NA	--	--	430 J	1000
FLUORENE	8200000	140000	NA	--	--	83 J	150 J
INDENO(1,2,3-CD)PYRENE	7800	13000	NA	--	--	79 J	--
NAPHTHALENE	4100000	330	NA	--	--	95 J	--
PHENANTHRENE	61000000	470000	NA	--	--	380 J	910
PYRENE	6100000	680000	NA	--	--	450	1000
TOTAL PETROLEUM HYDROCARBONS (mg/kg)							
DIESEL AND RESIDUAL RANGE ORGANICS	620	NA	NA	--	--	43	--

TABLE A-12

SUBSURFACE SOIL ANALYTICAL RESULTS
REC #6 - WATERFRONT LOT / PARKING LOT 6
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID:	MDE Clean-up Standard[1]			SB-30-05	SB-31-05	SB-32-05	SB-33-05
LABORATORY ID:				03111913-22	03111913-25	03112414-42	03112414-45
SAMPLE DATE:	Non-Residential	Protection of Groundwater	Site-Specific Background[2]	11/18/2003	11/18/2003	11/21/2003	11/21/2003
LOCATION:				SB-30-05	SB-31-05	SB-32-05	SB-33-05
INORGANICS (mg/kg)							
ARSENIC	3.8	NA	1.7	0.99	--	2.5	**4.9**
BERYLLIUM	410	NA	--	3.2	4.9	--	--
CHROMIUM	610[3]	NA	12	19	27	18	23
COPPER	8200	NA	4.8	21	22	33	54
LEAD	400	NA	--	7.4	24	68	120
MERCURY	0.12	NA	--	--	--	**0.3**	**0.3**
NICKEL	4100	NA	--	33	46	22	23
SELENIUM	1000	NA	--	4.4	11	--	--
ZINC	61000	NA	--	--	130	140	180

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

(2) Maximum constituent concentration detected in samples SB-34-05 and SB-34-10.

(3) Chromium VI cleanup standard.

Shaded/bolded text indicates constituent concentration, *above background*, *exceeding* Maryland soil cleanup standards.

-- - Not detected

NA - Not analyzed/applicable.

MDE - Maryland Department of the Environment

ug/kg - microgram per kilogram

mg/kg - milligram per kilogram

B - Constituent found in blank sample/ suspected lab artifact.

J - Estimated value, less than quantitation limit.

TABLE A-13

GROUNDWATER ANALYTICAL RESULTS
REC #6 - WATERFRONT LOT / PARKING LOT 6
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

SAMPLE ID: LABORATORY ID: SAMPLE DATE: LOCATION:	MDE Groundwater Standards[1]	Site-Specific Background[2]	SB-30 03111913-23 11/18/2003 SB-30	SB-31 03111913-26 11/18/2003 SB-31	SB-32 03112414-43 11/21/2003 SB-32	SB-33 03112414-46 11/21/2003 SB-33
VOLATILES (ug/L)						
CIS-1,2-DICHLOROETHENE	70	NA	--	1	--	--
TRICHLOROETHENE	5	NA	--	**1**	--	--
SEMIVOLATILES (ug/L)						
DI-N-BUTYL PHTHALATE	370	NA	3 J	2 J	--	--
PCBs (ug/L)						
AROCLOR-1254	0.5	NA	--	--	**2**	**6**
INORGANICS (ug/L)						
BERYLLIUM	4	26	27	34	17	9.4
CHROMIUM	100[3]	1000	--	310	99	27
COPPER	1300	820	11	420	110	160
LEAD	15	510	--	63	57	16
NICKEL	73	670	230	550	170	120
SELENIUM	50	33	--	6.4	6.1	--
ZINC	1100	750	460	890	360	280
FILTERED INORGANICS (ug/L)						
BERYLLIUM	4	--	**10**	--	**5.0**	**5.1**
CHROMIUM	100[3]	--	--	--	5.6	--
COPPER	1300	--	--	11	9.2	44
LEAD	15	--	--	--	5.7	--
NICKEL	73	71	**160**	**210**	**120**	**80**
ZINC	1100	--	340	220	220	180

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

(2) Maximum constituent concentration detected in sample SB-34.

(3) Chromium VI cleanup standard.

Shaded/bolded text indicates constituent concentration, above background, exceeding Maryland cleanup standards.

-- - Not detected

NA - Not Analyzed.

MDE - Maryland Department of the Environment

ug/L - microgram per liter

J - Estimated value, less than quantitation limit.

TABLE A-14

GROUNDWATER ANALYTICAL RESULTS
REC #7 - EXISTING MONITORING WELLS
MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

		Power House Tank Field				Building L Tank Field
SAMPLE ID:		MW-01	MW-02	MW-03	MW-05	MW-04
LABORATORY ID:	MDE	03120204-06	03120204-04	03120204-03	03120204-05	03120204-01
SAMPLE DATE:	Groundwater	12/1/2003	12/1/2003	12/1/2003	12/1/2003	12/1/2003
LOCATION:	Standards[1]	MW-01	MW-02	MW-03	MW-05	MW-04
VOLATILES (ug/L)						
BENZENE	5	--	--	--	**420**	**120**
ETHYLBENZENE	700	--	--	--	280	150
TOLUENE	1000	--	--	--	18	37
TOTAL XYLENES	10000	--	--	--	100	890
NAPHTHALENE	10	2	--	--	**21**	**140**
TOTAL PETROLEUM HYDROCARBONS (ug/L)						
GASOLINE RANGE ORGANICS	47	NA	NA	NA	NA	**9800**

(1) Interium Final Guidance (Update No. 1), Cleanup Standards for Soil and Groundwater (Aug 2001).

Shaded/bolded text indicates constituent concentration, above background, exceeding Maryland cleanup standards.

-- - Not detected

NA - Not Analyzed.

MDE - Maryland Department of the Environment

ug/L - microgram per liter

VOLUME II OF II

FINAL REPORT
PHASE II SITE INVESTIGATION OF EXTERIOR AREAS
LOCKHEED MARTIN MIDDLE RIVER COMPLEX

2323 Eastern Boulevard
Middle River, Maryland

LOCKHEED MARTIN

Tetra Tech
Environmental Engineers & Scientists
TC#13724-02

APPENDIX E

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

LABORATORY RESULTS

DATE RECEIVED: November 19, 2003

PROJECT: Soil & GW Investigation

Project #: N1605/0000

CERTIFICATE OF ANALYSIS #: *03111913*

PREPARED FOR:

Tetra Tech, Inc.
10670 White Rock Rd., Ste. 100
Rancho Cordova, CA 95670

December 4, 2003

6630 Baltimore National Pike Baltimore, Maryland 21228 (410) 747-8770 (800) 932-9047 fax (410) 788-8723

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

LABORATORY RESULTS

DATE RECEIVED: November 19, 2003

PROJECT: Soil & GW Investigation

Project #: N1605/0000

CERTIFICATE OF ANALYSIS #: *03111913*

PREPARED FOR:

Tetra Tech, Inc.
10670 White Rock Rd., Ste. 100
Rancho Cordova, CA 95670

December 4, 2003

6630 Baltimore National Pike Baltimore, Maryland 21228 (410) 747-8770 (800) 932-9047 fax (410) 788-8723

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

CERTIFICATE OF ANALYSIS
No. 03111913 Page 1 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-27 / 03111913-01						
Percent Solids						
Percent Solids	**75**		Gravimetry			11/25/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/20/2003
TFT (SURR)	**102**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	7		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	7		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	7		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003

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No. 03111913 Page 2 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-27 / 03111913-01						
Volatile Organic Compounds						
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		11/20/2003
Methylene chloride	**b 7**	ug/kg	EPA 8260	7		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	7		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Styrene	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
Toluene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	7		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	20		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	67		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	67		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	67		11/20/2003
Acetone	**j 29**	ug/kg	EPA 8260	67		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-27 / 03111913-01						
Volatile Organic Compounds						
Toluene d-8 (SURR)	**102**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**99**	%	EPA 8260			11/20/2003

Reviewed By: Matt Oakes
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-28 / 03111913-02						
Percent Solids						
Percent Solids	**77**		Gravimetry			11/25/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/20/2003
TFT (SURR)	**102**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-28 / 03111913-02						
Volatile Organic Compounds						
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	**j, b 6**	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	19		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	19		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	65		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	65		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	65		11/20/2003
Acetone	**j 14**	ug/kg	EPA 8260	65		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-28 / 03111913-02						
Volatile Organic Compounds						
Toluene d-8 (SURR)	**102**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**99**	%	EPA 8260			11/20/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
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No. 03111913 Page 59 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 25 Water / 03111913-16						
Semi-Volatile Organic Compounds						
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Naphthalene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Caprolactam	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorocyclopentadiene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acenaphthylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3-Nitroaniline	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Acenaphthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
4-Nitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Dibenzofuran	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Diethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Fluorene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Atrazine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pentachlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Phenanthrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Carbazole	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-butyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 25 Water / 03111913-16						
Semi-Volatile Organic Compounds						
Fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Chrysene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Fluorophenol (ASURR)	**60**	%	EPA 8270		11/21/2003	11/24/2003
Phenol d-6 (ASURR)	**65**	%	EPA 8270		11/21/2003	11/24/2003
Nitrobenzene d-5 (BNSURR)	**65**	%	EPA 8270		11/21/2003	11/24/2003
2-Fluorobiphenyl (BNSURR)	**77**	%	EPA 8270		11/21/2003	11/24/2003
2,4,6-Tribromophenol (ASURR)	**75**	%	EPA 8270		11/21/2003	11/24/2003
Terphenyl d-16 (BNSURR)	**91**	%	EPA 8270		11/21/2003	11/24/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	11/21/2003	11/22/2003
o-Terphenyl (DRO SURR)	**83**	%	EPA 8015B-M		11/21/2003	11/22/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/20/2003
TFT (SURR)	**96**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromoform	ND	ug/L	EPA 8260	1		11/20/2003
Bromomethane	ND	ug/L	EPA 8260	1		11/20/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 25 Water / 03111913-16						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/L	EPA 8260	1		11/20/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Chloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Chloroform	ND	ug/L	EPA 8260	1		11/20/2003
Chloromethane	ND	ug/L	EPA 8260	1		11/20/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromoethane	ND	ug/L	EPA 8260	1		11/20/2003
Dibromomethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
cis-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		11/20/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		11/20/2003
Methylene chloride	ND	ug/L	EPA 8260	1		11/20/2003
Naphthalene	ND	ug/L	EPA 8260	1		11/20/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Styrene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Tetrachloroethene	ND	ug/L	EPA 8260	1		11/20/2003
Toluene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 25 Water / 03111913-16						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Trichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		11/20/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
o-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		11/20/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		11/20/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		11/20/2003
Acetone	ND	ug/L	EPA 8260	10		11/20/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		11/20/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromofluoromethane (SURR)	**96**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**95**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**103**	%	EPA 8260			11/20/2003

Reviewed By: Matt Cohee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 25 Water Dis. / 03111913-17						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**44**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	ND	ug/L	EPA 6020	50	11/20/2003	12/2/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-05 / 03111913-18						
Percent Solids						
Percent Solids	**84**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**106**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Arsenic	**1.5**	mg/kg	EPA 6020	0.59	12/1/2003	12/1/2003
Beryllium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Chromium	**5.3**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Copper	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Lead	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**3.6**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Selenium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.4	12/1/2003	12/1/2003
Zinc	ND	mg/kg	EPA 6020	59	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-05 / 03111913-18						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	910	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-05 / 03111913-18						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**53**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**59**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**64**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**71**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**75**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**87**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	24	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**96**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**103**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-05 / 03111913-18						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	**j, b 6**	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913 Page 68 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-05 / 03111913-18						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	59		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	59		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	59		11/20/2003
Acetone	**j 16**	ug/kg	EPA 8260	59		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**100**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**104**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**98**	%	EPA 8260			11/20/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-10 / 03111913-19						
Percent Solids						
Percent Solids	**86**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**102**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	2.9	12/2/2003	12/3/2003
Arsenic	**1.0**	mg/kg	EPA 6020	0.58	12/1/2003	12/1/2003
Beryllium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Chromium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Copper	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Lead	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Selenium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	2.9	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.3	12/1/2003	12/1/2003
Zinc	ND	mg/kg	EPA 6020	58	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003

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CERTIFICATE OF ANALYSIS
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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-10 / 03111913-19						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	970	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	970	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	970	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	970	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	970	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	970	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	890	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	970	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-10 / 03111913-19						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**59**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**65**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**65**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**75**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**77**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**89**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	23	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**95**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**103**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-10 / 03111913-19						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	**j, b 5**	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-23-10 / 03111913-19						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	17		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	17		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	58		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	58		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	58		11/20/2003
Acetone	**j 9**	ug/kg	EPA 8260	58		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**100**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**102**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**100**	%	EPA 8260			11/20/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 23 Water / 03111913-20						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**105**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	**5.2**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	**13**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	**270**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**250**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	**83**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**370**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	**6.5**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**3,700**	ug/L	EPA 6020	50	11/20/2003	12/2/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acetophenone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachloroethane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Nitrobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Isophorone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitrophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 23 Water / 03111913-20						
Semi-Volatile Organic Compounds						
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Naphthalene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Caprolactam	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorocyclopentadiene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acenaphthylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3-Nitroaniline	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Acenaphthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
4-Nitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Dibenzofuran	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Diethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Fluorene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Atrazine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pentachlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Phenanthrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Carbazole	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-butyl phthalate	**j 2**	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 23 Water / 03111913-20						
Semi-Volatile Organic Compounds						
Fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Chrysene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Fluorophenol (ASURR)	**60**	%	EPA 8270		11/21/2003	11/24/2003
Phenol d-6 (ASURR)	**65**	%	EPA 8270		11/21/2003	11/24/2003
Nitrobenzene d-5 (BNSURR)	**62**	%	EPA 8270		11/21/2003	11/24/2003
2-Fluorobiphenyl (BNSURR)	**72**	%	EPA 8270		11/21/2003	11/24/2003
2,4,6-Tribromophenol (ASURR)	**78**	%	EPA 8270		11/21/2003	11/24/2003
Terphenyl d-16 (BNSURR)	**86**	%	EPA 8270		11/21/2003	11/24/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	11/21/2003	11/22/2003
o-Terphenyl (DRO SURR)	**79**	%	EPA 8015B-M		11/21/2003	11/22/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/20/2003
TFT (SURR)	**97**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromoform	ND	ug/L	EPA 8260	1		11/20/2003
Bromomethane	ND	ug/L	EPA 8260	1		11/20/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 23 Water / 03111913-20						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/L	EPA 8260	1		11/20/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Chloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Chloroform	ND	ug/L	EPA 8260	1		11/20/2003
Chloromethane	ND	ug/L	EPA 8260	1		11/20/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromoethane	ND	ug/L	EPA 8260	1		11/20/2003
Dibromomethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
cis-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		11/20/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		11/20/2003
Methylene chloride	ND	ug/L	EPA 8260	1		11/20/2003
Naphthalene	ND	ug/L	EPA 8260	1		11/20/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Styrene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Tetrachloroethene	ND	ug/L	EPA 8260	1		11/20/2003
Toluene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 23 Water / 03111913-20						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Trichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		11/20/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
o-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
Methyl-t-butyl ether	**2**	ug/L	EPA 8260	1		11/20/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		11/20/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		11/20/2003
Acetone	ND	ug/L	EPA 8260	10		11/20/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		11/20/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**97**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**103**	%	EPA 8260			11/20/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 23 Water Dis. / 03111913-21						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	**7.8**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**9.1**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**69**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**960**	ug/L	EPA 6020	50	11/20/2003	12/2/2003

Reviewed By: Matt Ochu
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-30-05 / 03111913-22						
Percent Solids						
Percent Solids	**87**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.058	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**101**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	2.9	12/2/2003	12/3/2003
Arsenic	**0.99**	mg/kg	EPA 6020	0.58	12/1/2003	12/1/2003
Beryllium	**3.2**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Chromium	**19**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Copper	**21**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Lead	**7.4**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**33**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Selenium	**4.4**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	2.9	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.3	12/1/2003	12/1/2003
Zinc	ND	mg/kg	EPA 6020	58	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913 Page 81 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-30-05 / 03111913-22						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	960	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	960	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	960	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	960	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	960	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	960	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	880	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	960	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-30-05 / 03111913-22						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	380	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**57**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**64**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**66**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**76**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**79**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**88**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	23	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**76**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**101**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-30-05 / 03111913-22						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	**j, b 6**	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-30-05 / 03111913-22						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	17		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	17		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	58		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	58		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	58		11/20/2003
Acetone	ND	ug/kg	EPA 8260	58		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**102**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**100**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**98**	%	EPA 8260			11/20/2003

Reviewed By: Matt Colee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 30 Water / 03111913-23						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**94**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	**27**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**11**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**230**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**460**	ug/L	EPA 6020	50	11/20/2003	12/2/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acetophenone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachloroethane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Nitrobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Isophorone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitrophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 30 Water / 03111913-23						
Semi-Volatile Organic Compounds						
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Naphthalene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Caprolactam	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorocyclopentadiene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acenaphthylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3-Nitroaniline	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Acenaphthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
4-Nitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Dibenzofuran	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Diethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Fluorene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Atrazine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pentachlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Phenanthrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Carbazole	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-butyl phthalate	**j 3**	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 30 Water / 03111913-23						
Semi-Volatile Organic Compounds						
Fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Chrysene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Fluorophenol (ASURR)	**56**	%	EPA 8270		11/21/2003	11/24/2003
Phenol d-6 (ASURR)	**62**	%	EPA 8270		11/21/2003	11/24/2003
Nitrobenzene d-5 (BNSURR)	**60**	%	EPA 8270		11/21/2003	11/24/2003
2-Fluorobiphenyl (BNSURR)	**70**	%	EPA 8270		11/21/2003	11/24/2003
2,4,6-Tribromophenol (ASURR)	**74**	%	EPA 8270		11/21/2003	11/24/2003
Terphenyl d-16 (BNSURR)	**87**	%	EPA 8270		11/21/2003	11/24/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	11/21/2003	11/22/2003
o-Terphenyl (DRO SURR)	**83**	%	EPA 8015B-M		11/21/2003	11/22/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/20/2003
TFT (SURR)	**96**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromoform	ND	ug/L	EPA 8260	1		11/20/2003
Bromomethane	ND	ug/L	EPA 8260	1		11/20/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003

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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 30 Water / 03111913-23						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/L	EPA 8260	1		11/20/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Chloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Chloroform	ND	ug/L	EPA 8260	1		11/20/2003
Chloromethane	ND	ug/L	EPA 8260	1		11/20/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromoethane	ND	ug/L	EPA 8260	1		11/20/2003
Dibromomethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
cis-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		11/20/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		11/20/2003
Methylene chloride	ND	ug/L	EPA 8260	1		11/20/2003
Naphthalene	ND	ug/L	EPA 8260	1		11/20/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Styrene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Tetrachloroethene	ND	ug/L	EPA 8260	1		11/20/2003
Toluene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 30 Water / 03111913-23						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Trichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		11/20/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
o-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		11/20/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		11/20/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		11/20/2003
Acetone	ND	ug/L	EPA 8260	10		11/20/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		11/20/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**96**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**101**	%	EPA 8260			11/20/2003

Reviewed By: Matt Coker
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.

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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 30 Water Dis. / 03111913-24						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	**19**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**160**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**340**	ug/L	EPA 6020	50	11/20/2003	12/2/2003

Reviewed By: Matt Oakes
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-31-05 / 03111913-25						
Percent Solids						
Percent Solids	**84**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**108**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Arsenic	ND	mg/kg	EPA 6020	0.59	12/1/2003	12/1/2003
Beryllium	**4.9**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Chromium	**27**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Copper	**22**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Lead	**24**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**46**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Selenium	**11**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.4	12/1/2003	12/1/2003
Zinc	**130**	mg/kg	EPA 6020	59	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003

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Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-31-05 / 03111913-25						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	910	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003

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Site Location: Middle River Complex
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Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-31-05 / 03111913-25						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**58**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**64**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**67**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**77**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**76**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**87**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	24	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**89**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**99**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-31-05 / 03111913-25						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	**j, b 5**	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-31-05 / 03111913-25						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	59		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	59		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	59		11/20/2003
Acetone	ND	ug/kg	EPA 8260	59		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**102**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**102**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**100**	%	EPA 8260			11/20/2003

Reviewed By: Matt Coker
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 31 Water / 03111913-26						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**119**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	**34**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	**310**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**420**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	**63**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**550**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	**6.4**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**690**	ug/L	EPA 6020	50	11/20/2003	12/2/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acetophenone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachloroethane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Nitrobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Isophorone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitrophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 31 Water / 03111913-26						
Semi-Volatile Organic Compounds						
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Naphthalene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Caprolactam	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorocyclopentadiene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acenaphthylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3-Nitroaniline	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Acenaphthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
4-Nitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Dibenzofuran	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Diethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Fluorene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Atrazine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pentachlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Phenanthrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Carbazole	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-butyl phthalate	j 2	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 31 Water / 03111913-26						
Semi-Volatile Organic Compounds						
Fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Chrysene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Fluorophenol (ASURR)	**57**	%	EPA 8270		11/21/2003	11/24/2003
Phenol d-6 (ASURR)	**62**	%	EPA 8270		11/21/2003	11/24/2003
Nitrobenzene d-5 (BNSURR)	**59**	%	EPA 8270		11/21/2003	11/24/2003
2-Fluorobiphenyl (BNSURR)	**68**	%	EPA 8270		11/21/2003	11/24/2003
2,4,6-Tribromophenol (ASURR)	**69**	%	EPA 8270		11/21/2003	11/24/2003
Terphenyl d-16 (BNSURR)	**93**	%	EPA 8270		11/21/2003	11/24/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	11/21/2003	11/22/2003
o-Terphenyl (DRO SURR)	**81**	%	EPA 8015B-M		11/21/2003	11/22/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/20/2003
TFT (SURR)	**96**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromoform	ND	ug/L	EPA 8260	1		11/20/2003
Bromomethane	ND	ug/L	EPA 8260	1		11/20/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 31 Water / 03111913-26						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/L	EPA 8260	1		11/20/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Chloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Chloroform	ND	ug/L	EPA 8260	1		11/20/2003
Chloromethane	ND	ug/L	EPA 8260	1		11/20/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromoethane	ND	ug/L	EPA 8260	1		11/20/2003
Dibromomethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
cis-1,2-Dichloroethene	1	ug/L	EPA 8260	1		11/20/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		11/20/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		11/20/2003
Methylene chloride	ND	ug/L	EPA 8260	1		11/20/2003
Naphthalene	ND	ug/L	EPA 8260	1		11/20/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Styrene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Tetrachloroethene	ND	ug/L	EPA 8260	1		11/20/2003
Toluene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 31 Water / 03111913-26						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Trichloroethene	**17**	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		11/20/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
o-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		11/20/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		11/20/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		11/20/2003
Acetone	ND	ug/L	EPA 8260	10		11/20/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		11/20/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromofluoromethane (SURR)	**97**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**97**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**99**	%	EPA 8260			11/20/2003

Reviewed By: Matt Colee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 31 Water Dis. / 03111913-27						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**11**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**210**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**220**	ug/L	EPA 6020	50	11/20/2003	12/2/2003

Reviewed By: Matt Cohen
Quality Assurance Chemist

Notes/Comments:
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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-9-05 / 03111913-28						
Percent Solids						
Percent Solids	**77**		Gravimetry			11/25/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/20/2003
Toluene	**2**	ug/kg	EPA 8021B	1		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/20/2003
Total Xylenes	**10**	ug/kg	EPA 8021B	1		11/20/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/20/2003
TFT (SURR)	**94**	%	EPA 8021B			11/20/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	26	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**89**	%	EPA 8015B-M		12/3/2003	12/3/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 9 Water / 03111913-29						
Purgeable Aromatics						
Benzene	**21**	ug/L	EPA 8021B	1		11/20/2003
Toluene	**76**	ug/L	EPA 8021B	1		11/20/2003
Ethylbenzene	**13**	ug/L	EPA 8021B	1		11/20/2003
Total Xylenes	**120**	ug/L	EPA 8021B	1		11/20/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/20/2003
TFT (SURR)	**86**	%	EPA 8021B			11/20/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	11/21/2003	11/22/2003
o-Terphenyl (DRO SURR)	**85**	%	EPA 8015B-M		11/21/2003	11/22/2003

Reviewed By: Matt Oehrle
Quality Assurance Chemist

Notes/Comments:
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ND - Not Detected at a concentration greater than or equal to the PQL.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-10-05 / 03111913-31						
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/20/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/20/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/20/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/20/2003
TFT (SURR)	**96**	%	EPA 8021B			11/20/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	20	12/3/2003	12/4/2003
o-Terphenyl (DRO SURR)	**114**	%	EPA 8015B-M		12/3/2003	12/4/2003

Reviewed By: Matt Oline
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/18/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 10 Water / 03111913-32						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/20/2003
Toluene	ND	ug/L	EPA 8021B	1		11/20/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/20/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/20/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/20/2003
TFT (SURR)	**84**	%	EPA 8021B			11/20/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	11/21/2003	11/22/2003
o-Terphenyl (DRO SURR)	**75**	%	EPA 8015B-M		11/21/2003	11/22/2003

Reviewed By: Matt Cohee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-26 / 03111913-03						
Percent Solids						
Percent Solids	**77**		Gravimetry			11/25/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/20/2003
TFT (SURR)	**103**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	7		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	7		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	7		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-26 / 03111913-03						
Volatile Organic Compounds						
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		11/20/2003
Methylene chloride	ND	ug/kg	EPA 8260	7		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	7		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Styrene	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
Toluene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	7		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	20		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		11/20/2003
2-Butanone (MEK)	**j 6**	ug/kg	EPA 8260	65		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	65		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	65		11/20/2003
Acetone	**j 48**	ug/kg	EPA 8260	65		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromofluoromethane (SURR)	**90**	%	EPA 8260			11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-26 / 03111913-03						
Volatile Organic Compounds						
Toluene d-8 (SURR)	**100**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**100**	%	EPA 8260			11/20/2003

Reviewed By: Matt Ochee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 29 Water / 03111913-04						
Total Petroleum Hydrocarbons						
Gasoline Range Organics	**1,500**	ug/L	EPA 8015B	100		11/20/2003
TFT (SURR)	**96**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	**2**	ug/L	EPA 8260	1		11/20/2003
Bromobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromoform	ND	ug/L	EPA 8260	1		11/20/2003
Bromomethane	ND	ug/L	EPA 8260	1		11/20/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
sec-Butylbenzene	**2**	ug/L	EPA 8260	1		11/20/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Carbon tetrachloride	ND	ug/L	EPA 8260	1		11/20/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Chloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Chloroform	ND	ug/L	EPA 8260	1		11/20/2003
Chloromethane	ND	ug/L	EPA 8260	1		11/20/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromoethane	ND	ug/L	EPA 8260	1		11/20/2003
Dibromomethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
cis-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 29 Water / 03111913-04						
Volatile Organic Compounds						
Ethylbenzene	**8**	ug/L	EPA 8260	1		11/20/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		11/20/2003
Isopropylbenzene	**5**	ug/L	EPA 8260	1		11/20/2003
p-Isopropyltoluene	**4**	ug/L	EPA 8260	1		11/20/2003
Methylene chloride	ND	ug/L	EPA 8260	1		11/20/2003
Naphthalene	**6**	ug/L	EPA 8260	1		11/20/2003
n-Propylbenzene	**6**	ug/L	EPA 8260	1		11/20/2003
Styrene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Tetrachloroethene	ND	ug/L	EPA 8260	1		11/20/2003
Toluene	**1**	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Trichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2,4-Trimethylbenzene	**35**	ug/L	EPA 8260	1		11/20/2003
1,3,5-Trimethylbenzene	**14**	ug/L	EPA 8260	1		11/20/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		11/20/2003
m&p-Xylene	**30**	ug/L	EPA 8260	3		11/20/2003
o-Xylene	**7**	ug/L	EPA 8260	3		11/20/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		11/20/2003
2-Butanone (MEK)	**j 7**	ug/L	EPA 8260	10		11/20/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		11/20/2003
Acetone	**56**	ug/L	EPA 8260	10		11/20/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		11/20/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromofluoromethane (SURR)	**98**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**99**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**104**	%	EPA 8260			11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 29 Water / 03111913-04						

Reviewed By: Matt Cohen
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.

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No. 03111913 Page 13 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-29 / 03111913-05						
Percent Solids						
Percent Solids	**76**		Gravimetry			11/25/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/20/2003
TFT (SURR)	**107**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	7		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	7		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	7		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003

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No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-29 / 03111913-05						
Volatile Organic Compounds						
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		11/20/2003
Methylene chloride	ND	ug/kg	EPA 8260	7		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	7		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Styrene	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
Toluene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	7		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	20		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		11/20/2003
2-Butanone (MEK)	**j 9**	ug/kg	EPA 8260	66		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	66		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	66		11/20/2003
Acetone	**j 45**	ug/kg	EPA 8260	66		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		11/20/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913 Page 15 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-29 / 03111913-05						
Volatile Organic Compounds						
Toluene d-8 (SURR)	**102**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**99**	%	EPA 8260			11/20/2003

Reviewed By: Matt Cokee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-05 / 03111913-06						
Percent Solids						
Percent Solids	**83**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.06	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.06	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.06	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.06	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.06	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.06	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.06	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**98**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Arsenic	**2.9**	mg/kg	EPA 6020	0.6	12/1/2003	12/1/2003
Beryllium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Chromium	**13**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Copper	**10**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Lead	**10**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**8.9**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Selenium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.4	12/1/2003	12/1/2003
Zinc	ND	mg/kg	EPA 6020	60	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 17 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-05 / 03111913-06						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	920	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913 Page 18 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-05 / 03111913-06						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**61**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**68**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**70**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**81**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**84**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**97**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	24	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**102**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**101**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-05 / 03111913-06						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	ND	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-05 / 03111913-06						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	60		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	60		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	60		11/20/2003
Acetone	**j 40**	ug/kg	EPA 8260	60		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**100**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**102**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**98**	%	EPA 8260			11/20/2003

Reviewed By: Matt Cohen
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-10 / 03111913-07						
Percent Solids						
Percent Solids	**85**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**95**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	2.9	12/2/2003	12/3/2003
Arsenic	**2.7**	mg/kg	EPA 6020	0.59	12/1/2003	12/1/2003
Beryllium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Chromium	**16**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Copper	**13**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Lead	**6.0**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**14**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Selenium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	2.9	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.3	12/1/2003	12/1/2003
Zinc	ND	mg/kg	EPA 6020	59	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-10 / 03111913-07						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	900	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-10 / 03111913-07						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**56**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**61**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**61**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**72**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**75**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**90**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	23	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**60**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**101**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-10 / 03111913-07						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	**j, b 5**	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 25 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-22-10 / 03111913-07						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	59		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	59		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	59		11/20/2003
Acetone	**j 11**	ug/kg	EPA 8260	59		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**101**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**101**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**99**	%	EPA 8260			11/20/2003

Reviewed By: Matt Colee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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No. 03111913 Page 26 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 22 Water / 03111913-08						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**81**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	**49**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	**150**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**660**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	**160**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**360**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	**10**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**1,100**	ug/L	EPA 6020	50	11/20/2003	12/2/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acetophenone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachloroethane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Nitrobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Isophorone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitrophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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No. 03111913 Page 27 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 22 Water / 03111913-08						
Semi-Volatile Organic Compounds						
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Naphthalene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Caprolactam	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorocyclopentadiene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acenaphthylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3-Nitroaniline	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Acenaphthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
4-Nitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Dibenzofuran	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Diethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Fluorene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Atrazine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pentachlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Phenanthrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Carbazole	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-butyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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No. 03111913 Page 28 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 22 Water / 03111913-08						
Semi-Volatile Organic Compounds						
Fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Chrysene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Fluorophenol (ASURR)	**59**	%	EPA 8270		11/21/2003	11/24/2003
Phenol d-6 (ASURR)	**64**	%	EPA 8270		11/21/2003	11/24/2003
Nitrobenzene d-5 (BNSURR)	**64**	%	EPA 8270		11/21/2003	11/24/2003
2-Fluorobiphenyl (BNSURR)	**72**	%	EPA 8270		11/21/2003	11/24/2003
2,4,6-Tribromophenol (ASURR)	**78**	%	EPA 8270		11/21/2003	11/24/2003
Terphenyl d-16 (BNSURR)	**87**	%	EPA 8270		11/21/2003	11/24/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	11/21/2003	11/22/2003
o-Terphenyl (DRO SURR)	**85**	%	EPA 8015B-M		11/21/2003	11/22/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/20/2003
TFT (SURR)	**97**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromoform	ND	ug/L	EPA 8260	1		11/20/2003
Bromomethane	ND	ug/L	EPA 8260	1		11/20/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003

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No. 03111913
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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 22 Water / 03111913-08						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/L	EPA 8260	1		11/20/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Chloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Chloroform	ND	ug/L	EPA 8260	1		11/20/2003
Chloromethane	ND	ug/L	EPA 8260	1		11/20/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromoethane	ND	ug/L	EPA 8260	1		11/20/2003
Dibromomethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
cis-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		11/20/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		11/20/2003
Methylene chloride	ND	ug/L	EPA 8260	1		11/20/2003
Naphthalene	1	ug/L	EPA 8260	1		11/20/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Styrene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Tetrachloroethene	ND	ug/L	EPA 8260	1		11/20/2003
Toluene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 22 Water / 03111913-08						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Trichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		11/20/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
o-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		11/20/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		11/20/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		11/20/2003
Acetone	ND	ug/L	EPA 8260	10		11/20/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		11/20/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**97**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**102**	%	EPA 8260			11/20/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 22 Water Dis. / 03111913-09						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	**9.5**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	**25**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**140**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	**32**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**170**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**380**	ug/L	EPA 6020	50	11/20/2003	12/2/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-05 / 03111913-10						
Percent Solids						
Percent Solids	**80**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.062	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.062	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.062	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.062	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.062	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.062	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.062	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**100**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.1	12/2/2003	12/3/2003
Arsenic	**3.5**	mg/kg	EPA 6020	0.62	12/1/2003	12/1/2003
Beryllium	ND	mg/kg	EPA 6020	3.1	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	3.1	12/1/2003	12/1/2003
Chromium	**13**	mg/kg	EPA 6020	3.1	12/1/2003	12/1/2003
Copper	**28**	mg/kg	EPA 6020	3.1	12/1/2003	12/1/2003
Lead	**46**	mg/kg	EPA 6020	3.1	12/1/2003	12/1/2003
Mercury	**0.94**	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**12**	mg/kg	EPA 6020	3.1	12/1/2003	12/1/2003
Selenium	ND	mg/kg	EPA 6020	3.1	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	3.1	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.5	12/1/2003	12/1/2003
Zinc	**100**	mg/kg	EPA 6020	62	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-05 / 03111913-10						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	960	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1000	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913 Page 34 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-05 / 03111913-10						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	420	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**57**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**63**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**67**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**78**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**83**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**87**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	25	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**88**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**101**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-05 / 03111913-10						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	ND	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 36 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-05 / 03111913-10						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	19		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	19		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	62		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	62		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	62		11/20/2003
Acetone	**j 28**	ug/kg	EPA 8260	62		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**100**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**102**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**102**	%	EPA 8260			11/20/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-10 / 03111913-11						
Percent Solids						
Percent Solids	**84**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**87**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Arsenic	**2.3**	mg/kg	EPA 6020	0.59	12/1/2003	12/1/2003
Beryllium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Chromium	**12**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Copper	**7.8**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Lead	**12**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Mercury	**0.17**	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**6.7**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Selenium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.4	12/1/2003	12/1/2003
Zinc	ND	mg/kg	EPA 6020	59	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913 Page 38 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-10 / 03111913-11						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	910	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 39 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-10 / 03111913-11						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**60**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**66**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**59**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**68**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**75**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**88**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	24	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**92**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**98**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 40 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-10 / 03111913-11						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	ND	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 41 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-24-10 / 03111913-11						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	59		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	59		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	59		11/20/2003
Acetone	**j 27**	ug/kg	EPA 8260	59		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**100**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**101**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**99**	%	EPA 8260			11/20/2003

Reviewed By: Matt Cohen
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 24 Water / 03111913-12						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**90**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	**18**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	**82**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**92**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	**200**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	**1.4**	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**140**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	**7.3**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**620**	ug/L	EPA 6020	50	11/20/2003	12/2/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acetophenone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachloroethane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Nitrobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Isophorone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitrophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 43 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 24 Water / 03111913-12						
Semi-Volatile Organic Compounds						
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Naphthalene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Caprolactam	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorocyclopentadiene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acenaphthylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3-Nitroaniline	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Acenaphthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
4-Nitrophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Dibenzofuran	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Diethyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Fluorene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Nitroaniline	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Atrazine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pentachlorophenol	ND	ug/L	EPA 8270	25	11/21/2003	11/24/2003
Phenanthrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Carbazole	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-butyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 24 Water / 03111913-12						
Semi-Volatile Organic Compounds						
Fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Chrysene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Fluorophenol (ASURR)	**57**	%	EPA 8270		11/21/2003	11/24/2003
Phenol d-6 (ASURR)	**64**	%	EPA 8270		11/21/2003	11/24/2003
Nitrobenzene d-5 (BNSURR)	**64**	%	EPA 8270		11/21/2003	11/24/2003
2-Fluorobiphenyl (BNSURR)	**74**	%	EPA 8270		11/21/2003	11/24/2003
2,4,6-Tribromophenol (ASURR)	**77**	%	EPA 8270		11/21/2003	11/24/2003
Terphenyl d-16 (BNSURR)	**88**	%	EPA 8270		11/21/2003	11/24/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	11/21/2003	11/22/2003
o-Terphenyl (DRO SURR)	**90**	%	EPA 8015B-M		11/21/2003	11/22/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/20/2003
TFT (SURR)	**97**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		11/20/2003
Bromoform	ND	ug/L	EPA 8260	1		11/20/2003
Bromomethane	ND	ug/L	EPA 8260	1		11/20/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 24 Water / 03111913-12						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/L	EPA 8260	1		11/20/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Chloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Chloroform	ND	ug/L	EPA 8260	1		11/20/2003
Chloromethane	ND	ug/L	EPA 8260	1		11/20/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dibromoethane	ND	ug/L	EPA 8260	1		11/20/2003
Dibromomethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
cis-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		11/20/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		11/20/2003
Methylene chloride	ND	ug/L	EPA 8260	1		11/20/2003
Naphthalene	ND	ug/L	EPA 8260	1		11/20/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Styrene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Tetrachloroethene	ND	ug/L	EPA 8260	1		11/20/2003
Toluene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 24 Water / 03111913-12						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		11/20/2003
Trichloroethene	ND	ug/L	EPA 8260	1		11/20/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		11/20/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
o-Xylene	ND	ug/L	EPA 8260	3		11/20/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		11/20/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		11/20/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		11/20/2003
Acetone	ND	ug/L	EPA 8260	10		11/20/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		11/20/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		11/20/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		11/20/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		11/20/2003
Dibromofluoromethane (SURR)	**98**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**97**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**104**	%	EPA 8260			11/20/2003

Reviewed By: Matt Orkin
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 24 Water Dis. / 03111913-13						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**35**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**92**	ug/L	EPA 6020	50	11/20/2003	12/2/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-05 / 03111913-14						
Percent Solids						
Percent Solids	**85**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**103**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	2.9	12/2/2003	12/3/2003
Arsenic	**0.92**	mg/kg	EPA 6020	0.59	12/1/2003	12/1/2003
Beryllium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Chromium	**11**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Copper	**8.0**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Lead	**6.6**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**24**	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Selenium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	2.9	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.4	12/1/2003	12/1/2003
Zinc	ND	mg/kg	EPA 6020	59	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003

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No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-05 / 03111913-14						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	900	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	980	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-05 / 03111913-14						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	390	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**59**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**65**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**66**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**75**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**78**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**96**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	24	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**100**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**101**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-05 / 03111913-14						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	**j, b 5**	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-05 / 03111913-14						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	59		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	59		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	59		11/20/2003
Acetone	ND	ug/kg	EPA 8260	59		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**98**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**103**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**100**	%	EPA 8260			11/20/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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No. 03111913
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December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-10 / 03111913-15						
Percent Solids						
Percent Solids	**84**		Gravimetry			11/22/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.059	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**108**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Arsenic	**1.7**	mg/kg	EPA 6020	0.59	12/1/2003	12/1/2003
Beryllium	**4.6**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Cadmium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Chromium	**16**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Copper	**19**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Lead	**14**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/1/2003
Nickel	**46**	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Selenium	ND	mg/kg	EPA 6020	3	12/1/2003	12/1/2003
Silver	ND	mg/kg	EPA 6020	3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.4	12/1/2003	12/1/2003
Zinc	**110**	mg/kg	EPA 6020	59	12/1/2003	12/4/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Acetophenone	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachloroethane	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Nitrobenzene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Isophorone	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-10 / 03111913-15						
Target Compound List - SEMIVOLATILES						
2-Nitrophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Naphthalene`	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Caprolactam	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Acenaphthylene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Acenaphthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Dibenzofuran	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Fluorene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	910	12/1/2003	12/1/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Atrazine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	990	12/1/2003	12/1/2003
Phenanthrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 55 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-10 / 03111913-15						
Target Compound List - SEMIVOLATILES						
Carbazole	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Chrysene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	400	12/1/2003	12/1/2003
2-Fluorophenol (ASURR)	**58**	%	EPA 8270		12/1/2003	12/1/2003
Phenol d-6 (ASURR)	**65**	%	EPA 8270		12/1/2003	12/1/2003
Nitrobenzene d-5 (BNSURR)	**61**	%	EPA 8270		12/1/2003	12/1/2003
2-Fluorobiphenyl (BNSURR)	**72**	%	EPA 8270		12/1/2003	12/1/2003
2,4,6-Tribromophenol (ASURR)	**78**	%	EPA 8270		12/1/2003	12/1/2003
Terphenyl d-16 (BNSURR)	**91**	%	EPA 8270		12/1/2003	12/1/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	24	12/3/2003	12/3/2003
o-Terphenyl (DRO SURR)	**79**	%	EPA 8015B-M		12/3/2003	12/3/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	120		11/20/2003
TFT (SURR)	**98**	%	EPA 8015B			11/20/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Bromoform	ND	ug/kg	EPA 8260	6		11/20/2003
Bromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913 Page 56 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-10 / 03111913-15						
Volatile Organic Compounds						
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		11/20/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Chloroform	ND	ug/kg	EPA 8260	6		11/20/2003
Chloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		11/20/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		11/20/2003
Methylene chloride	**j, b 6**	ug/kg	EPA 8260	6		11/20/2003
Naphthalene	ND	ug/kg	EPA 8260	6		11/20/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Styrene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		11/20/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03111913 Page 57 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-25-10 / 03111913-15						
Volatile Organic Compounds						
Toluene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		11/20/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		11/20/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl chloride	ND	ug/kg	EPA 8260	6		11/20/2003
m&p-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
o-Xylene	ND	ug/kg	EPA 8260	18		11/20/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	59		11/20/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	59		11/20/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	59		11/20/2003
Acetone	ND	ug/kg	EPA 8260	59		11/20/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		11/20/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		11/20/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		11/20/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		11/20/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		11/20/2003
Dibromofluoromethane (SURR)	**103**	%	EPA 8260			11/20/2003
Toluene d-8 (SURR)	**99**	%	EPA 8260			11/20/2003
4-Bromofluorobenzene (SURR)	**97**	%	EPA 8260			11/20/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03111913 Page 58 of 105
Tetra Tech, Inc.
December 4, 2003

Project: Soil & GW Investigation
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/17/2003
Date Received: 11/19/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB 25 Water / 03111913-16						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/21/2003	11/24/2003
Dibutyl Chlorendate (SURR)	**63**	%	EPA 8082		11/21/2003	11/24/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Arsenic	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Beryllium	**11**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Cadmium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Chromium	**99**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Copper	**83**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Lead	**98**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Mercury	ND	ug/L	EPA 6020	1	11/20/2003	12/2/2003
Nickel	**190**	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Selenium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Silver	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Thallium	ND	ug/L	EPA 6020	5	11/20/2003	12/2/2003
Zinc	**920**	ug/L	EPA 6020	50	11/20/2003	12/2/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Chlorophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Acetophenone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Hexachloroethane	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Nitrobenzene	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
Isophorone	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2-Nitrophenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	10	11/21/2003	11/24/2003

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

03/11/13

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email: info@phaseonline.com

(1)
CLIENT: Tetra Tech PHONE NO.: (916) 276-7846
PROJECT MGR: Nisha Bansal FAX NO.: ( )
EMAIL: Nisha.bansal@Tetratech.com
PROJECT NAME: Soil + GW INVESTIGATION
SITE LOCATION: MIDDLE RIVER COMPLEX
PROJECT NO.: N16Ø5/ØØØØ P.O. NO.:

PSS Project #

PAGE 1 OF 3

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	GRO	DRO-Extended	VOCs	SVOCs	PCBs	Total Metals	Dissolved Metals			REMARKS
Preservatives Used							ICE-SOIL HCL-WATER	ICE-SOIL HCL-WATER	ICE-SOIL HCL-WATER	ICE-SOIL+WATER	SOIL+WATER	ICE-SOIL HNO3-WATER	HNO3-WATER			
	SB-27	11/17/03	Ø958	Soil	2	G	X		X							1-4oz Glass - GRO 1-4oz Glass - VOCs
	SB-28	↓	1Ø26	Soil	2	G	X		X							
	SB-26		1Ø5Ø	Soil	2	G	X		X							
	SB-29		113Ø	Water	4	G	X		X							2-40mL VOAs w/HCL - GRO 2-40mL VOAs w/HCL - VOCs
	SB-29		115Ø	Soil	2	G	X		X							
	SB-22-ØS		12Ø9	Soil	3	G	X	X	X	X	X	X				1-4oz Glass - VOCs; 1-4oz Glass GRO, DRO-extended; 1-4oz Glass SVOCs/PCBs/metals
	SB-22-1Ø		1215	Soil	3	G	X	X	X	X	X	X				
	SB-22		125Ø	Water	9	G	X	X	X	X	X	X	X			1-1LA w/HCL - DRO, 2-1LA unpres SVOCs/PCBs, 2-250mLP HNO3 - metals
	SB-24-ØS		1425	Soil	3	G	X	X	X	X	X	X				
	SB-24-1Ø	↓	1434	Soil	3	G	X	X	X	X	X	X				

(5)

Collected / Relinquished By: (1)	Date	Time	Received By:
[signature]	11/19/03	1010	BILL MYERS
Relinquished By: (2)	Date	Time	Received By:
BILL MYERS	11/19/03		
Relinquished By: (3)	Date	Time	Received By:
Collected / Relinquished By: (4)	Date	Time	Received By:
	11/19/03	1210	[signature]

(4)

Requested Turnaround Time
☐ 5-Day (Std.) ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☐ Other

Data Deliverables Required:

Special Instructions:

Sample Condition Upon Receipt: Good
Custody Seal:
Shipping Carrier: Direct
Shipping Ticket No.:

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SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

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email: info@phaseonline.com

PHASE SEPARATION SCIENCE, INC.

03111913

(1)
CLIENT: Tetra Tech PHONE NO.: (916) 276-7846
PROJECT MGR: Nisha Bansal FAX NO.: ( )
EMAIL: Nisha.bansal@Tetratech.com
PROJECT NAME: Soil + GW investigation
SITE LOCATION: MIDDLE RIVER COMPLEX
PROJECT NO.: N16Ø5/ØØØØ P.O. NO.:

PSS Project #: Refer to Pg #1

PAGE 2 OF 3

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	GRO	DRO-EXTENDED	VOCs	SVOCs	PCBs	Total Metals	Dissolved Metals			REMARKS
	SB-24	11/17/Ø3	15ØØ	WATER	9	G	X	X	X	X	X	X	X			
	SB-25-ØS	↓	1531	SOIL	3	G	X	X	X	X	X	X				
	SB-25-1Ø	↓	1537	SOIL	3	G	X	X	X	X	X	X				
	SB-25	↓	163Ø	WATER	9	G	X	X	X	X	X	X	X			
	SB-23-ØS	11/18/Ø3	ØØ9Ø4	SOIL	3	G	X	X	X	X	X	X				
	SB-23-1Ø	↓	Ø91Ø	SOIL	3	G	X	X	X	X	X	X				
	SB-23	↓	Ø921	WATER	9	G	X	X	X	X	X	X	X			
	SB-3Ø-ØS	↓	1ØØ6	SOIL	3	G	X	X	X	X	X	X				
	SB-3Ø	↓	1135	WATER	9	G	X	X	X	X	X	X	X			
	SB-31-ØS	↓	12Ø4	SOIL	3	G	X	X	X	X	X	X				

(3) Preservatives Used / Analysis Required

(4)
Requested Turnaround Time: ☐ 5-Day (Std.) ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☐ Other
Data Deliverables Required:
Sample Condition Upon Receipt: Good
Custody Seal:
Shipping Carrier: Direct
Shipping Ticket No.:
Special Instructions:

(5)

Collected / Relinquished By: (1)	Date	Time	Received By:
[signature]	11/19/03	1040	BILL MYERS
Relinquished By: (2)	Date	Time	Received By:
BILL MYERS	11/19/03		
Relinquished By: (3)	Date	Time	Received By:
Collected / Relinquished By: (4)	Date	Time	Received By:
	11/19/03	1200	[signature]

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SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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(1)
CLIENT: Tetra Tech PHONE NO.: (916) 276-7846
PROJECT MGR: Nisha Bansal FAX NO.: ( )
EMAIL: Nisha.bansal@TetraTech.com
PROJECT NAME: Soil + GW investigation
SITE LOCATION: MIDDLE RIVER COMPLEX
PROJECT NO.: N16Ø5/ØØØØ P.O. NO.:

PSS Project #:

Refer to PG #2

PAGE 3 OF 3

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	GRO	DRO-Extended	VOCs	SVOCs	PCBs	TOTAL Metals	Dissolved Metals	BTEX	Naphthalene	REMARKS
						Preservatives Used								ICE SOIL / HCL WATER	ICE SOIL / HCL WATER	
	SB-31	11/18/03	1315	WATER	9	G	X	X	X	X	X	X	X			
	SB-9-Ø5	↓	15Ø4	SOIL	1	G		X						X	X	1-4oz. Jar Glass
	SB-9		153Ø	WATER	3	G		X						X	X	1-40mL VOA w/HCL - BTEX 1-40mL VOA w/HCL - Naphthalene
	SB-1Ø-Ø5		1555	SOIL	1	G		X						X	X	
	SB-1Ø	↓	1615	WATER	3	G		X						X	X	

(3) Analysis Required

(5)

Collected / Relinquished By: (1)	Date	Time	Received By:
[illegible] III	11/19/03	1040	BILL MYERS
Relinquished By: (2)	Date	Time	Received By:
BILL MYERS	11/19/03		
Relinquished By: (3)	Date	Time	Received By:
Collected / Relinquished By: (4)	Date	Time	Received By:
	11/19/03	1210	[illegible]

(4)

Requested Turnaround Time
☐ 5-Day (Std.) ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☐ Other

Data Deliverables Required:

Sample Condition Upon Receipt: (✓ ✗ /)
Custody Seal:
Shipping Carrier:
Shipping Ticket No.:

Special Instructions:

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PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Volatile Organic Compounds

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS/LCSD Summary*
- *BFB Tune Summary*

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

VOLATILE ORGANIC COMPOUNDS
SYSTEM MONITORING COMPOUND RECOVERY
(SURROGATES)

ANALYSIS: GC/MS Volatiles **LAB CODE:** SURR

METHOD: EPA 8260 **MATRIX:** Water

Date/Time Analyzed	Sample ID / Lab ID	SMC-1 (DBF) #	SMC-2 (TOL) #	SMC-3 (BFB) #	Total Out
	Upper Limit	113	110	113	
	Lower Limit	84	83	67	
11/20/03 10:20	Calibration Verification	98	97	101	
11/20/03 11:34	Method Blank	98	97	97	
11/21/03 06:47	LCS 25ppb	97	95	97	
11/20/03 15:30	SB 29 Water / 03111913-04	98	99	104	
11/20/03 15:54	SB 22 Water / 03111913-08	99	97	102	
11/20/03 16:19	SB 24 Water / 03111913-12	98	97	104	
11/20/03 16:44	SB 25 Water / 03111913-16	96	95	103	
11/20/03 17:09	SB 23 Water / 03111913-20	99	97	103	
11/20/03 17:34	SB 30 Water / 03111913-23	99	96	101	
11/20/03 17:59	SB 31 Water / 03111913-26	97	97	99	

	Water Control Limits	Soil Control Limits
SMC-1 (DBF): Dibromofluoromethane	84-113	74-131
SMC-2 (TOL): Toluene d-8	83-110	82-115
SMC-3 (BFB): Bromofluorobenzene	67-113	59-157

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate diluted out

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

VOLATILE ORGANIC COMPOUNDS
SYSTEM MONITORING COMPOUND RECOVERY
(SURROGATES)

ANALYSIS: GC/MS Volatiles **LAB CODE:** SURR

METHOD: EPA 8260 **MATRIX:** Soil

Date/Time Analyzed	Sample ID / Lab ID	SMC-1 (DBF) #	SMC-2 (TOL) #	SMC-3 (BFB) #	Total Out
	Upper Limit	131	115	157	
	Lower Limit	74	82	59	
11/19/03 20:42	Calibration Verification	100	101	97	
11/19/03 22:05	Method Blank	100	103	100	
11/20/03 07:18	LCS 40ppb	100	100	97	
11/20/03 12:51	SB-27 / 03111913-01	99	102	99	
11/20/03 01:19	SB-28 / 03111913-02	99	102	99	
11/20/03 01:47	SB-26 / 03111913-03	90	100	100	
11/20/03 02:14	SB-29 / 03111913-05	99	102	99	
11/20/03 02:41	SB-22-05 / 03111913-06	100	102	98	
11/20/03 03:09	SB-22-10 / 03111913-07	101	101	99	
11/20/03 03:37	SB-24-05 / 03111913-10	100	102	102	
11/20/03 04:05	SB-24-10 / 03111913-11	100	101	99	
11/20/03 04:33	SB-25-05 / 03111913-14	98	103	100	
11/20/03 05:00	SB-25-10 / 03111913-15	103	99	97	
11/20/03 05:28	SB-23-05 / 03111913-18	100	104	99	
11/20/03 05:55	SB-23-10 / 03111913-19	100	102	100	
11/20/03 06:23	SB-30-05 / 03111913-22	102	100	98	
11/20/03 06:51	SB-31-05 / 03111913-25	102	102	100	

	Water Control Limits	Soil Control Limits
SMC-1 (DBF): Dibromofluoromethane	84-113	74-131
SMC-2 (TOL): Toluene d-8	83-110	82-115
SMC-3 (BFB): Bromofluorobenzene	67-113	59-157

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate diluted out

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
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www.phaseonline.com

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VOLATILE ORGANIC COMPOUNDS
METHOD BLANK SUMMARY

ANALYSIS:	**GC/MS Volatiles**	**LAB CODE:**	**Method Blank**
METHOD:	**EPA 8260**	**LAB SAMPLE ID:**	**MBW**
LAB FILE ID:	**03112005.D**	**DATE/TIME ANALYZED:**	**11/20/03 11:34**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB 29 Water	03111913-04	03112013.D	11/20/03 15:30
SB 22 Water	03111913-08	03112014.D	11/20/03 15:54
SB 24 Water	03111913-12	03112015.D	11/20/03 16:19
SB 25 Water	03111913-16	03112016.D	11/20/03 16:44
SB 23 Water	03111913-20	03112017.D	11/20/03 17:09
SB 30 Water	03111913-23	03112018.D	11/20/03 17:34
SB 31 Water	03111913-26	03112019.D	11/20/03 17:59

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112005.D
Acq On : 20 Nov 2003 11:34 am
Sample : METHOD BLANK 5mL
Misc : TS/S 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 25 17:47 2003

Vial: 5
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.09	168	119766	50.00 ug/L	0.01
23) 1,4-Difluorobenzene	4.80	114	221932	50.00 ug/L	0.01
39) Chlorobenzene d-5	8.15	117	192410	50.00 ug/L	0.01
48) 1,4-Dichlorobenzene d-4	11.31	152	68441	50.00 ug/L	0.01
System Monitoring Compounds					
20) Dibromofluoromethane SS#1	4.07	113	79843	49.06 ug/L	0.01
Spiked Amount 50.000			Recovery	= 98.12%	
33) Toluene d-8 SS#2	6.40	98	244721	48.25 ug/L	0.02
Spiked Amount 50.000			Recovery	= 96.50%	
50) 4-Bromofluorobenzene SS#3	9.71	95	96699	48.73 ug/L	0.01
Spiked Amount 50.000			Recovery	= 97.46%	

Target Compounds				Qvalue
2) Dichlorodifluoromethane	0.00	85	0	Not Detected
3) Chloromethane	0.00	50	0	Not Detected
4) VINYL CHLORIDE	0.00	62	0	Not Detected
5) Bromomethane	0.00	94	0	Not Detected
6) Chloroethane	0.00	64	0	Not Detected
7) Trichlorofluoromethane	0.00	101	0	Not Detected
8) Acetone	0.00	43	0	Not Detected
9) 1,1-DICHLOROETHENE	0.00	96	0	Not Detected
10) 1,1,2-Trichlorotrifluoroet	0.00	101	0	Not Detected
11) Carbon Disulfide	0.00	76	0	Not Detected
12) Methyl Acetate	0.00	74	0	Not Detected
13) Methylene chloride	2.68	84	698	Not Detected
14) trans-1,2-Dichloroethene	0.00	96	0	Not Detected
15) Methyl-t-Butyl Ether	0.00	73	0	Not Detected
16) 1,1-Dichloroethane	0.00	63	0	Not Detected
17) cis-1,2-Dichloroethene	0.00	96	0	Not Detected
18) 2-Butanone (MEK)	0.00	43	0	Not Detected d
19) CHLOROFORM	3.93	83	263	Not Detected
21) 1,1,1-Trichloroethane	0.00	97	0	Not Detected
22) Cyclohexane	4.09	56	2625	Not Detected
24) Carbon tetrachloride	0.00	117	0	Not Detected
25) Benzene	4.43	78	71	Not Detected
26) 1,2-Dichloroethane	0.00	62	0	Not Detected
27) Trichloroethene	0.00	95	0	Not Detected
28) 1,2-DICHLOROPROPANE	0.00	63	0	Not Detected
29) Methylcyclohexane	0.00	83	0	Not Detected
30) Bromodichloromethane	0.00	83	0	Not Detected

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112005.D
Acq On : 20 Nov 2003 11:34 am
Sample : METHOD BLANK 5mL
Misc : IS/S 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 25 17:47 2003

Vial: 5
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,3-Dichloropropene	0.00	75	0	Not Detected	
32) 4-Methyl-2-Pentanone (MIBK	6.28	43	1092	Not Detected	
34) TOLUENE	6.48	92	192	Not Detected	
35) trans-1,3-Dichloropropene	0.00	75	0	Not Detected	
36) 1,1,2-Trichloroethane	0.00	83	0	Not Detected	
37) Tetrachloroethene	0.00	166	0	Not Detected	
38) 2-Hexanone (MBK)	7.26	43	214	Not Detected	
40) Dibromochloromethane	0.00	129	0	Not Detected	
41) 1,2-Dibromoethane	0.00	107	0	Not Detected	
42) Chlorobenzene	0.00	112	0	Not Detected	
43) ETHYLBENZENE	8.34	91	393	Not Detected	
44) m&p-Xylene	8.50	106	312	Not Detected	
45) o-Xylene	9.01	106	63	Not Detected	
46) Styrene	0.00	104	0	Not Detected	
47) Bromoform	0.00	173	0	Not Detected	
49) Isopropylbenzene	9.52	105	259	Not Detected	
51) 1,1,2,2-Tetrachloroethane	0.00	83	0	Not Detected	
52) 1,3-Dichlorobenzene	11.22	146	103	Not Detected	
53) 1,4-Dichlorobenzene	11.35	146	1685	Not Detected	
54) 1,2-Dichlorobenzene	11.87	146	112	Not Detected	
55) 1,2-Dibromo-3-chloropropan	0.00	75	0	Not Detected	
56) 1,2,4-Trichlorobenzene	14.18	180	354	Not Detected	

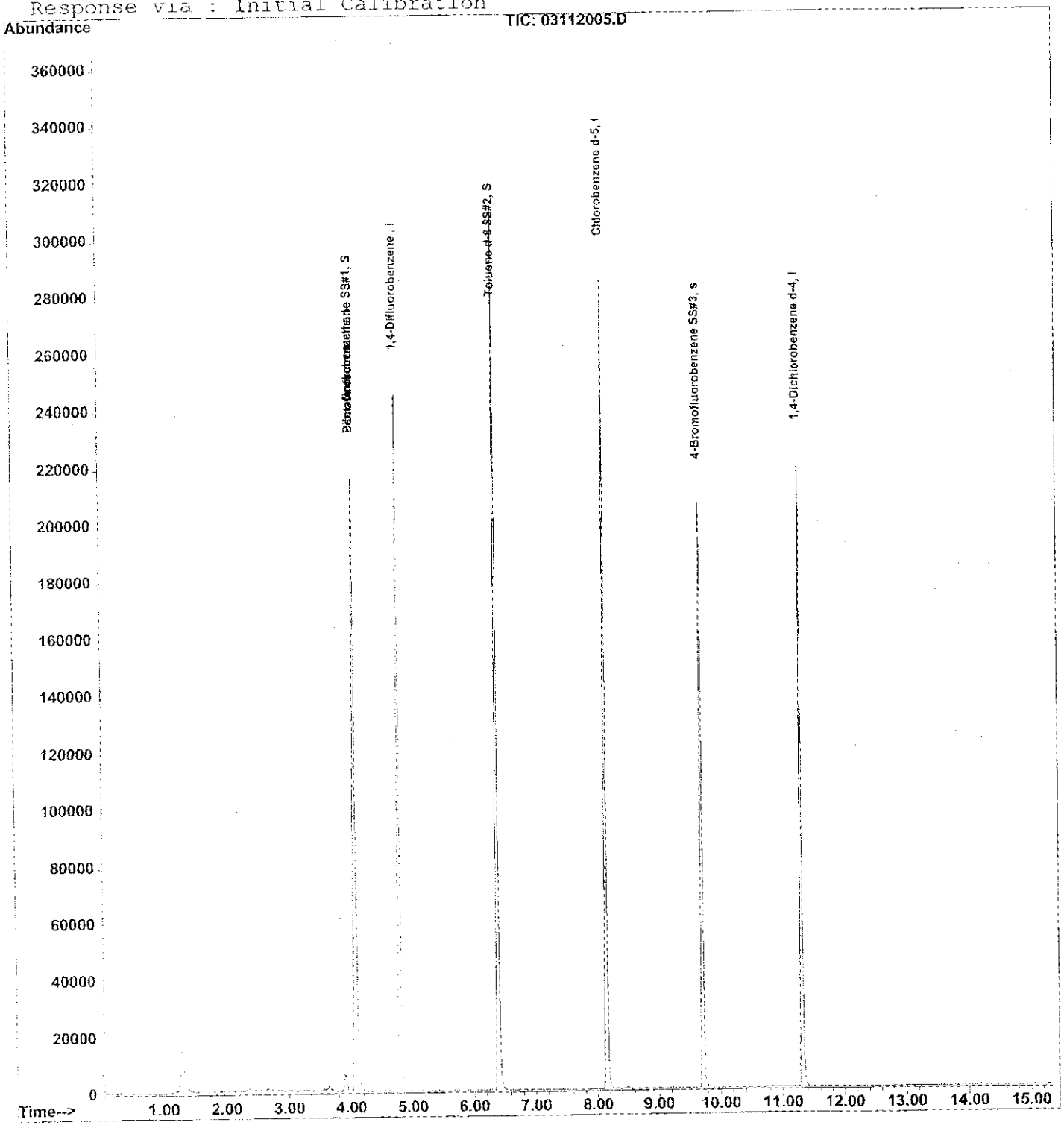
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112005.D
Acq On : 20 Nov 2003 11:34 am
Sample : METHOD BLANK 5mL
Misc : IS/S 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 25 17:47 2003

Vial: 5
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112005.D
Acq On : 20 Nov 2003 11:34 am
Sample : METHOD BLANK 5mL
Misc : IS/S 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 25 17:46 2003

Vial: 5
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.09	168	119766	50.00 ug/L	0.01
19) 1,4-Difluorobenzene	4.80	114	221932	50.00 ug/L	0.01
35) Chlorobenzene d-5	8.15	117	192410	50.00 ug/L	0.01
46) 1,4-Dichlorobenzene d-4	11.31	152	68441	50.00 ug/L	0.01
System Monitoring Compounds					
17) Dibromofluoromethane SS#1	4.07	113	79843	49.22 ug/L	0.01
Spiked Amount 50.000 Range 80 - 120 Recovery = 98.44%					
30) Toluene d-8 SS#2	6.40	98	244721	48.19 ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 96.38%					
49) 4-Bromofluorobenzene SS#3	9.71	95	96699	49.83 ug/L	0.01
Spiked Amount 50.000 Range 80 - 120 Recovery = 99.66%					

Target Compounds				Qvalue
2) Dichlorodifluoromethane	0.00	85	0	Not Detected
3) Chloromethane	0.00	50	0	Not Detected
4) VINYL CHLORIDE	0.00	62	0	Not Detected
5) Bromomethane	0.00	94	0	Not Detected
6) Chloroethane	0.00	64	0	Not Detected
7) Trichlorofluoromethane	0.00	101	0	Not Detected
8) 1,1-DICHLOROETHENE	0.00	96	0	Not Detected
9) Methylene chloride	2.68	84	698	Not Detected
10) trans-1,2-Dichloroethene	0.00	96	0	Not Detected
11) Methyl-t-Butyl Ether	0.00	73	0	Not Detected
12) 1,1-Dichloroethane	0.00	63	0	Not Detected
13) 2,2-Dichloropropane	0.00	77	0	Not Detected
14) cis-1,2-Dichloroethene	0.00	96	0	Not Detected
15) Bromochloromethane	0.00	128	0	Not Detected
16) CHLOROFORM	3.93	83	263	Not Detected
18) 1,1,1-Trichloroethane	0.00	97	0	Not Detected
20) Carbon tetrachloride	0.00	117	0	Not Detected
21) 1,1-Dichloropropene	0.00	75	0	Not Detected
22) Benzene	4.43	78	71	Not Detected
23) 1,2-Dichloroethane	0.00	62	0	Not Detected
24) Trichloroethene	0.00	95	0	Not Detected
25) 1,2-DICHLOROPROPANE	0.00	63	0	Not Detected
26) Dibromomethane	0.00	93	0	Not Detected
27) Bromodichloromethane	0.00	83	0	Not Detected
28) 2-Chloroethylvinyl Ether	0.00	63	0	Not Detected
29) cis-1,3-Dichloropropene	0.00	75	0	Not Detected
31) TOLUENE	6.48	92	192	Not Detected

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112005.D
Acq On : 20 Nov 2003 11:34 am
Sample : METHOD BLANK 5mL
Misc : IS/S 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 25 17:46 2003

Vial: 5
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Compound	R.T.	QTon	Response	Conc Unit	Qvalue
32) trans-1,3-Dichloropropene	0.00	75	0	Not Detected	
33) 1,1,2-Trichloroethane	0.00	83	0	Not Detected	
34) Tetrachloroethene	0.00	166	0	Not Detected	
36) 1,3-Dichloropropane	0.00	76	0	Not Detected	
37) Dibromochloromethane	0.00	129	0	Not Detected	
38) 1,2-Dibromoethane	0.00	107	0	Not Detected	
39) Chlorobenzene	0.00	112	0	Not Detected	
40) 1,1,1,2-Tetrachloroethane	0.00	131	0	Not Detected	
41) ETHYLBENZENE	8.34	91	393	Not Detected	
42) m&p-Xylene	8.50	106	312	Not Detected	
43) o-Xylene	9.01	106	63	Not Detected	
44) Styrene	0.00	104	0	Not Detected	
45) Bromoform	0.00	173	0	Not Detected	
47) Isopropylbenzene	9.52	105	259	Not Detected	
48) 1,2,3-Trichloropropane	0.00	110	0	Not Detected	
50) Bromobenzene	0.00	156	0	Not Detected	
51) 1,1,2,2-Tetrachloroethane	0.00	83	0	Not Detected	
52) n-Propylbenzene	10.09	91	159	Not Detected	
53) 2-Chlorotoluene	10.09	91	159	Not Detected	
54) 4-Chlorotoluene	10.09	91	159	Not Detected	
55) 1,3,5-Trimethylbenzene	0.00	105	0	Not Detected	
56) tert-Butylbenzene	0.00	119	0	Not Detected	
57) 1,2,4-Trimethylbenzene	10.85	105	251	Not Detected	
58) sec-Butylbenzene	11.08	105	185	Not Detected	
59) 1,3-Dichlorobenzene	11.22	146	103	Not Detected	
60) 4-Isopropyltoluene	11.31	119	138	Not Detected	
61) 1,4-Dichlorobenzene	11.35	146	1685	Not Detected	
62) 1,2-Dichlorobenzene	11.87	146	112	Not Detected	
63) n-Butylbenzene	11.89	91	217	Not Detected	
64) 1,2-Dibromo-3-chloropropan	0.00	75	0	Not Detected	
65) 1,2,4-Trichlorobenzene	14.18	180	354	Not Detected	
66) Hexachlorobutadiene	0.00	225	0	Not Detected	
67) Naphthalene	14.53	128	920	Not Detected	
68) 1,2,3-Trichlorobenzene	0.00	180	0	Not Detected	

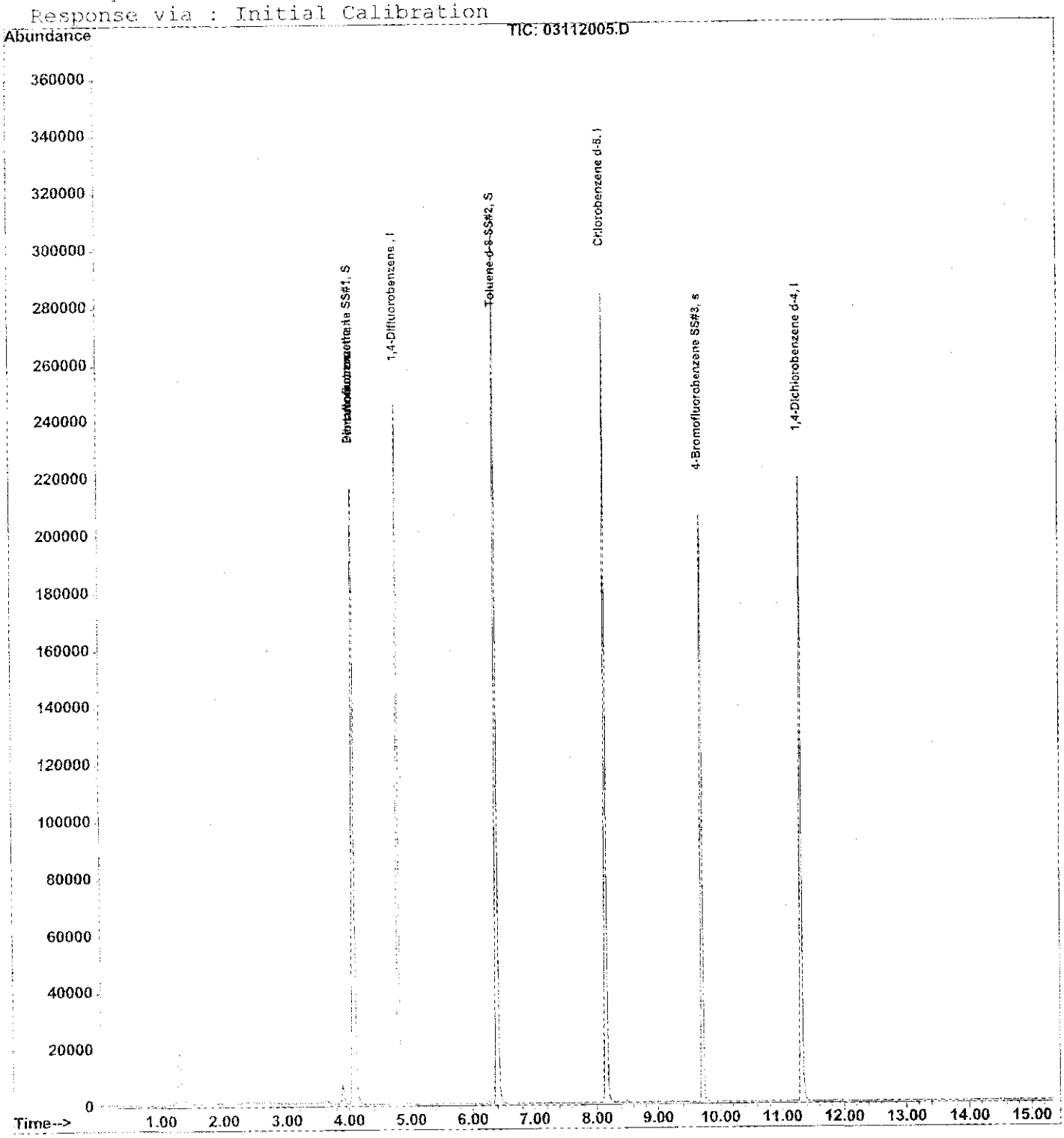
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112005.D
Acq On : 20 Nov 2003 11:34 am
Sample : METHOD BLANK 5mL
Misc : IS/S 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 25 17:46 2003

Vial: 5
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration



1 1010

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112005.D Vial: 5
Acq On : 20 Nov 2003 11:34 am Operator: MI
Sample : METHOD BLANK 5mL Inst : Instrumen
Misc : IS/S 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 17:48 2003

Quant Method : C:\HPCHEM\1\METHODS\NEWMTH-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:45:39 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	4.09	168	119766	50.00 ug/L	0.01

System Monitoring Compounds

Target Compounds					Qvalue
2) Acrolein	0.00	56	0	Not Detected	
3) Acetone	2.25	43	196	Not Detected	
4) Iodomethane	0.00	142	0	Not Detected	
5) tert-Butanol	0.00	59	0	Not Detected	
6) Acrylonitrile	0.00	53	0	Not Detected	
7) Vinyl Acetate	3.18	43	556	Not Detected	
8) Isopropyl Ether	0.00	45	0	Not Detected	
9) tert-Butyl Ethyl Ether	0.00	59	0	Not Detected	
10) 2-Butanone (MEK)	0.00	43	0	Not Detected	d
11) tert-Amyl Methyl Ether	0.00	73	0	Not Detected	
12) 4-Methyl-2-Pentanoe (MIBK)	6.28	43	1092	Not Detected	
13) t-1,4-Dichloro-2-butene	0.00	75	0	Not Detected	

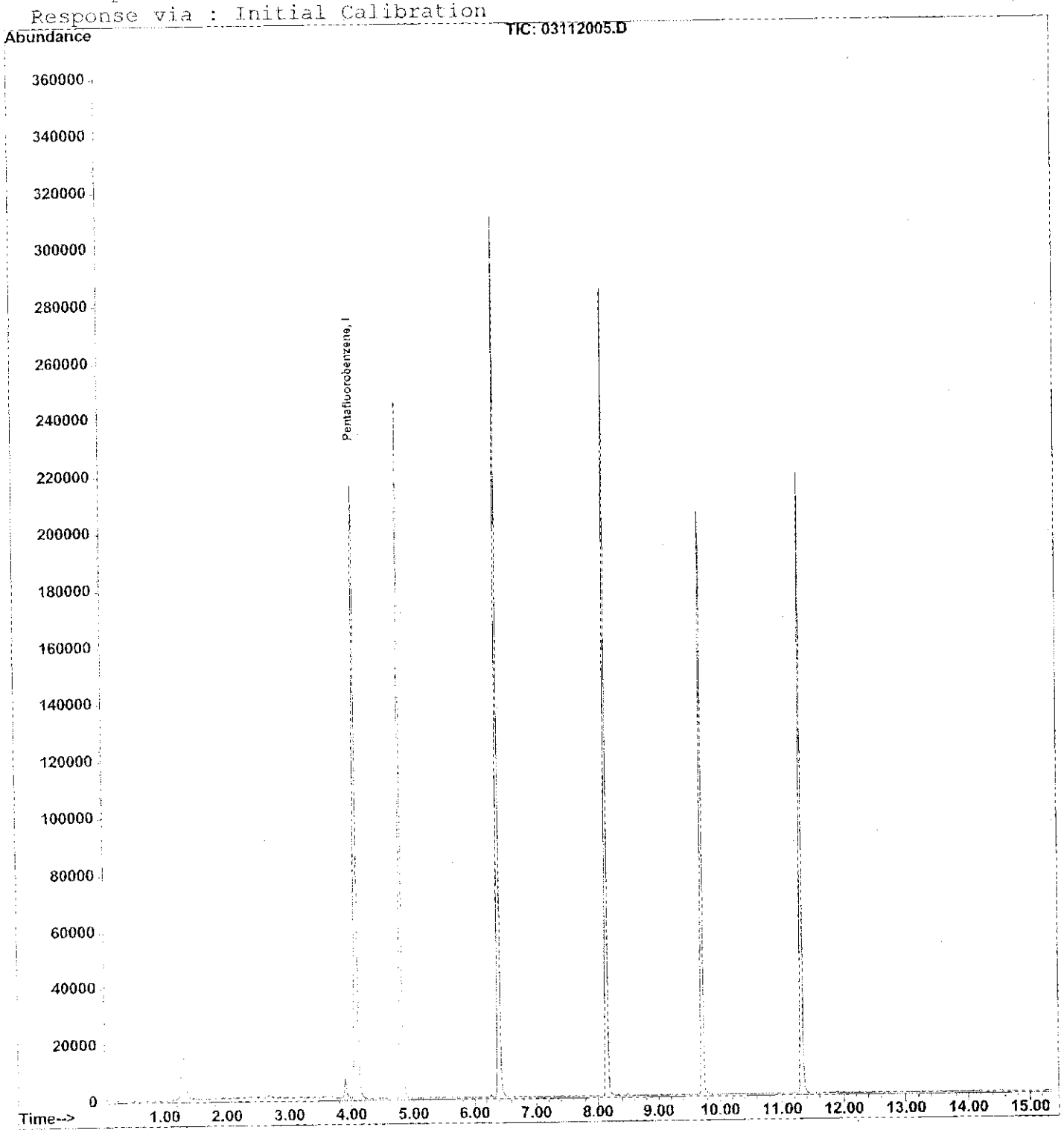
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112005.D
Acq On : 20 Nov 2003 11:34 am
Sample : METHOD BLANK 5mL
Misc : IS/S 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 25 17:48 2003

Vial: 5
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\NEWMTH-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:45:39 2003
Response via : Initial Calibration



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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANIC COMPOUNDS
METHOD BLANK SUMMARY

ANALYSIS:	**GC/MS Volatiles**	**LAB CODE:**	**Method Blank**
METHOD:	**EPA 8260**	**LAB SAMPLE ID:**	**MBS**
LAB FILE ID:	**03111926.D**	**DATE/TIME ANALYZED:**	**11/19/03 22:05**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-27	03111913-01	03111932.D	11/20/03 12:51
SB-28	03111913-02	03111933.D	11/20/03 1:19
SB-26	03111913-03	03111934.D	11/20/03 1:47
SB-29	03111913-05	03111935.D	11/20/03 2:14
SB-22-05	03111913-06	03111936.D	11/20/03 2:41
SB-22-10	03111913-07	03111937.D	11/20/03 3:09
SB-24-05	03111913-10	03111938.D	11/20/03 3:37
SB-24-10	03111913-11	03111939.D	11/20/03 4:05
SB-25-05	03111913-14	03111940.D	11/20/03 4:33
SB-25-10	03111913-15	03111941.D	11/20/03 5:00
SB-23-05	03111913-18	03111942.D	11/20/03 5:28
SB-23-10	03111913-19	03111943.D	11/20/03 5:55
SB-30-05	03111913-22	03111944.D	11/20/03 6:23
SB-31-05	03111913-25	03111945.D	11/20/03 6:51

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031119\03111926.D Vial: 25
Acq On : 19 Nov 03 10:05 pm Operator: MI
Sample : METHOD BLANK 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 20 10:42 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.41	168	120259	50.00 ug/L	0.04
18) 1,4-Difluorobenzene	5.14	114	227216	50.00 ug/L	0.03
34) Chlorobenzene d-5	8.56	117	200343	50.00 ug/L	0.03
45) 1,4-Dichlorobenzene d-4	11.75	152	89210	50.00 ug/L	0.03
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.38	113	100382	50.08 ug/L	0.04
Spiked Amount 50.000			Recovery	= 100.16%	
29) Toluene d-8 SS#2	6.78	98	262648	51.65 ug/L	0.04
Spiked Amount 50.000			Recovery	= 103.30%	
48) 4-Bromofluorobenzene SS#3	10.14	95	115856	50.00 ug/L	0.03
Spiked Amount 50.000			Recovery	= 100.00%	

Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.00	85		Not Detected	
3) Chloromethane	0.00	50		Not Detected	
4) VINYL CHLORIDE	0.00	62		Not Detected	
5) Bromomethane	0.00	94		Not Detected	
6) Chloroethane	0.00	64		Not Detected	
7) 1,1-DICHLOROETHENE	0.00	96		Not Detected	
8) Methylene chloride	2.90	84	8355	4.40 ug/L	91
9) trans-1,2-Dichloroethene	0.00	96		Not Detected	
10) Methyl-t-Butyl Ether	0.00	73		Not Detected	
11) 1,1-Dichloroethane	0.00	63		Not Detected	
12) 2,2-Dichloropropane	0.00	77		Not Detected	
13) cis-1,2-Dichloroethene	0.00	96		Not Detected	
14) Bromochloromethane	0.00	128		Not Detected	
15) CHLOROFORM	0.00	83		Not Detected	
17) 1,1,1-Trichloroethane	0.00	97		Not Detected	
19) Carbon tetrachloride	0.00	117		Not Detected	
20) 1,1-Dichloropropene	0.00	75		Not Detected	
21) Benzene	0.00	78		Not Detected	
22) 1,2-Dichloroethane	0.00	62		Not Detected	
23) Trichloroethene	0.00	95		Not Detected	
24) 1,2-DICHLOROPROPANE	0.00	63		Not Detected	
25) Dibromomethane	0.00	93		Not Detected	
26) Bromodichloromethane	0.00	83		Not Detected	

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\2\DATA\031119\03111926.D
Acq On : 19 Nov 03 10:05 pm
Sample : METHOD BLANK 5mL
Misc : IS/Surr 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 20 10:42 2003

Vial: 25
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27) 2-Chloroethylvinyl Ether	0.00	63		Not Detected	
28) cis-1,3-Dichloropropene	0.00	75		Not Detected	
30) TOLUENE	0.00	92		Not Detected	
31) trans-1,3-Dichloropropene	0.00	75		Not Detected	
32) 1,1,2-Trichloroethane	0.00	83		Not Detected	
33) Tetrachloroethene	0.00	166		Not Detected	
35) 1,3-Dichloropropane	0.00	76		Not Detected	
36) Dibromochloromethane	0.00	129		Not Detected	
37) 1,2-Dibromoethane	0.00	107		Not Detected	
38) Chlorobenzene	0.00	112		Not Detected	
39) 1,1,1,2-Tetrachloroethane	0.00	131		Not Detected	
40) ETHYLBENZENE	0.00	91		Not Detected	
41) m&p-Xylene	0.00	106		Not Detected	
42) o-Xylene	0.00	106		Not Detected	
43) Styrene	0.00	104		Not Detected	
44) Bromoform	0.00	173		Not Detected	
46) Isopropylbenzene	0.00	105		Not Detected	
47) 1,2,3-Trichloropropane	0.00	110		Not Detected	
49) Bromobenzene	0.00	156		Not Detected	
50) 1,1,2,2-Tetrachloroethane	0.00	83		Not Detected	
51) n-Propylbenzene	0.00	91		Not Detected	
52) 2-Chlorotoluene	0.00	91		Not Detected	
53) 4-Chlorotoluene	0.00	91		Not Detected	
54) 1,3,5-Trimethylbenzene	0.00	105		Not Detected	
55) tert-Butylbenzene	0.00	119		Not Detected	
56) 1,2,4-Trimethylbenzene	0.00	105		Not Detected	
57) sec-Butylbenzene	0.00	105		Not Detected	
58) 1,3-Dichlorobenzene	0.00	146		Not Detected	
59) 4-Isopropyltoluene	0.00	119		Not Detected	
60) 1,4-Dichlorobenzene	0.00	146		Not Detected	
61) 1,2-Dichlorobenzene	0.00	146		Not Detected	
62) n-Butylbenzene	0.00	91		Not Detected	
63) 1,2-Dibromo-3-chloropropan	0.00	75		Not Detected	
64) 1,2,4-Trichlorobenzene	0.00	180		Not Detected	
65) Hexachlorobutadiene	0.00	225		Not Detected	
66) Naphthalene	0.00	128		Not Detected	
67) 1,2,3-Trichlorobenzene	0.00	180		Not Detected	

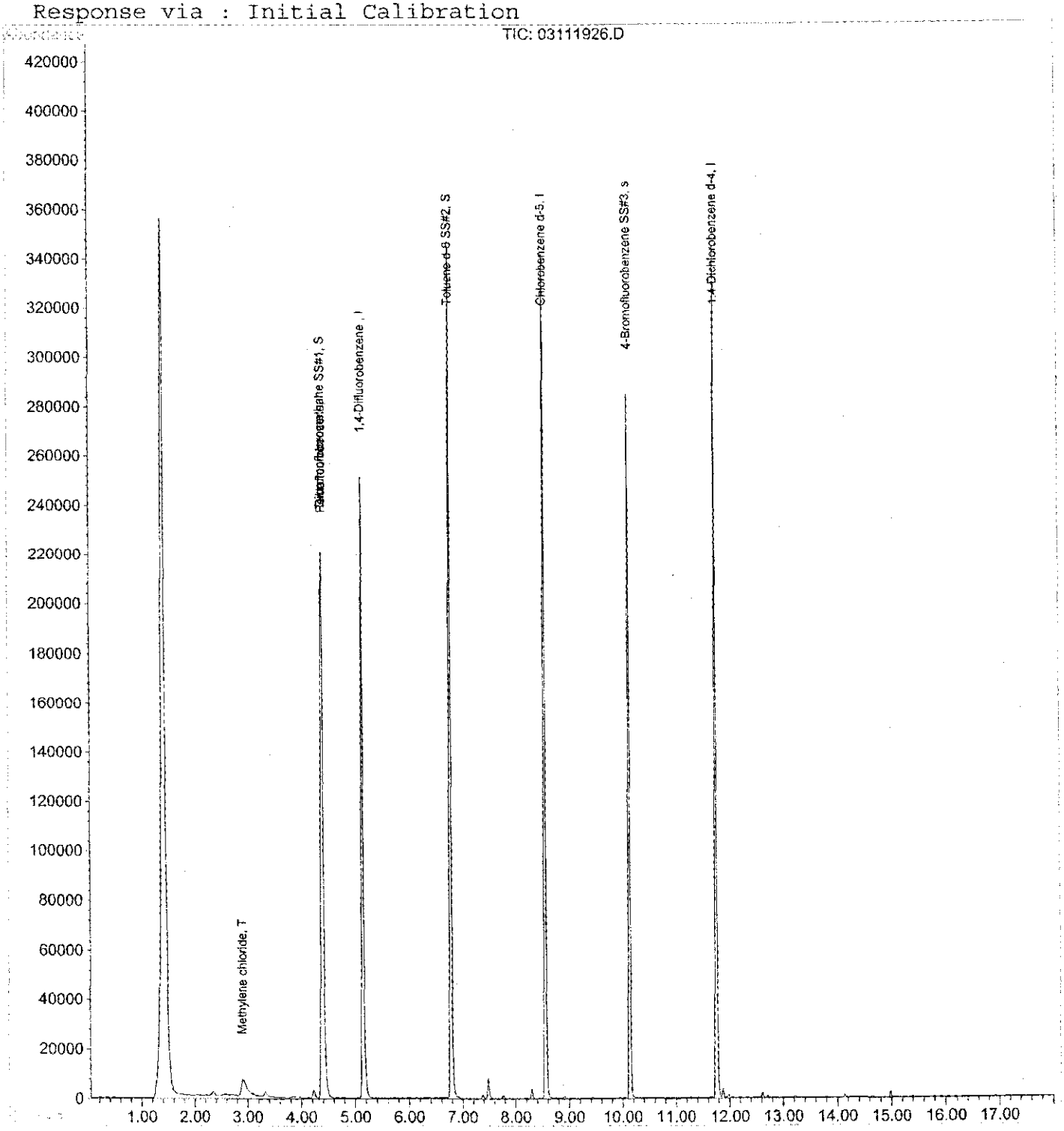
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031119\03111926.D
Acq On : 19 Nov 03 10:05 pm
Sample : METHOD BLANK 5mL
Misc : IS/Surr 1uL #245
MS Integration Params: rteint.p
Quant Time: Nov 20 10:42 2003

Vial: 25
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration



1 1016

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031120\03112002.D
Acq On : 20 Nov 2003 10:20 am
Sample : 8260-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 10uL #125/233/236
MS Integration Params: rteint.p

Vial: 2
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
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	Pentaflourobenzene	1.000	1.000	0.0	96	0.02
2	T	Dichlorodifluoromethane	0.730	0.754	-3.3	103	0.02
3	T	Chloromethane	0.972	0.966	0.6	104	0.00
4	T	VINYL CHLORIDE	0.749	0.667	10.9	89	0.00
5	T	Bromomethane	0.530	0.523	1.3	98	0.00
6	T	Chloroethane	0.400	0.415	-3.7	100	0.00
7	T	Trichlorofluoromethane	0.162	0.268	-65.4#	139	0.00
8	M	1,1-DICHLOROETHENE	0.600	0.575	4.2	96	0.00
9	T	Methylene chloride	0.660	0.624	5.5	98	0.00
10	T	trans-1,2-Dichloroethene	0.665	0.658	1.1	99	0.02
11	T	Methyl-t-Butyl Ether	0.609	0.678	-11.3	108	0.03
12	T	1,1-Dichloroethane	1.125	1.099	2.3	98	0.02
13	T	2,2-Dichloropropane	0.783	0.779	0.5	98	0.02
14	T	cis-1,2-Dichloroethene	0.840	0.791	5.8	94	0.02
15	T	Bromochloromethane	0.374	0.367	1.9	98	0.02
16	T	CHLOROFORM	1.340	1.237	7.7	92	0.02
17	S	Dibromofluoromethane SS#1	0.677	0.661	2.4	94	0.02
18	T	1,1,1-Trichloroethane	1.025	0.978	4.6	94	0.02
19	I	1,4-Difluorobenzene	1.000	1.000	0.0	95	0.02
20	T	Carbon tetrachloride	0.479	0.463	3.3	95	0.02
21	T	1,1-Dichloropropene	0.532	0.510	4.1	92	0.02
22	M	Benzene	1.564	1.448	7.4	92	0.02
23	T	1,2-Dichloroethane	0.452	0.425	6.0	93	0.02
24	M	Trichloroethene	0.396	0.379	4.3	93	0.02
25	T	1,2-DICHLOROPROPANE	0.424	0.389	8.3	89	0.02
26	T	Dibromomethane	0.235	0.220	6.4	91	0.02
27	T	Bromodichloromethane	0.504	0.477	5.4	93	0.02
28	T	2-Chloroethylvinyl Ether	0.179	0.149	16.8	80	0.02
29	T	cis-1,3-Dichloropropene	0.628	0.587	6.5	91	0.02
30	S	Toluene d-8 SS#2	1.144	1.107	3.2	95	0.02
31	M	TOLUENE	0.861	0.834	3.1	95	0.02
32	T	trans-1,3-Dichloropropene	0.524	0.480	8.4	88	0.02
33	T	1,1,2-Trichloroethane	0.255	0.235	7.8	89	0.02
34	T	Tetrachloroethene	0.264	0.268	-1.5	98	0.02
35	I	Chlorobenzene d-5	1.000	1.000	0.0	93	0.02
36	T	1,3-Dichloropropane	0.611	0.575	5.9	91	0.02
37	T	Dibromochloromethane	0.409	0.401	2.0	94	0.02
38	T	1,2-Dibromoethane	0.356	0.347	2.5	93	0.02
39	M	Chlorobenzene	1.075	1.075	0.0	96	0.02

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031120\03112002.D Vial: 2
Acq On : 20 Nov 2003 10:20 am Operator: MI
Sample : 8260-W, CCV 50ppb Inst : Instrumen
Misc : IS/S 1uL #245, CCV 10uL #125/233/236 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
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)
40	T	1,1,1,2-Tetrachloroethane	0.391	0.389	0.5	96	0.02
41	T	ETHYLBENZENE	1.696	1.641	3.2	94	0.02
42	T	m&p-Xylene	0.617	0.602	2.4	96	0.02
43	T	o-Xylene	0.631	0.617	2.2	95	0.02
44	T	Styrene	1.124	1.115	0.8	95	0.02
45	T	Bromoform	0.216	0.213	1.4	94	0.02
46	I	1,4-Dichlorobenzene d-4	1.000	1.000	0.0	90	0.02
47	T	Isopropylbenzene	3.483	3.553	-2.0	94	0.02
48	T	1,2,3-Trichloropropane	0.301	0.299	0.7	94	0.02
49	s	4-Bromofluorobenzene SS#3	1.418	1.432	-1.0	94	0.02
50	T	Bromobenzene	1.033	1.075	-4.1	97	0.02
51	T	1,1,2,2-Tetrachloroethane	1.158	1.093	5.6	90	0.02
52	T	n-Propylbenzene	4.178	4.361	-4.4	97	0.02
53	T	2-Chlorotoluene	2.920	2.908	0.4	94	0.02
54	T	4-Chlorotoluene	3.310	3.309	0.0	93	0.02
55	T	1,3,5-Trimethylbenzene	2.771	2.840	-2.5	95	0.02
56	T	tert-Butylbenzene	2.069	2.186	-5.7	96	0.02
57	T	1,2,4-Trimethylbenzene	2.878	2.873	0.2	92	0.02
58	T	sec-Butylbenzene	3.017	3.180	-5.4	97	0.02
59	T	1,3-Dichlorobenzene	1.593	1.666	-4.6	96	0.02
60	T	4-Isopropyltoluene	2.320	2.517	-8.5	98	0.02
61	T	1,4-Dichlorobenzene	1.744	1.772	-1.6	96	0.02
62	T	1,2-Dichlorobenzene	1.488	1.538	-3.4	94	0.02
63	T	n-Butylbenzene	2.100	2.257	-7.5	96	0.02
64	T	1,2-Dibromo-3-chloropropane	0.119	0.119	0.0	91	0.02
65	T	1,2,4-Trichlorobenzene	0.500	0.523	-4.6	96	0.02
66	T	Hexachlorobutadiene	0.217	0.249	-14.7	105	0.02
67	T	Naphthalene	1.188	1.182	0.5	87	0.02
68	T	1,2,3-Trichlorobenzene	0.343	0.359	-4.7	90	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Response Factor Report Instrumen

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration

Calibration Files
C1 =03111713.D C2 =03111714.D C3 =03111715.D
C4 =03111716.D C5 =03111717.D

		Compound	C1	C2	C3	C4	C5	Avg	%RSD
1)	I	Pentaflourobenzene	----------ISTD----------						
2)	T	Dichlorodifluorometha	0.825	0.724	0.740	0.705	0.659	0.730	8.32
3)	T	Chloromethane	1.120	1.080	0.922	0.890	0.847	0.972	12.46
4)	T	VINYL CHLORIDE	0.874	0.792	0.761	0.718	0.599	0.749	13.56
5)	T	Bromomethane	0.596	0.557	0.533	0.511	0.451	0.530	10.16
6)	T	Chloroethane	0.423	0.406	0.401	0.399	0.371	0.400	4.74
7)	T	Trichlorofluoromethan	0.099	0.114	0.125	0.185	0.287	0.162	47.66
8)	M	1,1-DICHLOROETHENE	0.662	0.614	0.607	0.578	0.539	0.600	7.61
9)	T	Methylene chloride	0.809	0.692	0.641	0.609	0.550	0.660	14.80
10)	T	trans-1,2-Dichloroeth	0.731	0.683	0.681	0.640	0.589	0.665	8.03
11)	T	Methyl-t-Butyl Ether	0.766	0.576	0.598	0.604	0.503	0.609	15.80
12)	T	1,1-Dichloroethane	1.255	1.171	1.123	1.078	0.996	1.125	8.66
13)	T	2,2-Dichloropropane	0.905	0.822	0.768	0.762	0.658	0.783	11.56
14)	T	cis-1,2-Dichloroethen	0.941	0.871	0.838	0.805	0.744	0.840	8.75
15)	T	Bromochloromethane	0.408	0.385	0.370	0.360	0.347	0.374	6.24
16)	T	CHLOROFORM	1.516	1.382	1.333	1.294	1.176	1.340	9.30
17)	S	Dibromofluoromethane	0.683	0.680	0.678	0.676	0.668	0.677	0.83
18)	T	1,1,1-Trichloroethane	1.156	1.031	1.022	0.996	0.919	1.025	8.36
19)	I	1,4-Difluorobenzene	----------ISTD----------						
20)	T	Carbon tetrachloride	0.526	0.476	0.478	0.467	0.446	0.479	6.18
21)	T	1,1-Dichloropropene	0.581	0.540	0.534	0.529	0.477	0.532	6.97
22)	M	Benzene	1.749	1.616	1.571	1.508	1.377	1.564	8.75
23)	T	1,2-Dichloroethane	0.503	0.452	0.452	0.436	0.417	0.452	7.07
24)	M	Trichloroethene	0.426	0.409	0.395	0.389	0.359	0.396	6.28
25)	T	1,2-DICHLOROPROPANE	0.473	0.433	0.417	0.415	0.382	0.424	7.79
26)	T	Dibromomethane	0.256	0.238	0.233	0.231	0.219	0.235	5.75
27)	T	Bromodichloromethane	0.566	0.513	0.496	0.488	0.459	0.504	7.82
28)	T	2-Chloroethylvinyl Et	0.190	0.177	0.175	0.178	0.173	0.179	3.88
29)	T	cis-1,3-Dichloroprope	0.685	0.635	0.627	0.618	0.577	0.628	6.18
30)	S	Toluene d-8 SS#2	1.145	1.156	1.143	1.112	1.165	1.144	1.74
31)	M	TOLUENE	0.960	0.877	0.856	0.839	0.775	0.861	7.79
32)	T	trans-1,3-Dichloropro	0.560	0.537	0.515	0.519	0.487	0.524	5.16
33)	T	1,1,2-Trichloroethane	0.281	0.254	0.255	0.250	0.234	0.255	6.68
34)	T	Tetrachloroethene	0.284	0.267	0.258	0.260	0.253	0.264	4.60
35)	I	Chlorobenzene d-5	----------ISTD----------						
36)	T	1,3-Dichloropropane	0.685	0.617	0.608	0.590	0.554	0.611	7.85
37)	T	Dibromochloromethane	0.447	0.411	0.397	0.398	0.392	0.409	5.42
38)	T	1,2-Dibromoethane	0.390	0.358	0.350	0.347	0.333	0.356	5.93
39)	M	Chlorobenzene	1.180	1.092	1.069	1.042	0.990	1.075	6.53
40)	T	1,1,1,2-Tetrachloroet	0.434	0.390	0.386	0.377	0.369	0.391	6.47
41)	T	ETHYLBENZENE	1.941	1.722	1.671	1.631	1.516	1.696	9.23

(#) = Out of Range

Response Factor Report Instrumen

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration

Calibration Files
C1 =03111713.D C2 =03111714.D C3 =03111715.D
C4 =03111716.D C5 =03111717.D

		Compound	C1	C2	C3	C4	C5	Avg	%RSD
42)	T	m&p-Xylene	0.695	0.642	0.611	0.586	0.552	0.617	8.84
43)	T	o-Xylene	0.697	0.643	0.629	0.606	0.577	0.631	7.07
44)	T	Styrene	1.243	1.116	1.127	1.101	1.032	1.124	6.78
45)	T	Bromoform	0.225	0.212	0.210	0.211	0.220	0.216	3.07
46)	I	1,4-Dichlorobenzene d	----------ISTD----------						
47)	T	Isopropylbenzene	3.955	3.587	3.413	3.405	3.053	3.483	9.41
48)	T	1,2,3-Trichloropropan	0.343	0.311	0.293	0.287	0.271	0.301	9.09
49)	s	4-Bromofluorobenzene	1.460	1.432	1.450	1.375	1.371	1.418	2.95
50)	T	Bromobenzene	1.112	1.053	1.039	1.000	0.961	1.033	5.51
51)	T	1,1,2,2-Tetrachloroet	1.290	1.228	1.162	1.093	1.019	1.158	9.25
52)	T	n-Propylbenzene	4.656	4.357	4.232	4.063	3.581	4.178	9.52
53)	T	2-Chlorotoluene	3.361	3.022	2.938	2.789	2.492	2.920	10.91
54)	T	4-Chlorotoluene	3.675	3.521	3.346	3.211	2.798	3.310	10.14
55)	T	1,3,5-Trimethylbenzen	3.075	2.919	2.763	2.691	2.408	2.771	9.07
56)	T	tert-Butylbenzene	2.281	2.127	2.068	2.041	1.827	2.069	7.93
57)	T	1,2,4-Trimethylbenzen	3.253	2.901	2.873	2.812	2.554	2.878	8.70
58)	T	sec-Butylbenzene	3.260	3.147	3.092	2.954	2.634	3.017	7.99
59)	T	1,3-Dichlorobenzene	1.714	1.630	1.602	1.558	1.460	1.593	5.87
60)	T	4-Isopropyltoluene	2.482	2.412	2.346	2.309	2.051	2.320	7.08
61)	T	1,4-Dichlorobenzene	2.021	1.778	1.723	1.668	1.531	1.744	10.31
62)	T	1,2-Dichlorobenzene	1.629	1.469	1.488	1.480	1.371	1.488	6.18
63)	T	n-Butylbenzene	2.317	2.104	2.112	2.112	1.852	2.100	7.87
64)	T	1,2-Dibromo-3-chlorop	0.125	0.119	0.123	0.117	0.112	0.119	4.46
65)	T	1,2,4-Trichlorobenzen	0.535	0.507	0.489	0.490	0.480	0.500	4.35
66)	T	Hexachlorobutadiene	0.242	0.218	0.211	0.213	0.201	0.217	7.15
67)	T	Naphthalene	1.186	1.156	1.184	1.217	1.195	1.188	1.86
68)	T	1,2,3-Trichlorobenzen	0.330	0.332	0.349	0.359	0.345	0.343	3.51

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112002.D
Acq On : 20 Nov 2003 10:20 am
Sample : 8260-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 10uL #125/233/236
MS Integration Params: rteint.p
Quant Time: Nov 20 10:47 2003

Vial: 2
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.09	168	127412	50.00 ug/L	0.02
19) 1,4-Difluorobenzene	4.81	114	236109	50.00 ug/L	0.02
35) Chlorobenzene d-5	8.16	117	200614	50.00 ug/L	0.02
46) 1,4-Dichlorobenzene d-4	11.32	152	71409	50.00 ug/L	0.02
System Monitoring Compounds					
17) Dibromofluoromethane SS#1	4.07	113	84240	48.82 ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 97.64%					
30) Toluene d-8 SS#2	6.40	98	261330	48.37 ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 96.74%					
49) 4-Bromofluorobenzene SS#3	9.72	95	102233	50.49 ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 100.98%					
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.44	85	96089	51.62 ug/L	100
3) Chloromethane	1.56	50	123031	49.68 ug/L	99
4) VINYL CHLORIDE	1.63	62	84966	44.54 ug/L	99
5) Bromomethane	1.81	94	66667	49.40 ug/L	99
6) Chloroethane	1.84	64	52823	51.80 ug/L	98
7) Trichlorofluoromethane	2.01	101	34166	47.99 ug/L	100
8) 1,1-DICHLOROETHENE	2.36	96	73294	47.93 ug/L	97
9) Methylene chloride	2.68	84	79446	47.23 ug/L	98
10) trans-1,2-Dichloroethene	2.87	96	83843	49.49 ug/L	99
11) Methyl-t-Butyl Ether	2.84	73	86363	66.50 ug/L	100
12) 1,1-Dichloroethane	3.18	63	139977	48.84 ug/L	100
13) 2,2-Dichloropropane	3.66	77	99191	49.72 ug/L	99
14) cis-1,2-Dichloroethene	3.66	96	100831	47.13 ug/L	99
15) Bromochloromethane	3.87	128	46724	49.01 ug/L	97
16) CHLOROFORM	3.93	83	157586	46.15 ug/L	99
18) 1,1,1-Trichloroethane	4.11	97	124599	47.72 ug/L #	64
20) Carbon tetrachloride	4.26	117	109382	48.39 ug/L	99
21) 1,1-Dichloropropene	4.25	75	120443	47.93 ug/L	99
22) Benzene	4.44	78	341811	46.27 ug/L	100
23) 1,2-Dichloroethane	4.45	62	100334	47.03 ug/L	100
24) Trichloroethene	5.08	95	89600	47.95 ug/L	100
25) 1,2-DICHLOROPROPANE	5.31	63	91842	45.85 ug/L	100
26) Dibromomethane	5.43	93	51868	46.67 ug/L	99
27) Bromodichloromethane	5.59	83	112686	47.31 ug/L	100
28) 2-Chloroethylvinyl Ether	5.92	63	35206	41.76 ug/L	99
29) cis-1,3-Dichloropropene	6.09	75	138640	46.72 ug/L	100
31) TOLUENE	6.47	92	196891	48.40 ug/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112002.D
Acq On : 20 Nov 2003 10:20 am
Sample : 8260-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 10uL #125/233/236
MS Integration Params: rteint.p
Quant Time: Nov 20 10:47 2003

Vial: 2
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) trans-1,3-Dichloropropene	6.74	75	113293	45.82 ug/L	99
33) 1,1,2-Trichloroethane	6.95	83	55417	46.05 ug/L	99
34) Tetrachloroethene	7.13	166	63277	50.68 ug/L	100
36) 1,3-Dichloropropane	7.16	76	115269	47.04 ug/L	99
37) Dibromochloromethane	7.43	129	80432	49.02 ug/L	99
38) 1,2-Dibromoethane	7.57	107	69612	48.79 ug/L	99
39) Chlorobenzene	8.19	112	215693	50.02 ug/L	100
40) 1,1,1,2-Tetrachloroethane	8.31	131	77978	49.66 ug/L	99
41) ETHYLBENZENE	8.34	91	329304	48.39 ug/L	99
42) m&p-Xylene	8.50	106	241458	97.50 ug/L	96
43) o-Xylene	9.02	106	123720	48.90 ug/L	96
44) Styrene	9.04	104	223657	49.60 ug/L	99
45) Bromoform	9.27	173	42782	49.40 ug/L	100
47) Isopropylbenzene	9.52	105	253746	51.02 ug/L	99
48) 1,2,3-Trichloropropane	9.98	110	21340	49.64 ug/L	100
50) Bromobenzene	9.91	156	76780	52.04 ug/L	99
51) 1,1,2,2-Tetrachloroethane	9.94	83	78035	47.17 ug/L	100
52) n-Propylbenzene	10.09	91	311421	52.19 ug/L	100
53) 2-Chlorotoluene	10.19	91	207632	49.78 ug/L	99
54) 4-Chlorotoluene	10.34	91	236314	49.99 ug/L	98
55) 1,3,5-Trimethylbenzene	10.35	105	202772	51.24 ug/L	98
56) tert-Butylbenzene	10.79	119	156111	52.84 ug/L	99
57) 1,2,4-Trimethylbenzene	10.86	105	205132	49.90 ug/L	99
58) sec-Butylbenzene	11.09	105	227098	52.70 ug/L	100
59) 1,3-Dichlorobenzene	11.23	146	118995	52.31 ug/L	100
60) 4-Isopropyltoluene	11.32	119	179722	54.24 ug/L	99
61) 1,4-Dichlorobenzene	11.36	146	126517	50.78 ug/L	99
62) 1,2-Dichlorobenzene	11.88	146	109829	51.70 ug/L	100
63) n-Butylbenzene	11.90	91	161148	53.74 ug/L	98
64) 1,2-Dibromo-3-chloropropan	12.99	75	8475	49.74 ug/L	95
65) 1,2,4-Trichlorobenzene	14.19	180	37380	52.32 ug/L	98
66) Hexachlorobutadiene	14.47	225	17784	57.35 ug/L	98
67) Naphthalene	14.53	128	84385	49.74 ug/L	100
68) 1,2,3-Trichlorobenzene	14.89	180	25667	52.40 ug/L	98

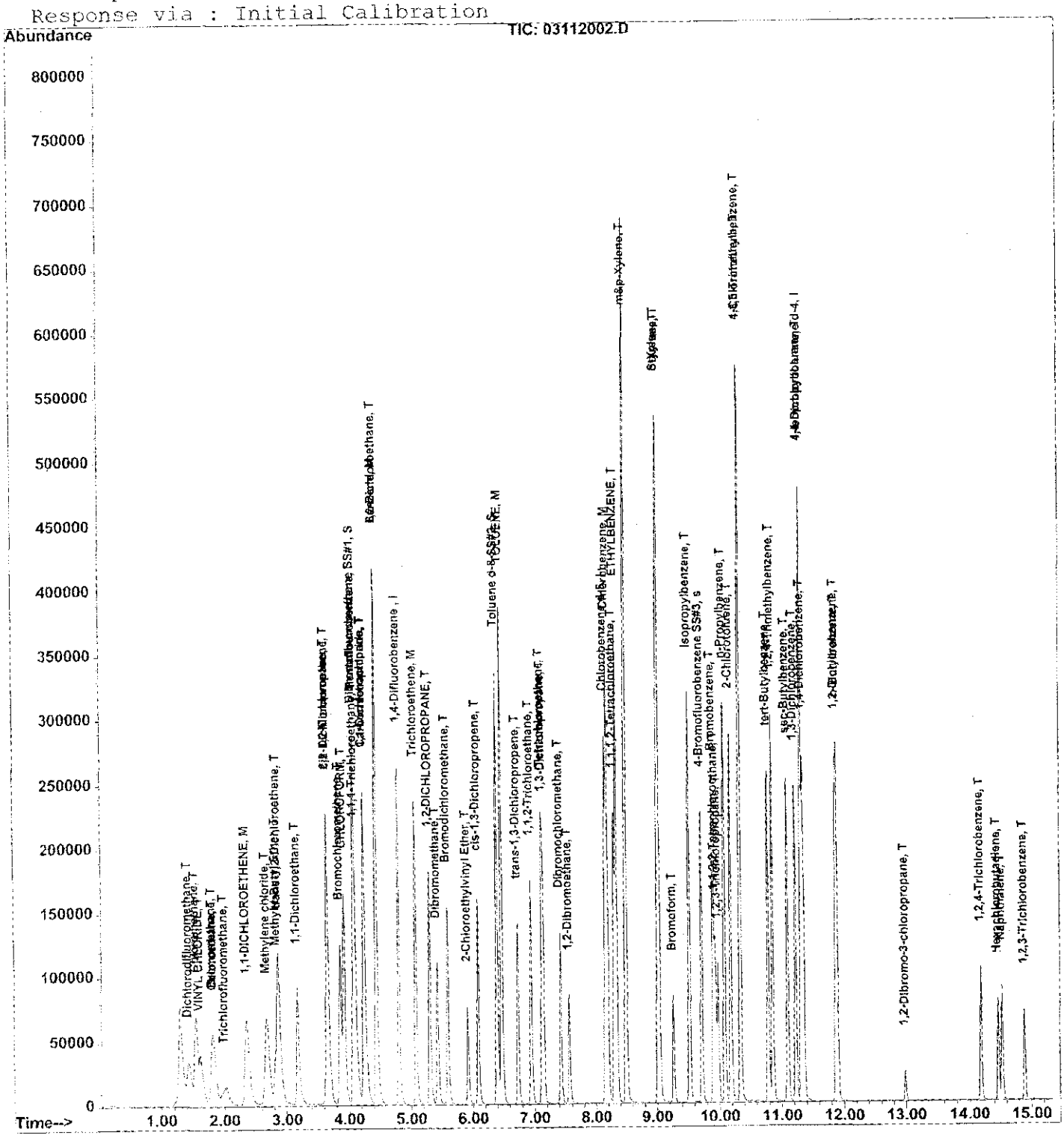
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112002.D
Acq On : 20 Nov 2003 10:20 am
Sample : 8260-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 10uL #125/233/236
MS Integration Params: rteint.p
Quant Time: Nov 20 10:47 2003

Vial: 2
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration



1 1023

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031120\03112003.D
Acq On : 20 Nov 2003 10:45 am
Sample : MDE-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 20uL #237
MS Integration Params: rteint.p

Vial: 3
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
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	Pentaflourobenzene	1.000	1.000	0.0	90	0.01
2	T	Dichlorodifluoromethane	0.667	0.719	-7.8	98	0.00
3	T	Chloromethane	0.935	1.034	-10.6	105	0.00
4	T	VINYL CHLORIDE	0.740	0.725	2.0	89	0.00
5	T	Bromomethane	0.525	0.553	-5.3	95	0.00
6	T	Chloroethane	0.402	0.447	-11.2	95	0.00
7	T	Trichlorofluoromethane	0.169	0.342	-102.4#	141	0.00
8	T	Acetone	0.073	0.145	-98.6#	196#	0.00
9	M	1,1-DICHLOROETHENE	0.614	0.627	-2.1	93	0.00
10	T	1,1,2-Trichlorotrifluoroeth	0.552	0.581	-5.3	95	0.00
11	T	Carbon Disulfide	1.890	2.011	-6.4	96	0.00
12	T	Methyl Acetate	0.047	0.071	-51.1#	143	0.01
13	T	Methylene chloride	0.663	0.661	0.3	95	0.01
14	T	trans-1,2-Dichloroethene	0.667	0.680	-1.9	92	0.00
15	T	Methyl-t-Butyl Ether	0.571	0.751	-31.5#	118	0.01
16	T	1,1-Dichloroethane	1.137	1.165	-2.5	94	0.00
17	T	cis-1,2-Dichloroethene	0.837	0.808	3.5	87	0.01
18	T	2-Butanone (MEK)	0.322	0.337	-4.7	111	0.01
19	T	CHLOROFORM	1.373	1.326	3.4	88	0.01
20	S	Dibromofluoromethane SS#1	0.679	0.678	0.1	90	0.00
21	T	1,1,1-Trichloroethane	1.045	1.025	1.9	90	0.01
22	T	Cyclohexane	1.150	1.062	7.7	84	0.01
23	I	1,4-Difluorobenzene	1.000	1.000	0.0	89	0.01
24	T	Carbon tetrachloride	0.488	0.483	1.0	89	0.01
25	M	Benzene	1.583	1.527	3.5	87	0.01
26	T	1,2-Dichloroethane	0.453	0.456	-0.7	91	0.01
27	M	Trichloroethene	0.400	0.393	1.8	88	0.01
28	T	1,2-DICHLOROPROPANE	0.432	0.402	6.9	83	0.00
29	T	Methylcyclohexane	0.368	0.357	3.0	87	0.01
30	T	Bromodichloromethane	0.514	0.501	2.5	88	0.01
31	T	cis-1,3-Dichloropropene	0.645	0.623	3.4	87	0.01
32	T	4-Methyl-2-Pentanone (MIBK)	0.377	0.373	1.1	92	0.02
33	S	Toluene d-8 SS#2	1.143	1.120	2.0	87	0.01
34	M	TOLUENE	0.867	0.838	3.3	88	0.01
35	T	trans-1,3-Dichloropropene	0.530	0.518	2.3	88	0.01
36	T	1,1,2-Trichloroethane	0.258	0.251	2.7	90	0.02
37	T	Tetrachloroethene	0.268	0.280	-4.5	94	0.01
38	T	2-Hexanone (MBK)	0.243	0.239	1.6	94	0.01
39	I	Chlorobenzene d-5	1.000	1.000	0.0	93	0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031120\03112003.D
Acq On : 20 Nov 2003 10:45 am
Sample : MDE-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 20uL #237
MS Integration Params: rteint.p

Vial: 3
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
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)
40	T	Dibromochloromethane	0.417	0.413	1.0	92	0.01
41	T	1,2-Dibromoethane	0.362	0.357	1.4	93	0.01
42	M	Chlorobenzene	1.091	1.083	0.7	93	0.02
43	T	ETHYLBENZENE	1.715	1.685	1.7	91	0.01
44	T	m&p-Xylene	0.620	0.611	1.5	92	0.01
45	T	o-Xylene	0.645	0.624	3.3	90	0.01
46	T	Styrene	1.137	1.127	0.9	90	0.02
47	T	Bromoform	0.223	0.226	-1.3	93	0.02
48	I	1,4-Dichlorobenzene d-4	1.000	1.000	0.0	93	0.01
49	T	Isopropylbenzene	3.609	3.542	1.9	91	0.02
50	s	4-Bromofluorobenzene SS#3	1.450	1.402	3.3	90	0.01
51	T	1,1,2,2-Tetrachloroethane	1.177	1.140	3.1	91	0.01
52	T	1,3-Dichlorobenzene	1.653	1.677	-1.5	95	0.02
53	T	1,4-Dichlorobenzene	1.855	1.746	5.9	93	0.01
54	T	1,2-Dichlorobenzene	1.531	1.575	-2.9	96	0.01
55	T	1,2-Dibromo-3-chloropropane	0.128	0.139	-8.6	107	0.01
56	T	1,2,4-Trichlorobenzene	0.499	0.551	-10.4	104	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Response Factor Report Instrumen

Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
Response via : Initial Calibration

Calibration Files
C1 =03111705.D C2 =03111706.D C3 =03111707.D
C4 =03111708.D C5 =03111709.D

		Compound	C1	C2	C3	C4	C5	Avg	%RSD
1)	I	Pentaflourobenzene	----------ISTD----------						
2)	T	Dichlorodifluorometha	0.713	0.686	0.643	0.662	0.634	0.667	4.82
3)	T	Chloromethane	1.034	0.991	0.883	0.892	0.875	0.935	7.77
4)	T	VINYL CHLORIDE	0.815	0.797	0.745	0.733	0.611	0.740	10.81
5)	T	Bromomethane	0.570	0.548	0.521	0.525	0.461	0.525	7.75
6)	T	Chloroethane	0.396	0.414	0.400	0.425	0.377	0.402	4.47
7)	T	Trichlorofluoromethan	0.125	0.116	0.120	0.220	0.266	0.169	40.82
8)	T	Acetone	0.079	0.090	0.073	0.067	0.056	0.073	17.32
9)	M	1,1-DICHLOROETHENE	0.660	0.632	0.617	0.611	0.552	0.614	6.48
10)	T	1,1,2-Trichlorotriflu	0.579	0.562	0.560	0.554	0.505	0.552	5.05
11)	T	Carbon Disulfide	2.020	1.948	1.859	1.892	1.729	1.890	5.74
12)	T	Methyl Acetate	0.040	0.039	0.053	0.045	0.059	0.047	18.56
13)	T	Methylene chloride	0.775	0.708	0.632	0.629	0.570	0.663	12.02
14)	T	trans-1,2-Dichloroeth	0.713	0.692	0.662	0.667	0.600	0.667	6.41
15)	T	Methyl-t-Butyl Ether	0.611	0.549	0.623	0.577	0.494	0.571	9.05
16)	T	1,1-Dichloroethane	1.214	1.168	1.143	1.123	1.035	1.137	5.83
17)	T	cis-1,2-Dichloroethen	0.881	0.870	0.822	0.837	0.773	0.837	5.14
18)	T	2-Butanone (MEK)	0.449	0.314	0.293	0.275	0.280	0.322	22.53
19)	T	CHLOROFORM	1.480	1.404	1.350	1.366	1.263	1.373	5.77
20)	S	Dibromofluoromethane	0.682	0.696	0.676	0.680	0.663	0.679	1.77
21)	T	1,1,1-Trichloroethane	1.109	1.083	1.030	1.031	0.972	1.045	5.09
22)	T	Cyclohexane	1.235	1.202	1.124	1.140	1.048	1.150	6.32
23)	I	1,4-Difluorobenzene	----------ISTD----------						
24)	T	Carbon tetrachloride	0.506	0.493	0.481	0.488	0.470	0.488	2.80
25)	M	Benzene	1.745	1.633	1.547	1.573	1.420	1.583	7.52
26)	T	1,2-Dichloroethane	0.483	0.463	0.443	0.451	0.426	0.453	4.71
27)	M	Trichloroethene	0.416	0.413	0.393	0.401	0.375	0.400	4.13
28)	T	1,2-DICHLOROPROPANE	0.459	0.440	0.429	0.432	0.398	0.432	5.19
29)	T	Methylcyclohexane	0.381	0.383	0.366	0.368	0.341	0.368	4.54
30)	T	Bromodichloromethane	0.546	0.524	0.498	0.512	0.489	0.514	4.36
31)	T	cis-1,3-Dichloroprope	0.687	0.655	0.630	0.643	0.608	0.645	4.55
32)	T	4-Methyl-2-Pentanone	0.412	0.391	0.376	0.361	0.347	0.377	6.67
33)	S	Toluene d-8 SS#2	1.141	1.152	1.121	1.146	1.153	1.143	1.13
34)	M	TOLUENE	0.924	0.886	0.861	0.852	0.810	0.867	4.89
35)	T	trans-1,3-Dichloropro	0.544	0.546	0.525	0.526	0.507	0.530	3.03
36)	T	1,1,2-Trichloroethane	0.273	0.262	0.260	0.250	0.243	0.258	4.49
37)	T	Tetrachloroethene	0.277	0.268	0.264	0.265	0.264	0.268	2.02
38)	T	2-Hexanone (MBK)	0.278	0.241	0.244	0.226	0.225	0.243	8.82
39)	I	Chlorobenzene d-5	----------ISTD----------						
40)	T	Dibromochloromethane	0.419	0.413	0.418	0.418	0.416	0.417	0.64
41)	T	1,2-Dibromoethane	0.379	0.371	0.355	0.356	0.349	0.362	3.49

(#) = Out of Range

Response Factor Report Instrumen

Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
Response via : Initial Calibration

Calibration Files
C1 =03111705.D C2 =03111706.D C3 =03111707.D
C4 =03111708.D C5 =03111709.D

		Compound	C1	C2	C3	C4	C5	Avg	%RSD
42)	M	Chlorobenzene	1.152	1.104	1.072	1.086	1.043	1.091	3.71
43)	T	ETHYLBENZENE	1.858	1.748	1.699	1.719	1.551	1.715	6.43
44)	T	m&p-Xylene	0.658	0.642	0.629	0.614	0.560	0.620	6.03
45)	T	o-Xylene	0.682	0.662	0.645	0.647	0.588	0.645	5.40
46)	T	Styrene	1.180	1.152	1.152	1.161	1.038	1.137	4.92
47)	T	Bromoform	0.219	0.220	0.217	0.226	0.234	0.223	3.08
48)	I	1,4-Dichlorobenzene d	----------ISTD----------						
49)	T	Isopropylbenzene	3.830	3.634	3.675	3.650	3.257	3.609	5.86
50)	s	4-Bromofluorobenzene	1.476	1.489	1.441	1.456	1.387	1.450	2.73
51)	T	1,1,2,2-Tetrachloroet	1.244	1.204	1.185	1.164	1.087	1.177	4.96
52)	T	1,3-Dichlorobenzene	1.697	1.659	1.663	1.650	1.597	1.653	2.19
53)	T	1,4-Dichlorobenzene	2.165	1.897	1.788	1.757	1.669	1.855	10.32
54)	T	1,2-Dichlorobenzene	1.610	1.538	1.500	1.536	1.469	1.531	3.45
55)	T	1,2-Dibromo-3-chlorop	0.141	0.125	0.130	0.121	0.124	0.128	6.13
56)	T	1,2,4-Trichlorobenzen	0.502	0.490	0.501	0.492	0.510	0.499	1.59

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112003.D
Acq On : 20 Nov 2003 10:45 am
Sample : MDE-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 20uL #237
MS Integration Params: rteint.p
Quant Time: Nov 25 17:45 2003

Vial: 3
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.09	168	120229	50.00 ug/L	0.01
23) 1,4-Difluorobenzene	4.81	114	222262	50.00 ug/L	0.01
39) Chlorobenzene d-5	8.15	117	196808	50.00 ug/L	0.01
48) 1,4-Dichlorobenzene d-4	11.32	152	72223	50.00 ug/L	0.01
System Monitoring Compounds					
20) Dibromofluoromethane SS#1	4.07	113	81537	49.91 ug/L	0.00
Spiked Amount 50.000			Recovery	= 99.82%	
33) Toluene d-8 SS#2	6.39	98	248843	48.99 ug/L	0.01
Spiked Amount 50.000			Recovery	= 97.98%	
50) 4-Bromofluorobenzene SS#3	9.71	95	101263	48.36 ug/L	0.01
Spiked Amount 50.000			Recovery	= 96.72%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.44	85	86497	53.90 ug/L	100
3) Chloromethane	1.55	50	124292	55.28 ug/L	99
4) VINYL CHLORIDE	1.63	62	87170	48.97 ug/L	99
5) Bromomethane	1.81	94	66494	52.67 ug/L	99
6) Chloroethane	1.84	64	53773	55.59 ug/L	100
7) Trichlorofluoromethane	2.00	101	41161	65.51 ug/L	100
8) Acetone	2.31	43	17456	126.89 ug/L	93
9) 1,1-DICHLOROETHENE	2.36	96	75341	51.02 ug/L	98
10) 1,1,2-Trichlorotrifluoroet	2.35	101	69826	52.59 ug/L	97
11) Carbon Disulfide	2.56	76	241742	53.21 ug/L	99
12) Methyl Acetate	2.54	74	8498	60.67 ug/L	95
13) Methylene chloride	2.68	84	79452	49.84 ug/L	99
14) trans-1,2-Dichloroethene	2.87	96	81721	50.96 ug/L	99
15) Methyl-t-Butyl Ether	2.83	73	90347	65.80 ug/L	100
16) 1,1-Dichloroethane	3.17	63	140014	51.23 ug/L	100
17) cis-1,2-Dichloroethene	3.65	96	97197	48.31 ug/L	98
18) 2-Butanone (MEK)	3.64	43	40531	60.28 ug/L	98
19) CHLOROFORM	3.93	83	159393	48.29 ug/L	100
21) 1,1,1-Trichloroethane	4.11	97	123197	49.02 ug/L #	66
22) Cyclohexane	4.16	56	127703	46.19 ug/L #	92
24) Carbon tetrachloride	4.26	117	107414	49.56 ug/L	100
25) Benzene	4.44	78	339364	48.22 ug/L	100
26) 1,2-Dichloroethane	4.45	62	101411	50.33 ug/L	100
27) Trichloroethene	5.08	95	87412	49.19 ug/L	99
28) 1,2-DICHLOROPROPANE	5.30	63	89323	46.56 ug/L	100
29) Methylcyclohexane	5.28	83	79385	48.57 ug/L	99
30) Bromodichloromethane	5.60	83	111446	48.78 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112003.D
Acq On : 20 Nov 2003 10:45 am
Sample : MDE-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 20uL #237
MS Integration Params: rteint.p
Quant Time: Nov 25 17:45 2003

Vial: 3
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
31) cis-1,3-Dichloropropene	6.09	75	138406	48.30 ug/L	99
32) 4-Methyl-2-Pentanone (MIBK	6.27	43	82994	49.48 ug/L	99
34) TOLUENE	6.47	92	186253	48.35 ug/L	99
35) trans-1,3-Dichloropropene	6.73	75	115226	48.94 ug/L	99
36) 1,1,2-Trichloroethane	6.95	83	55885	48.82 ug/L	99
37) Tetrachloroethene	7.12	166	62265	52.35 ug/L	99
38) 2-Hexanone (MBK)	7.26	43	53043	49.15 ug/L	99
40) Dibromochloromethane	7.43	129	81244	49.50 ug/L	99
41) 1,2-Dibromoethane	7.56	107	70351	49.35 ug/L	100
42) Chlorobenzene	8.19	112	213074	49.60 ug/L	100
43) ETHYLBENZENE	8.34	91	331596	49.12 ug/L	98
44) m&p-Xylene	8.50	106	240343	98.41 ug/L	96
45) o-Xylene	9.01	106	122823	48.41 ug/L	96
46) Styrene	9.04	104	221721	49.56 ug/L	98
47) Bromoform	9.27	173	44530	50.75 ug/L	99
49) Isopropylbenzene	9.52	105	255832	49.07 ug/L	100
51) 1,1,2,2-Tetrachloroethane	9.94	83	82357	48.44 ug/L	100
52) 1,3-Dichlorobenzene	11.23	146	121117	50.72 ug/L	100
53) 1,4-Dichlorobenzene	11.35	146	126113	47.06 ug/L	99
54) 1,2-Dichlorobenzene	11.87	146	113750	51.45 ug/L	99
55) 1,2-Dibromo-3-chloropropan	12.99	75	10019	54.14 ug/L	99
56) 1,2,4-Trichlorobenzene	14.19	180	39782	55.16 ug/L	99

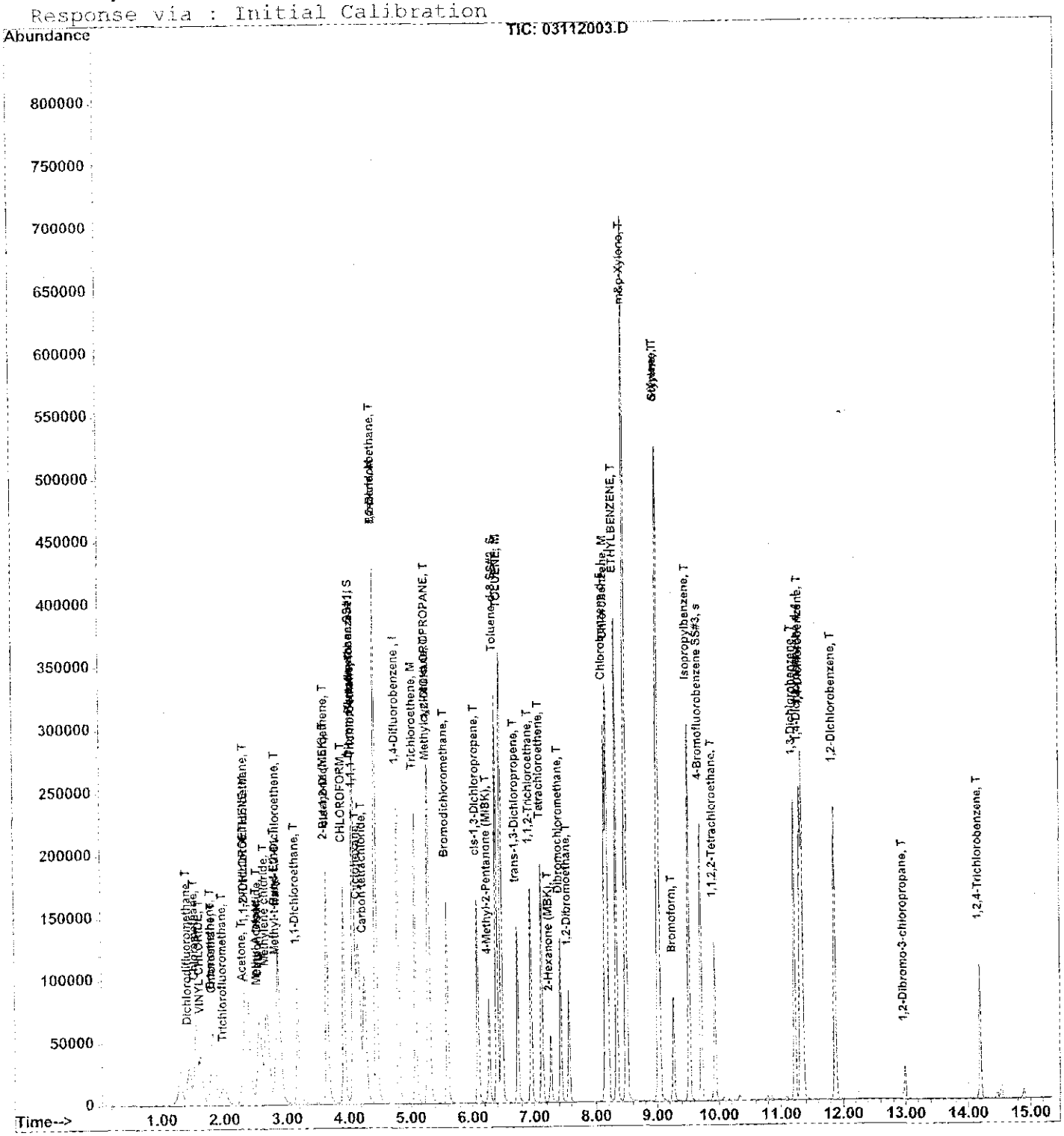
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112003.D
Acq On : 20 Nov 2003 10:45 am
Sample : MDE-W, CCV 50ppb
Misc : 1S/S 1uL #245, CCV 20uL #237
MS Integration Params: rteint.p
Quant Time: Nov 25 17:45 2003

Vial: 3
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 17 15:47:34 2003
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112004.D
Acq On : 20 Nov 2003 11:10 am
Sample : NEWMIX-W, CCV 50ppb
Misc : IS/S 1uL #245, CCV 10uL #238/239
MS Integration Params: rteint.p
Quant Time: Nov 25 17:46 2003

Vial: 4
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\NEWMTH-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:45:39 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	4.09	168	121189	50.00 ug/L	0.02

System Monitoring Compounds

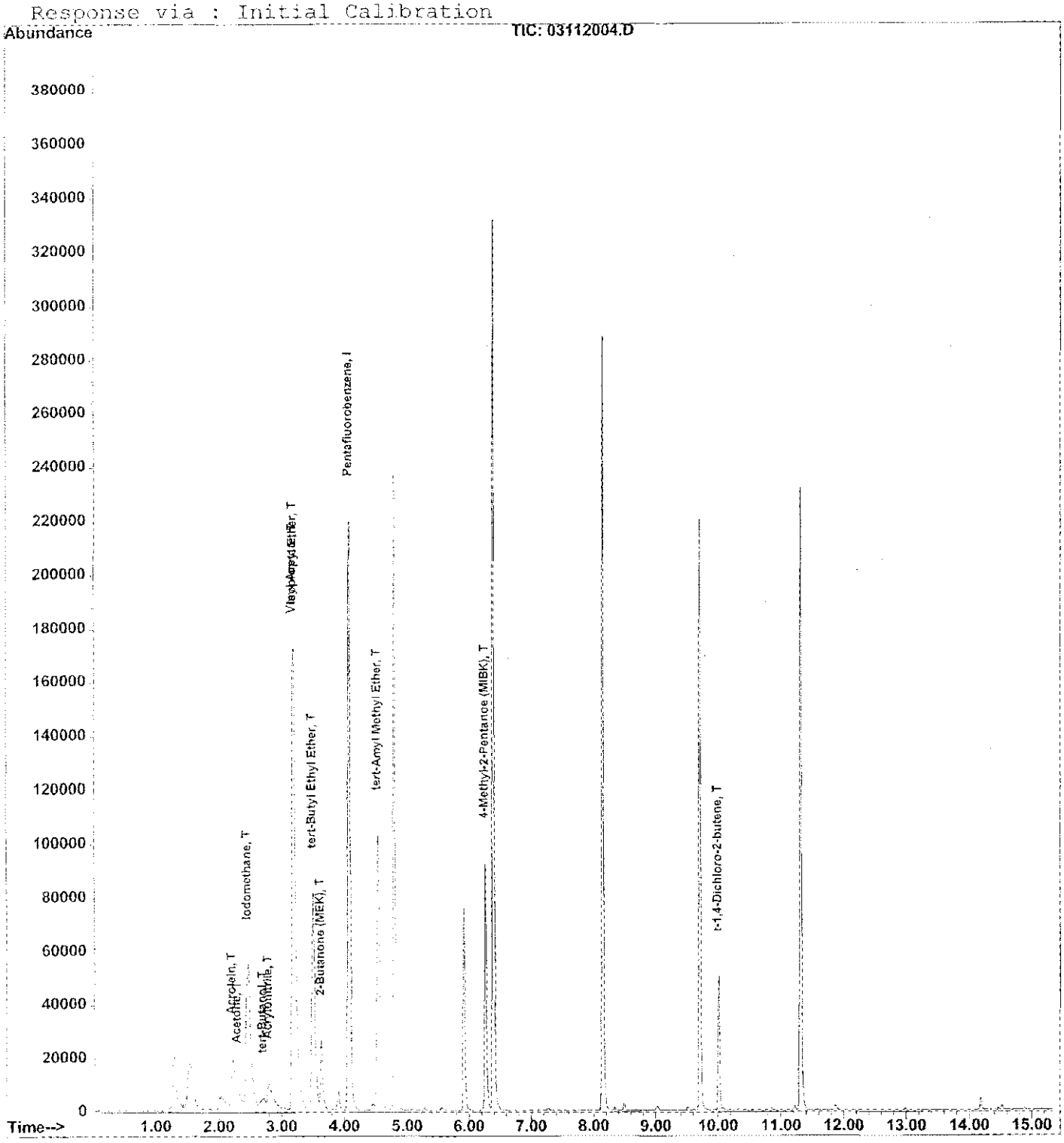
Target Compounds					Qvalue
2) Acrolein	2.23	56	9812	53.37 ug/L	85
3) Acetone	2.32	43	17117	83.33 ug/L #	72
4) Iodomethane	2.47	142	155322	49.10 ug/L	100
5) tert-Butanol	2.72	59	11872	59.96 ug/L	100
6) Acrylonitrile	2.81	53	23479	52.16 ug/L	98
7) Vinyl Acetate	3.18	43	264194	50.32 ug/L	100
8) Isopropyl Ether	3.20	45	268608	50.59 ug/L	100
9) tert-Butyl Ethyl Ether	3.51	59	134573	47.52 ug/L	99
10) 2-Butanone (MEK)	3.64	43	44892	67.94 ug/L	99
11) tert-Amyl Methyl Ether	4.54	73	132469	49.21 ug/L	100
12) 4-Methyl-2-Pentanoe (MIBK)	6.27	43	94002	50.45 ug/L	100
13) t-1,4-Dichloro-2-butene	10.02	75	17863	31.72 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112004.D Vial: 4
Acq On : 20 Nov 2003 11:10 am Operator: MI
Sample : NEWMIX-W, CCV 50ppb Inst : Instrumen
Misc : TS/S 1uL #245, CCV 10uL #238/239 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 17:46 2003

Method : C:\HPCHEM\1\METHODS\NEWMTH-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:45:39 2003
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031119\03111923.D Vial: 22
Acq On : 19 Nov 03 8:42 pm Operator: MI
Sample : 8260-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 2uL #125/233/236 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
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	Pentaflourobenzene	1.000	1.000	0.0	90	0.04
2	T	Dichlorodifluoromethane	0.849	0.725	14.6	84	0.03
3	T	Chloromethane	1.420	1.340	5.6	90	0.00
4	T	VINYL CHLORIDE	0.935	0.870	7.0	87	0.05
5	T	Bromomethane	0.744	0.721	3.1	91	0.02
6	T	Chloroethane	0.550	0.533	3.1	89	0.03
7	M	1,1-DICHLOROETHENE	0.685	0.659	3.8	90	0.04
8	T	Methylene chloride	0.952	0.911	4.3	93	0.04
9	T	trans-1,2-Dichloroethene	0.757	0.744	1.7	91	0.04
10	T	Methyl-t-Butyl Ether	1.462	1.452	0.7	91	0.03
11	T	1,1-Dichloroethane	1.634	1.570	3.9	90	0.03
12	T	2,2-Dichloropropane	0.967	0.897	7.2	88	0.04
13	T	cis-1,2-Dichloroethene	0.864	0.836	3.2	90	0.04
14	T	Bromochloromethane	0.427	0.411	3.7	88	0.03
15	T	CHLOROFORM	1.519	1.472	3.1	91	0.04
16	S	Dibromofluoromethane SS#1	0.833	0.832	0.1	91	0.04
17	T	1,1,1-Trichloroethane	1.077	1.015	5.8	89	0.04
18	I	1,4-Difluorobenzene	1.000	1.000	0.0	90	0.04
19	T	Carbon tetrachloride	0.463	0.435	6.0	88	0.04
20	T	1,1-Dichloropropene	0.560	0.539	3.8	91	0.03
21	M	Benzene	1.434	1.376	4.0	88	0.03
22	T	1,2-Dichloroethane	0.690	0.706	-2.3	93	0.03
23	M	Trichloroethene	0.421	0.392	6.9	88	0.04
24	T	1,2-DICHLOROPROPANE	0.450	0.444	1.3	91	0.03
25	T	Dibromomethane	0.335	0.337	-0.6	90	0.04
26	T	Bromodichloromethane	0.579	0.584	-0.9	92	0.03
27	T	2-Chloroethylvinyl Ether	0.301	0.299	0.7	85	0.03
28	T	cis-1,3-Dichloropropene	0.674	0.662	1.8	90	0.03
29	S	Toluene d-8 SS#2	1.119	1.133	-1.3	91	0.04
30	M	TOLUENE	0.845	0.767	9.2	91	0.03
31	T	trans-1,3-Dichloropropene	0.610	0.611	-0.2	90	0.03
32	T	1,1,2-Trichloroethane	0.315	0.311	1.3	89	0.03
33	T	Tetrachloroethene	0.318	0.301	5.3	91	0.03
34	I	Chlorobenzene d-5	1.000	1.000	0.0	91	0.03
35	T	1,3-Dichloropropane	0.732	0.726	0.8	91	0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031119\03111923.D Vial: 22
Acq On : 19 Nov 03 8:42 pm Operator: MI
Sample : 8260-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 2uL #125/233/236 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
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)
36	T	Dibromochloromethane	0.463	0.459	0.9	91	0.04
37	T	1,2-Dibromoethane	0.490	0.478	2.4	90	0.03
38	M	Chlorobenzene	1.035	0.986	4.7	90	0.03
39	T	1,1,1,2-Tetrachloroethane	0.373	0.360	3.5	89	0.03
40	T	ETHYLBENZENE	1.773	1.689	4.7	92	0.02
41	T	m&p-Xylene	0.616	0.578	6.2	90	0.03
42	T	o-Xylene	0.609	0.585	3.9	91	0.03
43	T	Styrene	1.123	1.079	3.9	90	0.03
44	T	Bromoform	0.324	0.322	0.6	89	0.03
45	I	1,4-Dichlorobenzene d-4	1.000	1.000	0.0	95	0.03
46	T	Isopropylbenzene	3.626	3.273	9.7	91	0.03
47	T	1,2,3-Trichloropropane	0.386	0.364	5.7	90	0.03
48	s	4-Bromofluorobenzene SS#3	1.299	1.266	2.5	93	0.03
49	T	Bromobenzene	0.954	0.884	7.3	92	0.03
50	T	1,1,2,2-Tetrachloroethane	1.446	1.432	1.0	93	0.03
51	T	n-Propylbenzene	4.907	4.465	9.0	92	0.03
52	T	2-Chlorotoluene	2.948	2.756	6.5	94	0.02
53	T	4-Chlorotoluene	3.329	3.115	6.4	93	0.03
54	T	1,3,5-Trimethylbenzene	3.113	2.896	7.0	93	0.03
55	T	tert-Butylbenzene	2.361	2.178	7.8	92	0.03
56	T	1,2,4-Trimethylbenzene	3.199	3.007	6.0	94	0.02
57	T	sec-Butylbenzene	4.232	3.886	8.2	92	0.02
58	T	1,3-Dichlorobenzene	1.690	1.578	6.6	94	0.03
59	T	4-Isopropyltoluene	2.926	2.689	8.1	92	0.02
60	T	1,4-Dichlorobenzene	2.072	1.648	20.5	91	0.02
61	T	1,2-Dichlorobenzene	1.619	1.557	3.8	94	0.03
62	T	n-Butylbenzene	3.418	3.248	5.0	95	0.02
63	T	1,2-Dibromo-3-chloropropane	0.264	0.269	-1.9	92	0.03
64	T	1,2,4-Trichlorobenzene	1.134	1.137	-0.3	98	0.03
65	T	Hexachlorobutadiene	0.533	0.527	1.1	97	0.03
66	T	Naphthalene	2.538	2.515	0.9	94	0.03
67	T	1,2,3-Trichlorobenzene	1.043	1.059	-1.5	100	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031119\03111923.D Vial: 22
Acq On : 19 Nov 03 8:42 pm Operator: MI
Sample : 8260-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 2uL #125/233/236 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 19 23:01 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.41	168	120723	50.00 ug/L	0.04
18) 1,4-Difluorobenzene	5.15	114	224137	50.00 ug/L	0.04
34) Chlorobenzene d-5	8.56	117	192526	50.00 ug/L	0.03
45) 1,4-Dichlorobenzene d-4	11.75	152	87480	50.00 ug/L	0.03
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.38	113	100400	49.90 ug/L	0.04
Spiked Amount 50.000			Recovery =	99.80%	
29) Toluene d-8 SS#2	6.78	98	253902	50.61 ug/L	0.04
Spiked Amount 50.000			Recovery =	101.22%	
48) 4-Bromofluorobenzene SS#3	10.14	95	110737	48.74 ug/L	0.03
Spiked Amount 50.000			Recovery =	97.48%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.59	85	140073	68.34 ug/L	100
3) Chloromethane	1.71	50	258890	75.52 ug/L	99
4) VINYL CHLORIDE	1.81	62	168072	96.05 ug/L	98
5) Bromomethane	2.00	94	139304	76.01 ug/L	98
6) Chloroethane	2.03	64	103041	73.40 ug/L	98
7) 1,1-DICHLOROETHENE	2.59	96	127348	76.95 ug/L	97
8) Methylene chloride	2.90	84	176054	92.31 ug/L	100
9) trans-1,2-Dichloroethene	3.12	96	143718	78.60 ug/L	99
10) Methyl-t-Butyl Ether	3.12	73	280462	79.47 ug/L	100
11) 1,1-Dichloroethane	3.45	63	303322	76.89 ug/L	99
12) 2,2-Dichloropropane	3.97	77	173333	74.24 ug/L	99
13) cis-1,2-Dichloroethene	3.96	96	161435	77.39 ug/L	99
14) Bromochloromethane	4.17	128	79464	77.00 ug/L	93
15) CHLOROFORM	4.24	83	284334	77.51 ug/L	99
17) 1,1,1-Trichloroethane	4.44	97	196067	75.42 ug/L #	47
19) Carbon tetrachloride	4.61	117	155946	75.10 ug/L	98
20) 1,1-Dichloropropene	4.58	75	193427	77.06 ug/L	99
21) Benzene	4.78	78	493389	76.74 ug/L	98
22) 1,2-Dichloroethane	4.78	62	253329	81.88 ug/L	100
23) Trichloroethene	5.44	95	140720	74.51 ug/L	98
24) 1,2-DICHLOROPROPANE	5.66	63	159392	78.95 ug/L	100
25) Dibromomethane	5.79	93	120995	80.60 ug/L	99
26) Bromodichloromethane	5.95	83	209370	80.68 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031119\03111923.D
Acq On : 19 Nov 03 8:42 pm
Sample : 8260-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 2uL #125/233/236
MS Integration Params: rteint.p
Quant Time: Nov 19 23:01 2003

Vial: 22
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27) 2-Chloroethylvinyl Ether	6.28	63	107245	79.46 ug/L	100
28) cis-1,3-Dichloropropene	6.45	75	237521	78.62 ug/L	100
30) TOLUENE	6.86	92	274901	85.24 ug/L	98
31) trans-1,3-Dichloropropene	7.10	75	218994	80.04 ug/L	100
32) 1,1,2-Trichloroethane	7.33	83	111624	78.98 ug/L	99
33) Tetrachloroethene	7.53	166	108081	75.84 ug/L	100
35) 1,3-Dichloropropane	7.53	76	223588	79.32 ug/L	99
36) Dibromochloromethane	7.82	129	141475	79.35 ug/L	99
37) 1,2-Dibromoethane	7.96	107	147379	78.13 ug/L	100
38) Chlorobenzene	8.60	112	303648	76.20 ug/L	96
39) 1,1,1,2-Tetrachloroethane	8.71	131	110821	77.16 ug/L	99
40) ETHYLBENZENE	8.75	91	520357	76.21 ug/L	98
41) m&p-Xylene	8.91	106	356245	150.10 ug/L	94
42) o-Xylene	9.44	106	180283	76.88 ug/L	96
43) Styrene	9.45	104	332382	76.87 ug/L	97
44) Bromoform	9.68	173	99220	79.55 ug/L	99
46) Isopropylbenzene	9.95	105	458096	72.20 ug/L	99
47) 1,2,3-Trichloropropane	10.39	110	50917	75.38 ug/L	100
49) Bromobenzene	10.33	156	123781	74.14 ug/L	97
50) 1,1,2,2-Tetrachloroethane	10.34	83	200407	79.23 ug/L	100
51) n-Propylbenzene	10.51	91	624901	72.79 ug/L	99
52) 2-Chlorotoluene	10.61	91	385750	74.78 ug/L	99
53) 4-Chlorotoluene	10.77	91	435966	74.85 ug/L	99
54) 1,3,5-Trimethylbenzene	10.77	105	405300	74.42 ug/L	99
55) tert-Butylbenzene	11.22	119	304818	73.79 ug/L	98
56) 1,2,4-Trimethylbenzene	11.29	105	420866	75.19 ug/L	99
57) sec-Butylbenzene	11.53	105	543899	73.46 ug/L	99
58) 1,3-Dichlorobenzene	11.66	146	220849	74.68 ug/L	99
59) 4-Isopropyltoluene	11.75	119	376371	73.53 ug/L	97
60) 1,4-Dichlorobenzene	11.79	146	230725	80.45 ug/L	99
61) 1,2-Dichlorobenzene	12.31	146	217882	76.94 ug/L	99
62) n-Butylbenzene	12.33	91	454664	76.04 ug/L	100
63) 1,2-Dibromo-3-chloropropan	13.42	75	37671	81.62 ug/L	97
64) 1,2,4-Trichlorobenzene	14.65	180	159208	80.24 ug/L	99
65) Hexachlorobutadiene	14.93	225	73797	79.10 ug/L #	99
66) Naphthalene	14.98	128	351976	79.26 ug/L	100
67) 1,2,3-Trichlorobenzene	15.36	180	148167	81.21 ug/L	100

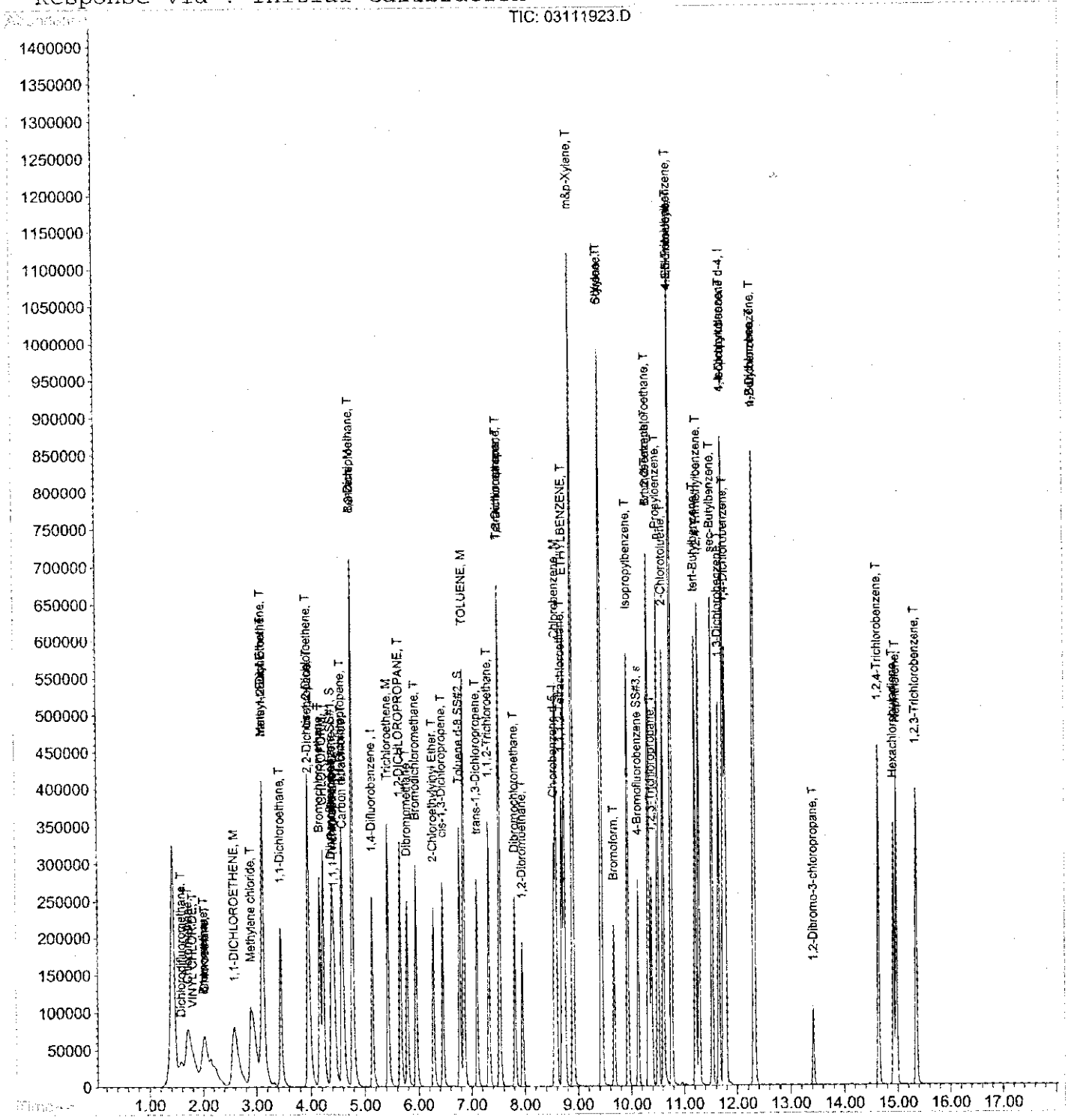
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031119\03111923.D
Acq On : 19 Nov 03 8:42 pm
Sample : 8260-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 2uL #125/233/236
MS Integration Params: rteint.p
Quant Time: Nov 19 23:01 2003

Vial: 22
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration



1 1037

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031119\03111924.D
Acq On : 19 Nov 03 9:09 pm
Sample : MDE-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 4uL #237
MS Integration Params: rteint.p

Vial: 23
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\MDE-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 03 11:14:15 2003
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	Pentaflourobenzene	1.000	1.000	0.0	90	0.03
2	T	Dichlorodifluoromethane	0.581	0.649	-11.7	104	0.00
3	T	Chloromethane	1.258	1.309	-4.1	96	0.00
4	T	VINYL CHLORIDE	0.815	0.853	-4.7	93	0.00
5	T	Bromomethane	0.700	0.692	1.1	90	0.00
6	T	Chloroethane	0.532	0.510	4.1	87	0.00
7	T	Trichlorofluoromethane	0.507	0.432	14.8	75	0.02
8	T	Acetone	0.555	0.461	16.9	67	0.03
9	M	1,1-DICHLOROETHENE	0.640	0.624	2.5	89	0.02
10	T	1,1,2-Trichlorotrifluoroeth	0.630	0.635	-0.8	93	0.02
11	T	Carbon Disulfide	2.494	2.468	1.0	90	0.03
12	T	Methyl Acetate	0.124	0.150	-21.0	99	0.03
13	T	Methylene chloride	0.876	0.852	2.7	92	0.03
14	T	trans-1,2-Dichloroethene	0.700	0.708	-1.1	90	0.03
15	T	Methyl-t-Butyl Ether	1.519	1.543	-1.6	88	0.02
16	T	1,1-Dichloroethane	1.547	1.566	-1.2	91	0.03
17	T	cis-1,2-Dichloroethene	0.796	0.810	-1.8	90	0.03
18	T	2-Butanone (MEK)	0.902	0.786	12.9	72	0.03
19	T	CHLOROFORM	1.435	1.476	-2.9	92	0.03
20	S	Dibromofluoromethane SS#1	0.806	0.816	-1.2	89	0.03
21	T	1,1,1-Trichloroethane	1.013	0.984	2.9	88	0.03
22	T	Cyclohexane	1.458	1.355	7.1	85	0.03
23	I	1,4-Difluorobenzene	1.000	1.000	0.0	87	0.03
24	T	Carbon tetrachloride	0.447	0.443	0.9	89	0.03
25	M	Benzene	1.386	1.410	-1.7	91	0.03
26	T	1,2-Dichloroethane	0.666	0.727	-9.2	95	0.03
27	M	Trichloroethene	0.410	0.399	2.7	88	0.03
28	T	1,2-DICHLOROPROPANE	0.435	0.453	-4.1	92	0.03
29	T	Methylcyclohexane	0.556	0.541	2.7	86	0.03
30	T	Bromodichloromethane	0.572	0.605	-5.8	93	0.03
31	T	cis-1,3-Dichloropropene	0.655	0.673	-2.7	91	0.03
32	T	4-Methyl-2-Pentanone (MIBK)	0.724	0.850	-17.4	97	0.03
33	S	Toluene d-8 SS#2	1.113	1.130	-1.5	90	0.03
34	M	TOLUENE	0.787	0.769	2.3	91	0.03
35	T	trans-1,3-Dichloropropene	0.596	0.625	-4.9	92	0.03
36	T	1,1,2-Trichloroethane	0.307	0.326	-6.2	93	0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031119\03111924.D
Acq On : 19 Nov 03 9:09 pm
Sample : MDE-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 4uL #237
MS Integration Params: rteint.p

Vial: 23
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\2\METHODS\MDE-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 03 11:14:15 2003
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)
37	T	Tetrachloroethene	0.312	0.303	2.9	89	0.03
38	T	2-Hexanone (MBK)	0.648	0.633	2.3	77	0.03
39	I	Chlorobenzene d-5	1.000	1.000	0.0	90	0.03
40	T	Dibromochloromethane	0.462	0.480	-3.9	92	0.03
41	T	1,2-Dibromoethane	0.484	0.499	-3.1	93	0.03
42	M	Chlorobenzene	1.023	1.003	2.0	91	0.03
43	T	ETHYLBENZENE	1.731	1.713	1.0	93	0.03
44	T	m&p-Xylene	0.598	0.590	1.3	92	0.03
45	T	o-Xylene	0.594	0.598	-0.7	93	0.03
46	T	Styrene	1.091	1.092	-0.1	92	0.03
47	T	Bromoform	0.313	0.343	-9.6	95	0.03
48	I	1,4-Dichlorobenzene d-4	1.000	1.000	0.0	90	0.03
49	T	Isopropylbenzene	3.602	3.415	5.2	92	0.03
50	s	4-Bromofluorobenzene SS#3	1.300	1.295	0.4	93	0.03
51	T	1,1,2,2-Tetrachloroethane	1.387	1.552	-11.9	103	0.03
52	T	1,3-Dichlorobenzene	1.661	1.604	3.4	92	0.03
53	T	1,4-Dichlorobenzene	2.056	1.677	18.4	91	0.03
54	T	1,2-Dichlorobenzene	1.596	1.565	1.9	92	0.03
55	T	1,2-Dibromo-3-chloropropane	0.244	0.279	-14.3	101	0.03
56	T	1,2,4-Trichlorobenzene	1.089	1.066	2.1	91	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031119\03111924.D
Acq On : 19 Nov 03 9:09 pm
Sample : MDE-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 4uL #237
MS Integration Params: rteint.p
Quant Time: Nov 20 10:41 2003

Vial: 23
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: MDE-S.RES

Quant Method : C:\HPCHEM\2\METHODS\MDE-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 03 11:14:15 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.41	168	126464	50.00 ug/L	0.03
23) 1,4-Difluorobenzene	5.15	114	231197	50.00 ug/L	0.03
39) Chlorobenzene d-5	8.56	117	197940	50.00 ug/L	0.03
48) 1,4-Dichlorobenzene d-4	11.75	152	88556	50.00 ug/L	0.03
System Monitoring Compounds					
20) Dibromofluoromethane SS#1	4.38	113	103203	50.62 ug/L	0.03
Spiked Amount 50.000			Recovery =	101.24%	
33) Toluene d-8 SS#2	6.78	98	261259	50.78 ug/L	0.03
Spiked Amount 50.000			Recovery =	101.56%	
50) 4-Bromofluorobenzene SS#3	10.13	95	114692	49.79 ug/L	0.03
Spiked Amount 50.000			Recovery =	99.58%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.58	85	131384	89.33 ug/L	100
3) Chloromethane	1.70	50	264883	83.25 ug/L	97
4) VINYL CHLORIDE	1.82	62	172650	83.79 ug/L	99
5) Bromomethane	1.99	94	140011	79.04 ug/L	100
6) Chloroethane	2.03	64	103151	76.62 ug/L	95
7) Trichlorofluoromethane	2.16	101	87355m	68.10 ug/L	99
8) Acetone	2.55	43	93239	71.36 ug/L	93
9) 1,1-DICHLOROETHENE	2.58	96	126269	77.99 ug/L	95
10) 1,1,2-Trichlorotrifluoroet	2.57	101	128426	80.62 ug/L	97
11) Carbon Disulfide	2.83	76	499285	77.28 ug/L	99
12) Methyl Acetate	2.79	74	30386	96.77 ug/L	91
13) Methylene chloride	2.90	84	172388	80.98 ug/L	95
14) trans-1,2-Dichloroethene	3.13	96	143206	80.93 ug/L	99
15) Methyl-t-Butyl Ether	3.12	73	312193	81.24 ug/L	100
16) 1,1-Dichloroethane	3.45	63	316903	80.98 ug/L	98
17) cis-1,2-Dichloroethene	3.96	96	163801	81.34 ug/L	96
18) 2-Butanone (MEK)	3.94	43	158961	69.65 ug/L	98
19) CHLOROFORM	4.23	83	298576	82.28 ug/L	98
21) 1,1,1-Trichloroethane	4.44	97	199100	77.69 ug/L #	52
22) Cyclohexane	4.51	56	274185	74.35 ug/L	95
24) Carbon tetrachloride	4.60	117	164020	79.29 ug/L	99
25) Benzene	4.78	78	521461	81.39 ug/L	97
26) 1,2-Dichloroethane	4.78	62	269069	87.36 ug/L	98

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\2\DATA\031119\03111924.D
Acq On : 19 Nov 03 9:09 pm
Sample : MDE-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 4uL #237
MS Integration Params: rteint.p
Quant Time: Nov 20 10:41 2003

Vial: 23
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: MDE-S.RES

Quant Method : C:\HPCHEM\2\METHODS\MDE-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 03 11:14:15 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

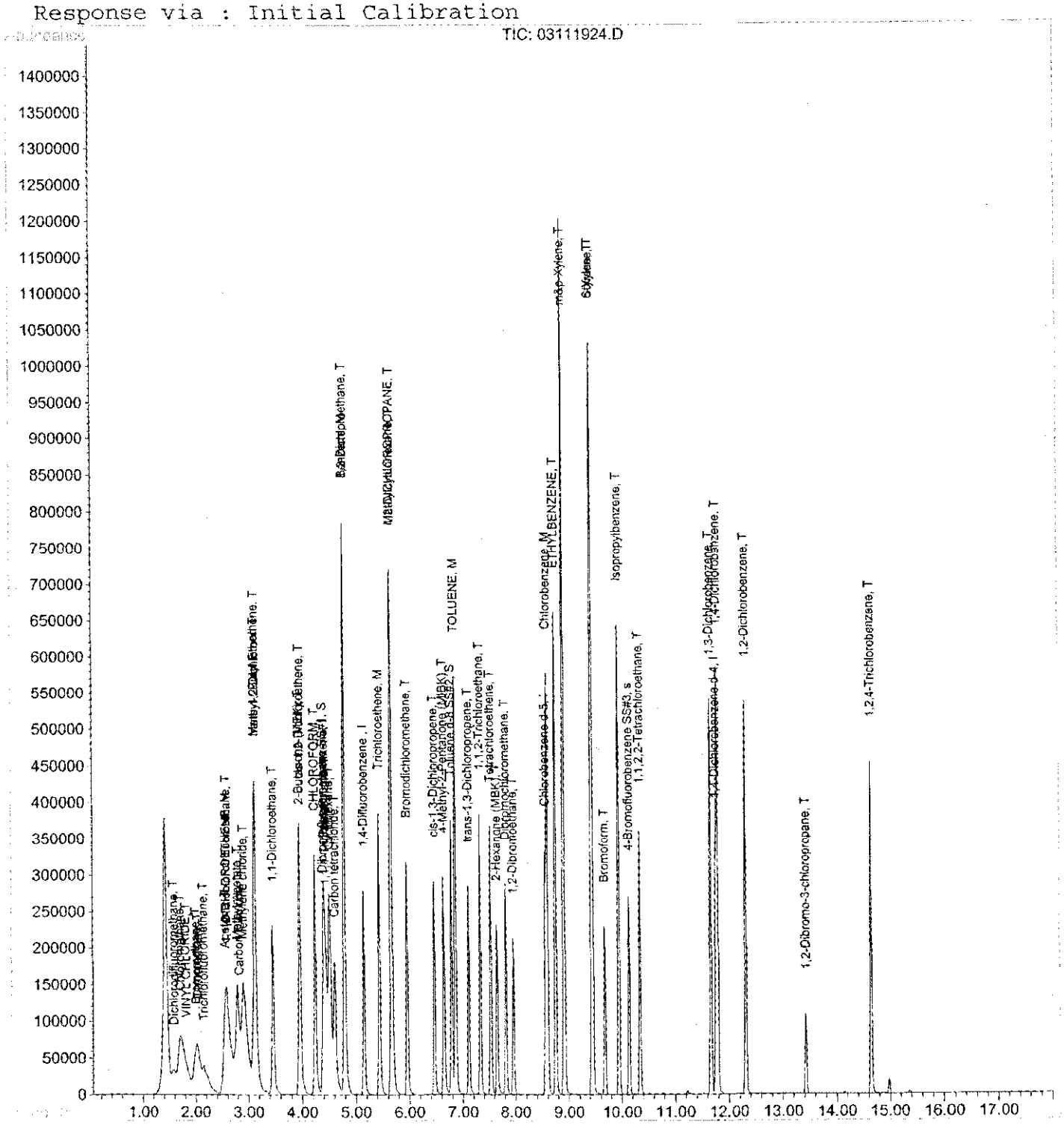
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	Trichloroethene	5.43	95	147664	77.82 ug/L	97
28)	1,2-DICHLOROPROPANE	5.66	63	167657	83.31 ug/L	100
29)	Methylcyclohexane	5.66	83	200201	77.87 ug/L	99
30)	Bromodichloromethane	5.95	83	223821	84.63 ug/L	98
31)	cis-1,3-Dichloropropene	6.46	75	249022	82.21 ug/L	97
32)	4-Methyl-2-Pentanone (MIBK	6.63	43	314462	93.88 ug/L	96
34)	TOLUENE	6.86	92	284282	78.16 ug/L	98
35)	trans-1,3-Dichloropropene	7.11	75	231102	83.91 ug/L	99
36)	1,1,2-Trichloroethane	7.32	83	120548	84.87 ug/L	96
37)	Tetrachloroethene	7.53	166	111937	77.61 ug/L	99
38)	2-Hexanone (MBK)	7.64	43	234196	78.16 ug/L	96
40)	Dibromochloromethane	7.82	129	152047	83.20 ug/L	100
41)	1,2-Dibromoethane	7.96	107	157925	82.44 ug/L	99
42)	Chlorobenzene	8.60	112	317497	78.42 ug/L	98
43)	ETHYLBENZENE	8.75	91	542440	79.14 ug/L	97
44)	m&p-Xylene	8.91	106	373720	157.91 ug/L	95
45)	o-Xylene	9.44	106	189268	80.51 ug/L	99
46)	Styrene	9.45	104	345990	80.10 ug/L	90
47)	Bromoform	9.68	173	108664	87.76 ug/L	99
49)	Isopropylbenzene	9.94	105	483860	75.85 ug/L	98
51)	1,1,2,2-Tetrachloroethane	10.34	83	219909	89.55 ug/L	98
52)	1,3-Dichlorobenzene	11.66	146	227227	77.22 ug/L	98
53)	1,4-Dichlorobenzene	11.79	146	237583	77.79 ug/L	98
54)	1,2-Dichlorobenzene	12.31	146	221677	78.42 ug/L	98
55)	1,2-Dibromo-3-chloropropan	13.42	75	39544	91.67 ug/L	100
56)	1,2,4-Trichlorobenzene	14.64	180	151106	78.37 ug/L	99

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\2\DATA\031119\03111924.D
Acq On : 19 Nov 03 9:09 pm
Sample : MDE-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 4uL #237
MS Integration Params: rteint.p
Quant Time: Nov 20 10:41 2003

Vial: 23
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: MDE-S.RES

Method : C:\HPCHEM\2\METHODS\MDE-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Mon Nov 03 11:14:15 2003
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031119\03111925.D
Acq On : 19 Nov 03 9:37 pm
Sample : NEWMIX-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 2uL #238/239
MS Integration Params: rteint.p
Quant Time: Nov 19 23:03 2003

Vial: 24
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00

Quant Results File: NEWMTH-S.RES

Quant Method : C:\HPCHEM\2\METHODS\NEWMTH-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:44:06 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	4.40	168	118438	50.00 ug/L	0.02

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetone	2.54	43	81422	59.60 ug/L	97
3) tert-Butanol	2.98	59	43323	70.77 ug/L #	82
4) Isopropyl Ether	3.49	45	792146	62.41 ug/L #	100
5) tert-Butyl Ethyl Ether	3.82	59	486901	70.91 ug/L	97
6) 2-Butanone (MEK)	3.93	43	150288	54.49 ug/L	96
7) tert-Amyl Methyl Ether	4.90	73	404079	70.65 ug/L	93
8) 4-Methyl-2-Pentanone (MIBK	6.63	43	305844	55.28 ug/L	95

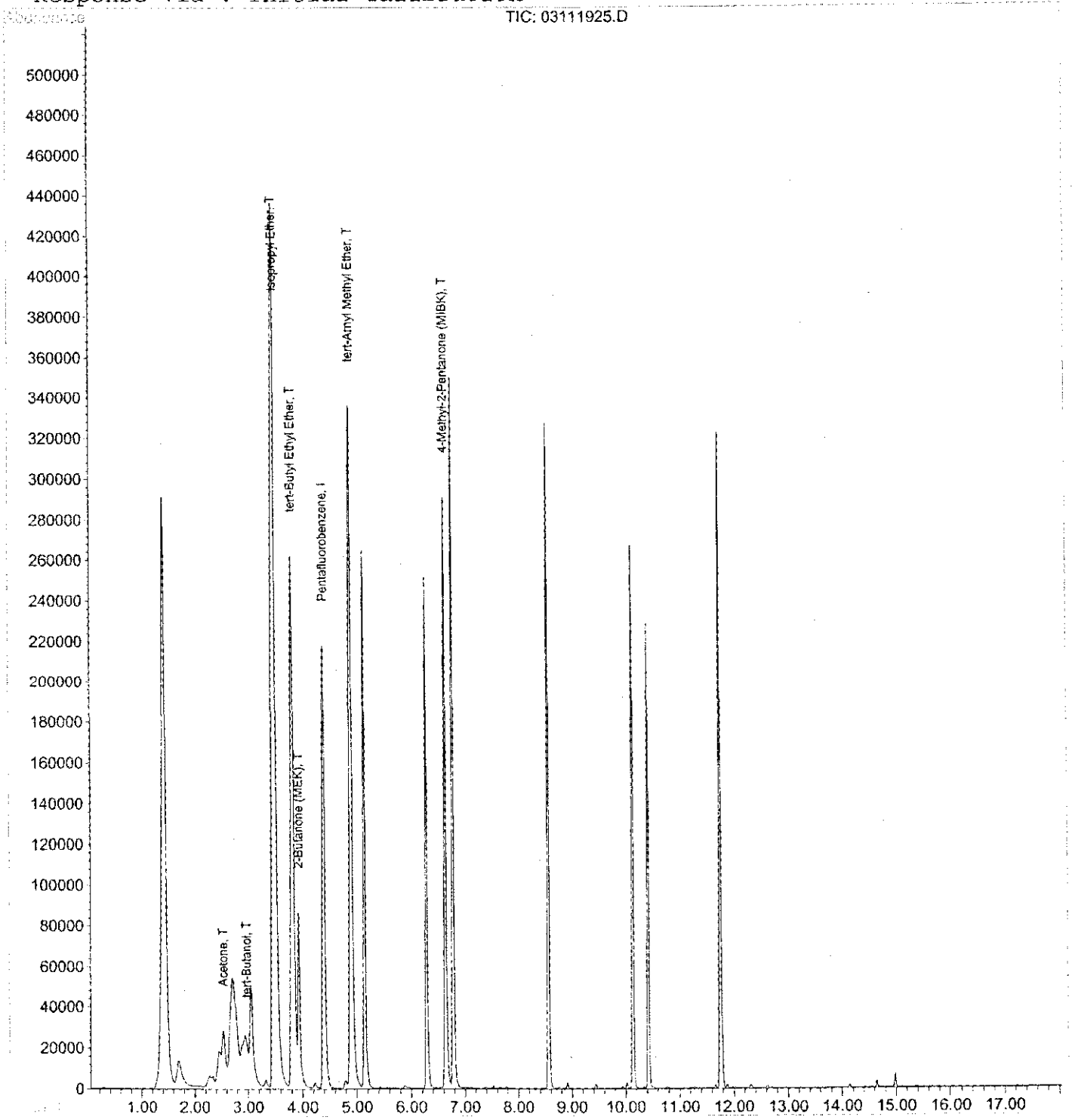
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031119\03111925.D
Acq On : 19 Nov 03 9:37 pm
Sample : NEWMIX-S, CCV 80ppb
Misc : IS/Surr 1uL #245, CCV 2uL #238/239
MS Integration Params: rteint.p
Quant Time: Nov 19 23:03 2003

Vial: 24
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: NEWMTH-S.RES

Method : C:\HPCHEM\2\METHODS\NEWMTH-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:44:06 2003
Response via : Initial Calibration



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BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
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PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANICS COMPOUNDS
SAMPLE SPIKE AND SAMPLE SPIKE DUPLICATE SUMMARY

DATE ANALYZED: 11/21/03 **BATCH NUMBER:** VOC031120

METHOD: EPA 8260 **LAB FILE IDs:** 03112047.D
03112048.D

MATRIX: Water

Client Sample ID: 03111917-01 MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	QC LIMITS (%)
1,1-Dichloroethene	25	ND	22	90	61-145
Benzene	25	ND	25	99	76-127
Trichloroethene	25	ND	25	100	71-120
Toluene	25	ND	25	101	76-125
Chlorobenzene	25	ND	26	102	75-130

Client Sample ID: 03111917-01 MSD

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPK DUP CONC (ug/L)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
1,1-Dichloroethene	25	ND	22	90	0.2	14	61-145
Benzene	25	ND	24	96	3.7	11	76-127
Trichloroethene	25	ND	24	95	4.9	14	71-120
Toluene	25	ND	24	97	3.4	13	76-125
Chlorobenzene	25	ND	25	101	1.1	13	75-130

* - Values outside of QC Limits

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

1 1045

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112047.D
Acq On : 21 Nov 2003 5:57 am
Sample : 03111917-01 MS 25ppb
Misc : IS/S 1uL #245, MS 5uL #42
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Vial: 47
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.08	168	116674	50.00 ug/L	0.00
19) 1,4-Difluorobenzene	4.80	114	207786	50.00 ug/L	0.00
35) Chlorobenzene d-5	8.14	117	180740	50.00 ug/L	0.00
46) 1,4-Dichlorobenzene d-4	11.32	152	69258	50.00 ug/L	0.02
System Monitoring Compounds					
17) Dibromofluoromethane SS#1	4.07	113	76660	48.51 ug/L	0.00
Spiked Amount 50.000 Range 80 - 120 Recovery = 97.02%					
30) Toluene d-8 SS#2	6.39	98	233704	49.15 ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 98.30%					
49) 4-Bromofluorobenzene SS#3	9.71	95	92778	47.24 ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 94.48%					
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.44	85	33426	19.61 ug/L	100
3) Chloromethane	1.54	50	48531	21.40 ug/L	99
4) VINYL CHLORIDE	1.63	62	37599	21.52 ug/L	97
5) Bromomethane	1.81	94	28732	23.25 ug/L	99
6) Chloroethane	1.85	64	23931	25.63 ug/L	94
7) Trichlorofluoromethane	1.97	101	7136	10.94 ug/L #	47
8) 1,1-DICHLOROETHENE	2.36	96	31388	22.42 ug/L	97
9) Methylene chloride	2.69	84	36117	23.45 ug/L	96
10) trans-1,2-Dichloroethene	2.87	96	38245	24.65 ug/L	98
11) Methyl-t-Butyl Ether	2.83	73	39375	33.11 ug/L	100
12) 1,1-Dichloroethane	3.18	63	64497	24.58 ug/L	100
13) 2,2-Dichloropropane	3.66	77	31999	17.52 ug/L	98
14) cis-1,2-Dichloroethene	3.66	96	48772	24.89 ug/L	96
15) Bromochloromethane	3.86	128	23050	26.40 ug/L	92
16) CHLOROFORM	3.93	83	74881	23.95 ug/L	100
18) 1,1,1-Trichloroethane	4.10	97	57827	24.19 ug/L #	16
20) Carbon tetrachloride	4.26	117	50770	25.52 ug/L	99
21) 1,1-Dichloropropene	4.24	75	54211	24.51 ug/L	99
22) Benzene	4.44	78	161265	24.81 ug/L	100
23) 1,2-Dichloroethane	4.45	62	46877	24.97 ug/L	99
24) Trichloroethene	5.07	95	40909	24.88 ug/L	98
25) 1,2-DICHLOROPROPANE	5.30	63	42887	24.33 ug/L	100
26) Dibromomethane	5.42	93	25523	26.10 ug/L	98
27) Bromodichloromethane	5.59	83	52417	25.01 ug/L	99
28) 2-Chloroethylvinyl Ether	0.00	63	0	Not Detected	
29) cis-1,3-Dichloropropene	6.08	75	56607	21.67 ug/L	99
31) TOLUENE	6.47	92	90092	25.17 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112047.D
Acq On : 21 Nov 2003 5:57 am
Sample : 03111917-01 MS 25ppb
Misc : IS/S 1uL #245, MS 5uL #42
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Vial: 47
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) trans-1,3-Dichloropropene	6.73	75	47662	21.90 ug/L	100
33) 1,1,2-Trichloroethane	6.94	83	26625	25.14 ug/L	99
34) Tetrachloroethene	7.12	166	29527	26.87 ug/L	99
36) 1,3-Dichloropropane	7.14	76	54331	24.61 ug/L	99
37) Dibromochloromethane	7.42	129	39508	26.72 ug/L	100
38) 1,2-Dibromoethane	7.55	107	32624	25.38 ug/L	99
39) Chlorobenzene	8.19	112	99421	25.59 ug/L	99
40) 1,1,1,2-Tetrachloroethane	8.30	131	36572	25.85 ug/L	100
41) ETHYLBENZENE	8.33	91	153322	25.01 ug/L	99
42) m&p-Xylene	8.49	106	111523	49.98 ug/L	94
43) o-Xylene	9.02	106	58314	25.58 ug/L	97
44) Styrene	9.03	104	99119	24.40 ug/L	97
45) Bromoform	9.26	173	20771	26.62 ug/L	99
47) Isopropylbenzene	9.52	105	115914	24.03 ug/L	100
48) 1,2,3-Trichloropropane	9.98	110	10586	25.39 ug/L	100
50) Bromobenzene	9.90	156	37197	26.00 ug/L	100
51) 1,1,2,2-Tetrachloroethane	9.94	83	39350	24.53 ug/L	100
52) n-Propylbenzene	10.08	91	141097	24.38 ug/L	100
53) 2-Chlorotoluene	10.17	91	97266	24.05 ug/L	100
54) 4-Chlorotoluene	10.33	91	113679	24.79 ug/L	97
55) 1,3,5-Trimethylbenzene	10.34	105	92579	24.12 ug/L	100
56) tert-Butylbenzene	10.78	119	72027	25.14 ug/L	100
57) 1,2,4-Trimethylbenzene	10.85	105	98237	24.64 ug/L	100
58) sec-Butylbenzene	11.09	105	100525	24.05 ug/L	100
59) 1,3-Dichlorobenzene	11.22	146	57322	25.98 ug/L	100
60) 4-Isopropyltoluene	11.31	119	81119	25.24 ug/L	99
61) 1,4-Dichlorobenzene	11.35	146	58067	24.03 ug/L	99
62) 1,2-Dichlorobenzene	11.87	146	52434	25.45 ug/L	99
63) n-Butylbenzene	11.88	91	66295	22.80 ug/L	100
64) 1,2-Dibromo-3-chloropropan	12.98	75	4035	24.42 ug/L	95
65) 1,2,4-Trichlorobenzene	14.19	180	16380	23.64 ug/L	99
66) Hexachlorobutadiene	14.46	225	7315	24.32 ug/L	99
67) Naphthalene	14.52	128	38495	23.40 ug/L	100
68) 1,2,3-Trichlorobenzene	14.89	180	10830	22.80 ug/L	99

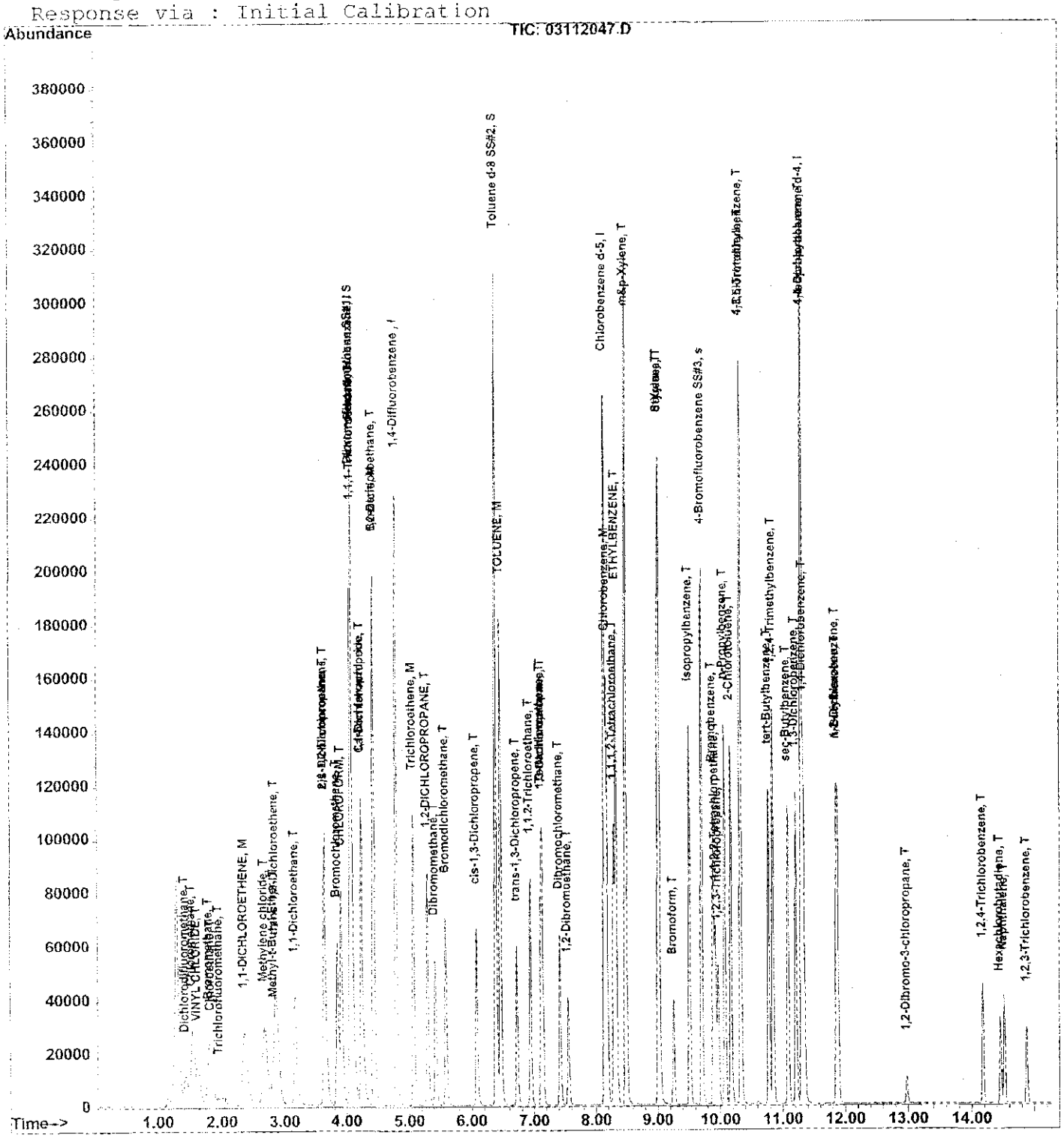
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112047.D
Acq On : 21 Nov 2003 5:57 am
Sample : 03111917-01 MS 25ppb
Misc : IS/S 1uL #245, MS 5uL #42
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Vial: 47
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112048.D
Acq On : 21 Nov 2003 6:22 am
Sample : 03111917-01 MSD 25ppb
Misc : IS/S 1uL #245, MS 5uL #42
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Vial: 48
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.09	168	117568	50.00 ug/L	0.01
19) 1,4-Difluorobenzene	4.80	114	214024	50.00 ug/L	0.01
35) Chlorobenzene d-5	8.15	117	180226	50.00 ug/L	0.01
46) 1,4-Dichlorobenzene d-4	11.31	152	68685	50.00 ug/L	0.01
System Monitoring Compounds					
17) Dibromofluoromethane SS#1	4.07	113	75781	47.59 ug/L	0.01
Spiked Amount 50.000 Range 80 - 120 Recovery = 95.18%					
30) Toluene d-8 SS#2	6.39	98	231633	47.30 ug/L	0.01
Spiked Amount 50.000 Range 80 - 120 Recovery = 94.60%					
49) 4-Bromofluorobenzene SS#3	9.71	95	92126	47.30 ug/L	0.01
Spiked Amount 50.000 Range 80 - 120 Recovery = 94.60%					
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.43	85	35784	20.83 ug/L	100
3) Chloromethane	1.55	50	50075	21.91 ug/L	99
4) VINYL CHLORIDE	1.63	62	37922	21.54 ug/L	100
5) Bromomethane	1.81	94	28913	23.22 ug/L	97
6) Chloroethane	1.84	64	23342	24.80 ug/L	95
7) Trichlorofluoromethane	1.97	101	8782	13.37 ug/L	97
8) 1,1-DICHLOROETHENE	2.36	96	31580	22.38 ug/L	97
9) Methylene chloride	2.68	84	36558	23.55 ug/L	97
10) trans-1,2-Dichloroethene	2.86	96	38144	24.40 ug/L	98
11) Methyl-t-Butyl Ether	2.83	73	38078	31.77 ug/L	100
12) 1,1-Dichloroethane	3.17	63	65261	24.68 ug/L	99
13) 2,2-Dichloropropane	3.65	77	30996	16.84 ug/L	98
14) cis-1,2-Dichloroethene	3.65	96	47078	23.85 ug/L	96
15) Bromochloromethane	3.86	128	22528	25.61 ug/L	94
16) CHLOROFORM	3.92	83	71961	22.84 ug/L	100
18) 1,1,1-Trichloroethane	4.10	97	57255	23.76 ug/L #	16
20) Carbon tetrachloride	4.26	117	50539	24.66 ug/L	100
21) 1,1-Dichloropropene	4.24	75	54296	23.84 ug/L	99
22) Benzene	4.44	78	160187	23.92 ug/L	99
23) 1,2-Dichloroethane	4.45	62	47269	24.44 ug/L	99
24) Trichloroethene	5.07	95	40106	23.68 ug/L	96
25) 1,2-DICHLOROPROPANE	5.30	63	41399	22.80 ug/L	100
26) Dibromomethane	5.43	93	25637	25.45 ug/L	98
27) Bromodichloromethane	5.59	83	51982	24.08 ug/L	99
28) 2-Chloroethylvinyl Ether	0.00	63	0	Not Detected	
29) cis-1,3-Dichloropropene	6.08	75	56463	20.99 ug/L	99
31) TOLUENE	6.47	92	89671	24.32 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112048.D
Acq On : 21 Nov 2003 6:22 am
Sample : 03111917-01 MSD 25ppb
Misc : IS/S 1uL #245, MS 5uL #42
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Vial: 48
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) trans-1,3-Dichloropropene	6.73	75	47587	21.23 ug/L	99
33) 1,1,2-Trichloroethane	6.95	83	26678	24.45 ug/L	97
34) Tetrachloroethene	7.12	166	28721	25.38 ug/L	98
36) 1,3-Dichloropropane	7.14	76	55477	25.20 ug/L	100
37) Dibromochloromethane	7.42	129	39053	26.49 ug/L	100
38) 1,2-Dibromoethane	7.56	107	33314	25.99 ug/L	100
39) Chlorobenzene	8.18	112	98034	25.31 ug/L	99
40) 1,1,1,2-Tetrachloroethane	8.30	131	36200	25.66 ug/L	99
41) ETHYLBENZENE	8.34	91	152063	24.87 ug/L	99
42) m&p-Xylene	8.49	106	113087	50.83 ug/L	97
43) o-Xylene	9.01	106	57687	25.38 ug/L	96
44) Styrene	9.03	104	100296	24.76 ug/L	99
45) Bromoform	9.26	173	20969	26.95 ug/L	98
47) Isopropylbenzene	9.51	105	115294	24.10 ug/L	100
48) 1,2,3-Trichloropropane	9.97	110	10756	26.01 ug/L	100
50) Bromobenzene	9.90	156	36100	25.44 ug/L	100
51) 1,1,2,2-Tetrachloroethane	9.93	83	40080	25.19 ug/L	99
52) n-Propylbenzene	10.08	91	141064	24.58 ug/L	100
53) 2-Chlorotoluene	10.18	91	98418	24.53 ug/L	100
54) 4-Chlorotoluene	10.33	91	110297	24.26 ug/L	97
55) 1,3,5-Trimethylbenzene	10.33	105	92321	24.25 ug/L	98
56) tert-Butylbenzene	10.78	119	70041	24.65 ug/L	99
57) 1,2,4-Trimethylbenzene	10.85	105	94399	23.87 ug/L	100
58) sec-Butylbenzene	11.09	105	101285	24.44 ug/L	100
59) 1,3-Dichlorobenzene	11.21	146	57794	26.41 ug/L	99
60) 4-Isopropyltoluene	11.30	119	80346	25.21 ug/L	99
61) 1,4-Dichlorobenzene	11.35	146	57633	24.05 ug/L	98
62) 1,2-Dichlorobenzene	11.86	146	53001	25.94 ug/L	99
63) n-Butylbenzene	11.89	91	67464	23.39 ug/L	99
64) 1,2-Dibromo-3-chloropropan	12.98	75	4533	27.66 ug/L	95
65) 1,2,4-Trichlorobenzene	14.18	180	17753	25.84 ug/L	98
66) Hexachlorobutadiene	14.46	225	8012	26.86 ug/L	100
67) Naphthalene	14.52	128	46477	28.48 ug/L	100
68) 1,2,3-Trichlorobenzene	14.88	180	13433	28.51 ug/L	99

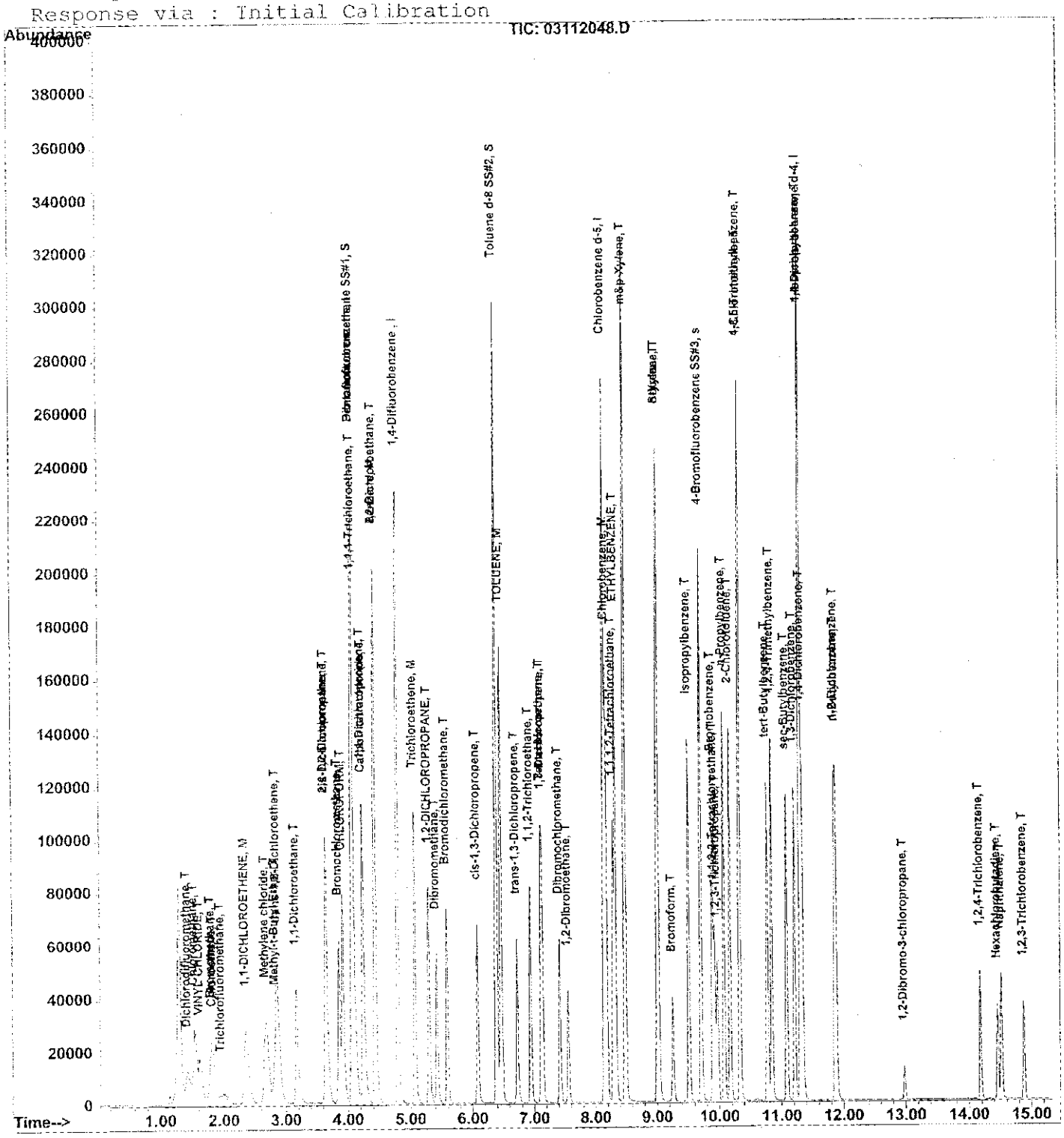
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112048.D
Acq On : 21 Nov 2003 6:22 am
Sample : 03111917-01 MSD 25ppb
Misc : IS/S 1uL #245, MS 5uL #42
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Vial: 48
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration



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BALTIMORE, MARYLAND 21228
410-747-8770
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

VOLATILE ORGANICS COMPOUNDS
SAMPLE SPIKE AND SAMPLE SPIKE DUPLICATE SUMMARY

DATE ANALYZED: 11/20/03 **BATCH NUMBER:** VOC031119

METHOD: EPA 8260 **LAB FILE IDs:** 03111949.D 03111950.D

MATRIX: Soil

Client Sample ID: 03111924-01 MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	QC LIMITS (%)
1,1-Dichloroethene	40	ND	37	92	59-172
Benzene	40	ND	38	96	66-142
Trichloroethene	40	ND	38	94	62-137
Toluene	40	ND	42	104	59-139
Chlorobenzene	40	ND	37	92	60-133

Client Sample ID: 03111924-01 MSD

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
1,1-Dichloroethene	40	ND	41	103	10.6	22	59-172
Benzene	40	ND	40	101	5.1	21	66-142
Trichloroethene	40	ND	40	101	6.8	24	62-137
Toluene	40	ND	44	109	4.2	21	59-139
Chlorobenzene	40	ND	38	95	4.1	21	60-133

* - Values outside of QC Limits

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031119\03111949.D
Acq On : 20 Nov 03 8:41 am
Sample : 03111924-01 MS 40ppb
Misc : IS/Surr 1uL #245, MS 1uL #42
MS Integration Params: rteint.p
Quant Time: Nov 20 10:48 2003

Vial: 48
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00

Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.39	168	128561	50.00 ug/L	0.02
18) 1,4-Difluorobenzene	5.13	114	240630	50.00 ug/L	0.02
34) Chlorobenzene d-5	8.54	117	206148	50.00 ug/L	0.01
45) 1,4-Dichlorobenzene d-4	11.74	152	92513	50.00 ug/L	0.01
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.37	113	107133	50.00 ug/L	0.02
Spiked Amount 50.000			Recovery	= 100.00%	
29) Toluene d-8 SS#2	6.77	98	269977	50.13 ug/L	0.02
Spiked Amount 50.000			Recovery	= 100.26%	
48) 4-Bromofluorobenzene SS#3	10.12	95	119625	49.79 ug/L	0.01
Spiked Amount 50.000			Recovery	= 99.58%	

Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.58	85	66184	30.32 ug/L	100
3) Chloromethane	1.69	50	127444	34.91 ug/L	99
4) VINYL CHLORIDE	1.81	62	96639	51.86 ug/L	98
5) Bromomethane	1.98	94	72392	35.34 ug/L	98
6) Chloroethane	2.03	64	58918	38.01 ug/L	97
7) 1,1-DICHLOROETHENE	2.58	96	65033	36.90 ug/L	98
8) Methylene chloride	2.89	84	98453	48.48 ug/L	99
9) trans-1,2-Dichloroethene	3.10	96	75080	38.56 ug/L	99
10) Methyl-t-Butyl Ether	3.10	73	160932	42.82 ug/L	100
11) 1,1-Dichloroethane	3.44	63	163123	38.83 ug/L	99
12) 2,2-Dichloropropane	3.96	77	86674	34.86 ug/L	99
13) cis-1,2-Dichloroethene	3.94	96	85912	38.67 ug/L	99
14) Bromochloromethane	4.16	128	40912	37.23 ug/L #	91
15) CHLOROFORM	4.22	83	147234	37.69 ug/L	98
17) 1,1,1-Trichloroethane	4.42	97	106080	38.32 ug/L #	40
19) Carbon tetrachloride	4.59	117	84598	37.95 ug/L	100
20) 1,1-Dichloropropene	4.57	75	105164	39.02 ug/L	99
21) Benzene	4.76	78	265285	38.44 ug/L	98
22) 1,2-Dichloroethane	4.77	62	129699	39.05 ug/L	100
23) Trichloroethene	5.42	95	76625	37.79 ug/L	99
24) 1,2-DICHLOROPROPANE	5.64	63	84591	39.03 ug/L	100
25) Dibromomethane	5.77	93	64428	39.97 ug/L	98
26) Bromodichloromethane	5.94	83	109645	39.35 ug/L	100

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\2\DATA\031119\03111949.D Vial: 48
Acq On : 20 Nov 03 8:41 am Operator: MI
Sample : 03111924-01 MS 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 20 10:48 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27) 2-Chloroethylvinyl Ether	6.27	63	58400	40.30 ug/L	99
28) cis-1,3-Dichloropropene	6.44	75	108856	33.56 ug/L	100
30) TOLUENE	6.84	92	144516	41.74 ug/L	98
31) trans-1,3-Dichloropropene	7.09	75	98710	33.61 ug/L	100
32) 1,1,2-Trichloroethane	7.31	83	59635	39.30 ug/L	98
33) Tetrachloroethene	7.52	166	58022	37.92 ug/L	98
35) 1,3-Dichloropropane	7.52	76	118682	39.32 ug/L	99
36) Dibromochloromethane	7.80	129	73602	38.55 ug/L	100
37) 1,2-Dibromoethane	7.94	107	75043	37.15 ug/L	100
38) Chlorobenzene	8.58	112	156410	36.66 ug/L	95
39) 1,1,1,2-Tetrachloroethane	8.69	131	56052	36.45 ug/L	100
40) ETHYLBENZENE	8.73	91	272804	37.31 ug/L	97
41) m&p-Xylene	8.90	106	190003	74.77 ug/L	93
42) o-Xylene	9.41	106	95582	38.07 ug/L	96
43) Styrene	9.43	104	169800	36.68 ug/L	96
44) Bromoform	9.66	173	51730	38.73 ug/L	99
46) Isopropylbenzene	9.92	105	233852	34.85 ug/L	99
47) 1,2,3-Trichloropropane	10.38	110	26838	37.57 ug/L	100
49) Bromobenzene	10.32	156	61654	34.92 ug/L	95
50) 1,1,2,2-Tetrachloroethane	10.33	83	108489	40.56 ug/L	100
51) n-Propylbenzene	10.50	91	322241	35.49 ug/L	99
52) 2-Chlorotoluene	10.60	91	196561	36.03 ug/L	99
53) 4-Chlorotoluene	10.75	91	218580	35.49 ug/L	99
54) 1,3,5-Trimethylbenzene	10.75	105	204221	35.46 ug/L	98
55) tert-Butylbenzene	11.21	119	159048	36.41 ug/L	98
56) 1,2,4-Trimethylbenzene	11.27	105	205913	34.79 ug/L	98
57) sec-Butylbenzene	11.52	105	282530	36.08 ug/L	99
58) 1,3-Dichlorobenzene	11.65	146	109260	34.93 ug/L	99
59) 4-Isopropyltoluene	11.73	119	192598	35.58 ug/L	97
60) 1,4-Dichlorobenzene	11.77	146	114713	37.82 ug/L	98
61) 1,2-Dichlorobenzene	12.30	146	106946	35.71 ug/L	99
62) n-Butylbenzene	12.31	91	214097	33.86 ug/L	99
63) 1,2-Dibromo-3-chloropropan	13.41	75	20130	41.24 ug/L	97
64) 1,2,4-Trichlorobenzene	14.63	180	68246	32.52 ug/L	100
65) Hexachlorobutadiene	14.91	225	37394	37.90 ug/L	88
66) Naphthalene	14.97	128	168998	35.99 ug/L	100
67) 1,2,3-Trichlorobenzene	15.34	180	68132	35.31 ug/L	99

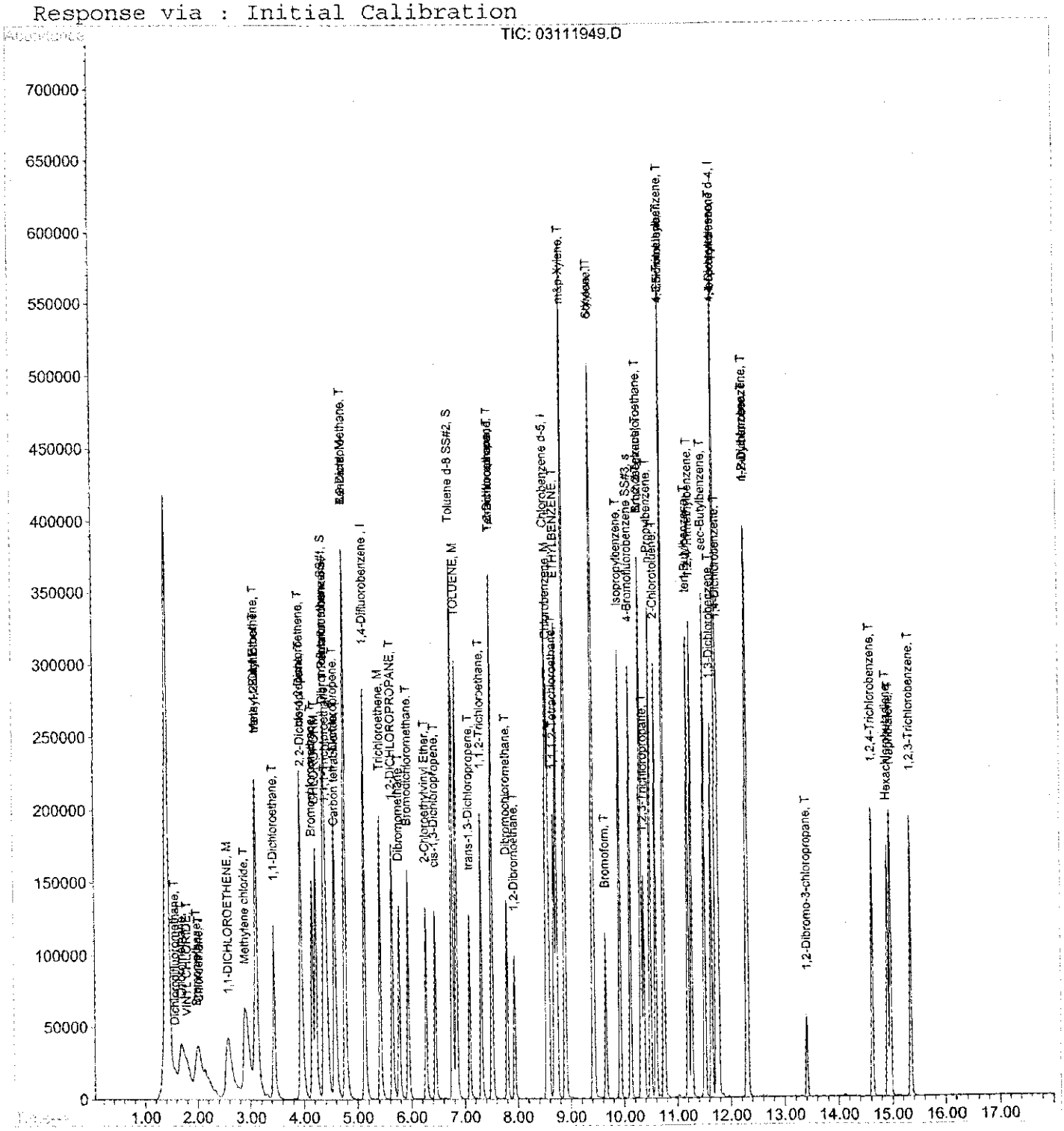
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031119\03111949.D
Acq On : 20 Nov 03 8:41 am
Sample : 03111924-01 MS 40ppb
Misc : IS/Surr 1uL #245, MS 1uL #42
MS Integration Params: rteint.p
Quant Time: Nov 20 10:48 2003

Vial: 48
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration



Data File : C:\HPCHEM\2\DATA\031119\03111950.D Vial: 49
Acq On : 20 Nov 03 9:09 am Operator: MI
Sample : 03111924-01 MSD 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 20 11:41 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.39	168	120209	50.00 ug/L	0.01
18) 1,4-Difluorobenzene	5.12	114	225835	50.00 ug/L	0.01
34) Chlorobenzene d-5	8.54	117	193578	50.00 ug/L	0.01
45) 1,4-Dichlorobenzene d-4	11.74	152	89994	50.00 ug/L	0.01
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.36	113	103939	51.88 ug/L	0.01
Spiked Amount 50.000			Recovery = 103.76%		
29) Toluene d-8 SS#2	6.76	98	254863	50.42 ug/L	0.01
Spiked Amount 50.000			Recovery = 100.84%		
48) 4-Bromofluorobenzene SS#3	10.12	95	113223	48.44 ug/L	0.01
Spiked Amount 50.000			Recovery = 96.88%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.58	85	68321	33.47 ug/L	100
3) Chloromethane	1.70	50	135564	39.71 ug/L	99
4) VINYL CHLORIDE	1.81	62	103355m	59.32 ug/L	0
5) Bromomethane	2.00	94	76167	40.05 ug/L	98
6) Chloroethane	2.02	64	62870	43.64 ug/L	96
7) 1,1-DICHLOROETHENE	2.58	96	67591	41.02 ug/L	96
8) Methylene chloride	2.91	84	103602	54.56 ug/L	99
9) trans-1,2-Dichloroethene	3.10	96	77493	42.56 ug/L	99
10) Methyl-t-Butyl Ether	3.10	73	168483	47.94 ug/L	100
11) 1,1-Dichloroethane	3.43	63	166476	42.38 ug/L	99
12) 2,2-Dichloropropane	3.96	77	88275	37.97 ug/L	100
13) cis-1,2-Dichloroethene	3.94	96	86566	41.68 ug/L	97
14) Bromochloromethane	4.16	128	42189	41.06 ug/L #	92
15) CHLOROFORM	4.22	83	151055	41.35 ug/L	100
17) 1,1,1-Trichloroethane	4.42	97	108610	41.96 ug/L #	46
19) Carbon tetrachloride	4.58	117	86120	41.16 ug/L	99
20) 1,1-Dichloropropene	4.57	75	103932	41.09 ug/L	99
21) Benzene	4.76	78	261945	40.44 ug/L	98
22) 1,2-Dichloroethane	4.76	62	128869	41.34 ug/L	99
23) Trichloroethene	5.41	95	76982	40.45 ug/L	96
24) 1,2-DICHLOROPROPANE	5.64	63	83056	40.83 ug/L	100
25) Dibromomethane	5.77	93	63710	42.12 ug/L	99
26) Bromodichloromethane	5.94	83	108542	41.51 ug/L	100

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\2\DATA\031119\03111950.D Vial: 49
Acq On : 20 Nov 03 9:09 am Operator: MI
Sample : 03111924-01 MSD 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 20 11:41 2003 Quant Results File: 8260-S.RES

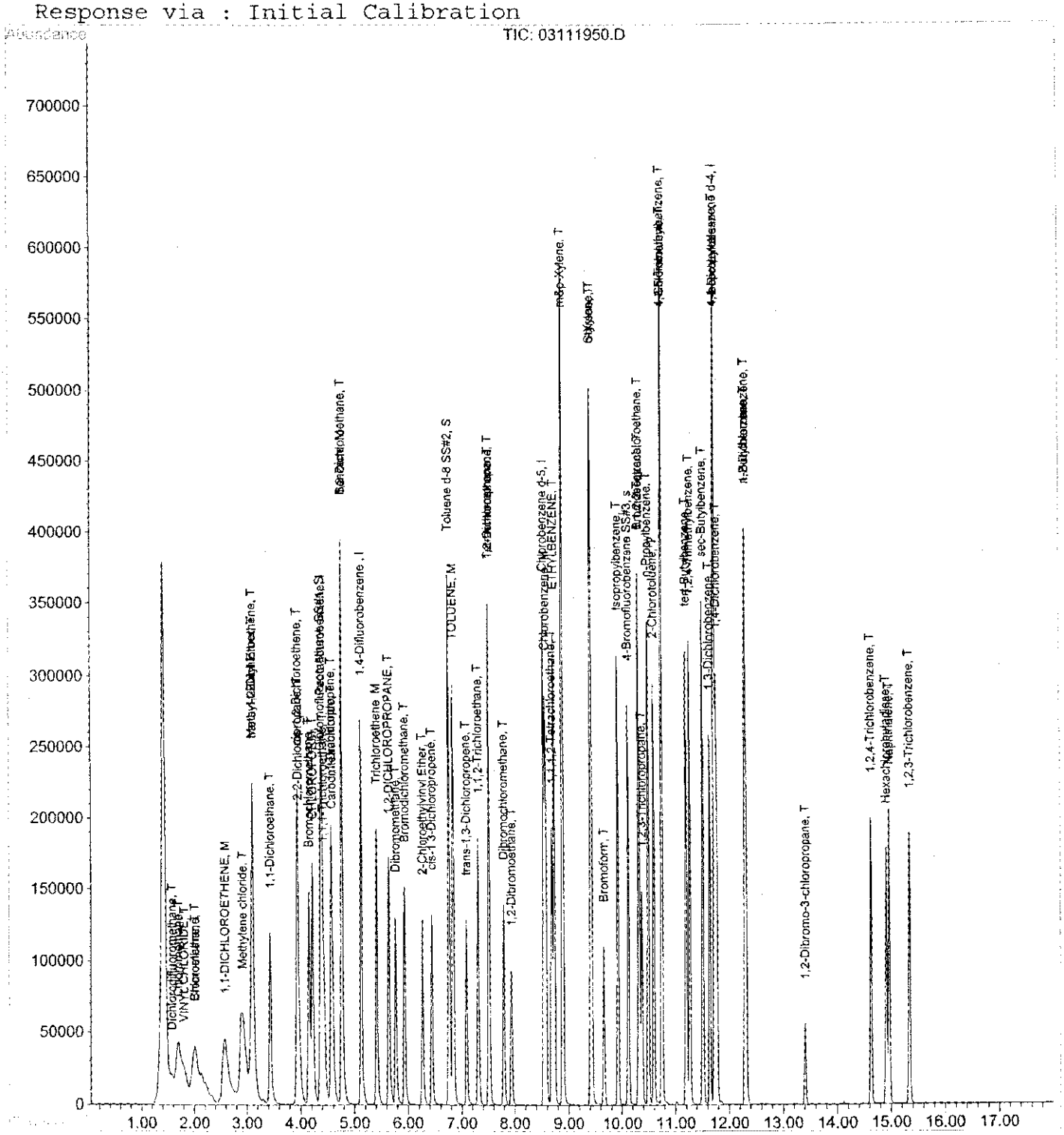
Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	2-Chloroethylvinyl Ether	6.27	63	55568	40.86 ug/L	99
28)	cis-1,3-Dichloropropene	6.44	75	108058	35.50 ug/L	100
30)	TOLUENE	6.84	92	141384	43.51 ug/L	98
31)	trans-1,3-Dichloropropene	7.09	75	97813	35.48 ug/L	100
32)	1,1,2-Trichloroethane	7.31	83	58571	41.13 ug/L	98
33)	Tetrachloroethene	7.52	166	56136	39.10 ug/L	100
35)	1,3-Dichloropropane	7.52	76	115983	40.92 ug/L	100
36)	Dibromochloromethane	7.80	129	73216	40.84 ug/L	98
37)	1,2-Dibromoethane	7.94	107	74620	39.34 ug/L	99
38)	Chlorobenzene	8.58	112	153025	38.19 ug/L	95
39)	1,1,1,2-Tetrachloroethane	8.69	131	55350	38.33 ug/L	98
40)	ETHYLBENZENE	8.73	91	265792	38.71 ug/L	97
41)	m&p-Xylene	8.89	106	188582	79.03 ug/L	93
42)	o-Xylene	9.41	106	95314	40.43 ug/L	95
43)	Styrene	9.43	104	167105	38.44 ug/L	96
44)	Bromoform	9.66	173	50431	40.21 ug/L	98
46)	Isopropylbenzene	9.92	105	238490	36.54 ug/L	99
47)	1,2,3-Trichloropropane	10.37	110	26431	38.04 ug/L	100
49)	Bromobenzene	10.32	156	62937	36.64 ug/L	97
50)	1,1,2,2-Tetrachloroethane	10.33	83	105726	40.63 ug/L	99
51)	n-Propylbenzene	10.50	91	324778	36.77 ug/L	99
52)	2-Chlorotoluene	10.60	91	197509	37.22 ug/L	100
53)	4-Chlorotoluene	10.74	91	217015	36.22 ug/L	100
54)	1,3,5-Trimethylbenzene	10.75	105	210311	37.54 ug/L	99
55)	tert-Butylbenzene	11.20	119	161693	38.05 ug/L	98
56)	1,2,4-Trimethylbenzene	11.27	105	210929	36.63 ug/L	99
57)	sec-Butylbenzene	11.52	105	289071	37.95 ug/L	99
58)	1,3-Dichlorobenzene	11.64	146	110521	36.33 ug/L	99
59)	4-Isopropyltoluene	11.73	119	198774	37.75 ug/L	97
60)	1,4-Dichlorobenzene	11.77	146	115944	39.30 ug/L	98
61)	1,2-Dichlorobenzene	12.30	146	109596	37.62 ug/L	99
62)	n-Butylbenzene	12.31	91	218938	35.59 ug/L	100
63)	1,2-Dibromo-3-chloropropan	13.41	75	19636	41.36 ug/L	96
64)	1,2,4-Trichlorobenzene	14.63	180	68787	33.70 ug/L	100
65)	Hexachlorobutadiene	14.91	225	37999	39.59 ug/L	95
66)	Naphthalene	14.97	128	172310	37.72 ug/L	100
67)	1,2,3-Trichlorobenzene	15.34	180	68677	36.59 ug/L	99

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\2\DATA\031119\03111950.D Vial: 49
Acq On : 20 Nov 03 9:09 am Operator: MI
Sample : 03111924-01 MSD 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 20 11:41 2003 Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration



OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

VOLATILE ORGANICS COMPOUNDS
LCS AND LCS DUPLICATE SUMMARY

DATE ANALYZED: 11/21/03 **BATCH NUMBER:** VOC031120

METHOD: EPA 8260 **LAB FILE IDs:** 03112049.D
03112050.D

MATRIX: Water

Client Sample ID: LCS 25ppb

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	QC LIMITS (%)
1,1-Dichloroethene	25	ND	22	88	61-145
Benzene	25	ND	23	92	76-127
Trichloroethene	25	ND	23	93	71-120
Toluene	25	ND	24	95	76-125
Chlorobenzene	25	ND	25	99	75-130

Client Sample ID: LCSD 25ppb

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPK DUP CONC (ug/L)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
1,1-Dichloroethene	25	ND	22	87	1.2	14	61-145
Benzene	25	ND	23	91	0.6	11	76-127
Trichloroethene	25	ND	24	96	2.4	14	71-120
Toluene	25	ND	24	95	0.6	13	76-125
Chlorobenzene	25	ND	25	99	0.1	13	75-130

* - Values outside of QC Limits

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112049.D Vial: 49
Acq On : 21 Nov 2003 6:47 am Operator: MI
Sample : LCS 25ppb Inst : Instrumen
Misc : IS/S 1uL #245, LCS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentaflourobenzene	4.08	168	117263	50.00	ug/L	0.00
19) 1,4-Difluorobenzene	4.80	114	214835	50.00	ug/L	0.00
35) Chlorobenzene d-5	8.14	117	185365	50.00	ug/L	0.00
46) 1,4-Dichlorobenzene d-4	11.32	152	69161	50.00	ug/L	0.02
System Monitoring Compounds						
17) Dibromofluoromethane SS#1	4.07	113	77306	48.68	ug/L	0.00
Spiked Amount 50.000 Range 80 - 120 Recovery = 97.36%						
30) Toluene d-8 SS#2	6.39	98	232938	47.38	ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 94.76%						
49) 4-Bromofluorobenzene SS#3	9.71	95	94848	48.36	ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 96.72%						
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.44	85	36045	21.04	ug/L	100
3) Chloromethane	1.55	50	48259	21.17	ug/L	99
4) VINYL CHLORIDE	1.63	62	37229	21.20	ug/L	99
5) Bromomethane	1.81	94	28248	22.74	ug/L	99
6) Chloroethane	1.84	64	24484	26.09	ug/L	100
7) Trichlorofluoromethane	2.00	101	9562	14.59	ug/L	98
8) 1,1-DICHLOROETHENE	2.36	96	30821	21.90	ug/L	99
9) Methylene chloride	2.69	84	36510	23.58	ug/L	97
10) trans-1,2-Dichloroethene	2.87	96	37580	24.10	ug/L	97
11) Methyl-t-Butyl Ether	2.83	73	38827	32.48	ug/L	100
12) 1,1-Dichloroethane	3.18	63	65840	24.96	ug/L	99
13) 2,2-Dichloropropane	3.65	77	30216	16.46	ug/L	96
14) cis-1,2-Dichloroethene	3.65	96	47055	23.90	ug/L	98
15) Bromochloromethane	3.86	128	21577	24.59	ug/L	96
16) CHLOROFORM	3.93	83	72290	23.00	ug/L	99
18) 1,1,1-Trichloroethane	4.11	97	56851	23.66	ug/L #	17
20) Carbon tetrachloride	4.26	117	49759	24.19	ug/L	98
21) 1,1-Dichloropropene	4.24	75	52456	22.94	ug/L	100
22) Benzene	4.44	78	154688	23.01	ug/L	100
23) 1,2-Dichloroethane	4.44	62	45684	23.53	ug/L	99
24) Trichloroethene	5.07	95	39689	23.34	ug/L	97
25) 1,2-DICHLOROPROPANE	5.30	63	41033	22.51	ug/L	100
26) Dibromomethane	5.42	93	24775	24.50	ug/L	98
27) Bromodichloromethane	5.60	83	52105	24.04	ug/L	98
28) 2-Chloroethylvinyl Ether	5.92	63	16536	21.56	ug/L	99
29) cis-1,3-Dichloropropene	6.08	75	54982	20.36	ug/L	100
31) TOLUENE	6.47	92	88128	23.81	ug/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112049.D Vial: 49
Acq On : 21 Nov 2003 6:47 am Operator: MI
Sample : LCS 25ppb Inst : Instrumen
Misc : IS/S 1uL #245, LCS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) trans-1,3-Dichloropropene	6.73	75	46573	20.70 ug/L	100
33) 1,1,2-Trichloroethane	6.94	83	25384	23.18 ug/L	98
34) Tetrachloroethene	7.12	166	28432	25.03 ug/L	99
36) 1,3-Dichloropropane	7.14	76	51833	22.89 ug/L	98
37) Dibromochloromethane	7.42	129	37628	24.82 ug/L	99
38) 1,2-Dibromoethane	7.55	107	31406	23.82 ug/L	98
39) Chlorobenzene	8.18	112	98252	24.66 ug/L	99
40) 1,1,1,2-Tetrachloroethane	8.30	131	35863	24.72 ug/L	99
41) ETHYLBENZENE	8.33	91	150142	23.88 ug/L	99
42) m&p-Xylene	8.49	106	113300	49.51 ug/L	98
43) o-Xylene	9.01	106	58355	24.96 ug/L	100
44) Styrene	9.03	104	98493	23.64 ug/L	98
45) Bromoform	9.26	173	19751	24.68 ug/L	98
47) Isopropylbenzene	9.52	105	114148	23.70 ug/L	99
48) 1,2,3-Trichloropropane	9.98	110	9815	23.57 ug/L	100
50) Bromobenzene	9.90	156	35653	24.95 ug/L	99
51) 1,1,2,2-Tetrachloroethane	9.94	83	37594	23.46 ug/L	99
52) n-Propylbenzene	10.08	91	141558	24.50 ug/L	100
53) 2-Chlorotoluene	10.17	91	95267	23.58 ug/L	100
54) 4-Chlorotoluene	10.33	91	108685	23.74 ug/L	98
55) 1,3,5-Trimethylbenzene	10.34	105	90862	23.70 ug/L	99
56) tert-Butylbenzene	10.78	119	72563	25.36 ug/L	99
57) 1,2,4-Trimethylbenzene	10.85	105	95574	24.00 ug/L	99
58) sec-Butylbenzene	11.09	105	100790	24.15 ug/L	100
59) 1,3-Dichlorobenzene	11.22	146	56441	25.62 ug/L	100
60) 4-Isopropyltoluene	11.31	119	81365	25.36 ug/L	100
61) 1,4-Dichlorobenzene	11.35	146	58542	24.26 ug/L	98
62) 1,2-Dichlorobenzene	11.87	146	52623	25.57 ug/L	100
63) n-Butylbenzene	11.88	91	67850	23.36 ug/L	99
64) 1,2-Dibromo-3-chloropropan	12.98	75	4253	25.77 ug/L	97
65) 1,2,4-Trichlorobenzene	14.19	180	17505	25.30 ug/L	98
66) Hexachlorobutadiene	14.46	225	7943	26.45 ug/L	99
67) Naphthalene	14.52	128	45300	27.57 ug/L	100
68) 1,2,3-Trichlorobenzene	14.88	180	13226	27.88 ug/L	98

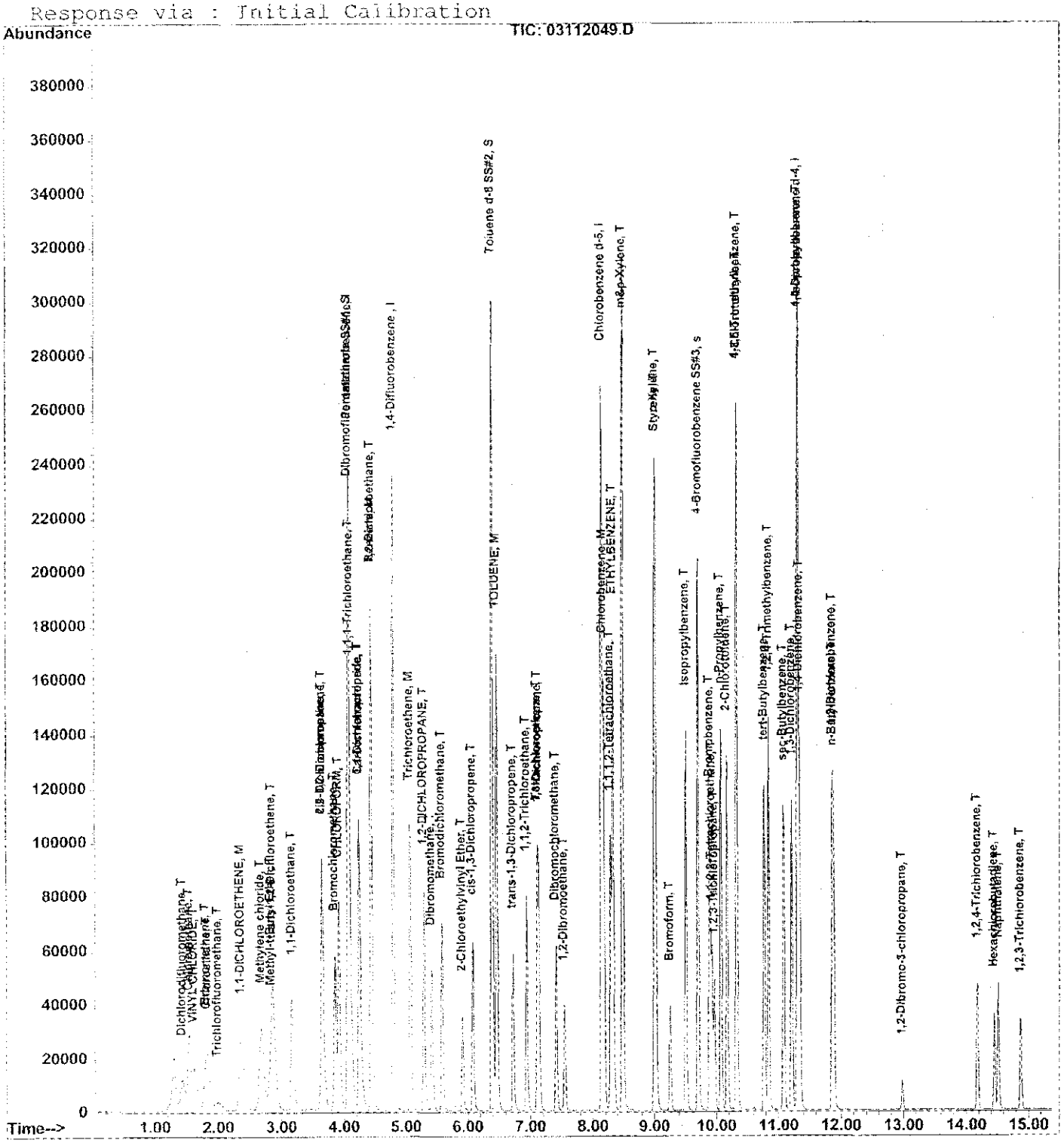
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112049.D
Acq On : 21 Nov 2003 6:47 am
Sample : LCS 25ppb
Misc : IS/S 1uL #245, LCS 5uL #42
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Vial: 49
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112050.D Vial: 50
Acq On : 21 Nov 2003 7:11 am Operator: MT
Sample : LCS-DUP 25ppb Inst : Instrumen
Misc : IS/S 1uL #245, LCS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentaflourobenzene	4.08	168	115831	50.00	ug/L	0.00
19) 1,4-Difluorobenzene	4.80	114	210804	50.00	ug/L	0.00
35) Chlorobenzene d-5	8.14	117	183241	50.00	ug/L	0.00
46) 1,4-Dichlorobenzene d-4	11.31	152	68740	50.00	ug/L	0.00
System Monitoring Compounds						
17) Dibromofluoromethane SS#1	4.07	113	75993	48.44	ug/L	0.00
Spiked Amount 50.000 Range 80 - 120 Recovery = 96.88%						
30) Toluene d-8 SS#2	6.39	98	230286	47.74	ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 95.48%						
49) 4-Bromofluorobenzene SS#3	9.71	95	91124	46.75	ug/L	0.02
Spiked Amount 50.000 Range 80 - 120 Recovery = 93.50%						
Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.44	85	33844	20.00	ug/L	100
3) Chloromethane	1.54	50	47220	20.97	ug/L	98
4) VINYL CHLORIDE	1.63	62	35152	20.27	ug/L	100
5) Bromomethane	1.81	94	27763	22.63	ug/L	98
6) Chloroethane	1.84	64	22576	24.35	ug/L	99
7) Trichlorofluoromethane	2.00	101	9651	14.91	ug/L	99
8) 1,1-DICHLOROETHENE	2.36	96	30066	21.63	ug/L	99
9) Methylene chloride	2.69	84	34628	22.64	ug/L	98
10) trans-1,2-Dichloroethene	2.87	96	36128	23.46	ug/L	97
11) Methyl-t-Butyl Ether	2.83	73	34425	29.16	ug/L	100
12) 1,1-Dichloroethane	3.17	63	62248	23.89	ug/L	100
13) 2,2-Dichloropropane	3.65	77	28816	15.89	ug/L	97
14) cis-1,2-Dichloroethene	3.66	96	46605	23.96	ug/L	95
15) Bromochloromethane	3.86	128	21861	25.23	ug/L #	90
16) CHLOROFORM	3.93	83	71765	23.12	ug/L	100
18) 1,1,1-Trichloroethane	4.10	97	54791	23.08	ug/L #	14
20) Carbon tetrachloride	4.26	117	49721	24.63	ug/L	98
21) 1,1-Dichloropropene	4.24	75	52685	23.48	ug/L	99
22) Benzene	4.44	78	150820	22.87	ug/L	99
23) 1,2-Dichloroethane	4.44	62	45468	23.87	ug/L	100
24) Trichloroethene	5.07	95	39876	23.90	ug/L	99
25) 1,2-DICHLOROPROPANE	5.30	63	40565	22.68	ug/L	99
26) Dibromomethane	5.42	93	24739	24.93	ug/L	98
27) Bromodichloromethane	5.59	83	50579	23.78	ug/L	99
28) 2-Chloroethylvinyl Ether	5.92	63	17139	22.77	ug/L	99
29) cis-1,3-Dichloropropene	6.08	75	53371	20.14	ug/L	99
31) TOLUENE	6.47	92	85977	23.67	ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031120\03112050.D Vial: 50
Acq On : 21 Nov 2003 7:11 am Operator: MI
Sample : LCS-DUP 25ppb Inst : Instrumen
Misc : IS/S 1uL #245, LCS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Quant Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration
DataAcq Meth : RTX2VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
32) trans-1,3-Dichloropropene	6.73	75	45823	20.76 ug/L	99
33) 1,1,2-Trichloroethane	6.94	83	25740	23.95 ug/L	98
34) Tetrachloroethene	7.12	166	27833	24.97 ug/L	100
36) 1,3-Dichloropropane	7.15	76	52865	23.62 ug/L	99
37) Dibromochloromethane	7.42	129	37992	25.35 ug/L	99
38) 1,2-Dibromoethane	7.56	107	32197	24.71 ug/L	100
39) Chlorobenzene	8.19	112	97252	24.69 ug/L	100
40) 1,1,1,2-Tetrachloroethane	8.29	131	35142	24.50 ug/L	98
41) ETHYLBENZENE	8.33	91	150654	24.24 ug/L	100
42) m&p-Xylene	8.49	106	113845	50.33 ug/L	96
43) o-Xylene	9.01	106	57273	24.78 ug/L	97
44) Styrene	9.03	104	96867	23.52 ug/L	97
45) Bromoform	9.26	173	20615	26.06 ug/L	100
47) Isopropylbenzene	9.52	105	110927	23.17 ug/L	100
48) 1,2,3-Trichloropropane	9.98	110	10368	25.05 ug/L	100
50) Bromobenzene	9.90	156	35435	24.95 ug/L	99
51) 1,1,2,2-Tetrachloroethane	9.94	83	39515	24.81 ug/L	99
52) n-Propylbenzene	10.08	91	138576	24.13 ug/L	99
53) 2-Chlorotoluene	10.17	91	97974	24.40 ug/L	99
54) 4-Chlorotoluene	10.33	91	108448	23.83 ug/L	97
55) 1,3,5-Trimethylbenzene	10.33	105	90416	23.73 ug/L	98
56) tert-Butylbenzene	10.78	119	69210	24.33 ug/L	100
57) 1,2,4-Trimethylbenzene	10.85	105	92950	23.49 ug/L	100
58) sec-Butylbenzene	11.09	105	98328	23.70 ug/L	99
59) 1,3-Dichlorobenzene	11.22	146	56658	25.88 ug/L	99
60) 4-Isopropyltoluene	11.31	119	79127	24.81 ug/L	99
61) 1,4-Dichlorobenzene	11.35	146	59094	24.64 ug/L	97
62) 1,2-Dichlorobenzene	11.86	146	51332	25.10 ug/L	98
63) n-Butylbenzene	11.88	91	65954	22.85 ug/L	99
64) 1,2-Dibromo-3-chloropropan	12.98	75	4350	26.52 ug/L	92
65) 1,2,4-Trichlorobenzene	14.19	180	17888	26.01 ug/L	97
66) Hexachlorobutadiene	14.46	225	8178	27.40 ug/L	99
67) Naphthalene	14.52	128	46626	28.55 ug/L	100
68) 1,2,3-Trichlorobenzene	14.89	180	13395	28.41 ug/L	100

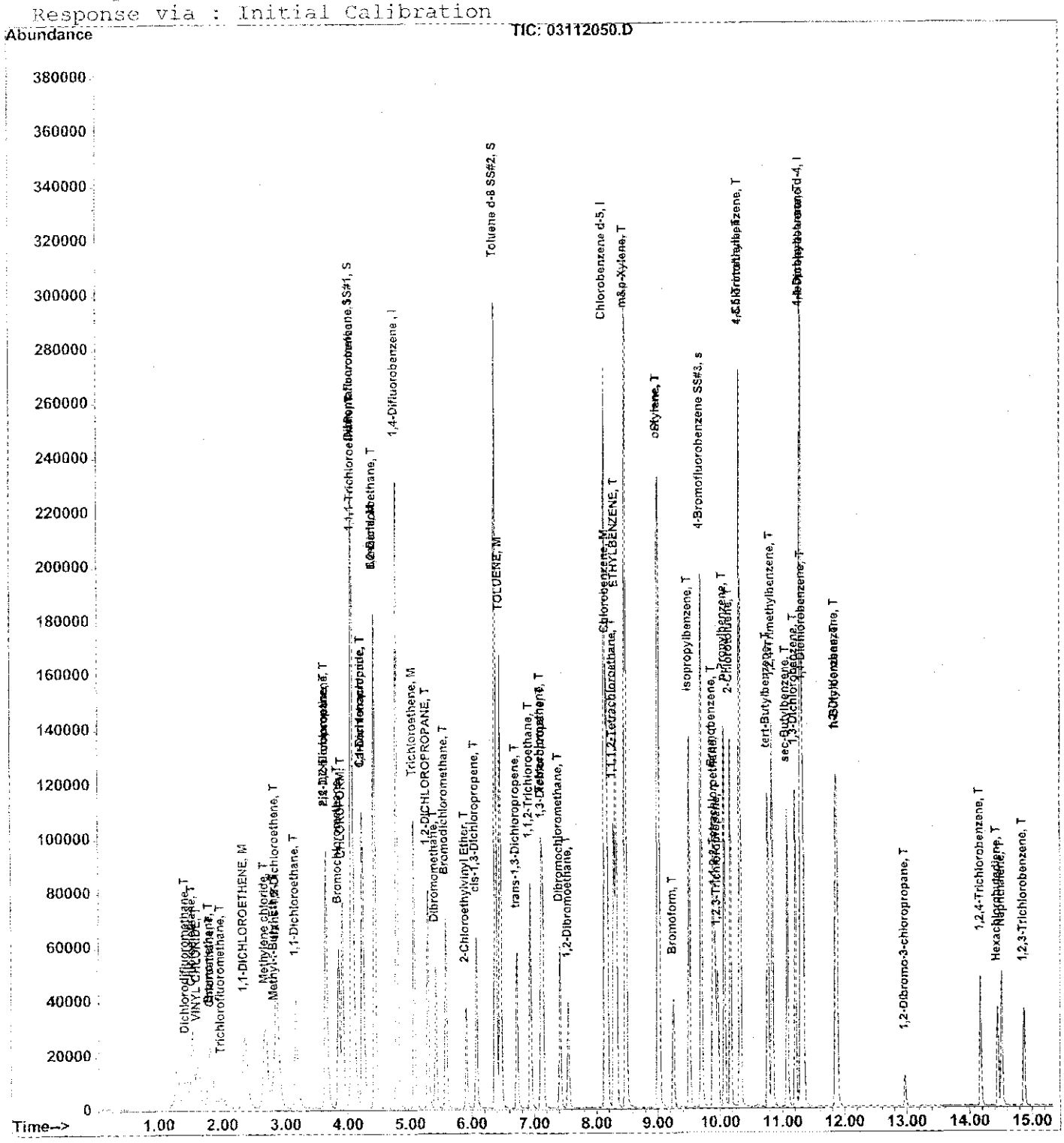
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031120\03112050.D
Acq On : 21 Nov 2003 7:11 am
Sample : LCS-DUP 25ppb
Misc : IS/S 1uL #245, LCS 5uL #42
MS Integration Params: rteint.p
Quant Time: Nov 25 17:50 2003

Vial: 50
Operator: MI
Inst : Instrumen
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Tue Nov 18 16:38:26 2003
Response via : Initial Calibration



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VOLATILE ORGANICS COMPOUNDS
LABORATORY CONTROL SAMPLE SUMMARY

DATE ANALYZED: 11/20/03 **BATCH NUMBER:** VOC031119

METHOD: EPA 8260 **LAB FILE IDs:** 03111946.D

MATRIX: Soil

Client Sample ID: LCS 40ppb

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	QC LIMITS (%)
1,1-Dichloroethene	40	ND	41	104	59-172
Benzene	40	ND	45	113	66-142
Trichloroethene	40	ND	44	110	62-137
Toluene	40	ND	49	121	59-139
Chlorobenzene	40	ND	44	110	60-133

* - Values outside of QC Limits

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Note: QC limits are based on CLP OLM04.2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031119\03111946.D
Acq On : 20 Nov 03 7:18 am
Sample : LCS 40ppb
Misc : IS/Surr 1uL #245, LCS1uL #42
MS Integration Params: rteint.p
Quant Time: Nov 20 10:48 2003

Vial: 45
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.40	168	120930	50.00 ug/L	0.03
18) 1,4-Difluorobenzene	5.13	114	226807	50.00 ug/L	0.02
34) Chlorobenzene d-5	8.55	117	191777	50.00 ug/L	0.02
45) 1,4-Dichlorobenzene d-4	11.74	152	86947	50.00 ug/L	0.02
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.37	113	100483	49.85 ug/L	0.03
Spiked Amount 50.000			Recovery =	99.70%	
29) Toluene d-8 SS#2	6.76	98	253485	49.94 ug/L	0.02
Spiked Amount 50.000			Recovery =	99.88%	
48) 4-Bromofluorobenzene SS#3	10.12	95	110024	48.72 ug/L	0.02
Spiked Amount 50.000			Recovery =	97.44%	

Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.58	85	68831	33.52 ug/L	100
3) Chloromethane	1.69	50	137714	40.10 ug/L	97
4) VINYL CHLORIDE	1.80	62	101535	57.92 ug/L	98
5) Bromomethane	1.99	94	80295	42.09 ug/L	99
6) Chloroethane	2.02	64	64974	44.90 ug/L	95
7) 1,1-DICHLOROETHENE	2.58	96	68778	41.49 ug/L	97
8) Methylene chloride	2.89	84	106930	55.97 ug/L	98
9) trans-1,2-Dichloroethene	3.11	96	82229	44.89 ug/L	98
10) Methyl-t-Butyl Ether	3.11	73	185194	52.38 ug/L	100
11) 1,1-Dichloroethane	3.44	63	180737	45.74 ug/L	99
12) 2,2-Dichloropropane	3.96	77	94597	40.45 ug/L	100
13) cis-1,2-Dichloroethene	3.95	96	95600	45.75 ug/L	99
14) Bromochloromethane	4.16	128	47266	45.72 ug/L #	91
15) CHLOROFORM	4.22	83	168421	45.83 ug/L	100
17) 1,1,1-Trichloroethane	4.42	97	113356	43.53 ug/L #	46
19) Carbon tetrachloride	4.59	117	89281	42.49 ug/L	98
20) 1,1-Dichloropropene	4.57	75	111426	43.87 ug/L	99
21) Benzene	4.77	78	294899	45.33 ug/L	98
22) 1,2-Dichloroethane	4.77	62	149105	47.62 ug/L	100
23) Trichloroethene	5.42	95	83868	43.88 ug/L	96
24) 1,2-DICHLOROPROPANE	5.65	63	94427	46.22 ug/L	100
25) Dibromomethane	5.77	93	73323	48.27 ug/L	98
26) Bromodichloromethane	5.94	83	123950	47.20 ug/L	99

(#) = qualifier out of range (m) = manual integration

Data File : C:\HPCHEM\2\DATA\031119\03111946.D
Acq On : 20 Nov 03 7:18 am
Sample : LCS 40ppb
Misc : IS/Surr 1uL #245, LCS1uL #42
MS Integration Params: rteint.p
Quant Time: Nov 20 10:48 2003

Vial: 45
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27) 2-Chloroethylvinyl Ether	6.27	63	65567	48.01 ug/L	99
28) cis-1,3-Dichloropropene	6.44	75	122713	40.14 ug/L	100
30) TOLUENE	6.85	92	158402	48.54 ug/L	97
31) trans-1,3-Dichloropropene	7.09	75	113809	41.11 ug/L	100
32) 1,1,2-Trichloroethane	7.31	83	66654	46.60 ug/L	98
33) Tetrachloroethene	7.51	166	60598	42.02 ug/L	99
35) 1,3-Dichloropropane	7.52	76	131616	46.88 ug/L	100
36) Dibromochloromethane	7.80	129	83612	47.08 ug/L	99
37) 1,2-Dibromoethane	7.94	107	84763	45.11 ug/L	99
38) Chlorobenzene	8.58	112	175383	44.18 ug/L	95
39) 1,1,1,2-Tetrachloroethane	8.69	131	62665	43.80 ug/L	99
40) ETHYLBENZENE	8.74	91	294535	43.30 ug/L	97
41) m&p-Xylene	8.89	106	206616	87.40 ug/L	94
42) o-Xylene	9.42	106	106557	45.62 ug/L	95
43) Styrene	9.43	104	190097	44.14 ug/L	96
44) Bromoform	9.66	173	57696	46.44 ug/L	99
46) Isopropylbenzene	9.93	105	254128	40.30 ug/L	99
47) 1,2,3-Trichloropropane	10.38	110	29212	43.51 ug/L	100
49) Bromobenzene	10.32	156	70741	42.63 ug/L	95
50) 1,1,2,2-Tetrachloroethane	10.33	83	116711	46.43 ug/L	100
51) n-Propylbenzene	10.49	91	347654	40.74 ug/L	98
52) 2-Chlorotoluene	10.60	91	218928	42.70 ug/L	100
53) 4-Chlorotoluene	10.75	91	244481	42.23 ug/L	99
54) 1,3,5-Trimethylbenzene	10.76	105	225635	41.69 ug/L	100
55) tert-Butylbenzene	11.20	119	172273	41.96 ug/L	98
56) 1,2,4-Trimethylbenzene	11.27	105	230717	41.47 ug/L	99
57) sec-Butylbenzene	11.52	105	304780	41.41 ug/L	99
58) 1,3-Dichlorobenzene	11.64	146	124528	42.36 ug/L	99
59) 4-Isopropyltoluene	11.73	119	210600	41.39 ug/L	97
60) 1,4-Dichlorobenzene	11.78	146	130923	45.93 ug/L	99
61) 1,2-Dichlorobenzene	12.29	146	123682	43.94 ug/L	99
62) n-Butylbenzene	12.32	91	234281	39.42 ug/L	100
63) 1,2-Dibromo-3-chloropropan	13.41	75	21263	46.35 ug/L	95
64) 1,2,4-Trichlorobenzene	14.63	180	79956	40.54 ug/L	100
65) Hexachlorobutadiene	14.91	225	39791	42.91 ug/L	86
66) Naphthalene	14.96	128	185656	42.07 ug/L	100
67) 1,2,3-Trichlorobenzene	15.34	180	78666	43.38 ug/L	99

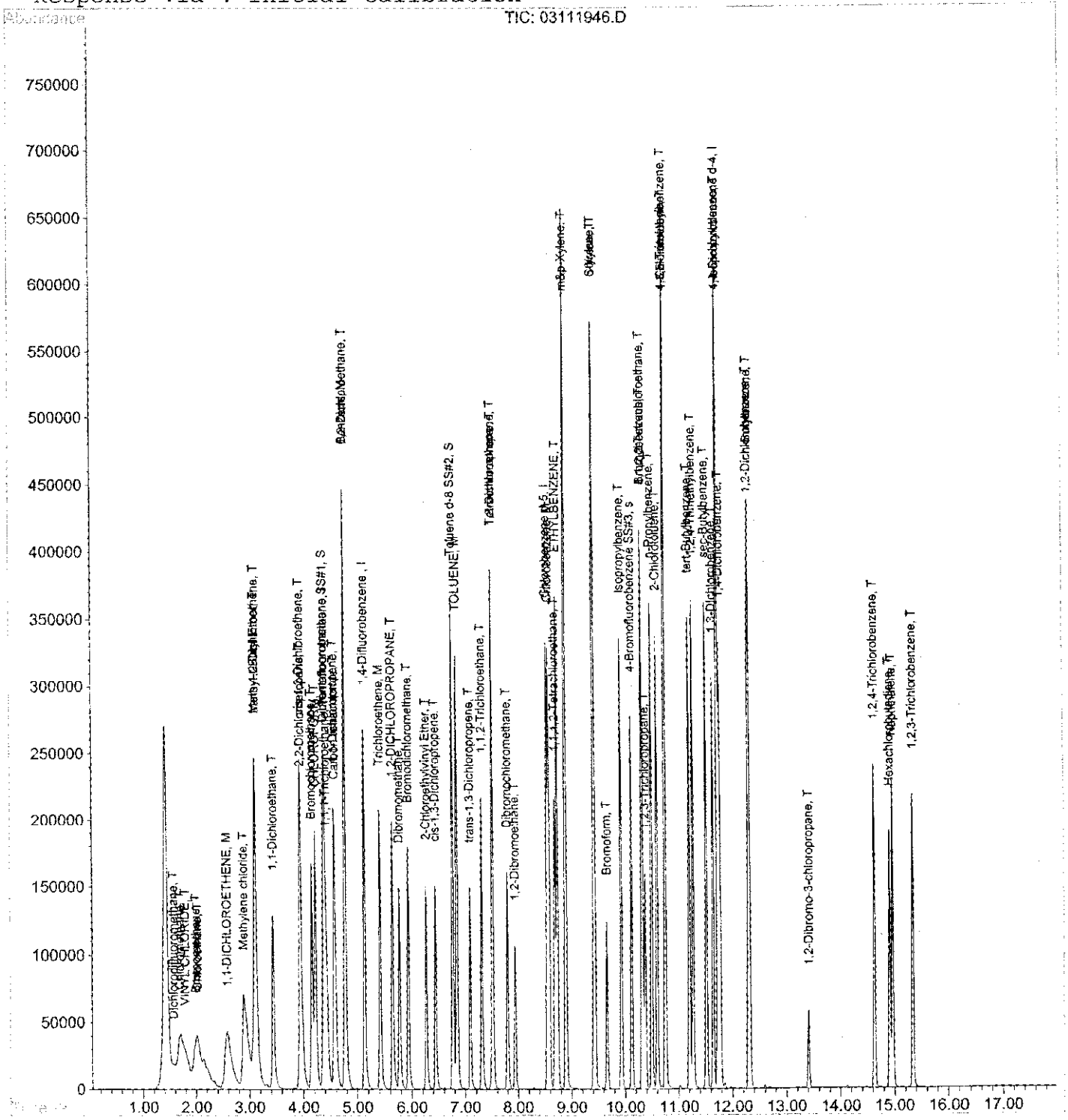
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031119\03111946.D
Acq On : 20 Nov 03 7:18 am
Sample : LCS 40ppb
Misc : IS/Surr 1uL #245, LCS1uL #42
MS Integration Params: rteint.p
Quant Time: Nov 20 10:48 2003

Vial: 45
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00
Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration



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VOLATILE ORGANIC COMPOUNDS
INSTRUMENT AND PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

ANALYSIS:	**GC/MS Volatiles**	**LAB CODE:**	**BFBW**
METHOD:	**EPA 8260**	**LAB SAMPLE ID:**	**BFB Tune**
LAB FILE ID:	**03112001.D**	**DATE/TIME ANALYZED:**	**11/20/03 09:35**

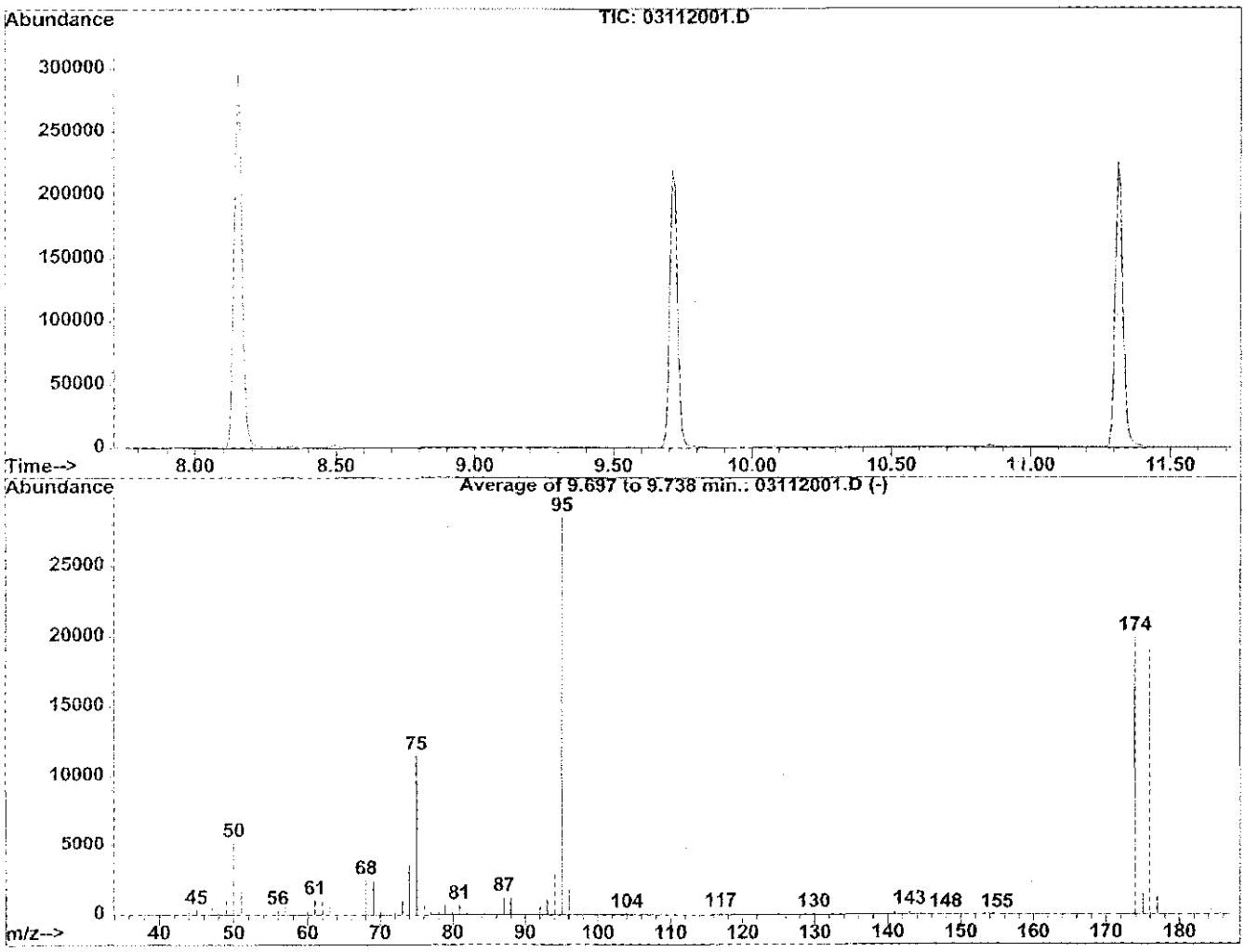
Target Mass	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	18.4
75	30.0 - 60.0% of mass 95	40.2
95	Base peak, 100% relative mass abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than2.0% of mass 174	0.0
174	Greater than 50.0% of mass 95	70.0
175	5.0 - 9.0% of mass 174	7.3
176	Greater than 95.0%, but less than 101.0% of mass 174	95.3
177	5.0 - 9.0% of mass 176	6.8

This Tune applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB 29 Water	03111913-04	03112013.D	11/20/03 15:30
SB 22 Water	03111913-08	03112014.D	11/20/03 15:54
SB 24 Water	03111913-12	03112015.D	11/20/03 16:19
SB 25 Water	03111913-16	03112016.D	11/20/03 16:44
SB 23 Water	03111913-20	03112017.D	11/20/03 17:09
SB 30 Water	03111913-23	03112018.D	11/20/03 17:34
SB 31 Water	03111913-26	03112019.D	11/20/03 17:59

BFB

Data File : C:\HPCHEM\1\DATA\031120\03112001.D Vial: 1
Acq On : 20 Nov 2003 9:35 am Operator: MI
Sample : BFB TUNE BLANK Water 5mL Inst : Instrumen
Misc : IS/S 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics



Spectrum Information: Average of 9.697 to 9.738 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.4	5249	PASS
75	95	30	60	40.2	11469	PASS
95	95	100	100	100.0	28512	PASS
96	95	5	9	6.3	1805	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	70.0	19958	PASS
175	174	5	9	7.3	1459	PASS
176	174	95	101	95.3	19019	PASS
177	176	5	9	6.8	1298	PASS

03112001.D 8260-W.M Thu Nov 20 10:20:12 2003

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VOLATILE ORGANIC COMPOUNDS INSTRUMENT AND PERFORMANCE CHECK BROMOFLUOROBENZENE (BFB)

ANALYSIS:	**GC/MS Volatiles**	**LAB CODE:**	**BFBS**
METHOD:	**EPA 8260**	**LAB SAMPLE ID:**	**BFB Tune**
LAB FILE ID:	**03111901.D**	**DATE/TIME ANALYZED:**	**11/19/03 09:46**

Target Mass	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	27.2
75	30.0 - 60.0% of mass 95	49.0
95	Base peak, 100% relative mass abundance	100.0
96	5.0 - 9.0% of mass 95	6.4
173	Less than2.0% of mass 174	0.0
174	Greater than 50.0% of mass 95	68.6
175	5.0 - 9.0% of mass 174	7.2
176	Greater than 95.0%, but less than 101.0% of mass 174	98.7
177	5.0 - 9.0% of mass 176	6.4

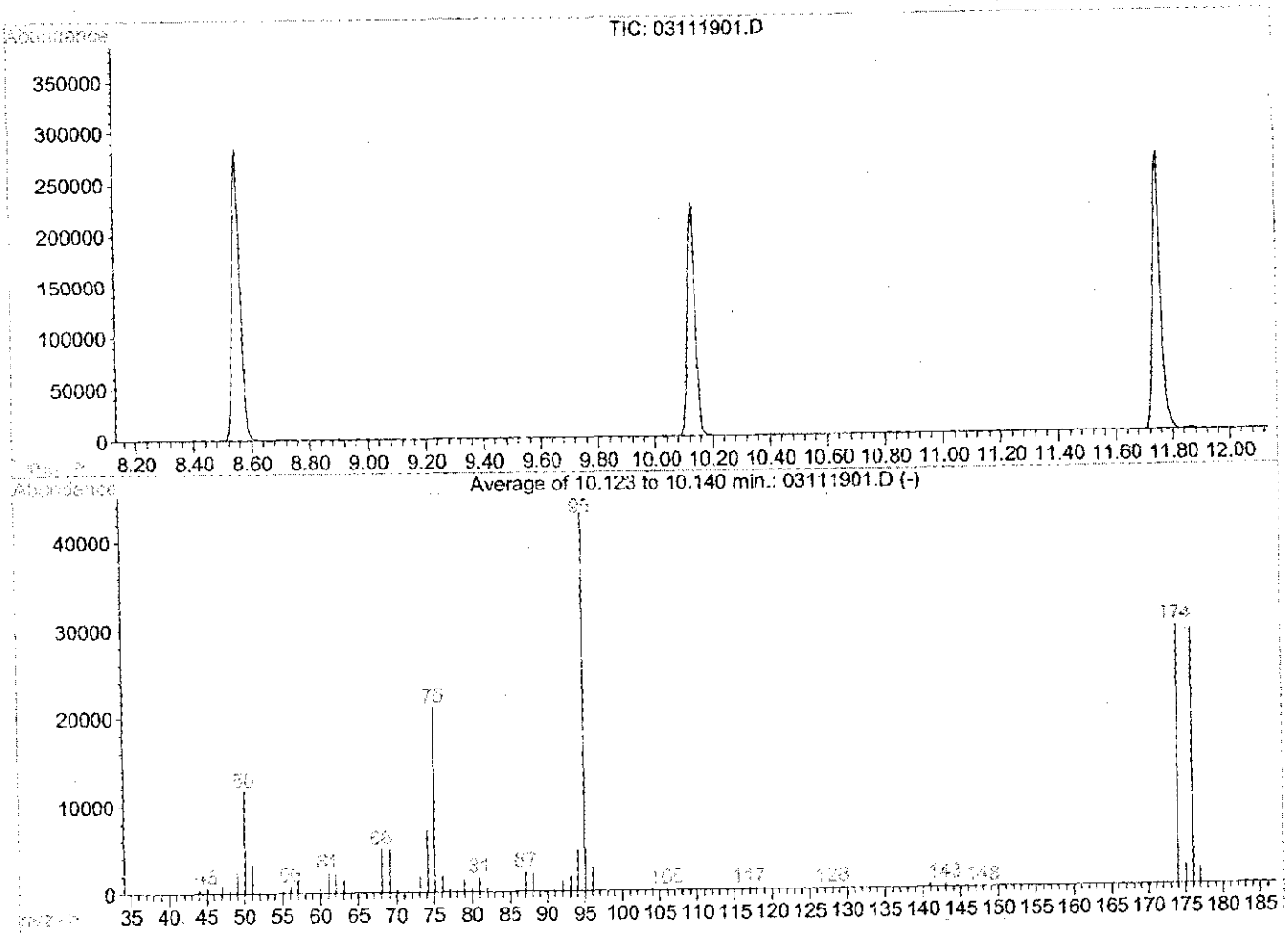
This Tune applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-27	03111913-01	03111932.D	11/20/03 12:51
SB-28	03111913-02	03111933.D	11/20/03 01:19
SB-26	03111913-03	03111934.D	11/20/03 01:47
SB-29	03111913-05	03111935.D	11/20/03 02:14
SB-22-05	03111913-06	03111936.D	11/20/03 02:41
SB-22-10	03111913-07	03111937.D	11/20/03 03:09
SB-24-05	03111913-10	03111938.D	11/20/03 03:37
SB-24-10	03111913-11	03111939.D	11/20/03 04:05
SB-25-05	03111913-14	03111940.D	11/20/03 04:33
SB-25-10	03111913-15	03111941.D	11/20/03 05:00
SB-23-05	03111913-18	03111942.D	11/20/03 05:28
SB-23-10	03111913-19	03111943.D	11/20/03 05:55
SB-30-05	03111913-22	03111944.D	11/20/03 06:23
SB-31-05	03111913-25	03111945.D	11/20/03 06:51

BFB

Data File : C:\HPCHEM\2\DATA\031119\03111901.D
Acq On : 19 Nov 03 9:46 am
Sample : BFB TUNE BLANK Soil 5mL
Misc : IS/Surr 1uL #245
MS Integration Params: rteint.p
Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics

Vial: 1
Operator: MI
Inst : GC/MS Ins
Multiplr: 1.00



AutoFind: Scans 1228, 1229, 1230; Background Corrected with Scan 1221

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	27.2	11669	PASS
75	95	30	60	49.0	21019	PASS
95	95	100	100	100.0	42853	PASS
96	95	5	9	6.4	2763	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	68.6	29416	PASS
175	174	5	9	7.2	2125	PASS
176	174	95	101	98.7	29045	PASS
177	176	5	9	6.4	1862	PASS

03111901.D 8260-S.M Wed Nov 19 10:14:41 2003

Injection Log

Directory: c:\hpchem\1\data\031120

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	03112001.d	1.	BFB TUNE BLANK Water 5mL	IS/S 1uL #245	20 Nov 03 09:35
2	2	03112002.d	1.	8260-W, CCV 50ppb	IS/S 1uL #245, CCV 10uL #125/233/236	20 Nov 03 10:20
3	3	03112003.d	1.	MDE-W, CCV 50ppb	IS/S 1uL #245, CCV 20uL #237	20 Nov 03 10:45
4	4	03112004.d	1.	NEWMIX-W, CCV 50ppb	IS/S 1uL #245, CCV 10uL #238/239	20 Nov 03 11:10
5	5	03112005.d	1.	METHOD BLANK 5mL	IS/S 1uL #245	20 Nov 03 11:34
6	6	03112006.d	1.	03112001-01 5mL	IS/S 1uL #245	20 Nov 03 11:59
7	7	03112007.d	1.	03112001-02 5mL	IS/S 1uL #245	20 Nov 03 12:24
8	8	03112008.d	1.	03112001-03 5mL	IS/S 1uL #245	20 Nov 03 12:49
9	9	03112009.d	1.	03112001-04 10D	IS/S 1uL #245	20 Nov 03 13:16
10	10	03112010.d	1.	03112001-05 10D	IS/S 1uL #245	20 Nov 03 13:44
11	11	03112011.d	1.	03112001-06 10D	IS/S 1uL #245	20 Nov 03 14:11
12	12	03112012.d	1.	METHOD BLANK 5mL	IS/S 1uL #245	20 Nov 03 15:05
13	13	03112013.d	1.	03111913-04 5mL	IS/S 1uL #245	20 Nov 03 15:30
14	14	03112014.d	1.	03111913-08 5mL	IS/S 1uL #245	20 Nov 03 15:54
15	15	03112015.d	1.	03111913-12 5mL	IS/S 1uL #245	20 Nov 03 16:19
16	16	03112016.d	1.	03111913-16 5mL	IS/S 1uL #245	20 Nov 03 16:44
17	17	03112017.d	1.	03111913-20 5mL	IS/S 1uL #245	20 Nov 03 17:09
18	18	03112018.d	1.	03111913-23 5mL	IS/S 1uL #245	20 Nov 03 17:34
19	19	03112019.d	1.	03111913-26 5mL	IS/S 1uL #245	20 Nov 03 17:59
20	20	03112020.d	1.	03111929-01 5mL	IS/S 1uL #245	20 Nov 03 18:23
21	21	03112021.d	1.	03111807-30 5mL	IS/S 1uL #245	20 Nov 03 18:48
22	22	03112022.d	1.	03111502-02 5mL	IS/S 1uL #245	20 Nov 03 19:13
23	23	03112023.d	1.	03111921-01 TCLP 20D	IS/S 1uL #245	20 Nov 03 19:38
24	24	03112024.d	1.	8260-W, CCV 50ppb	IS/S 1uL #245, CCV 10uL #125/233/236	20 Nov 03 20:03
25	25	03112025.d	1.	MDE-W, CCV 50ppb	IS/S 1uL #245, CCV 20uL #237	20 Nov 03 20:27
26	26	03112026.d	1.	NEWMIX-W, CCV 50ppb	IS/S 1uL #245, CCV 10uL #238/239	20 Nov 03 20:52
27	27	03112027.d	1.	METHOD BLANK 5mL	IS/S 1uL #245	20 Nov 03 21:17
28	28	03112028.d	1.	03111917-01 5mL	IS/S 1uL #245	20 Nov 03 21:41
29	29	03112029.d	1.	03111917-02 5mL	IS/S 1uL #245	20 Nov 03 22:06
30	30	03112030.d	1.	03111917-03 5mL	IS/S 1uL #245	20 Nov 03 22:31
31	31	03112031.d	1.	03111917-04 5mL	IS/S 1uL #245	20 Nov 03 22:56
32	32	03112032.d	1.	03111917-05 5mL	IS/S 1uL #245	20 Nov 03 23:21
33	33	03112033.d	1.	03111917-06 5mL	IS/S 1uL #245	20 Nov 03 23:45
34	34	03112034.d	1.	03111917-07 5mL	IS/S 1uL #245	21 Nov 03 00:10
35	35	03112035.d	1.	03111917-08 5mL	IS/S 1uL #245	21 Nov 03 00:35
36	36	03112036.d	1.	03111917-09 5mL	IS/S 1uL #245	21 Nov 03 00:59
37	37	03112037.d	1.	03111917-10 5mL	IS/S 1uL #245	21 Nov 03 01:24
38	38	03112038.d	1.	03111306-14 10D	IS/S 1uL #245	21 Nov 03 01:52
39	39	03112039.d	1.	03111306-15 10D	IS/S 1uL #245	21 Nov 03 02:19
40	40	03112040.d	1.	03111502-21 10D	IS/S 1uL #245	21 Nov 03 02:47
41	41	03112041.d	1.	03111929-02 10D	IS/S 1uL #245	21 Nov 03 03:15
42	42	03112042.d	1.	03111929-03 10D	IS/S 1uL #245	21 Nov 03 03:42
43	43	03112043.d	1.	03111929-04 10D	IS/S 1uL #245	21 Nov 03 04:10
44	44	03112044.d	1.	03111928-02 10D	IS/S 1uL #245	21 Nov 03 04:37
45	45	03112045.d	1.	03111502-20 20D	IS/S 1uL #245	21 Nov 03 05:05
46	46	03112046.d	1.	PSS TCLP BLANK 11/19 20D	IS/S 1uL #245	21 Nov 03 05:32
47	47	03112047.d	1.	03111917-01 MS 25ppb	IS/S 1uL #245, MS 5uL #42	21 Nov 03 05:57
48	48	03112048.d	1.	03111917-01 MSD 25ppb	IS/S 1uL #245, MS 5uL #42	21 Nov 03 06:22
49	49	03112049.d	1.	LCS 25ppb	IS/S 1uL #245, LCS 5uL #42	21 Nov 03 06:47
50	50	03112050.d	1.	LCS-DUP 25ppb	IS/S 1uL #245, LCS 5uL #42	21 Nov 03 07:11
51	51	03112051.d	1.	REG VOC QCO-007-12	IS/S 1uL #245, QC 1uL	21 Nov 03 07:36
52	52	03112052.d	1.	METHOD BLANK 5mL	IS/S 1uL #245	21 Nov 03 08:01
53	53	03112053.d	1.	METHOD BLANK 5mL	IS/S 1uL #245	21 Nov 03 08:26

Injection Log

Directory: c:\hpchem\2\data\031119

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1		03111953.d	1.			
2	1	03111901.d	1.	BFB TUNE BLANK Soil 5mL	IS/Surr 1uL #245	19 Nov 03 09:4
3	2	03111902.d	1.	8260-S, CCV 80ppb	IS/Surr 1uL #245, CCV 2uL #125/233/236	19 Nov 03 10:3
4	3	03111903.d	1.	MDE-S, CCV 80ppb	IS/Surr 1uL #245, CCV 4uL #237	19 Nov 03 10:5
5	4	03111904.d	1.	MDE-S, CCV 80ppb	IS/Surr 1uL #245, CCV 4uL #237	19 Nov 03 11:1
6	5	03111905.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #245	19 Nov 03 11:4
7	5	03111906.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #245	19 Nov 03 12:2
8	6	03111907.d	1.	03111814-01 10cc	IS/Surr 1uL #245	19 Nov 03 13:1
9	7	03111908.d	1.	03111814-02 10cc	IS/Surr 1uL #245	19 Nov 03 13:4
10	8	03111909.d	1.	03111814-03 10cc	IS/Surr 1uL #245	19 Nov 03 14:1
11	9	03111910.d	1.	03111814-04 10cc	IS/Surr 1uL #245	19 Nov 03 14:4
12	10	03111911.d	1.	03111411-05 1:1	IS/Surr 1uL #245	19 Nov 03 15:0
13	11	03111912.d	1.	03111426-01 5.04g	IS/Surr 1uL #245	19 Nov 03 15:3
14	12	03111913.d	1.	03111426-02 5.07g	IS/Surr 1uL #245	19 Nov 03 16:0
15	13	03111914.d	1.	03111426-13 5.01g	IS/Surr 1uL #245	19 Nov 03 16:3
16	14	03111915.d	1.	03111427-07 5.0g	IS/Surr 1uL #245	19 Nov 03 17:0
17	15	03111916.d	1.	03111427-08 5.07g	IS/Surr 1uL #245	19 Nov 03 17:2
18	16	03111917.d	1.	03111427-18 5.07g	IS/Surr 1uL #245	19 Nov 03 17:5
19	17	03111918.d	1.	03111427-21 5.01g	IS/Surr 1uL #245	19 Nov 03 18:2
20	18	03111919.d	1.	03111814-01 5cc	IS/Surr 1uL #245	19 Nov 03 18:5
21	19	03111920.d	1.	03111914-01 10cc	IS/Surr 1uL #245	19 Nov 03 19:1
22	20	03111921.d	1.	03111914-02 10cc	IS/Surr 1uL #245	19 Nov 03 19:4
23	21	03111922.d	1.	BLANK (SEA SAND) 5.02g	IS/Surr 1uL #245, ID#2	19 Nov 03 20:1
24	22	03111923.d	1.	8260-S, CCV 80ppb	IS/Surr 1uL #245, CCV 2uL #125/233/236	19 Nov 03 20:4
25	23	03111924.d	1.	MDE-S, CCV 80ppb	IS/Surr 1uL #245, CCV 4uL #237	19 Nov 03 21:0
26	24	03111925.d	1.	NEWMIX-S, CCV 80ppb	IS/Surr 1uL #245, CCV 2uL #238/239	19 Nov 03 21:3
27	25	03111926.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #245	19 Nov 03 22:0
28	26	03111927.d	1.	03111924-01 5.0g	IS/Surr 1uL #245	19 Nov 03 22:3
29	27	03111928.d	1.	03111924-02 5.05g	IS/Surr 1uL #245	19 Nov 03 23:0
30	28	03111929.d	1.	03111931-01 10cc	IS/Surr 1uL #245	19 Nov 03 23:2
31	29	03111930.d	1.	03111931-02 10cc	IS/Surr 1uL #245	19 Nov 03 23:5
32	30	03111931.d	1.	03111931-03 10cc	IS/Surr 1uL #245	20 Nov 03 00:2
33	31	03111932.d	1.	03111913-01 5.0g	IS/Surr 1uL #245	20 Nov 03 00:5
34	32	03111933.d	1.	03111913-02 5.06g	IS/Surr 1uL #245	20 Nov 03 01:1
35	33	03111934.d	1.	03111913-03 5.03g	IS/Surr 1uL #245	20 Nov 03 01:4
36	34	03111935.d	1.	03111913-05 5.03g	IS/Surr 1uL #245	20 Nov 03 02:1
37	35	03111936.d	1.	03111913-06 5.07g	IS/Surr 1uL #245	20 Nov 03 02:4
38	36	03111937.d	1.	03111913-07 5.0g	IS/Surr 1uL #245	20 Nov 03 03:0
39	37	03111938.d	1.	03111913-10 5.01g	IS/Surr 1uL #245	20 Nov 03 03:3
40	38	03111939.d	1.	03111913-11 5.06g	IS/Surr 1uL #245	20 Nov 03 04:0
41	39	03111940.d	1.	03111913-14 5.05g	IS/Surr 1uL #245	20 Nov 03 04:3
42	40	03111941.d	1.	03111913-15 5.08g	IS/Surr 1uL #245	20 Nov 03 05:0
43	41	03111942.d	1.	03111913-18 5.06g	IS/Surr 1uL #245	20 Nov 03 05:2
44	42	03111943.d	1.	03111913-19 5.03g	IS/Surr 1uL #245	20 Nov 03 05:5
45	43	03111944.d	1.	03111913-22 5.0g	IS/Surr 1uL #245	20 Nov 03 06:2
46	44	03111945.d	1.	03111913-25 5.07g	IS/Surr 1uL #245	20 Nov 03 06:5
47	45	03111946.d	1.	LCS 40ppb	IS/Surr 1uL #245, LCS1uL #42	20 Nov 03 07:1
48	46	03111947.d	1.	03111427-19 MS 40ppb	IS/Surr 1uL #245, MS1uL #42	20 Nov 03 07:4
49	47	03111948.d	1.	03111427-20 MSD 40ppb	IS/Surr 1uL #245, MS 1uL #42	20 Nov 03 08:1
50	48	03111949.d	1.	03111924-01 MS 40ppb	IS/Surr 1uL #245, MS 1uL #42	20 Nov 03 08:4
51	49	03111950.d	1.	03111924-01 MSD 40ppb	IS/Surr 1uL #245, MS 1uL #42	20 Nov 03 09:0

Injection Log

Directory: c:\hpchem\2\data\031119

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
52	50	03111951.d	1.	REG VOC QCO-007-12	IS/Surr 1uL #245, QC 1uL	20 Nov 03 09:3
53	51	03111952.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #245	20 Nov 03 10:1

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Semivolatile Organic Compounds

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *LCS Summary*
- *DFTPP Tune Summary*

6630 Baltimore National Pike Baltimore, MD 21228 (800) 932-9047 (410) 747-8770 FAX (410) 788-8723

1 2001

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANIC COMPOUNDS
SYSTEM MONITORING COMPOUND RECOVERY
(SURROGATES)

ANALYSIS: GC/MS Semi-Volatiles **LAB CODE:** SURR

METHOD NO.: EPA 8270

Date/Time Analyzed	Sample ID	S1 A (2FP) #	S2 A (PHL) #	S1 BN (NBZ) #	S2 BN (FBP) #	S3 A (TBP) #	S3 BN (TPH) #	Total Out
	Upper Limit	110	110	114	116	123	141	
	Lower Limit	21	10	35	43	10	33	
11/24/03 13:17	Calibration Verification	95	100	97	96	107	93	
11/24/03 20:40	Method Blank	84	85	85	91	79	93	
11/24/03 21:14	LCS	56	63	64	68	84	92	
11/24/03 14:59	SB 22 Water	59	64	64	72	78	87	
11/24/03 15:33	SB 24 Water	57	64	64	74	77	88	
11/24/03 16:07	SB 25 Water	60	65	65	77	75	91	
11/24/03 16:41	SB 23 Water	60	65	62	72	78	86	
11/24/03 17:16	SB 30 Water	56	62	60	70	74	87	
11/24/03 17:50	SB 31 Water	57	62	59	68	69	93	

	Control Limits: Water	Control Limits: Soil
S1 A (2FP) = 2-Fluorophenol	21-110	25-121
S2 A (PHL) = Phenol-d6	10-110	24-113
S1 BN (NBZ) = Nitrobenzene-d5	35-114	23-120
S2 BN (FBP) = 2-Fluorobiphenyl	43-116	30-115
S3 A (TBP) = 2,4,6-Tribromophenol	10-123	19-122
S3 BN (TPH) = Terphenyl-d14	33-141	18-137

Column used to flag recovery values
* = Values outside QC limits. Affected by 100 fold dilution.
D: Surrogate diluted out

1 2002

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANIC COMPOUNDS
SYSTEM MONITORING COMPOUND RECOVERY
(SURROGATES)

ANALYSIS: GC/MS Semi-Volatiles **LAB CODE:** SURR

METHOD NO.: EPA 8270

Date/Time Analyzed	Sample ID	S1 A (2FP) #	S2 A (PHL) #	S1 BN (NBZ) #	S2 BN (FBP) #	S3 A (TBP) #	S3 BN (TPH) #	Total Out
	Upper Limit	121	113	120	115	122	137	
	Lower Limit	25	24	23	30	19	18	
12/01/03 15:25	Calibration Verification	95	99	98	98	107	89	
12/02/03 00:59	Method Blank	99	100	98	104	98	112	
12/01/03 23:54	LCS	98	98	96	96	100	104	
12/01/03 17:29	SB-22-05	61	68	70	81	84	97	
12/01/03 18:01	SB-22-10	56	61	61	72	75	90	
12/01/03 18:33	SB-24-05	57	63	67	78	83	87	
12/01/03 19:05	SB-24-10	60	66	59	68	75	88	
12/01/03 19:37	SB-25-05	59	65	66	75	78	96	
12/01/03 20:09	SB-25-10	58	65	61	72	78	91	
12/01/03 20:41	SB-23-05	53	59	64	71	75	87	
12/01/03 21:14	SB-23-10	59	65	65	75	77	89	
12/01/03 21:46	SB-30-05	57	64	66	76	79	88	
12/01/03 22:18	SB-31-05	58	64	67	77	76	87	

	Control Limits: Water	Control Limits: Soil
S1 A (2FP) = 2-Fluorophenol	21-110	25-121
S2 A (PHL) = Phenol-d6	10-110	24-113
S1 BN (NBZ) = Nitrobenzene-d5	35-114	23-120
S2 BN (FBP) = 2-Fluorobiphenyl	43-116	30-115
S3 A (TBP) = 2,4,6-Tribromophenol	10-123	19-122
S3 BN (TPH) = Terphenyl-d14	33-141	18-137

Column used to flag recovery values
* = Values outside QC limits. Affected by 100 fold dilution.
D: Surrogate diluted out

1 2003

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
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PHASE SEPARATION SCIENCE, INC.

SEMI-VOLATILE ORGANIC COMPOUNDS
METHOD BLANK SUMMARY

ANALYSIS:	**GC/MS Semi-Volatiles**	**LAB CODE:**	**MBW**
METHOD NO.:	**EPA 8270**	**LAB SAMPLE ID:**	**METHOD BLANK (E: 11-21-03)**
LAB FILE ID:	**03112415.D**	**DATE/TIME ANALYZED:**	**11/24/03 20:40**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB 22 Water	03111913-08	03112405.D	11/24/03 14:59
SB 24 Water	03111913-12	03112406.D	11/24/03 15:33
SB 25 Water	03111913-16	03112407.D	11/24/03 16:07
SB 23 Water	03111913-20	03112408.D	11/24/03 16:41
SB 30 Water	03111913-23	03112409.D	11/24/03 17:16
SB 31 Water	03111913-26	03112410.D	11/24/03 17:50

1 2004

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112415.D Vial: 15
Acq On : 24 Nov 2003 8:40 pm Operator: DJP
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:03 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.60	152	216171	50.00 mg/L	-0.01
19) Naphthalene-D8 ISTD	6.75	136	881009	50.00 mg/L	-0.01
34) Acenaphthene-d10 ISTD	8.70	164	452686	50.00 mg/L	-0.01
55) Phenanthrene-D10 ISTD	10.97	188	739694	50.00 mg/L	-0.03
67) Chrysene-D12 ISTD	16.29	240	488477	50.00 mg/L	-0.04
76) Perylene-D12	20.23	264	366197	50.00 mg/L	-0.06

System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.45	112	1521632	167.98 mg/L	-0.04
Spiked Amount 200.000	Range 21 - 100		Recovery = 83.99%		
5) Phenol-d6 Acid SS 2	5.24	99	1824658	169.72 mg/L	-0.01
Spiked Amount 200.000	Range 10 - 94		Recovery = 84.86%		
20) Nitrobenzene-d5 BN SS 1	6.11	82	737936	85.30 mg/L	-0.01
Spiked Amount 100.000	Range 35 - 114		Recovery = 85.30%		
38) 2-Fluorobiphenyl BN SS 2	7.82	172	1304044	91.42 mg/L	0.00
Spiked Amount 100.000	Range 43 - 116		Recovery = 91.42%		
54) 2,4,6-Tribromophenol Acid	9.83	330	297118	157.67 mg/L	-0.01
Spiked Amount 200.000	Range 10 - 123		Recovery = 78.83%		
70) Terphenyl-d14 BN SS 3	13.98	244	1140893	92.85 mg/L	0.00
Spiked Amount 100.000	Range 33 - 141		Recovery = 92.85%		

Target Compounds				Qvalue
2) Pyridine	0.00	79	0	Not Detected
3) N-Nitrosodimethylamine	0.00	74	0	Not Detected
6) PHENOL	5.25	94	104	Not Detected
7) Aniline	0.00	66	0	Not Detected d
8) Bis(2-chloroethyl)ether	5.25	63	3933	Not Detected
9) 2-Chlorophenol	0.00	128	0	Not Detected
10) 1,4'-DICHLOROBENZENE	0.00	146	0	Not Detected
11) 1,3'-Dichlorobenzene	0.00	146	0	Not Detected
12) 1,2'-Dichlorobenzene	0.00	146	0	Not Detected
13) Benzyl Alcohol	5.60	108	351	Not Detected
14) 2-Methylphenol	0.00	107	0	Not Detected
15) bis(2-chloroisopropyl)ethe	5.85	45	98	Not Detected
16) 3,4-Methylphenol	0.00	107	0	Not Detected
17) N-Nitrosodi-n-propyl amine	0.00	70	0	Not Detected
18) Hexachloroethane	0.00	117	0	Not Detected
21) Nitrobenzene	6.10	77	2071	Not Detected
22) Isophorone	0.00	82	0	Not Detected
23) 2-NITROPHENOL	0.00	139	0	Not Detected
24) 2,4-dimethylphenol	0.00	122	0	Not Detected

(#) = qualifier out of range (m) = manual integration

1 2005

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112415.D Vial: 15
Acq On : 24 Nov 2003 8:40 pm Operator: DJP
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:03 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : AL88270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	0.00	105	0	Not Detected	
26) Bis(2-chloroethoxy)methane	0.00	93	0	Not Detected	
27) 2,4-DICHLOROPHENOL	0.00	162	0	Not Detected	
28) 1,2,4'-Trichlorobenzene	0.00	180	0	Not Detected	
29) Naphthalene`	6.56	128	94	Not Detected	
30) 4-Chloroaniline	0.00	127	0	Not Detected	
31) HEXACHLOROBUTADIENE`	0.00	225	0	Not Detected	
32) 4-CHLORO-3-METHYLPHENOL	0.00	107	0	Not Detected	
33) 2-Methylnaphthalene	0.00	142	0	Not Detected	
35) Hexachlorocyclopentadiene	0.00	237	0	Not Detected	
36) 2,4,6-TRICHLOROPHENOL	0.00	97	0	Not Detected	d
37) 2,4,5-trichlorophenol	7.81	97	2326	1.37 mg/L #	1
39) 2-Chloronaphthalene	7.75	162	272	Not Detected	
40) 2-Nitroaniline	0.00	65	0	Not Detected	
41) 3-Nitroaniline	0.00	138	0	Not Detected	
42) 4-Nitroaniline	0.00	138	0	Not Detected	
43) Dimethylphthalate	0.00	163	0	Not Detected	
44) 2,6-Dinitrotoluene	0.00	165	0	Not Detected	
45) Acenaphthylene	0.00	152	0	Not Detected	
46) ACENAPHTHENE	8.70	154	1365	Not Detected	
47) 2,4-Dinitrophenol	8.97	184	311	Not Detected	
48) 4-nitrophenol	0.00	139	0	Not Detected	
49) 2,4-Dinitrotoluene	8.96	165	222	Not Detected	
50) Dibenzofuran	0.00	168	0	Not Detected	
51) Diethylphthalate	0.00	149	0	Not Detected	
52) 4-chlorophenyl phenyl ethe	0.00	204	0	Not Detected	
53) Fluorene	0.00	166	0	Not Detected	
56) 4,6-Dinitro-2-methylphenol	0.00	198	0	Not Detected	
57) N-NITROSODI-N-PHENYLAMINE	0.00	169	0	Not Detected	
58) 4-bromophenyl phenyl ether	0.00	248	0	Not Detected	
59) Hexachlorobenzene	0.00	142	0	Not Detected	
60) PENTACHLOROPHENOL	0.00	266	0	Not Detected	
61) Phenanthrene	0.00	178	0	Not Detected	
62) Anthracene	0.00	178	0	Not Detected	
63) Carbazole	0.00	167	0	Not Detected	
64) Decafluorotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	0.00	149	0	Not Detected	
66) FLUORANTHENE	0.00	202	0	Not Detected	
68) Benzidine	0.00	184	0	Not Detected	
69) Pyrene	13.98	202	2858	Not Detected	
71) Butylbenzylphthalate	0.00	149	0	Not Detected	

(#) = qualifier out of range (m) = manual integration

1 2006

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112415.D Vial: 15
Acq On : 24 Nov 2003 8:40 pm Operator: DJP
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:03 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	Qion	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	0.00	252	0	Not Detected	
73) Bis(2-ethylhexyl)phthalate	16.16	149	201	Not Detected	
74) Benzo[a]anthracene	16.29	228	908	Not Detected	
75) Chrysene	16.29	228	908	Not Detected	
77) DI-N-OCTYLPHTHALATE	17.61	149	323	Not Detected	
78) Benzo[b]fluoranthene	0.00	252	0	Not Detected	
79) Benzo[k]fluoranthene	0.00	252	0	Not Detected	
80) BENZO[A]PYRENE	20.23	252	924	Not Detected	
81) Indeno(1,2,3-c,d)pyrene	0.00	276	0	Not Detected	
82) Dibenzo[a,h]anthracene	0.00	278	0	Not Detected	
83) Benzo[g,h,i]perylene	0.00	276	0	Not Detected	

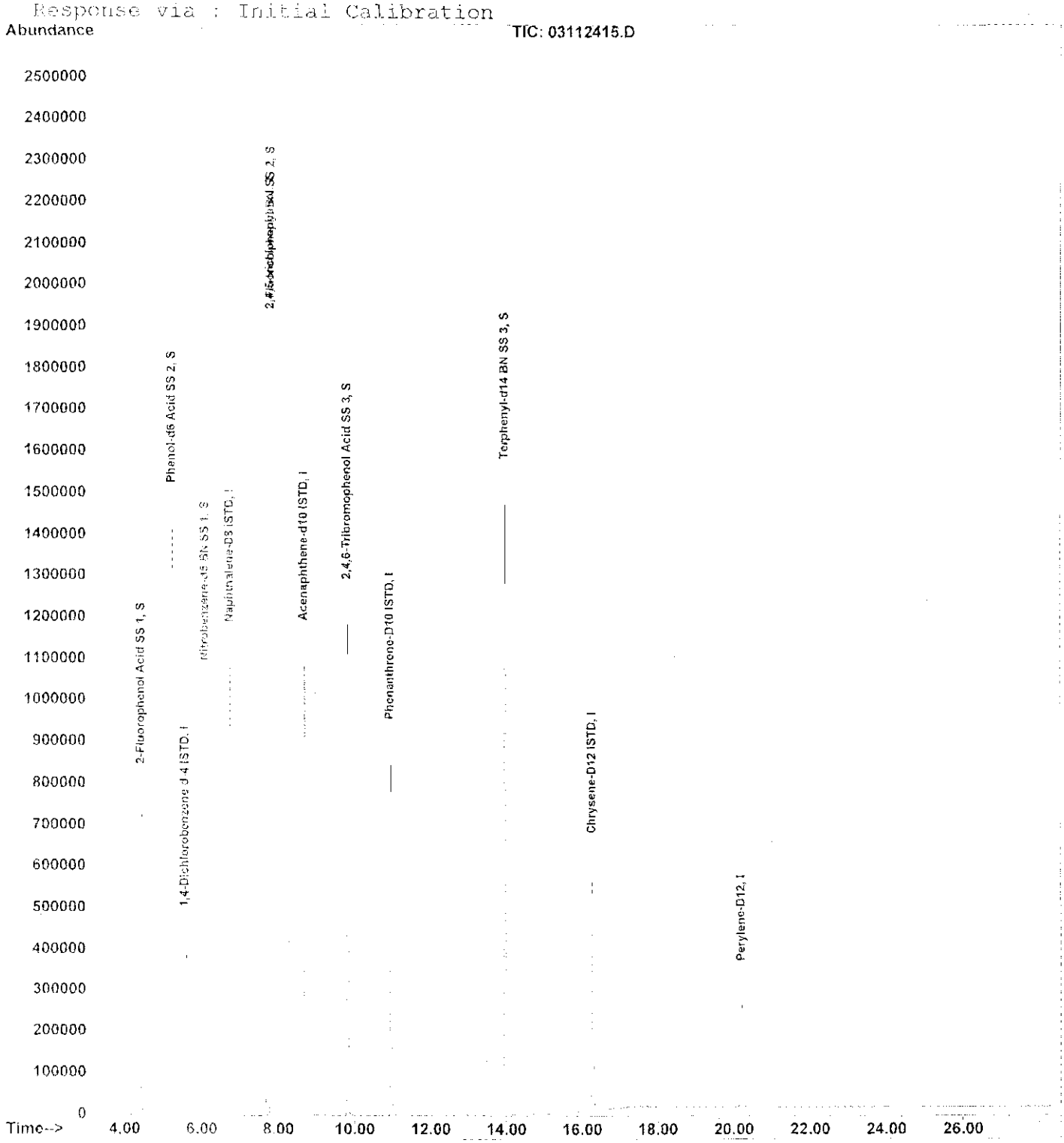
(#) = qualifier out of range (m) = manual integration

1 2007

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031124\03112415.D Vial: 15
Acq On : 24 Nov 2003 8:40 pm Operator: DJP
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multipir: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:03 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration



1 2008

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112415.D Vial: 15
Acq On : 24 Nov 2003 8:40 pm Operator: DJP
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 14:36 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : AL58270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.60	152	216171	40.00 mg/L	-0.05
3) Naphthalene-D8 ISTD	6.75	136	881009	40.00 mg/L	-0.06
5) Acenaphthene-d10 ISTD	8.70	164	452686	40.00 mg/L	-0.09

System Monitoring Compounds

Target Compounds				Qvalue
2) Acetophenone	0.00	105	0	Not Detected
4) e-Caprolactam	6.91	55	94	Not Detected
6) Biphenyl	7.92	154	3853	Not Detected
7) Atrazine	0.00	200	0	Not Detected

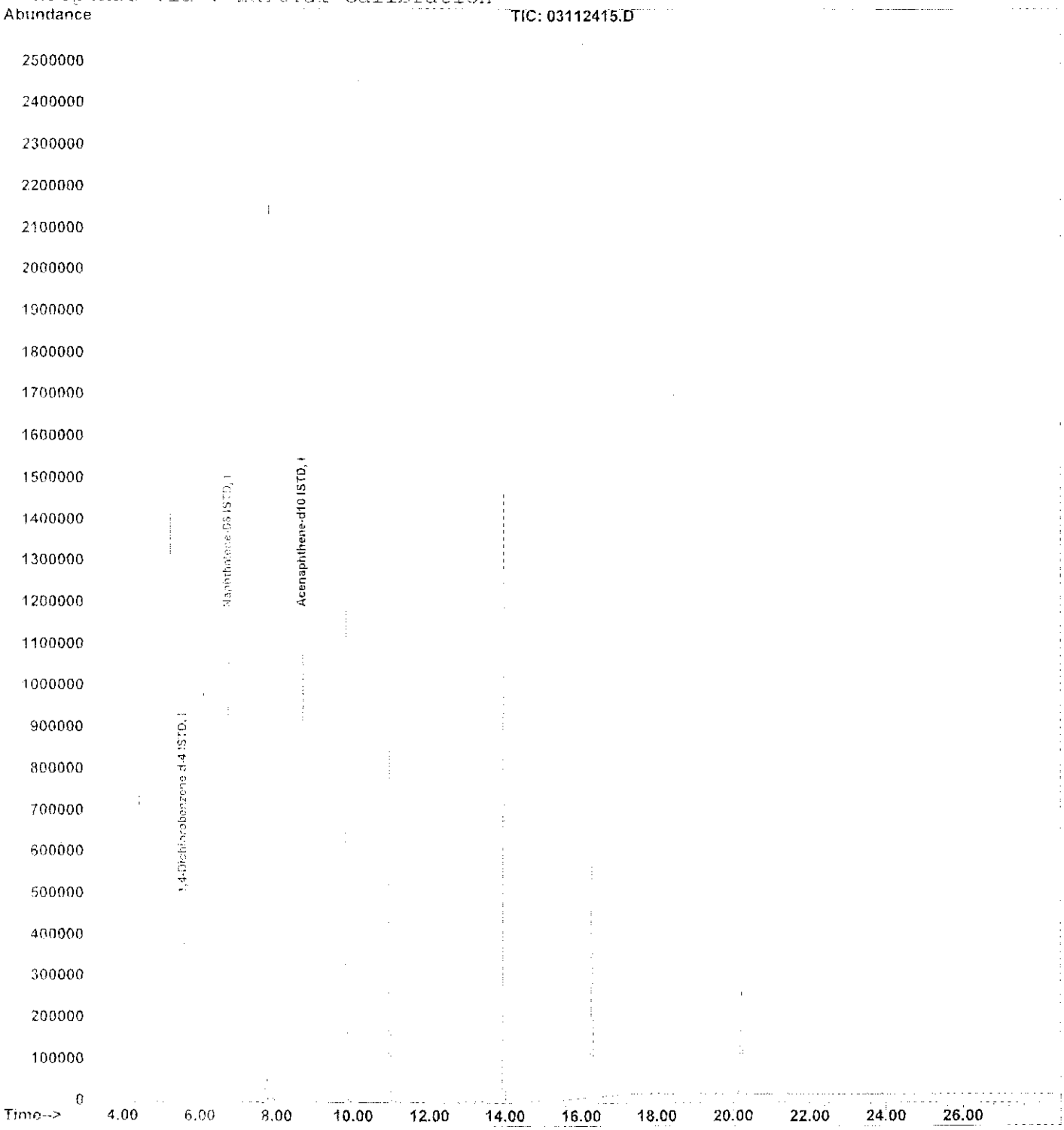
(#) = qualifier out of range (m) = manual integration

1 2009

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031124\03112415.D Vial: 15
Acq On : 24 Nov 2003 8:40 pm Operator: DJP
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 14:36 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : AL88270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration



1 2010

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANIC COMPOUNDS
METHOD BLANK SUMMARY

ANALYSIS:	**GC/MS Semi-Volatiles**	**LAB CODE:**	**MBS**
METHOD NO.:	**EPA 8270**	**LAB SAMPLE ID:**	**METHOD BLANK (E: 12-01-03)**
LAB FILE ID:	**03120128.D**	**DATE/TIME ANALYZED:**	**12/2/03 0:59**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-22-05	03111913-06	03120114.D	12/1/03 17:29
SB-22-10	03111913-07	03120115.D	12/1/03 18:01
SB-24-05	03111913-10	03120116.D	12/1/03 18:33
SB-24-10	03111913-11	03120117.D	12/1/03 19:05
SB-25-05	03111913-14	03120118.D	12/1/03 19:37
SB-25-10	03111913-15	03120119.D	12/1/03 20:09
SB-23-05	03111913-18	03120120.D	12/1/03 20:41
SB-23-10	03111913-19	03120121.D	12/1/03 21:14
SB-30-05	03111913-22	03120122.D	12/1/03 21:46
SB-31-05	03111913-25	03120123.D	12/1/03 22:18

1 2011

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120128.D
Acq On : 2 Dec 2003 12:59 am
Sample : Method Blank30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:39 2003

Vial: 28
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	166412	50.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.64	136	700877	50.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	8.54	164	361457	50.00 mg/L	-0.01
55) Phenanthrene-D10 ISTD	10.78	188	594049	50.00 mg/L	-0.01
67) Chrysene-D12 ISTD	16.07	240	392197	50.00 mg/L	-0.02
76) Perylene-D12	19.85	264	131431	50.00 mg/L	-0.03

System Monitoring Compounds

4) 2-Fluorophenol Acid SS 1	4.39	112	1379470	197.82 mg/L	-0.01
Spiked Amount 200.000	Range 21 - 100		Recovery = 98.91%		
5) Phenol-d6 Acid SS 2	5.16	99	1649334	199.28 mg/L	0.00
Spiked Amount 200.000	Range 10 - 94		Recovery = 99.64%#		
20) Nitrobenzene-d5 BN SS 1	6.01	82	676088	98.24 mg/L	-0.01
Spiked Amount 100.000	Range 35 - 114		Recovery = 98.24%		
38) 2-Fluorobiphenyl BN SS 2	7.68	172	1185716	104.11 mg/L	0.00
Spiked Amount 100.000	Range 43 - 116		Recovery = 104.11%		
54) 2,4,6-Tribromophenol Acid	9.67	330	295658	196.50 mg/L	0.00
Spiked Amount 200.000	Range 10 - 123		Recovery = 98.25%		
70) Terphenyl-d14 BN SS 3	13.78	244	1108830	112.40 mg/L	0.01
Spiked Amount 100.000	Range 33 - 141		Recovery = 112.40%		

Target Compounds				Qvalue
2) Pyridine	0.00	79	0	Not Detected
3) N-Nitrosodimethylamine	0.00	74	0	Not Detected
6) PHENOL	5.16	94	94	Not Detected
7) Aniline	0.00	66	0	Not Detected d
8) Bis(2-chloroethyl)ether	5.15	63	3558	Not Detected
9) 2-Chlorophenol	0.00	128	0	Not Detected
10) 1,4'-DICHLOROBENZENE	0.00	146	0	Not Detected
11) 1,3'-Dichlorobenzene	0.00	146	0	Not Detected
12) 1,2'-Dichlorobenzene	0.00	146	0	Not Detected
13) Benzyl Alcohol	0.00	108	0	Not Detected
14) 2-Methylphenol	0.00	107	0	Not Detected
15) bis(2-chloroisopropyl)ethe	0.00	45	0	Not Detected
16) 3,4-Methylphenol	0.00	107	0	Not Detected
17) N-Nitrosodi-n-propyl amine	0.00	70	0	Not Detected
18) Hexachloroethane	0.00	117	0	Not Detected
21) Nitrobenzene	6.01	77	1929	Not Detected
22) Isophorone	0.00	82	0	Not Detected
23) 2-NITROPHENOL	0.00	139	0	Not Detected
24) 2,4-dimethylphenol	0.00	122	0	Not Detected

(#) = qualifier out of range (m) = manual integration

1 2012

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120128.D
Acq On : 2 Dec 2003 12:59 am
Sample : Method Blank30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:39 2003

Vial: 28
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	0.00	105	0	Not Detected	
26) Bis(2-chloroethoxy)methane	0.00	93	0	Not Detected	
27) 2,4-DICHLOROPHENOL	0.00	162	0	Not Detected	
28) 1,2,4'-Trichlorobenzene	0.00	180	0	Not Detected	
29) Naphthalene`	6.36	128	96	Not Detected	
30) 4-Chloroaniline	0.00	127	0	Not Detected	
31) HEXACHLOROBUTADIENE`	0.00	225	0	Not Detected	
32) 4-CHLORO-3-METHYLPHENOL	0.00	107	0	Not Detected	
33) 2-Methylnaphthalene	0.00	142	0	Not Detected	
35) Hexachlorocyclopentadiene	0.00	237	0	Not Detected	
36) 2,4,6-TRICHLOROPHENOL	0.00	97	0	Not Detected	d
37) 2,4,5-trichlorophenol	0.00	97	0	Not Detected	d
39) 2-Chloronaphthalene	7.62	162	151	Not Detected	
40) 2-Nitroaniline	7.67	65	1559	Not Detected	
41) 3-Nitroaniline	0.00	138	0	Not Detected	
42) 4-Nitroaniline	0.00	138	0	Not Detected	
43) Dimethylphthalate	0.00	163	0	Not Detected	
44) 2,6-Dinitrotoluene	0.00	165	0	Not Detected	
45) Acenaphthylene	0.00	152	0	Not Detected	
46) ACENAPHTHENE	8.54	154	900	Not Detected	
47) 2,4-Dinitrophenol	0.00	184	0	Not Detected	
48) 4-nitrophenol	0.00	139	0	Not Detected	
49) 2,4-Dinitrotoluene	0.00	165	0	Not Detected	
50) Dibenzofuran	0.00	168	0	Not Detected	
51) Diethylphthalate	0.00	149	0	Not Detected	
52) 4-chlorophenyl phenyl ethe	0.00	204	0	Not Detected	
53) Fluorene	0.00	166	0	Not Detected	
56) 4,6-Dinitro-2-methylphenol	0.00	198	0	Not Detected	
57) N-NITROSODI-N-PHENYLAMINE	0.00	169	0	Not Detected	
58) 4-bromophenyl phenyl ether	0.00	248	0	Not Detected	
59) Hexachlorobenzene	0.00	142	0	Not Detected	
60) PENTACHLOROPHENOL	0.00	266	0	Not Detected	
61) Phenanthrene	0.00	178	0	Not Detected	
62) Anthracene	0.00	178	0	Not Detected	
63) Carbazole	0.00	167	0	Not Detected	
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	0.00	149	0	Not Detected	
66) FLUORANTHENE	0.00	202	0	Not Detected	
68) Benzidine	0.00	184	0	Not Detected	
69) Pyrene	13.78	202	3074	Not Detected	
71) Butylbenzylphthalate	0.00	149	0	Not Detected	

(#) = qualifier out of range (m) = manual integration

1 2013

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120128.D
Acq On : 2 Dec 2003 12:59 am
Sample : Method Blank30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:39 2003

Vial: 28
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	0.00	252	0	Not Detected	
73) Bis(2-ethylhexyl)phthalate	0.00	149	0	Not Detected	
74) Benzo[a]anthracene	16.07	228	689	Not Detected	
75) Chrysene	16.07	228	689	Not Detected	
77) DI-N-OCTYLPHTHALATE	17.35	149	190	Not Detected	
78) Benzo[b]fluoranthene	0.00	252	0	Not Detected	
79) Benzo[k]fluoranthene	0.00	252	0	Not Detected	
80) BENZO[A]PYRENE	0.00	252	0	Not Detected	
81) Indeno(1,2,3-c,d)pyrene	0.00	276	0	Not Detected	
82) Dibenzo[a,h]anthracene	0.00	278	0	Not Detected	
83) Benzo[g,h,i]perylene	0.00	276	0	Not Detected	

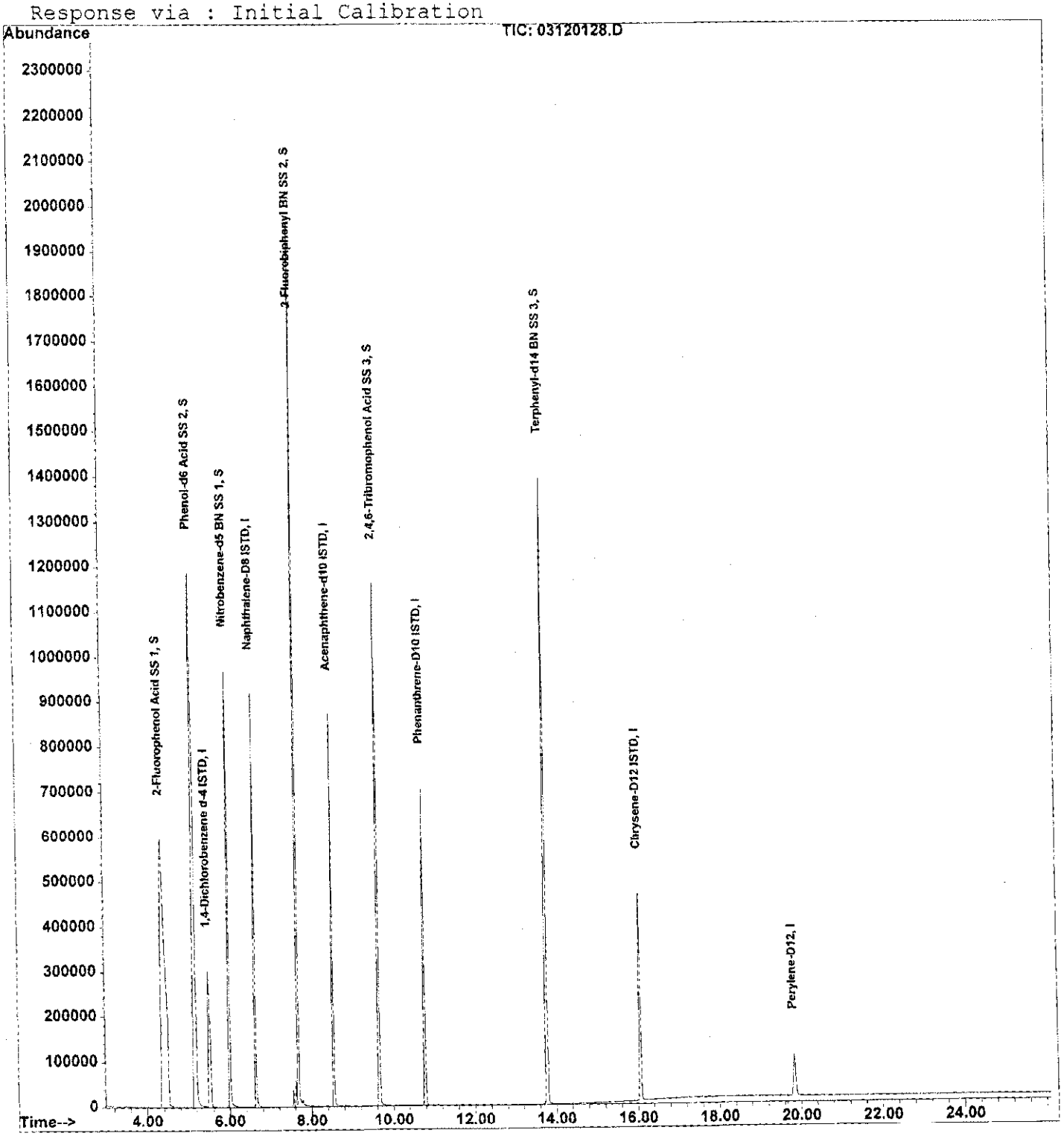
(#) = qualifier out of range (m) = manual integration

1 2014

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031201\03120128.D Vial: 28
Acq On : 2 Dec 2003 12:59 am Operator: DJP
Sample : Method Blank30C Inst : SVOC GC/M
Misc : E: 12-1-03 10uL #187; 100uL 188, 146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 2 10:39 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



1 2015

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031124\03112402.D Vial: 2
Acq On : 24 Nov 2003 1:17 pm Operator: DJP
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene d-4 IST	1.000	1.000	0.0	102	0.00
2		Pyridine	1.470	1.392	5.3	105	0.00
3	T	N-Nitrosodimethylamine	1.148	1.218	-6.1	105	0.00
4	S	2-Fluorophenol Acid SS 1	2.095	1.986	5.2	100	0.00
5	S	Phenol-d6 Acid SS 2	2.487	2.456	1.2	104	0.00
6	M	PHENOL	2.330	2.431	-4.3	105	0.00
7	T	Aniline	1.093	1.027	6.0	101	0.00
8	T	Bis(2-chloroethyl)ether	1.353	1.413	-4.4	101	0.00
9	M	2-Chlorophenol	1.912	1.941	-1.5	101	0.00
10	M	1,4'-DICHLOROBENZENE	2.452	2.459	-0.3	95	0.00
11	T	1,3'-Dichlorobenzene	1.164	1.263	-8.5	122	0.00
12	T	1,2'-Dichlorobenzene	1.692	1.736	-2.6	102	0.00
13	T	Benzyl Alcohol	1.337	1.246	6.8	100	0.00
14	T	2-Methylphenol	1.410	1.421	-0.8	100	0.00
15	T	bis(2-chloroisopropyl)ether	2.798	2.959	-5.8	103	0.00
16	T	3,4-Methylphenol	1.881	1.893	-0.6	103	0.00
17	M	N-Nitrosodi-n-propyl amine	1.231	1.275	-3.6	99	0.00
18	T	Hexachloroethane	0.773	0.784	-1.4	101	0.00
19	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	103	0.00
20	S	Nitrobenzene-d5 BN SS 1	0.491	0.480	2.2	103	0.00
21	T	Nitrobenzene	0.422	0.444	-5.2	104	0.00
22	T	Isophorone	0.875	0.898	-2.6	102	0.00
23	T	2-NITROPHENOL	0.265	0.279	-5.3	105	0.00
24	T	2,4-dimethylphenol	0.446	0.449	-0.7	103	0.00
25	T	Benzoic Acid	0.286	0.224	21.7	94	0.00
26	T	Bis(2-chloroethoxy)methane	0.551	0.578	-4.9	104	0.00
27	T	2,4-DICHLOROPHENOL	0.320	0.342	-6.9	107	0.00
28	M	1,2,4'-Trichlorobenzene	0.348	0.361	-3.7	103	0.00
29	T	Naphthalene	1.257	1.301	-3.5	101	0.00
30	T	4-Chloroaniline	0.607	0.668	-10.0	107	0.00
31	T	HEXACHLOROBUTADIENE	0.170	0.178	-4.7	102	0.00
32	M	4-CHLORO-3-METHYLPHENOL	0.337	0.375	-11.3	112	0.00
33	T	2-Methylnaphthalene	0.748	0.796	-6.4	106	0.00
34	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	106	0.00
35	T	Hexachlorocyclopentadiene	0.221	0.189	14.5	77	0.00
36	T	2,4,6-TRICHLOROPHENOL	0.217	0.230	-6.0	107	0.00
37	T	2,4,5-trichlorophenol	0.187	0.213	-13.9	117	0.00
38	S	2-Fluorobiphenyl BN SS 2	1.575	1.546	1.8	103	0.00
39	T	2-Chloronaphthalene	1.279	1.363	-6.6	107	0.00

(#) = Out of Range

1 2016

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031124\03112402.D Vial: 2
Acq On : 24 Nov 2003 1:17 pm Operator: DJP
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	2-Nitroaniline	0.398	0.473	-18.8	125	0.00
41	T	3-Nitroaniline	0.382	0.457	-19.6	130	0.00
42	T	4-Nitroaniline	0.314	0.411	-30.9#	142	0.00
43	T	Dimethylphthalate	1.558	1.637	-5.1	109	0.00
44	T	2,6-Dinitrotoluene	0.388	0.427	-10.1	115	0.00
45	T	Acenaphthylene	2.103	2.243	-6.7	110	0.00
46	M	ACENAPHTHENE	1.256	1.336	-6.4	108	0.00
47	T	2,4-Dinitrophenol	0.139	0.124	10.8	92	0.00
48	M	4-nitrophenol	0.243	0.317	-30.5#	138	0.00
49	M	2,4-Dinitrotoluene	0.453	0.538	-18.8	121	0.00
50	T	Dibenzofuran	1.711	1.850	-8.1	110	0.00
51	T	Diethylphthalate	1.497	1.633	-9.1	112	0.00
52	T	4-chlorophenyl phenyl ether	0.696	0.760	-9.2	112	0.00
53	T	Fluorene	1.374	1.478	-7.6	111	0.00
54	S	2,4,6-Tribromophenol Acid S	0.208	0.222	-6.7	123	0.00
55	I	Phenanthrene-D10 ISTD	1.000	1.000	0.0	123	0.00
56	T	4,6-Dinitro-2-methylphenol	0.144	0.128	11.1	93	0.00
57	T	N-NITROSODI-N-PHENYLAMINE	1.516	1.371	9.6	117	0.00
58	T	4-bromophenyl phenyl ether	0.250	0.253	-1.2	118	0.00
59	T	Hexachlorobenzene	0.102	0.104	-2.0	119	0.00
60	M	PENTACHLOROPHENOL	0.146	0.155	-6.2	125	0.00
61	T	Phenanthrene	1.210	1.222	-1.0	119	0.00
62	T	Anthracene	1.263	1.284	-1.7	122	0.00
63	T	Carbazole	1.010	1.164	-15.2	136	0.00
64		Decafluorotriphenylphosph	0.191	0.194	-1.6	114	0.00
65	T	Di-n-Butylphthalate	1.783	1.866	-4.7	124	0.00
66	T	FLUORANTHENE	1.246	1.379	-10.7	136	0.00
67	I	Chrysene-D12 ISTD	1.000	1.000	0.0	143	0.00
68	T	Benzidine	0.577	0.242	58.1#	64	0.00
69	M	Pyrene	1.663	1.569	5.7	138	0.00
70	S	Terphenyl-d14 BN SS 3	1.258	1.119	11.0	134	0.00
71	T	Butylbenzylphthalate	0.961	0.930	3.2	141	0.00
72	T	3,3'-Dichlorobenzidine	0.404	0.485	-20.0	154	0.00
73	T	Bis(2-ethylhexyl)phthalate	1.366	1.338	2.0	140	0.00
74	T	Benzo[a]anthracene	1.329	1.353	-1.8	144	0.00
75	T	Chrysene	1.197	1.231	-2.8	144	0.00
76	I	Perylene-D12	1.000	1.000	0.0	157	0.00
77	T	DI-N-OCTYLPHTHALATE	2.799	2.663	4.9	146	0.00

(#) = Out of Range

1 2017

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031124\03112402.D Vial: 2
Acq On : 24 Nov 2003 1:17 pm Operator: DJP
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
78	T	Benzo[b]fluoranthene	1.473	1.507	-2.3	149	0.00
79	T	Benzo[k]fluoranthene	1.274	1.289	-1.2	152	0.00
80	T	BENZO[A]PYRENE	1.204	1.279	-6.2	156	0.00
81	T	Indeno(1,2,3-c,d)pyrene	1.058	1.197	-13.1	174	0.00
82	T	Dibenzo[a,h]anthracene	0.895	1.031	-15.2	176	0.00
83	T	Benzo[g,h,i]perylene	0.837	0.950	-13.5	180	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

1 2018

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112402.D
Acq On : 24 Nov 2003 1:17 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p
Quant Time: Nov 24 14:44 2003

Vial: 2
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.61	152	231809	50.00 mg/L	-0.04
19) Naphthalene-D8 ISTD	6.77	136	918908	50.00 mg/L	-0.05
34) Acenaphthene-d10 ISTD	8.71	164	482871	50.00 mg/L	-0.07
55) Phenanthrene-D10 ISTD	10.99	188	782682	50.00 mg/L	-0.08
67) Chrysene-D12 ISTD	16.33	240	647601	50.00 mg/L	-0.10
76) Perylene-D12	20.28	264	549496	50.00 mg/L	-0.15
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.49	112	460265	47.38 mg/L	-0.01
Spiked Amount 200.000 Range 21 - 100 Recovery = 23.69%					
5) Phenol-d6 Acid SS 2	5.26	99	569292	49.38 mg/L	-0.03
Spiked Amount 200.000 Range 10 - 94 Recovery = 24.69%					
20) Nitrobenzene-d5 BN SS 1	6.13	82	441016	48.88 mg/L	-0.04
Spiked Amount 100.000 Range 35 - 114 Recovery = 48.88%					
38) 2-Fluorobiphenyl BN SS 2	7.82	172	746341	49.05 mg/L	-0.06
Spiked Amount 100.000 Range 43 - 116 Recovery = 49.05%					
54) 2,4,6-Tribromophenol Acid	9.85	330	107109	53.29 mg/L	-0.07
Spiked Amount 200.000 Range 10 - 123 Recovery = 26.65%					
70) Terphenyl-d14 BN SS 3	13.99	244	724518	44.48 mg/L	-0.09
Spiked Amount 100.000 Range 33 - 141 Recovery = 44.48%					

Target Compounds					Qvalue
2) Pyridine	3.35	79	322732	47.34 mg/L	100
3) N-Nitrosodimethylamine	3.35	74	282399	53.07 mg/L	86
6) PHENOL	5.27	94	563561	52.17 mg/L	96
7) Aniline	5.35	66	238045	46.97 mg/L #	55
8) Bis(2-chloroethyl)ether	5.37	63	327582	52.21 mg/L #	80
9) 2-Chlorophenol	5.46	128	449936	50.75 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.62	146	569929m	50.14 mg/L	
11) 1,3'-Dichlorobenzene	5.60	146	292698m	54.25 mg/L	
12) 1,2'-Dichlorobenzene	5.80	146	402433	51.29 mg/L	99
13) Benzyl Alcohol	5.72	108	288901	46.62 mg/L	96
14) 2-Methylphenol	5.79	107	329486	50.39 mg/L	88
15) bis(2-chloroisopropyl)ethe	5.84	45	685852	52.87 mg/L	94
16) 3,4-Methylphenol	5.92	107	877809	100.68 mg/L	99
17) N-Nitrosodi-n-propyl amine	5.98	70	295480	51.78 mg/L	85
18) Hexachloroethane	6.07	117	181759	50.74 mg/L	97
21) Nitrobenzene	6.14	77	408198	52.60 mg/L	98
22) Isophorone	6.33	82	824862	51.27 mg/L	100
23) 2-NITROPHENOL	6.41	139	256049	52.55 mg/L	87
24) 2,4-dimethylphenol	6.37	122	412333	50.26 mg/L	99

(#) = qualifier out of range (m) = manual integration

1 2019

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112402.D Vial: 2
Acq On : 24 Nov 2003 1:17 pm Operator: DJP
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 24 14:44 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.45	105	206217	39.87 mg/L	85
26) Bis(2-chloroethoxy)methane	6.46	93	530911	52.39 mg/L	97
27) 2,4-DICHLOROPHENOL	6.62	162	314098	53.41 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.71	180	331518	51.78 mg/L	98
29) Naphthalene`	6.79	128	1195051	51.71 mg/L #	60
30) 4-Chloroaniline	6.81	127	613557	55.00 mg/L	95
31) HEXACHLOROBUTADIENE`	6.91	225	163508	52.25 mg/L	99
32) 4-CHLORO-3-METHYLPHENOL	7.21	107	344673	55.58 mg/L	99
33) 2-Methylnaphthalene	7.45	142	731566	53.22 mg/L	99
35) Hexachlorocyclopentadiene	7.67	237	91335	42.72 mg/L	99
36) 2,4,6-TRICHLOROPHENOL	7.74	97	110939	52.96 mg/L	91
37) 2,4,5-trichlorophenol	7.79	97	102723	56.85 mg/L	89
39) 2-Chloronaphthalene	8.00	162	658349	53.29 mg/L	98
40) 2-Nitroaniline	8.10	65	228506	59.43 mg/L	95
41) 3-Nitroaniline	8.61	138	220450	59.72 mg/L	96
42) 4-Nitroaniline	9.49	138	198621	65.48 mg/L	98
43) Dimethylphthalate	8.29	163	790540	52.55 mg/L	99
44) 2,6-Dinitrotoluene	8.41	165	206154	55.01 mg/L	96
45) Acenaphthylene	8.53	152	1083272	53.33 mg/L	100
46) ACENAPHTHENE	8.76	154	645219	53.20 mg/L	97
47) 2,4-Dinitrophenol	8.74	184	59736	40.00 mg/L #	1
48) 4-nitrophenol	8.72	139	152836	65.03 mg/L	95
49) 2,4-Dinitrotoluene	8.94	165	259674	59.42 mg/L	80
50) Dibenzofuran	8.96	168	893139	54.05 mg/L	100
51) Diethylphthalate	9.20	149	788627	54.54 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.38	204	366912	54.59 mg/L	98
53) Fluorene	9.46	166	713763	53.78 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.54	198	100350	37.22 mg/L #	44
57) N-NITROSODI-N-PHENYLAMINE	9.56	169	1072776	45.22 mg/L	99
58) 4-bromophenyl phenyl ether	10.13	248	198365	50.59 mg/L	98
59) Hexachlorobenzene	10.45	142	81121	50.75 mg/L #	90
60) PENTACHLOROPHENOL	10.71	266	121128	53.00 mg/L #	85
61) Phenanthrene	11.03	178	956213	50.48 mg/L	100
62) Anthracene	11.11	178	1004959	50.85 mg/L	100
63) Carbazole	11.34	167	910930	57.62 mg/L	98
64) Decafluorotriphenylphosp	11.38	198	151887	49.42 mg/L	89
65) Di-n-Butylphthalate	11.91	149	1460573	52.34 mg/L	100
66) FLUORANTHENE	13.30	202	1079096	55.31 mg/L	99
68) Benzidine	13.45	184	156668	20.96 mg/L	99
69) Pyrene	13.78	202	1015617	47.17 mg/L	100
71) Butylbenzylphthalate	14.99	149	602362	48.40 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112402.D
Acq On : 24 Nov 2003 1:17 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p
Quant Time: Nov 24 14:44 2003

Vial: 2
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	Qion	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	16.17	252	313887	60.01 mg/L	99
73) Bis(2-ethylhexyl)phthalate	16.19	149	866501	48.98 mg/L	98
74) Benzo[a]anthracene	16.28	228	876153m	50.91 mg/L	
75) Chrysene	16.39	228	797093	51.43 mg/L	99
77) DI-N-OCTYLPHTHALATE	17.60	149	1463458	47.57 mg/L	99
78) Benzo[b]fluoranthene	19.10	252	827821m	51.13 mg/L	
79) Benzo[k]fluoranthene	19.16	252	708359	50.60 mg/L	100
80) BENZO[A]PYRENE	20.11	252	702550	53.10 mg/L	98
81) Indeno(1,2,3-c,d)pyrene	24.60	276	657810	56.58 mg/L #	99
82) Dibenzo[a,h]anthracene	24.60	278	566404	57.60 mg/L	99
83) Benzo[g,h,i]perylene	25.87	276	522276	56.78 mg/L	98

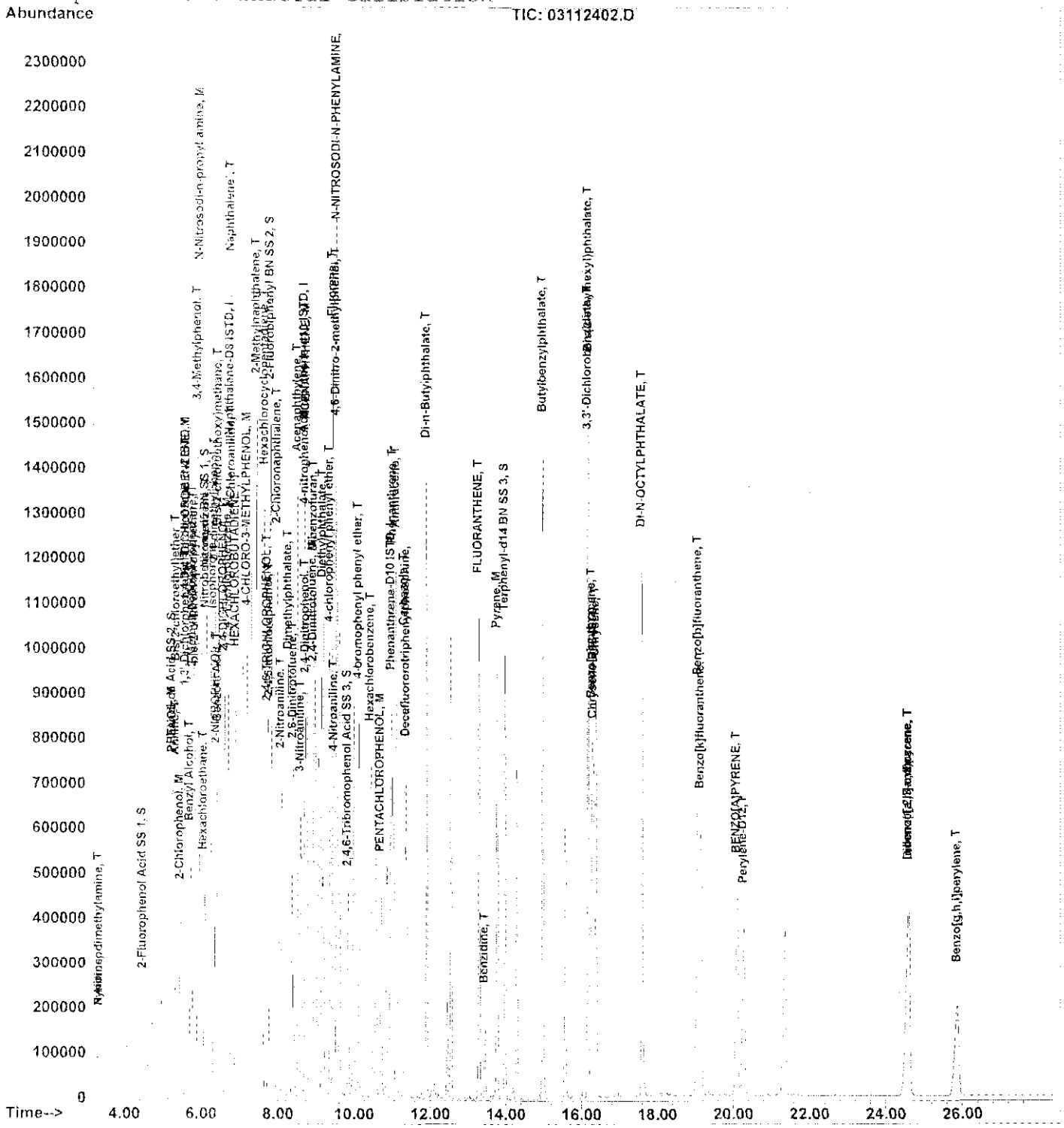
(#) = qualifier out of range (m) = manual integration

1 2021

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031124\03112402.D Vial: 2
Acq On : 24 Nov 2003 1:17 pm Operator: DJP
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 24 14:44 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration



1 2022

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031124\03112403.D Vial: 3
Acq On : 24 Nov 2003 1:51 pm Operator: DJP
Sample : MDE CCal @50ppm Inst : SVOC GC/M
Misc : 07-29-03 DJP A084 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
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 d-4 IST	1.000	1.000	0.0	85	-0.04
2	T	Acetophenone	1.896	1.894	0.1	87	-0.05
3	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	86	-0.05
4		e-Caprolactam	0.165	0.179	-8.5	94	-0.06
5	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	88	-0.07
6	T	Biphenyl	1.430	1.425	0.3	89	-0.06
7	T	Atrazine	0.322	0.344	-6.8	93	-0.08

(#) = Out of Range SPCC's out = 0 CCC's out = 0

1 2023

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112403.D
Acq On : 24 Nov 2003 1:51 pm
Sample : MDE CCal @50ppm
Misc : 07-29-03 DJP A084
MS Integration Params: rteint.p
Quant Time: Nov 24 14:44 2003

Vial: 3
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.61	152	294032	40.00 mg/L	-0.04
3) Naphthalene-D8 ISTD	6.77	136	1087817	40.00 mg/L	-0.05
5) Acenaphthene-d10 ISTD	8.71	164	567679	40.00 mg/L	-0.07

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	5.96	105	696292	49.96 mg/L	100
4) e-Caprolactam	7.12	55	244049	54.50 mg/L	97
6) Biphenyl	7.94	154	1011194	49.81 mg/L	99
7) Atrazine	10.36	200	243810	53.43 mg/L	98

(#) = qualifier out of range (m) = manual integration

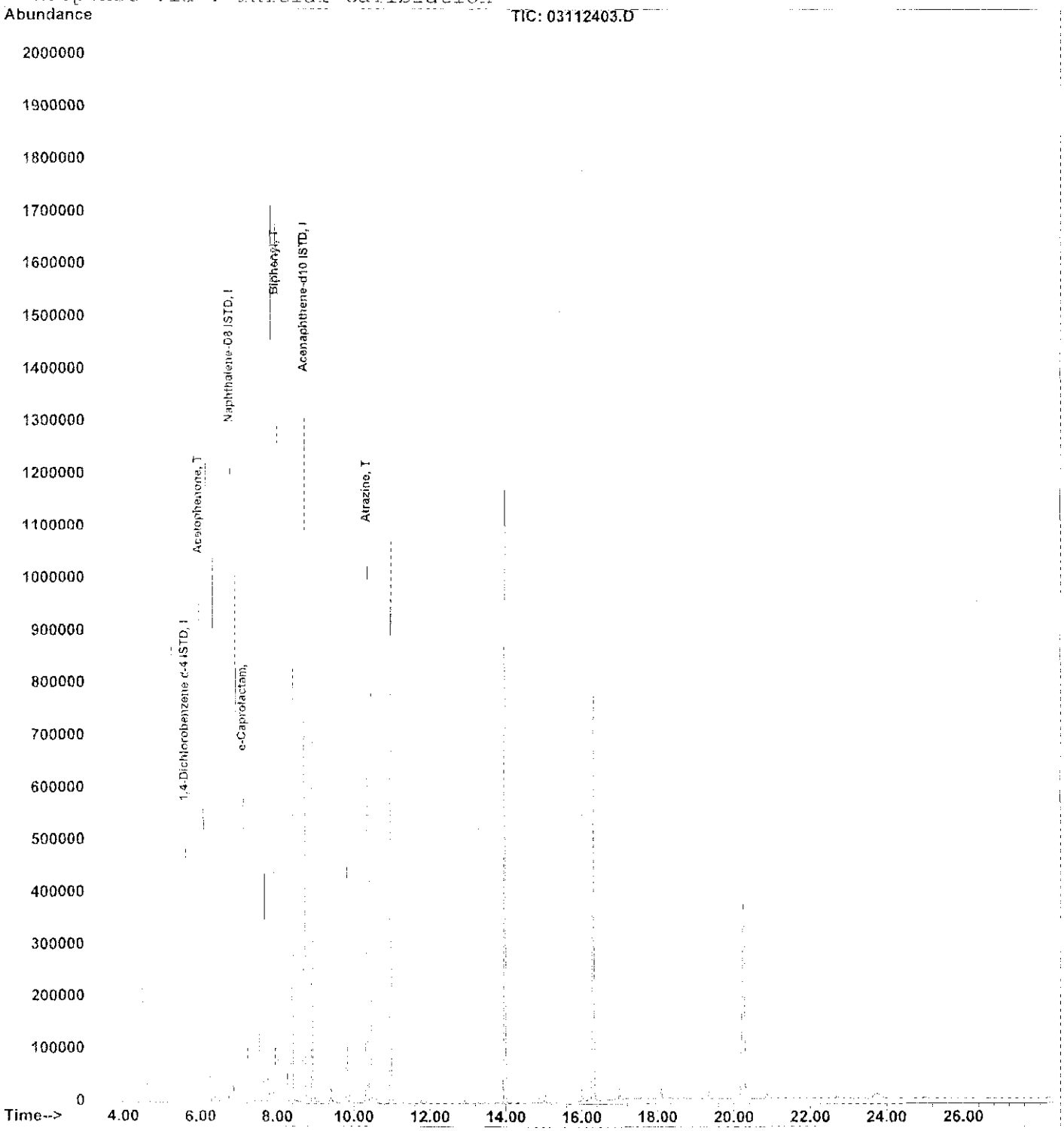
1 2024

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031124\03112403.D
Acq On : 24 Nov 2003 1:51 pm
Sample : MDE CCal @50ppm
Misc : 07-29-03 DJP A084
MS Integration Params: rteint.p
Quant Time: Nov 24 14:44 2003

Vial: 3
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration



1 2025

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031201\03120111.D
Acq On : 1 Dec 2003 3:51 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p

Vial: 11
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene d-4 IST	1.000	1.000	0.0	89	0.00
2		Pyridine	1.470	1.387	5.6	92	0.01
3	T	N-Nitrosodimethylamine	1.148	1.172	-2.1	88	0.00
4	S	2-Fluorophenol Acid SS 1	2.095	1.992	4.9	88	0.00
5	S	Phenol-d6 Acid SS 2	2.487	2.475	0.5	91	0.00
6	M	PHENOL	2.330	2.718	-16.7	102	0.00
7	T	Aniline	1.093	1.079	1.3	93	0.00
8	T	Bis(2-chloroethyl)ether	1.353	1.423	-5.2	89	0.00
9	M	2-Chlorophenol	1.912	1.970	-3.0	89	0.00
10	M	1,4'-DICHLOROBENZENE	2.452	2.446	0.2	82	0.00
11	T	1,3'-Dichlorobenzene	1.164	1.292	-11.0	109	0.01
12	T	1,2'-Dichlorobenzene	1.692	1.766	-4.4	91	0.00
13	T	Benzyl Alcohol	1.337	1.263	5.5	88	0.00
14	T	2-Methylphenol	1.410	1.468	-4.1	90	0.00
15	T	bis(2-chloroisopropyl)ether	2.798	2.975	-6.3	91	0.00
16	T	3,4-Methylphenol	3.761	3.795	-0.9	91	0.00
17	M	N-Nitrosodi-n-propyl amine	1.231	1.278	-3.8	87	0.00
18	T	Hexachloroethane	0.773	0.798	-3.2	90	0.00
19	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	92	-0.02
20	S	Nitrobenzene-d5 BN SS 1	0.491	0.476	3.1	91	-0.02
21	T	Nitrobenzene	0.422	0.437	-3.6	91	0.00
22	T	Isophorone	0.875	0.902	-3.1	91	-0.02
23	T	2-NITROPHENOL	0.265	0.273	-3.0	91	-0.02
24	T	2,4-dimethylphenol	0.446	0.457	-2.5	93	-0.02
25	T	Benzoic Acid	0.286	0.287	-0.3	107	-0.02
26	T	Bis(2-chloroethoxy)methane	0.551	0.535	2.9	86	-0.02
27	T	2,4-DICHLOROPHENOL	0.320	0.342	-6.9	95	-0.02
28	M	1,2,4'-Trichlorobenzene	0.348	0.364	-4.6	92	0.00
29	T	Naphthalene`	1.257	1.309	-4.1	91	-0.02
30	T	4-Chloroaniline	0.607	0.671	-10.5	95	-0.02
31	T	HEXACHLOROBUTADIENE`	0.170	0.179	-5.3	91	-0.02
32	M	4-CHLORO-3-METHYLPHENOL	0.337	0.381	-13.1	101	-0.02
33	T	2-Methylnaphthalene	0.748	0.804	-7.5	95	-0.02
34	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	96	-0.03
35	T	Hexachlorocyclopentadiene	0.221	0.140	36.7#	52	-0.02
36	T	2,4,6-TRICHLOROPHENOL	0.217	0.231	-6.5	98	-0.03
37	T	2,4,5-trichlorophenol	0.187	0.211	-12.8	106	-0.03
38	S	2-Fluorobiphenyl BN SS 2	1.575	1.518	3.6	92	-0.02
39	T	2-Chloronaphthalene	1.279	1.326	-3.7	94	-0.02

(#) = Out of Range

1 2026

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031201\03120111.D
Acq On : 1 Dec 2003 3:51 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p

Vial: 11
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
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 : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40 T	2-Nitroaniline	0.398	0.462	-16.1	111	-0.02
41 T	3-Nitroaniline	0.382	0.449	-17.5	116	-0.02
42 T	4-Nitroaniline	0.314	0.415	-32.2#	131	-0.03
43 T	Dimethylphthalate	1.558	1.644	-5.5	100	-0.02
44 T	2,6-Dinitrotoluene	0.388	0.424	-9.3	104	-0.03
45 T	Acenaphthylene	2.103	2.175	-3.4	97	-0.03
46 M	ACENAPHTHENE	1.256	1.326	-5.6	98	-0.03
47 T	2,4-Dinitrophenol	0.139	0.151	-8.6	103	-0.02
48 M	4-nitrophenol	0.243	0.323	-32.9#	128	-0.03
49 M	2,4-Dinitrotoluene	0.453	0.530	-17.0	109	-0.03
50 T	Dibenzofuran	1.711	1.838	-7.4	99	-0.03
51 T	Diethylphthalate	1.497	1.650	-10.2	103	-0.03
52 T	4-chlorophenyl phenyl ether	0.696	0.761	-9.3	102	-0.03
53 T	Fluorene	1.374	1.458	-6.1	100	-0.02
54 S	2,4,6-Tribromophenol Acid S	0.208	0.222	-6.7	112	-0.03
55 I	Phenanthrene-D10 ISTD	1.000	1.000	0.0	111	-0.03
56 T	4,6-Dinitro-2-methylphenol	0.144	0.154	-6.9	102	-0.02
57 T	N-NITROSODI-N-PHENYLAMINE	1.516	1.366	9.9	105	-0.03
58 T	4-bromophenyl phenyl ether	0.250	0.255	-2.0	107	-0.03
59 T	Hexachlorobenzene	0.102	0.105	-2.9	109	-0.03
60 M	PENTACHLOROPHENOL	0.146	0.168	-15.1	123	-0.03
61 T	Phenanthrene	1.210	1.239	-2.4	110	-0.03
62 T	Anthracene	1.263	1.290	-2.1	111	-0.03
63 T	Carbazole	1.010	1.165	-15.3	123	-0.03
64	Decafluororotriphenylphosph	0.191	0.197	-3.1	105	-0.03
65 T	Di-n-Butylphthalate	1.783	1.887	-5.8	113	-0.04
66 T	FLUORANTHENE	1.246	1.376	-10.4	123	-0.04
67 I	Chrysene-D12 ISTD	1.000	1.000	0.0	125	-0.04
68 T	Benzidine	0.377	0.210	44.3#	48#	-0.03
69 M	Pyrene	1.663	1.616	2.8	124	-0.04
70 S	Terphenyl-d14 BN SS 3	1.258	1.175	6.6	123	-0.04
71 T	Butylbenzylphthalate	0.961	0.974	-1.4	129	-0.03
72 T	3,3'-Dichlorobenzidine	0.404	0.459	-13.6	127	-0.03
73 T	Bis(2-ethylhexyl)phthalate	1.366	1.404	-2.8	128	-0.03
74 T	Benzo[a]anthracene	1.329	1.349	-1.5	125	-0.04
75 T	Chrysene	1.197	1.230	-2.8	125	-0.04
76 I	Perylene-D12	1.000	1.000	0.0	123	-0.05
77 T	DI-N-OCTYLPHTHALATE	2.799	3.070	-9.7	132	-0.04

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031201\03120111.D
Acq On : 1 Dec 2003 3:51 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p

Vial: 11
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
78	T	Benzo[b]fluoranthene	1.473	1.578	-7.1	123	-0.04
79	T	Benzo[k]fluoranthene	1.274	1.330	-4.4	123	-0.04
80	T	BENZO[A]PYRENE	1.204	1.274	-5.8	122	-0.05
81	T	Indeno(1,2,3-c,d)pyrene	1.058	1.064	-0.6	121	-0.08
82	T	Dibenzo[a,h]anthracene	0.895	0.933	-4.2	125	-0.07
83	T	Benzo[g,h,i]perylene	0.837	0.797	4.8	118	-0.08

(#) = Out of Range SPCC's out = 0 CCC's out = 0
03120111.D HPBNAN.M Thu Dec 04 16:27:09 2003

1 2028

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120111.D
Acq On : 1 Dec 2003 3:51 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p
Quant Time: Dec 4 16:26 2003

Vial: 11
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	202388	50.00 mg/L	-0.08
19) Naphthalene-D8 ISTD	6.65	136	815720	50.00 mg/L	-0.12
34) Acenaphthene-d10 ISTD	8.56	164	439123	50.00 mg/L	-0.03
55) Phenanthrene-D10 ISTD	10.81	188	709605	50.00 mg/L	-0.03
67) Chrysene-D12 ISTD	16.10	240	564682	50.00 mg/L	-0.04
76) Perylene-D12	19.91	264	430595	50.00 mg/L	-0.05

System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.40	112	403103	47.53 mg/L	-0.09
Spiked Amount 200.000	Range 21 - 100		Recovery = 23.77%		
5) Phenol-d6 Acid SS 2	5.17	99	500876	49.76 mg/L	-0.09
Spiked Amount 200.000	Range 10 - 94		Recovery = 24.88%		
20) Nitrobenzene-d5 BN SS 1	6.02	82	388252	48.47 mg/L	-0.11
Spiked Amount 100.000	Range 35 - 114		Recovery = 48.47%		
38) 2-Fluorobiphenyl BN SS 2	7.69	172	666681	48.18 mg/L	-0.02
Spiked Amount 100.000	Range 43 - 116		Recovery = 48.18%		
54) 2,4,6-Tribromophenol Acid	9.67	330	97460	53.32 mg/L	-0.03
Spiked Amount 200.000	Range 10 - 123		Recovery = 26.66%		
70) Terphenyl-d14 BN SS 3	13.78	244	663525	46.71 mg/L	-0.04
Spiked Amount 100.000	Range 33 - 141		Recovery = 46.71%		

Target Compounds					Qvalue
2) Pyridine	3.27	79	280624	47.15 mg/L	100
3) N-Nitrosodimethylamine	3.26	74	237167	51.05 mg/L	98
6) PHENOL	5.18	94	550030	58.32 mg/L	89
7) Aniline	5.25	66	218461	49.37 mg/L #	66
8) Bis(2-chloroethyl)ether	5.27	63	287965	52.56 mg/L #	81
9) 2-Chlorophenol	5.36	128	398609	51.50 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.53	146	495040m	49.88 mg/L	
11) 1,3'-Dichlorobenzene	5.50	146	261516m	55.52 mg/L	
12) 1,2'-Dichlorobenzene	5.70	146	357420	52.18 mg/L	99
13) Benzyl Alcohol	5.62	108	255644	47.25 mg/L	100
14) 2-Methylphenol	5.70	107	297203	52.06 mg/L #	74
15) bis(2-chloroisopropyl)ethe	5.74	45	602022	53.16 mg/L	82
16) 3,4-Methylphenol	5.83	107	767996	100.89 mg/L	100
17) N-Nitrosodi-n-propyl amine	5.88	70	258686	51.93 mg/L #	84
18) Hexachloroethane	5.97	117	161457	51.62 mg/L	96
21) Nitrobenzene	6.04	77	356339	51.73 mg/L	100
22) Isophorone	6.22	82	735859	51.53 mg/L	100
23) 2-NITROPHENOL	6.30	139	223017	51.56 mg/L	86
24) 2,4-dimethylphenol	6.27	122	372790	51.19 mg/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120111.D
Acq On : 1 Dec 2003 3:51 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p
Quant Time: Dec 4 16:26 2003

Vial: 11
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.36	105	234080	49.30 mg/L	83
26) Bis(2-chloroethoxy)methane	6.35	93	436090	48.48 mg/L	99
27) 2,4-DICHLOROPHENOL	6.51	162	278655	53.38 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.60	180	296944	52.25 mg/L	98
29) Naphthalene`	6.67	128	1067792	52.05 mg/L #	60
30) 4-Chloroaniline	6.69	127	547036	55.24 mg/L	96
31) HEXACHLOROBUTADIENE`	6.79	225	145927	52.53 mg/L	99
32) 4-CHLORO-3-METHYLPHENOL	7.09	107	311042	56.50 mg/L	99
33) 2-Methylnaphthalene	7.32	142	655963	53.76 mg/L	99
35) Hexachlorocyclopentadiene	7.54	237	61444	31.60 mg/L	99
36) 2,4,6-TRICHLOROPHENOL	7.61	97	101637	53.36 mg/L	89
37) 2,4,5-trichlorophenol	7.66	97	92771	56.46 mg/L #	89
39) 2-Chloronaphthalene	7.87	162	582404	51.84 mg/L	98
40) 2-Nitroaniline	7.97	65	202741	57.98 mg/L	95
41) 3-Nitroaniline	8.47	138	197293	58.77 mg/L	97
42) 4-Nitroaniline	9.33	138	182391	66.12 mg/L	99
43) Dimethylphthalate	8.15	163	721907	52.77 mg/L	98
44) 2,6-Dinitrotoluene	8.26	165	186019	54.58 mg/L	89
45) Acenaphthylene	8.38	152	955276	51.71 mg/L	100
46) ACENAPHTHENE	8.60	154	582374	52.81 mg/L	97
47) 2,4-Dinitrophenol	8.59	184	66305	47.69 mg/L #	1
48) 4-nitrophenol	8.58	139	141649	66.27 mg/L	96
49) 2,4-Dinitrotoluene	8.79	165	232523	58.51 mg/L	79
50) Dibenzofuran	8.81	168	807215	53.72 mg/L	99
51) Diethylphthalate	9.05	149	724680	55.12 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.21	204	334115	54.66 mg/L	97
53) Fluorene	9.30	166	640249	53.04 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.39	198	109488	45.01 mg/L #	62
57) N-NITROSODI-N-PHENYLAMINE	9.40	169	969049	45.05 mg/L	99
58) 4-bromophenyl phenyl ether	9.96	248	180778	50.85 mg/L	99
59) Hexachlorobenzene	10.27	142	74763	51.59 mg/L #	90
60) PENTACHLOROPHENOL	10.54	266	119228	57.54 mg/L #	85
61) Phenanthrene	10.85	178	879473	51.21 mg/L	100
62) Anthracene	10.93	178	915267	51.08 mg/L	99
63) Carbazole	11.16	167	826871	57.69 mg/L	98
64) Decafluororotriphenylphosp	11.21	198	139478	50.14 mg/L	88
65) Di-n-Butylphthalate	11.73	149	1339258	52.94 mg/L	100
66) FLUORANTHENE	13.10	202	976303	55.19 mg/L	99
68) Benzidine	13.26	184	118484	18.17 mg/L	100
69) Pyrene	13.57	202	912553	48.60 mg/L	100
71) Butylbenzylphthalate	14.80	149	550236	50.69 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120111.D
Acq On : 1 Dec 2003 3:51 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p
Quant Time: Dec 4 16:26 2003

Vial: 11
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	15.96	252	259015	56.78 mg/L	98
73) Bis(2-ethylhexyl)phthalate	15.99	149	792738	51.38 mg/L	98
74) Benzo[a]anthracene	16.06	228	761940	50.77 mg/L	99
75) Chrysene	16.17	228	694582	51.39 mg/L	99
77) DI-N-OCTYLPHTHALATE	17.36	149	1321755	54.83 mg/L	99
78) Benzo[b]fluoranthene	18.76	252	679402	53.55 mg/L	100
79) Benzo[k]fluoranthene	18.83	252	572735m	52.21 mg/L	
80) BENZO[A]PYRENE	19.73	252	548752	52.93 mg/L	98
81) Indeno(1,2,3-c,d)pyrene	24.01	276	458249	50.30 mg/L #	95
82) Dibenzo[a,h]anthracene	24.02	278	401676	52.13 mg/L	99
83) Benzo[g,h,i]perylene	25.23	276	343370	47.64 mg/L	100

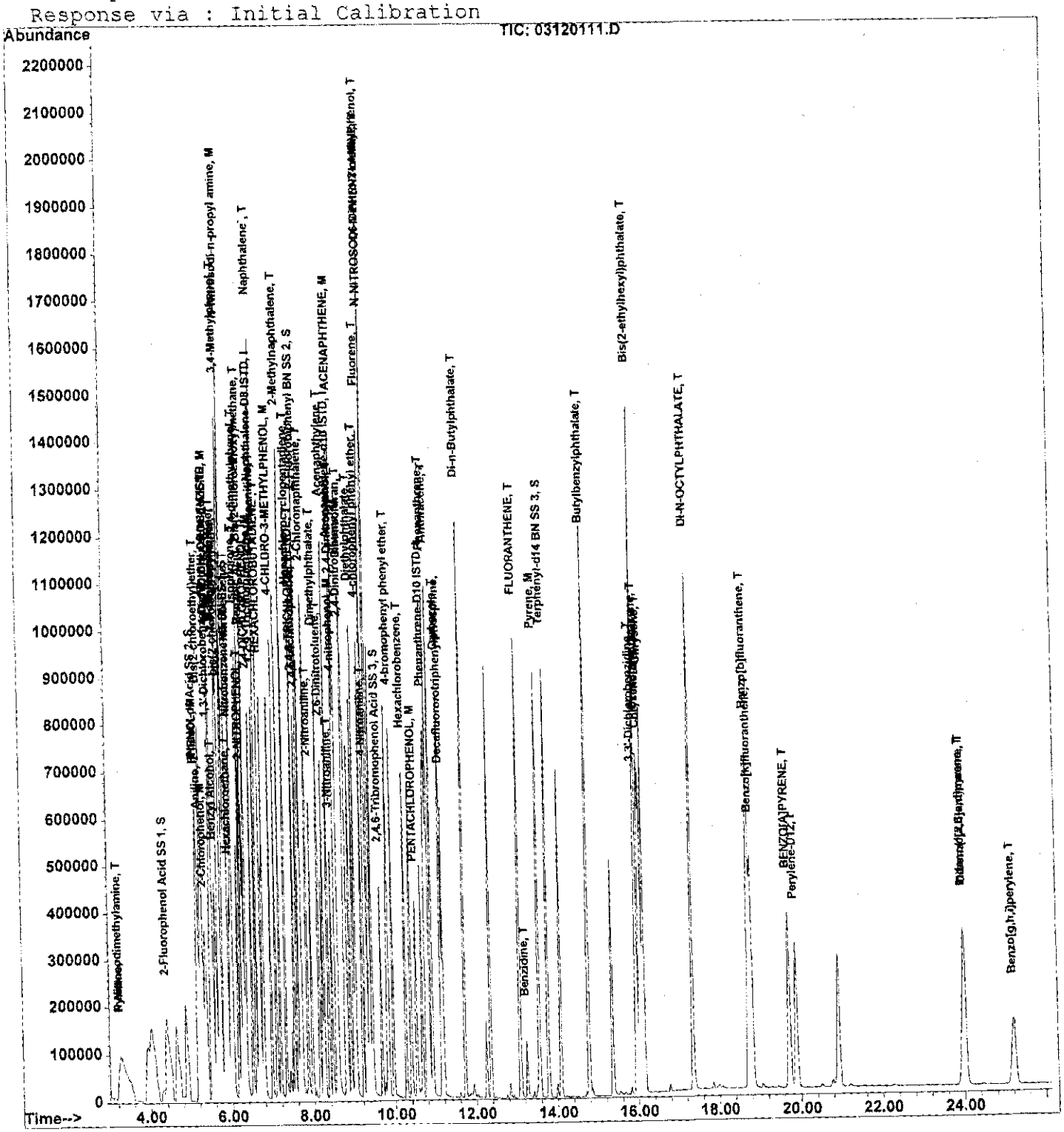
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031201\03120111.D
Acq On : 1 Dec 2003 3:51 pm
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p
Quant Time: Dec 4 16:26 2003

Vial: 11
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



1 2032

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6630 BALTIMORE NATIONAL PIKE
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BALTIMORE, MARYLAND 21228
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANICS COMPOUNDS
MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

DATE ANALYZED: 12/01/03 **Analytical Lot Number:** SVOC031201

METHOD: EPA 8270 **Lab File IDs:** 03120124.D 03120125.D

Matrix: Soil

Sample ID: 03111913-25 MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	LCL (%)	UCL (%)
Phenol	40	ND	40	101	26	90
2-Chlorophenol	40	ND	37	93	25	102
1,4-Dichlorobenzene	40	ND	31	77	28	104
N-Nitroso-di-n-propylamine	40	ND	38	95	41	126
1,2,4-Trichlorobenzene	40	ND	33	82	38	107
4-Chloro-3-methylphenol	40	ND	50	125 *	26	103
Acenaphthene	40	ND	40	99	31	137
4-Nitrophenol	40	ND	57	141 *	11	114
2,4-Dinitrotoluene	40	ND	43	107 *	28	89
Pentachlorophenol	40	ND	44	109	17	109
Pyrene	40	ND	39	98	35	142

Sample ID: 03111913-25 MSD

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	LCL (%)	UCL (%)
Phenol	40	ND	35	89	12.7	35	26	90
2-Chlorophenol	40	ND	32	80	14.8	50	25	102
1,4-Dichlorobenzene	40	ND	29	72	7.7	27	28	104
N-Nitroso-di-n-propylamine	40	ND	33	82	15.1	38	41	126
1,2,4-Trichlorobenzene	40	ND	28	69	16.7	23	38	107
4-Chloro-3-methylphenol	40	ND	45	112 *	11.1	33	26	103
Acenaphthene	40	ND	35	88	11.6	19	31	137
4-Nitrophenol	40	ND	57	142 *	0.0	50	11	114
2,4-Dinitrotoluene	40	ND	42	105 *	2.1	47	28	89
Pentachlorophenol	40	ND	44	109	0.0	47	17	109
Pyrene	40	ND	39	98	0.8	36	35	142

D = Spike compound diluted out
# - Column used to flag out of control recoveries
* = Values outside QC limits.

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*

Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

Note: QC limits are based on CLP OLM04.2

1 2033

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120124.D
Acq On : 1 Dec 2003 10:50 pm
Sample : 03111913-25 MS 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:36 2003

Vial: 24
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.50	152	171125	50.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.64	136	690804	50.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	8.55	164	363664	50.00 mg/L	0.00
55) Phenanthrene-D10 ISTD	10.79	188	621031	50.00 mg/L	0.00
67) Chrysene-D12 ISTD	16.08	240	442836	50.00 mg/L	-0.01
76) Perylene-D12	19.86	264	216337	50.00 mg/L	-0.01

System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.39	112	931807	129.94 mg/L	-0.01
Spiked Amount 200.000	Range 21 - 100		Recovery = 64.97%		
5) Phenol-d6 Acid SS 2	5.16	99	1200621	141.07 mg/L	0.00
Spiked Amount 200.000	Range 10 - 94		Recovery = 70.54%		
20) Nitrobenzene-d5 BN SS 1	6.01	82	489140	72.11 mg/L	-0.01
Spiked Amount 100.000	Range 35 - 114		Recovery = 72.11%		
38) 2-Fluorobiphenyl BN SS 2	7.68	172	895131	78.12 mg/L	0.00
Spiked Amount 100.000	Range 43 - 116		Recovery = 78.12%		
54) 2,4,6-Tribromophenol Acid	9.67	330	280806	185.50 mg/L	0.00
Spiked Amount 200.000	Range 10 - 123		Recovery = 92.75%		
70) Terphenyl-d14 BN SS 3	13.78	244	973280	87.38 mg/L	0.00
Spiked Amount 100.000	Range 33 - 141		Recovery = 87.38%		

Target Compounds					Qvalue
2) Pyridine	3.28	79	181285	36.02 mg/L	98
3) N-Nitrosodimethylamine	3.26	74	114909	29.25 mg/L #	98
6) PHENOL	5.17	94	320811	40.23 mg/L	78
7) Aniline	5.25	66	92096	24.61 mg/L #	77
8) Bis(2-chloroethyl)ether	5.26	63	151660	32.74 mg/L	95
9) 2-Chlorophenol	5.35	128	244342	37.33 mg/L	97
10) 1,4'-DICHLOROBENZENE	5.51	146	259859m	30.97 mg/L	
11) 1,3'-Dichlorobenzene	5.49	146	121133m	30.41 mg/L	
12) 1,2'-Dichlorobenzene	5.69	146	180362	31.14 mg/L	99
13) Benzyl Alcohol	5.61	108	139281	30.45 mg/L	99
14) 2-Methylphenol	5.69	107	208809	43.26 mg/L #	97
15) bis(2-chloroisopropyl)ethe	5.73	45	311897	32.57 mg/L #	68
16) 3,4-Methylphenol	5.80	107	310438	48.23 mg/L	90
17) N-Nitrosodi-n-propyl amine	5.85	70	160752	38.16 mg/L #	64
18) Hexachloroethane	5.96	117	77752	29.40 mg/L	99
21) Nitrobenzene	6.03	77	194877	33.41 mg/L	99
22) Isophorone	6.21	82	438984	36.30 mg/L	100
23) 2-NITROPHENOL	6.29	139	150905	41.20 mg/L	98
24) 2,4-dimethylphenol	6.26	122	251607	40.80 mg/L	98

(#) = qualifier out of range (m) = manual integration
03120124.D HPBNAN.M Thu Dec 04 16:29:21 2003

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120124.D
Acq On : 1 Dec 2003 10:50 pm
Sample : 03111913-25 MS 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:36 2003

Vial: 24
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.33	105	171819	43.60 mg/L	94
26) Bis(2-chloroethoxy)methane	6.34	93	261641	34.35 mg/L	100
27) 2,4-DICHLOROPHENOL	6.50	162	190877	43.17 mg/L	100
28) 1,2,4'-Trichlorobenzene	6.59	180	157928	32.81 mg/L	100
29) Naphthalene`	6.66	128	601000	34.59 mg/L	99
30) 4-Chloroaniline	6.68	127	309849	36.95 mg/L	100
31) HEXACHLOROBUTADIENE`	6.78	225	82016	34.86 mg/L	100
32) 4-CHLORO-3-METHYLPHENOL	7.09	107	232430	49.86 mg/L	99
33) 2-Methylnaphthalene	7.31	142	391840	37.92 mg/L	100
35) Hexachlorocyclopentadiene	7.53	237	23251	14.44 mg/L	98
36) 2,4,6-TRICHLOROPHENOL	7.61	97	74412	47.17 mg/L	99
37) 2,4,5-trichlorophenol	7.66	97	65928	48.45 mg/L	97
39) 2-Chloronaphthalene	7.86	162	324837	34.91 mg/L	98
40) 2-Nitroaniline	7.95	65	118633	40.97 mg/L	97
41) 3-Nitroaniline	8.45	138	100903	36.29 mg/L	99
42) 4-Nitroaniline	9.30	138	78683	34.44 mg/L	96
43) Dimethylphthalate	8.13	163	445596	39.33 mg/L	100
44) 2,6-Dinitrotoluene	8.25	165	109132	38.67 mg/L	89
45) Acenaphthylene	8.37	152	554234	36.23 mg/L	100
46) ACENAPHTHENE	8.59	154	361742	39.61 mg/L	100
47) 2,4-Dinitrophenol	8.57	184	51736	45.26 mg/L	98
48) 4-nitrophenol	8.57	139	100113	56.56 mg/L	98
49) 2,4-Dinitrotoluene	8.77	165	141115	42.88 mg/L	97
50) Dibenzofuran	8.79	168	490913	39.45 mg/L	100
51) Diethylphthalate	9.03	149	471617	43.31 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.19	204	206955	40.88 mg/L	99
53) Fluorene	9.28	166	387549	38.77 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.36	198	88368	41.41 mg/L #	61
57) N-NITROSODI-N-PHENYLAMINE	9.37	169	337553	17.93 mg/L	98
58) 4-bromophenyl phenyl ether	9.95	248	111930	35.98 mg/L	99
59) Hexachlorobenzene	10.26	142	45639	35.99 mg/L	95
60) PENTACHLOROPHENOL	10.52	266	78902	43.51 mg/L	100
61) Phenanthrene	10.83	178	536457	35.69 mg/L	100
62) Anthracene	10.91	178	550895	35.13 mg/L	100
63) Carbazole	11.14	167	479426	38.22 mg/L	100
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.72	149	852000	38.48 mg/L	100
66) FLUORANTHENE	13.08	202	588273	38.00 mg/L	100
68) Benzidine	13.24	184	12851	2.51 mg/L	99
69) Pyrene	13.55	202	579024	39.32 mg/L	100
71) Butylbenzylphthalate	14.77	149	347084	40.77 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120124.D
Acq On : 1 Dec 2003 10:50 pm
Sample : 03111913-25 MS 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:36 2003

Vial: 24
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	15.93	252	118665	33.17 mg/L	99
73) Bis(2-ethylhexyl)phthalate	15.97	149	503053	41.58 mg/L	99
74) Benzo[a]anthracene	16.04	228	460555	39.13 mg/L	98
75) Chrysene	16.14	228	429292	40.50 mg/L	100
77) DI-N-OCTYLPHTHALATE	17.34	149	834056	68.86 mg/L	100
78) Benzo[b]fluoranthene	18.71	252	342324	53.70 mg/L	96
79) Benzo[k]fluoranthene	18.77	252	355233	64.45 mg/L	99
80) BENZO[A]PYRENE	19.69	252	292324	56.12 mg/L	100
81) Indeno(1,2,3-c,d)pyrene	23.94	276	228325	49.88 mg/L #	100
82) Dibenzo[a,h]anthracene	23.94	278	201125	51.95 mg/L	99
83) Benzo[g,h,i]perylene	25.15	276	164018	45.29 mg/L	100

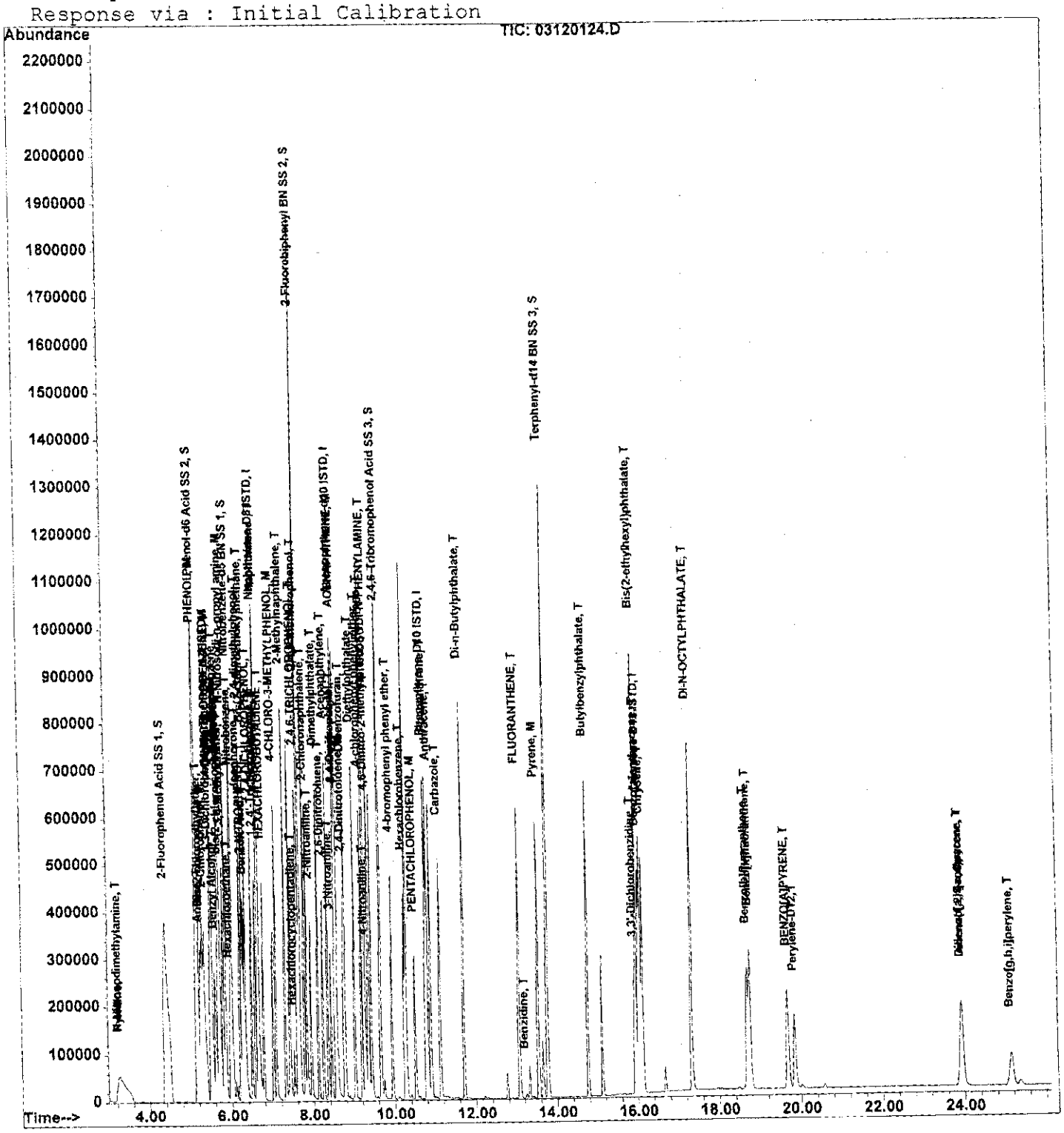
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031201\03120124.D
Acq On : 1 Dec 2003 10:50 pm
Sample : 03111913-25 MS 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:36 2003

Vial: 24
Operator: DJP
Inst : SVOC GC/M
Multipir: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



1 2037

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120125.D
Acq On : 1 Dec 2003 11:22 pm
Sample : 03111913-25 MSD 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:37 2003

Vial: 25
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	172810	50.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.64	136	708345	50.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	8.55	164	369221	50.00 mg/L	0.00
55) Phenanthrene-D10 ISTD	10.78	188	628466	50.00 mg/L	0.00
67) Chrysene-D12 ISTD	16.09	240	446334	50.00 mg/L	0.00
76) Perylene-D12	19.86	264	229753	50.00 mg/L	-0.02

System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.39	112	758682	104.77 mg/L	-0.02
Spiked Amount 200.000	Range 21 - 100		Recovery = 52.38%		
5) Phenol-d6 Acid SS 2	5.15	99	1010991	117.63 mg/L	0.00
Spiked Amount 200.000	Range 10 - 94		Recovery = 58.82%		
20) Nitrobenzene-d5 BN SS 1	6.00	82	416609	59.90 mg/L	-0.02
Spiked Amount 100.000	Range 35 - 114		Recovery = 59.90%		
38) 2-Fluorobiphenyl BN SS 2	7.68	172	773338	66.47 mg/L	0.00
Spiked Amount 100.000	Range 43 - 116		Recovery = 66.47%		
54) 2,4,6-Tribromophenol Acid	9.67	330	267153	173.82 mg/L	0.00
Spiked Amount 200.000	Range 10 - 123		Recovery = 86.91%		
70) Terphenyl-d14 BN SS 3	13.78	244	962230	85.71 mg/L	0.00
Spiked Amount 100.000	Range 33 - 141		Recovery = 85.71%		

Target Compounds					Qvalue
2) Pyridine	3.28	79	161159	31.71 mg/L	89
3) N-Nitrosodimethylamine	3.25	74	101587	25.61 mg/L #	18
6) PHENOL	5.16	94	285417	35.44 mg/L	79
7) Aniline	5.24	66	77022	20.38 mg/L #	68
8) Bis(2-chloroethyl)ether	5.27	63	134431	28.74 mg/L	93
9) 2-Chlorophenol	5.36	128	212670	32.18 mg/L	97
10) 1,4'-DICHLOROBENZENE	5.52	146	243066m	28.68 mg/L	
11) 1,3'-Dichlorobenzene	5.48	146	94106m	23.40 mg/L	
12) 1,2'-Dichlorobenzene	5.69	146	156731	26.80 mg/L	100
13) Benzyl Alcohol	5.61	108	112812	24.42 mg/L	97
14) 2-Methylphenol	5.68	107	183824	37.71 mg/L #	97
15) bis(2-chloroisopropyl)ethe	5.73	45	269997	27.92 mg/L #	68
16) 3,4-Methylphenol	5.80	107	274520	42.24 mg/L	89
17) N-Nitrosodi-n-propyl amine	5.86	70	139546	32.81 mg/L #	64
18) Hexachloroethane	5.96	117	68710	25.73 mg/L	99
21) Nitrobenzene	6.02	77	165445	27.66 mg/L	100
22) Isophorone	6.21	82	379233	30.58 mg/L	100
23) 2-NITROPHENOL	6.30	139	131853	35.10 mg/L	99
24) 2,4-dimethylphenol	6.26	122	219372	34.69 mg/L	95

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120125.D
Acq On : 1 Dec 2003 11:22 pm
Sample : 03111913-25 MSD 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:37 2003

Vial: 25
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.33	105	150691	38.04 mg/L	94
26) Bis(2-chloroethoxy)methane	6.35	93	239816	30.70 mg/L	97
27) 2,4-DICHLOROPHENOL	6.49	162	166216	36.67 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.58	180	136922	27.74 mg/L	100
29) Naphthalene`	6.67	128	517817	29.07 mg/L	97
30) 4-Chloroaniline	6.68	127	273776	31.84 mg/L	99
31) HEXACHLOROBUTADIENE`	6.79	225	69378	28.76 mg/L	100
32) 4-CHLORO-3-METHYLPHENOL	7.08	107	213187	44.60 mg/L	99
33) 2-Methylnaphthalene	7.31	142	340375	32.12 mg/L	100
35) Hexachlorocyclopentadiene	7.52	237	19370	11.85 mg/L	99
36) 2,4,6-TRICHLOROPHENOL	7.61	97	68316	42.65 mg/L	96
37) 2,4,5-trichlorophenol	7.66	97	59107	42.78 mg/L	94
39) 2-Chloronaphthalene	7.85	162	282625	29.92 mg/L	99
40) 2-Nitroaniline	7.95	65	111366	37.88 mg/L	98
41) 3-Nitroaniline	8.44	138	101292	35.89 mg/L	99
42) 4-Nitroaniline	9.29	138	83829	36.14 mg/L	96
43) Dimethylphthalate	8.13	163	424062	36.87 mg/L	100
44) 2,6-Dinitrotoluene	8.25	165	104913	36.61 mg/L	88
45) Acenaphthylene	8.36	152	490391	31.57 mg/L	100
46) ACENAPHTHENE	8.59	154	327150	35.28 mg/L	99
47) 2,4-Dinitrophenol	8.57	184	52166	44.99 mg/L	92
48) 4-nitrophenol	8.57	139	101909	56.71 mg/L	98
49) 2,4-Dinitrotoluene	8.76	165	140336	42.00 mg/L	97
50) Dibenzofuran	8.79	168	443229	35.08 mg/L	99
51) Diethylphthalate	9.03	149	465444	42.10 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.20	204	192057	37.37 mg/L	99
53) Fluorene	9.27	166	358267	35.30 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.35	198	91032	42.18 mg/L #	59
57) N-NITROSODI-N-PHENYLAMINE	9.37	169	330037	17.32 mg/L	98
58) 4-bromophenyl phenyl ether	9.95	248	107346	34.10 mg/L	99
59) Hexachlorobenzene	10.25	142	44705	34.83 mg/L	94
60) PENTACHLOROPHENOL	10.52	266	80324	43.77 mg/L	100
61) Phenanthrene	10.83	178	533941	35.10 mg/L	99
62) Anthracene	10.91	178	541888	34.15 mg/L	100
63) Carbazole	11.14	167	487852	38.43 mg/L	99
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.71	149	866083	38.65 mg/L	100
66) FLUORANTHENE	13.08	202	594816	37.97 mg/L	99
68) Benzidine	13.25	184	14268	2.77 mg/L	99
69) Pyrene	13.55	202	579130	39.02 mg/L	100
71) Butylbenzylphthalate	14.77	149	353896	41.25 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120125.D
Acq On : 1 Dec 2003 11:22 pm
Sample : 03111913-25 MSD 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:37 2003

Vial: 25
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	15.94	252	122673	34.02 mg/L	100
73) Bis(2-ethylhexyl)phthalate	15.98	149	519818	42.63 mg/L	99
74) Benzo[a]anthracene	16.04	228	465455	39.24 mg/L	98
75) Chrysene	16.14	228	431735	40.41 mg/L	100
77) DI-N-OCTYLPHTHALATE	17.34	149	843940	65.61 mg/L	99
78) Benzo[b]fluoranthene	18.71	252	369153	54.53 mg/L	96
79) Benzo[k]fluoranthene	18.77	252	336668	57.52 mg/L	100
80) BENZO[A]PYRENE	19.70	252	297995	53.87 mg/L	100
81) Indeno(1,2,3-c,d)pyrene	23.94	276	227147	46.73 mg/L #	99
82) Dibenzo[a,h]anthracene	23.95	278	201987	49.13 mg/L	99
83) Benzo[g,h,i]perylene	25.15	276	162840	42.34 mg/L	100

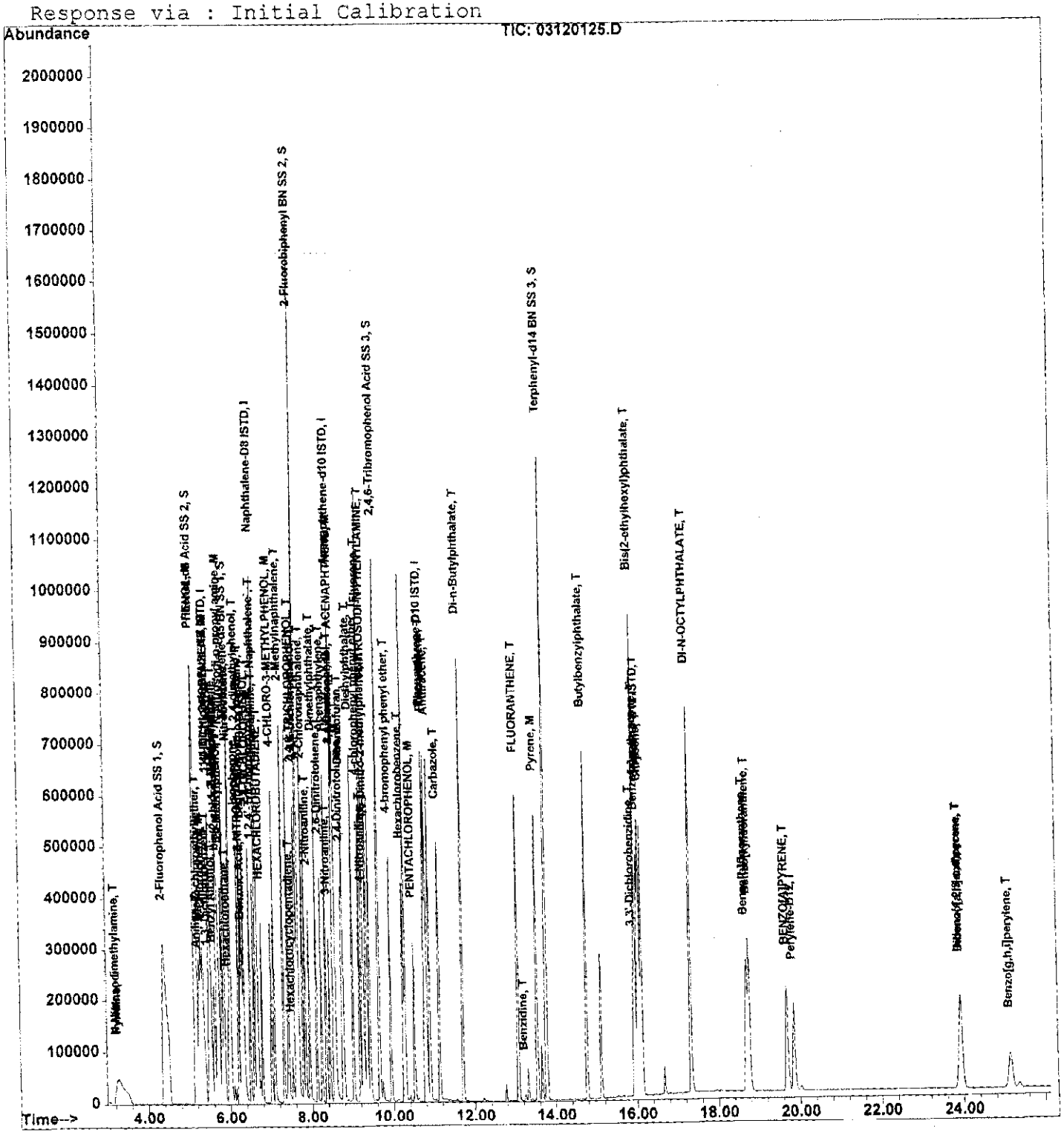
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031201\03120125.D
Acq On : 1 Dec 2003 11:22 pm
Sample : 03111913-25 MSD 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:37 2003

Vial: 25
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



1 2041

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANICS COMPOUNDS
LCS & LCS DUPLICATE SUMMARY

DATE ANALYZED: 11/24/03 **Analytical Lot Number:** SVOC031121

METHOD: EPA 8270 **Lab File IDs:** 03112416.D
03122417.D

Matrix: Water

Sample ID: LCS 1000C MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	LCL (%)	UCL (%)
Phenol	40	ND	30	76	12	110
2-Chlorophenol	40	ND	27	68	27	123
1,4-Dichlorobenzene	40	ND	29	72	36	97
N-Nitroso-di-n-propylamine	40	ND	35	87	41	116
1,2,4-Trichlorobenzene	40	ND	30	76	39	98
4-Chloro-3-methylphenol	40	ND	39	97	23	97
Acenaphthene	40	ND	38	94	46	118
4-Nitrophenol	40	ND	48	119 *	10	80
2,4-Dinitrotoluene	40	ND	47	117 *	24	96
Pentachlorophenol	40	ND	34	86	9	103
Pyrene	40	ND	46	115	26	127

Sample ID: LCSD 1000C MSD

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPK DUP CONC (ug/L)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	LCL (%)	UCL (%)
Phenol	40	ND	30	76	0.1	42	12	110
2-Chlorophenol	40	ND	27	67	1.6	40	27	123
1,4-Dichlorobenzene	40	ND	28	70	1.7	28	36	97
N-Nitroso-di-n-propylamine	40	ND	35	86	0.5	38	41	116
1,2,4-Trichlorobenzene	40	ND	29	73	3.0	28	39	98
4-Chloro-3-methylphenol	40	ND	37	92	5.1	42	23	97
Acenaphthene	40	ND	38	94	0.5	31	46	118
4-Nitrophenol	40	ND	46	115 *	0.0	50	10	80
2,4-Dinitrotoluene	40	ND	44	111 *	4.9	38	24	96
Pentachlorophenol	40	ND	33	83	0.0	50	9	103
Pyrene	40	ND	44	111	3.4	31	26	127

D = Spike compound diluted out
# - Column used to flag out of control recoveries
* = Values outside QC limits.
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

1 2042

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112416.D Vial: 16
Acq On : 24 Nov 2003 9:14 pm Operator: DJP
Sample : LCS 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:04 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.60	152	207054	50.00 mg/L	-0.01
19) Naphthalene-D8 ISTD	6.76	136	826500	50.00 mg/L	-0.01
34) Acenaphthene-d10 ISTD	8.70	164	437270	50.00 mg/L	-0.01
55) Phenanthrene-D10 ISTD	10.97	188	748160	50.00 mg/L	-0.02
67) Chrysene-D12 ISTD	16.30	240	485359	50.00 mg/L	-0.02
76) Perylene-D12	20.24	264	389066	50.00 mg/L	-0.04
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.45	112	979739	112.92 mg/L	-0.04
Spiked Amount 200.000 Range 21 - 100 Recovery = 56.46%					
5) Phenol-d6 Acid SS 2	5.24	99	1287669	125.04 mg/L	-0.02
Spiked Amount 200.000 Range 10 - 94 Recovery = 62.52%					
20) Nitrobenzene-d5 BN SS 1	6.10	82	517407	63.75 mg/L	-0.02
Spiked Amount 100.000 Range 35 - 114 Recovery = 63.75%					
38) 2-Fluorobiphenyl BN SS 2	7.81	172	943540	68.48 mg/L	-0.01
Spiked Amount 100.000 Range 43 - 116 Recovery = 68.48%					
54) 2,4,6-Tribromophenol Acid	9.83	330	306600	168.44 mg/L	-0.01
Spiked Amount 200.000 Range 10 - 123 Recovery = 84.22%					
70) Terphenyl-d14 BN SS 3	13.98	244	1121908	91.89 mg/L	0.00
Spiked Amount 100.000 Range 33 - 141 Recovery = 91.89%					

Target Compounds					Qvalue
2) Pyridine	3.29	79	207079	34.01 mg/L	100
3) N-Nitrosodimethylamine	3.29	74	132660	27.91 mg/L #	88
6) PHENOL	5.25	94	293038	30.37 mg/L	90
7) Aniline	5.34	66	109482	24.18 mg/L #	53
8) Bis(2-chloroethyl)ether	5.35	63	169273	30.20 mg/L	93
9) 2-Chlorophenol	5.45	128	214509	27.09 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.61	146	290867m	28.65 mg/L	
11) 1,3'-Dichlorobenzene	5.57	146	139676m	28.98 mg/L	
12) 1,2'-Dichlorobenzene	5.79	146	204326	29.16 mg/L	99
13) Benzyl Alcohol	5.71	108	155061	28.01 mg/L	98
14) 2-Methylphenol	5.78	107	182755	31.29 mg/L #	86
15) bis(2-chloroisopropyl)ethe	5.83	45	346343	29.89 mg/L #	86
16) 3,4-Methylphenol	5.90	107	272388	34.98 mg/L	88
17) N-Nitrosodi-n-propyl amine	5.95	70	177000	34.73 mg/L #	77
18) Hexachloroethane	6.06	117	86588	27.06 mg/L	97
21) Nitrobenzene	6.12	77	238753	34.21 mg/L	92
22) Isophorone	6.31	82	487691	33.70 mg/L	99
23) 2-NITROPHENOL	6.40	139	128921	29.42 mg/L	85
24) 2,4-dimethylphenol	6.36	122	211204	28.62 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112416.D Vial: 16
Acq On : 24 Nov 2003 9:14 pm Operator: DJP
Sample : LCS 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:04 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.43	105	101522	23.21 mg/L	84
26) Bis(2-chloroethoxy)methane	6.45	93	291251	31.96 mg/L	98
27) 2,4-DICHLOROPHENOL	6.60	162	167472	31.66 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.70	180	174080	30.23 mg/L	98
29) Naphthalene`	6.78	128	654184	31.47 mg/L #	57
30) 4-Chloroaniline	6.80	127	344732	34.36 mg/L	96
31) HEXACHLOROBUTADIENE`	6.90	225	88000	31.26 mg/L	99
32) 4-CHLORO-3-METHYLPHENOL	7.21	107	215986	38.72 mg/L	97
33) 2-Methylnaphthalene	7.44	142	437563	35.39 mg/L	99
35) Hexachlorocyclopentadiene	7.66	237	43227	22.33 mg/L	100
36) 2,4,6-TRICHLOROPHENOL	7.74	97	67514	35.59 mg/L #	83
37) 2,4,5-trichlorophenol	7.80	97	61006	37.28 mg/L #	88
38) 2-Chloronaphthalene	7.99	162	366204	32.73 mg/L	99
40) 2-Nitroaniline	8.10	65	146183	41.98 mg/L	95
41) 3-Nitroaniline	8.60	138	126282	37.78 mg/L	97
42) 4-Nitroaniline	9.46	138	98783	35.96 mg/L	95
43) Dimethylphthalate	8.27	163	548447	40.26 mg/L	98
44) 2,6-Dinitrotoluene	8.39	165	135353	39.88 mg/L	98
45) Acenaphthylene	8.52	152	641150	34.86 mg/L	100
46) ACENAPHTHENE	8.74	154	415013	37.79 mg/L	95
47) 2,4-Dinitrophenol	8.72	184	51683	38.40 mg/L #	1
48) 4-nitrophenol	8.72	139	101615	47.74 mg/L	95
49) 2,4-Dinitrotoluene	8.91	165	184627	46.65 mg/L	84
50) Dibenzofuran	8.95	168	565654	37.80 mg/L	99
51) Diethylphthalate	9.18	149	603630	46.10 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.35	204	240419	39.50 mg/L	96
53) Fluorene	9.44	166	464537	38.65 mg/L	98
56) 4,6-Dinitro-2-methylphenol	9.52	198	83846	32.44 mg/L	99
57) N-NITROSODI-N-PHENYLAMINE	9.53	169	425981	18.78 mg/L	98
58) 4-bromophenyl phenyl ether	10.12	248	137496	36.69 mg/L	99
59) Hexachlorobenzene	10.43	142	56810	37.18 mg/L #	88
60) PENTACHLOROPHENOL	10.70	266	75141	34.39 mg/L #	85
61) Phenanthrene	11.01	178	689135	38.06 mg/L	100
62) Anthracene	11.09	178	697059	36.90 mg/L	100
63) Carbazole	11.33	167	614153	40.64 mg/L	97
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.90	149	1118788	41.94 mg/L	100
66) FLUORANTHENE	13.28	202	762694	40.90 mg/L	99
68) Benzidine	13.44	184	28947	5.17 mg/L	98
69) Pyrene	13.76	202	742136	45.98 mg/L	100
71) Butylbenzylphthalate	14.98	149	446616	47.87 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112416.D Vial: 16
Acq On : 24 Nov 2003 9:14 pm Operator: DJP
Sample : LCS 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:04 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

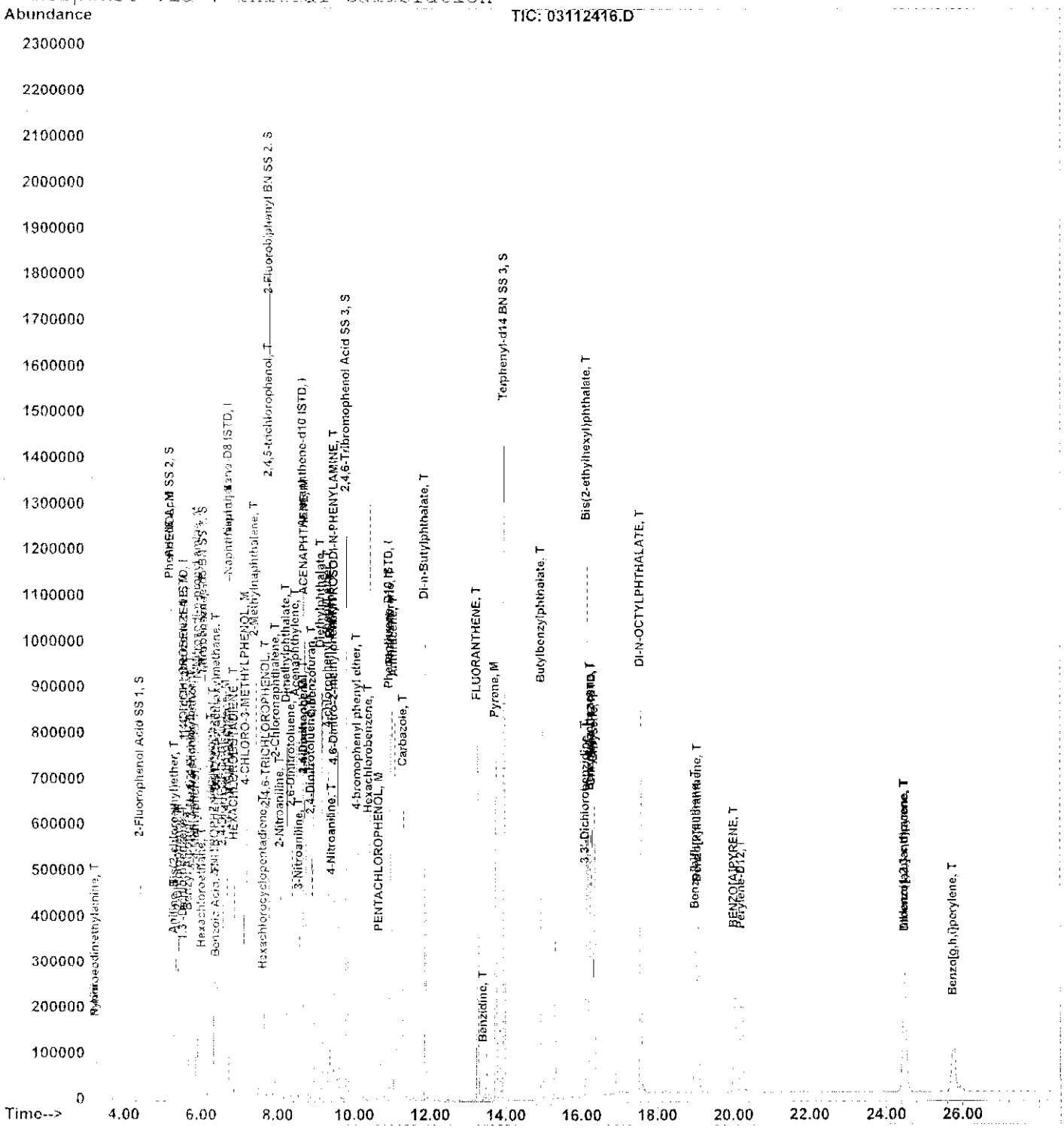
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	16.14	252	154114	39.31 mg/L	98
73) Bis(2-ethylhexyl)phthalate	16.17	149	610486	46.04 mg/L	98
74) Benzo[a]anthracene	16.26	228	585599	45.40 mg/L	99
75) Chrysene	16.37	228	540925	46.56 mg/L	99
77) DI-N-OCTYLPHTHALATE	17.58	149	995555	45.71 mg/L	98
78) Benzo[b]fluoranthene	19.03	252	503571m	43.92 mg/L	
79) Benzo[k]fluoranthene	19.09	252	411707	41.53 mg/L	97
80) BENZO[A]PYRENE	20.06	252	401532	42.86 mg/L	98
81) Indeno(1,2,3-c,d)pyrene	24.51	276	348532	42.34 mg/L #	99
82) Dibenzo[a,h]anthracene	24.52	278	296281	42.55 mg/L	99
83) Benzo[g,h,i]perylene	25.78	276	270548	41.54 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data file : C:\HPCHEM\1\DATA\031124\03112416.D Vial: 16
Acq On : 24 Nov 2003 9:14 pm Operator: DJP
Sample : MCS 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:04 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : AL88270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration



1 2046

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112416.D
Acq On : 24 Nov 2003 9:14 pm
Sample : LCS 1000C
Misc : 11-21-03 10uL #187; 100uL #188,146
MS Integration Params: rteint.p
Quant Time: Nov 25 14:36 2003

Vial: 16
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.60	152	207054	40.00 mg/L	-0.05
3) Naphthalene-D8 ISTD	6.76	136	826500	40.00 mg/L	-0.06
5) Acenaphthene-d10 ISTD	8.70	164	437270	40.00 mg/L	-0.08

System Monitoring Compounds

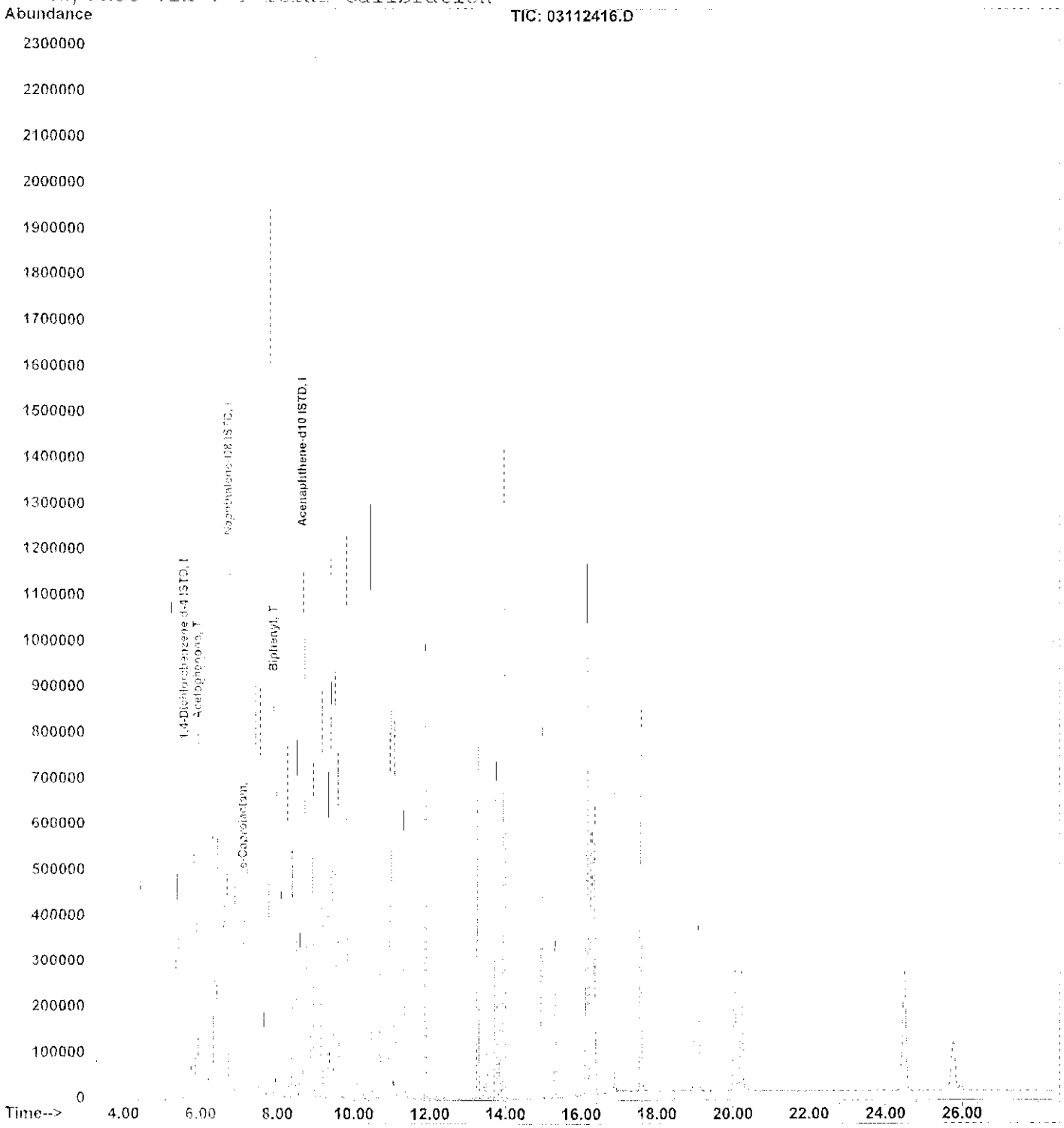
Target Compounds					Qvalue
2) Acetophenone	5.96	105	296198	30.18 mg/L	99
4) e-Caprolactam	7.14	55	144375	42.44 mg/L	98
6) Biphenyl	7.93	154	500233	31.99 mg/L	98
7) Atrazine	10.33	200	473	Not Detected	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031124\03112416.D Vial: 16
Acq On : 24 Nov 2003 9:14 pm Operator: DJP
Sample : LCS 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 14:36 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration



1 2048

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112417.D Vial: 17
Acq On : 24 Nov 2003 9:49 pm Operator: DJP
Sample : LCSD 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:05 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.60	152	200168	50.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.76	136	812607	50.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	8.70	164	416290	50.00 mg/L	0.00
55) Phenanthrene-D10 ISTD	10.97	188	713867	50.00 mg/L	-0.02
67) Chrysene-D12 ISTD	16.31	240	463896	50.00 mg/L	-0.02
76) Perylene-D12	20.23	264	371515	50.00 mg/L	-0.05
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.45	112	999732	119.19 mg/L	-0.04
Spiked Amount 200.000 Range 21 - 100 Recovery = 59.60%					
5) Phenol-d6 Acid SS 2	5.24	99	1320205	132.61 mg/L	-0.02
Spiked Amount 200.000 Range 10 - 94 Recovery = 66.31%					
20) Nitrobenzene-d5 BN SS 1	6.11	82	508468	63.72 mg/L	-0.02
Spiked Amount 100.000 Range 35 - 114 Recovery = 63.72%					
38) 2-Fluorobiphenyl BN SS 2	7.81	172	938033	71.51 mg/L	0.00
Spiked Amount 100.000 Range 43 - 116 Recovery = 71.51%					
54) 2,4,6-Tribromophenol Acid	9.84	330	303936	175.39 mg/L	0.00
Spiked Amount 200.000 Range 10 - 123 Recovery = 87.69%					
70) Terphenyl-d14 BN SS 3	13.98	244	1065141	91.28 mg/L	0.00
Spiked Amount 100.000 Range 33 - 141 Recovery = 91.28%					

Target Compounds					Qvalue
2) Pyridine	3.28	79	199449	33.88 mg/L	99
3) N-Nitrosodimethylamine	3.29	74	127976	27.85 mg/L #	88
6) PHENOL	5.25	94	283120	30.35 mg/L	89
7) Aniline	5.34	66	103518	23.65 mg/L #	48
8) Bis(2-chloroethyl)ether	5.35	63	163302	30.14 mg/L	92
9) 2-Chlorophenol	5.44	128	203999	26.65 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.61	146	276465m	28.17 mg/L	
11) 1,3'-Dichlorobenzene	5.57	146	144344m	30.98 mg/L	
12) 1,2'-Dichlorobenzene	5.79	146	195722	28.89 mg/L	99
13) Benzyl Alcohol	5.71	108	141959	26.53 mg/L	97
14) 2-Methylphenol	5.78	107	179721	31.83 mg/L #	87
15) bis(2-chloroisopropyl)ethe	5.82	45	334989	29.91 mg/L #	86
16) 3,4-Methylphenol	5.89	107	264111	35.08 mg/L	87
17) N-Nitrosodi-n-propyl amine	5.95	70	170189	34.54 mg/L #	77
18) Hexachloroethane	6.06	117	82640	26.72 mg/L	95
21) Nitrobenzene	6.13	77	229037	33.38 mg/L	91
22) Isophorone	6.31	82	467365	32.85 mg/L	100
23) 2-NITROPHENOL	6.40	139	126291	29.31 mg/L	85
24) 2,4-dimethylphenol	6.36	122	187463	25.84 mg/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112417.D Vial: 17
Acq On : 24 Nov 2003 9:49 pm Operator: DJP
Sample : LCSD 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:05 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.42	105	89176	20.92 mg/L	90
26) Bis(2-chloroethoxy)methane	6.45	93	295450	32.97 mg/L	96
27) 2,4-DICHLOROPHENOL	6.61	162	158829	30.54 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.70	180	166099	29.34 mg/L	98
29) Naphthalene`	6.78	128	631993	30.92 mg/L #	58
30) 4-Chloroaniline	6.80	127	330758	33.53 mg/L	96
31) HEXACHLOROBUTADIENE`	6.90	225	84618	30.57 mg/L	99
32) 4-CHLORO-3-METHYLPHENOL	7.21	107	201698	36.78 mg/L	97
33) 2-Methylnaphthalene	7.44	142	420698	34.61 mg/L	99
35) Hexachlorocyclopentadiene	7.66	237	39625	21.50 mg/L	99
36) 2,4,6-TRICHLOROPHENOL	7.74	97	64498	35.72 mg/L #	83
37) 2,4,5-trichlorophenol	7.79	97	55127	35.39 mg/L	91
39) 2-Chloronaphthalene	7.99	162	350131	32.87 mg/L	99
40) 2-Nitroaniline	8.09	65	137262	41.41 mg/L	96
41) 3-Nitroaniline	8.59	138	116072	36.47 mg/L	96
42) 4-Nitroaniline	9.45	138	90704	34.68 mg/L	94
43) Dimethylphthalate	8.26	163	509682	39.30 mg/L	99
44) 2,6-Dinitrotoluene	8.39	165	125312	38.79 mg/L	98
45) Acenaphthylene	8.51	152	603349	34.45 mg/L	100
46) ACENAPHTHENE	8.74	154	392999	37.59 mg/L	96
47) 2,4-Dinitrophenol	8.72	184	47110	36.93 mg/L #	1
48) 4-nitrophenol	8.71	139	93382	46.09 mg/L	95
49) 2,4-Dinitrotoluene	8.92	165	167371	44.43 mg/L	83
50) Dibenzofuran	8.95	168	530165	37.22 mg/L	99
51) Diethylphthalate	9.18	149	553311	44.39 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.36	204	231254	39.91 mg/L	97
53) Fluorene	9.44	166	433955	37.92 mg/L	97
56) 4,6-Dinitro-2-methylphenol	9.51	198	76322	30.92 mg/L	98
57) N-NITROSODI-N-PHENYLAMINE	9.53	169	392200	18.12 mg/L	98
58) 4-bromophenyl phenyl ether	10.11	248	129022	36.08 mg/L	100
59) Hexachlorobenzene	10.43	142	53117	36.43 mg/L #	87
60) PENTACHLOROPHENOL	10.69	266	69209	33.20 mg/L	89
61) Phenanthrene	11.01	178	639705	37.03 mg/L	100
62) Anthracene	11.09	178	634131	35.18 mg/L	100
63) Carbazole	11.32	167	565515	39.22 mg/L	98
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.89	149	1025975	40.31 mg/L	99
66) FLUORANTHENE	13.28	202	700808	39.38 mg/L	100
68) Benzidine	13.44	184	24973	4.66 mg/L	99
69) Pyrene	13.75	202	685521	44.44 mg/L	99
71) Butylbenzylphthalate	14.97	149	412607	46.27 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112417.D Vial: 17
Acq On : 24 Nov 2003 9:49 pm Operator: DJP
Sample : LCSD 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:05 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : AL88270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

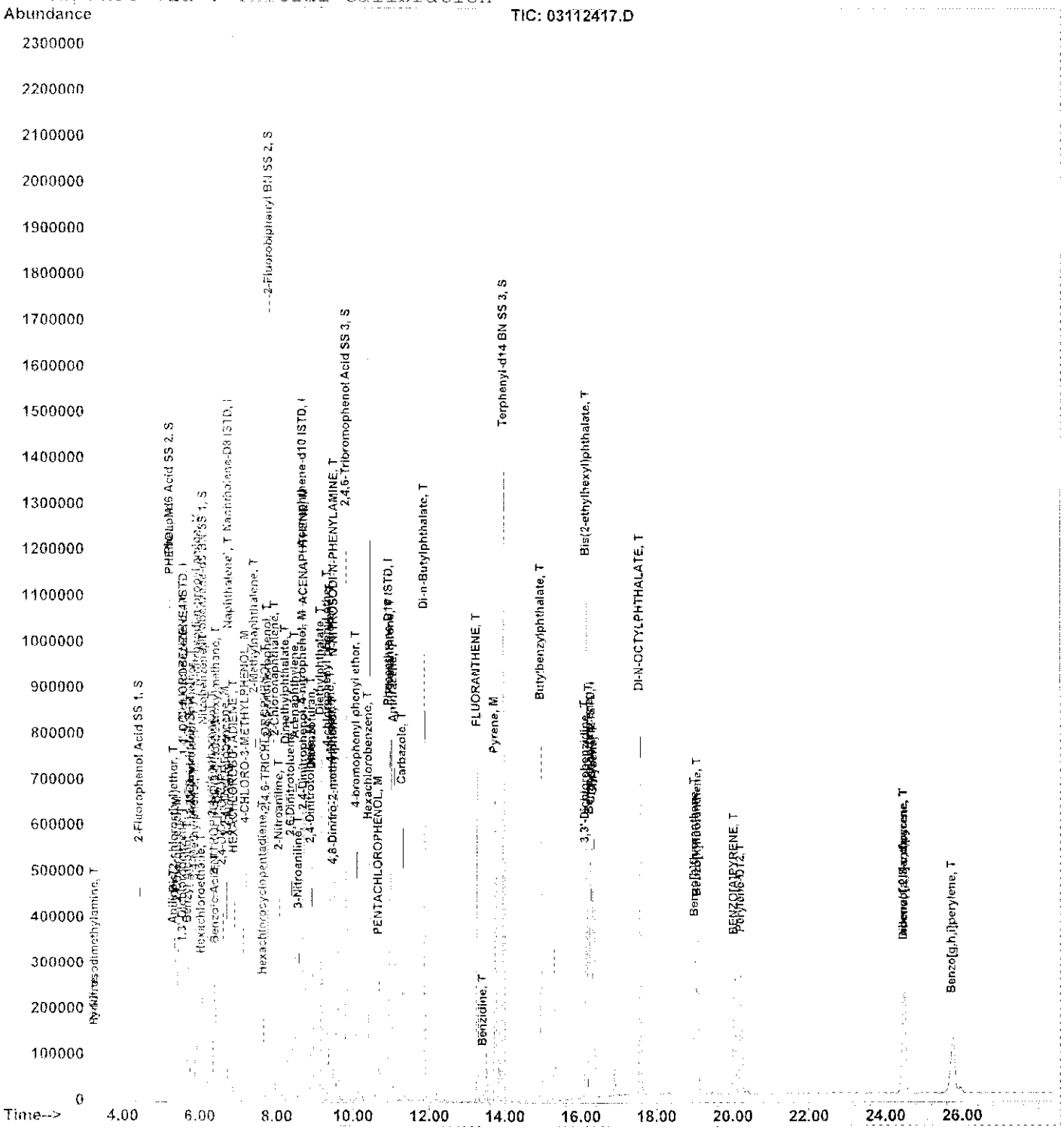
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	16.14	252	143877	38.39 mg/L	98
73) Bis(2-ethylhexyl)phthalate	16.16	149	577974	45.60 mg/L	98
74) Benzo[a]anthracene	16.25	228	538607	43.69 mg/L	99
75) Chrysene	16.36	228	496616	44.72 mg/L	99
77) DI-N-OCTYLPHTHALATE	17.57	149	923727	44.41 mg/L	99
78) Benzo[b]fluoranthene	19.02	252	447862m	40.91 mg/L	
79) Benzo[k]fluoranthene	19.10	252	399391	42.20 mg/L	99
80) BENZO[A]PYRENE	20.06	252	371769	41.56 mg/L	98
81) Indeno(1,2,3-c,d)pyrene	24.50	276	319512	40.65 mg/L #	99
82) Dibenzo[a,h]anthracene	24.50	278	272026	40.92 mg/L	99
83) Benzo[g,h,i]perylene	25.76	276	247183	39.75 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031124\03112417.D Vial: 17
Acq On : 24 Nov 2003 9:49 pm Operator: DJP
Sample : LCSD 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 11:05 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 11 10:50:50 2003
Response via : Initial Calibration



1 2052

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031124\03112417.D Vial: 17
Acq On : 24 Nov 2003 9:49 pm Operator: DJP
Sample : LCSD 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 14:36 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.60	152	200168	40.00 mg/L	-0.05
3) Naphthalene-D8 ISTD	6.76	136	812607	40.00 mg/L	-0.06
5) Acenaphthene-d10 ISTD	8.70	164	416290	40.00 mg/L	-0.08

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	5.95	105	284114	29.95 mg/L	98
4) e-Caprolactam	7.13	55	135254	40.43 mg/L	99
6) Biphenyl	7.92	154	472867	31.76 mg/L	98
7) Atrazine	10.33	200	491	Not Detected	

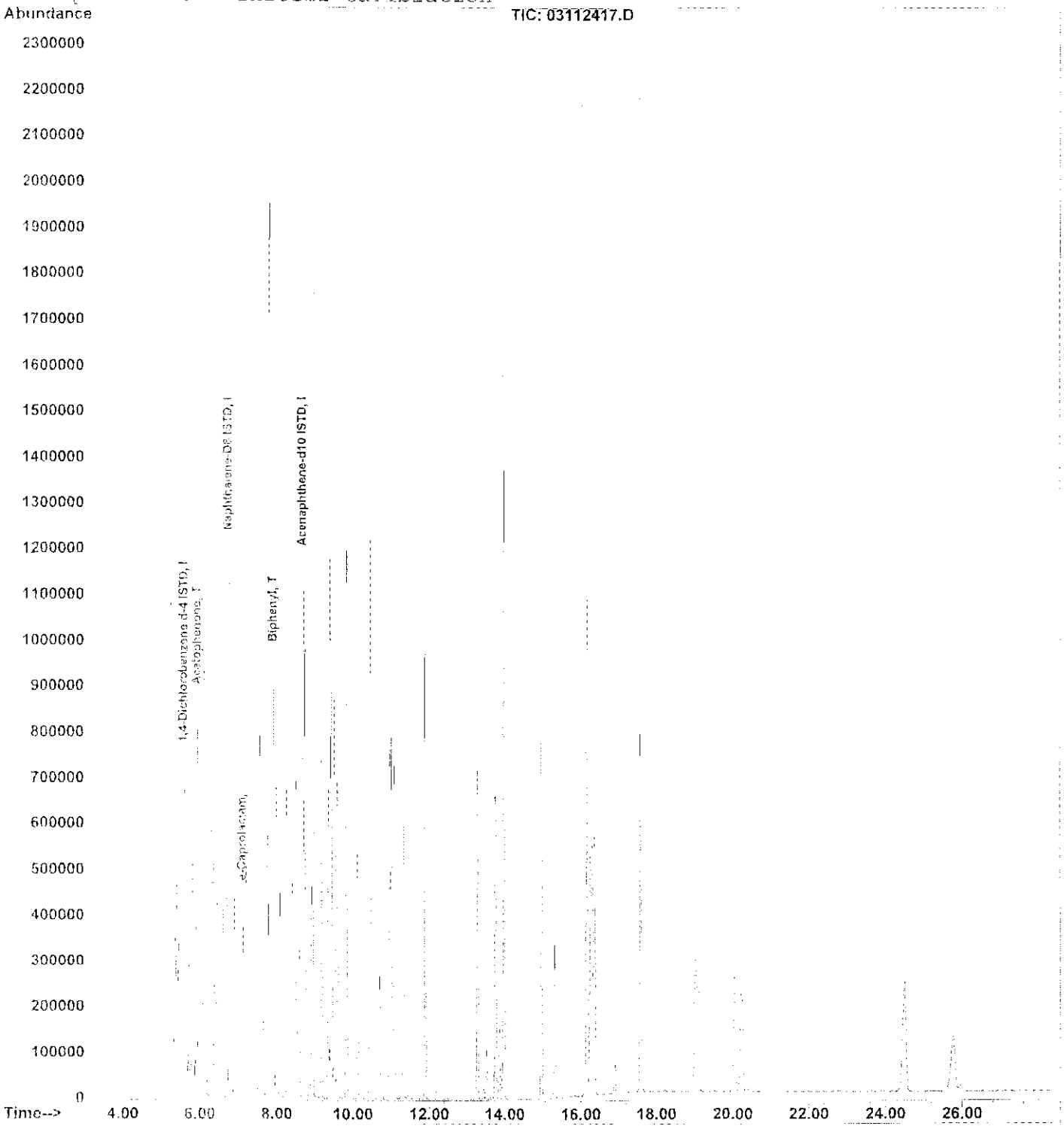
(#) = qualifier out of range (m) = manual integration
03112417.D MDEN.M Tue Nov 25 15:16:12 2003 Page 1

1 2053

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031124\03112417.D Vial: 17
Acq On : 24 Nov 2003 9:49 pm Operator: DJP
Sample : LCSD 1000C Inst : SVOC GC/M
Misc : 11-21-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Nov 25 14:36 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration



1 2054

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANICS COMPOUNDS
LCS & LCS DUPLICATE SUMMARY

DATE ANALYZED: 12/01/03 **Analytical Lot Number:** SVOC031201

METHOD: EPA 8270 **Lab File IDs:** 03120126.D
03120127.D

Matrix: Soil

Sample ID: LCS 30C MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)		LCL (%)	UCL (%)
Phenol	40	ND	47	117		26	90
2-Chlorophenol	40	ND	44	111	*	25	102
1,4-Dichlorobenzene	40	ND	48	120	*	28	104
N-Nitroso-di-n-propylamine	40	ND	51	127	*	41	126
1,2,4-Trichlorobenzene	40	ND	47	117	*	38	107
4-Chloro-3-methylphenol	40	ND	50	124	*	26	103
Acenaphthene	40	ND	49	124		31	137
4-Nitrophenol	40	ND	55	137	*	11	114
2,4-Dinitrotoluene	40	ND	51	129	*	28	89
Pentachlorophenol	40	ND	43	107		17	109
Pyrene	40	ND	50	126		35	142

Sample ID: LCSD 30C MSD

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)		RPD (%)	QC RPD (%)	LCL (%)	UCL (%)
Phenol	40	ND	48	120		2.0	35	26	90
2-Chlorophenol	40	ND	46	115	*	3.6	50	25	102
1,4-Dichlorobenzene	40	ND	46	115	*	4.1	27	28	104
N-Nitroso-di-n-propylamine	40	ND	49	124		2.8	38	41	126
1,2,4-Trichlorobenzene	40	ND	44	110	*	6.2	23	38	107
4-Chloro-3-methylphenol	40	ND	51	127	*	2.0	33	26	103
Acenaphthene	40	ND	48	120		2.7	19	31	137
4-Nitrophenol	40	ND	57	142	*	0.0	50	11	114
2,4-Dinitrotoluene	40	ND	50	125	*	2.9	47	28	89
Pentachlorophenol	40	ND	45	111	*	0.0	47	17	109
Pyrene	40	ND	46	114		10.0	36	35	142

D = Spike compound diluted out
# - Column used to flag out of control recoveries
* = Values outside QC limits.
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120126.D
Acq On : 1 Dec 2003 11:54 pm
Sample : LCS 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:38 2003

Vial: 26
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	156240	50.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.64	136	643496	50.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	8.55	164	341757	50.00 mg/L	0.00
55) Phenanthrene-D10 ISTD	10.79	188	586420	50.00 mg/L	0.00
67) Chrysene-D12 ISTD	16.08	240	384200	50.00 mg/L	-0.01
76) Perylene-D12	19.86	264	161735	50.00 mg/L	-0.02

System Monitoring Compounds

4) 2-Fluorophenol Acid SS 1	4.39	112	1287856	196.70 mg/L	-0.01
Spiked Amount 200.000	Range 21 - 100		Recovery = 98.35%		
5) Phenol-d6 Acid SS 2	5.16	99	1515805	195.07 mg/L	0.00
Spiked Amount 200.000	Range 10 - 94		Recovery = 97.54%#		
20) Nitrobenzene-d5 BN SS 1	6.01	82	607116	96.08 mg/L	-0.01
Spiked Amount 100.000	Range 35 - 114		Recovery = 96.08%		
38) 2-Fluorobiphenyl BN SS 2	7.68	172	1033770	96.00 mg/L	0.00
Spiked Amount 100.000	Range 43 - 116		Recovery = 96.00%		
54) 2,4,6-Tribromophenol Acid	9.68	330	285305	200.55 mg/L	0.00
Spiked Amount 200.000	Range 10 - 123		Recovery = 100.28%		
70) Terphenyl-d14 BN SS 3	13.78	244	1002446	103.73 mg/L	0.00
Spiked Amount 100.000	Range 33 - 141		Recovery = 103.73%		

Target Compounds					Qvalue
2) Pyridine	3.29	79	273455	59.51 mg/L	98
3) N-Nitrosodimethylamine	3.28	74	166725	46.49 mg/L	98
6) PHENOL	5.17	94	341410	46.89 mg/L	76
7) Aniline	5.25	66	117954	34.53 mg/L #	78
8) Bis(2-chloroethyl)ether	5.26	63	205365	48.56 mg/L #	87
9) 2-Chlorophenol	5.35	128	264565	44.27 mg/L	98
10) 1,4'-DICHLOROBENZENE	5.52	146	366849m	47.88 mg/L	
11) 1,3'-Dichlorobenzene	5.50	146	178258m	49.02 mg/L	
12) 1,2'-Dichlorobenzene	5.69	146	254179	48.07 mg/L	99
13) Benzyl Alcohol	5.61	108	160125	38.34 mg/L	98
14) 2-Methylphenol	5.69	107	219976	49.91 mg/L #	98
15) bis(2-chloroisopropyl)ethe	5.73	45	415205	47.49 mg/L #	68
16) 3,4-Methylphenol	5.80	107	316128	53.80 mg/L	90
17) N-Nitrosodi-n-propyl amine	5.85	70	195599	50.86 mg/L #	65
18) Hexachloroethane	5.97	117	111863	46.33 mg/L	99
21) Nitrobenzene	6.03	77	248596	45.75 mg/L	99
22) Isophorone	6.21	82	530613	47.10 mg/L	100
23) 2-NITROPHENOL	6.29	139	168560	49.40 mg/L	95
24) 2,4-dimethylphenol	6.26	122	258223	44.95 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120126.D
Acq On : 1 Dec 2003 11:54 pm
Sample : LCS 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:38 2003

Vial: 26
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.33	105	155167m	42.44 mg/L	
26) Bis(2-chloroethoxy)methane	6.34	93	331870	46.77 mg/L	99
27) 2,4-DICHLOROPHENOL	6.50	162	192024	46.63 mg/L	100
28) 1,2,4'-Trichlorobenzene	6.59	180	209336	46.69 mg/L	100
29) Naphthalene`	6.66	128	765966	47.33 mg/L	93
30) 4-Chloroaniline	6.68	127	347158	44.44 mg/L	98
31) HEXACHLOROBUTADIENE`	6.78	225	108733	49.61 mg/L	99
32) 4-CHLORO-3-METHYLPHENOL	7.09	107	215693	49.67 mg/L	99
33) 2-Methylnaphthalene	7.31	142	485342	50.42 mg/L	99
35) Hexachlorocyclopentadiene	7.53	237	34240	22.63 mg/L	98
36) 2,4,6-TRICHLOROPHENOL	7.61	97	73266	49.42 mg/L	95
37) 2,4,5-trichlorophenol	7.66	97	59063	46.18 mg/L	98
39) 2-Chloronaphthalene	7.86	162	401422	45.91 mg/L	98
40) 2-Nitroaniline	7.96	65	136235	50.06 mg/L	99
41) 3-Nitroaniline	8.45	138	79133	30.29 mg/L	92
42) 4-Nitroaniline	9.30	138	92752	43.20 mg/L	84
43) Dimethylphthalate	8.13	163	514753	48.35 mg/L	100
44) 2,6-Dinitrotoluene	8.25	165	126806	47.81 mg/L	88
45) Acenaphthylene	8.37	152	665229	46.27 mg/L	100
46) ACENAPHTHENE	8.59	154	424737	49.48 mg/L	99
47) 2,4-Dinitrophenol	8.57	184	51478	47.59 mg/L	97
48) 4-nitrophenol	8.57	139	90902	54.65 mg/L	99
49) 2,4-Dinitrotoluene	8.77	165	159010	51.41 mg/L	97
50) Dibenzofuran	8.79	168	570006	48.74 mg/L	99
51) Diethylphthalate	9.03	149	531738	51.96 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.20	204	240788	50.61 mg/L	99
53) Fluorene	9.28	166	443659	47.23 mg/L	98
56) 4,6-Dinitro-2-methylphenol	9.35	198	83280	41.33 mg/L #	69
57) N-NITROSODI-N-PHENYLAMINE	9.38	169	384716	21.64 mg/L	99
58) 4-bromophenyl phenyl ether	9.95	248	127489	43.40 mg/L	100
59) Hexachlorobenzene	10.26	142	51971	43.40 mg/L	94
60) PENTACHLOROPHENOL	10.52	266	72983	42.62 mg/L	100
61) Phenanthrene	10.83	178	612203	43.13 mg/L	100
62) Anthracene	10.91	178	626853	42.33 mg/L	99
63) Carbazole	11.14	167	379909	32.07 mg/L	100
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.72	149	948868	45.39 mg/L	100
66) FLUORANTHENE	13.08	202	655964	44.87 mg/L	99
68) Benzidine	13.24	184	29201	6.58 mg/L	99
69) Pyrene	13.55	202	643577	50.38 mg/L	100
71) Butylbenzylphthalate	14.78	149	392722	53.18 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120126.D
Acq On : 1 Dec 2003 11:54 pm
Sample : LCS 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:38 2003

Vial: 26
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

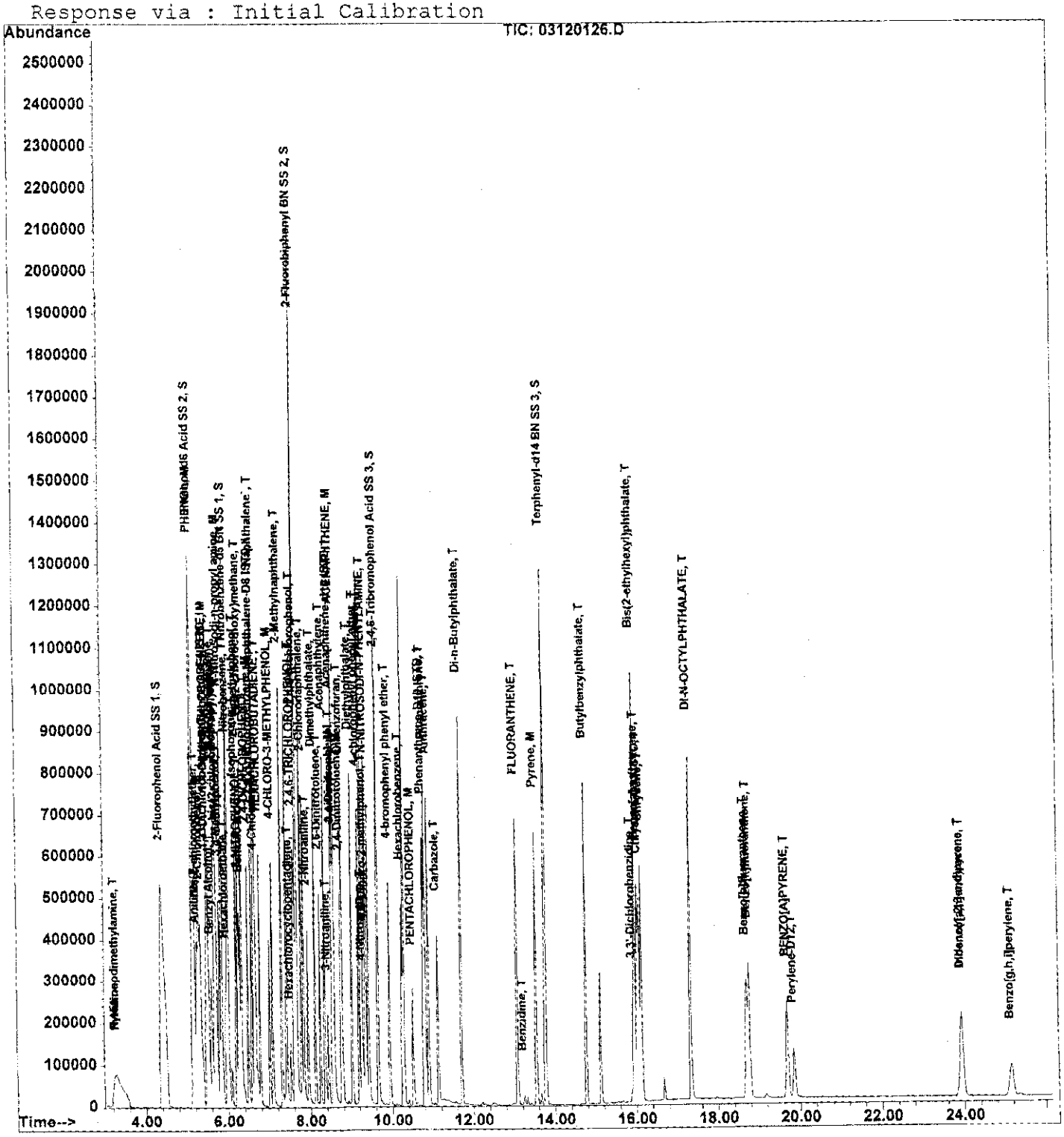
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	15.93	252	125286	40.37 mg/L	100
73) Bis(2-ethylhexyl)phthalate	15.97	149	564644	53.79 mg/L	99
74) Benzo[a]anthracene	16.04	228	514805	50.42 mg/L	98
75) Chrysene	16.15	228	479334	52.12 mg/L	100
77) DI-N-OCTYLPHTHALATE	17.34	149	933801	103.13 mg/L	100
78) Benzo[b]fluoranthene	18.71	252	417665	87.64 mg/L	94
79) Benzo[k]fluoranthene	18.77	252	364175	88.38 mg/L	97
80) BENZO[A]PYRENE	19.69	252	329818	84.70 mg/L	100
81) Indeno(1,2,3-c,d)pyrene	23.94	276	248398	72.59 mg/L #	98
82) Dibenzo[a,h]anthracene	23.95	278	221050	76.37 mg/L	99
83) Benzo[g,h,i]perylene	25.16	276	179533	66.32 mg/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031201\03120126.D Vial: 26
Acq On : 1 Dec 2003 11:54 pm Operator: DJP
Sample : LCS 30C Inst : SVOC GC/M
Misc : E: 12-1-03 10uL #187; 100uL 188, 146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 2 10:38 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



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Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120127.D
Acq On : 2 Dec 2003 12:27 am
Sample : LCSD 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:38 2003

Vial: 27
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	155642	50.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.64	136	648977	50.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	8.55	164	341337	50.00 mg/L	0.00
55) Phenanthrene-D10 ISTD	10.79	188	583311	50.00 mg/L	0.00
67) Chrysene-D12 ISTD	16.08	240	411114	50.00 mg/L	-0.01
76) Perylene-D12	19.86	264	182695	50.00 mg/L	-0.02

System Monitoring Compounds

4) 2-Fluorophenol Acid SS 1	4.39	112	1261492	193.42 mg/L	-0.01
Spiked Amount 200.000	Range 21 - 100		Recovery = 96.71%		
5) Phenol-d6 Acid SS 2	5.16	99	1476652	190.76 mg/L	0.00
Spiked Amount 200.000	Range 10 - 94		Recovery = 95.38%#		
20) Nitrobenzene-d5 BN SS 1	6.01	82	603669	94.73 mg/L	-0.01
Spiked Amount 100.000	Range 35 - 114		Recovery = 94.73%		
38) 2-Fluorobiphenyl BN SS 2	7.68	172	1028942	95.67 mg/L	0.00
Spiked Amount 100.000	Range 43 - 116		Recovery = 95.67%		
54) 2,4,6-Tribromophenol Acid	9.67	330	284398	200.16 mg/L	0.00
Spiked Amount 200.000	Range 10 - 123		Recovery = 100.08%		
70) Terphenyl-d14 BN SS 3	13.78	244	1004161	97.10 mg/L	0.00
Spiked Amount 100.000	Range 33 - 141		Recovery = 97.10%		

Target Compounds					Qvalue
2) Pyridine	3.28	79	258670	56.51 mg/L	98
3) N-Nitrosodimethylamine	3.27	74	159085	44.53 mg/L #	18
6) PHENOL	5.17	94	347097	47.85 mg/L	76
7) Aniline	5.25	66	111487	32.76 mg/L #	77
8) Bis(2-chloroethyl)ether	5.26	63	196791	46.71 mg/L #	86
9) 2-Chlorophenol	5.35	128	273134	45.88 mg/L	98
10) 1,4'-DICHLOROBENZENE	5.52	146	350635m	45.94 mg/L	
11) 1,3'-Dichlorobenzene	5.50	146	170027m	46.94 mg/L	
12) 1,2'-Dichlorobenzene	5.69	146	241167	45.78 mg/L	100
13) Benzyl Alcohol	5.61	108	156527	37.62 mg/L	98
14) 2-Methylphenol	5.69	107	224984	51.24 mg/L #	96
15) bis(2-chloroisopropyl)ethe	5.73	45	392489	45.07 mg/L #	68
16) 3,4-Methylphenol	5.80	107	319935	54.65 mg/L	90
17) N-Nitrosodi-n-propyl amine	5.85	70	189422	49.44 mg/L #	64
18) Hexachloroethane	5.97	117	107806	44.82 mg/L	99
21) Nitrobenzene	6.03	77	238266	43.48 mg/L	100
22) Isophorone	6.21	82	513599	45.20 mg/L	99
23) 2-NITROPHENOL	6.29	139	171337	49.79 mg/L	95
24) 2,4-dimethylphenol	6.26	122	265599	45.84 mg/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120127.D
Acq On : 2 Dec 2003 12:27 am
Sample : LCSD 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:38 2003

Vial: 27
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.33	105	179045	47.67 mg/L	94
26) Bis(2-chloroethoxy)methane	6.34	93	315207	44.04 mg/L	99
27) 2,4-DICHLOROPHENOL	6.50	162	195567	47.09 mg/L	100
28) 1,2,4'-Trichlorobenzene	6.59	180	198487	43.90 mg/L	100
29) Naphthalene`	6.66	128	737483	45.19 mg/L	93
30) 4-Chloroaniline	6.68	127	332194	42.16 mg/L	98
31) HEXACHLOROBUTADIENE`	6.78	225	103629	46.89 mg/L	99
32) 4-CHLORO-3-METHYLPHENOL	7.09	107	222010	50.69 mg/L	99
33) 2-Methylnaphthalene	7.31	142	464940	47.90 mg/L	100
35) Hexachlorocyclopentadiene	7.53	237	32781	21.69 mg/L	99
36) 2,4,6-TRICHLOROPHENOL	7.61	97	71450	48.25 mg/L	99
37) 2,4,5-trichlorophenol	7.66	97	62164	48.67 mg/L	96
39) 2-Chloronaphthalene	7.86	162	381979	43.74 mg/L	99
40) 2-Nitroaniline	7.95	65	129313	47.58 mg/L	99
41) 3-Nitroaniline	8.45	138	74421	28.52 mg/L	98
42) 4-Nitroaniline	9.30	138	88478	41.26 mg/L	85
43) Dimethylphthalate	8.13	163	493114	46.37 mg/L	100
44) 2,6-Dinitrotoluene	8.26	165	124403	46.96 mg/L	88
45) Acenaphthylene	8.37	152	638177	44.44 mg/L	100
46) ACENAPHTHENE	8.59	154	412678	48.14 mg/L	99
47) 2,4-Dinitrophenol	8.57	184	54407	50.00 mg/L	98
48) 4-nitrophenol	8.57	139	94672	56.98 mg/L	100
49) 2,4-Dinitrotoluene	8.77	165	154336	49.96 mg/L	97
50) Dibenzofuran	8.79	168	549942	47.08 mg/L	100
51) Diethylphthalate	9.03	149	512525	50.15 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.20	204	228410	48.07 mg/L	99
53) Fluorene	9.28	166	428447	45.66 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.35	198	86227	43.07 mg/L #	65
57) N-NITROSODI-N-PHENYLAMINE	9.37	169	366401	20.72 mg/L	99
58) 4-bromophenyl phenyl ether	9.95	248	123274	42.19 mg/L	98
59) Hexachlorobenzene	10.26	142	50309	42.23 mg/L	93
60) PENTACHLOROPHENOL	10.52	266	75861	44.54 mg/L #	100
61) Phenanthrene	10.83	178	582233	41.24 mg/L	100
62) Anthracene	10.90	178	602180	40.88 mg/L	100
63) Carbazole	11.14	167	361561	30.69 mg/L	100
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.72	149	917488	44.12 mg/L	100
66) FLUORANTHENE	13.08	202	629882	43.32 mg/L	99
68) Benzidine	13.24	184	31569	6.65 mg/L	98
69) Pyrene	13.55	202	622795	45.56 mg/L	100
71) Butylbenzylphthalate	14.78	149	381151	48.23 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031201\03120127.D
Acq On : 2 Dec 2003 12:27 am
Sample : LCSD 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:38 2003

Vial: 27
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	15.93	252	124128	37.38 mg/L	99
73) Bis(2-ethylhexyl)phthalate	15.97	149	544269	48.46 mg/L	100
74) Benzo[a]anthracene	16.04	228	501381	45.89 mg/L	98
75) Chrysene	16.15	228	462619	47.01 mg/L	100
77) DI-N-OCTYLPHTHALATE	17.34	149	910779	89.05 mg/L	99
78) Benzo[b]fluoranthene	18.70	252	371644	69.03 mg/L	97
79) Benzo[k]fluoranthene	18.77	252	386933	83.13 mg/L	96
80) BENZO[A]PYRENE	19.69	252	319164	72.56 mg/L	100
81) Indeno(1,2,3-c,d)pyrene	23.94	276	242180	62.65 mg/L #	100
82) Dibenzo[a,h]anthracene	23.94	278	214204	65.52 mg/L	98
83) Benzo[g,h,i]perylene	25.15	276	173547	56.75 mg/L	99

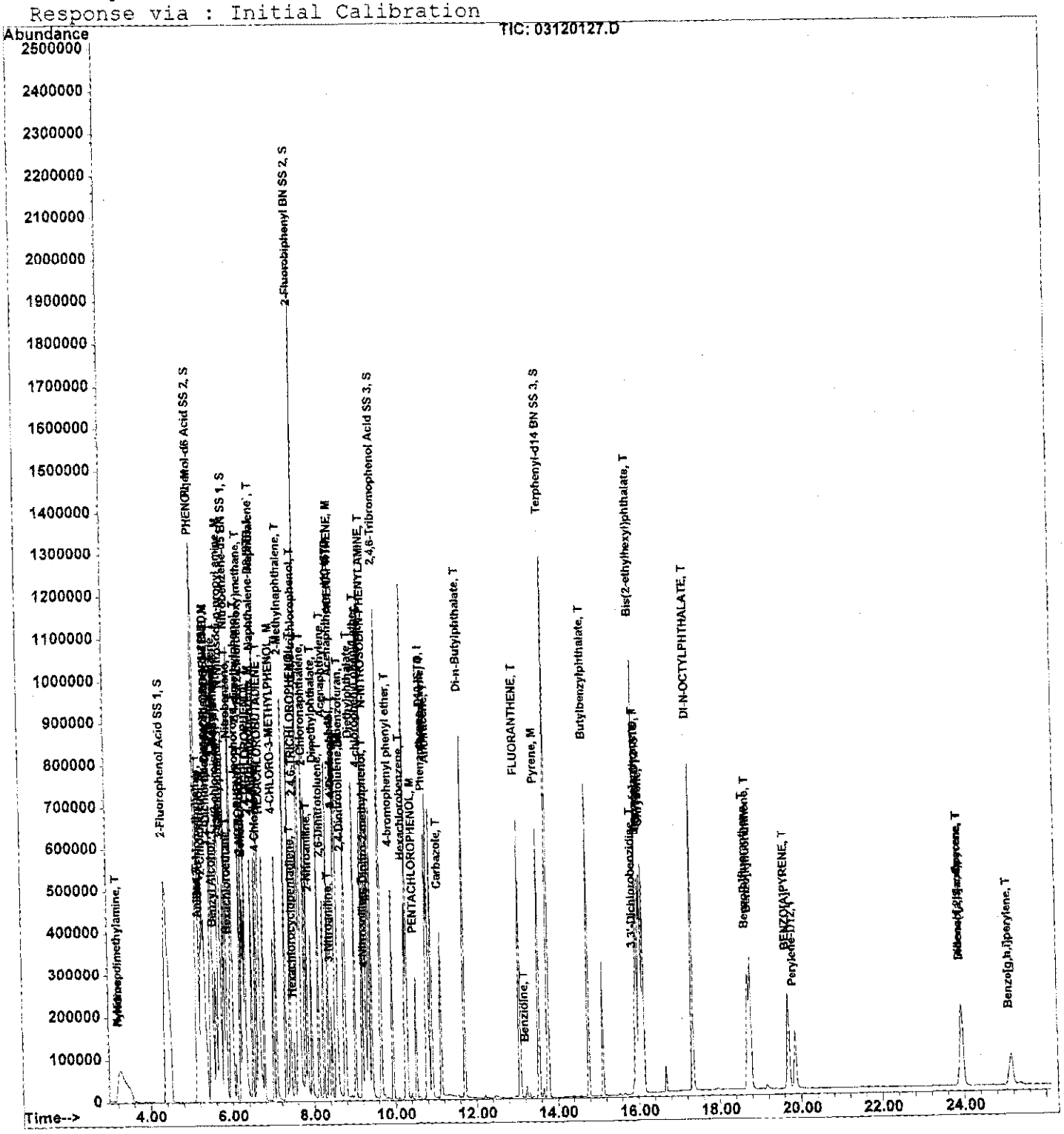
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031201\03120127.D
Acq On : 2 Dec 2003 12:27 am
Sample : LCSD 30C
Misc : E: 12-1-03 10uL #187; 100uL 188, 146
MS Integration Params: rteint.p
Quant Time: Dec 2 10:38 2003

Vial: 27
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



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OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANIC COMPOUNDS INSTRUMENT AND PERFORMANCE CHECK DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

ANALYSIS:	**GC/MS Semi-Volatiles**	**LAB CODE:**	**DFTPPW**
METHOD NO.:	**EPA 8270**	**LAB SAMPLE ID:**	**DFTPP Tune**
LAB FILE ID:	**03112401.D**	**DATE/TIME ANALYZED:**	**11/24/03 12:42**

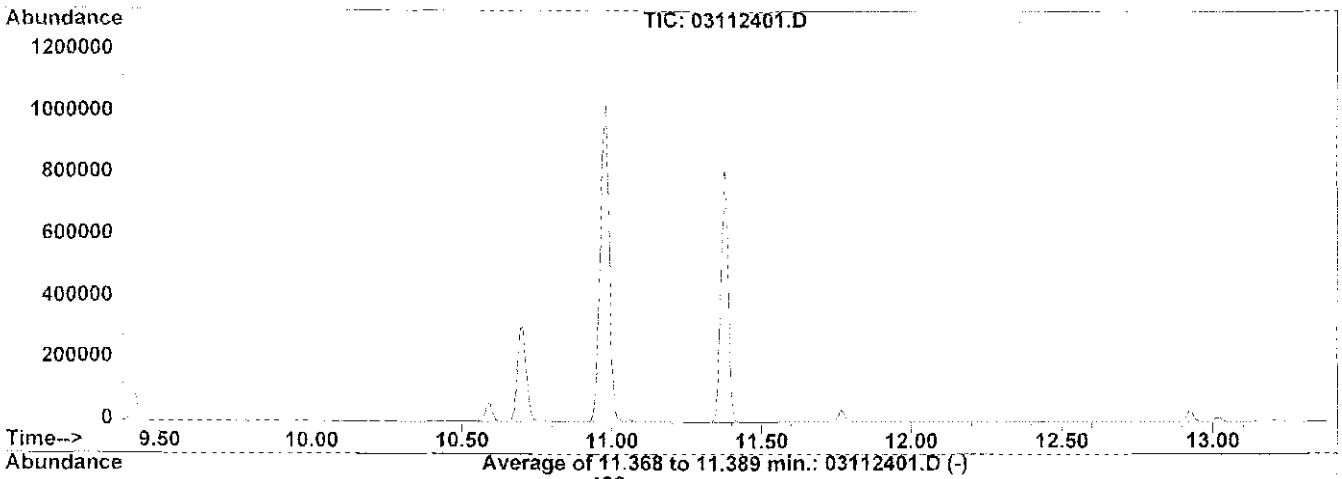
Target Mass	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	39.9
68	0 - 2.0% of mass 69	0.0
69	0 - 100.0% of mass 198	51.5
70	0 - 2.0% of mass 69	0.3
127	40.0 - 60.0% of mass 198	45.6
197	0 - 1.0% of mass 198	0.0
198	100% of mass 198	100.0
199	5.0 - 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	21.2
365	1.0 - 100.0% of mass 198	1.9
441	Present but less than mass 443	75.4
442	40.0 - 100.0% of mass 198	68.8
443	17.0 - 23.0% of mass 442	19.3

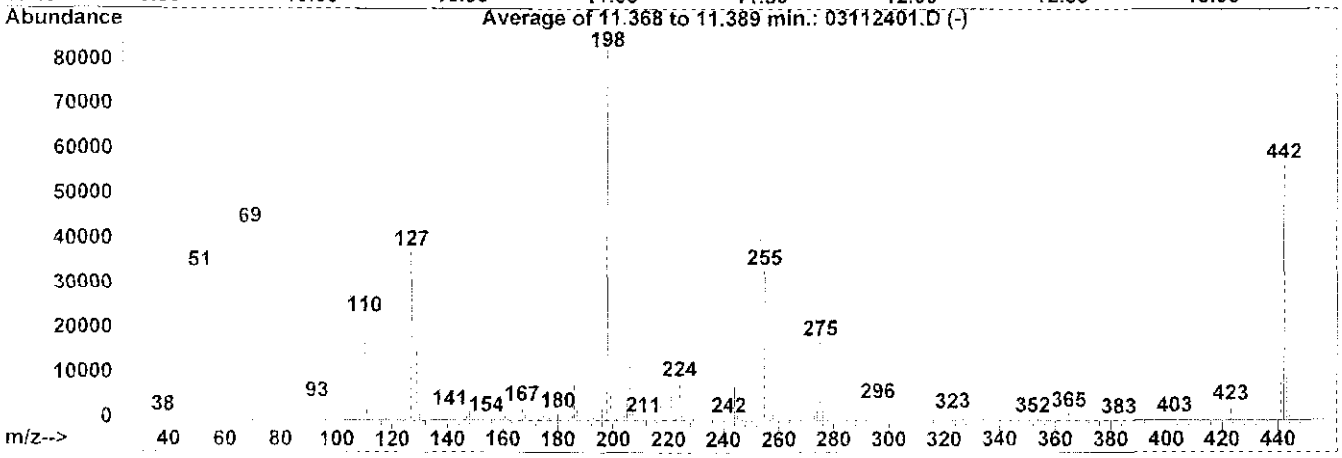
This Tune applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB 22 Water	03111913-08	03112405.D	11/24/03 14:59
SB 24 Water	03111913-12	03112406.D	11/24/03 15:33
SB 25 Water	03111913-16	03112407.D	11/24/03 16:07
SB 23 Water	03111913-20	03112408.D	11/24/03 16:41
SB 30 Water	03111913-23	03112409.D	11/24/03 17:16
SB 31 Water	03111913-26	03112410.D	11/24/03 17:50

DFTPP

Data File : C:\HPCHEM\1\DATA\031124\03112401.D Vial: 1
Acq On : 24 Nov 2003 12:42 pm Operator: DJP
Sample : ULTRA Tune Solution @50ppm Inst : SVOC GC/M
Misc : 10-08-03 DJP A142 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M





AutoFind: Scans 801, 802, 803; Background Corrected with Scan 795

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	39.9	33011	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	51.5	42643	PASS
70	69	0.00	2	0.3	141	PASS
127	198	40	60	45.6	37715	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	82776	PASS
199	198	5	9	6.7	5512	PASS
275	198	10	30	21.2	17515	PASS
365	198	1	100	1.9	1538	PASS
441	443	0.01	100	75.4	8276	PASS
442	198	40	100	68.8	56936	PASS
443	442	17	23	19.3	10975	PASS

03112401.D HPBNAN.M Mon Nov 24 14:45:17 2003

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SEMI-VOLATILE ORGANIC COMPOUNDS INSTRUMENT AND PERFORMANCE CHECK DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

ANALYSIS:	**GC/MS Semi-Volatiles**	**LAB CODE:**	**DFTPPS**
METHOD NO.:	**EPA 8270**	**LAB SAMPLE ID:**	**DFTPP Tune**
LAB FILE ID:	**03120110.D**	**DATE/TIME ANALYZED:**	**12/1/03 15:25**

Target Mass	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	38.1
68	0 - 2.0% of mass 69	0.2
69	0 - 100.0% of mass 198	50.0
70	0 - 2.0% of mass 69	0.3
127	40.0 - 60.0% of mass 198	44.7
197	0 - 1.0% of mass 198	0.0
198	100% of mass 198	100.0
199	5.0 - 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	21.6
365	1.0 - 100.0% of mass 198	2.0
441	Present but less than mass 443	77.1
442	40.0 - 100.0% of mass 198	73.0
443	17.0 - 23.0% of mass 442	19.4

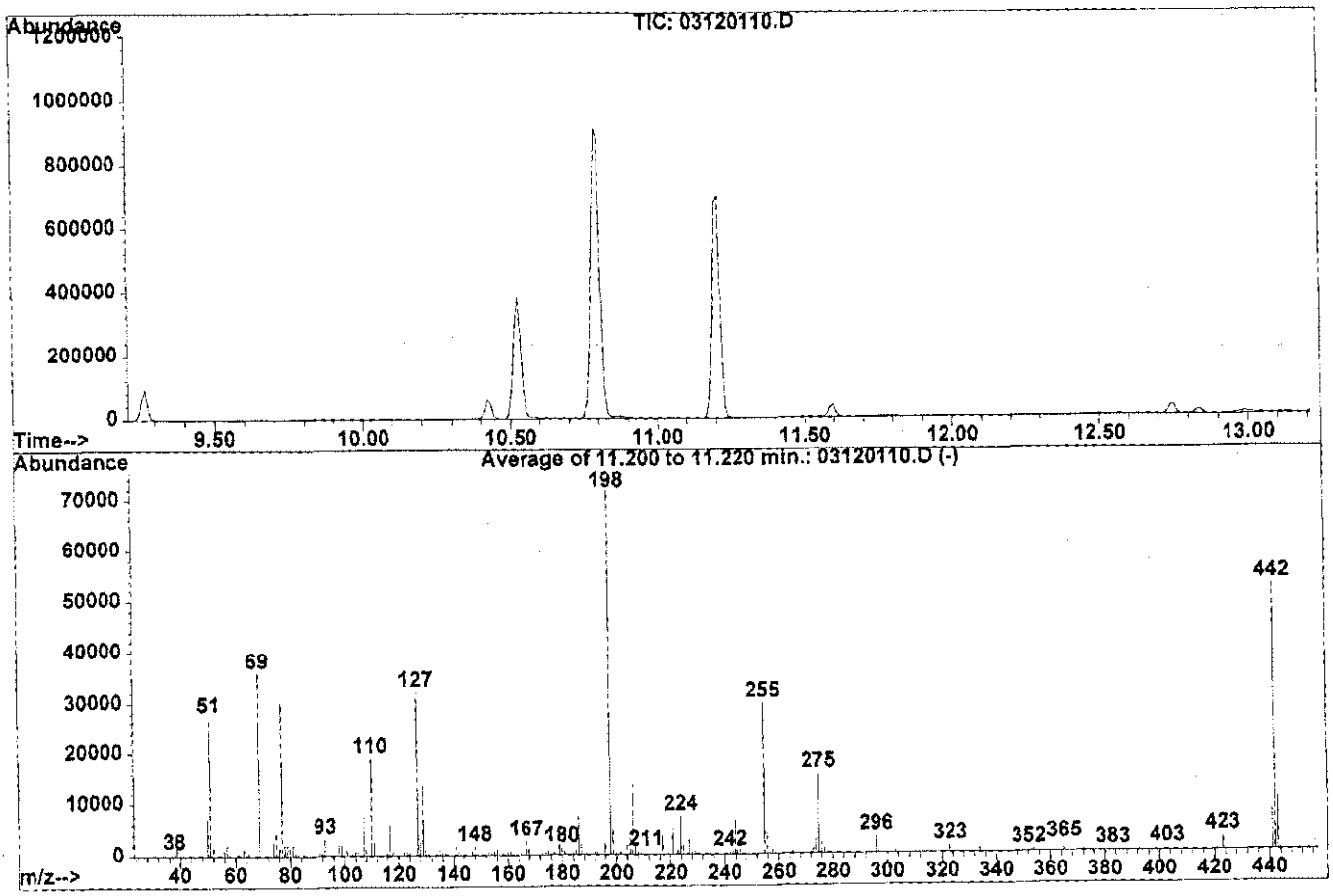
This Tune applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-22-05	03111913-06	03120114.D	12/1/03 17:29
SB-22-10	03111913-07	03120115.D	12/1/03 18:01
SB-24-05	03111913-10	03120116.D	12/1/03 18:33
SB-24-10	03111913-11	03120117.D	12/1/03 19:05
SB-25-05	03111913-14	03120118.D	12/1/03 19:37
SB-25-10	03111913-15	03120119.D	12/1/03 20:09
SB-23-05	03111913-18	03120120.D	12/1/03 20:41
SB-23-10	03111913-19	03120121.D	12/1/03 21:14
SB-30-05	03111913-22	03120122.D	12/1/03 21:46
SB-31-05	03111913-25	03120123.D	12/1/03 22:18

DFTPP

Data File : C:\HPCHEM\1\DATA\031201\03120110.D
Acq On : 1 Dec 2003 3:25 pm
Sample : ULTRA Tune Solution @50ppm
Misc : 10-8-03 DJP A142
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M

Vial: 10
Operator: DJP
Inst : SVOC GC/M
Multiplr: 1.00



AutoFind: Scans 804, 805, 806; Background Corrected with Scan 798

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	38.1	27332	PASS
68	69	0.00	2	0.2	60	PASS
69	198	0.00	100	50.0	35839	PASS
70	69	0.00	2	0.3	123	PASS
127	198	40	60	44.7	32077	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	71741	PASS
199	198	5	9	6.7	4783	PASS
275	198	10	30	21.6	15516	PASS
365	198	1	100	2.0	1425	PASS
441	443	0.01	100	77.1	7827	PASS
442	198	40	100	73.0	52389	PASS
443	442	17	23	19.4	10157	PASS

03120110.D HPBNAN.M Thu Dec 04 16:25:53 2003

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Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Pugeable Aromatics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS/LCSD Summary*

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PURGEABLE AROMATICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: **BTEX** **LAB CODE: SURR**

METHOD NO.: **EPA 8021**

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/20/03 09:14	SB 9 Water	86	
11/20/03 09:46	SB 10 Water	84	

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

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SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: **BTEX** **LAB CODE: SURR**

METHOD NO.: **EPA 8021**

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/20/03 19:41	SB-9-05	94	
11/20/03 20:15	SB-10-05	96	

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

1 3003

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PURGEABLE AROMATICS
METHOD BLANK SUMMARY

ANALYSIS:	**BTEX**	**LAB CODE:**	**MBW**
METHOD NO.:	**EPA 8021**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03111929.D**	**DATE/TIME ANALYZED:**	**11/20/03 02:15**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

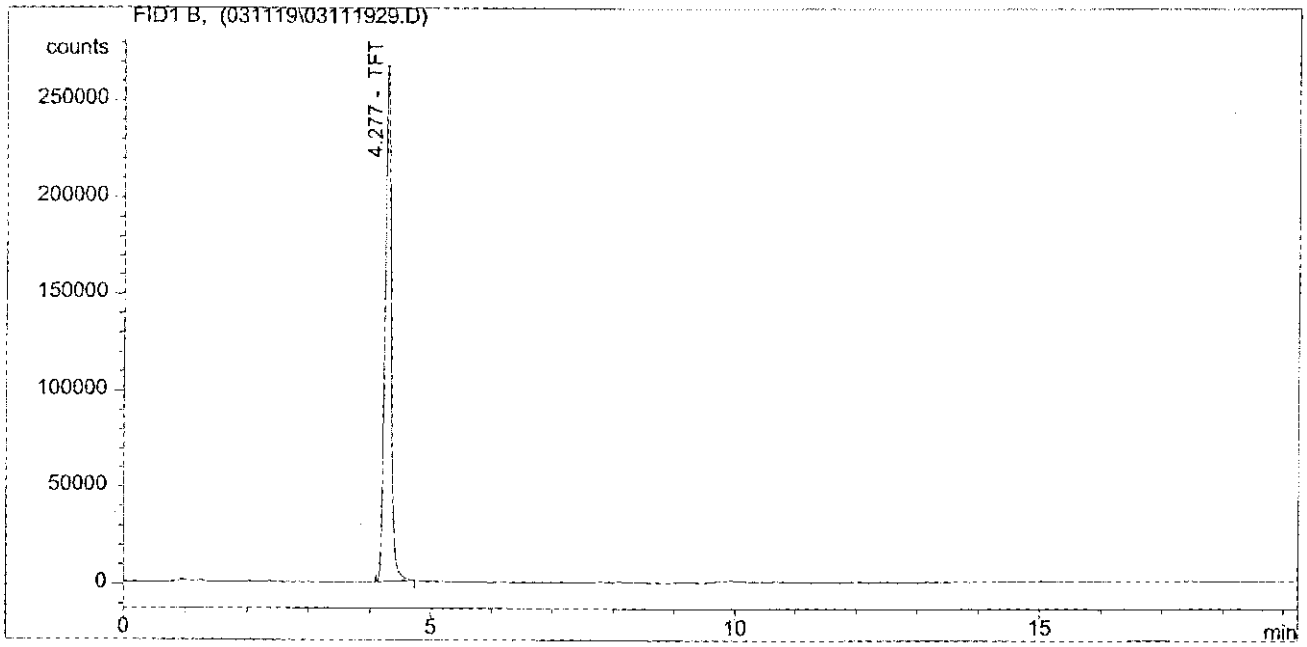
Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB 9 Water	03111913-29	2\03111942.D	11/20/03 09:14
SB 10 Water	03111913-32	2\03111943.D	11/20/03 09:46

1 3004

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031119\03111929.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BLANK
Acquired On: 11/20/03 2:15:12 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	0.000	0.000	1.686	0.000
Benzene	0.000	0.000	3.020	0.000
TFT	81.887	1.894e6	4.272	4.277
Toluene	0.000	0.000	6.170	0.000
Ethyl Benzene	0.000	0.000	7.871	0.000
M+P Xylene	0.000	0.000	8.065	0.000
Ortho Xylene	0.000	0.000	8.374	0.000
Naphthalene	0.000	0.000	11.352	0.000

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PURGEABLE AROMATICS
METHOD BLANK SUMMARY

ANALYSIS:	**BTEX**	**LAB CODE:**	**MBS**
METHOD NO.:	**EPA 8021**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03112005.D**	**DATE/TIME ANALYZED:**	**11/20/03 12:30**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-9-05	03111913-28	1\03112017.D	11/20/03 19:41
SB-10-05	03111913-31	1\03112018.D	11/20/03 20:15

1 3006

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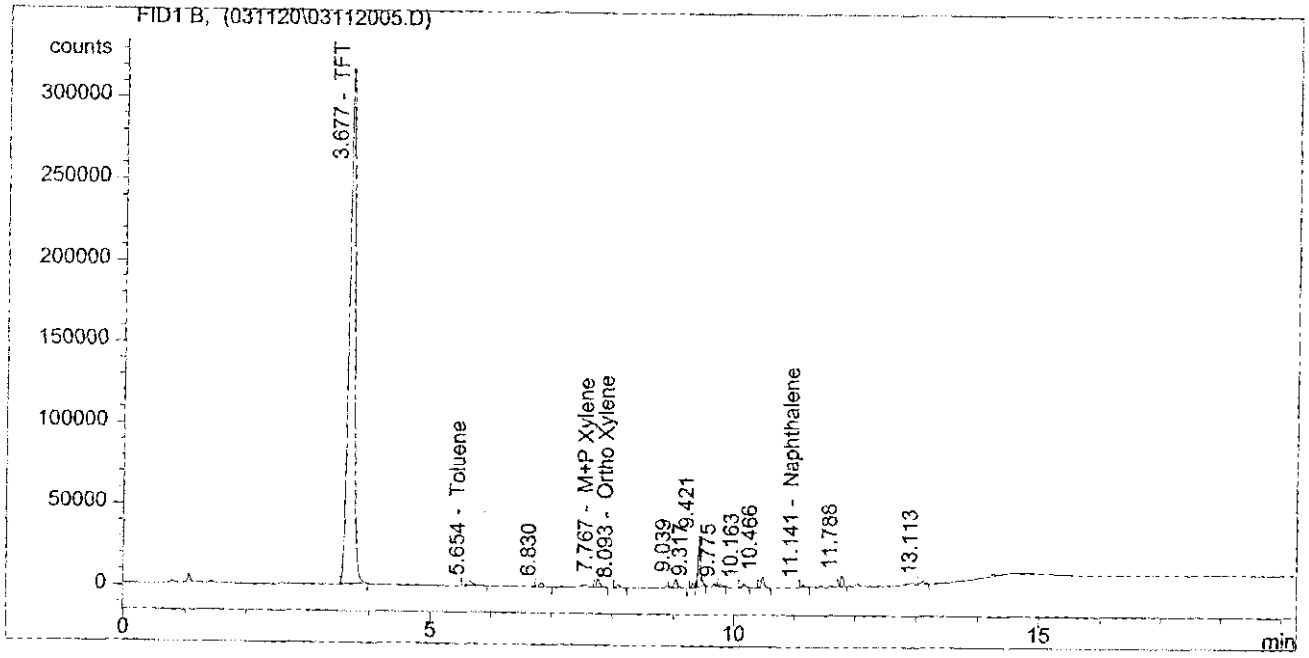
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031120\03112005.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BLANK
Acquired On: 11/20/03 12:30:59 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	0.000	0.000	1.480	0.000
Benzene	0.000	0.000	2.633	0.000
TFT	96.759	2.101e6	3.719	3.677
Toluene	0.369	1.735e4	5.702	5.654
Ethyl Benzene	0.000	0.000	7.584	0.000
M+P Xylene	0.430	1.935e4	7.793	7.767
Ortho Xylene	0.156	6.246e3	8.109	8.093
Naphthalene	0.196	6.375e3	11.127	11.141

 1 3007

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PURGEABLE AROMATICS
CONTINUING CALIBRATION VERIFICATION SUMMARY

LAB FILE ID: 2\03111925.D

DATE ANALYZED: 11/20/03 12:05

MATRIX: Water

COMPOUND/DISTILLATE	STD REF CONC	STD REC CONC	STD REC (%)	#	QC LIMITS (%)
MTBE	20	17.85	89		85-115
Benzene	20	17.68	88		85-115
Toluene	20	17.83	89		85-115
Ethyl benzene	20	17.96	90		85-115
Xylene, m&p	40	37.05	93		85-115
Xylene, ortho	20	18.26	91		85-115
Naphthalene	20	19.76	99		85-115

1 3008

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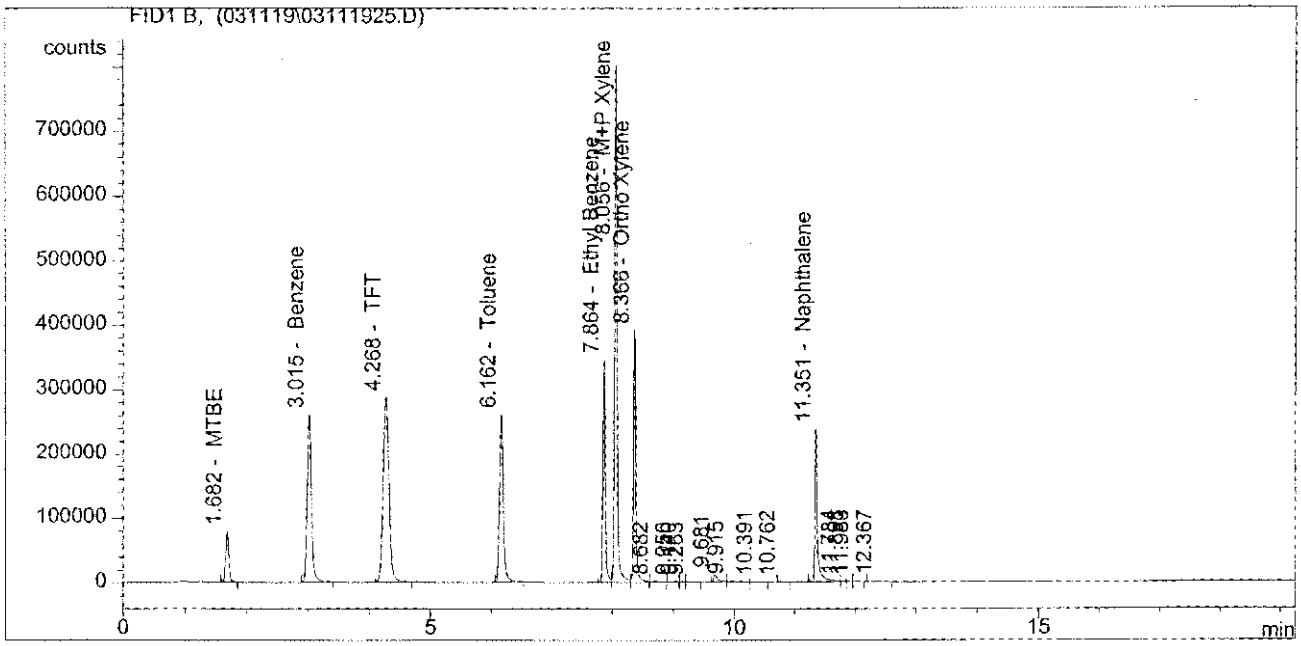
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031119\03111925.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BTEXNM
Acquired On: 11/20/03 12:05:45 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
8ul 246/40ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	17.847	2.811e5	1.686	1.682
Benzene	17.681	1.227e6	3.020	3.015
TFT	83.860	1.940e6	4.272	4.268
Toluene	17.826	1.142e6	6.170	6.162
Ethyl Benzene	17.960	9.736e5	7.871	7.864
M+P Xylene	37.048	2.320e6	8.065	8.056
Ortho Xylene	18.259	1.038e6	8.374	8.366
Naphthalene	19.758	6.806e5	11.352	11.351

1 3009

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PURGEABLE AROMATICS
CONTINUING CALIBRATION VERIFICATION SUMMARY

LAB FILE ID: 1\03112001.D

DATE ANALYZED: 11/20/03 10:12

MATRIX: Water

COMPOUND/DISTILLATE	STD REF CONC	STD REC CONC	STD REC (%)	#	QC LIMITS (%)
MTBE	20	20.91	105		85-115
Benzene	20	20.70	104		85-115
Toluene	20	18.18	91		85-115
Ethyl benzene	20	19.04	95		85-115
Xylene, m&p	40	37.60	94		85-115
Xylene, ortho	20	18.91	95		85-115
Naphthalene	20	18.73	94		85-115

1 3010

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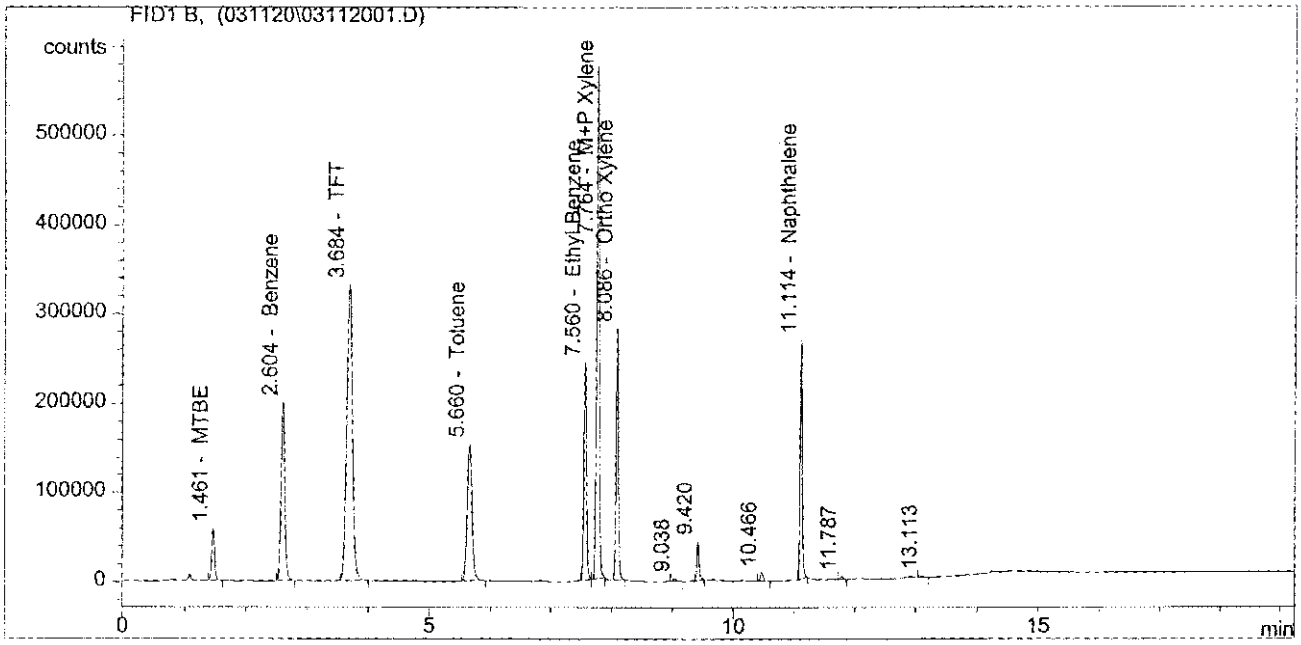
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031120\03112001.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BTEXNM
Acquired On: 11/20/03 10:12:01 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
1ul 246/5ml=20ppb



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	20.910	1.960e5	1.480	1.461
Benzene	20.704	8.503e5	2.633	2.604
TFT	99.092	2.152e6	3.719	3.684
Toluene	18.178	8.552e5	5.702	5.660
Ethyl Benzene	19.041	7.250e5	7.584	7.560
M+P Xylene	37.595	1.691e6	7.793	7.764
Ortho Xylene	18.912	7.575e5	8.109	8.086
Naphthalene	18.734	6.106e5	11.127	11.114

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PURGEABLE AROMATICS
MATRIX SPIKE SUMMARY

LAB FILE ID: 1\03112019.D & 1\03112020.D

DATE ANALYZED: 11/20/03

MATRIX: Soil

Sample ID: 03111925-01 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%) #	QC LIMITS (%)
MTBE	50	9	54	90	70-130
Benzene	50	1	43	84	70-130
Toluene	50	13	48	70	70-130
Ethyl benzene	50	9	48	78	70-130
Xylene, m&p	100	22	97	75	70-130
Xylene, ortho	50	15	56	82	70-130
Naphthalene	50	41	131	179 *	70-130

Lab Sample ID: 03111925-01 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
MTBE	50	9	53	89	1.0	15	70-130
Benzene	50	1	42	81	3.9	15	70-130
Toluene	50	13	42	57 *	14.9	15	70-130
Ethyl benzene	50	9	40	64 *	16.3	15	70-130
Xylene, m&p	100	22	85	63 *	13.1	15	70-130
Xylene, ortho	50	15	47	64 *	17.3	15	70-130
Naphthalene	50	41	57	30 *	79.3	15	70-130

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*

1 3012

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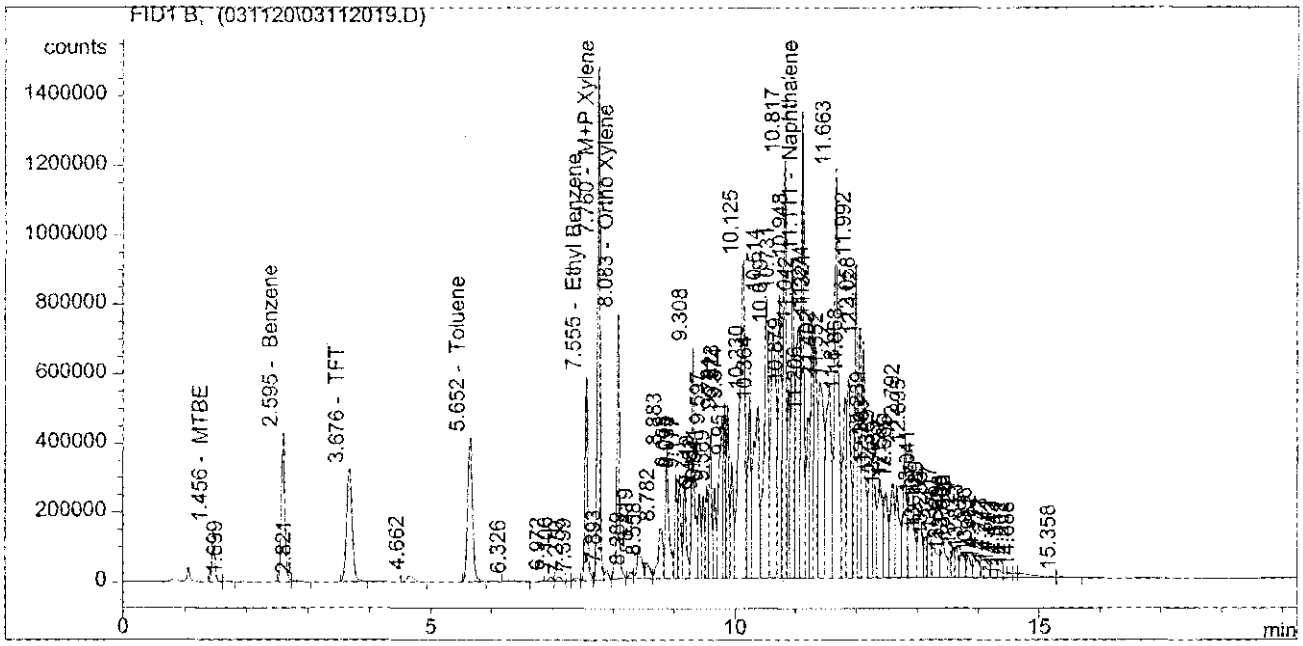
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031120\03112019.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: 03111925-1 MS
Acquired On: 11/20/03 8:49:28 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.04g
BTEXNM MS:2.5ul 246/5ml=50ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	53.888	5.052e5	1.480	1.456
Benzene	43.427	1.783e6	2.633	2.595
TFT	94.342	2.049e6	3.719	3.676
Toluene	48.386	2.276e6	5.702	5.652
Ethyl Benzene	47.644	1.814e6	7.584	7.555
M+P Xylene	96.665	4.348e6	7.793	7.760
Ortho Xylene	55.536	2.224e6	8.109	8.083
Naphthalene	130.901	4.267e6	11.127	11.111

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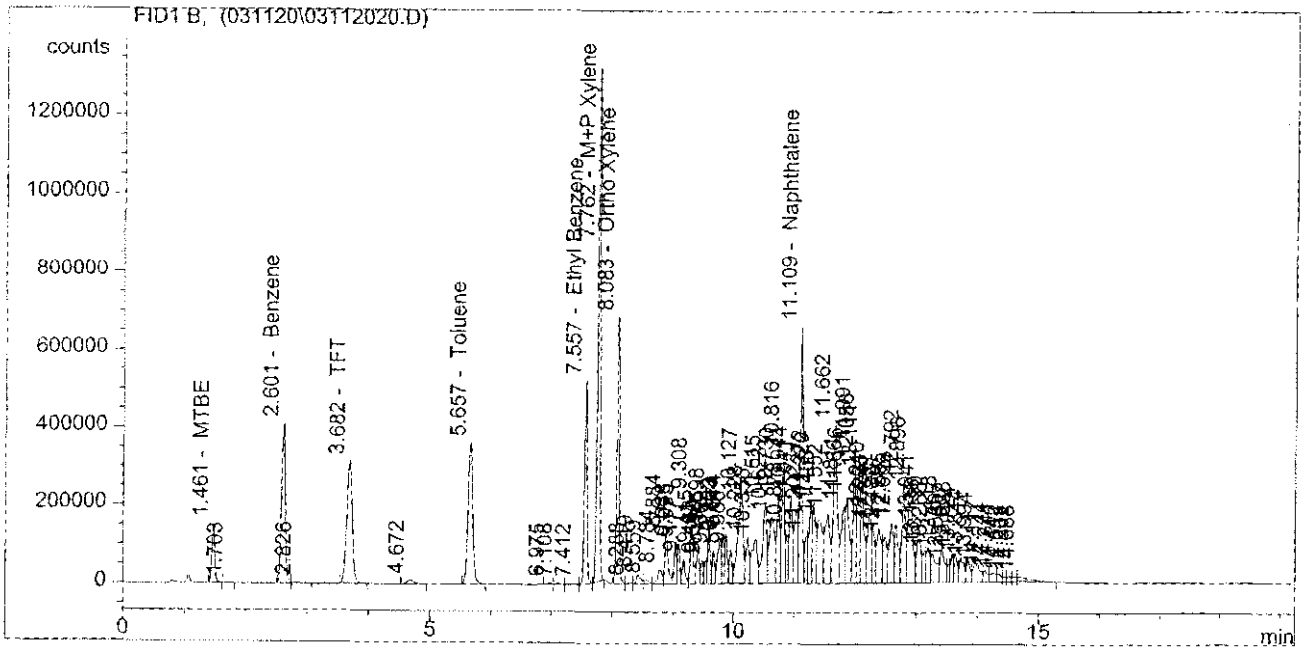
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031120\03112020.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: 03111925-1 MSD
Acquired On: 11/20/03 9:23:24 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.02g
BTEXNM MS:2.5ul 246/5ml=50ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	53.329	4.999e5	1.480	1.461
Benzene	41.785	1.716e6	2.633	2.601
TFT	90.459	1.965e6	3.719	3.682
Toluene	41.666	1.960e6	5.702	5.657
Ethyl Benzene	40.464	1.541e6	7.584	7.557
M+P Xylene	84.804	3.814e6	7.793	7.762
Ortho Xylene	46.699	1.870e6	8.109	8.083
Naphthalene	56.563	1.844e6	11.127	11.109

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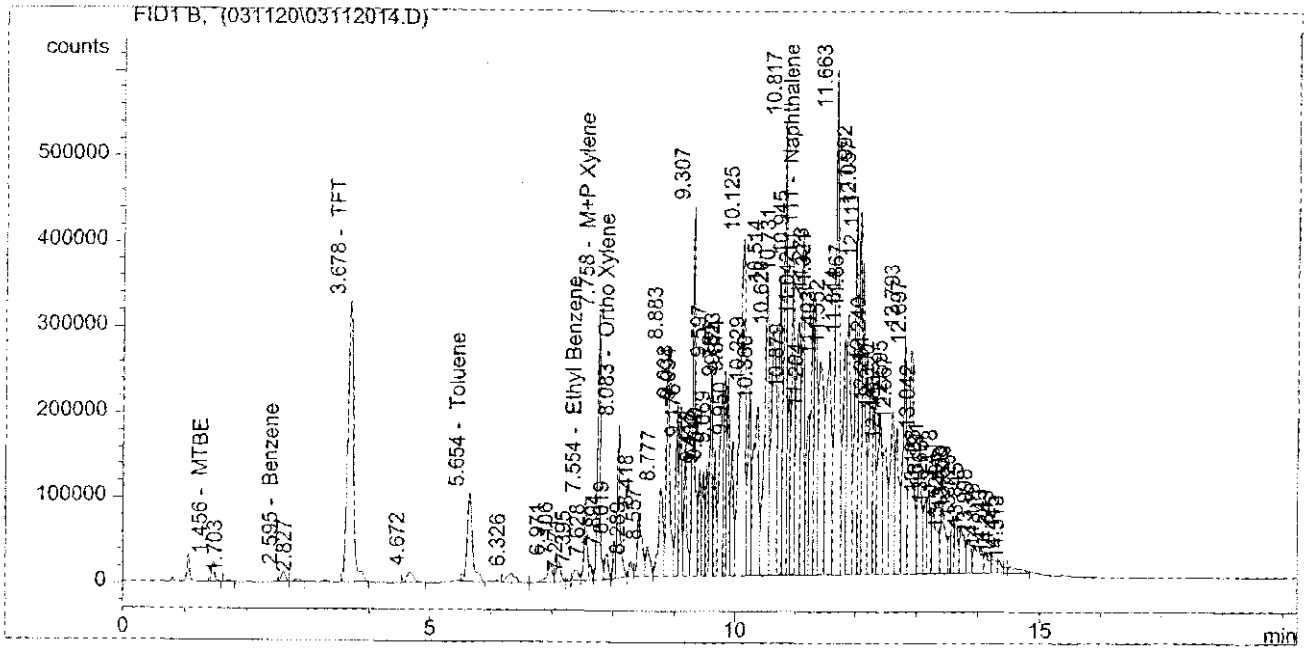
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031120\03112014.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: 03111925-1 5.01
Acquired On: 11/20/03 6:00:11 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	8.814	8.262e4	1.480	1.456
Benzene	1.228	5.043e4	2.633	2.595
TFT	98.619	2.142e6	3.719	3.678
Toluene	13.369	6.289e5	5.702	5.654
Ethyl Benzene	8.646	3.292e5	7.584	7.554
M+P Xylene	21.841	9.824e5	7.793	7.758
Ortho Xylene	14.512	5.812e5	8.109	8.083
Naphthalene	41.452	1.351e6	11.127	11.111

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PURGEABLE AROMATICS
LCS & LCS DUPLICATE SUMMARY

LAB FILE ID: 2\03111946 & 2\03111947

DATE ANALYZED: 11/20/03

MATRIX: Water

Sample ID: LCS Water 11-19-03

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	QC LIMITS (%)
MTBE	20	ND	18	89	70-130
Benzene	20	ND	18	88	70-130
Toluene	20	ND	18	91	70-130
Ethyl benzene	20	ND	19	93	70-130
Xylene, m&p	40	ND	38	94	70-130
Xylene, ortho	20	ND	19	93	70-130
Naphthalene	20	ND	20	98	70-130

Lab Sample ID: LCSD Water 11-19-03

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
MTBE	20	ND	18	90	0.3	15	70-130
Benzene	20	ND	18	89	0.8	15	70-130
Toluene	20	ND	18	89	1.8	15	70-130
Ethyl benzene	20	ND	18	90	3.1	15	70-130
Xylene, m&p	40	ND	37	93	1.8	15	70-130
Xylene, ortho	20	ND	18	91	1.2	15	70-130
Naphthalene	20	ND	20	102	3.3	15	70-130

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*

1 3016

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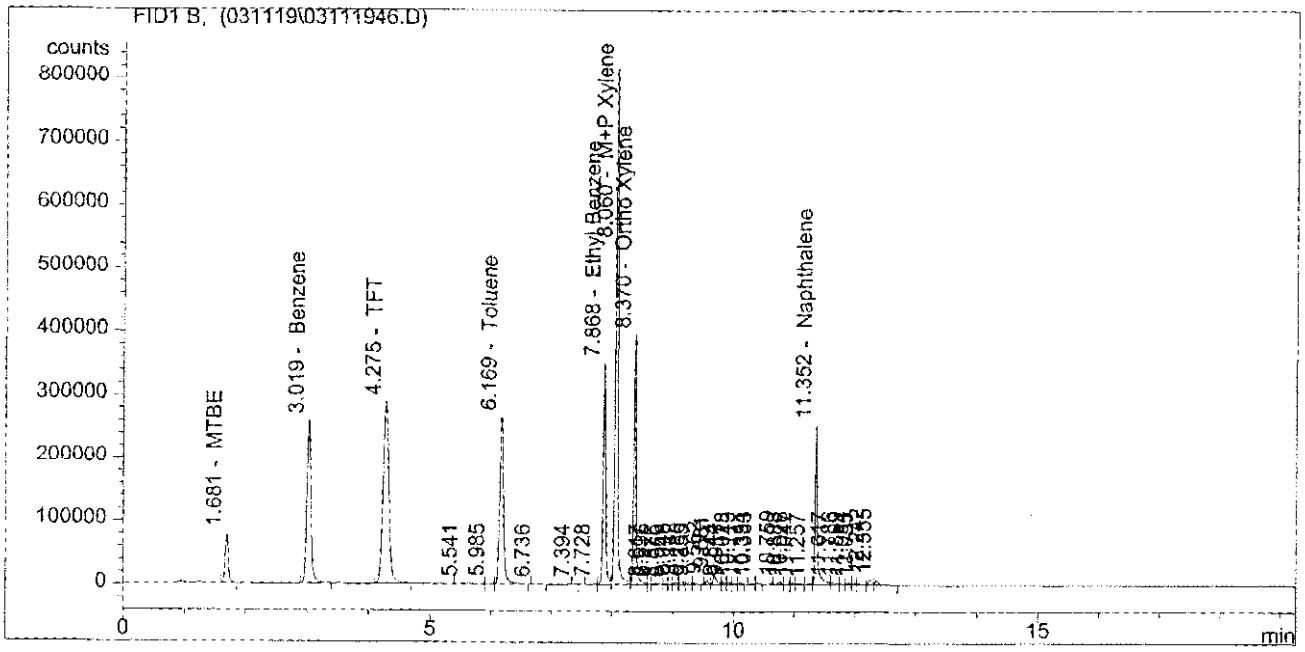
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031119\03111946.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BTEXNM
Acquired On: 11/20/03 11:23:52 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
8ul 246/40ml=20ppb

->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	17.847	2.811e5	1.686	1.681
Benzene	17.569	1.219e6	3.020	3.019
TFT	84.018	1.943e6	4.272	4.275
Toluene	18.188	1.165e6	6.170	6.169
Ethyl Benzene	18.550	1.006e6	7.871	7.868
M+P Xylene	37.691	2.360e6	8.065	8.060
Ortho Xylene	18.503	1.052e6	8.374	8.370
Naphthalene	19.693	6.784e5	11.352	11.352

1 3017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031119\03111947.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BTEXNM
Acquired On: 11/20/03 11:56:09 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
8ul 246/40ml=20ppb

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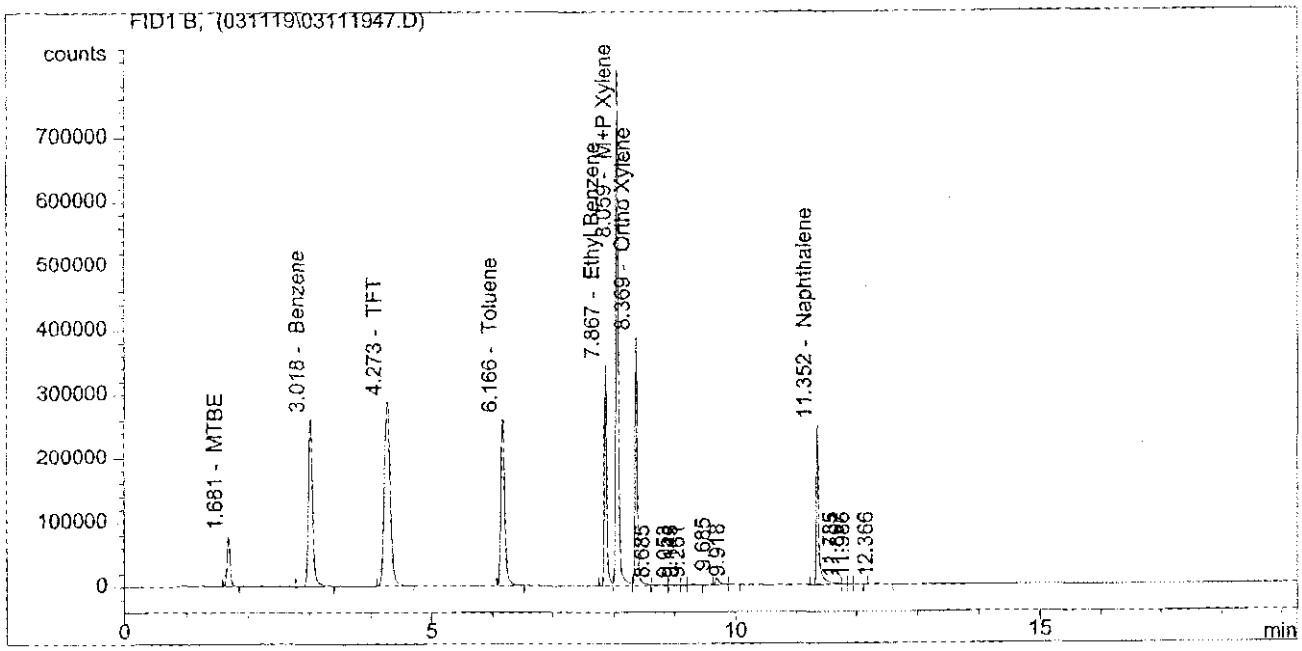

COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	17.904	2.820e5	1.686	1.681
Benzene	17.710	1.229e6	3.020	3.018
TFT	84.090	1.945e6	4.272	4.273
Toluene	17.864	1.144e6	6.170	6.166
Ethyl Benzene	17.988	9.752e5	7.871	7.867
M+P Xylene	37.037	2.319e6	8.065	8.059
Ortho Xylene	18.286	1.040e6	8.374	8.369
Naphthalene	20.360	7.014e5	11.352	11.352

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PURGEABLE AROMATICS
LABORATORY CONTROL SAMPLE SUMMARY

LAB FILE ID: 1\03112023.D

DATE ANALYZED: 11/20/03

MATRIX: Soil

Sample ID: LCS 20ppb

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%) #	QC LIMITS (%)
MTBE	20	19	94	70-130
Benzene	20	19	94	70-130
Toluene	20	19	94	70-130
Ethyl benzene	20	19	94	70-130
Xylene, m&p	40	39	98	70-130
Xylene, ortho	20	19	97	70-130
Naphthalene	20	20	99	70-130

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc)/(spike added)]*100*

1 3519

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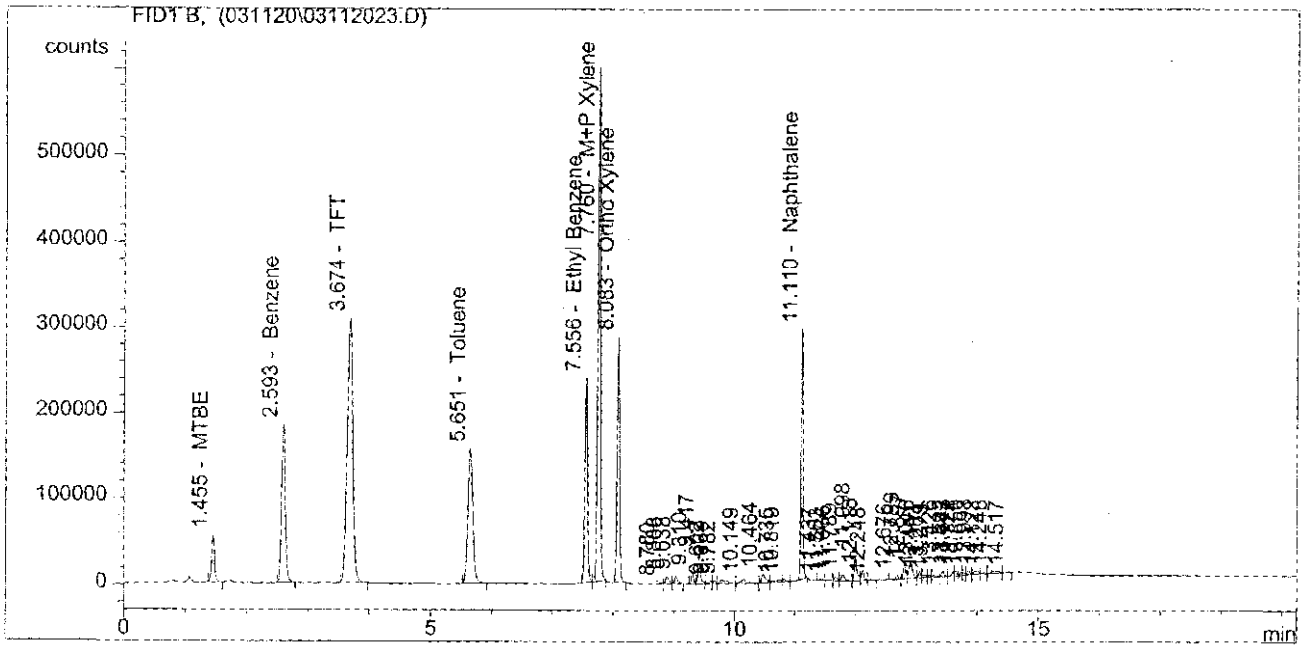
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031120\03112023.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BTEXNM
Acquired On: 11/20/03 11:05:05 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
1ul 246/5ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	19.856	1.861e5	1.480	1.455
Benzene	18.846	7.740e5	2.633	2.593
TFT	90.892	1.974e6	3.719	3.674
Toluene	18.754	8.823e5	5.702	5.651
Ethyl Benzene	18.779	7.151e5	7.584	7.556
M+P Xylene	39.055	1.757e6	7.793	7.760
Ortho Xylene	19.328	7.741e5	8.109	8.083
Naphthalene	19.862	6.474e5	11.127	11.110

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Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Polychlorinated Biphenyls

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*

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POLYCHLORINATED BYPHENYLS SYSTEM MONITORING COMPOUNDS (SURROGATES)

ANALYSIS: PCBs **LAB CODE:** SURR

METHOD NO.: EPA 8082

Date Analyzed	Sample ID	Lab ID	Lab File ID	SMC-1(DBC)#
11/24/03	SB 22 Water	03111913-08	031124\F3112404.D	81
11/24/03	SB 24 Water	03111913-12	031124\F3112405.D	90
11/24/03	SB 25 Water	03111913-16	031124\F3112406.D	63
11/24/03	SB 23 Water	03111913-20	031124\F3112407.D	105
11/24/03	SB 30 Water	03111913-23	031124\F3112408.D	94
11/24/03	SB 31 Water	03111913-26	031124\F3112409.D	119

Control Limits
50-150

SMC-1 (DBC): Dibutyl Chlorendate

Column used to flag recovery values
* = Values outside QC limits

1 4002

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POLYCHLORINATED BYPHENYLS SYSTEM MONITORING COMPOUNDS (SURROGATES)

ANALYSIS: PCBs **LAB CODE:** SURR

METHOD NO.: EPA 8082

Date Analyzed	Sample ID	Lab ID	Lab File ID	SMC-1(DBC)#
11/24/03	SB-22-05	03111913-06	031124\B3112404.D	98
11/24/03	SB-22-10	03111913-07	031124\B3112405.D	95
11/24/03	SB-24-05	03111913-10	031124\B3112406.D	100
11/24/03	SB-24-10	03111913-11	031124\B3112407.D	87
11/24/03	SB-25-05	03111913-14	031124\B3112408.D	103
11/24/03	SB-25-10	03111913-15	031124\B3112409.D	108
11/24/03	SB-23-05	03111913-18	031124\B3112410.D	106
11/24/03	SB-23-10	03111913-19	031124\B3112411.D	102
11/24/03	SB-30-05	03111913-22	031124\B3112412.D	101
11/24/03	SB-31-05	03111913-25	031124\B3112413.D	108

	Control Limits
SMC-1 (DBC): Dibutyl Chlorendate	50-150

Column used to flag recovery values
* = Values outside QC limits

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POLYCHLORINATED BIPHENYLS
METHOD BLANK SUMMARY

ANALYSIS:	**PCBs**	**LAB CODE:**	**MBW**
METHOD NO.:	**EPA 8082**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**031124\F3112403.D**	**DATE/TIME ANALYZED:**	**11/24/03**
MATRIX:	**Water**		

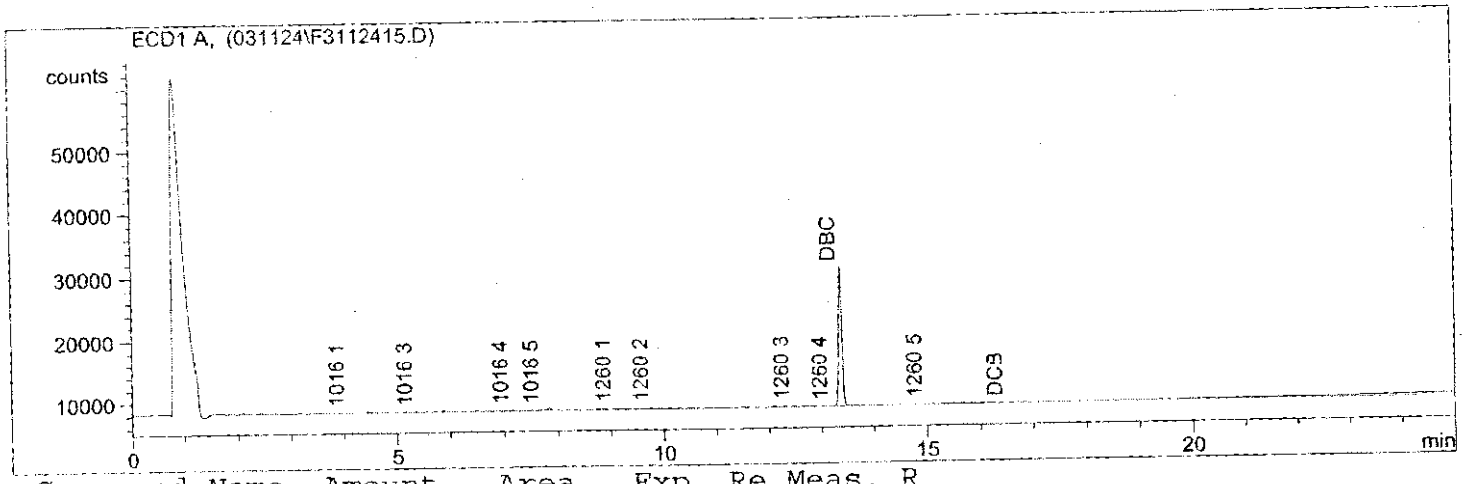
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
SB 22 Water	03111913-08	031124\F3112404.D	11/24/03
SB 24 Water	03111913-12	031124\F3112405.D	11/24/03
SB 25 Water	03111913-16	031124\F3112406.D	11/24/03
SB 23 Water	03111913-20	031124\F3112407.D	11/24/03
SB 30 Water	03111913-23	031124\F3112408.D	11/24/03
SB 31 Water	03111913-26	031124\F3112409.D	11/24/03

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\F3112415.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: MBLK Water
Sample Info: Ex. 11/21 100C
Acquired On: 11/24/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.416	0.000
1016 1	0.000	173.226	4.004	4.075
1016 2	0.000	0.000	4.590	0.000
1016 3	0.000	199.758	5.368	5.358
1016 4	0.000	297.466	7.150	7.148
1016 5	0.000	349.818	7.721	7.718
1260 1	0.000	1.476e3	9.078	9.075
1260 2	0.000	1.118e3	9.784	9.781
1260 3	0.000	1.823e3	12.379	12.450
1260 4	0.000	305.151	13.184	13.175
DBC	25.609	9.808e4	13.369	13.362
1260 5	0.000	201.841	15.072	14.984
DCB	0.000	284.035	16.529	16.490

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POLYCHLORINATED BIPHENYLS
METHOD BLANK SUMMARY

ANALYSIS:	**PCBs**	**LAB CODE:**	**MBS**
METHOD NO.:	**EPA 8082**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**031124\F3112412.D**	**DATE/TIME ANALYZED:**	**11/24/03**
MATRIX:	**Soil**		

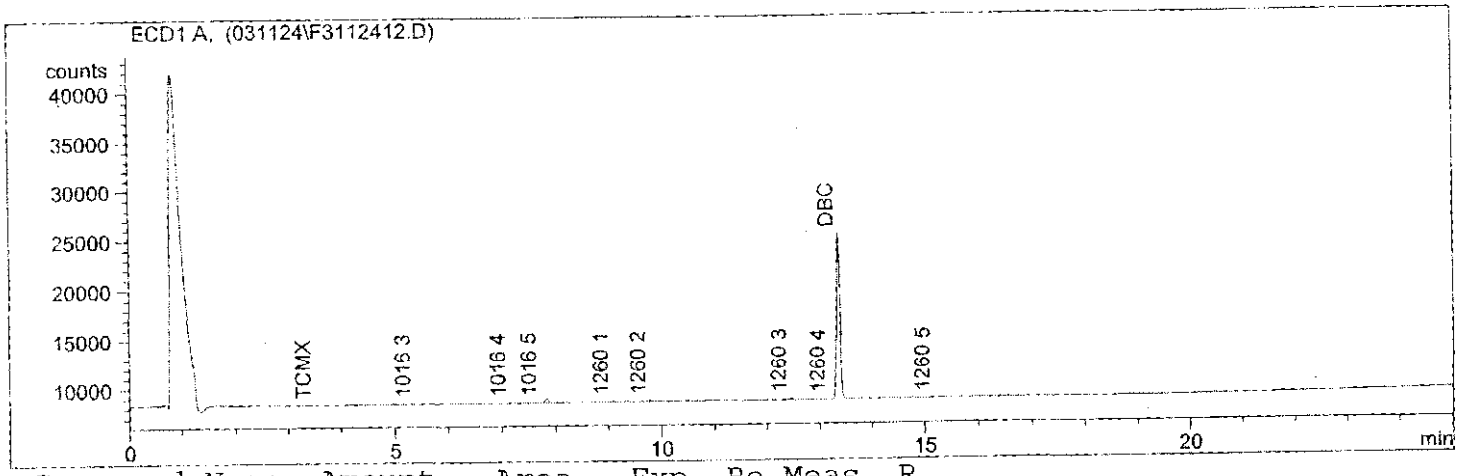
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
SB-22-05	03111913-06	031124\B3112404.D	11/24/03
SB-22-10	03111913-07	031124\B3112405.D	11/24/03
SB-24-05	03111913-10	031124\B3112406.D	11/24/03
SB-24-10	03111913-11	031124\B3112407.D	11/24/03
SB-25-05	03111913-14	031124\B3112408.D	11/24/03
SB-25-10	03111913-15	031124\B3112409.D	11/24/03
SB-23-05	03111913-18	031124\B3112410.D	11/24/03
SB-23-10	03111913-19	031124\B3112411.D	11/24/03
SB-30-05	03111913-22	031124\B3112412.D	11/24/03
SB-31-05	03111913-25	031124\B3112413.D	11/24/03

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\F3112412.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: MBLK Soil
Sample Info: Ex. 11/21 1C
Acquired On: 11/24/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.889	235.158	3.416	3.501
1016 1	0.000	0.000	4.004	0.000
1016 2	0.000	0.000	4.590	0.000
1016 3	0.000	32.239	5.368	5.365
1016 4	0.000	80.997	7.150	7.151
1016 5	0.000	78.890	7.721	7.721
1260 1	0.000	250.220	9.078	9.075
1260 2	0.000	304.798	9.784	9.782
1260 3	0.000	780.671	12.379	12.452
1260 4	0.000	131.993	13.184	13.182
DBC	19.398	7.430e4	13.369	13.363
1260 5	0.000	206.105	15.072	15.173
DCB	0.000	0.000	16.529	0.000

1 4007

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POLYCHLORINATED BYPHENYLS
CALIBRATION VERIFICATION SUMMARY

ANALYSIS: PCBs **DATE ANALYZED:** 11/24/03

METHOD NO.: EPA 8082 **LAB FILE ID:** 031124\F3112401.D

Front

Compound	Concentration	True Value	% Recovery	QC Limit
Aroclor 1016	136	150	91	85-115
Aroclor 1260	143	150	96	85-115

ANALYSIS: PCBs **DATE ANALYZED:** 12/24/03

METHOD NO.: EPA 8082 **LAB FILE ID:** 031124\B3112401.D

Rear

Compound	Concentration	True Value	% Recovery	QC Limit
Aroclor 1016	138	150	92	85-115
Aroclor 1260	141	150	94	85-115

CF - Calibration Factor

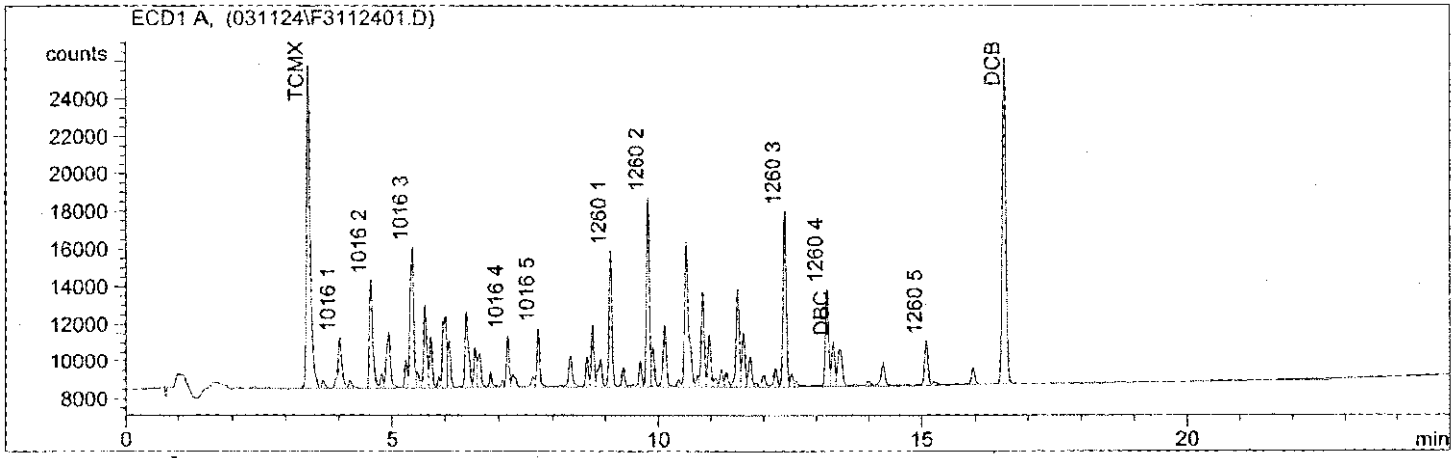
CF Calculation = [Peak Area or Area of Peaks / Concentration] x 0.001

1 4008

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\F3112401.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: 1016/1260 150ppb
Sample Info:
Acquired On: 11/24/03
Analyst: DJP

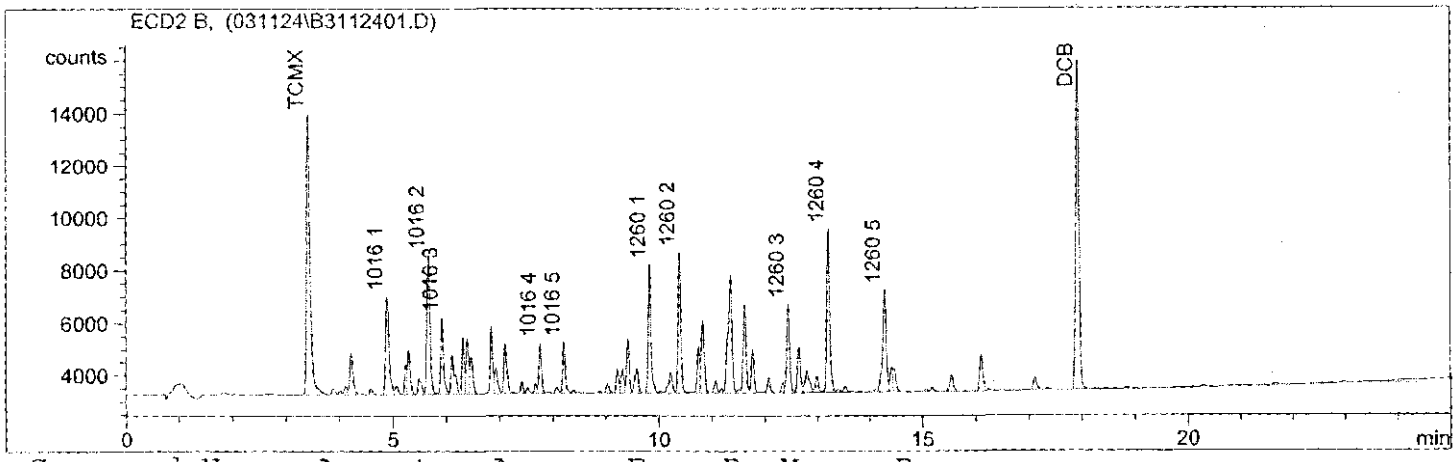


Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	24.532	8.152e4	3.416	3.424
1016 1	132.312	1.437e4	4.004	4.013
1016 2	133.579	2.577e4	4.590	4.600
1016 3	130.730	3.619e4	5.368	5.379
1016 4	137.918	9.900e3	7.150	7.164
1016 5	145.258	1.213e4	7.721	7.735
1260 1	140.918	2.765e4	9.078	9.094
1260 2	137.408	3.865e4	9.784	9.801
1260 3	137.929	3.959e4	12.379	12.395
1260 4	143.128	2.266e4	13.184	13.199
DBC	2.735	1.048e4	13.369	13.317
1260 5	158.008	1.154e4	15.072	15.087
DCB	28.020	8.261e4	16.529	16.545

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\B3112401.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: 1016/1260 150ppb
Sample Info:
Acquired On: 11/24/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	24.556	5.018e4	3.419	3.420
1016 1	136.989	1.662e4	4.897	4.898
1016 2	132.391	2.237e4	5.672	5.672
1016 3	136.540	1.100e4	5.923	5.924
1016 4	139.939	6.721e3	7.763	7.764
1016 5	141.755	6.989e3	8.210	8.212
1260 1	141.666	1.845e4	9.825	9.828
1260 2	142.613	1.948e4	10.393	10.395
1260 3	141.710	1.312e4	12.452	12.454
1260 4	139.364	2.494e4	13.211	13.212
DBC	0.000	0.000	13.850	0.000
1260 5	140.505	1.811e4	14.292	14.292
DCB	29.481	5.413e4	17.917	17.917

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POLYCHLORINATED BIPHENYLS
MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

Lab ID No. 031124\B3112414.D
031124\B3112415.D

Date Analyzed: 11/24/03

Matrix: Soil

Sample ID: 03111913-19 MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	QC LIMITS (%)
Aroclor 1260	200	ND	245	122	50-150

Sample ID: 03111913-19 MSD

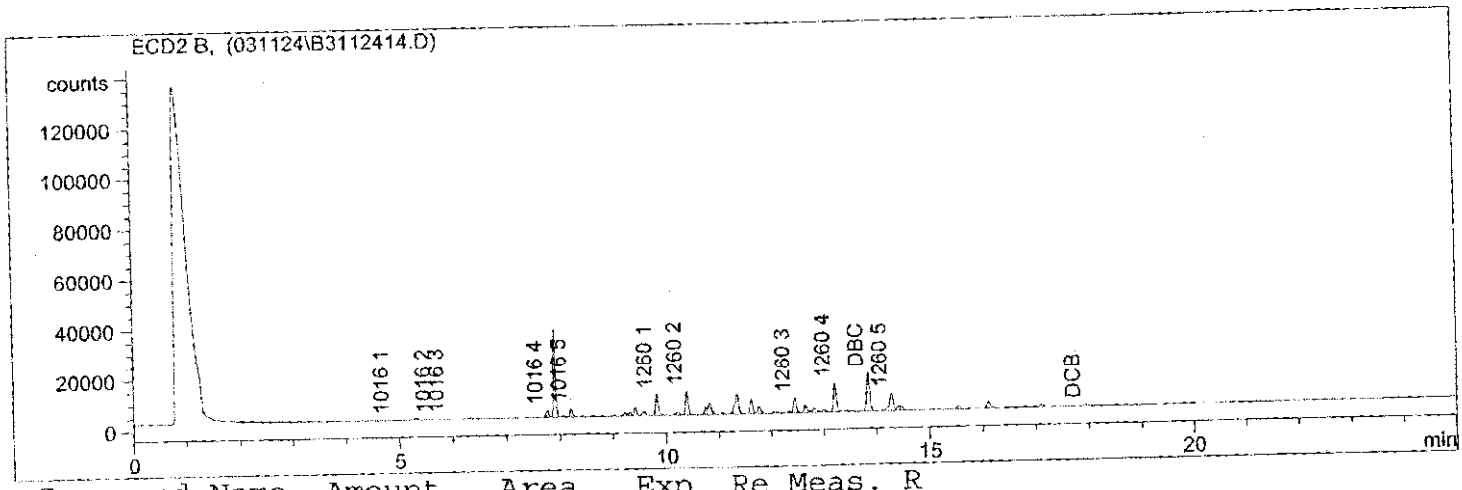
SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
Aroclor 1260	200	ND	249	124	1.7	15	50-150

Calculation: spike or spike dup %Recovery
=(spike conc - original sample conc)/(spike added)
Calculation: spike/spike dup Relative Percent Difference
*=absolute value(spike dup conc - spike conc)*2/(spike dup conc + spike conc)*

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\B3112414.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: 03111913-19 MS
Sample Info: Tetra Tech Ex. 11/21 1C
Acquired On: 11/24/03
Analyst: DJP

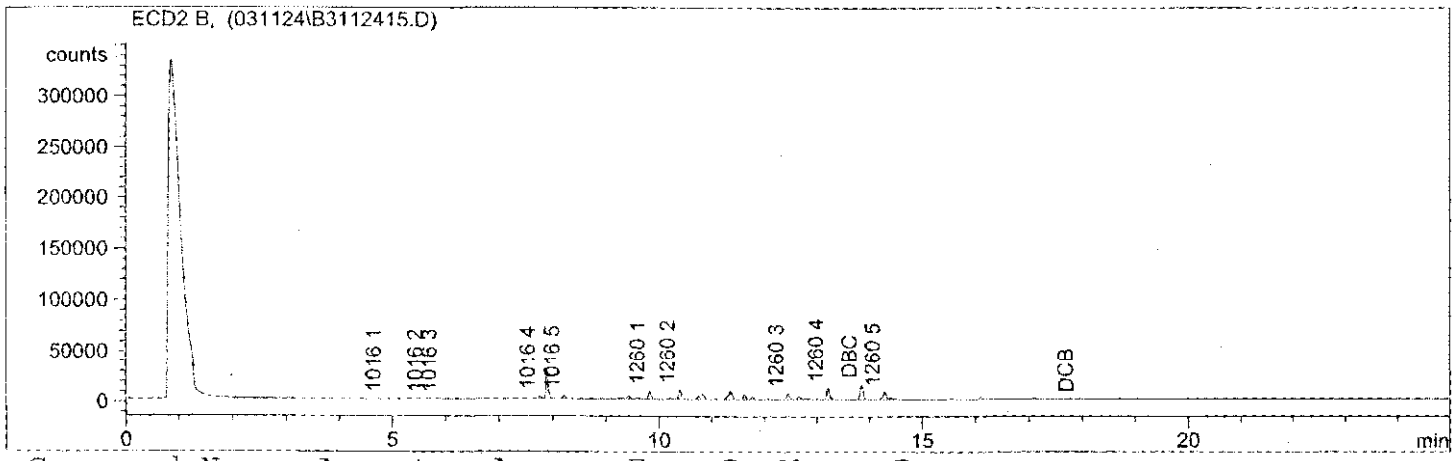


Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	10.068	1.222e3	4.897	4.879
1016 2	5.151	870.187	5.672	5.666
1016 3	8.183	659.152	5.923	5.917
1016 4	184.038	8.839e3	7.763	7.758
1016 5	232.258	1.145e4	8.210	8.205
1260 1	238.689	3.109e4	9.825	9.821
1260 2	243.125	3.322e4	10.393	10.388
1260 3	242.035	2.240e4	12.452	12.447
1260 4	249.374	4.462e4	13.211	13.206
DBC	26.118	5.918e4	13.850	13.846
1260 5	250.584	3.230e4	14.292	14.286
DCB	1.636	3.003e3	17.917	17.913

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\B3112415.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: 03111913-19 MSD
Sample Info: Tetra Tech Ex. 11/21 1C
Acquired On: 11/24/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	18.210	2.210e3	4.897	4.877
1016 2	8.997	1.520e3	5.672	5.656
1016 3	13.941	1.123e3	5.923	5.915
1016 4	189.854	9.118e3	7.763	7.758
1016 5	231.656	1.142e4	8.210	8.205
1260 1	239.581	3.120e4	9.825	9.820
1260 2	246.536	3.368e4	10.393	10.388
1260 3	246.234	2.279e4	12.452	12.447
1260 4	255.444	4.571e4	13.211	13.206
DBC	26.609	6.030e4	13.850	13.846
1260 5	256.764	3.310e4	14.292	14.286
DCB	1.652	3.033e3	17.917	17.913

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POLYCHLORINATED BIPHENYLS
LCS & LCS DUPLICATE SUMMARY

Lab ID No. 031124\F3112413.D
031124\F3112414.D

Date Analyzed: 11/24/03

Matrix: Water

Sample ID: LCS 11-21-03 100C

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	QC LIMITS (%)
Aroclor 1260	200	ND	250	125	50-150

Sample ID: LCSD 11-21-03 100C

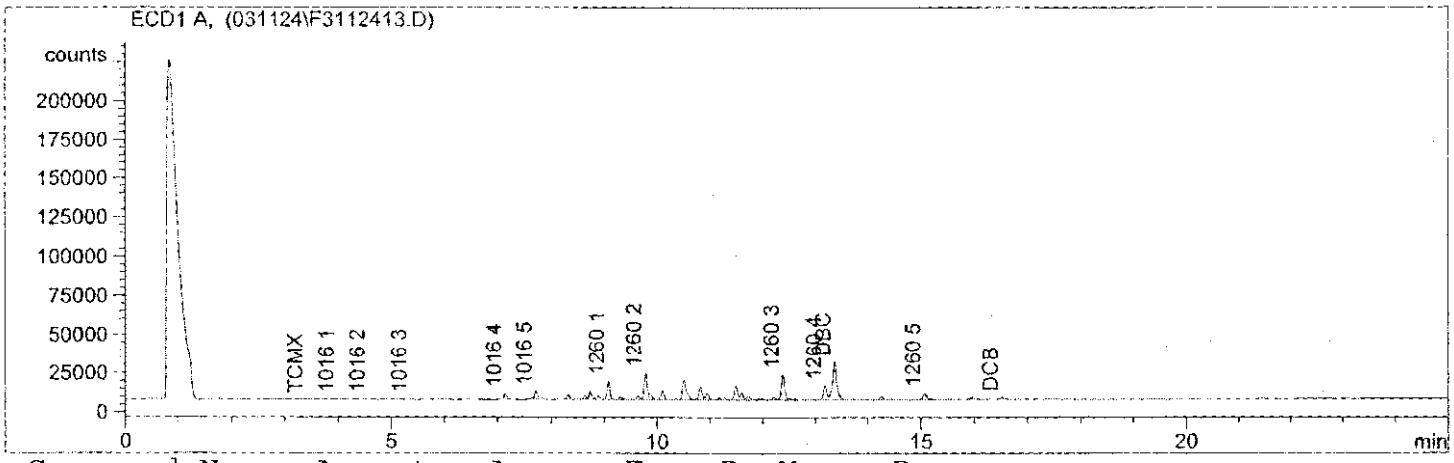
SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/L)	SAMPLE (ug/L)	SPK DUP CONC (ug/L)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
Aroclor 1260	200	ND	274	137	9.4	15	50-150

Calculation: spike or spike dup %Recovery
=(spike conc - original sample conc)/(spike added)
Calculation: spike/spike dup Relative Percent Difference
*=absolute value(spike dup conc - spike conc)*2/(spike dup conc + spike conc)*

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\F3112413.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: LCS Water
Sample Info: Ex. 11/21 100C
Acquired On: 11/24/03
Analyst: DJP

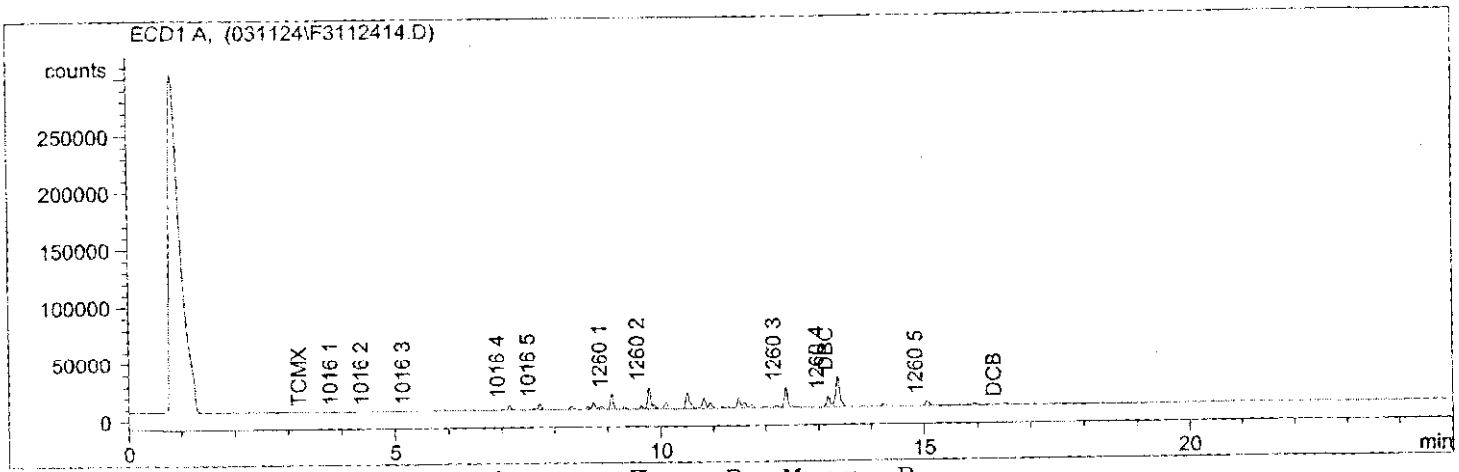


Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.883	213.443	3.416	3.425
1016 1	0.000	179.216	4.004	4.002
1016 2	0.000	486.914	4.590	4.586
1016 3	0.000	725.434	5.368	5.362
1016 4	206.406	1.409e4	7.150	7.147
1016 5	219.304	1.744e4	7.721	7.717
1260 1	247.899	4.543e4	9.078	9.075
1260 2	251.318	6.598e4	9.784	9.782
1260 3	249.596	6.854e4	12.379	12.375
1260 4	245.852	3.743e4	13.184	13.180
DBC	35.508	1.360e5	13.369	13.363
1260 5	253.546	1.767e4	15.072	15.068
DCB	0.000	5.338e3	16.529	16.525

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\F3112414.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: LCSD Water
Sample Info: Ex. 11/21 100C
Acquired On: 11/24/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.905	291.558	3.416	3.425
1016 1	0.000	267.144	4.004	4.003
1016 2	0.000	725.610	4.590	4.586
1016 3	0.000	970.116	5.368	5.364
1016 4	243.582	1.637e4	7.150	7.147
1016 5	254.382	1.995e4	7.721	7.718
1260 1	277.453	5.034e4	9.078	9.075
1260 2	279.044	7.263e4	9.784	9.781
1260 3	271.773	7.429e4	12.379	12.374
1260 4	266.712	4.043e4	13.184	13.179
DBC	38.573	1.477e5	13.369	13.362
1260 5	276.961	1.918e4	15.072	15.067
DCB	0.000	5.874e3	16.529	16.524

1 4016

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POLYCHLORINATED BIPHENYLS
LCS & LCS DUPLICATE SUMMARY

Lab ID No. 031124\F3112410.D
031124\F3112411.D

Date Analyzed: 11/24/03

Matrix: Soil

Sample ID: LCS 11-21-03 1C

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	QC LIMITS (%)
Aroclor 1260	200	ND	271	136	50-150

Sample ID: LCSD 11-21-03 1C

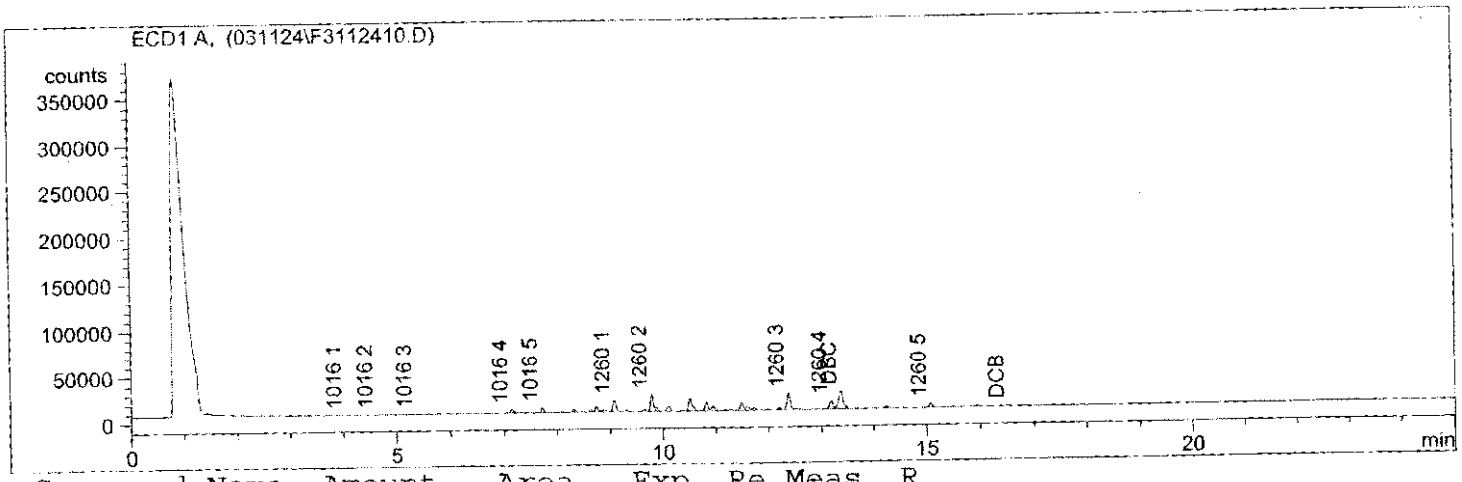
SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
Aroclor 1260	200	ND	263	131	3.3	15	50-150

Calculation: spike or spike dup %Recovery
=(spike conc - original sample conc)/(spike added)
Calculation: spike/spike dup Relative Percent Difference
*=absolute value(spike dup conc - spike conc)*2/(spike dup conc + spike conc)*

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\F3112410.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: LCS Soil
Sample Info: Ex. 11/21 1C
Acquired On: 11/24/03
Analyst: DJP



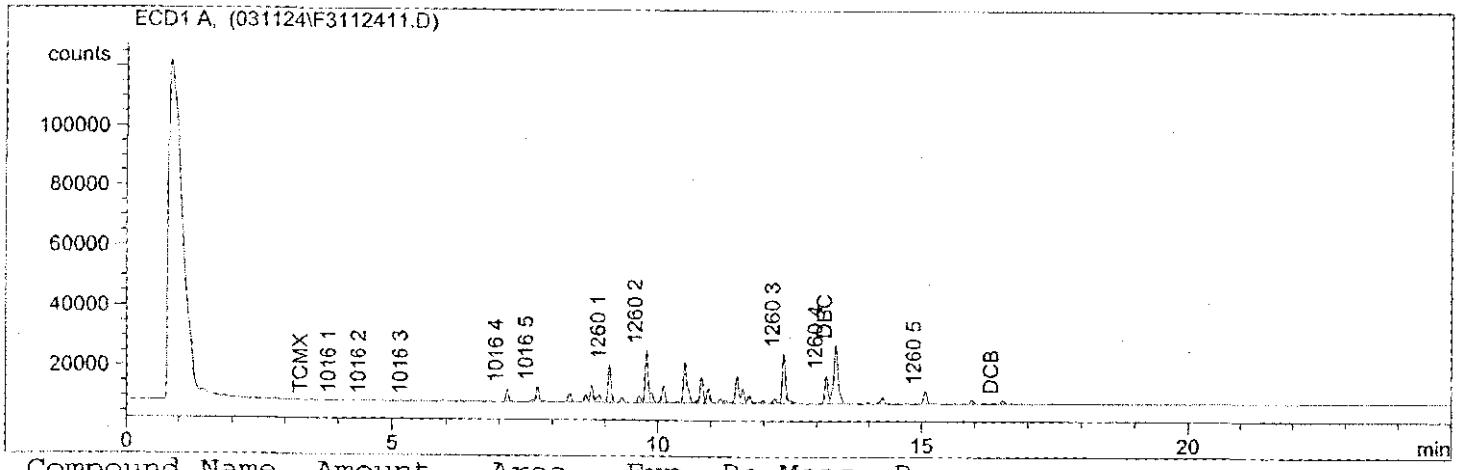
Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.416	0.000
1016 1	0.000	746.625	4.004	4.033
1016 2	0.000	1.033e3	4.590	4.630
1016 3	0.000	662.928	5.368	5.363
1016 4	226.137	1.530e4	7.150	7.148
1016 5	252.563	1.982e4	7.721	7.717
1260 1	268.647	4.888e4	9.078	9.076
1260 2	272.677	7.110e4	9.784	9.782
1260 3	267.386	7.315e4	12.379	12.375
1260 4	264.319	4.009e4	13.184	13.180
DBC	30.592	1.172e5	13.369	13.363
1260 5	274.058	1.899e4	15.072	15.068
DCB	0.000	5.666e3	16.529	16.525

1 4018

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031124\F3112411.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: LCSD Soil
Sample Info: Ex. 11/21 1C
Acquired On: 11/24/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	1.065	838.368	3.416	3.501
1016 1	0.000	735.649	4.004	4.030
1016 2	0.000	827.998	4.590	4.592
1016 3	0.000	682.530	5.368	5.365
1016 4	224.459	1.520e4	7.150	7.148
1016 5	238.454	1.881e4	7.721	7.717
1260 1	262.946	4.793e4	9.078	9.076
1260 2	265.553	6.939e4	9.784	9.782
1260 3	260.835	7.146e4	12.379	12.376
1260 4	257.921	3.917e4	13.184	13.180
DBC	31.125	1.192e5	13.369	13.364
1260 5	265.581	1.845e4	15.072	15.069
DCB	0.000	5.618e3	16.529	16.525

1 4019

Sequence: C:\HPCHEM\2\SEQUENCE\031124.S

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	1016/1260 150ppb	PCB_FRON	1	Sample		
2	2	DBC 50ppb	PCB_FRON	1	Sample		
3	3	Hexane Blank	PCB_FRON	1	Sample		
4	4	03111913-08	PCB_FRON	1	Sample		
5	5	03111913-12	PCB_FRON	1	Sample		
6	6	03111913-16	PCB_FRON	1	Sample		
7	7	03111913-20	PCB_FRON	1	Sample		
8	8	03111913-23	PCB_FRON	1	Sample		
9	9	03111913-26	PCB_FRON	1	Sample		
10	10	LCS Soil	PCB_FRON	1	Sample		
11	11	LCSD Soil	PCB_FRON	1	Sample		
12	12	MBLK Soil	PCB_FRON	1	Sample		
13	13	LCS Water	PCB_FRON	1	Sample		
14	14	LCSD Water	PCB_FRON	1	Sample		
15	15	MBLK Water	PCB_FRON	1	Sample		
16	16	1016/1260 150ppb	PCB_FRON	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	1016/1260 150ppb	PCB_BACK	1	Sample		
2	52	Hexane Blank	PCB_BACK	1	Sample		
3	53	DBC 50ppb	PCB_BACK	1	Sample		
4	54	03111913-06	PCB_BACK	1	Sample		
5	55	03111913-07	PCB_BACK	1	Sample		
6	56	03111913-10	PCB_BACK	1	Sample		
7	57	03111913-11	PCB_BACK	1	Sample		
8	58	03111913-14	PCB_BACK	1	Sample		
9	59	03111913-15	PCB_BACK	1	Sample		
10	60	03111913-18	PCB_BACK	1	Sample		
11	61	03111913-19	PCB_BACK	1	Sample		
12	62	03111913-22	PCB_BACK	1	Sample		
13	63	03111913-25	PCB_BACK	1	Sample		
14	64	03111913-19 MS	PCB_BACK	1	Sample		
15	65	03111913-19 MSD	PCB_BACK	1	Sample		
16	66	03111807-14	PCB_BACK	1	Sample		
17	67	1016/1260 150ppb	PCB_BACK	1	Sample		

1 4020

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Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Gasoline Range Organics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS/LCSD Summary*

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS SYSTEM MONITORING COMPOUND (SURROGATE)

ANALYSIS: GRO **LAB CODE:** SURR

METHOD NO.: EPA 8015B

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/20/03 2:15 AM	METHOD BLANK	97	
	Upper Limit	150	
	Lower Limit	50	
11/20/03 5:28	SB 29 Water	96	
11/20/03 6:01	SB 22 Water	97	
11/20/03 6:33	SB 24 Water	97	
11/20/03 7:05	SB 25 Water	96	
11/20/03 7:37	SB 23 Water	97	
11/20/03 8:10	SB 30 Water	96	
11/20/03 8:42	SB 31 Water	96	

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

1 5002

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GASOLINE RANGE ORGANICS SYSTEM MONITORING COMPOUND (SURROGATE)

ANALYSIS: GRO **LAB CODE:** SURR

METHOD NO.: EPA 8015B

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/20/03 1:34 AM	METHOD BLANK	102	
	Upper Limit	150	
	Lower Limit	50	
11/20/03 2:08 AM	SB-27	102	
11/20/03 2:42 AM	SB-28	102	
11/20/03 3:16 AM	SB-26	103	
11/20/03 3:50 AM	SB-29	107	
11/20/03 4:24 AM	SB-22-05	101	
11/20/03 4:57 AM	SB-22-10	101	
11/20/03 5:31 AM	SB-24-05	101	
11/20/03 6:05 AM	SB-24-10	98	
11/20/03 6:39 AM	SB-25-05	101	
11/20/03 7:13 AM	SB-25-10	98	
11/20/03 7:47 AM	SB-23-05	103	
11/20/03 8:20 AM	SB-23-10	103	
11/20/03 8:54 AM	SB-30-05	101	
11/20/03 9:28 AM	SB-31-05	99	

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

1 5003

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**GRO**	**LAB CODE:**	**MBW**
METHOD No.:	**EPA 8015B**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03111929.D**	**DATE/TIME ANALYZED:**	**11/20/03 02:15**
MATRIX:	**Water**		

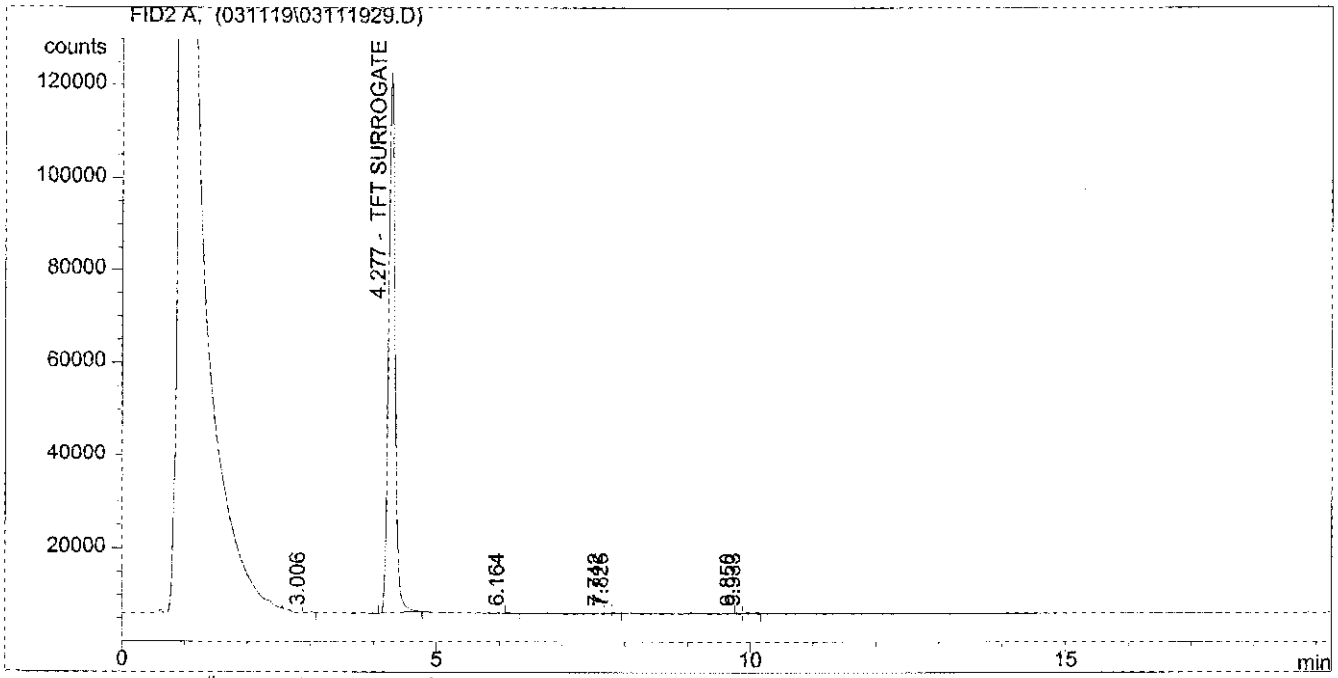
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB 29 Water	03111913-04	2\03111935.D	11/20/03 05:28
SB 22 Water	03111913-08	2\03111936.D	11/20/03 06:01
SB 24 Water	03111913-12	2\03111937.D	11/20/03 06:33
SB 25 Water	03111913-16	2\03111938.D	11/20/03 07:05
SB 23 Water	03111913-20	2\03111939.D	11/20/03 07:37
SB 30 Water	03111913-23	2\03111940.D	11/20/03 08:10
SB 31 Water	03111913-26	2\03111941.D	11/20/03 08:42

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111929.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: BLANK
Acquired On: 11/20/03 2:15:12 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.044e3	0.000	3.006
2	TFT SURROGATE	96.733	8.305e5	4.269	4.277
3		0.000	1.140e3	0.000	6.164
4		0.000	1.015e3	0.000	7.742
5		0.000	1.190e3	0.000	7.826
6		0.000	1.156e3	0.000	9.850
7		0.000	3.263e3	0.000	9.933
Total			8.393e5		

8800
6528
=1.35 ug/L
AK 11/20/03

1 5005

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GASOLINE RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**GRO**	**LAB CODE:**	**MBS**
METHOD No.:	**EPA 8015B**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**1\03111929.D**	**DATE/TIME ANALYZED:**	**11/20/03 01:34**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-27	03111913-01	1\03111930.D	11/20/03 02:08
SB-28	03111913-02	1\03111931.D	11/20/03 02:42
SB-26	03111913-03	1\03111932.D	11/20/03 03:16
SB-29	03111913-05	1\03111933.D	11/20/03 03:50
SB-22-05	03111913-06	1\03111934.D	11/20/03 04:24
SB-22-10	03111913-07	1\03111935.D	11/20/03 04:57
SB-24-05	03111913-10	1\03111936.D	11/20/03 05:31
SB-24-10	03111913-11	1\03111937.D	11/20/03 06:05
SB-25-05	03111913-14	1\03111938.D	11/20/03 06:39
SB-25-10	03111913-15	1\03111939.D	11/20/03 07:13
SB-23-05	03111913-18	1\03111940.D	11/20/03 07:47
SB-23-10	03111913-19	1\03111941.D	11/20/03 08:20
SB-30-05	03111913-22	1\03111942.D	11/20/03 08:54
SB-31-05	03111913-25	1\03111943.D	11/20/03 09:28

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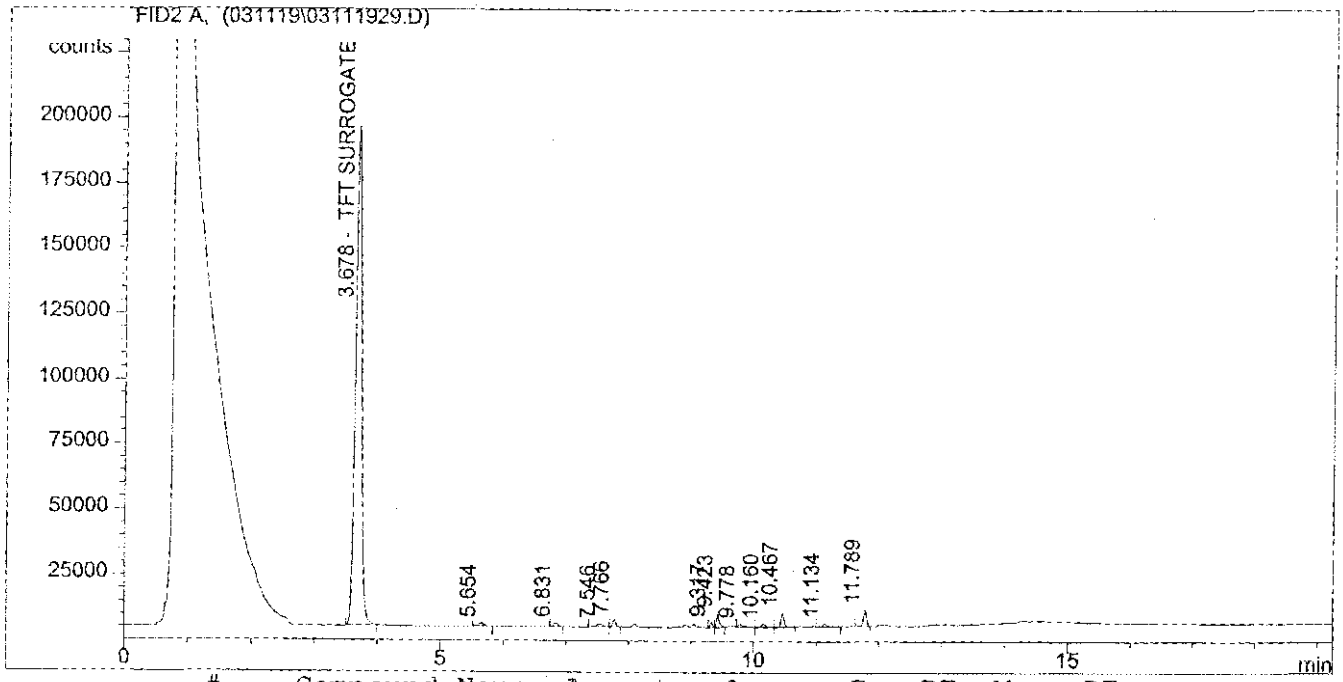
EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111929.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: BLANK
Acquired On: 11/20/03 1:34:34 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	TFT SURROGATE	101.680	1.268e6 ✓	3.699	3.678
2		0.000	7.807e3	0.000	5.654
3		0.000	6.312e3	0.000	6.831
4		0.000	8.550e3	0.000	7.546
5		0.000	9.472e3	0.000	7.766
6		0.000	5.128e3	0.000	9.317
7		0.000	1.675e4	0.000	9.423
8		0.000	8.709e3	0.000	9.778
9		0.000	7.059e3	0.000	10.160
10		0.000	2.094e4	0.000	10.467
11		0.000	7.097e3	0.000	11.134
12		0.000	2.410e4	0.000	11.789
Total			1.390e6		

$\frac{122000}{9680}$ = 12.60 ug/L

AK 11/20/03

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

LAB FILE ID: 1\03111926.D

DATE/TIME ANALYZED: 11/19/03 11:53

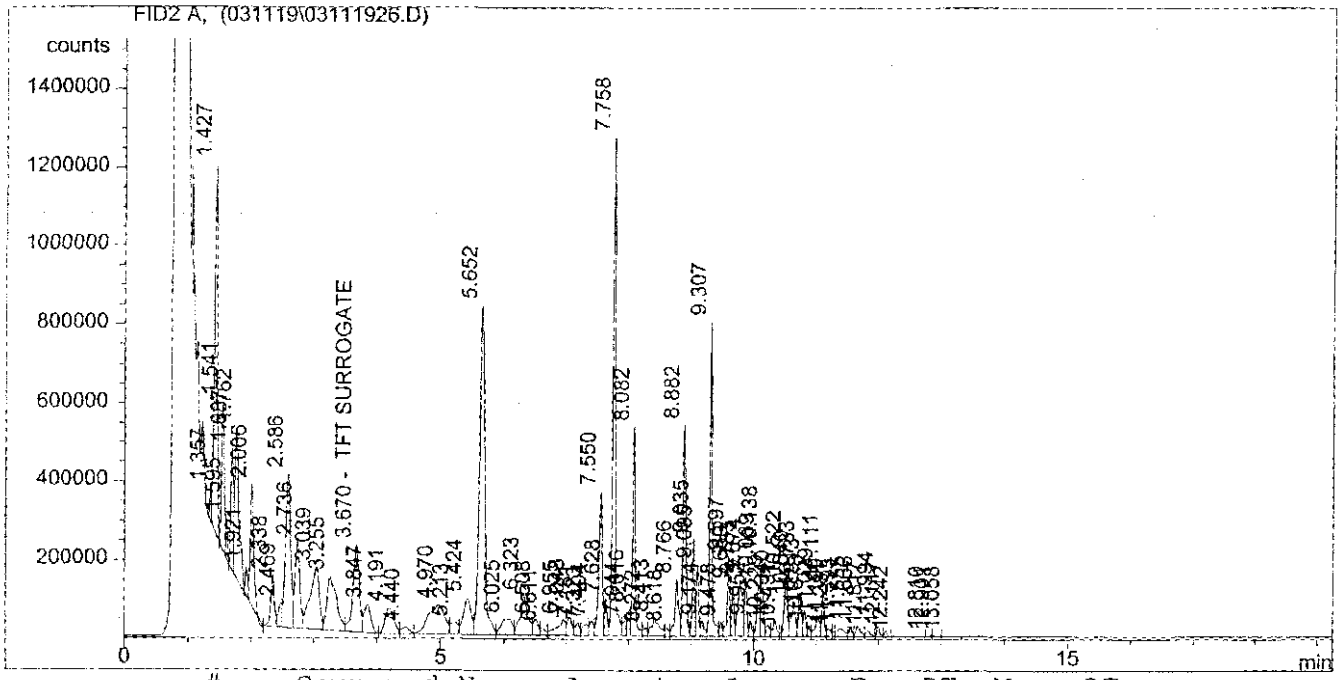
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Gasoline Range Organics	9626	9680	0.6	15

1 5008

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111926.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/19/03 11:53:02 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.502e5	0.000	1.357
2		0.000	3.003e6	0.000	1.427
3		0.000	1.104e6	0.000	1.541
4		0.000	1.874e5	0.000	1.595
5		0.000	9.342e5	0.000	1.687
6		0.000	1.742e6	0.000	1.762
7		0.000	1.951e5	0.000	1.921
8		0.000	1.197e6	0.000	2.006
9		0.000	5.562e5	0.000	2.338
10		0.000	2.669e5	0.000	2.469
11		0.000	2.273e6	0.000	2.586
12		0.000	1.235e6	0.000	2.736
13		0.000	1.667e6	0.000	3.039
14		0.000	1.488e6	0.000	3.255
15	TFT SURROGATE	127.190	1.586e6 ✓	3.699	3.670
16		0.000	5.526e5	0.000	3.847
17		0.000	6.415e5	0.000	4.191
18		0.000	1.470e5	0.000	4.440
19		0.000	1.352e6	0.000	4.970
20		0.000	2.481e5	0.000	5.213
21		0.000	8.333e5	0.000	5.424
22		0.000	4.910e6	0.000	5.652
23		0.000	4.915e5	0.000	6.025
24		0.000	8.380e5	0.000	6.323

$$\frac{4.813e7}{5000} = 9626$$

%D

$$= \frac{9680 - 9626}{9680} \times 100 = 0.56\%$$

AK 11/20/03

1 5009

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111926.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/19/03 11:53:02 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb

->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	2.331e5	0.000	6.508
26		0.000	1.061e5	0.000	6.611
27		0.000	3.915e5	0.000	6.955
28		0.000	2.347e5	0.000	7.048
29		0.000	1.635e5	0.000	7.181
30		0.000	1.751e5	0.000	7.323
31		0.000	1.678e5	0.000	7.404
32		0.000	1.428e6	0.000	7.550
33		0.000	3.104e5	0.000	7.628
34		0.000	3.932e6	0.000	7.758
35		0.000	1.660e5	0.000	7.944
36		0.000	1.998e5	0.000	8.016
37		0.000	1.573e6	0.000	8.082
38		0.000	8.747e4	0.000	8.272
39		0.000	3.988e5	0.000	8.413
40		0.000	8.904e4	0.000	8.618
41		0.000	6.262e5	0.000	8.766
42		0.000	1.805e6	0.000	8.882
43		0.000	6.415e5	0.000	9.035
44		0.000	4.962e5	0.000	9.095
45		0.000	1.543e5	0.000	9.174
46		0.000	2.058e6	0.000	9.307
47		0.000	1.169e5	0.000	9.478
48		0.000	5.733e5	0.000	9.597
49		0.000	3.303e5	0.000	9.669
50		0.000	7.726e5	0.000	9.783
51		0.000	3.992e5	0.000	9.874
52		0.000	1.248e5	0.000	9.952
53		0.000	4.795e5	0.000	10.089
54		0.000	5.441e5	0.000	10.138
55		0.000	1.207e5	0.000	10.229
56		0.000	1.833e5	0.000	10.340
57		0.000	2.227e4	0.000	10.431
58		0.000	5.327e5	0.000	10.522
59		0.000	4.174e5	0.000	10.640
60		0.000	3.723e5	0.000	10.733
61		0.000	2.063e5	0.000	10.813
62		0.000	7.797e4	0.000	10.878
63		0.000	2.609e5	0.000	11.029
64		0.000	3.626e5	0.000	11.111
65		0.000	8.777e4	0.000	11.199
66		0.000	3.465e4	0.000	11.281
67		0.000	1.853e5	0.000	11.393
68		0.000	8.068e4	0.000	11.555
69		0.000	1.384e5	0.000	11.666
70		0.000	8.292e4	0.000	11.817

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111926.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/19/03 11:53:02 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.047e5	0.000	11.994
72		0.000	4.731e4	0.000	12.117
73		0.000	7.605e3	0.000	12.242
74		0.000	5.459e3	0.000	12.810
75		0.000	8.235e3	0.000	12.901
76		0.000	5.301e3	0.000	13.058
Total			4.972e7		

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

LAB FILE ID: 2\03111926.D

DATE/TIME ANALYZED: 11/20/03 12:38

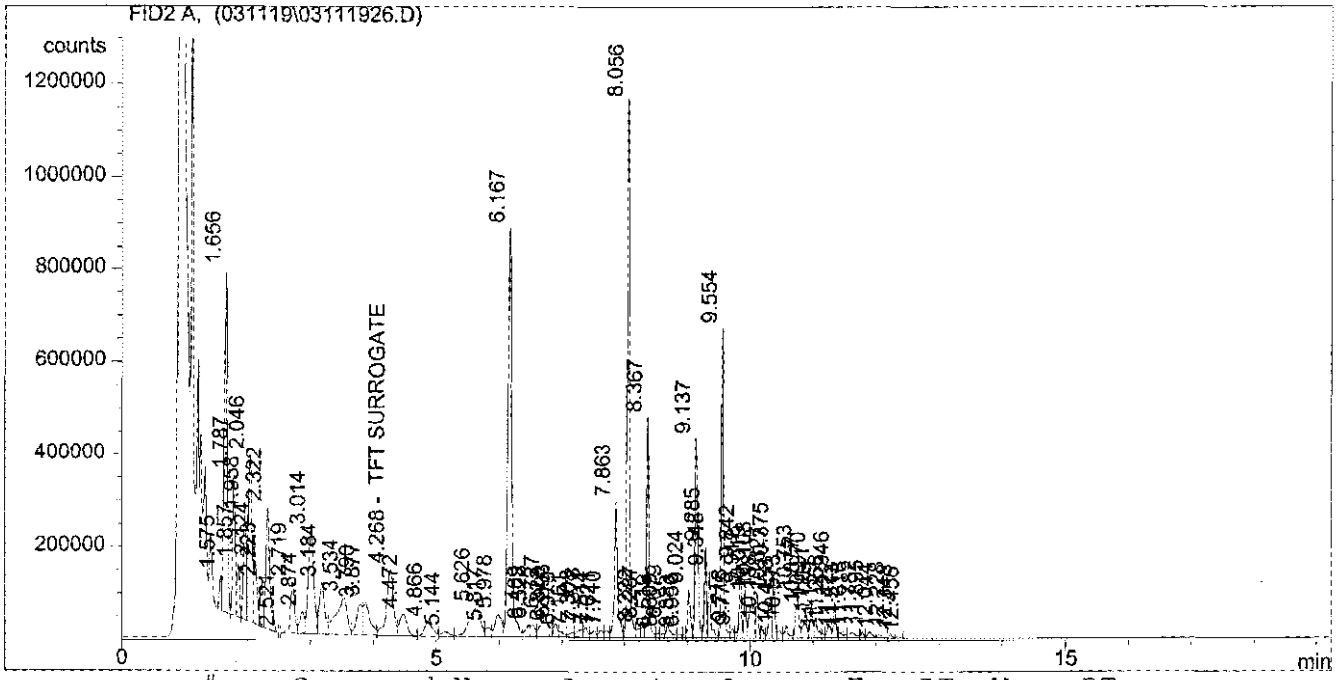
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Gasoline Range Organics	6824	6528	4.4	15

1 5012

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111926.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:38:07 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.658e5	0.000	1.575
2		0.000	2.547e6	0.000	1.656
3		0.000	9.305e5	0.000	1.787
4		0.000	3.146e5	0.000	1.857
5		0.000	7.533e5	0.000	1.958
6		0.000	1.494e6	0.000	2.046
7		0.000	4.815e5	0.000	2.124
8		0.000	3.134e5	0.000	2.223
9		0.000	1.183e6	0.000	2.322
10		0.000	1.002e3	0.000	2.521
11		0.000	4.941e5	0.000	2.719
12		0.000	2.403e5	0.000	2.874
13		0.000	1.367e6	0.000	3.014
14		0.000	6.619e5	0.000	3.184
15		0.000	9.847e5	0.000	3.534
16		0.000	4.153e5	0.000	3.790
17		0.000	5.493e5	0.000	3.877
18	TFT SURROGATE	126.827	1.089e6 ✓	4.269	4.268
19		0.000	3.954e5	0.000	4.472
20		0.000	2.832e5	0.000	4.866
21		0.000	9.714e4	0.000	5.144
22		0.000	7.476e5	0.000	5.626
23		0.000	1.255e5	0.000	5.817
24		0.000	3.586e5	0.000	5.978

$\frac{3.412e7}{5000}$

= 6824

%D

$= \frac{6824 - 6528}{6528}$

x100

= 4.53%

AK 11/20/03

1 5013

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111926.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:38:07 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.859e6	0.000	6.167
26		0.000	1.416e5	0.000	6.469
27		0.000	1.196e5	0.000	6.528
28		0.000	3.509e5	0.000	6.727
29		0.000	5.952e4	0.000	6.822
30		0.000	1.300e5	0.000	6.893
31		0.000	5.780e4	0.000	6.979
32		0.000	5.783e4	0.000	7.161
33		0.000	1.241e5	0.000	7.308
34		0.000	9.476e4	0.000	7.378
35		0.000	8.066e4	0.000	7.514
36		0.000	7.287e4	0.000	7.621
37		0.000	7.249e4	0.000	7.710
38		0.000	1.061e6	0.000	7.863
39		0.000	3.192e6	0.000	8.056
40		0.000	8.720e4	0.000	8.222
41		0.000	8.235e4	0.000	8.287
42		0.000	1.231e6	0.000	8.367
43		0.000	3.063e4	0.000	8.519
44		0.000	4.131e4	0.000	8.609
45		0.000	1.569e5	0.000	8.679
46		0.000	3.827e4	0.000	8.883
47		0.000	2.878e4	0.000	8.956
48		0.000	3.154e5	0.000	9.024
49		0.000	1.344e6	0.000	9.137
50		0.000	4.604e5	0.000	9.285
51		0.000	4.131e5	0.000	9.348
52		0.000	1.562e6	0.000	9.554
53		0.000	6.402e4	0.000	9.718
54		0.000	3.062e4	0.000	9.775
55		0.000	3.684e5	0.000	9.842
56		0.000	2.423e5	0.000	9.917
57		0.000	4.509e5	0.000	10.019
58		0.000	2.463e5	0.000	10.108
59		0.000	7.193e4	0.000	10.188
60		0.000	3.125e5	0.000	10.327
61		0.000	3.410e5	0.000	10.375
62		0.000	7.015e4	0.000	10.458
63		0.000	1.062e5	0.000	10.573
64		0.000	3.455e5	0.000	10.753
65		0.000	2.158e5	0.000	10.877
66		0.000	2.254e5	0.000	10.970
67		0.000	1.632e5	0.000	11.041
68		0.000	2.418e4	0.000	11.159
69		0.000	1.189e5	0.000	11.258
70		0.000	2.005e5	0.000	11.346

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111926.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:38:07 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	4.327e4	0.000	11.422
72		0.000	2.181e4	0.000	11.513
73		0.000	8.908e4	0.000	11.618
74		0.000	3.731e4	0.000	11.782
75		0.000	6.873e4	0.000	11.895
76		0.000	3.838e4	0.000	12.044
77		0.000	3.192e4	0.000	12.228
78		0.000	1.718e4	0.000	12.348
79		0.000	7.045e3	0.000	12.456
Total			3.521e7		

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS
MATRIX SPIKE SUMMARY

LAB FILE ID's: 2\03111944.D
2\03111945.D

DATE ANALYZED: 11/20/03

MATRIX: Water

Sample ID: 03111913-23 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/L	SAMPLE CONC ug/L	SPIKE CONC ug/L	SPIKE REC (%) #	QC LIMITS (%)
Gasoline Range Organics	5000	ND	4531	91	50-150

Sample ID: 03111913-23 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/L	SAMPLE CONC ug/L	SPIKE CONC ug/L	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Gasoline Range Organics	5000	ND	4482	90	1.1	40	50-150

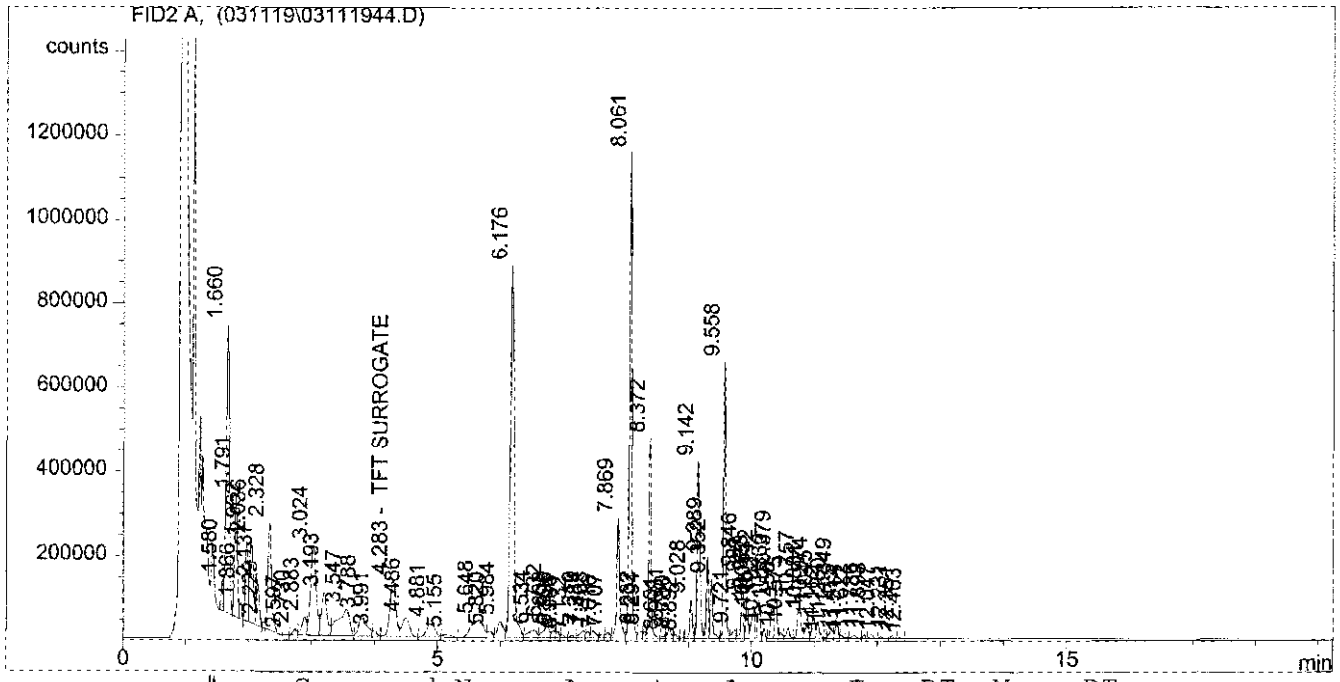
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
ND = not detected

1 5016

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111944.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MS
Acquired On: 11/20/03 10:19:12 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.650e5	0.000	1.580
2		0.000	2.388e6	0.000	1.660
3		0.000	8.822e5	0.000	1.791
4		0.000	8.525e4	0.000	1.866
5		0.000	6.156e5	0.000	1.962
6		0.000	7.925e5	0.000	2.036
7		0.000	3.717e5	0.000	2.137
8		0.000	4.310e4	0.000	2.229
9		0.000	1.020e6	0.000	2.328
10		0.000	6.309e3	0.000	2.597
11		0.000	6.455e4	0.000	2.730
12		0.000	2.302e5	0.000	2.883
13		0.000	1.300e6	0.000	3.024
14		0.000	6.245e5	0.000	3.193
15		0.000	8.229e5	0.000	3.547
16		0.000	4.422e5	0.000	3.788
17		0.000	6.713e4	0.000	3.991
18	TFT SURROGATE	102.667	8.814e5	4.269	4.283
19		0.000	3.734e5	0.000	4.486
20		0.000	3.087e5	0.000	4.881
21		0.000	7.767e4	0.000	5.155
22		0.000	5.787e5	0.000	5.648
23		0.000	9.128e4	0.000	5.820
24		0.000	2.643e5	0.000	5.984

$\frac{2.958e7}{6528}$ = 4531.25 ug/L

$\frac{4531.25 - 4.63}{5000}$ x100 = 90.53%

Recovery
AK 11/20/03

1 5017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111944.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MS
Acquired On: 11/20/03 10:19:12 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.802e6	0.000	6.176
26		0.000	1.889e5	0.000	6.534
27		0.000	2.258e5	0.000	6.732
28		0.000	7.079e4	0.000	6.833
29		0.000	5.949e4	0.000	6.896
30		0.000	3.544e4	0.000	6.986
31		0.000	3.482e4	0.000	7.132
32		0.000	1.045e5	0.000	7.310
33		0.000	6.298e4	0.000	7.384
34		0.000	8.698e4	0.000	7.468
35		0.000	3.945e4	0.000	7.616
36		0.000	6.404e4	0.000	7.707
37		0.000	9.456e5	0.000	7.869
38		0.000	3.119e6	0.000	8.061
39		0.000	8.481e4	0.000	8.232
40		0.000	5.099e4	0.000	8.291
41		0.000	1.225e6	0.000	8.372
42		0.000	3.251e4	0.000	8.601
43		0.000	1.104e5	0.000	8.681
44		0.000	4.575e4	0.000	8.780
45		0.000	2.125e4	0.000	8.892
46		0.000	2.682e5	0.000	9.028
47		0.000	1.292e6	0.000	9.142
48		0.000	4.539e5	0.000	9.289
49		0.000	3.856e5	0.000	9.352
50		0.000	1.501e6	0.000	9.558
51		0.000	1.003e5	0.000	9.721
52		0.000	3.817e5	0.000	9.846
53		0.000	2.306e5	0.000	9.921
54		0.000	2.670e5	0.000	10.023
55		0.000	1.239e5	0.000	10.062
56		0.000	2.234e5	0.000	10.112
57		0.000	6.314e4	0.000	10.192
58		0.000	2.865e5	0.000	10.330
59		0.000	3.266e5	0.000	10.379
60		0.000	5.570e4	0.000	10.458
61		0.000	1.008e5	0.000	10.575
62		0.000	3.299e5	0.000	10.757
63		0.000	1.921e5	0.000	10.881
64		0.000	2.120e5	0.000	10.974
65		0.000	1.501e5	0.000	11.045
66		0.000	1.198e4	0.000	11.162
67		0.000	1.113e5	0.000	11.260
68		0.000	1.855e5	0.000	11.349
69		0.000	3.688e4	0.000	11.425
70		0.000	1.394e4	0.000	11.514

1 5018

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

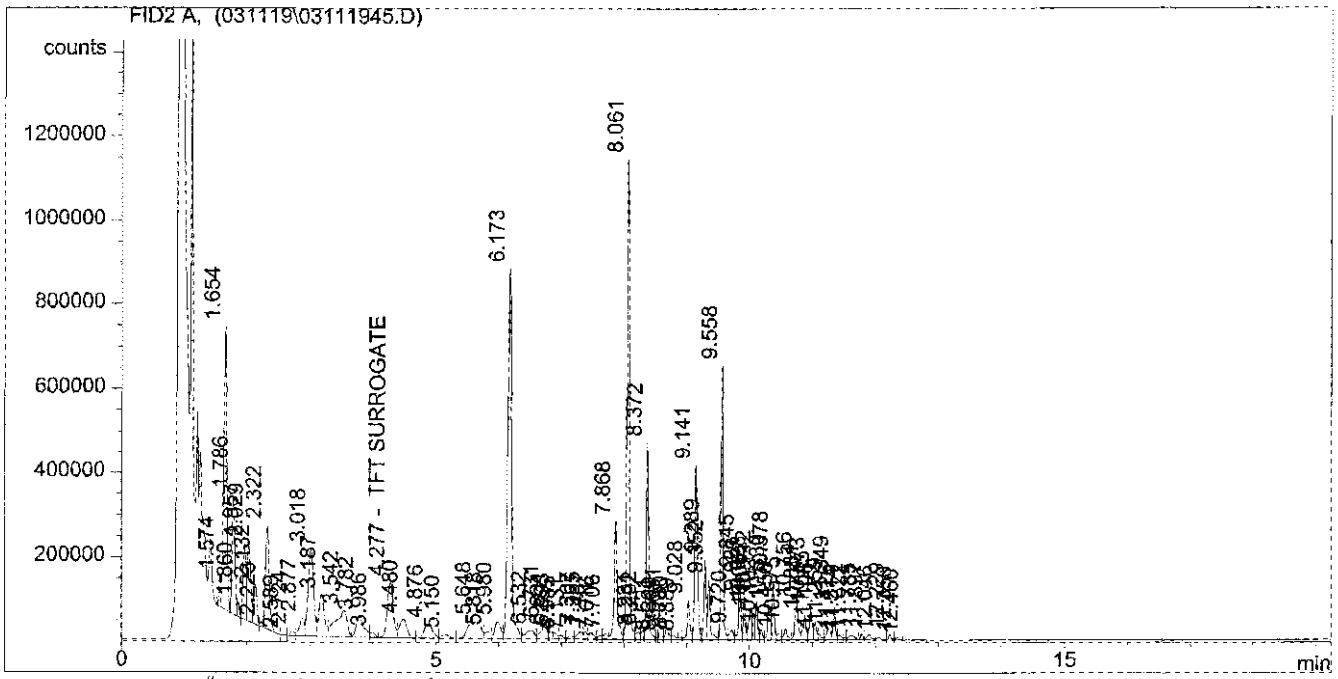
Data File Name: C:\HPCHEM\2\DATA\031119\03111944.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MS
Acquired On: 11/20/03 10:19:12 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	7.238e4	0.000	11.622
72		0.000	3.358e4	0.000	11.786
73		0.000	5.960e4	0.000	11.898
74		0.000	3.351e4	0.000	12.047
75		0.000	3.085e4	0.000	12.231
76		0.000	1.581e4	0.000	12.351
77		0.000	4.681e3	0.000	12.463
Total			3.046e7		

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111945.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MSD
Acquired On: 11/20/03 10:51:31 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.601e5	0.000	1.574
2		0.000	2.346e6	0.000	1.654
3		0.000	8.653e5	0.000	1.786
4		0.000	8.001e4	0.000	1.860
5		0.000	6.001e5	0.000	1.957
6		0.000	7.407e5	0.000	2.029
7		0.000	3.448e5	0.000	2.132
8		0.000	3.030e4	0.000	2.223
9		0.000	9.865e5	0.000	2.322
10		0.000	4.408e3	0.000	2.589
11		0.000	5.451e4	0.000	2.724
12		0.000	2.215e5	0.000	2.877
13		0.000	1.271e6	0.000	3.018
14		0.000	6.045e5	0.000	3.187
15		0.000	8.031e5	0.000	3.542
16		0.000	4.160e5	0.000	3.782
17		0.000	6.193e4	0.000	3.986
18	TFT SURROGATE	101.174	8.686e5 ✓	4.269	4.277
19		0.000	3.661e5	0.000	4.480
20		0.000	3.115e5	0.000	4.876
21		0.000	7.426e4	0.000	5.150
22		0.000	5.632e5	0.000	5.648
23		0.000	9.283e4	0.000	5.818
24		0.000	2.643e5	0.000	5.980

$\frac{2.926e7}{6528}$ = 4482.23 ug/L

$\frac{4482.23-4.63}{5000}$ x100 = 89.55%

Recovery
AK 11/20/03

created on:11/20/03 1:03:59 PM

1 5020

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111945.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MSD
Acquired On: 11/20/03 10:51:31 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.769e6	0.000	6.173
26		0.000	1.870e5	0.000	6.532
27		0.000	2.218e5	0.000	6.731
28		0.000	6.978e4	0.000	6.831
29		0.000	5.331e4	0.000	6.893
30		0.000	3.623e4	0.000	6.985
31		0.000	3.579e4	0.000	7.131
32		0.000	1.062e5	0.000	7.307
33		0.000	6.700e4	0.000	7.385
34		0.000	9.008e4	0.000	7.467
35		0.000	3.934e4	0.000	7.616
36		0.000	6.650e4	0.000	7.706
37		0.000	9.614e5	0.000	7.868
38		0.000	3.081e6	0.000	8.061
39		0.000	8.627e4	0.000	8.231
40		0.000	5.749e4	0.000	8.292
41		0.000	1.202e6	0.000	8.372
42		0.000	1.452e4	0.000	8.521
43		0.000	3.448e4	0.000	8.609
44		0.000	1.165e5	0.000	8.681
45		0.000	5.024e4	0.000	8.780
46		0.000	2.299e4	0.000	8.889
47		0.000	2.764e5	0.000	9.028
48		0.000	1.286e6	0.000	9.141
49		0.000	4.480e5	0.000	9.289
50		0.000	3.925e5	0.000	9.352
51		0.000	1.479e6	0.000	9.558
52		0.000	1.054e5	0.000	9.720
53		0.000	3.814e5	0.000	9.845
54		0.000	2.298e5	0.000	9.921
55		0.000	2.683e5	0.000	10.023
56		0.000	1.262e5	0.000	10.062
57		0.000	2.225e5	0.000	10.112
58		0.000	6.411e4	0.000	10.192
59		0.000	2.898e5	0.000	10.330
60		0.000	3.276e5	0.000	10.378
61		0.000	5.652e4	0.000	10.458
62		0.000	1.043e5	0.000	10.575
63		0.000	3.333e5	0.000	10.756
64		0.000	1.959e5	0.000	10.881
65		0.000	2.151e5	0.000	10.973
66		0.000	1.205e5	0.000	11.045
67		0.000	4.592e4	0.000	11.106
68		0.000	1.168e5	0.000	11.259
69		0.000	2.017e5	0.000	11.349
70		0.000	3.973e4	0.000	11.425

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111945.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MSD
Acquired On: 11/20/03 10:51:31 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.567e4	0.000	11.514
72		0.000	7.831e4	0.000	11.622
73		0.000	3.589e4	0.000	11.785
74		0.000	6.424e4	0.000	11.897
75		0.000	3.701e4	0.000	12.046
76		0.000	4.134e4	0.000	12.229
77		0.000	2.093e4	0.000	12.350
78		0.000	5.842e3	0.000	12.460
Total			3.013e7		

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GASOLINE RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **11/20/03 12:28** **LAB FILE ID:** **2\03111948.D**

METHOD: **EPA 8015B**

MATRIX: **Water**

Sample ID: LCS 5000ppb

SPIKE DISTILLATE	SPIKE ADDED (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	QC LIMITS (%)
Gasoline	5000	4890	98	50-150

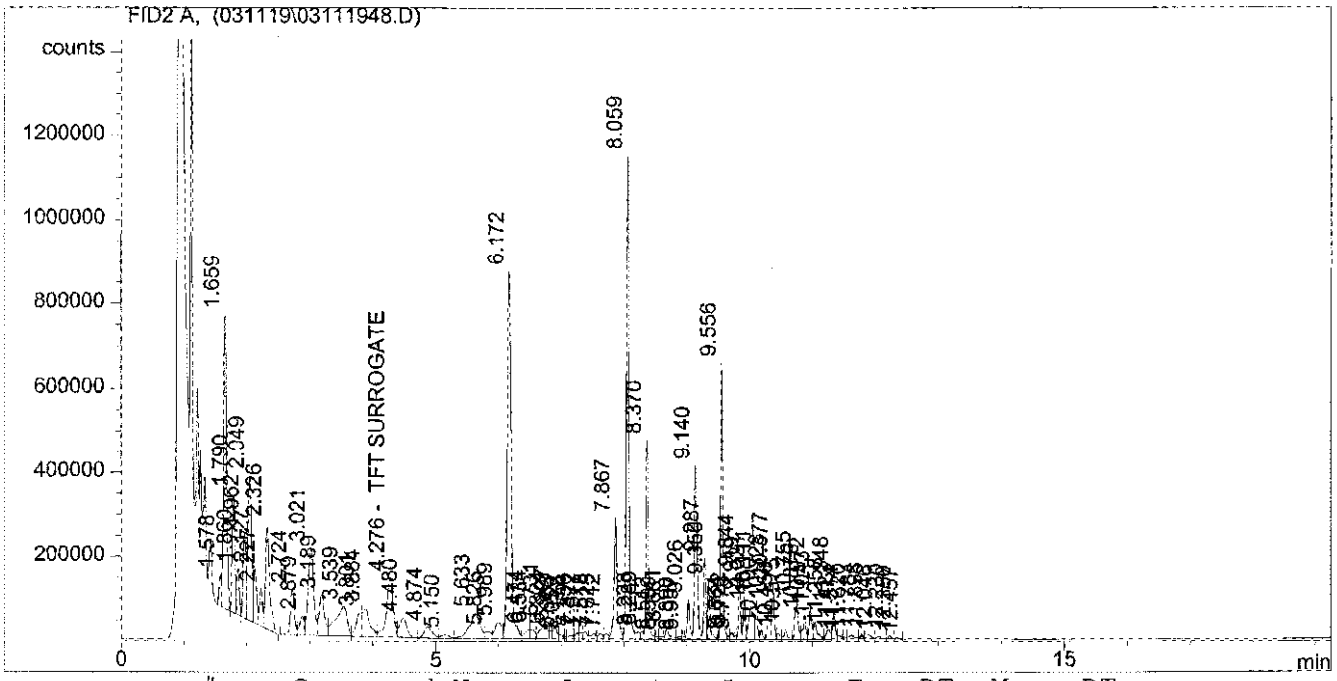
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

1 5023

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111948.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:28:26 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.646e5	0.000	1.578
2		0.000	2.402e6	0.000	1.659
3		0.000	8.625e5	0.000	1.790
4		0.000	2.957e5	0.000	1.860
5		0.000	6.643e5	0.000	1.962
6		0.000	1.421e6	0.000	2.049
7		0.000	4.578e5	0.000	2.127
8		0.000	2.915e5	0.000	2.227
9		0.000	1.121e6	0.000	2.326
10		0.000	4.738e5	0.000	2.724
11		0.000	2.296e5	0.000	2.879
12		0.000	1.252e6	0.000	3.021
13		0.000	5.718e5	0.000	3.189
14		0.000	8.996e5	0.000	3.539
15		0.000	3.271e5	0.000	3.801
16		0.000	5.385e5	0.000	3.884
17	TFT SURROGATE	124.257	1.067e6 ✓	4.269	4.276
18		0.000	3.791e5	0.000	4.480
19		0.000	2.455e5	0.000	4.874
20		0.000	9.189e4	0.000	5.150
21		0.000	7.015e5	0.000	5.633
22		0.000	1.127e5	0.000	5.826
23		0.000	2.961e5	0.000	5.989
24		0.000	3.785e6	0.000	6.172

$\frac{3.192e7}{6528}$ = 4889.71 ug/L

$\frac{4889.71}{5000} \times 100$ = 97.79%

Recovery
AK 11/20/03

1 5024

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111948.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:28:26 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.224e5	0.000	6.474
26		0.000	1.103e5	0.000	6.534
27		0.000	3.015e5	0.000	6.731
28		0.000	5.619e4	0.000	6.824
29		0.000	1.214e5	0.000	6.897
30		0.000	3.943e4	0.000	6.983
31		0.000	1.034e4	0.000	7.059
32		0.000	4.952e4	0.000	7.158
33		0.000	5.320e4	0.000	7.256
34		0.000	5.671e4	0.000	7.322
35		0.000	7.449e4	0.000	7.377
36		0.000	7.164e4	0.000	7.518
37		0.000	6.501e4	0.000	7.625
38		0.000	5.975e4	0.000	7.712
39		0.000	9.717e5	0.000	7.867
40		0.000	3.150e6	0.000	8.059
41		0.000	7.597e4	0.000	8.223
42		0.000	5.585e4	0.000	8.289
43		0.000	1.215e6	0.000	8.370
44		0.000	2.004e4	0.000	8.512
45		0.000	3.283e4	0.000	8.599
46		0.000	1.245e5	0.000	8.681
47		0.000	3.161e4	0.000	8.890
48		0.000	1.812e4	0.000	8.957
49		0.000	2.605e5	0.000	9.026
50		0.000	1.292e6	0.000	9.140
51		0.000	4.453e5	0.000	9.287
52		0.000	3.698e5	0.000	9.350
53		0.000	1.496e6	0.000	9.556
54		0.000	2.161e4	0.000	9.664
55		0.000	4.987e4	0.000	9.722
56		0.000	2.024e4	0.000	9.776
57		0.000	3.487e5	0.000	9.844
58		0.000	2.305e5	0.000	9.919
59		0.000	3.936e5	0.000	10.021
60		0.000	2.242e5	0.000	10.111
61		0.000	6.199e4	0.000	10.190
62		0.000	2.812e5	0.000	10.328
63		0.000	3.200e5	0.000	10.377
64		0.000	5.493e4	0.000	10.458
65		0.000	8.677e4	0.000	10.575
66		0.000	3.210e5	0.000	10.755
67		0.000	1.916e5	0.000	10.879
68		0.000	2.112e5	0.000	10.972
69		0.000	1.635e5	0.000	11.043
70		0.000	1.085e5	0.000	11.258

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111948.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:28:26 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.919e5	0.000	11.348
72		0.000	3.732e4	0.000	11.423
73		0.000	1.923e4	0.000	11.514
74		0.000	6.955e4	0.000	11.620
75		0.000	3.417e4	0.000	11.784
76		0.000	6.064e4	0.000	11.896
77		0.000	3.426e4	0.000	12.046
78		0.000	2.976e4	0.000	12.230
79		0.000	1.587e4	0.000	12.350
80		0.000	5.338e3	0.000	12.457
Total			3.299e7		

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **11/20/03 10:45** **LAB FILE ID:** **1\03111945.D**

METHOD: **EPA 8015B**

MATRIX: **Soil**

Sample ID: LCS 5000ppb

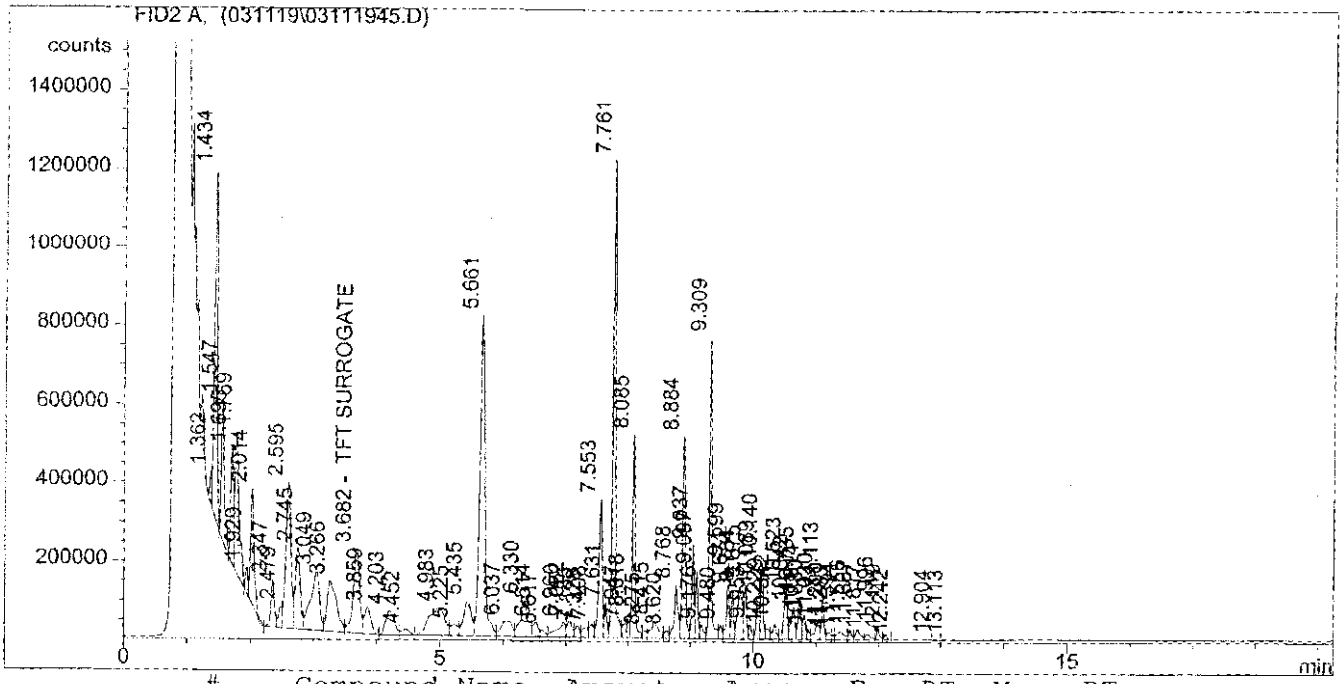
SPIKE DISTILLATE	SPIKE ADDED (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%) #	QC LIMITS (%)
Gasoline	5000	4716	94	50-150

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111945.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/20/03 10:45:57 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.475e5	0.000	1.362
2		0.000	2.855e6	0.000	1.434
3		0.000	1.226e6	0.000	1.547
4		0.000	8.833e5	0.000	1.695
5		0.000	1.613e6	0.000	1.769
6		0.000	1.674e5	0.000	1.929
7		0.000	1.100e6	0.000	2.014
8		0.000	5.050e5	0.000	2.347
9		0.000	2.355e5	0.000	2.479
10		0.000	2.153e6	0.000	2.595
11		0.000	1.168e6	0.000	2.745
12		0.000	1.574e6	0.000	3.049
13		0.000	1.401e6	0.000	3.266
14	TFT SURROGATE	123.249	1.537e6	3.699	3.682
15		0.000	5.266e5	0.000	3.859
16		0.000	6.140e5	0.000	4.203
17		0.000	1.401e5	0.000	4.452
18		0.000	1.296e6	0.000	4.983
19		0.000	2.369e5	0.000	5.225
20		0.000	7.951e5	0.000	5.435
21		0.000	4.780e6	0.000	5.661
22		0.000	4.714e5	0.000	6.037
23		0.000	7.959e5	0.000	6.330
24		0.000	2.239e5	0.000	6.514

$\frac{4.565e7}{9680}$ = 4715.91 ng/L

$\frac{4715.91}{5000} \times 100$ = 94.32%

Recovery

AK 11/20/03

1 5028

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111945.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/20/03 10:45:57 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb

->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.008e5	0.000	6.617
26		0.000	3.761e5	0.000	6.960
27		0.000	2.241e5	0.000	7.052
28		0.000	1.557e5	0.000	7.185
29		0.000	1.652e5	0.000	7.328
30		0.000	1.612e5	0.000	7.408
31		0.000	1.374e6	0.000	7.553
32		0.000	2.946e5	0.000	7.631
33		0.000	3.802e6	0.000	7.761
34		0.000	1.568e5	0.000	7.947
35		0.000	1.849e5	0.000	8.018
36		0.000	1.532e6	0.000	8.085
37		0.000	8.404e4	0.000	8.275
38		0.000	3.801e5	0.000	8.415
39		0.000	8.396e4	0.000	8.620
40		0.000	5.902e5	0.000	8.768
41		0.000	1.717e6	0.000	8.884
42		0.000	6.131e5	0.000	9.037
43		0.000	4.744e5	0.000	9.097
44		0.000	1.408e5	0.000	9.176
45		0.000	1.959e6	0.000	9.309
46		0.000	1.108e5	0.000	9.480
47		0.000	5.487e5	0.000	9.599
48		0.000	3.173e5	0.000	9.671
49		0.000	7.110e5	0.000	9.784
50		0.000	3.751e5	0.000	9.875
51		0.000	1.170e5	0.000	9.953
52		0.000	4.470e5	0.000	10.089
53		0.000	5.049e5	0.000	10.140
54		0.000	1.131e5	0.000	10.229
55		0.000	1.698e5	0.000	10.342
56		0.000	5.164e5	0.000	10.523
57		0.000	3.770e5	0.000	10.642
58		0.000	3.453e5	0.000	10.735
59		0.000	1.906e5	0.000	10.814
60		0.000	6.863e4	0.000	10.880
61		0.000	2.356e5	0.000	11.030
62		0.000	3.273e5	0.000	11.113
63		0.000	7.883e4	0.000	11.200
64		0.000	3.336e4	0.000	11.283
65		0.000	1.602e5	0.000	11.394
66		0.000	7.332e4	0.000	11.556
67		0.000	1.229e5	0.000	11.667
68		0.000	7.897e4	0.000	11.817
69		0.000	9.082e4	0.000	11.996
70		0.000	4.140e4	0.000	12.119

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111945.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/20/03 10:45:57 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	6.164e3	0.000	12.242
72		0.000	5.455e3	0.000	12.904
73		0.000	5.723e3	0.000	13.113
Total			4.719e7		

1 5030

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Diesel Range Organics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS Summary*

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS SYSTEM MONITORING COMPOUND (SURROGATE)

ANALYSIS: DRO **LAB CODE:** SURR

METHOD NO.: 8015B

Date/Time Analyzed	Sample ID	SS1(OTP) #	Total Out
11/22/03 4:49	MB 11-21-03 1000C	101	
	Upper Limit	150	
	Lower Limit	50	
11/22/03 1:49	SB 22 Water	85	
11/22/03 1:49	SB 24 Water	90	
11/22/03 2:34	SB 25 Water	83	
11/22/03 2:34	SB 23 Water	79	
11/22/03 3:19	SB 30 Water	83	
11/22/03 3:19	SB 31 Water	81	
11/22/03 4:04	SB 9 Water	85	
11/22/03 4:04	SB 10 Water	75	

SS1 (TPH) = o-Terphenyl

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: DRO **LAB CODE:** SURR

METHOD NO.: 8015B

Date/Time Analyzed	Sample ID	SS1(OTP) #	Total Out
12/4/03 5:33	MB 12-3-03 30C	97	
	Upper Limit	150	
	Lower Limit	50	
12/3/03 21:56	SB-22-05	102	
12/3/03 22:26	SB-22-10	61	
12/3/03 22:57	SB-24-05	88	
12/3/03 23:27	SB-24-10	92	
12/3/03 23:57	SB-25-05	100	
12/4/03 0:28	SB-25-10	79	
12/4/03 0:58	SB-23-05	96	
12/4/03 1:29	SB-23-10	95	
12/4/03 1:59	SB-30-05	76	
12/4/03 2:30	SB-31-05	89	
12/4/03 3:00	SB-9-05	89	
12/4/03 3:31	SB-10-05	114	

SS1 (TPH) = o-Terphenyl

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

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DIESEL RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**DRO**	**LAB CODE:**	**MBW**
METHOD NO.:	**8015B**	**LAB SAMPLE ID:**	**MB 11-21-03 1000C**
MATRIX:	**Water**		
LAB FILE ID:	**031121\B3112127.D**	**DATE/TIME ANALYZED:**	**11/22/03 04:49**

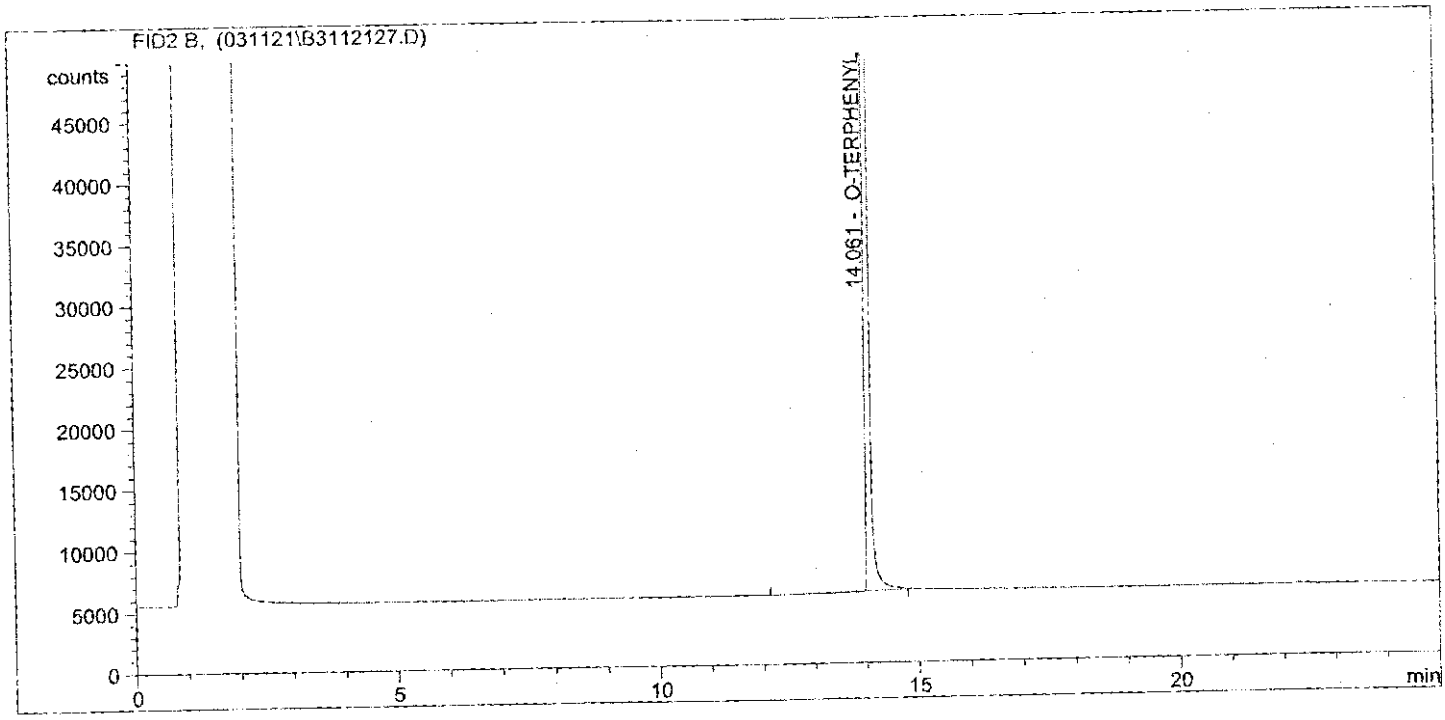
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB 22 Water	03111913-08	031121\F3112123.D	11/22/03 01:49
SB 24 Water	03111913-12	031121\B3112123.D	11/22/03 01:49
SB 25 Water	03111913-16	031121\F3112124.D	11/22/03 02:34
SB 23 Water	03111913-20	031121\B3112124.D	11/22/03 02:34
SB 30 Water	03111913-23	031121\F3112125.D	11/22/03 03:19
SB 31 Water	03111913-26	031121\B3112125.D	11/22/03 03:19
SB 9 Water	03111913-29	031121\F3112126.D	11/22/03 04:04
SB 10 Water	03111913-32	031121\B3112126.D	11/22/03 04:04

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112127.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: MB WATER 11/21
Acquired On: 11/22/03 4:49:51 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2	O-TERPHENYL	1.006e3	4.558e6	14.062	14.061
Total			4.558e6		

1 S005

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DIESEL RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**DRO**	**LAB CODE:**	**MBS**
METHOD NO.:	**8015B**	**LAB SAMPLE ID:**	**MB 12-3-03 30C**
MATRIX:	**Soil**		
LAB FILE ID:	**031203\B3120334.D**	**DATE/TIME ANALYZED:**	**12/04/03 05:33**

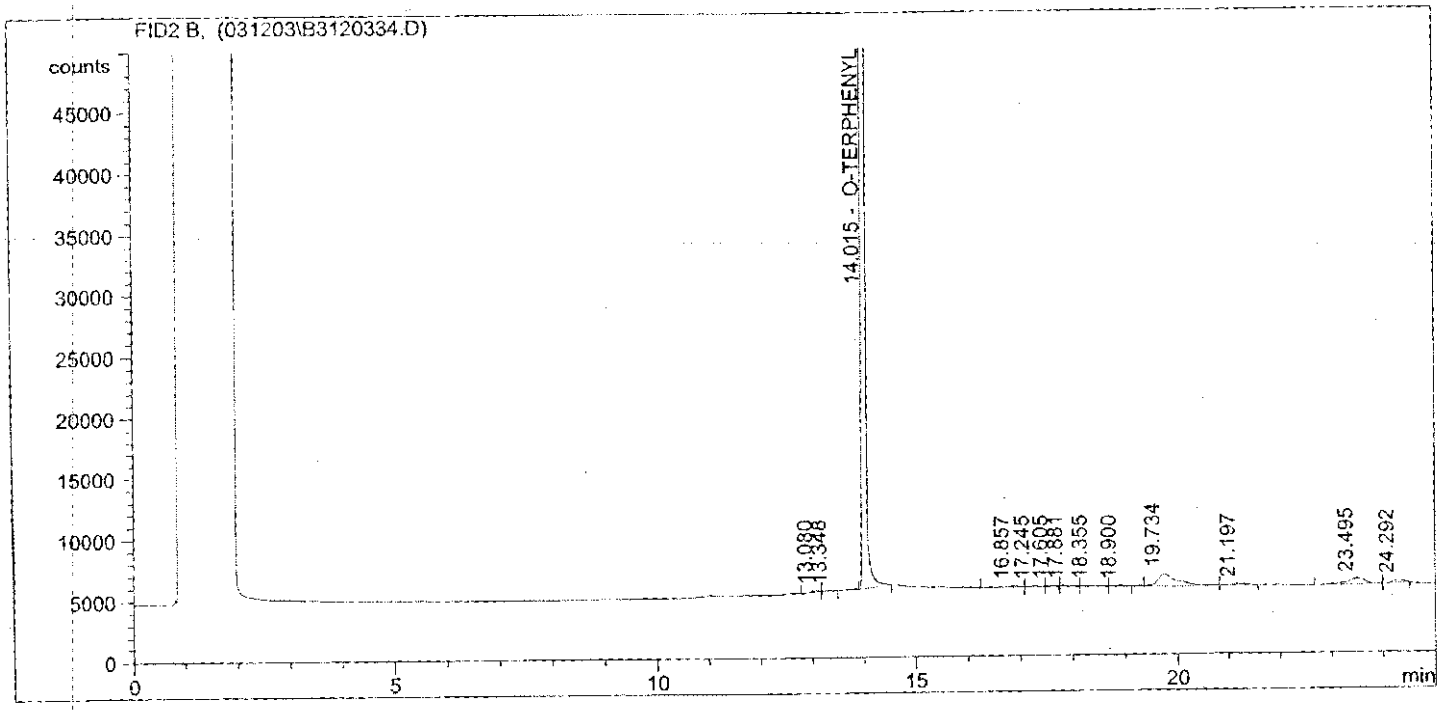
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-22-05	03111913-06	031203\B3120319.D	12/03/03 21:56
SB-22-10	03111913-07	031203\B3120320.D	12/03/03 22:26
SB-24-05	03111913-10	031203\B3120321.D	12/03/03 22:57
SB-24-10	03111913-11	031203\B3120322.D	12/03/03 23:27
SB-25-05	03111913-14	031203\B3120323.D	12/03/03 23:57
SB-25-10	03111913-15	031203\B3120324.D	12/04/03 00:28
SB-23-05	03111913-18	031203\B3120325.D	12/04/03 00:58
SB-23-10	03111913-19	031203\B3120326.D	12/04/03 01:29
SB-30-05	03111913-22	031203\B3120327.D	12/04/03 01:59
SB-31-05	03111913-25	031203\B3120328.D	12/04/03 02:30
SB-9-05	03111913-28	031203\B3120329.D	12/04/03 03:00
SB-10-05	03111913-31	031203\B3120330.D	12/04/03 03:31

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\B3120334.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: MB SOIL 12/3
Acquired On: 12/4/03 5:33:10 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.732e3	0.000	13.080
3		0.000	1.709e3	0.000	13.348
4	O-TERPHENYL	965.852	4.986e6	14.062	14.015 - 97%
5		0.000	2.576e3	0.000	16.857
6		0.000	2.095e3	0.000	17.245
7		0.000	1.848e3	0.000	17.605
8		0.000	2.206e3	0.000	17.881
9		0.000	2.616e3	0.000	18.355
10		0.000	1.818e3	0.000	18.900
11		0.000	2.669e4	0.000	19.734
12		0.000	3.943e3	0.000	21.197
13		0.000	1.196e4	0.000	23.495
14		0.000	3.653e3	0.000	24.292
Total			5.049e6		

1 S007

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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031121\F3112118.D

Date/Time Analyzed: 11/21/03 23:15

FRONT

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	2404	2648	9.7	15

Lab File IDs 031121\B3112118.D

Date/Time Analyzed: 11/21/03 23:15

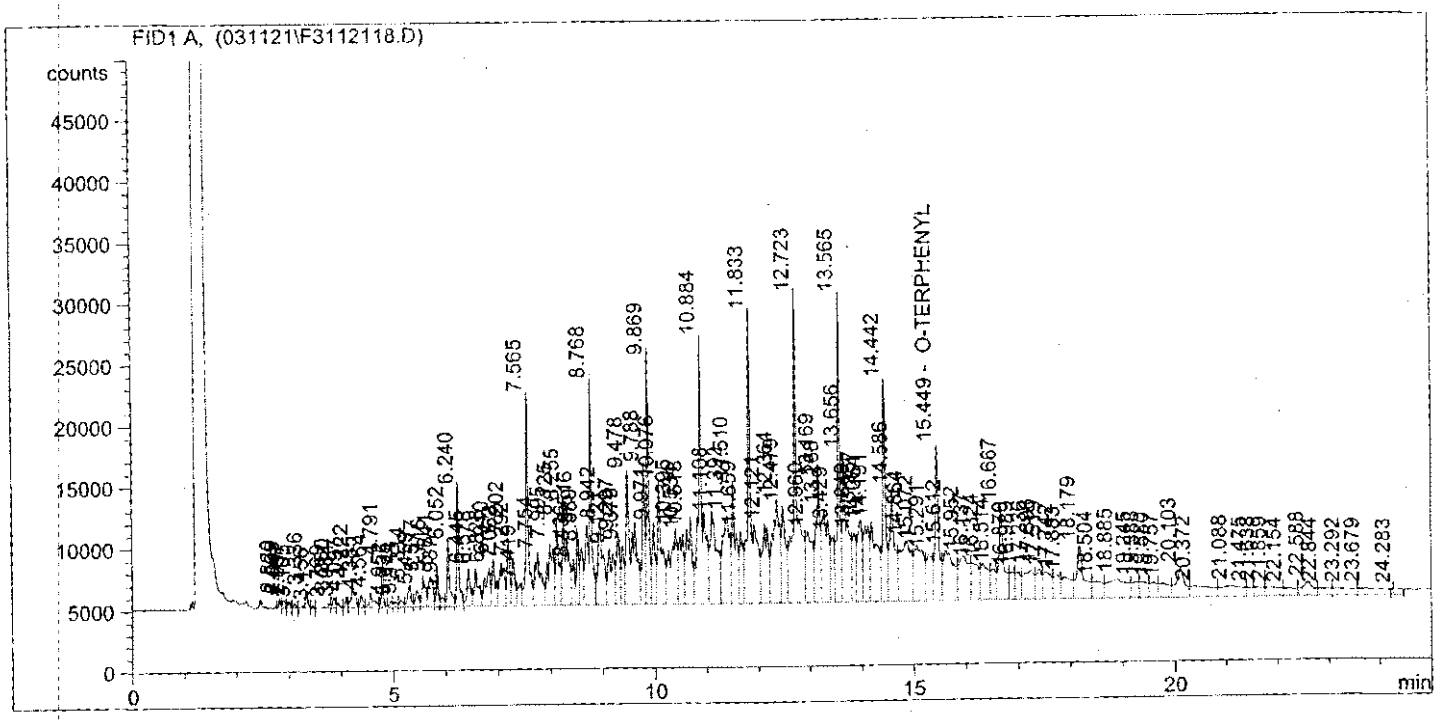
REAR

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4372	4232	3.3	15

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\F3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.942e3	0.000	2.820
3		0.000	2.227e3	0.000	2.899
4		0.000	1.606e3	0.000	2.997
5		0.000	1.270e3	0.000	3.105
6		0.000	4.730e3	0.000	3.336
7		0.000	431.919	0.000	3.456
8		0.000	1.477e3	0.000	3.769
9		0.000	2.719e3	0.000	3.860
10		0.000	1.600e3	0.000	3.934
11		0.000	2.330e3	0.000	4.097
12		0.000	1.014e4	0.000	4.222
13		0.000	3.109e3	0.000	4.385
14		0.000	7.089e3	0.000	4.564
15		0.000	9.698e3	0.000	4.791
16		0.000	1.780e3	0.000	4.952
17		0.000	2.150e3	0.000	5.035
18		0.000	2.936e3	0.000	5.144
19		0.000	8.297e3	0.000	5.314
20		0.000	6.170e3	0.000	5.459

1 S009

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\F3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.082e4	0.000	5.577
22		0.000	1.403e4	0.000	5.716
23		0.000	8.409e3	0.000	5.841
24		0.000	3.643e3	0.000	5.937
25		0.000	1.916e4	0.000	6.052
26		0.000	2.848e4	0.000	6.240
27		0.000	1.362e4	0.000	6.445
28		0.000	1.650e4	0.000	6.578
29		0.000	2.095e4	0.000	6.828
30		0.000	1.770e4	0.000	6.910
31		0.000	2.275e4	0.000	7.062
32		0.000	1.936e4	0.000	7.202
33		0.000	1.599e4	0.000	7.292
34		0.000	8.856e3	0.000	7.419
35		0.000	5.861e4	0.000	7.565
36		0.000	3.391e4	0.000	7.754
37		0.000	3.814e4	0.000	7.995
38		0.000	2.973e4	0.000	8.125
39		0.000	5.053e4	0.000	8.255
40		0.000	1.251e4	0.000	8.436
41		0.000	1.936e4	0.000	8.516
42		0.000	1.785e4	0.000	8.589
43		0.000	8.111e4	0.000	8.768
44		0.000	4.831e4	0.000	8.942
45		0.000	3.333e4	0.000	9.121
46		0.000	2.675e4	0.000	9.297
47		0.000	1.683e4	0.000	9.379
48		0.000	9.210e4	0.000	9.478
49		0.000	4.143e4	0.000	9.788
50		0.000	5.911e4	0.000	9.869
51		0.000	2.609e4	0.000	9.971
52		0.000	5.687e4	0.000	10.076
53		0.000	5.797e4	0.000	10.395
54		0.000	3.775e4	0.000	10.534
55		0.000	5.155e4	0.000	10.618
56		0.000	1.233e5	0.000	10.884
57		0.000	6.877e4	0.000	11.108
58		0.000	6.922e4	0.000	11.392
59		0.000	5.260e4	0.000	11.510
60		0.000	2.905e4	0.000	11.659
61		0.000	1.382e5	0.000	11.833
62		0.000	5.176e4	0.000	12.121

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\F3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	7.817e4	0.000	12.364
64		0.000	4.527e4	0.000	12.479
65		0.000	1.560e5	0.000	12.723
66		0.000	5.008e4	0.000	12.960
67		0.000	5.475e4	0.000	13.169
68		0.000	6.661e4	0.000	13.268
69		0.000	2.628e4	0.000	13.429
70		0.000	8.540e4	0.000	13.565
71		0.000	8.013e4	0.000	13.656
72		0.000	2.788e4	0.000	13.849
73		0.000	4.227e4	0.000	13.967
74		0.000	4.667e4	0.000	14.064
75		0.000	6.111e4	0.000	14.191
76		0.000	6.761e4	0.000	14.442
77		0.000	6.289e4	0.000	14.586
78		0.000	7.133e4	0.000	14.864
79		0.000	5.918e4	0.000	15.072
80		0.000	3.015e4	0.000	15.291
81	O-TERPHENYL	24.839	6.165e4	15.346	15.449
82		0.000	5.784e4	0.000	15.612
83		0.000	4.929e4	0.000	15.952
84		0.000	2.741e4	0.000	16.137
85		0.000	3.077e4	0.000	16.324
86		0.000	1.623e4	0.000	16.514
87		0.000	5.121e4	0.000	16.667
88		0.000	1.528e4	0.000	16.870
89		0.000	1.600e4	0.000	16.989
90		0.000	3.161e4	0.000	17.236
91		0.000	1.856e4	0.000	17.396
92		0.000	2.337e4	0.000	17.519
93		0.000	1.741e4	0.000	17.742
94		0.000	2.309e4	0.000	17.883
95		0.000	4.272e4	0.000	18.179
96		0.000	1.828e4	0.000	18.504
97		0.000	4.002e4	0.000	18.885
98		0.000	1.220e4	0.000	19.245
99		0.000	1.347e4	0.000	19.388
100		0.000	1.236e4	0.000	19.580
101		0.000	1.608e4	0.000	19.757
102		0.000	2.730e4	0.000	20.103
103		0.000	2.658e4	0.000	20.372
104		0.000	2.620e4	0.000	21.088

1 S011

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\F3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	6.227e3	0.000	21.475
106		0.000	9.489e3	0.000	21.638
107		0.000	1.369e4	0.000	21.859
108		0.000	9.782e3	0.000	22.154
109		0.000	1.719e4	0.000	22.588
110		0.000	9.892e3	0.000	22.844
111		0.000	1.530e4	0.000	23.292
112		0.000	1.862e4	0.000	23.679
113		0.000	5.774e3	0.000	24.283
Total			3.607e6 / 1500 = 2404		

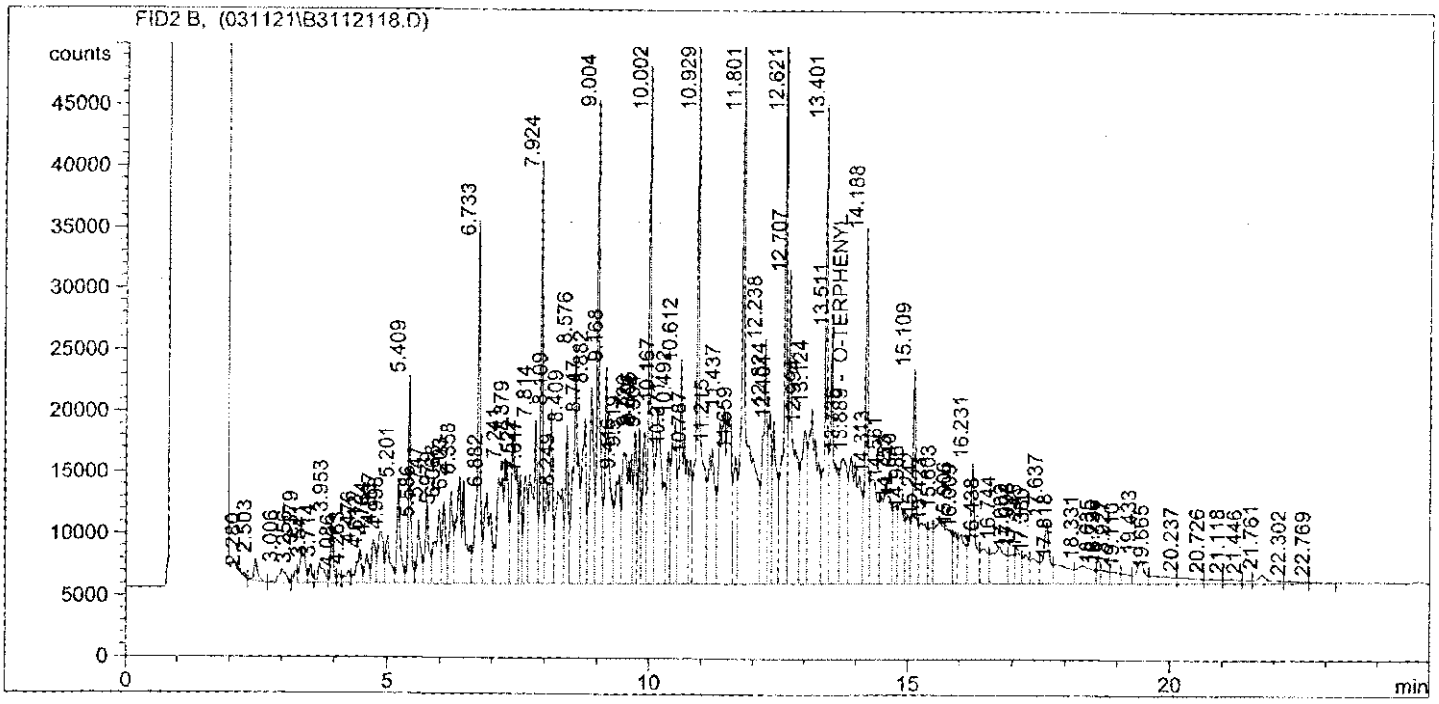
$$\frac{2648 - 2404}{(2648 + 2404) \div 2} = \frac{244}{\cancel{2440}\ 2526} \times 100 = 9.7\%$$

1 S012

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.129e3	0.000	2.280
3		0.000	9.031e3	0.000	2.503
4		0.000	1.072e4	0.000	3.006
5		0.000	4.303e3	0.000	3.256
6		0.000	1.888e4	0.000	3.379
7		0.000	6.117e3	0.000	3.541
8		0.000	1.274e4	0.000	3.714
9		0.000	1.823e4	0.000	3.953
10		0.000	3.108e3	0.000	4.086
11		0.000	6.404e3	0.000	4.263
12		0.000	1.755e4	0.000	4.476
13		0.000	1.149e4	0.000	4.612
14		0.000	1.875e4	0.000	4.734
15		0.000	2.816e4	0.000	4.867
16		0.000	2.327e4	0.000	4.998
17		0.000	3.631e4	0.000	5.201
18		0.000	5.662e4	0.000	5.409
19		0.000	2.542e4	0.000	5.586
20		0.000	3.136e4	0.000	5.747

1 6013

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	4.107e4	0.000	5.979
22		0.000	3.251e4	0.000	6.068
23		0.000	3.298e4	0.000	6.203
24		0.000	9.852e4	0.000	6.358
25		0.000	1.151e5	0.000	6.733
26		0.000	6.268e4	0.000	6.882
27		0.000	1.268e5	0.000	7.241
28		0.000	8.698e4	0.000	7.379
29		0.000	2.999e4	0.000	7.522
30		0.000	4.375e4	0.000	7.617
31		0.000	9.894e4	0.000	7.814
32		0.000	1.026e5	0.000	7.924
33		0.000	8.752e4	0.000	8.109
34		0.000	7.412e4	0.000	8.249
35		0.000	5.008e4	0.000	8.409
36		0.000	1.249e5	0.000	8.576
37		0.000	7.992e4	0.000	8.747
38		0.000	9.167e4	0.000	8.882
39		0.000	1.492e5	0.000	9.004
40		0.000	1.214e5	0.000	9.168
41		0.000	6.556e4	0.000	9.416
42		0.000	1.243e5	0.000	9.519
43		0.000	5.104e4	0.000	9.726
44		0.000	4.245e4	0.000	9.805
45		0.000	5.705e4	0.000	9.904
46		0.000	1.619e5	0.000	10.002
47		0.000	1.395e5	0.000	10.167
48		0.000	4.767e4	0.000	10.371
49		0.000	9.196e4	0.000	10.492
50		0.000	1.413e5	0.000	10.612
51		0.000	3.828e4	0.000	10.787
52		0.000	2.421e5	0.000	10.929
53		0.000	1.038e5	0.000	11.215
54		0.000	2.204e5	0.000	11.437
55		0.000	5.194e4	0.000	11.659
56		0.000	3.488e5	0.000	11.801
57		0.000	1.185e5	0.000	12.238
58		0.000	5.965e4	0.000	12.324
59		0.000	7.789e4	0.000	12.401
60		0.000	1.864e5	0.000	12.621
61		0.000	1.793e5	0.000	12.707
62		0.000	9.809e4	0.000	12.994

1 S014

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	1.720e5	0.000	13.124
64		0.000	1.515e5	0.000	13.401
65		0.000	1.402e5	0.000	13.511
66		0.000	9.908e4	0.000	13.735
67	O-TERPHENYL	33.187	1.504e5	14.062	13.889
68		0.000	1.151e5	0.000	14.188
69		0.000	8.772e4	0.000	14.313
70		0.000	1.038e5	0.000	14.561
71		0.000	3.672e4	0.000	14.753
72		0.000	5.079e4	0.000	14.840
73		0.000	3.152e4	0.000	14.986
74		0.000	8.774e4	0.000	15.109
75		0.000	4.924e4	0.000	15.242
76		0.000	2.729e4	0.000	15.423
77		0.000	1.037e5	0.000	15.603
78		0.000	2.243e4	0.000	15.906
79		0.000	3.651e4	0.000	16.009
80		0.000	6.645e4	0.000	16.231
81		0.000	2.835e4	0.000	16.438
82		0.000	5.333e4	0.000	16.744
83		0.000	1.879e4	0.000	17.002
84		0.000	1.831e4	0.000	17.098
85		0.000	1.846e4	0.000	17.245
86		0.000	2.037e4	0.000	17.380
87		0.000	4.106e4	0.000	17.637
88		0.000	3.224e4	0.000	17.818
89		0.000	3.035e4	0.000	18.331
90		0.000	5.181e3	0.000	18.635
91		0.000	1.095e4	0.000	18.736
92		0.000	1.130e4	0.000	18.927
93		0.000	9.397e3	0.000	19.110
94		0.000	2.077e4	0.000	19.433
95		0.000	1.808e4	0.000	19.665
96		0.000	1.321e4	0.000	20.237
97		0.000	7.820e3	0.000	20.726
98		0.000	7.003e3	0.000	21.118
99		0.000	3.170e3	0.000	21.446
100		0.000	1.172e4	0.000	21.761
101		0.000	4.305e3	0.000	22.302
102		0.000	2.885e3	0.000	22.769
Total			6.558e6/1500 = 4372		

$\frac{4232-4372}{(4232+4372)\div 2}$

$\frac{-140}{4302} \times 100$

$= -3.25\%$

1 8015

created on:11/24/03 11:13:00 AM

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
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800-932-9047
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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031203\F3120317.D

Date/Time Analyzed: 12/3/03 20:55

FRONT

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	2599	2648	1.9	15

Lab File IDs 031203\F3120317.D

Date/Time Analyzed: 12/3/03 20:55

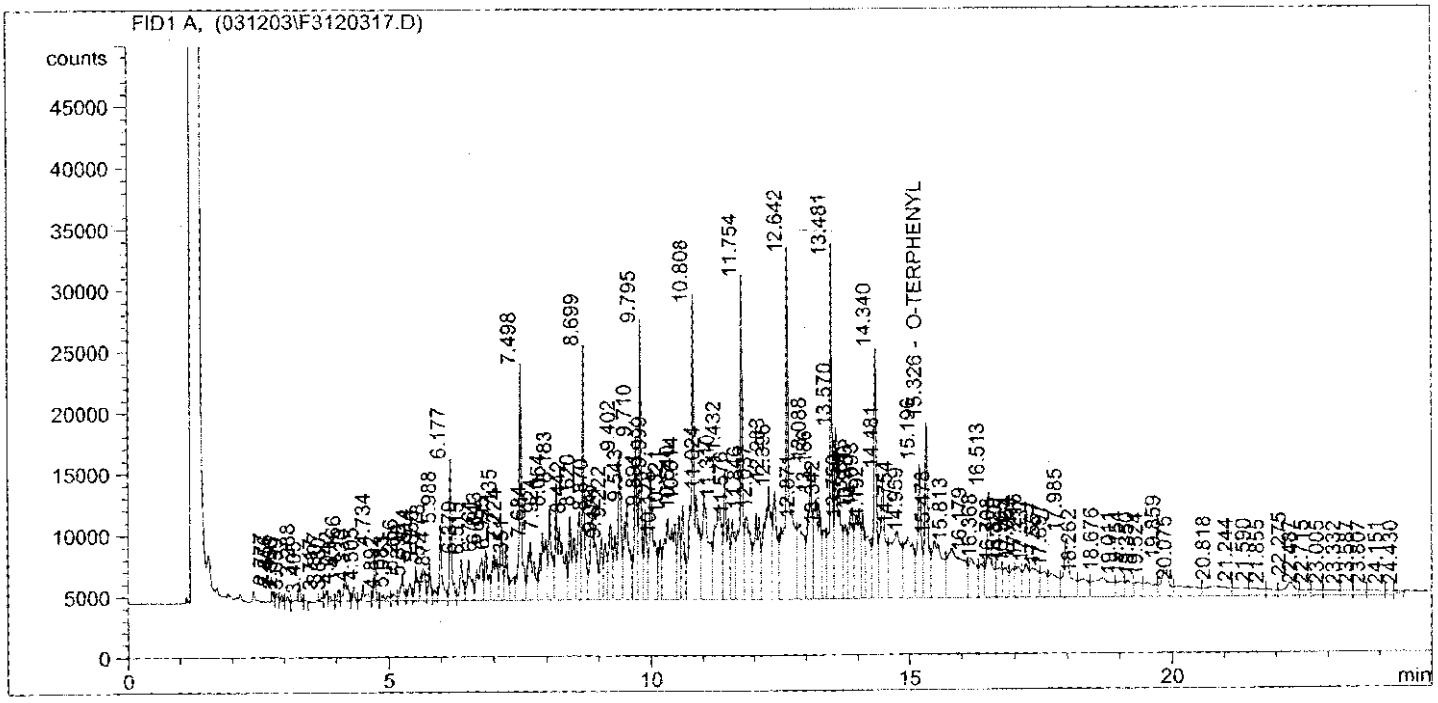
REAR

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4614	4232	8.6	15

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.855e3	0.000	2.777
3		0.000	2.101e3	0.000	2.856
4		0.000	1.387e3	0.000	2.953
5		0.000	979.312	0.000	3.059
6		0.000	4.368e3	0.000	3.288
7		0.000	124.590	0.000	3.405
8		0.000	914.351	0.000	3.717
9		0.000	2.630e3	0.000	3.807
10		0.000	1.319e3	0.000	3.880
11		0.000	2.146e3	0.000	4.042
12		0.000	1.072e4	0.000	4.166
13		0.000	2.974e3	0.000	4.330
14		0.000	6.863e3	0.000	4.505
15		0.000	1.026e4	0.000	4.734
16		0.000	3.504e3	0.000	4.892
17		0.000	2.867e3	0.000	5.083
18		0.000	8.662e3	0.000	5.256
19		0.000	6.391e3	0.000	5.398
20		0.000	1.175e4	0.000	5.514

1 6017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.515e4	0.000	5.656
22		0.000	9.094e3	0.000	5.778
23		0.000	3.748e3	0.000	5.874
24		0.000	2.084e4	0.000	5.988
25		0.000	3.129e4	0.000	6.177
26		0.000	1.459e4	0.000	6.379
27		0.000	1.802e4	0.000	6.515
28		0.000	2.294e4	0.000	6.761
29		0.000	1.942e4	0.000	6.843
30		0.000	2.498e4	0.000	6.995
31		0.000	2.134e4	0.000	7.135
32		0.000	1.725e4	0.000	7.224
33		0.000	9.692e3	0.000	7.351
34		0.000	6.449e4	0.000	7.498
35		0.000	3.665e4	0.000	7.684
36		0.000	4.184e4	0.000	7.924
37		0.000	3.266e4	0.000	8.054
38		0.000	6.929e4	0.000	8.183
39		0.000	4.101e4	0.000	8.442
40		0.000	2.968e4	0.000	8.620
41		0.000	5.977e4	0.000	8.699
42		0.000	5.310e4	0.000	8.870
43		0.000	1.814e4	0.000	9.047
44		0.000	1.845e4	0.000	9.121
45		0.000	2.944e4	0.000	9.222
46		0.000	6.677e4	0.000	9.402
47		0.000	5.327e4	0.000	9.543
48		0.000	4.668e4	0.000	9.710
49		0.000	6.532e4	0.000	9.795
50		0.000	2.847e4	0.000	9.891
51		0.000	6.289e4	0.000	9.999
52		0.000	1.868e4	0.000	10.178
53		0.000	8.707e4	0.000	10.321
54		0.000	2.551e4	0.000	10.540
55		0.000	3.039e4	0.000	10.614
56		0.000	1.367e5	0.000	10.808
57		0.000	7.515e4	0.000	11.024
58		0.000	7.713e4	0.000	11.310
59		0.000	5.728e4	0.000	11.432
60		0.000	3.109e4	0.000	11.576
61		0.000	1.022e5	0.000	11.754
62		0.000	5.040e4	0.000	11.846

1 S018

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	5.666e4	0.000	12.037
64		0.000	8.492e4	0.000	12.283
65		0.000	4.817e4	0.000	12.396
66		0.000	1.731e5	0.000	12.642
67		0.000	5.409e4	0.000	12.871
68		0.000	6.089e4	0.000	13.088
69		0.000	7.027e4	0.000	13.186
70		0.000	2.772e4	0.000	13.342
71		0.000	9.556e4	0.000	13.481
72		0.000	8.509e4	0.000	13.570
73		0.000	3.050e4	0.000	13.750
74		0.000	4.618e4	0.000	13.873
75		0.000	5.097e4	0.000	13.970
76		0.000	2.888e4	0.000	14.093
77		0.000	3.593e4	0.000	14.192
78		0.000	7.618e4	0.000	14.340
79		0.000	6.721e4	0.000	14.481
80		0.000	7.799e4	0.000	14.754
81		0.000	6.332e4	0.000	14.959
82		0.000	5.418e4	0.000	15.196
83	O-TERPHENYL	24.095	6.547e4	15.346	15.326
84		0.000	6.389e4	0.000	15.478
85		0.000	8.236e4	0.000	15.813
86		0.000	3.315e4	0.000	16.179
87		0.000	1.782e4	0.000	16.368
88		0.000	5.363e4	0.000	16.513
89		0.000	1.674e4	0.000	16.708
90		0.000	1.739e4	0.000	16.820
91		0.000	1.349e4	0.000	16.965
92		0.000	1.964e4	0.000	17.064
93		0.000	2.032e4	0.000	17.216
94		0.000	2.514e4	0.000	17.337
95		0.000	1.850e4	0.000	17.557
96		0.000	2.445e4	0.000	17.697
97		0.000	4.407e4	0.000	17.985
98		0.000	1.846e4	0.000	18.262
99		0.000	3.731e4	0.000	18.676
100		0.000	1.247e4	0.000	19.011
101		0.000	1.240e4	0.000	19.154
102		0.000	1.154e4	0.000	19.350
103		0.000	1.668e4	0.000	19.524
104		0.000	2.576e4	0.000	19.859

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	2.427e4	0.000	20.075
106		0.000	2.516e4	0.000	20.818
107		0.000	1.256e4	0.000	21.244
108		0.000	1.107e4	0.000	21.590
109		0.000	6.773e3	0.000	21.855
110		0.000	1.616e4	0.000	22.275
111		0.000	5.830e3	0.000	22.487
112		0.000	6.091e3	0.000	22.715
113		0.000	8.119e3	0.000	23.005
114		0.000	5.433e3	0.000	23.332
115		0.000	5.885e3	0.000	23.587
116		0.000	7.557e3	0.000	23.807
117		0.000	3.383e3	0.000	24.151
118		0.000	2.158e3	0.000	24.430
Total			3.899e6 / 1500 = 2599		

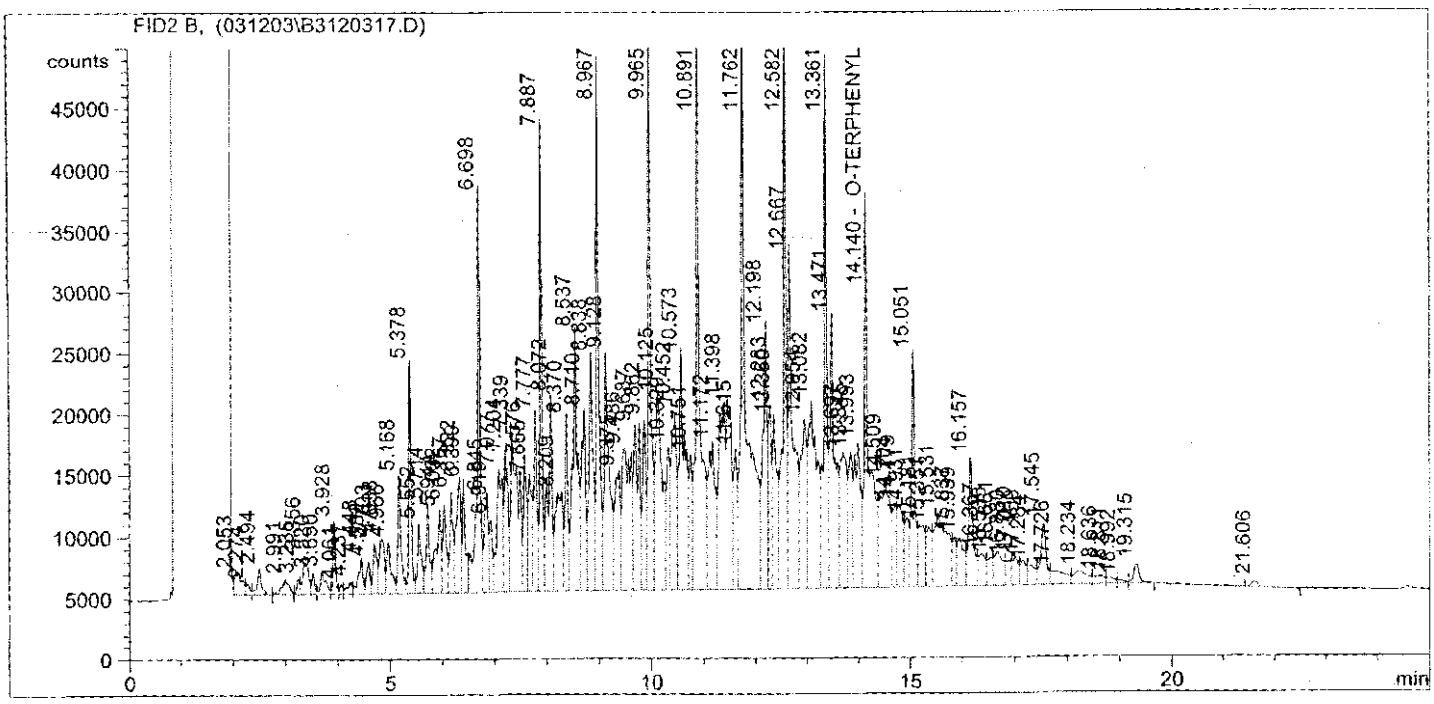
$$\frac{2648 - 2599}{(2648 + 2599) \div 2} = \frac{49}{2624} \times 100 = 1.87\%$$

1 S020

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\B3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.805e4	0.000	2.053
3		0.000	4.323e3	0.000	2.274
4		0.000	1.296e4	0.000	2.494
5		0.000	1.176e4	0.000	2.991
6		0.000	4.959e3	0.000	3.235
7		0.000	2.130e4	0.000	3.356
8		0.000	6.548e3	0.000	3.520
9		0.000	1.294e4	0.000	3.690
10		0.000	1.978e4	0.000	3.928
11		0.000	2.853e3	0.000	4.061
12		0.000	6.290e3	0.000	4.237
13		0.000	1.835e4	0.000	4.448
14		0.000	1.211e4	0.000	4.582
15		0.000	2.079e4	0.000	4.703
16		0.000	3.043e4	0.000	4.838
17		0.000	2.504e4	0.000	4.966
18		0.000	3.976e4	0.000	5.168
19		0.000	6.187e4	0.000	5.378
20		0.000	2.748e4	0.000	5.552

1 6021

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\B3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	3.343e4	0.000	5.714
22		0.000	4.433e4	0.000	5.944
23		0.000	3.469e4	0.000	6.032
24		0.000	3.582e4	0.000	6.167
25		0.000	5.541e4	0.000	6.322
26		0.000	3.950e4	0.000	6.399
27		0.000	1.368e5	0.000	6.698
28		0.000	4.235e4	0.000	6.845
29		0.000	2.523e4	0.000	6.919
30		0.000	7.704e4	0.000	7.077
31		0.000	5.982e4	0.000	7.204
32		0.000	1.276e5	0.000	7.339
33		0.000	4.880e4	0.000	7.576
34		0.000	4.726e4	0.000	7.665
35		0.000	5.926e4	0.000	7.777
36		0.000	1.123e5	0.000	7.887
37		0.000	9.382e4	0.000	8.072
38		0.000	7.982e4	0.000	8.209
39		0.000	5.413e4	0.000	8.370
40		0.000	1.367e5	0.000	8.537
41		0.000	8.554e4	0.000	8.710
42		0.000	1.028e5	0.000	8.838
43		0.000	1.625e5	0.000	8.967
44		0.000	1.303e5	0.000	9.128
45		0.000	7.282e4	0.000	9.375
46		0.000	1.337e5	0.000	9.486
47		0.000	1.023e5	0.000	9.687
48		0.000	6.255e4	0.000	9.862
49		0.000	1.785e5	0.000	9.965
50		0.000	1.508e5	0.000	10.125
51		0.000	5.197e4	0.000	10.329
52		0.000	9.970e4	0.000	10.452
53		0.000	1.542e5	0.000	10.573
54		0.000	4.454e4	0.000	10.751
55		0.000	2.617e5	0.000	10.891
56		0.000	1.117e5	0.000	11.172
57		0.000	2.379e5	0.000	11.398
58		0.000	5.506e4	0.000	11.615
59		0.000	3.803e5	0.000	11.762
60		0.000	1.284e5	0.000	12.198
61		0.000	6.279e4	0.000	12.283
62		0.000	8.168e4	0.000	12.360

1 6022

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\B3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	2.060e5	0.000	12.582
64		0.000	1.920e5	0.000	12.667
65		0.000	1.048e5	0.000	12.954
66		0.000	1.799e5	0.000	13.082
67		0.000	1.696e5	0.000	13.361
68		0.000	1.496e5	0.000	13.471
69		0.000	1.043e5	0.000	13.697
70		0.000	6.193e4	0.000	13.845
71		0.000	1.021e5	0.000	13.993
72	O-TERPHENYL	41.400	2.137e5	14.062	14.140
73		0.000	1.155e5	0.000	14.509
74		0.000	3.775e4	0.000	14.704
75		0.000	5.101e4	0.000	14.779
76		0.000	3.275e4	0.000	14.931
77		0.000	9.300e4	0.000	15.051
78		0.000	4.443e4	0.000	15.181
79		0.000	3.517e4	0.000	15.351
80		0.000	1.040e5	0.000	15.531
81		0.000	2.086e4	0.000	15.837
82		0.000	3.513e4	0.000	15.939
83		0.000	6.567e4	0.000	16.157
84		0.000	2.447e4	0.000	16.367
85		0.000	1.585e4	0.000	16.535
86		0.000	3.351e4	0.000	16.661
87		0.000	1.395e4	0.000	16.880
88		0.000	1.863e4	0.000	17.010
89		0.000	1.543e4	0.000	17.159
90		0.000	1.568e4	0.000	17.284
91		0.000	3.764e4	0.000	17.545
92		0.000	2.151e4	0.000	17.726
93		0.000	1.945e4	0.000	18.234
94		0.000	8.787e3	0.000	18.636
95		0.000	5.047e3	0.000	18.811
96		0.000	2.523e3	0.000	18.992
97		0.000	1.162e4	0.000	19.315
98		0.000	4.921e3	0.000	21.606
Total			6.922e6 / 1500 = 4614		

$$\frac{4232 - 4614}{(4232 + 4614) \div 2} = \frac{-382}{4423} \times 100 = -8.63\%$$

1 S023

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

Lab File IDs 031203\F3120337.D
031203\F3120338.D

Date Analyzed: 12/04/03

Matrix: Soil

Sample ID: 03112617-01 MS

SAMPLE SPIKE DISTILLATE	SPIKE ADDED (mg/kg)	SAMPLE CONC (mg/kg)	SPIKE CONC (mg/kg)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	ND	821	82	50-150

Sample ID: 03112617-01 MSD

SAMPLE SPIKE DUP DISTILLATE	SPIKE ADDED (mg/kg)	SAMPLE CONC (mg/kg)	SPK DUP CONC (mg/kg)	SPIKE DUP REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Diesel Fuel	1000	ND	864	86	5	20	50-150

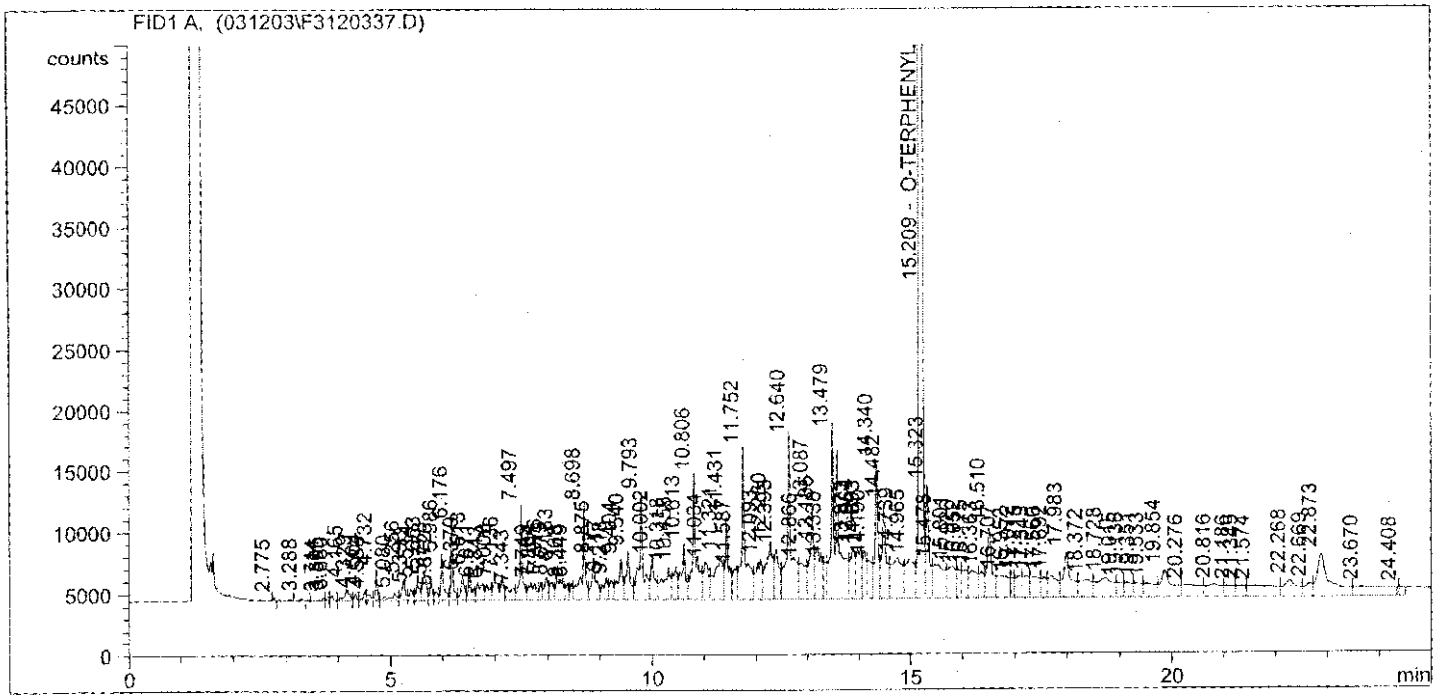
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

1 6024

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120337.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MS
Acquired On: 12/4/03 7:04:34 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	494.995	0.000	2.775
3		0.000	674.750	0.000	3.288
4		0.000	350.844	0.000	3.714
5		0.000	889.107	0.000	3.805
6		0.000	1.187e3	0.000	3.880
7		0.000	6.585e3	0.000	4.165
8		0.000	1.542e3	0.000	4.329
9		0.000	2.257e3	0.000	4.504
10		0.000	2.479e3	0.000	4.586
11		0.000	6.109e3	0.000	4.732
12		0.000	5.128e3	0.000	5.080
13		0.000	7.636e3	0.000	5.256
14		0.000	4.081e3	0.000	5.393
15		0.000	6.348e3	0.000	5.514
16		0.000	1.096e4	0.000	5.653
17		0.000	4.828e3	0.000	5.778
18		0.000	3.111e3	0.000	5.872
19		0.000	1.328e4	0.000	5.986
20		0.000	1.774e4	0.000	6.176

1 S025

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120337.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MS
Acquired On: 12/4/03 7:04:34 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	9.082e3	0.000	6.379
22		0.000	1.069e4	0.000	6.513
23		0.000	1.088e4	0.000	6.671
24		0.000	7.589e3	0.000	6.843
25		0.000	1.047e4	0.000	7.008
26		0.000	7.298e3	0.000	7.136
27		0.000	1.003e4	0.000	7.343
28		0.000	2.634e4	0.000	7.497
29		0.000	1.279e4	0.000	7.749
30		0.000	4.563e3	0.000	7.864
31		0.000	9.387e3	0.000	7.976
32		0.000	7.398e3	0.000	8.079
33		0.000	1.761e4	0.000	8.183
34		0.000	4.652e3	0.000	8.368
35		0.000	4.733e3	0.000	8.449
36		0.000	3.542e4	0.000	8.698
37		0.000	2.031e4	0.000	8.875
38		0.000	1.134e4	0.000	9.117
39		0.000	8.257e3	0.000	9.218
40		0.000	1.991e4	0.000	9.404
41		0.000	2.076e4	0.000	9.540
42		0.000	4.784e4	0.000	9.793
43		0.000	1.903e4	0.000	10.002
44		0.000	2.639e4	0.000	10.318
45		0.000	1.514e4	0.000	10.455
46		0.000	2.569e4	0.000	10.613
47		0.000	5.422e4	0.000	10.806
48		0.000	2.122e4	0.000	11.034
49		0.000	4.094e4	0.000	11.321
50		0.000	3.043e4	0.000	11.431
51		0.000	1.404e4	0.000	11.587
52		0.000	7.084e4	0.000	11.752
53		0.000	2.754e4	0.000	12.093
54		0.000	4.172e4	0.000	12.280
55		0.000	2.557e4	0.000	12.393
56		0.000	8.104e4	0.000	12.640
57		0.000	2.751e4	0.000	12.866
58		0.000	3.740e4	0.000	13.087
59		0.000	3.499e4	0.000	13.185
60		0.000	1.270e4	0.000	13.338
61		0.000	1.276e5	0.000	13.479
62		0.000	2.434e4	0.000	13.873

1 6026

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120337.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MS
Acquired On: 12/4/03 7:04:34 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	3.119e4	0.000	13.964
64		0.000	1.906e4	0.000	14.093
65		0.000	2.054e4	0.000	14.190
66		0.000	4.386e4	0.000	14.340
67		0.000	4.635e4	0.000	14.482
68		0.000	4.784e4	0.000	14.739
69		0.000	3.935e4	0.000	14.965
70	O-TERPHENYL	745.475	2.025e6	15.346	15.209 -75'
71		0.000	4.188e4	0.000	15.323
72		0.000	3.998e4	0.000	15.478
73		0.000	2.811e4	0.000	15.801
74		0.000	1.249e4	0.000	15.926
75		0.000	1.690e4	0.000	16.052
76		0.000	2.406e4	0.000	16.175
77		0.000	1.386e4	0.000	16.363
78		0.000	3.820e4	0.000	16.510
79		0.000	2.773e4	0.000	16.707
80		0.000	6.800e3	0.000	16.952
81		0.000	1.527e4	0.000	17.072
82		0.000	1.449e4	0.000	17.215
83		0.000	1.981e4	0.000	17.343
84		0.000	1.203e4	0.000	17.560
85		0.000	2.219e4	0.000	17.692
86		0.000	3.717e4	0.000	17.983
87		0.000	2.337e4	0.000	18.372
88		0.000	3.374e4	0.000	18.728
89		0.000	9.388e3	0.000	19.015
90		0.000	1.243e4	0.000	19.136
91		0.000	1.230e4	0.000	19.351
92		0.000	1.678e4	0.000	19.533
93		0.000	3.357e4	0.000	19.854
94		0.000	2.337e4	0.000	20.276
95		0.000	2.189e4	0.000	20.816
96		0.000	1.162e4	0.000	21.186
97		0.000	1.159e4	0.000	21.349
98		0.000	3.356e4	0.000	21.574
99		0.000	2.396e4	0.000	22.268
100		0.000	1.193e4	0.000	22.669
101		0.000	6.106e4	0.000	22.873
102		0.000	3.740e4	0.000	23.670
103		0.000	4.928e3	0.000	24.408

1 6027

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120337.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MS
Acquired On: 12/4/03 7:04:34 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
Total			4.199e6 - 2.025e6		

$= \frac{2174000}{2648} = 820.997$

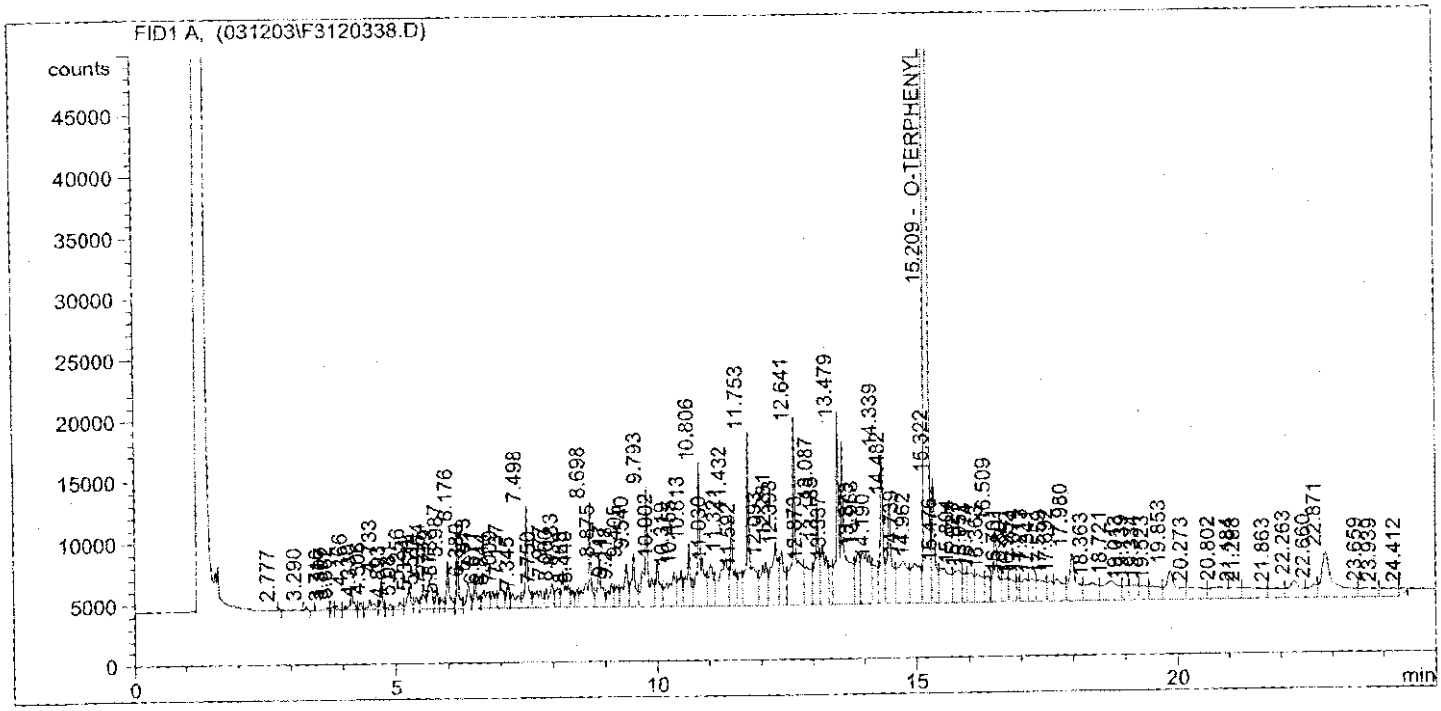
$\frac{820.997}{1000} \times 100 = 82.099\%$

1 6028

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120338.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MSD
Acquired On: 12/4/03 7:35:00 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	492.407	0.000	2.777
3		0.000	758.020	0.000	3.290
4		0.000	462.054	0.000	3.716
5		0.000	973.641	0.000	3.807
6		0.000	1.325e3	0.000	3.882
7		0.000	7.122e3	0.000	4.166
8		0.000	1.708e3	0.000	4.330
9		0.000	5.256e3	0.000	4.506
10		0.000	6.582e3	0.000	4.733
11		0.000	1.762e3	0.000	4.893
12		0.000	3.946e3	0.000	5.081
13		0.000	8.209e3	0.000	5.256
14		0.000	4.410e3	0.000	5.394
15		0.000	6.833e3	0.000	5.514
16		0.000	1.171e4	0.000	5.654
17		0.000	5.198e3	0.000	5.779
18		0.000	3.383e3	0.000	5.873
19		0.000	1.419e4	0.000	5.987
20		0.000	1.885e4	0.000	6.176

1 6029

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120338.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MSD
Acquired On: 12/4/03 7:35:00 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	9.742e3	0.000	6.380
22		0.000	1.145e4	0.000	6.513
23		0.000	1.164e4	0.000	6.671
24		0.000	8.117e3	0.000	6.844
25		0.000	1.123e4	0.000	7.009
26		0.000	7.813e3	0.000	7.137
27		0.000	1.075e4	0.000	7.345
28		0.000	2.818e4	0.000	7.498
29		0.000	1.370e4	0.000	7.750
30		0.000	1.501e4	0.000	7.977
31		0.000	7.992e3	0.000	8.080
32		0.000	1.911e4	0.000	8.183
33		0.000	5.028e3	0.000	8.368
34		0.000	5.141e3	0.000	8.449
35		0.000	3.851e4	0.000	8.698
36		0.000	2.218e4	0.000	8.875
37		0.000	1.238e4	0.000	9.117
38		0.000	9.075e3	0.000	9.218
39		0.000	2.185e4	0.000	9.405
40		0.000	2.271e4	0.000	9.540
41		0.000	5.279e4	0.000	9.793
42		0.000	2.076e4	0.000	10.002
43		0.000	2.898e4	0.000	10.319
44		0.000	1.661e4	0.000	10.455
45		0.000	2.832e4	0.000	10.613
46		0.000	6.017e4	0.000	10.806
47		0.000	2.382e4	0.000	11.030
48		0.000	4.537e4	0.000	11.321
49		0.000	3.347e4	0.000	11.432
50		0.000	1.537e4	0.000	11.592
51		0.000	7.806e4	0.000	11.753
52		0.000	2.976e4	0.000	12.093
53		0.000	4.530e4	0.000	12.281
54		0.000	2.777e4	0.000	12.393
55		0.000	8.819e4	0.000	12.641
56		0.000	2.945e4	0.000	12.873
57		0.000	4.058e4	0.000	13.087
58		0.000	3.661e4	0.000	13.185
59		0.000	1.370e4	0.000	13.337
60		0.000	1.362e5	0.000	13.479
61		0.000	2.554e4	0.000	13.873
62		0.000	5.206e4	0.000	13.963

1 S030

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120338.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MSD
Acquired On: 12/4/03 7:35:00 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	2.161e4	0.000	14.190
64		0.000	4.756e4	0.000	14.339
65		0.000	5.092e4	0.000	14.482
66		0.000	4.922e4	0.000	14.739
67		0.000	4.092e4	0.000	14.962
68	O-TERPHENYL	808.087	2.196e6	15.346	15.209
69		0.000	4.510e4	0.000	15.322
70		0.000	4.075e4	0.000	15.476
71		0.000	2.856e4	0.000	15.804
72		0.000	1.178e4	0.000	15.927
73		0.000	1.996e4	0.000	16.052
74		0.000	2.451e4	0.000	16.174
75		0.000	1.369e4	0.000	16.363
76		0.000	3.886e4	0.000	16.509
77		0.000	1.431e4	0.000	16.701
78		0.000	1.589e4	0.000	16.801
79		0.000	6.031e3	0.000	16.952
80		0.000	1.657e4	0.000	17.074
81		0.000	1.510e4	0.000	17.213
82		0.000	2.025e4	0.000	17.341
83		0.000	1.191e4	0.000	17.559
84		0.000	2.261e4	0.000	17.692
85		0.000	3.630e4	0.000	17.980
86		0.000	2.441e4	0.000	18.363
87		0.000	3.343e4	0.000	18.721
88		0.000	9.196e3	0.000	19.013
89		0.000	1.363e4	0.000	19.139
90		0.000	1.244e4	0.000	19.334
91		0.000	1.684e4	0.000	19.523
92		0.000	3.366e4	0.000	19.853
93		0.000	2.164e4	0.000	20.273
94		0.000	2.191e4	0.000	20.802
95		0.000	1.292e4	0.000	21.184
96		0.000	2.458e4	0.000	21.288
97		0.000	1.451e4	0.000	21.863
98		0.000	2.238e4	0.000	22.263
99		0.000	1.261e4	0.000	22.660
100		0.000	6.321e4	0.000	22.871
101		0.000	1.675e4	0.000	23.659
102		0.000	1.545e4	0.000	23.939
103		0.000	3.937e3	0.000	24.412

1 5031

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120338.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MSD
Acquired On: 12/4/03 7:35:00 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
Total			4.485e6 ~ 2.196 e6		

$= \frac{2289000}{2648} = 864.426\%$

$= \frac{864.426}{1000} \times 100 = 86.443\%$

1 6032

OFFICES:
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
LCS & LCS DUPLICATE SUMMARY

Lab File IDs 031121\B3112128.D
031121\B3112129.D

Date Analyzed: 11/22/03

Matrix: Water

Sample ID: LCS Water 11-21

SAMPLE SPIKE DISTILLATE	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	SPIKE CONC (mg/L)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	ND	883	88	50-150

Sample ID: LCSD Water 11-21

SAMPLE SPIKE DUP DISTILLATE	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	SPK DUP CONC (mg/L)	SPIKE DUP REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Diesel Fuel	1000	ND	958	96	8	20	50-150

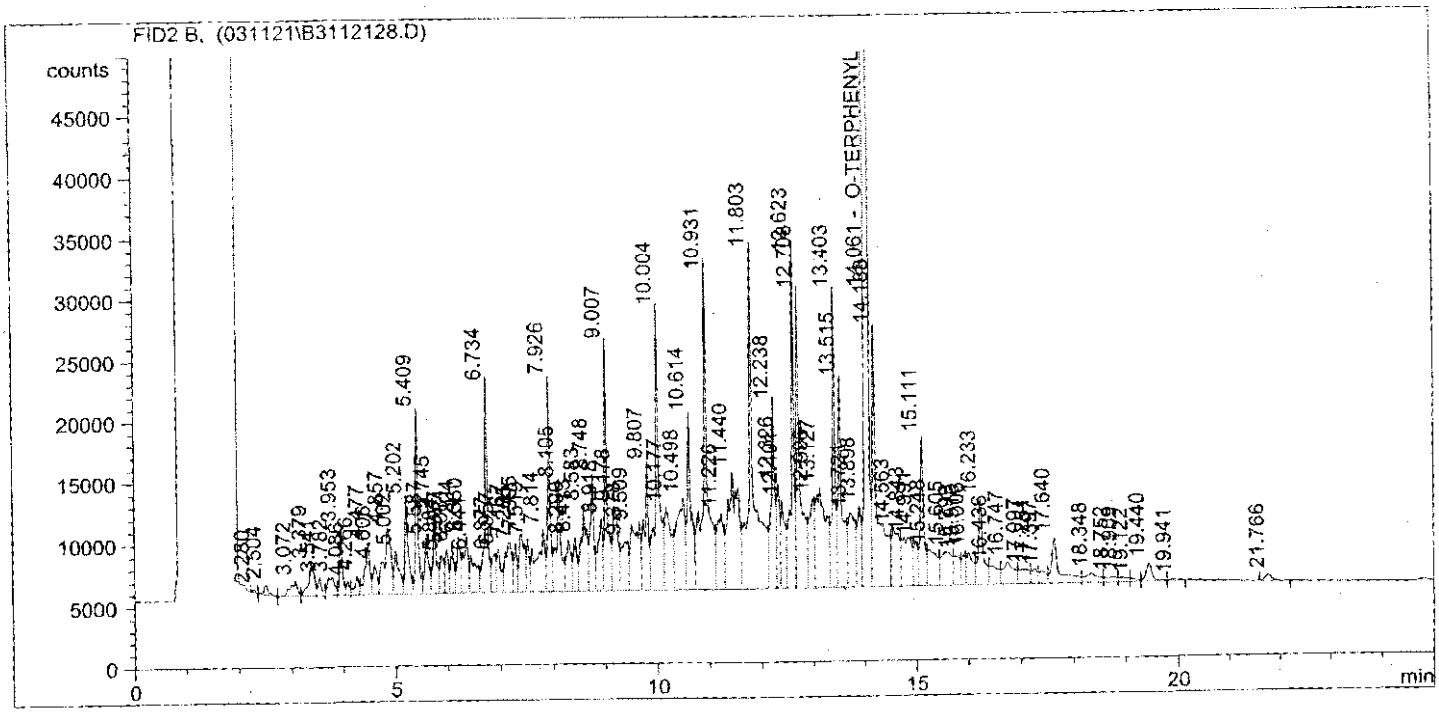
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

1 6033

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112128.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS WATER 11/21
Acquired On: 11/22/03 5:20:07 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.009e3	0.000	2.280
3		0.000	4.298e3	0.000	2.504
4		0.000	1.160e4	0.000	3.072
5		0.000	2.055e4	0.000	3.379
6		0.000	7.192e3	0.000	3.541
7		0.000	1.420e4	0.000	3.782
8		0.000	2.027e4	0.000	3.953
9		0.000	4.807e3	0.000	4.086
10		0.000	8.333e3	0.000	4.266
11		0.000	2.569e4	0.000	4.477
12		0.000	1.320e4	0.000	4.606
13		0.000	4.888e4	0.000	4.857
14		0.000	2.351e4	0.000	5.002
15		0.000	3.657e4	0.000	5.202
16		0.000	5.181e4	0.000	5.409
17		0.000	2.347e4	0.000	5.587
18		0.000	2.942e4	0.000	5.745
19		0.000	1.552e4	0.000	5.884
20		0.000	1.574e4	0.000	5.977

1 6034

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112128.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS WATER 11/21
Acquired On: 11/22/03 5:20:07 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.850e4	0.000	6.081
22		0.000	2.100e4	0.000	6.204
23		0.000	2.834e4	0.000	6.360
24		0.000	2.630e4	0.000	6.441
25		0.000	7.115e4	0.000	6.734
26		0.000	1.544e4	0.000	6.877
27		0.000	2.047e4	0.000	6.957
28		0.000	3.505e4	0.000	7.167
29		0.000	1.595e4	0.000	7.285
30		0.000	3.468e4	0.000	7.395
31		0.000	1.520e4	0.000	7.519
32		0.000	5.589e4	0.000	7.814
33		0.000	5.654e4	0.000	7.926
34		0.000	5.306e4	0.000	8.105
35		0.000	2.763e4	0.000	8.290
36		0.000	2.084e4	0.000	8.413
37		0.000	5.225e4	0.000	8.583
38		0.000	4.619e4	0.000	8.748
39		0.000	3.639e4	0.000	8.918
40		0.000	7.743e4	0.000	9.007
41		0.000	4.988e4	0.000	9.178
42		0.000	3.781e4	0.000	9.378
43		0.000	6.419e4	0.000	9.509
44		0.000	5.640e4	0.000	9.807
45		0.000	1.248e5	0.000	10.004
46		0.000	6.009e4	0.000	10.177
47		0.000	8.103e4	0.000	10.498
48		0.000	7.645e4	0.000	10.614
49		0.000	1.801e5	0.000	10.931
50		0.000	5.475e4	0.000	11.226
51		0.000	1.300e5	0.000	11.440
52		0.000	2.226e5	0.000	11.803
53		0.000	7.628e4	0.000	12.238
54		0.000	3.488e4	0.000	12.326
55		0.000	4.029e4	0.000	12.401
56		0.000	1.102e5	0.000	12.623
57		0.000	1.259e5	0.000	12.708
58		0.000	5.230e4	0.000	12.996
59		0.000	1.110e5	0.000	13.127
60		0.000	8.797e4	0.000	13.403
61		0.000	9.400e4	0.000	13.515
62		0.000	5.683e4	0.000	13.721

1 S035

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112128.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS WATER 11/21
Acquired On: 11/22/03 5:20:07 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	3.578e4	0.000	13.898
64	O-TERPHENYL	1.038e3	4.703e6	14.062	14.061 —104%
65		0.000	1.527e5	0.000	14.188
66		0.000	4.600e4	0.000	14.563
67		0.000	5.266e4	0.000	14.843
68		0.000	1.981e4	0.000	14.991
69		0.000	5.887e4	0.000	15.111
70		0.000	3.655e4	0.000	15.248
71		0.000	3.850e4	0.000	15.605
72		0.000	2.006e4	0.000	15.799
73		0.000	1.272e4	0.000	15.910
74		0.000	2.250e4	0.000	16.006
75		0.000	4.579e4	0.000	16.233
76		0.000	1.748e4	0.000	16.436
77		0.000	2.615e4	0.000	16.747
78		0.000	1.590e4	0.000	17.097
79		0.000	9.259e3	0.000	17.251
80		0.000	9.711e3	0.000	17.397
81		0.000	3.844e4	0.000	17.640
82		0.000	1.272e4	0.000	18.348
83		0.000	6.373e3	0.000	18.752
84		0.000	4.324e3	0.000	18.909
85		0.000	2.438e3	0.000	19.122
86		0.000	1.242e4	0.000	19.440
87		0.000	1.898e3	0.000	19.941
88		0.000	4.699e3	0.000	21.766
Total			8.439e6 — 4.703 e6		

$$= \frac{3736000}{4232} = 882.798$$

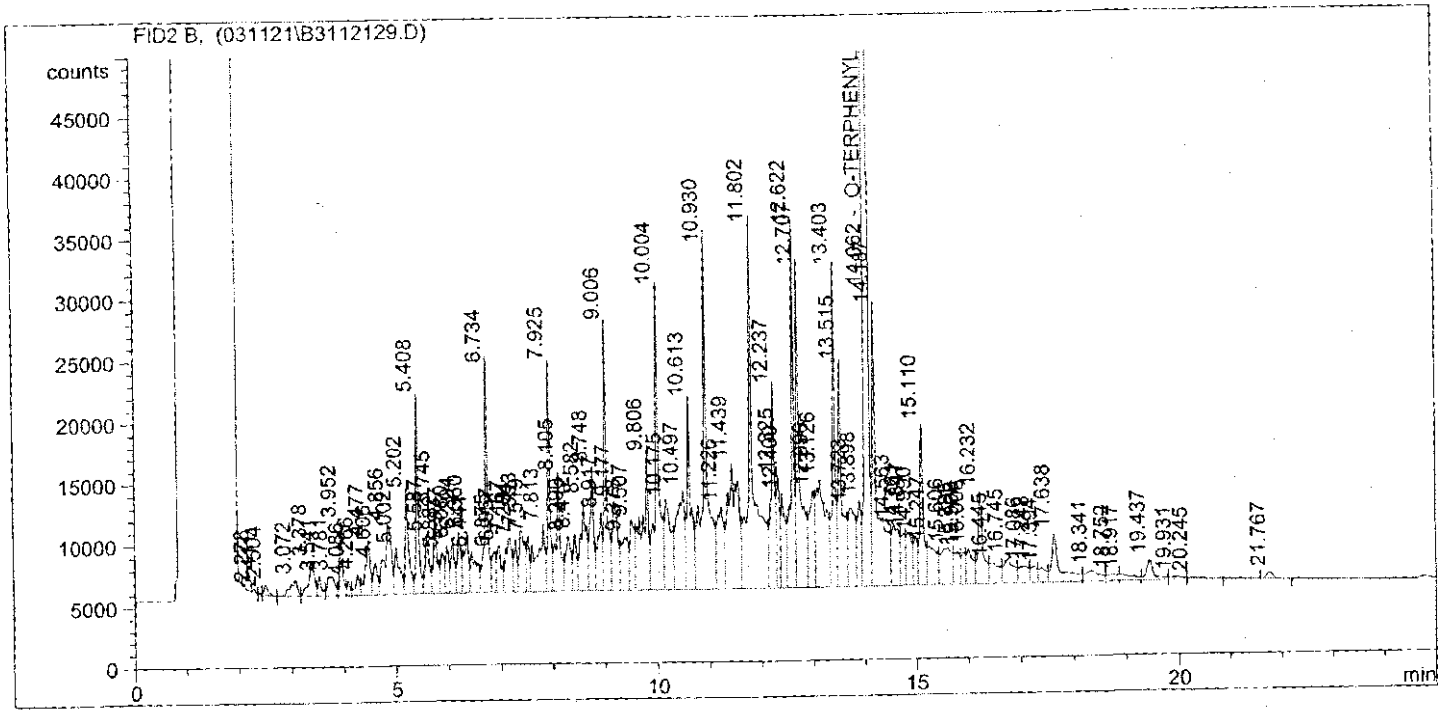
$$= \frac{882.798}{1000} \times 100 = 88.28\%$$

1 6036

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112129.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCSD WATER 11/21
Acquired On: 11/22/03 5:50:46 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.046e3	0.000	2.278
3		0.000	396.980	0.000	2.411
4		0.000	4.647e3	0.000	2.504
5		0.000	1.290e4	0.000	3.072
6		0.000	2.214e4	0.000	3.378
7		0.000	7.654e3	0.000	3.541
8		0.000	1.545e4	0.000	3.781
9		0.000	2.169e4	0.000	3.952
10		0.000	5.390e3	0.000	4.086
11		0.000	9.105e3	0.000	4.266
12		0.000	2.794e4	0.000	4.477
13		0.000	1.439e4	0.000	4.606
14		0.000	5.305e4	0.000	4.856
15		0.000	2.544e4	0.000	5.002
16		0.000	3.957e4	0.000	5.202
17		0.000	5.602e4	0.000	5.408
18		0.000	2.521e4	0.000	5.587
19		0.000	3.166e4	0.000	5.745
20		0.000	1.709e4	0.000	5.882

1 6037

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112129.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCSD WATER 11/21
Acquired On: 11/22/03 5:50:46 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.708e4	0.000	5.977
22		0.000	2.019e4	0.000	6.080
23		0.000	2.270e4	0.000	6.204
24		0.000	3.061e4	0.000	6.360
25		0.000	2.859e4	0.000	6.441
26		0.000	7.651e4	0.000	6.734
27		0.000	1.675e4	0.000	6.875
28		0.000	2.206e4	0.000	6.957
29		0.000	3.817e4	0.000	7.167
30		0.000	1.714e4	0.000	7.284
31		0.000	3.746e4	0.000	7.393
32		0.000	1.633e4	0.000	7.519
33		0.000	6.036e4	0.000	7.813
34		0.000	6.078e4	0.000	7.925
35		0.000	5.723e4	0.000	8.105
36		0.000	2.974e4	0.000	8.290
37		0.000	2.266e4	0.000	8.412
38		0.000	5.639e4	0.000	8.582
39		0.000	4.971e4	0.000	8.748
40		0.000	3.943e4	0.000	8.917
41		0.000	8.362e4	0.000	9.006
42		0.000	5.335e4	0.000	9.177
43		0.000	4.109e4	0.000	9.378
44		0.000	3.600e4	0.000	9.507
45		0.000	9.386e4	0.000	9.806
46		0.000	1.341e5	0.000	10.004
47		0.000	6.495e4	0.000	10.175
48		0.000	8.746e4	0.000	10.497
49		0.000	8.222e4	0.000	10.613
50		0.000	1.937e5	0.000	10.930
51		0.000	5.937e4	0.000	11.226
52		0.000	1.399e5	0.000	11.439
53		0.000	2.414e5	0.000	11.802
54		0.000	8.256e4	0.000	12.237
55		0.000	3.747e4	0.000	12.325
56		0.000	4.363e4	0.000	12.400
57		0.000	1.187e5	0.000	12.622
58		0.000	1.357e5	0.000	12.707
59		0.000	5.705e4	0.000	12.996
60		0.000	1.197e5	0.000	13.126
61		0.000	9.458e4	0.000	13.403
62		0.000	1.018e5	0.000	13.515

1 6038

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112129.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCSD WATER 11/21
Acquired On: 11/22/03 5:50:46 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	6.101e4	0.000	13.723
64		0.000	3.897e4	0.000	13.898
65	O-TERPHENYL	1.099e3	4.983e6	14.062	14.062 -110%
66		0.000	1.637e5	0.000	14.187
67		0.000	4.929e4	0.000	14.563
68		0.000	2.583e4	0.000	14.761
69		0.000	3.248e4	0.000	14.847
70		0.000	2.219e4	0.000	14.990
71		0.000	6.306e4	0.000	15.110
72		0.000	3.911e4	0.000	15.247
73		0.000	4.432e4	0.000	15.606
74		0.000	2.121e4	0.000	15.795
75		0.000	1.415e4	0.000	15.908
76		0.000	2.494e4	0.000	16.006
77		0.000	5.011e4	0.000	16.232
78		0.000	2.148e4	0.000	16.445
79		0.000	2.682e4	0.000	16.745
80		0.000	1.810e4	0.000	17.086
81		0.000	1.093e4	0.000	17.248
82		0.000	1.158e4	0.000	17.394
83		0.000	4.437e4	0.000	17.638
84		0.000	1.637e4	0.000	18.341
85		0.000	7.403e3	0.000	18.752
86		0.000	8.827e3	0.000	18.917
87		0.000	1.580e4	0.000	19.437
88		0.000	3.758e3	0.000	19.931
89		0.000	3.179e3	0.000	20.245
90		0.000	5.001e3	0.000	21.767
Total			9.039e6 - 4.983e6		

$= \frac{4056000}{4232} = 958.41$

$= \frac{958.41}{1000} \times 100 = 95.84\%$

1 6039

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **12/4/03 6:34** **LAB FILE ID:** **031203\F3120336.D**

METHOD: **EPA 8015B**

MATRIX: **Soil**

Sample ID: LCS 12-3-03 30C

SPIKE DISTILLATE	SPIKE ADDED (mg/kg)	SPIKE CONC (mg/kg)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	1076	108	50-150

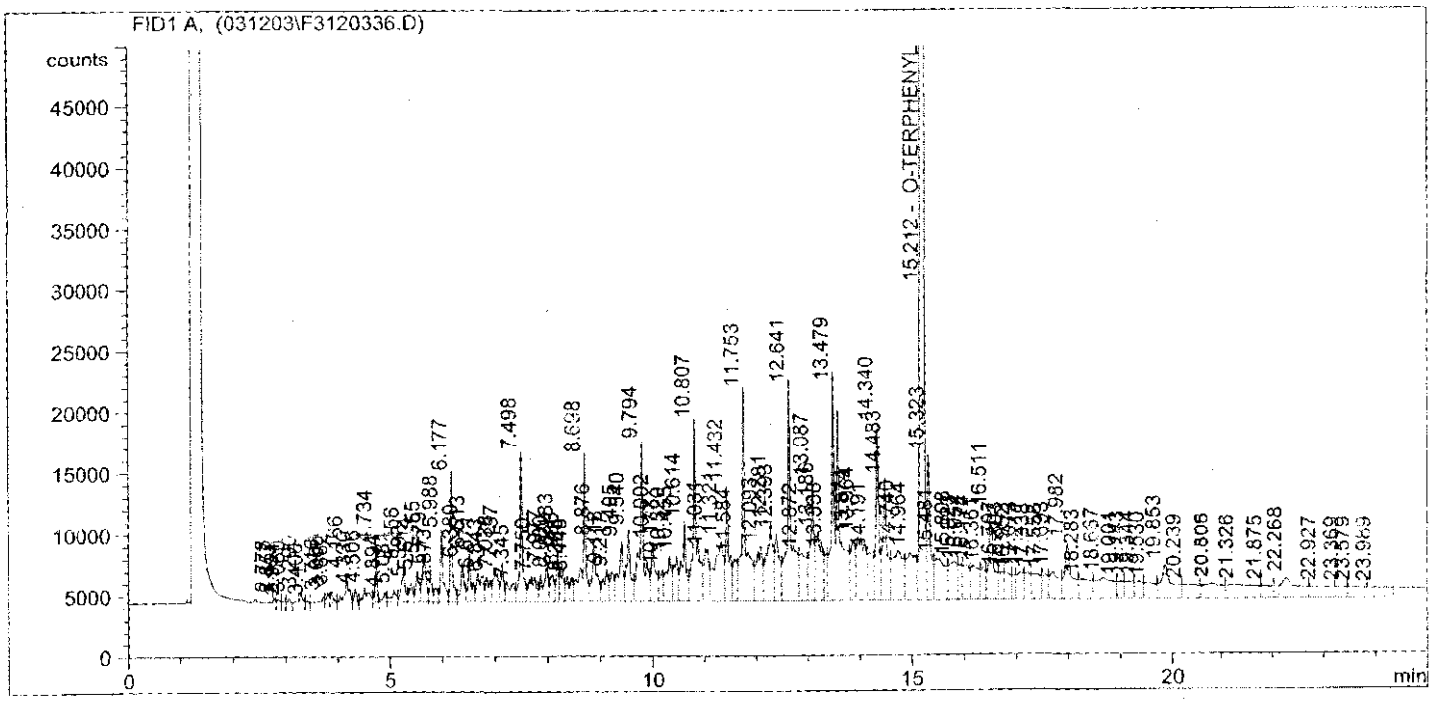
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

1 6040

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120336.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/4/03 6:34:08 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	667.572	0.000	2.778
3		0.000	637.935	0.000	2.857
4		0.000	175.200	0.000	2.954
5		0.000	689.361	0.000	3.060
6		0.000	2.043e3	0.000	3.290
7		0.000	117.166	0.000	3.406
8		0.000	1.102e3	0.000	3.716
9		0.000	2.153e3	0.000	3.806
10		0.000	2.812e3	0.000	3.882
11		0.000	1.197e4	0.000	4.166
12		0.000	3.128e3	0.000	4.330
13		0.000	8.538e3	0.000	4.506
14		0.000	1.121e4	0.000	4.734
15		0.000	2.980e3	0.000	4.894
16		0.000	6.297e3	0.000	5.081
17		0.000	1.332e4	0.000	5.256
18		0.000	6.974e3	0.000	5.393
19		0.000	1.031e4	0.000	5.514
20		0.000	1.817e4	0.000	5.655

1 6041

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120336.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/4/03 6:34:08 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	7.907e3	0.000	5.779
22		0.000	5.175e3	0.000	5.873
23		0.000	2.125e4	0.000	5.988
24		0.000	2.866e4	0.000	6.177
25		0.000	1.422e4	0.000	6.380
26		0.000	1.698e4	0.000	6.513
27		0.000	1.728e4	0.000	6.671
28		0.000	1.187e4	0.000	6.843
29		0.000	1.649e4	0.000	7.038
30		0.000	1.141e4	0.000	7.137
31		0.000	1.553e4	0.000	7.345
32		0.000	4.103e4	0.000	7.498
33		0.000	1.961e4	0.000	7.750
34		0.000	2.136e4	0.000	7.977
35		0.000	1.122e4	0.000	8.080
36		0.000	1.312e4	0.000	8.183
37		0.000	1.341e4	0.000	8.286
38		0.000	7.021e3	0.000	8.368
39		0.000	7.168e3	0.000	8.448
40		0.000	5.375e4	0.000	8.698
41		0.000	3.052e4	0.000	8.876
42		0.000	1.709e4	0.000	9.118
43		0.000	1.242e4	0.000	9.217
44		0.000	2.986e4	0.000	9.405
45		0.000	3.087e4	0.000	9.540
46		0.000	7.110e4	0.000	9.794
47		0.000	2.778e4	0.000	10.002
48		0.000	1.174e4	0.000	10.177
49		0.000	2.633e4	0.000	10.320
50		0.000	2.146e4	0.000	10.455
51		0.000	3.694e4	0.000	10.614
52		0.000	7.686e4	0.000	10.807
53		0.000	2.917e4	0.000	11.031
54		0.000	5.894e4	0.000	11.321
55		0.000	4.189e4	0.000	11.432
56		0.000	1.936e4	0.000	11.584
57		0.000	9.716e4	0.000	11.753
58		0.000	3.707e4	0.000	12.093
59		0.000	5.574e4	0.000	12.281
60		0.000	3.429e4	0.000	12.393
61		0.000	1.069e5	0.000	12.641
62		0.000	3.663e4	0.000	12.872

1 5042

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120336.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/4/03 6:34:08 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	4.931e4	0.000	13.087
64		0.000	4.501e4	0.000	13.186
65		0.000	1.597e4	0.000	13.338
66		0.000	1.632e5	0.000	13.479
67		0.000	3.096e4	0.000	13.874
68		0.000	6.153e4	0.000	13.964
69		0.000	2.680e4	0.000	14.191
70		0.000	5.675e4	0.000	14.340
71		0.000	5.826e4	0.000	14.483
72		0.000	5.941e4	0.000	14.740
73		0.000	4.883e4	0.000	14.964
74	O-TERPHENYL	916.269	2.490e6	15.346	15.212 -92%
75		0.000	5.233e4	0.000	15.323
76		0.000	4.785e4	0.000	15.481
77		0.000	3.436e4	0.000	15.808
78		0.000	1.386e4	0.000	15.923
79		0.000	2.322e4	0.000	16.054
80		0.000	2.967e4	0.000	16.174
81		0.000	1.659e4	0.000	16.361
82		0.000	4.789e4	0.000	16.511
83		0.000	1.475e4	0.000	16.707
84		0.000	1.825e4	0.000	16.803
85		0.000	8.514e3	0.000	16.952
86		0.000	2.017e4	0.000	17.073
87		0.000	1.775e4	0.000	17.211
88		0.000	2.380e4	0.000	17.338
89		0.000	1.462e4	0.000	17.558
90		0.000	2.768e4	0.000	17.693
91		0.000	4.522e4	0.000	17.982
92		0.000	2.493e4	0.000	18.283
93		0.000	4.056e4	0.000	18.667
94		0.000	1.116e4	0.000	19.001
95		0.000	1.577e4	0.000	19.143
96		0.000	1.446e4	0.000	19.344
97		0.000	1.998e4	0.000	19.530
98		0.000	4.089e4	0.000	19.853
99		0.000	2.559e4	0.000	20.239
100		0.000	3.379e4	0.000	20.806
101		0.000	4.252e4	0.000	21.326
102		0.000	1.403e4	0.000	21.875
103		0.000	4.306e4	0.000	22.268
104		0.000	2.700e4	0.000	22.927

1 6043

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120336.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/4/03 6:34:08 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	1.207e4	0.000	23.369
106		0.000	1.899e4	0.000	23.579
107		0.000	2.423e4	0.000	23.989
Total			5.339e6 - 2.490e6		

$= \frac{2849000}{2648} = 1075.91$

$\frac{1075.91}{1000} \times 100 = 107.591\%$

1 S044

Sequence: C:\HPCHEM\1\SEQUENCE\031121.S

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	2	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
3	3	03111910-01 TEC	DRO1_ACQ	1	Sample		
4	4	03111910-~~01~~ 03 TEC	DRO1_ACQ	1	Sample		
5	5	03111912-01 TEC	DRO1_ACQ	1	Sample		
6	6	03111921-01 APX	DRO1_ACQ	1	Sample		
7	7	03111910-02 TEC	DRO1_ACQ	1	Sample		
8	8	03111910-03 TEC	DRO1_ACQ	1	Sample		
9	9	03111911-01 TEC	DRO1_ACQ	1	Sample		
10	10	03111911-02 TEC	DRO1_ACQ	1	Sample		
11	11	03111911-03 TEC	DRO1_ACQ	1	Sample		
12	12	03111912-01 TEC	DRO1_ACQ	1	Sample		
13	13	03111912-02 TEC	DRO1_ACQ	1	Sample		
14	14	03111921-01 APX	DRO1_ACQ	1	Sample		
15	15	MB SOIL 11/21	DRO1_ACQ	1	Sample		
16	16	LCS SOIL 11/21	DRO1_ACQ	1	Sample		
17	17	LCS D SOIL 11/21	DRO1_ACQ	1	Sample		
18	18	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
19	19	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
20	20	03111919-01 TEC	DRO1_ACQ	1	Sample		
21	21	03111919-03 TEC	DRO1_ACQ	1	Sample		
22	22	03111919-06 TEC	DRO1_ACQ	1	Sample		
23	23	03111913-08 TTI	DRO3_ACQ	1	Sample		
24	24	03111913-16 TTI	DRO3_ACQ	1	Sample		
25	25	03111913-23 TTI	DRO3_ACQ	1	Sample		
26	26	03111913-29 TTI	DRO3_ACQ	1	Sample		
27	27	MB WATER 11/21	DRO1_ACQ	1	Sample		
28	28	DCM BLANK	DRO1_ACQ	1	Sample		
29	29	DCM BLANK	DRO1_ACQ	1	Sample		
30	30	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
31	31	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
32	32	DCM BLANK	DRO1_ACQ	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
3	53	03111803-01 RBC	DRO1_ACQ	1	Sample		
4	54	03111803-02 RBC	DRO1_ACQ	1	Sample		
5	55	03111803-03 RBC	DRO1_ACQ	1	Sample		

1 6045

Sequence: C:\HPCHEM\1\SEQUENCE\031121.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
6	56	03111803-04 RBC	DRO1_ACQ	1	Sample		
7	57	03111803-05 RBC	DRO1_ACQ	1	Sample		
8	58	03111803-06 RBC	DRO1_ACQ	1	Sample		
9	59	03111803-07 RBC	DRO1_ACQ	1	Sample		
10	60	03111803-08 RBC	DRO1_ACQ	1	Sample		
11	61	03111803-09 RBC	DRO1_ACQ	1	Sample		
12	62	03111803-10 RBC	DRO1_ACQ	1	Sample		
13	63	03111923-01 A&A	DRO1_ACQ	1	Sample		
14	64	MB SOIL 11/21	DRO1_ACQ	1	Sample		
15	65	03111803-01MS	DRO1_ACQ	1	Sample		
16	66	03111803-01MSD	DRO1_ACQ	1	Sample		
17	67	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
18	68	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
19	69	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
20	70	03111919-02 TEC	DRO1_ACQ	1	Sample		
21	71	03111919-05 TEC	DRO1_ACQ	1	Sample		
22	72	03111817-01 SSI	DRO1_ACQ	1	Sample		
23	73	03111913-12 TTI	DRO3_ACQ	1	Sample		
24	74	03111913-20 TTI	DRO3_ACQ	1	Sample		
25	75	03111913-26 TTI	DRO3_ACQ	1	Sample		
26	76	03111913-32 TTI	DRO3_ACQ	1	Sample		
27	77	MB WATER 11/21	DRO1_ACQ	1	Sample		
28	78	LCS WATER 11/21	DRO1_ACQ	1	Sample		
29	79	LCSD WATER 11/21	DRO1_ACQ	1	Sample		
30	80	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
31	81	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
32	82	DCM BLANK	DRO1_ACQ	1	Sample		

Sequence: C:\HPCHEM\1\SEQUENCE\031203.S

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	2	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	3	03112109-08 GTA	DRO1_ACQ	1	Sample		
4	4	03112109-06 GTA	DRO1_ACQ	1	Sample		
5	5	MB WATER 12/2	DRO1_ACQ	1	Sample		
6	6	03120302-01 GTA	DRO1_ACQ	1	Sample		
7	7	03112621-01 HECA	DRO1_ACQ	1	Sample		
8	8	03112621-02 HECA	DRO1_ACQ	1	Sample		
9	9	03112621-03 HECA	DRO1_ACQ	1	Sample		
10	10	03112512-01 CEM	DRO1_ACQ	1	Sample		
11	11	03112514-01 CEM	DRO1_ACQ	1	Sample		
12	12	03112515-01 CEM	DRO1_ACQ	1	Sample		
13	13	03112606-01 CEM	DRO1_ACQ	1	Sample		
14	14	03112609-01 HYN	DRO1_ACQ	1	Sample		
15	15	03112617-01 TEC	DRO1_ACQ	1	Sample		
16	16	03112109-06 GTA	DRO1_ACQ	1	Sample		
17	17	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
18	18	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
19	19	03112019-01 SSI	DRO1_ACQ	1	Sample		
20	20	03112101-01 MDE	DRO1_ACQ	1	Sample		
21	21	03112101-02 MDE	DRO1_ACQ	1	Sample		
22	22	03112101-03 MDE	DRO1_ACQ	1	Sample		
23	23	03112101-04 MDE	DRO1_ACQ	1	Sample		
24	24	03112113-01 ED	DRO1_ACQ	1	Sample		
25	25	03112113-02 ED	DRO1_ACQ	1	Sample		
26	26	03112418-01 MDE	DRO1_ACQ	1	Sample		
27	27	03112506-01 HBI	DRO1_ACQ	1	Sample		
28	28	03112530-01 ED	DRO1_ACQ	1	Sample		
29	29	03112516-07 A&A	DRO1_ACQ	1	Sample		
30	30	DCM BLANK	DRO1_ACQ	1	Sample		
31	31	03112609-01 HYN	DRO1_ACQ	1	Sample		
32	32	03112606-01 CEM	DRO1_ACQ	1	Sample		
33	33	03112512-01 CEM	DRO1_ACQ	1	Sample		
34	34	LCS WATER 12/2	DRO1_ACQ	1	Sample		
35	35	LCSD WATER 12/2	DRO1_ACQ	1	Sample		
36	36	LCS SOIL 12/3	DRO1_ACQ	1	Sample		
37	37	03112617-01 MS	DRO1_ACQ	1	Sample		
38	38	03112617-01 MSD	DRO1_ACQ	1	Sample		
39	39	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
40	40	BLANK 1000mG/L	DRO1_ACQ	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

1 6047

Sequence: C:\HPCHEM\1\SEQUENCE\031203.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	53	03112510-03 CEM	DRO1_ACQ	1	Sample		
4	54	03112110-02 CWO	DRO1_ACQ	1	Sample		
5	55	03112110-05 CWO	DRO1_ACQ	1	Sample		
6	56	03120302-02 GTA	DRO1_ACQ	1	Sample		
7	57	03112621-04 HECA	DRO1_ACQ	1	Sample		
8	58	03112621-06 HECA	DRO1_ACQ	1	Sample		
9	59	03112621-05 HECA	DRO1_ACQ	1	Sample		
10	60	03112118-01 ERI	DRO1_ACQ	1	Sample		
11	61	03112516-05 A&A	DRO1_ACQ	1	Sample		
12	62	03112516-06 A&A	DRO1_ACQ	1	Sample		
13	63	03112529-01 EDI	DRO1_ACQ	1	Sample		
14	64	03111427-02 URS	DRO1_ACQ	1	Sample		
15	65	03111427-05 URS	DRO1_ACQ	1	Sample		
16	66	03111427-06 URS	DRO1_ACQ	1	Sample		
17	67	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
18	68	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
19	69	03111913-06 TTI	DRO1_ACQ	1	Sample		
20	70	03111913-07 TTI	DRO1_ACQ	1	Sample		
21	71	03111913-10 TTI	DRO1_ACQ	1	Sample		
22	72	03111913-11 TTI	DRO1_ACQ	1	Sample		
23	73	03111913-14 TTI	DRO1_ACQ	1	Sample		
24	74	03111913-15 TTI	DRO1_ACQ	1	Sample		
25	75	03111913-18 TTI	DRO1_ACQ	1	Sample		
26	76	03111913-19 TTI	DRO1_ACQ	1	Sample		
27	77	03111913-22 TTI	DRO1_ACQ	1	Sample		
28	78	03111913-25 TTI	DRO1_ACQ	1	Sample		
29	79	03111913-28 TTI	DRO1_ACQ	1	Sample		
30	80	03111913-31 TTI	DRO1_ACQ	1	Sample		
31	81	03112118-01 ERI	DRO1_ACQ	1	Sample		
32	82	03112516-05 A&A	DRO1_ACQ	1	Sample		
33	83	03111427-05 URS	DRO1_ACQ	1	Sample		
34	84	MB SOIL 12/3	DRO1_ACQ	1	Sample		
35	85	03112516-06 MS	DRO1_ACQ	1	Sample		
36	86	03112516-06 MSD	DRO1_ACQ	1	Sample		
37	87	03112118-01 MS	DRO1_ACQ	1	Sample		
38	88	03112118-01 MSD	DRO1_ACQ	1	Sample		
39	89	DF #2 1500mG/L	DRO1_ACQ	1	Sample		
40	90	BLANK 1000mg/L	DRO1_ACQ	1	Sample		

1 5048

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Metals

- *Initial Calibration Verification Summary*
- *Continuing Calibration Verification Summary*
- *Duplicate Summary*
- *Matrix Spike Summary*
- *Method Blank Summary (LRB)*
- *LCS Summary (LFB)*

6630 Baltimore National Pike Baltimore, MD 21228 (800) 932-9047 (410) 747-8770 FAX (410) 788-8723

ICV QC Report

Data File:	C:\ICPCHEM\1\DATA\031202A1.B\010ICV1.D\010ICV1.D#
Date Acquired:	Dec 2 2003 12:19 pm
Acq. Method:	1202.M
Operator:	
Sample Name:	ICV
Misc Info:	0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number:	1202
Current Method:	C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File:	C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update:	Dec 02 2003 05:28 pm
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	52.48 ppb	0.45	50.00	90 - 110	
52 Cr	53.05 ppb	0.48	50.00	90 - 110	
60 Ni	53.27 ppb	0.45	50.00	90 - 110	
63 Cu	52.10 ppb	0.41	50.00	90 - 110	
66 Zn	53.91 ppb	0.85	50.00	90 - 110	
75 As	51.51 ppb	0.17	50.00	90 - 110	
82 Se	51.71 ppb	0.27	50.00	90 - 110	
107 Ag	50.40 ppb	0.18	50.00	90 - 110	
111 Cd	51.98 ppb	0.95	50.00	90 - 110	
121 Sb	52.39 ppb	0.49	50.00	90 - 110	
138 Ba	52.11 ppb	0.02	50.00	90 - 110	
202 Hg	1.91 ppb	0.85	2.00	90 - 110	
205 Tl	51.02 ppb	0.68	50.00	90 - 110	
208 Pb	51.02 ppb	0.60	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	515280.47	1.43	515522.44	100.0	30 - 140	
45 Sc	870330.31	1.12	852443.31	102.1	30 - 140	
72 Ge	173399.88	1.70	168546.89	102.9	30 - 140	
115 In	1311596.60	1.47	1257600.10	104.3	30 - 140	
159 Tb	1697601.60	1.21	1640532.80	103.5	30 - 140	
209 Bi	1042822.50	1.82	1009699.60	103.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\028CCV1.D\028CCV1.D#
Date Acquired: Dec 2 2003 01:51 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	53.05 ppb	0.81	50.00	90 - 110	
52 Cr	52.15 ppb	0.83	50.00	90 - 110	
60 Ni	51.80 ppb	1.50	50.00	90 - 110	
63 Cu	51.36 ppb	0.51	50.00	90 - 110	
66 Zn	53.59 ppb	0.50	50.00	90 - 110	
75 As	51.41 ppb	0.74	50.00	90 - 110	
82 Se	51.28 ppb	0.88	50.00	90 - 110	
107 Ag	50.13 ppb	0.44	50.00	90 - 110	
111 Cd	51.72 ppb	0.74	50.00	90 - 110	
121 Sb	52.29 ppb	0.77	50.00	90 - 110	
138 Ba	51.91 ppb	0.76	50.00	90 - 110	
202 Hg	1.89 ppb	1.17	2.00	90 - 110	
205 Tl	49.95 ppb	2.20	50.00	90 - 110	
208 Pb	50.59 ppb	0.74	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	508854.88	1.57	515522.44	98.7	30 - 140	
45 Sc	879803.44	1.10	852443.31	103.2	30 - 140	
72 Ge	173949.39	2.03	168546.89	103.2	30 - 140	
115 In	1320267.00	1.64	1257600.10	105.0	30 - 140	
159 Tb	1719786.10	1.90	1640532.80	104.8	30 - 140	
209 Bi	1068698.30	1.34	1009699.60	105.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\041CCV1.D\041CCV1.D#
Date Acquired: Dec 2 2003 02:58 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	53.19 ppb	0.44	50.00	90 - 110	
52 Cr	52.48 ppb	1.14	50.00	90 - 110	
60 Ni	52.12 ppb	1.09	50.00	90 - 110	
63 Cu	51.59 ppb	0.81	50.00	90 - 110	
66 Zn	53.79 ppb	0.78	50.00	90 - 110	
75 As	51.76 ppb	0.12	50.00	90 - 110	
82 Se	52.22 ppb	0.84	50.00	90 - 110	
107 Ag	50.02 ppb	1.37	50.00	90 - 110	
111 Cd	51.78 ppb	1.09	50.00	90 - 110	
121 Sb	52.36 ppb	1.02	50.00	90 - 110	
138 Ba	52.18 ppb	0.89	50.00	90 - 110	
202 Hg	1.93 ppb	0.50	2.00	90 - 110	
205 Tl	50.72 ppb	0.51	50.00	90 - 110	
208 Pb	51.06 ppb	0.78	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	500740.97	1.47	515522.44	97.1	30 - 140	
45 Sc	865579.94	0.46	852443.31	101.5	30 - 140	
72 Ge	171341.81	1.80	168546.89	101.7	30 - 140	
115 In	1317219.90	2.39	1257600.10	104.7	30 - 140	
159 Tb	1713838.40	1.01	1640532.80	104.5	30 - 140	
209 Bi	1062839.50	1.95	1009699.60	105.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

1 7004

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\053CCV1.D\053CCV1.D#
Date Acquired: Dec 2 2003 04:01 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	53.91 ppb	0.42	50.00	90 - 110	
52 Cr	52.65 ppb	0.74	50.00	90 - 110	
60 Ni	52.80 ppb	0.82	50.00	90 - 110	
63 Cu	52.28 ppb	0.28	50.00	90 - 110	
66 Zn	53.34 ppb	1.51	50.00	90 - 110	
75 As	51.41 ppb	0.08	50.00	90 - 110	
82 Se	51.78 ppb	0.67	50.00	90 - 110	
107 Ag	49.47 ppb	0.66	50.00	90 - 110	
111 Cd	51.44 ppb	0.68	50.00	90 - 110	
121 Sb	51.50 ppb	0.77	50.00	90 - 110	
138 Ba	51.76 ppb	0.82	50.00	90 - 110	
202 Hg	1.91 ppb	0.31	2.00	90 - 110	
205 Tl	50.18 ppb	1.70	50.00	90 - 110	
208 Pb	50.41 ppb	0.43	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	469820.00	0.96	515522.44	91.1	30 - 140	
45 Sc	816712.88	1.36	852443.31	95.8	30 - 140	
72 Ge	161204.70	1.58	168546.89	95.6	30 - 140	
115 In	1237533.50	1.97	1257600.10	98.4	30 - 140	
159 Tb	1614914.40	2.22	1640532.80	98.4	30 - 140	
209 Bi	996065.06	0.83	1009699.60	98.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

1 7005

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\065CCV1.D\065CCV1.D#
Date Acquired: Dec 2 2003 05:03 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	54.42 ppb	0.99	50.00	90 - 110	
52 Cr	52.21 ppb	0.96	50.00	90 - 110	
60 Ni	51.27 ppb	1.29	50.00	90 - 110	
63 Cu	51.55 ppb	0.89	50.00	90 - 110	
66 Zn	53.51 ppb	1.32	50.00	90 - 110	
75 As	51.53 ppb	0.40	50.00	90 - 110	
82 Se	52.58 ppb	0.56	50.00	90 - 110	
107 Ag	49.29 ppb	0.75	50.00	90 - 110	
111 Cd	51.02 ppb	0.52	50.00	90 - 110	
121 Sb	49.95 ppb	0.95	50.00	90 - 110	
138 Ba	50.41 ppb	0.94	50.00	90 - 110	
202 Hg	1.88 ppb	2.07	2.00	90 - 110	
205 Tl	48.98 ppb	2.64	50.00	90 - 110	
208 Pb	49.90 ppb	0.27	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	415659.13	0.77	515522.44	80.6	30 - 140	
45 Sc	731881.94	0.08	852443.31	85.9	30 - 140	
72 Ge	143196.39	0.97	168546.89	85.0	30 - 140	
115 In	1118775.90	1.05	1257600.10	89.0	30 - 140	
159 Tb	1502800.80	0.49	1640532.80	91.6	30 - 140	
209 Bi	938252.25	0.79	1009699.60	92.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

1 7006

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\077CCV1.D\077CCV1.D#
Date Acquired: Dec 2 2003 06:07 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	54.75 ppb	0.37	50.00	90 - 110	
52 Cr	54.34 ppb	1.42	50.00	90 - 110	
60 Ni	53.16 ppb	1.57	50.00	90 - 110	
63 Cu	52.32 ppb	0.37	50.00	90 - 110	
66 Zn	53.83 ppb	0.62	50.00	90 - 110	
75 As	52.65 ppb	0.34	50.00	90 - 110	
82 Se	53.69 ppb	0.80	50.00	90 - 110	
107 Ag	49.36 ppb	1.19	50.00	90 - 110	
111 Cd	51.38 ppb	1.58	50.00	90 - 110	
121 Sb	51.01 ppb	2.06	50.00	90 - 110	
138 Ba	51.90 ppb	1.28	50.00	90 - 110	
202 Hg	1.87 ppb	1.14	2.00	90 - 110	
205 Tl	49.05 ppb	1.28	50.00	90 - 110	
208 Pb	49.91 ppb	0.46	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	424459.69	1.09	515522.44	82.3	30 - 140	
45 Sc	739863.56	1.20	852443.31	86.8	30 - 140	
72 Ge	146507.16	0.91	168546.89	86.9	30 - 140	
115 In	1113552.30	1.17	1257600.10	88.5	30 - 140	
159 Tb	1480227.30	2.09	1640532.80	90.2	30 - 140	
209 Bi	923878.13	1.28	1009699.60	91.5	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031202A1.B\072AREF.D\072AREF.D#
Date Acquired:	Dec 2 2003 05:41 pm
Acq. Method:	1202.M
Operator:	Lisa Miller
Sample Name:	03111913-27
Misc Info:	DISS
Vial Number:	4406
Current Method:	C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File:	C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update:	Dec 02 2003 05:28 pm
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	4.53	4.53	ppb	3.28	8000.00	
52 Cr	2.68	2.68	ppb	1.96	8000.00	
60 Ni	209.20	209.20	ppb	0.53	8000.00	
63 Cu	10.94	10.94	ppb	0.35	8000.00	
66 Zn	224.90	224.90	ppb	0.20	8000.00	
75 As	0.44	0.44	ppb	12.78	8000.00	
82 Se	0.29	0.29	ppb	55.76	8000.00	
107 Ag	-0.99	-0.99	ppb	0.67	8000.00	
111 Cd	0.11	0.11	ppb	6.38	8000.00	
121 Sb	-0.10	-0.10	ppb	2.32	8000.00	
138 Ba	46.24	46.24	ppb	0.54	8000.00	
202 Hg	0.02	0.02	ppb	24.49	8.00	
205 Tl	0.06	0.06	ppb	8.68	8000.00	
208 Pb	0.43	0.43	ppb	4.14	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	442871.81	1.38	515522.44	85.9	30 - 140	
45 Sc	818292.56	0.14	852443.31	96.0	30 - 140	
72 Ge	165188.30	0.90	168546.89	98.0	30 - 140	
115 In	1241246.30	0.97	1257600.10	98.7	30 - 140	
159 Tb	1620578.80	0.94	1640532.80	98.8	30 - 140	
209 Bi	969090.69	2.67	1009699.60	96.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

LFM Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031202A1.B\073LFM1.D\073LFM1.D#
Date Acquired:	Dec 2 2003 05:46 pm
Acq. Method:	1202.M
Operator:	
Sample Name:	03111913-27
Misc Info:	DISS
Vial Number:	4407
Current Method:	C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File:	C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update:	Dec 02 2003 05:28 pm
Sample Type:	LFM1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031202A1.B\072AREF.D\072AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	114.10	4.53	0.63	100.00	109.6	75 - 125	
52 Cr	103.40	2.68	1.30	100.00	100.7	75 - 125	
60 Ni	312.80	209.20	0.95	100.00	103.6	75 - 125	
63 Cu	109.80	10.94	0.40	100.00	98.9	75 - 125	
66 Zn	329.40	224.90	0.48	100.00	104.5	75 - 125	
75 As	104.50	0.44	0.51	100.00	104.1	75 - 125	
82 Se	112.50	0.29	0.94	100.00	112.2	75 - 125	
107 Ag	80.11	-0.99	1.88	100.00	81.1	75 - 125	
111 Cd	99.96	0.11	1.38	100.00	99.9	75 - 125	
121 Sb	97.57	-0.10	1.58	100.00	97.7	75 - 125	
138 Ba	148.70	46.24	1.83	100.00	102.5	75 - 125	
202 Hg	1.89	0.02	2.95	2.00	93.4	75 - 125	
205 Tl	104.30	0.06	2.16	100.00	104.2	75 - 125	
208 Pb	100.50	0.43	3.12	100.00	100.1	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	434661.7	0.65	#######	84.3	30 - 140	
45 Sc	795355.7	0.18	#######	93.3	30 - 140	
72 Ge	161595.9	0.73	#######	95.9	30 - 140	
115 In	1205213.1	1.34	#######	95.8	30 - 140	
159 Tb	1610920.1	1.03	#######	98.2	30 - 140	
209 Bi	940640.3	3.90	#######	93.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82
S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

PB QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\074 PB.D\074 PB.D
Date Acquired: Dec 2 2003 05:51 pm
Acq. Method: 1202.M
Operator:
Sample Name: WATER031120
Misc Info:
Vial Number: 4408
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update: Dec 02 2003 05:28 pm
Sample Type: PB
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
9 Be	0.02 ppb	21.04	0.50	
52 Cr	1.48 ppb	1.97	0.50	
60 Ni	0.13 ppb	12.23	0.50	
63 Cu	0.76 ppb	3.06	0.50	
66 Zn	2.06 ppb	0.82	0.50	
75 As	0.06 ppb	46.98	0.50	
82 Se	0.31 ppb	33.52	0.50	
107 Ag	0.28 ppb	67.95	0.50	
111 Cd	0.01 ppb	166.24	0.50	
121 Sb	0.38 ppb	7.37	0.50	
202 Hg	0.02 ppb	17.64	0.50	
205 Tl	0.11 ppb	7.64	0.50	
208 Pb	0.26 ppb	6.79	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	394930.59	2.00	515522.44	76.6	30 - 140	
45 Sc	704450.25	0.38	852443.31	82.6	30 - 140	
72 Ge	137932.64	1.19	168546.89	81.8	30 - 140	
89 Y	1037926.00	0.46	1304363.10	79.6	30 - 140	
115 In	1035273.20	1.48	1257600.10	82.3	30 - 140	
159 Tb	1389432.80	1.25	1640532.80	84.7	30 - 140	
209 Bi	875067.81	1.03	1009699.60	86.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

LCS QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\075_LCS.D\075_LCS.D#
Date Acquired: Dec 2 2003 05:56 pm
Acq. Method: 1202.M
Operator:
Sample Name: WATER031120
Misc Info:
Vial Number: 4409
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update: Dec 02 2003 05:28 pm
Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
9 Be	106.90	106.90	ppb	0.52	100.00	75 - 125	
52 Cr	104.50	104.50	ppb	1.02	100.00	75 - 125	
60 Ni	102.50	102.50	ppb	0.60	100.00	75 - 125	
63 Cu	102.80	102.80	ppb	0.23	100.00	75 - 125	
66 Zn	103.00	103.00	ppb	0.58	100.00	75 - 125	
75 As	101.90	101.90	ppb	0.39	100.00	75 - 125	
82 Se	102.20	102.20	ppb	0.25	100.00	75 - 125	
107 Ag	95.66	95.66	ppb	0.37	100.00	75 - 125	
111 Cd	99.44	99.44	ppb	0.55	100.00	75 - 125	
121 Sb	98.04	98.04	ppb	0.49	100.00	75 - 125	
202 Hg	1.89	1.89	ppb	0.83	2.00	75 - 125	
205 Tl	101.70	101.70	ppb	1.41	100.00	75 - 125	
208 Pb	98.06	98.06	ppb	0.92	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	399136.78	0.88	515522.44	77.4	30 - 140	
45 Sc	703296.56	0.56	852443.31	82.5	30 - 140	
72 Ge	138041.84	0.98	168546.89	81.9	30 - 140	
89 Y	1050725.30	1.27	1304363.10	80.6	30 - 140	
115 In	1051670.10	1.17	1257600.10	83.6	30 - 140	
159 Tb	1412861.10	1.32	1640532.80	86.1	30 - 140	
209 Bi	878746.44	0.46	1009699.60	87.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115

HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

ICV QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\010ICV1.D\010ICV1.D#
Date Acquired:	Dec 1 2003 07:27 pm
Acq. Method:	6020B.M
Operator:	
Sample Name:	ICV
Misc Info:	0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number:	1202
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	51.62 ppb	1.21	50.00	90 - 110	
52 Cr	48.85 ppb	1.77	50.00	90 - 110	
60 Ni	53.69 ppb	1.66	50.00	90 - 110	
63 Cu	52.48 ppb	0.99	50.00	90 - 110	
66 Zn	53.51 ppb	1.15	50.00	90 - 110	
75 As	52.58 ppb	0.51	50.00	90 - 110	
82 Se	52.92 ppb	0.32	50.00	90 - 110	
107 Ag	51.01 ppb	0.98	50.00	90 - 110	
111 Cd	52.34 ppb	1.33	50.00	90 - 110	
121 Sb	53.17 ppb	0.46	50.00	90 - 110	
202 Hg	2.00 ppb	0.64	2.00	90 - 110	
205 Tl	50.43 ppb	1.86	50.00	90 - 110	
208 Pb	49.38 ppb	0.81	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	967680.00	1.19	983690.50	98.4	30 - 140	
72 Ge	182452.31	1.39	187495.88	97.3	30 - 140	
115 In	1236007.50	1.50	1242279.00	99.5	30 - 140	
159 Tb	1451003.10	1.33	1453589.50	99.8	30 - 140	
209 Bi	825046.00	1.21	837280.44	98.5	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\028CCV1.D\028CCV1.D#
Date Acquired: Dec 1 2003 09:01 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal Update: Dec 02 2003 09:46 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	49.40 ppb	1.18	50.00	90 - 110	
52 Cr	48.59 ppb	1.98	50.00	90 - 110	
60 Ni	52.41 ppb	1.33	50.00	90 - 110	
63 Cu	51.48 ppb	0.24	50.00	90 - 110	
66 Zn	52.93 ppb	1.30	50.00	90 - 110	
75 As	52.19 ppb	0.20	50.00	90 - 110	
82 Se	53.04 ppb	0.67	50.00	90 - 110	
107 Ag	51.01 ppb	0.85	50.00	90 - 110	
111 Cd	53.12 ppb	1.28	50.00	90 - 110	
121 Sb	53.40 ppb	0.32	50.00	90 - 110	
202 Hg	1.94 ppb	1.45	2.00	90 - 110	
205 Tl	48.49 ppb	1.17	50.00	90 - 110	
208 Pb	48.30 ppb	0.80	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1196923.00	2.24	983690.50	121.7	30 - 140	
72 Ge	227409.25	1.07	187495.88	121.3	30 - 140	
115 In	1486417.00	1.22	1242279.00	119.7	30 - 140	
159 Tb	1751502.00	1.98	1453589.50	120.5	30 - 140	
209 Bi	1003975.20	2.00	837280.44	119.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

1 7016

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\040CCV1.D\040CCV1.D#
Date Acquired: Dec 1 2003 10:03 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal Update: Dec 02 2003 09:46 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	49.29 ppb	1.40	50.00	90 - 110	
52 Cr	48.48 ppb	1.11	50.00	90 - 110	
60 Ni	51.46 ppb	1.50	50.00	90 - 110	
63 Cu	50.58 ppb	0.11	50.00	90 - 110	
66 Zn	52.12 ppb	0.76	50.00	90 - 110	
75 As	52.26 ppb	0.37	50.00	90 - 110	
82 Se	52.73 ppb	0.51	50.00	90 - 110	
107 Ag	50.46 ppb	0.77	50.00	90 - 110	
111 Cd	52.09 ppb	1.11	50.00	90 - 110	
121 Sb	52.22 ppb	0.50	50.00	90 - 110	
202 Hg	1.93 ppb	1.38	2.00	90 - 110	
205 Tl	49.21 ppb	0.75	50.00	90 - 110	
208 Pb	48.19 ppb	0.88	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1151147.40	0.15	983690.50	117.0	30 - 140	
72 Ge	217335.30	1.09	187495.88	115.9	30 - 140	
115 In	1472290.50	1.86	1242279.00	118.5	30 - 140	
159 Tb	1767821.00	1.21	1453589.50	121.6	30 - 140	
209 Bi	1012088.60	1.93	837280.44	120.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#
Date Acquired:	Dec 1 2003 09:32 pm
Acq. Method:	6020B.M
Operator:	Lisa Miller
Sample Name:	03111913-25
Misc Info:	500D-12
Vial Number:	2112
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	8.23	8.23	ppb	2.33	8000.00	
52 Cr	45.35	45.35	ppb	1.46	8000.00	
60 Ni	78.26	78.26	ppb	0.77	8000.00	
63 Cu	37.02	37.02	ppb	0.35	8000.00	
66 Zn	149.40	149.40	ppb	0.64	8000.00	
75 As	-0.19	-0.19	ppb	42.22	8000.00	
82 Se	19.15	19.15	ppb	0.26	8000.00	
107 Ag	-0.10	-0.10	ppb	9.69	8000.00	
111 Cd	0.83	0.83	ppb	6.86	8000.00	
121 Sb	0.02	0.02	ppb	11.41	8000.00	
202 Hg	0.01	0.01	ppb	8.15	8.00	
205 Tl	0.17	0.17	ppb	2.70	8000.00	
208 Pb	40.61	40.61	ppb	1.25	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1311590.60	0.48	983690.50	133.3	30 - 140	
72 Ge	266030.44	1.57	187495.88	141.9	30 - 140	IS FAI
115 In	1476235.50	1.83	1242279.00	118.8	30 - 140	
159 Tb	2408583.00	1.80	1453589.50	165.7	30 - 140	IS FAI
209 Bi	980012.88	0.86	837280.44	117.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

Duplicate QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\035DUP1.D\035DUP1.D#
Date Acquired: Dec 1 2003 09:37 pm
Acq. Method: 6020B.M
Operator:
Sample Name: 03111913-25
Misc Info: 500D-13
Vial Number: 2201
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update: Dec 02 2003 09:46 am
Sample Type: Dupl
Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#

QC Elements

Element	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	7.79	ppb	0.29	8.23	5.56	20	
52 Cr	35.69	ppb	0.54	45.35	23.84	20	Fail
60 Ni	72.91	ppb	0.89	78.26	7.08	20	
63 Cu	33.51	ppb	0.32	37.02	9.95	20	
66 Zn	142.00	ppb	0.27	149.40	5.08	20	
75 As	-0.89	ppb	8.76	-0.19	-131.24	20	<PQL
82 Se	18.63	ppb	1.25	19.15	2.75	20	
107 Ag	-0.16	ppb	3.10	-0.10	-46.48	20	<PQL
111 Cd	0.77	ppb	2.89	0.83	7.89	20	<PQL
121 Sb	0.02	ppb	94.99	0.02	28.33	20	<PQL
202 Hg	0.01	ppb	22.31	0.01	22.31	20	<PQL
205 Tl	0.11	ppb	5.23	0.17	39.68	20	<PQL
208 Pb	38.72	ppb	0.22	40.61	4.76	20	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1273516.80	1.79	983690.50	129.5	30 - 140	
72 Ge	262382.78	1.42	187495.88	139.9	30 - 140	
115 In	1474073.40	2.33	1242279.00	118.7	30 - 140	
159 Tb	2454248.50	2.24	1453589.50	168.8	30 - 140	IS FAIL
209 Bi	987063.63	0.92	837280.44	117.9	30 - 140	

ISTD Ref. File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; IS # 168; AU # 174; HCL # X13037

1 7019

LFM Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\036LFM1.D\036LFM1.D#
Date Acquired:	Dec 1 2003 09:43 pm
Acq. Method:	6020B.M
Operator:	
Sample Name:	03111913-25
Misc Info:	500D-14
Vial Number:	2202
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	LFM1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	103.10	8.23	0.85	100.00	94.9	75 - 125	
52 Cr	67.98	45.35	0.69	100.00	22.6	75 - 125	Fail
60 Ni	128.00	78.26	0.75	100.00	49.7	75 - 125	Fail
63 Cu	111.60	37.02	0.50	100.00	74.6	75 - 125	Fail
66 Zn	213.80	149.40	0.43	100.00	64.4	75 - 125	Fail
75 As	18.65	-0.19	0.46	100.00	18.8	75 - 125	Fail
82 Se	18.24	19.15	0.21	100.00	-0.9	75 - 125	Fail
107 Ag	8.29	-0.10	2.74	100.00	8.4	75 - 125	Fail
111 Cd	103.70	0.83	0.77	100.00	102.9	75 - 125	
121 Sb	13.95	0.02	0.29	100.00	13.9	75 - 125	Fail
202 Hg	1.88	0.01	2.12	2.00	93.4	75 - 125	
205 Tl	72.61	0.17	2.88	100.00	72.4	75 - 125	Fail
208 Pb	91.24	40.61	0.68	100.00	50.6	75 - 125	Fail

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
45 Sc	1207484.6	2.22	#######	122.8	30 - 140	
72 Ge	232078.6	1.75	#######	123.8	30 - 140	
115 In	1540552.0	1.83	#######	124.0	30 - 140	
159 Tb	1935485.6	2.04	#######	133.2	30 - 140	
209 Bi	1035875.9	1.62	#######	123.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82

S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01

HCL # X13037; Au IN RINSE #174

PDS Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\037PDS1.D\037PDS1.D#
Date Acquired:	Dec 1 2003 09:48 pm
Acq. Method:	6020B.M
Operator:	
Sample Name:	03111913-25
Misc Info:	500D-15
Vial Number:	2203
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	PDS1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	92.07	8.23	2.06	100.00	83.8	75 - 125	
52 Cr	135.90	45.35	3.43	100.00	90.6	75 - 125	
60 Ni	166.90	78.26	2.85	100.00	88.6	75 - 125	
63 Cu	127.30	37.02	0.78	100.00	90.3	75 - 125	
66 Zn	231.90	149.40	0.53	100.00	82.5	75 - 125	
75 As	83.03	-0.19	0.08	100.00	83.2	75 - 125	
82 Se	101.60	19.15	0.35	100.00	82.5	75 - 125	
107 Ag	98.05	-0.10	1.33	100.00	98.2	75 - 125	
111 Cd	101.00	0.83	1.31	100.00	100.2	75 - 125	
121 Sb	72.70	0.02	0.76	100.00	72.7	75 - 125	Fail
202 Hg	1.96	0.01	1.99	2.00	97.7	75 - 125	
205 Tl	88.68	0.17	4.98	100.00	88.5	75 - 125	
208 Pb	136.60	40.61	1.39	100.00	96.0	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
45 Sc	1270386.5	1.67	983690.5	129.1	30 - 140	
72 Ge	256469.4	1.22	187495.9	136.8	30 - 140	
115 In	1465488.5	1.94	1242279.0	118.0	30 - 140	
159 Tb	2459048.5	1.41	1453589.5	169.2	30 - 140	IS FAIL
209 Bi	997044.3	1.23	837280.4	119.1	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

Dilution QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\038DIL1.D\038DIL1.D#
Date Acquired: Dec 1 2003 09:53 pm
Acq. Method: 6020B.M
Operator:
Sample Name: 03111913-25
Misc Info: 2500D
Vial Number: 2204
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update: Dec 02 2003 09:46 am
Sample Type: Dil1
Dilution Factor: 5.00

Dilution Ref File: C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#

QC elements

Element	Conc.	RSD(%)	*Ref conc*	Actual(%)	QC Range(%)	Flag
9 Be	1.78	2.47	8.23	108.05	90 - 110	<100 PB
52 Cr	9.57	1.86	45.35	105.55	90 - 110	<100 PB
60 Ni	16.80	0.87	78.26	107.33	90 - 110	
63 Cu	7.29	1.55	37.02	98.45	90 - 110	<100 PB
66 Zn	33.77	0.36	149.40	113.02	90 - 110	Fail
75 As	0.11	67.35	-0.19	-284.13	90 - 110	<100 PB
82 Se	4.44	0.61	19.15	115.82	90 - 110	<100 PB
107 Ag	-0.10	4.01	-0.10	478.02	90 - 110	<100 PB
111 Cd	0.20	4.62	0.83	117.39	90 - 110	<100 PB
121 Sb	0.06	5.73	0.02	1262.25	90 - 110	<100 PB
202 Hg	0.01	31.21	0.01	540.91	90 - 110	<100 PB
205 Tl	1.65	6.51	0.17	5006.05	90 - 110	<100 PB
208 Pb	7.55	1.23	40.61	93.01	90 - 110	<100 PB

Traceability:

IS #168 ON-LINE
Au IN RINSE #174
HCL LOT #X13037
HNO3 #82

PB QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\021__PB.D\021__PB.D#
Date Acquired: Dec 1 2003 08:25 pm
Acq. Method: 6020B.M
Operator:
Sample Name: SOIL031201
Misc Info: 500D-01
Vial Number: 2101
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update: Dec 02 2003 09:46 am
Sample Type: PB
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
9 Be	0.02 ppb	12.95	0.50	
52 Cr	-0.02 ppb	343.15	0.50	
60 Ni	-0.16 ppb	17.61	0.50	
63 Cu	-0.92 ppb	3.33	0.50	
66 Zn	-0.98 ppb	4.93	0.50	
75 As	0.04 ppb	141.23	0.50	
82 Se	-0.01 ppb	94.56	0.50	
107 Ag	-0.14 ppb	11.31	0.50	
111 Cd	0.01 ppb	333.64	0.50	
121 Sb	0.04 ppb	10.86	0.50	
202 Hg	0.02 ppb	30.49	0.50	
205 Tl	0.03 ppb	22.65	0.50	
208 Pb	-0.33 ppb	1.31	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1069963.90	0.97	983690.50	108.8	30 - 140	
72 Ge	202385.75	1.09	187495.88	107.9	30 - 140	
115 In	1391015.30	0.81	1242279.00	112.0	30 - 140	
159 Tb	1643802.00	0.67	1453589.50	113.1	30 - 140	
209 Bi	959416.75	0.68	837280.44	114.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

1 7024

LCS QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\022_LCS.D\022_LCS.D#
Date Acquired:	Dec 1 2003 08:30 pm
Acq. Method:	6020B.M
Operator:	
Sample Name:	SOIL031201
Misc Info:	500D-02
Vial Number:	2102
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	LCS
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
9 Be	108.80	108.80	ppb	1.17	100.00	75 - 125	
52 Cr	106.10	106.10	ppb	1.03	100.00	75 - 125	
60 Ni	112.40	112.40	ppb	0.31	100.00	75 - 125	
63 Cu	109.30	109.30	ppb	0.06	100.00	75 - 125	
66 Zn	113.50	113.50	ppb	0.54	100.00	75 - 125	
75 As	105.70	105.70	ppb	0.07	100.00	75 - 125	
82 Se	109.20	109.20	ppb	0.27	100.00	75 - 125	
107 Ag	47.51	47.51	ppb	1.04	100.00	75 - 125	Fail
111 Cd	113.30	113.30	ppb	1.21	100.00	75 - 125	
121 Sb	108.60	108.60	ppb	1.04	100.00	75 - 125	
202 Hg	1.95	1.95	ppb	0.92	2.00	75 - 125	
205 Tl	108.40	108.40	ppb	0.61	100.00	75 - 125	
208 Pb	104.90	104.90	ppb	1.07	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1066396.80	0.62	983690.50	108.4	30 - 140	
72 Ge	206101.69	0.27	187495.88	109.9	30 - 140	
115 In	1406919.50	1.61	1242279.00	113.3	30 - 140	
159 Tb	1677808.60	1.63	1453589.50	115.4	30 - 140	
209 Bi	978714.06	2.43	837280.44	116.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

1 7025

ICV QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\008ICV1.D\008ICV1.D#
Date Acquired:	Dec 3 2003 03:44 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	ICV
Misc Info:	0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number:	1202
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 03 2003 03:49 pm
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
107 Ag	55.59 ppb	3.27	50.00	90 - 110	Fail
121 Sb	56.09 ppb	3.91	50.00	90 - 110	Fail

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2547947.80	1.12	2459414.30	103.6	30 - 140	
159 Tb	2465008.50	3.23	2521340.50	97.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031203.B\024CCV1.D\024CCV1.D#
Date Acquired: Dec 3 2003 04:37 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File: C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal Update: Dec 04 2003 09:33 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
107 Ag	51.69 ppb	1.88	50.00	90 - 110	
118 (In)	--------	--------	---	##### - #####	
121 Sb	52.14 ppb	5.71	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2293037.30	4.24	2459414.30	93.2	30 - 140	
159 Tb	2292480.50	0.80	2521340.50	90.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\036CCV1.D\036CCV1.D#
Date Acquired:	Dec 3 2003 05:17 pm
Operator:	
Sample Name:	CCV
Misc Info:	
Vial Number:	1202
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal Update:	Dec 04 2003 09:33 am
Sample Type:	CCV1
Total Dil Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
107 Ag	51.57 ppb	1.20	50.00	90 - 110	
118 (In)	--------	--------	---	##### - #####	
121 Sb	50.97 ppb	3.89	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2724721.50	1.16	2459414.30	110.8	30 - 140	
159 Tb	2715165.00	2.57	2521340.50	107.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#
Date Acquired:	Dec 3 2003 04:54 pm
Acq. Method:	1203.M
Operator:	Lisa Miller
Sample Name:	03111913-25
Misc Info:	500D-12
Vial Number:	2112
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
107 Ag	-0.06	-0.06	ppb	14.23	8000.00	
118 (In)	----	--------	---		#VALUE!	
121 Sb	-1.34	-1.34	ppb	0.35	8000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2474587.50	1.76	2459414.30	100.6	30 - 140	
159 Tb	3273239.50	6.02	2521340.50	129.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

Duplicate QC Report

Data File: C:\ICPCHEM\1\DATA\031203.B\030DUP1.D\030DUP1.D#
Date Acquired: Dec 3 2003 04:58 pm
Acq. Method: 1203.M
Operator:
Sample Name: 03111913-25
Misc Info: 500D-13
Vial Number: 2201
Current Method: C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File: C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update: Dec 04 2003 09:33 am
Sample Type: Dupl
Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#

QC Elements

Element	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
107 Ag	-0.09	ppb	7.00	-0.06	-26.91	20	<PQL
118 (In)	--------		--------	---	#VALUE!	#####	
121 Sb	-1.41	ppb	1.03	-1.34	-5.22	20	<PQL

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2557316.30	1.67	2459414.30	104.0	30 - 140	
159 Tb	3496093.80	6.95	2521340.50	138.7	30 - 140	

ISTD Ref. File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; IS # 168; AU # 174; HCL # X13037

LFM Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\031LFM1.D\031LFM1.D#
Date Acquired:	Dec 3 2003 05:01 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	03111913-25
Misc Info:	500D-14
Vial Number:	2202
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	LFM1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
107 Ag	94.40	-0.06	1.06	100.00	94.5	75 - 125	
118 (In)	---	---	--------	---	---		
121 Sb	73.02	-1.34	3.95	100.00	74.4	75 - 125	Fail

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
115 In	2651984.3	5.60	#######	107.8	30 - 140	
159 Tb	3562885.0	5.89	#######	141.3	30 - 140	IS FAIL

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82
S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

PDS Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\032PDS1.D\032PDS1.D#
Date Acquired:	Dec 3 2003 05:04 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	03111913-25
Misc Info:	500D-15
Vial Number:	2203
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	PDS1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
107 Ag	94.31	-0.06	0.68	100.00	94.4	75 - 125	
118 (In)	---	---	--	---	---		
121 Sb	76.30	-1.34	1.68	100.00	77.6	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
115 In	2522808.8	1.82	2459414.3	102.6	30 - 140	
159 Tb	3284198.0	1.19	2521340.5	130.3	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

Dilution QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\033DIL1.D\033DIL1.D#
Date Acquired:	Dec 3 2003 05:07 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	03111913-25
Misc Info:	2500D
Vial Number:	2204
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	Dil1
Dilution Factor:	5.00
Dilution Ref File:	C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#

QC elements

Element	Conc.	RSD(%)	*Ref conc*	Actual(%)	QC Range(%)	Flag
107 Ag	0.04	10.84	-0.06	-306.83	90 - 110	<100 PB
118 (In)	--------	--------	---	#VALUE!	##### - #####	
121 Sb	-1.14	1.38	-1.34	424.74	90 - 110	<100 PB

Traceability:

IS #168 ON-LINE
Au IN RINSE #174
HCL LOT #X13037
HNO3 #82

1 7033

PB QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\016__PB.D\016__PB.D#
Date Acquired:	Dec 3 2003 04:11 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	SOIL031202
Misc Info:	500D-01
Vial Number:	2101
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	PB
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
107 Ag	0.05 ppb	35.47	0.50	
118 (In)	--------	--------	---	
121 Sb	-1.05 ppb	5.49	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2259331.00	9.29	2459414.30	91.9	30 - 140	
159 Tb	2157658.00	6.54	2521340.50	85.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

LCS QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\017_LCS.D\017_LCS.D#
Date Acquired:	Dec 3 2003 04:14 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	SOIL031202
Misc Info:	500D-02
Vial Number:	2102
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	LCS
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
107 Ag	94.19	94.19	ppb	1.73	100.00	75 - 125	
118 (In)	#VALUE!	--------		--------	---	##### - #####	
121 Sb	97.44	97.44	ppb	3.72	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2344520.80	1.02	2459414.30	95.3	30 - 140	
159 Tb	2237657.80	1.24	2521340.50	88.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

ICV QC Report

Data File: C:\ICPCHEM\1\DATA\031204B.B\007ICV1.D\007ICV1.D#
Date Acquired: Dec 4 2003 12:26 pm
Acq. Method: 1204ZNSE.M
Operator:
Sample Name: ICV
Misc Info: 0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal. Update: Dec 04 2003 12:25 pm
Sample Type: ICV1
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
66 Zn	51.26 ppb	0.95	50.00	90 - 110	
82 Se	52.32 ppb	1.11	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
72 Ge	675196.88	0.06	660691.19	102.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031204B.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031204B.B\021CCV1.D\021CCV1.D#
Date Acquired: Dec 4 2003 01:19 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal Update: Dec 04 2003 03:57 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
66 Zn	50.07 ppb	4.95	50.00	90 - 110	
82 Se	49.76 ppb	5.10	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
72 Ge	668452.56	3.80	660691.19	101.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031204B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031204B.B\035CCV1.D\035CCV1.D#
Date Acquired: Dec 4 2003 02:12 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal Update: Dec 04 2003 03:57 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
66 Zn	49.71 ppb	1.70	50.00	90 - 110	
82 Se	50.84 ppb	2.35	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
72 Ge	667580.81	1.01	660691.19	101.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031204B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031204B.B\026AREF.D\026AREF.D#
Date Acquired:	Dec 4 2003 01:38 pm
Acq. Method:	1204ZNSE.M
Operator:	Lisa Miller
Sample Name:	03111913-25
Misc Info:	1000D-ZN-0
Vial Number:	3308
Current Method:	C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File:	C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal. Update:	Dec 04 2003 03:57 pm
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
66 Zn	106.80	106.80	ppb	0.68	8000.00	
82 Se	13.73	13.73	ppb	1.22	8000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
72 Ge	728685.75	0.45	660691.19	110.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031204B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

PDS Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031204B.B\027PDS1.D\027PDS1.D#
Date Acquired:	Dec 4 2003 01:42 pm
Acq. Method:	1204ZNSE.M
Operator:	
Sample Name:	03111913-25
Misc Info:	1000D-ZN-1
Vial Number:	3309
Current Method:	C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File:	C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal. Update:	Dec 04 2003 03:57 pm
Sample Type:	PDS1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031204B.B\026AREF.D\026AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
66 Zn	212.10	106.80	1.21	100.00	105.3	75 - 125	
82 Se	101.30	13.73	0.38	100.00	87.6	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
72 Ge	721858.5	0.23	660691.2	109.3	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

LABORATORY RESULTS

DATE RECEIVED: December 2, 2003

PROJECT: Lockheed Martin Middle River Complex

CERTIFICATE OF ANALYSIS #: *03120204*

PREPARED FOR:

Tetra Tech, Inc.
10670 White Rock Rd., Ste. 100
Rancho Cordova, CA 95670

December 11, 2003

6630 Baltimore National Pike Baltimore, Maryland 21228 (410) 747-8770 (800) 932-9047 fax (410) 788-8723

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
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CERTIFICATE OF ANALYSIS
No. 03120204 Page 1 of 2
Tetra Tech, Inc.
December 11, 2003

Project: Lockheed Martin Middle River Complex
Site Location: Middle River, MD.
Project Number: N/A

Date Sampled: 12/1/2003
Date Received: 12/2/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: MW-04 / 03120204-01 / Water						
Purgeable Aromatics						
Benzene	**120**	ug/L	EPA 8021B	10		12/5/2003
Toluene	**37**	ug/L	EPA 8021B	10		12/5/2003
Ethylbenzene	**150**	ug/L	EPA 8021B	10		12/5/2003
Total Xylenes	**890**	ug/L	EPA 8021B	10		12/5/2003
Naphthalene	**140**	ug/L	EPA 8021B	10		12/5/2003
Total Metals						
Lead	ND	ug/L	EPA 6020	5	12/10/2003	12/10/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	**9,800**	ug/L	EPA 8015B	1000		12/5/2003
Sample ID: MW-04 Dissolved / 03120204-02 / Water						
Dissolved Metals						
Lead	ND	ug/L	EPA 6020	5	12/9/2003	12/10/2003
Sample ID: MW-03 / 03120204-03 / Water						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		12/5/2003
Toluene	ND	ug/L	EPA 8021B	1		12/5/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		12/5/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		12/5/2003
Naphthalene	ND	ug/L	EPA 8021B	1		12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/9/2003	12/10/2003

Reviewed By: Matt Colee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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CERTIFICATE OF ANALYSIS
No. 03120204 Page 2 of 2
Tetra Tech, Inc.
December 11, 2003

Project: Lockheed Martin Middle River Complex
Site Location: Middle River, MD.
Project Number: N/A

Date Sampled: 12/1/2003
Date Received: 12/2/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: MW-02 / 03120204-04 / Water						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		12/5/2003
Toluene	ND	ug/L	EPA 8021B	1		12/5/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		12/5/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		12/5/2003
Naphthalene	ND	ug/L	EPA 8021B	1		12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/9/2003	12/10/2003
Sample ID: MW-05 / 03120204-05 / Water						
Purgeable Aromatics						
Benzene	**330**	ug/L	EPA 8021B	5		12/5/2003
Toluene	**18**	ug/L	EPA 8021B	5		12/5/2003
Ethylbenzene	**280**	ug/L	EPA 8021B	5		12/5/2003
Total Xylenes	**100**	ug/L	EPA 8021B	5		12/5/2003
Naphthalene	**21**	ug/L	EPA 8021B	5		12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/9/2003	12/10/2003
Sample ID: MW-01 / 03120204-06 / Water						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		12/5/2003
Toluene	ND	ug/L	EPA 8021B	1		12/5/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		12/5/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		12/5/2003
Naphthalene	**2**	ug/L	EPA 8021B	1		12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/9/2003	12/10/2003

Reviewed By: Matt Oehee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

SAMPLE CHAIN OF CUSTODY/AGREEMENT FORM

PHASE SEPARATION SCIENCE, INC.

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email: info@phaseonline.com

(1)
CLIENT: Tetra Tech PHONE NO.: ( )
PROJECT MGR: Nisha Bansall FAX NO.: ( )
EMAIL:
PROJECT NAME: Lockheed Martin Middle River Complex
SITE LOCATION: Middle River MD.
PROJECT NO.: P.O. NO.:

PSS Project #: 0312020Y

PAGE 1 OF 1

(2)

LAB NO.	SAMPLE IDENTIFICATION	DATE	TIME	MATRIX	No. CONTAINERS	SAMPLE TYPE C = COMP G = GRAB	GRO	BTEX+NaphMalen	Total Lead	Filtered Lead*	DRO-Extended					REMARKS
	Preservatives Used						HCl	HCl	HNO3	HNO3	HCl					
	MW-04	12/1	10:56	W	8	G	X	X	X	X						* Filtered in field by Tetra Tech
	MW-03	12/1	13:50	W	4	G		X			X					
	MW-02	12/1	15:25	W	4	G		X			X					
	MW-05	12/2	9:20	W	4	G		X			X					
	MW-01	12/2	11:10	W	4	G		X			X					Standard turnaround time

(3) Analysis Required

(4)
Requested Turnaround Time
☐ 5-Day (Std.) ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☐ Other

Data Deliverables Required:

Sample Condition Upon Receipt: Good
Custody Seal:
Shipping Carrier: Hand
Shipping Ticket No.:

Special Instructions:

(5)

Collected / Relinquished By: (1)	Date	Time	Received By:
[signature]	12/2/03	2:45	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Collected / Relinquished By: (4)	Date	Time	Received By:
	12/2/03	2:45	[signature]

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The client (Client Name), by signing, or having client's agent sign, this "Sample Chain of Custody/Agreement Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if colleciton becomes necessary.

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Pugeable Aromatics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS/LCSD Summary*

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PURGEABLE AROMATICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: BTEX **LAB CODE:** SURR

METHOD NO.: EPA 8021

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
12/05/03 20:55	MW-04	90	
12/05/03 17:08	MW-03	88	
12/05/03 17:40	MW-02	88	
12/05/03 19:09	MW-05	98	
12/05/03 18:13	MW-01	88	

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

3 1002

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PURGEABLE AROMATICS
METHOD BLANK SUMMARY

ANALYSIS:	**BTEX**	**LAB CODE:**	**MBW**
METHOD NO.:	**EPA 8021**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03120504.D**	**DATE/TIME ANALYZED:**	**12/05/03 16:25**
MATRIX:	**Water**		

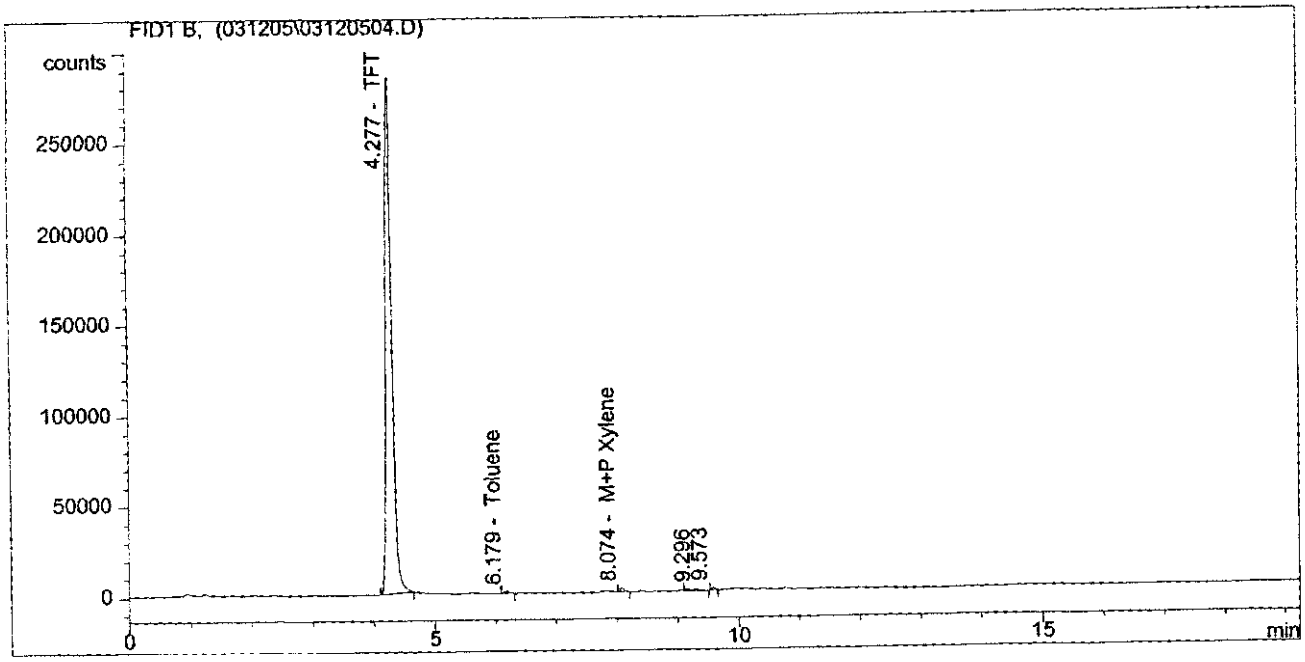
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
MW-04	03120204-01	2\03120511.D	12/05/03 20:55
MW-03	03120204-03	2\03120505.D	12/05/03 17:08
MW-02	03120204-04	2\03120506.D	12/05/03 17:40
MW-05	03120204-05	2\03120508.D	12/05/03 19:09
MW-01	03120204-06	2\03120507.D	12/05/03 18:13

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031205\03120504.D
Method Name: C:\HPCHEM\2\METHODS\B2W5.M
Sample Name: BLANK
Acquired On: 12/5/03 4:25:23 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	0.000	0.000	1.694	0.000
Benzene	0.000	0.000	3.033	0.000
TFT	87.510	2.017e6	4.291	4.277
Toluene	0.096	6.121e3	6.184	6.179
Ethyl Benzene	0.000	0.000	7.879	0.000
M+P Xylene	0.149	9.132e3	8.072	8.074
Ortho Xylene	0.000	0.000	8.382	0.000
Naphthalene	0.000	0.000	11.358	0.000

3 1004

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PURGEABLE AROMATICS
CONTINUING CALIBRATION VERIFICATION SUMMARY

LAB FILE ID: 2\03120501.D

DATE ANALYZED: 12/5/03 14:36

MATRIX: Water

COMPOUND/DISTILLATE	STD REF CONC	STD REC CONC	STD REC (%)	#	QC LIMITS (%)
MTBE	20	20	98		85-115
Benzene	20	19	94		85-115
Toluene	20	19	96		85-115
Ethyl benzene	20	20	98		85-115
Xylene, m&p	40	40	100		85-115
Xylene, ortho	20	19	97		85-115
Naphthalene	20	19	95		85-115

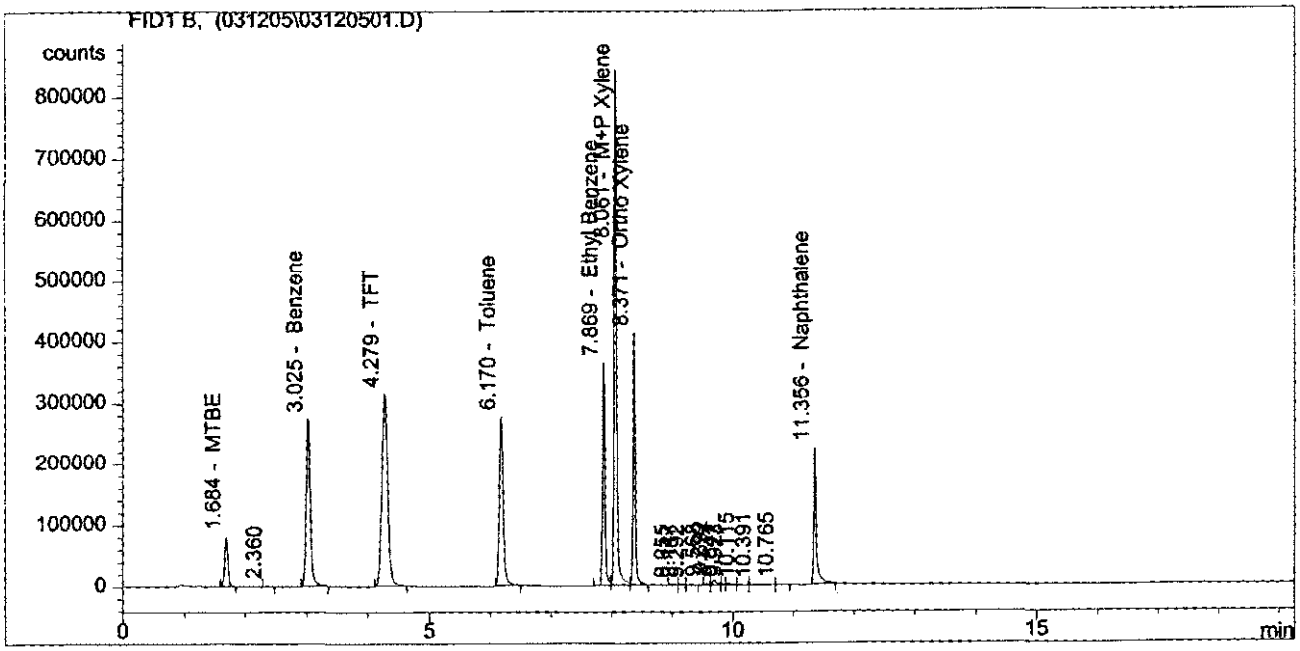
3 1005

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031205\03120501.D
Method Name: C:\HPCHEM\2\METHODS\B2W5.M
Sample Name: BTEXNM
Acquired On: 12/5/03 2:36:47 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
8ul 243/40ml=20ppb

->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	19.509	2.998e5	1.694	1.684
Benzene	18.857	1.300e6	3.033	3.025
TFT	91.313	2.104e6	4.291	4.279
Toluene	19.148	1.219e6	6.184	6.170
Ethyl Benzene	19.530	1.037e6	7.879	7.869
M+P Xylene	40.102	2.462e6	8.072	8.061
Ortho Xylene	19.406	1.091e6	8.382	8.371
Naphthalene	18.985	6.434e5	11.358	11.356

3 1006

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PURGEABLE AROMATICS
MATRIX SPIKE SUMMARY

LAB FILE ID: 2\03120540.D
2\03120541.D

DATE ANALYZED: 12/06/03

MATRIX: Water

Sample ID: 03120433-01 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	QC LIMITS (%)
MTBE	50	ND	48	96	70-130
Benzene	50	19	66	95	70-130
Toluene	50	ND	45	90	70-130
Ethyl benzene	50	ND	43	86	70-130
Xylene, m&p	100	ND	85	85	70-130
Xylene, ortho	50	2	45	86	70-130
Naphthalene	50	96	198	203 *	70-130

Lab Sample ID: 03120433-01 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
MTBE	50	ND	48	96	0.2	15	70-130
Benzene	50	19	63	89	4.2	15	70-130
Toluene	50	ND	44	89	1.5	15	70-130
Ethyl benzene	50	ND	42	85	2.0	15	70-130
Xylene, m&p	100	ND	85	85	0.2	15	70-130
Xylene, ortho	50	2	45	84	1.5	15	70-130
Naphthalene	50	96	179	166 *	9.9	15	70-130

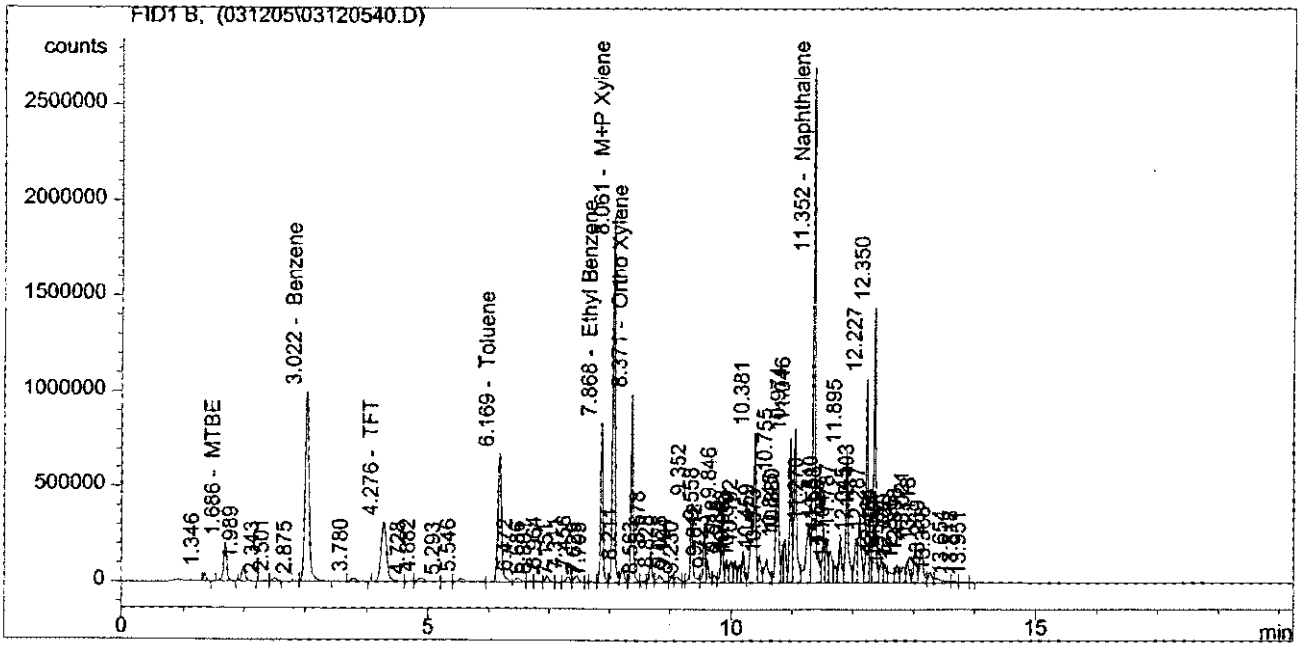
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*

3 1007

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031205\03120540.D
Method Name: C:\HPCHEM\2\METHODS\B2W5.M
Sample Name: 03120433-1 MS
Acquired On: 12/6/03 12:37:59 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
BTEXNM MS:20ul 243/40ml=50ppb ->



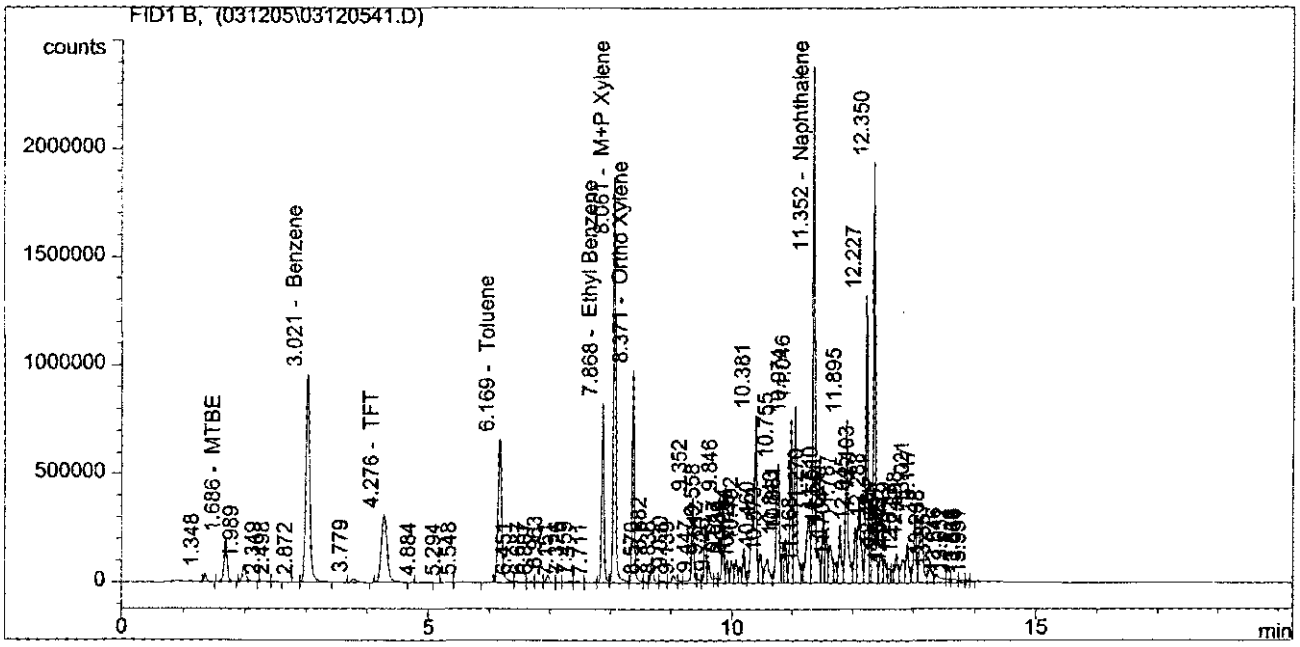
COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	47.960	7.370e5	1.694	1.686
Benzene	66.172	4.561e6	3.033	3.022
TFT	90.687	2.090e6	4.291	4.276
Toluene	45.022	2.866e6	6.184	6.169
Ethyl Benzene	43.210	2.295e6	7.879	7.868
M+P Xylene	84.949	5.216e6	8.072	8.061
Ortho Xylene	45.228	2.542e6	8.382	8.371
Naphthalene	197.762	6.702e6	11.358	11.352

3 1008

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031205\03120541.D
Method Name: C:\HPCHEM\2\METHODS\B2W5.M
Sample Name: 03120433-1 MSD
Acquired On: 12/6/03 1:10:08 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
BTEXNM MSD:20ul 243/40ml=50ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	47.854	7.354e5	1.694	1.686
Benzene	63.474	4.375e6	3.033	3.021
TFT	90.336	2.082e6	4.291	4.276
Toluene	44.349	2.823e6	6.184	6.169
Ethyl Benzene	42.337	2.249e6	7.879	7.868
M+P Xylene	85.126	5.227e6	8.072	8.061
Ortho Xylene	44.568	2.505e6	8.382	8.371
Naphthalene	179.073	6.069e6	11.358	11.352

3 1009

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

PURGEABLE AROMATICS
LABORATORY CONTROL SAMPLE SUMMARY

LAB FILE ID: 2\03120519.D

DATE ANALYZED: 12/06/03

MATRIX: Water

Sample ID: LCS 20ppb

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	QC LIMITS (%)
MTBE	20	18	92	70-130
Benzene	20	18	91	70-130
Toluene	20	19	93	70-130
Ethyl benzene	20	19	95	70-130
Xylene, m&p	40	39	98	70-130
Xylene, ortho	20	19	96	70-130
Naphthalene	20	17	85	70-130

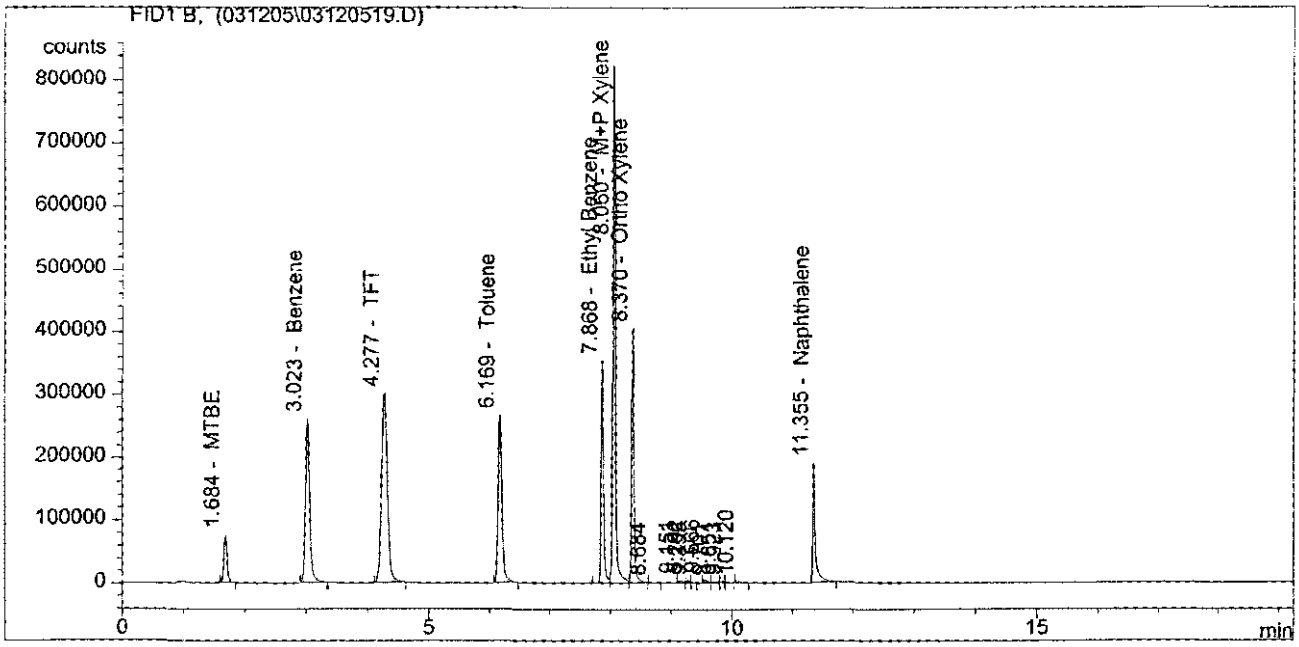
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc)/(spike added)]*100*

3 1010

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031205\03120519.D
Method Name: C:\HPCHEM\2\METHODS\B2W5.M
Sample Name: BTEXNM
Acquired On: 12/6/03 1:19:58 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
8ul 243/40ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	18.347	2.819e5	1.694	1.684
Benzene	18.228	1.256e6	3.033	3.023
TFT	89.059	2.052e6	4.291	4.277
Toluene	18.622	1.185e6	6.184	6.169
Ethyl Benzene	19.049	1.012e6	7.879	7.868
M+P Xylene	39.302	2.413e6	8.072	8.060
Ortho Xylene	19.239	1.081e6	8.382	8.370
Naphthalene	16.929	5.738e5	11.358	11.355

3 1011

Sequence: C:\HPCHEM\2\SEQUENCE\031205.S

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	BTEXNM	GC2	1	Sample		
2	2	GRO	GC2	1	Sample		
3	3	BLANK	GC2	1	Sample		
4	4	BLANK	GC2	1	Sample		
5	5	03120204-3 5mL	GC2	1	Sample		
6	6	03120204-4 5mL	GC2	1	Sample		
7	7	03120204-6 5mL	GC2	1	Sample		
8	8	03120204-5 5D	GC2	1	Sample		
9	9	03120207-2 5D	GC2	1	Sample		
10	10	03120207-3 5D	GC2	1	Sample		
11	11	03120204-1 10D	GC2	1	Sample		
12	12	03120308-3 100D	GC2	1	Sample		
13	13	03120308-4 100D	GC2	1	Sample		
14	14	BLANK	GC2	1	Sample		
15	15	03120207-4 5mL	GC2	1	Sample		
16	16	03120207-5 5mL	GC2	1	Sample		
17	17	03120207-6 5mL	GC2	1	Sample		
18	18	BLANK	GC2	1	Sample		
19	19	BTEXNM LCS	GC2	1	Sample		
20	20	BTEXNM	GC2	1	Sample		
21	21	GRO	GC2	1	Sample		
22	22	GRO	GC2	1	Sample		
23	23	BLANK	GC2	1	Sample		
24	24	BLANK	GC2	1	Sample		
25	25	BLANK	GC2	1	Sample		
26	26	03120428-1 5mL	GC2	1	Sample		
27	27	03120426-2 5mL	GC2	1	Sample		
28	28	03120207-7 5mL	GC2	1	Sample		
29	29	03120207-8 5mL	GC2	1	Sample		
30	30	03120207-9 5mL	GC2	1	Sample		
31	31	03120207-10 5mL	GC2	1	Sample		
32	32	03120207-11 5mL	GC2	1	Sample		
33	33	03120207-12 5mL	GC2	1	Sample		
34	34	03120207-13 5mL	GC2	1	Sample		
35	35	03120207-14 5mL	GC2	1	Sample		
36	36	03120207-15 5mL	GC2	1	Sample		
37	37	03120433-1 5mL	GC2	1	Sample		
38	38	03120433-2 5mL	GC2	1	Sample		
39	39	03120433-3 5mL	GC2	1	Sample		
40	40	03120433-1 MS	GC2	1	Sample		
41	41	03120433-1 MSD	GC2	1	Sample		
42	42	03120433-2 MS	GC2	1	Sample		
43	43	03120433-2 MSD	GC2	1	Sample		
44	44	BTEXNM	GC2	1	Sample		
45	45	GRO	GC2	1	Sample		
46	46	BLANK	GC2	1	Sample		

Sequence Table (Back Injector):

3 1012

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Gasoline Range Organics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS/LCSD Summary*

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3 2001

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GASOLINE RANGE ORGANICS SYSTEM MONITORING COMPOUND (SURROGATE)

ANALYSIS: GRO **LAB CODE:** SURR

METHOD NO.: EPA 8015B

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
12/5/03 4:25 PM	METHOD BLANK	94	
	Upper Limit	150	
	Lower Limit	50	
12/5/03 8:55 PM	MW-04	97	

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

3 2002

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GASOLINE RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**GRO**	**LAB CODE:**	**MBW**
METHOD No.:	**EPA 8015B**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03120504.D**	**DATE/TIME ANALYZED:**	**12/05/03 16:25**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

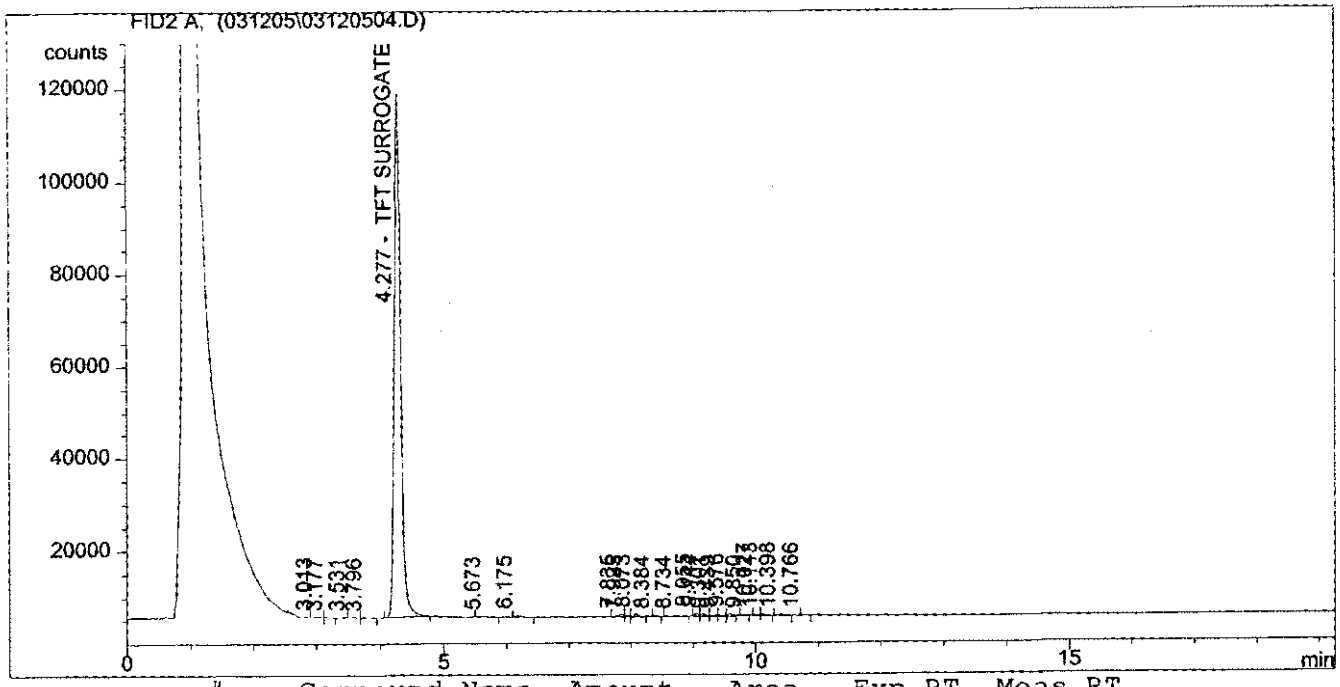
Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
MW-04	03120204-01	2\03120511.D	12/05/03 20:55

3 2003

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120504.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: BLANK
Acquired On: 12/5/03 4:25:23 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.774e3	0.000	3.013
2		0.000	1.031e3	0.000	3.177
3		0.000	1.033e3	0.000	3.531
4		0.000	1.252e3	0.000	3.796
5	TFT SURROGATE	94.255	8.092e5	4.269	4.277
6		0.000	1.262e3	0.000	5.673
7		0.000	2.012e3	0.000	6.175
8		0.000	4.153e3	0.000	7.835
9		0.000	1.742e3	0.000	7.925
10		0.000	3.854e3	0.000	8.073
11		0.000	1.544e3	0.000	8.384
12		0.000	3.001e3	0.000	8.734
13		0.000	2.915e3	0.000	9.055
14		0.000	3.281e3	0.000	9.144
15		0.000	1.923e3	0.000	9.301
16		0.000	1.313e3	0.000	9.439
17		0.000	2.586e3	0.000	9.576
18		0.000	1.872e3	0.000	9.850
19		0.000	2.409e3	0.000	10.027
20		0.000	2.189e3	0.000	10.113
21		0.000	2.467e3	0.000	10.398
22		0.000	1.027e3	0.000	10.766
Total			8.538e5		

44600
6528
=6.83 ug/L
AK 12/7/03

3 2004

created on:12/5/03 4:52:03 PM

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

LAB FILE ID: 2\03120502.D

DATE/TIME ANALYZED: 12/5/03 15:09

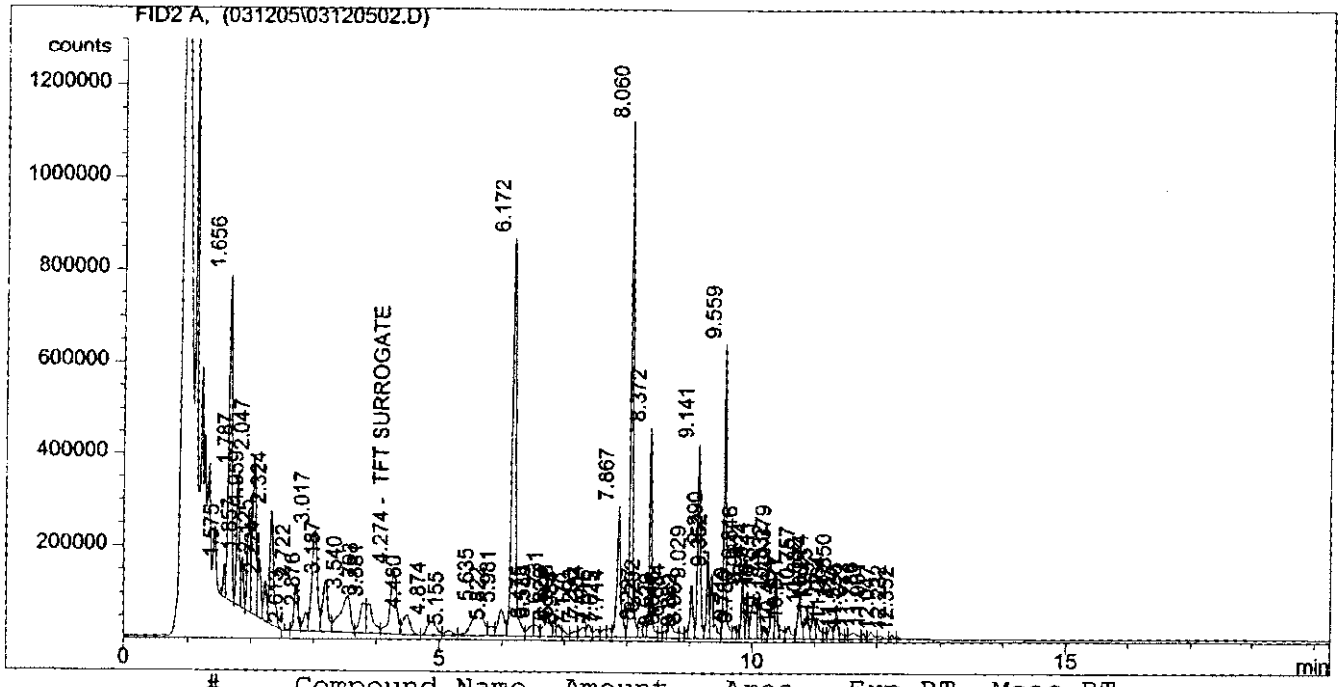
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Gasoline Range Organics	6892	6528	5.4	15

3 2005

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120502.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 12/5/03 3:09:41 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.577e5	0.000	1.575
2		0.000	2.426e6	0.000	1.656
3		0.000	8.882e5	0.000	1.787
4		0.000	2.963e5	0.000	1.857
5		0.000	7.322e5	0.000	1.959
6		0.000	1.402e6	0.000	2.047
7		0.000	4.453e5	0.000	2.125
8		0.000	2.859e5	0.000	2.224
9		0.000	1.108e6	0.000	2.324
10		0.000	1.105e4	0.000	2.613
11		0.000	4.353e5	0.000	2.722
12		0.000	2.110e5	0.000	2.876
13		0.000	1.351e6	0.000	3.017
14		0.000	6.661e5	0.000	3.187
15		0.000	9.686e5	0.000	3.540
16		0.000	4.429e5	0.000	3.793
17		0.000	4.939e5	0.000	3.881
18	TFT SURROGATE	121.926	1.047e6 ✓	4.269	4.274
19		0.000	3.759e5	0.000	4.480
20		0.000	3.176e5	0.000	4.874
21		0.000	9.779e4	0.000	5.155
22		0.000	7.648e5	0.000	5.635
23		0.000	1.375e5	0.000	5.822
24		0.000	4.264e5	0.000	5.981

$\frac{3.446e7}{5000} = 6892$

%D $= \frac{6892 - 6528}{6528} \times 100 = 5.58\%$

AK 12/5/03

3 2006

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120502.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 12/5/03 3:09:41 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
10ul 252/40ml=5000ppb

->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.778e6	0.000	6.172
26		0.000	1.548e5	0.000	6.475
27		0.000	1.269e5	0.000	6.535
28		0.000	3.881e5	0.000	6.731
29		0.000	6.388e4	0.000	6.828
30		0.000	1.259e5	0.000	6.898
31		0.000	6.493e4	0.000	6.984
32		0.000	6.987e4	0.000	7.170
33		0.000	1.340e5	0.000	7.293
34		0.000	1.310e5	0.000	7.384
35		0.000	9.138e4	0.000	7.516
36		0.000	8.285e4	0.000	7.625
37		0.000	9.109e4	0.000	7.714
38		0.000	1.182e6	0.000	7.867
39		0.000	3.103e6	0.000	8.060
40		0.000	1.018e5	0.000	8.227
41		0.000	1.306e5	0.000	8.292
42		0.000	1.201e6	0.000	8.372
43		0.000	4.703e4	0.000	8.529
44		0.000	5.906e4	0.000	8.616
45		0.000	2.114e5	0.000	8.684
46		0.000	5.152e4	0.000	8.882
47		0.000	4.847e4	0.000	8.961
48		0.000	3.976e5	0.000	9.029
49		0.000	1.344e6	0.000	9.141
50		0.000	4.589e5	0.000	9.290
51		0.000	4.720e5	0.000	9.352
52		0.000	1.528e6	0.000	9.559
53		0.000	8.983e4	0.000	9.719
54		0.000	4.935e4	0.000	9.780
55		0.000	3.823e5	0.000	9.846
56		0.000	2.496e5	0.000	9.921
57		0.000	5.118e5	0.000	10.024
58		0.000	2.673e5	0.000	10.111
59		0.000	8.620e4	0.000	10.193
60		0.000	3.461e5	0.000	10.332
61		0.000	3.481e5	0.000	10.379
62		0.000	9.467e4	0.000	10.464
63		0.000	1.357e5	0.000	10.577
64		0.000	3.644e5	0.000	10.757
65		0.000	2.401e5	0.000	10.882
66		0.000	2.346e5	0.000	10.974
67		0.000	1.739e5	0.000	11.045
68		0.000	4.493e4	0.000	11.162
69		0.000	1.303e5	0.000	11.264
70		0.000	2.063e5	0.000	11.350

3 2007

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120502.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 12/5/03 3:09:41 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
10ul 252/40ml=5000ppb

->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	5.295e4	0.000	11.427
72		0.000	2.497e4	0.000	11.520
73		0.000	1.222e5	0.000	11.622
74		0.000	4.123e4	0.000	11.786
75		0.000	8.045e4	0.000	11.901
76		0.000	4.530e4	0.000	12.047
77		0.000	3.239e4	0.000	12.232
78		0.000	2.920e4	0.000	12.352
Total			3.551e7		

3 2008

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GASOLINE RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **12/6/03 2:24** **LAB FILE ID:** **2\03120521.D**

METHOD: **EPA 8015B**

MATRIX: **Water**

Sample ID: LCS 5000ppb

SPIKE DISTILLATE	SPIKE ADDED (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	QC LIMITS (%)
Gasoline	5000	5015	100	50-150

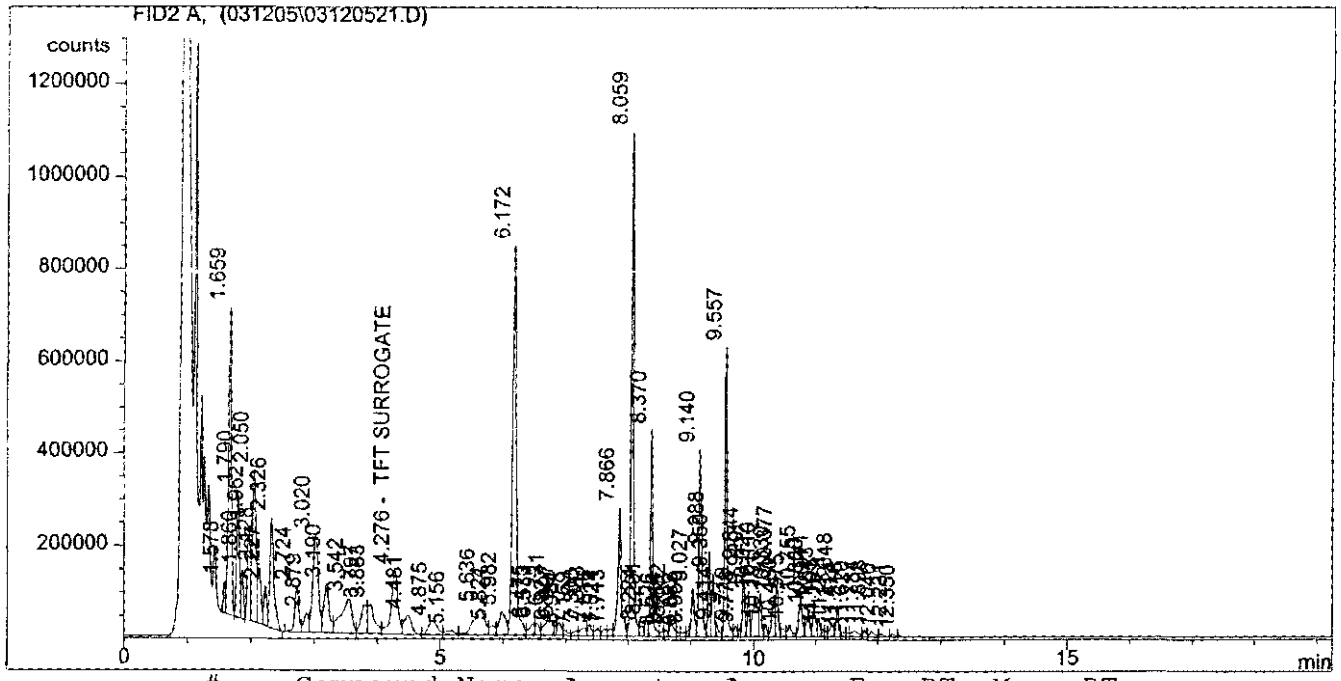
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

3 2009

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120521.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 12/6/03 2:24:29 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.509e5	0.000	1.578
2		0.000	2.306e6	0.000	1.659
3		0.000	8.457e5	0.000	1.790
4		0.000	2.888e5	0.000	1.860
5		0.000	6.949e5	0.000	1.962
6		0.000	1.369e6	0.000	2.050
7		0.000	4.431e5	0.000	2.128
8		0.000	2.905e5	0.000	2.227
9		0.000	1.091e6	0.000	2.326
10		0.000	4.569e5	0.000	2.724
11		0.000	2.215e5	0.000	2.879
12		0.000	1.304e6	0.000	3.020
13		0.000	6.423e5	0.000	3.190
14		0.000	9.438e5	0.000	3.542
15		0.000	4.152e5	0.000	3.797
16		0.000	4.949e5	0.000	3.883
17	TFT SURROGATE	122.791	1.054e6 ✓	4.269	4.276
18		0.000	3.667e5	0.000	4.481
19		0.000	2.886e5	0.000	4.875
20		0.000	9.273e4	0.000	5.156
21		0.000	7.234e5	0.000	5.636
22		0.000	1.279e5	0.000	5.824
23		0.000	3.783e5	0.000	5.982
24		0.000	3.667e6	0.000	6.172

$\frac{3.274e7}{5000} = 6548$

%D $= \frac{6548-6528}{6528} \times 100 = 0.31\%$

AK 12/7/03

3 2010

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120521.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 12/6/03 2:24:29 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.433e5	0.000	6.475
26		0.000	1.194e5	0.000	6.533
27		0.000	3.572e5	0.000	6.731
28		0.000	5.779e4	0.000	6.827
29		0.000	1.223e5	0.000	6.897
30		0.000	5.971e4	0.000	6.984
31		0.000	6.181e4	0.000	7.169
32		0.000	1.240e5	0.000	7.300
33		0.000	1.095e5	0.000	7.383
34		0.000	8.306e4	0.000	7.516
35		0.000	7.550e4	0.000	7.624
36		0.000	8.048e4	0.000	7.713
37		0.000	1.081e6	0.000	7.866
38		0.000	3.026e6	0.000	8.059
39		0.000	9.242e4	0.000	8.224
40		0.000	1.035e5	0.000	8.291
41		0.000	1.171e6	0.000	8.370
42		0.000	3.866e4	0.000	8.526
43		0.000	4.899e4	0.000	8.614
44		0.000	1.459e5	0.000	8.682
45		0.000	3.289e4	0.000	8.786
46		0.000	4.360e4	0.000	8.882
47		0.000	3.795e4	0.000	8.959
48		0.000	3.440e5	0.000	9.027
49		0.000	1.287e6	0.000	9.140
50		0.000	4.397e5	0.000	9.288
51		0.000	3.410e5	0.000	9.350
52		0.000	8.552e4	0.000	9.414
53		0.000	1.469e6	0.000	9.557
54		0.000	7.601e4	0.000	9.719
55		0.000	3.917e4	0.000	9.778
56		0.000	3.602e5	0.000	9.844
57		0.000	2.358e5	0.000	9.920
58		0.000	4.599e5	0.000	10.022
59		0.000	2.445e5	0.000	10.110
60		0.000	7.615e4	0.000	10.191
61		0.000	3.134e5	0.000	10.330
62		0.000	3.262e5	0.000	10.377
63		0.000	7.953e4	0.000	10.460
64		0.000	1.158e5	0.000	10.575
65		0.000	3.361e5	0.000	10.755
66		0.000	2.145e5	0.000	10.880
67		0.000	2.164e5	0.000	10.971
68		0.000	1.203e5	0.000	11.043
69		0.000	3.827e4	0.000	11.105
70		0.000	3.278e4	0.000	11.161

3 2011

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120521.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 12/6/03 2:24:29 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.174e5	0.000	11.261
72		0.000	1.892e5	0.000	11.348
73		0.000	4.540e4	0.000	11.424
74		0.000	2.245e4	0.000	11.516
75		0.000	9.795e4	0.000	11.620
76		0.000	3.611e4	0.000	11.784
77		0.000	6.799e4	0.000	11.898
78		0.000	3.818e4	0.000	12.046
79		0.000	2.641e4	0.000	12.231
80		0.000	2.225e4	0.000	12.350
Total			3.379e7		

3 2012

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS
MATRIX SPIKE SUMMARY

LAB FILE ID's: 2\03120542.D
2\03120543.D

DATE ANALYZED: 12/06/03

MATRIX: Water

Sample ID: 03120433-02 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/L	SAMPLE CONC ug/L	SPIKE CONC ug/L	SPIKE REC (%) #	QC LIMITS (%)
Gasoline Range Organics	5000	1403	4732	67	50-150

Sample ID: 03120433-02 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/L	SAMPLE CONC ug/L	SPIKE CONC ug/L	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Gasoline Range Organics	5000	1403	4577	63	3.3	40	50-150

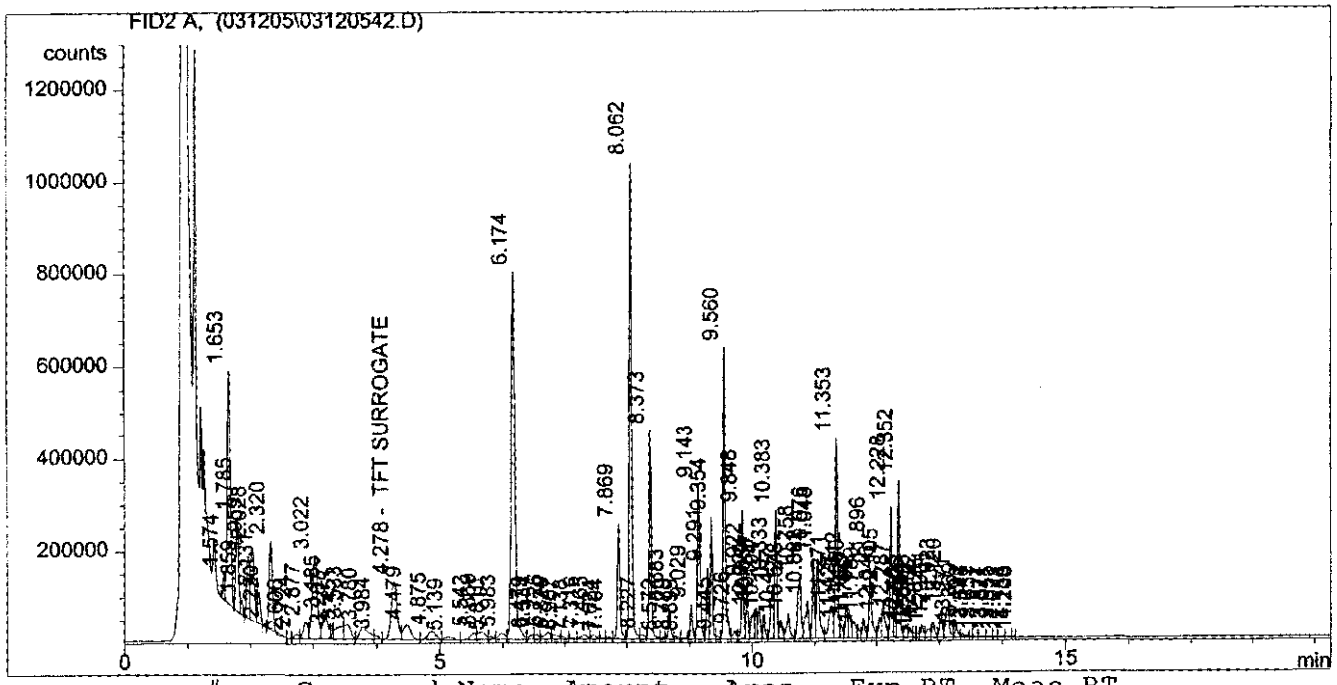
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
ND = not detected

3 2013

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120542.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03120433-2 MS
Acquired On: 12/6/03 1:42:18 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
GRO MS:10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.245e5	0.000	1.574
2		0.000	1.784e6	0.000	1.653
3		0.000	6.165e5	0.000	1.785
4		0.000	7.661e4	0.000	1.859
5		0.000	4.477e5	0.000	1.959
6		0.000	6.814e5	0.000	2.028
7		0.000	2.422e5	0.000	2.131
8		0.000	1.352e4	0.000	2.220
9		0.000	7.042e5	0.000	2.320
10		0.000	1.574e3	0.000	2.606
11		0.000	4.147e4	0.000	2.724
12		0.000	1.841e5	0.000	2.877
13		0.000	1.004e6	0.000	3.022
14		0.000	3.187e5	0.000	3.185
15		0.000	4.468e4	0.000	3.287
16		0.000	2.369e5	0.000	3.451
17		0.000	2.291e5	0.000	3.533
18		0.000	2.637e5	0.000	3.780
19		0.000	4.258e4	0.000	3.984
20	TFT SURROGATE	99.066	8.505e5	4.269	4.278
21		0.000	2.634e5	0.000	4.479
22		0.000	1.621e5	0.000	4.875
23		0.000	5.425e4	0.000	5.139
24		0.000	9.668e4	0.000	5.543

$\frac{3.089e7}{6528}$ = 4731.92 ug/L

$\frac{4731.92 - 1403.34}{5000}$ x100 = 66.57% Recovery

AK 12/7/03

3 2014

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120542.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03120433-2 MS
Acquired On: 12/6/03 1:42:18 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
GRO MS:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.417e5	0.000	5.669
26		0.000	3.499e4	0.000	5.810
27		0.000	9.995e4	0.000	5.983
28		0.000	3.371e6	0.000	6.174
29		0.000	5.440e4	0.000	6.479
30		0.000	5.146e4	0.000	6.534
31		0.000	1.054e5	0.000	6.726
32		0.000	6.341e4	0.000	6.829
33		0.000	2.863e4	0.000	6.967
34		0.000	1.907e4	0.000	7.138
35		0.000	7.176e4	0.000	7.316
36		0.000	5.007e4	0.000	7.465
37		0.000	1.649e4	0.000	7.624
38		0.000	2.365e4	0.000	7.704
39		0.000	7.143e5	0.000	7.869
40		0.000	2.780e6	0.000	8.062
41		0.000	5.106e4	0.000	8.227
42		0.000	1.159e6	0.000	8.373
43		0.000	1.841e4	0.000	8.572
44		0.000	1.892e5	0.000	8.683
45		0.000	2.831e4	0.000	8.779
46		0.000	1.585e4	0.000	8.899
47		0.000	1.864e5	0.000	9.029
48		0.000	1.034e6	0.000	9.143
49		0.000	3.523e5	0.000	9.291
50		0.000	6.171e5	0.000	9.354
51		0.000	2.210e4	0.000	9.445
52		0.000	1.499e6	0.000	9.560
53		0.000	7.224e4	0.000	9.726
54		0.000	6.278e5	0.000	9.848
55		0.000	2.807e5	0.000	9.922
56		0.000	2.226e5	0.000	10.024
57		0.000	1.616e5	0.000	10.064
58		0.000	1.874e5	0.000	10.117
59		0.000	1.327e5	0.000	10.194
60		0.000	3.615e5	0.000	10.333
61		0.000	6.608e5	0.000	10.383
62		0.000	1.277e5	0.000	10.457
63		0.000	1.963e5	0.000	10.578
64		0.000	4.998e5	0.000	10.758
65		0.000	3.137e5	0.000	10.882
66		0.000	4.391e5	0.000	10.976
67		0.000	5.533e5	0.000	11.048
68		0.000	3.412e5	0.000	11.271
69		0.000	1.070e6	0.000	11.353
70		0.000	8.179e4	0.000	11.427

3 2015

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120542.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03120433-2 MS
Acquired On: 12/6/03 1:42:18 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
GRO MS:10ul 252/40ml=5000ppb ->

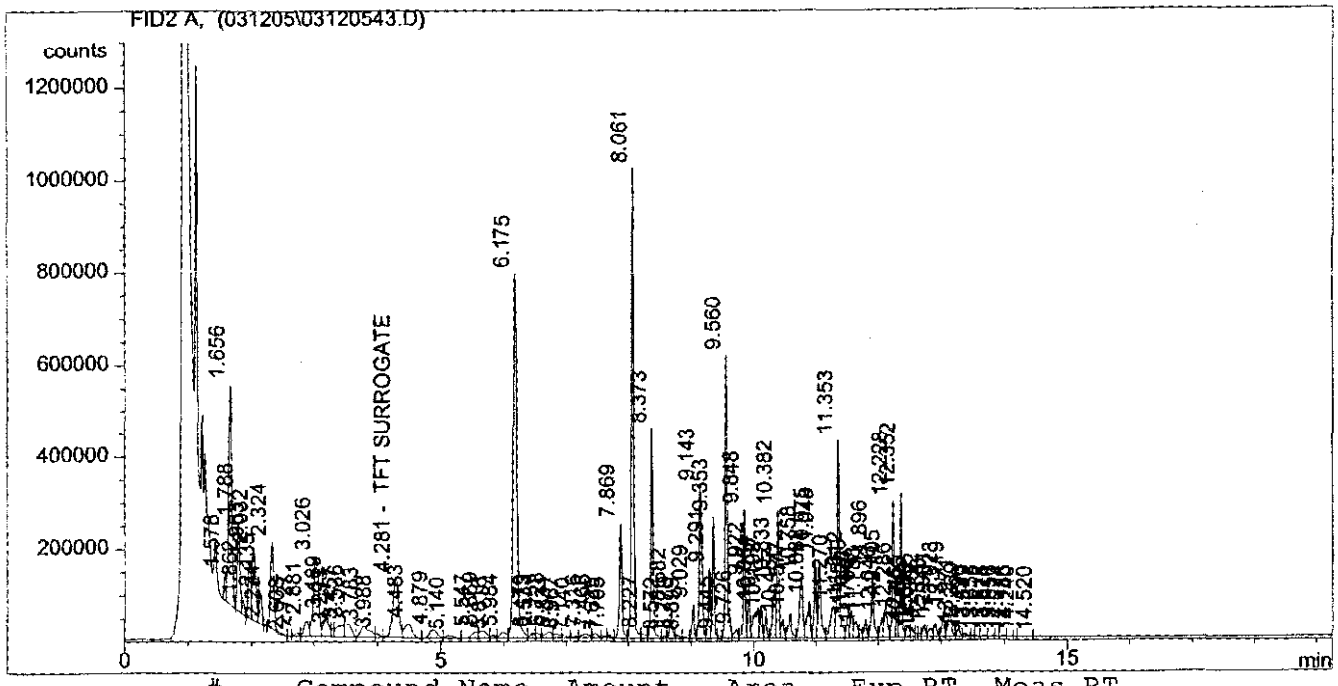
#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.854e5	0.000	11.512
72		0.000	1.572e5	0.000	11.560
73		0.000	1.442e5	0.000	11.627
74		0.000	5.630e4	0.000	11.706
75		0.000	1.216e5	0.000	11.789
76		0.000	4.327e5	0.000	11.896
77		0.000	1.305e5	0.000	12.046
78		0.000	2.778e5	0.000	12.105
79		0.000	6.118e5	0.000	12.228
80		0.000	1.168e5	0.000	12.287
81		0.000	7.839e5	0.000	12.352
82		0.000	9.192e4	0.000	12.465
83		0.000	6.633e4	0.000	12.526
84		0.000	2.853e4	0.000	12.601
85		0.000	2.609e4	0.000	12.648
86		0.000	8.309e4	0.000	12.722
87		0.000	8.869e4	0.000	12.828
88		0.000	1.023e5	0.000	12.901
89		0.000	1.695e5	0.000	13.023
90		0.000	2.678e5	0.000	13.120
91		0.000	6.894e4	0.000	13.271
92		0.000	3.709e4	0.000	13.369
93		0.000	9.676e3	0.000	13.492
94		0.000	1.093e4	0.000	13.548
95		0.000	1.613e4	0.000	13.657
96		0.000	9.425e3	0.000	13.817
97		0.000	6.472e3	0.000	13.871
98		0.000	7.411e3	0.000	13.955
99		0.000	4.955e3	0.000	14.071
100		0.000	2.279e3	0.000	14.186
101		0.000	9.927e3	0.000	14.238
Total			3.174e7		

3 2016

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120543.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03120433-2 MSD
Acquired On: 12/6/03 2:14:34 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
GRO MSD:10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.217e5	0.000	1.578
2		0.000	1.691e6	0.000	1.656
3		0.000	5.796e5	0.000	1.788
4		0.000	7.442e4	0.000	1.862
5		0.000	4.033e5	0.000	1.963
6		0.000	6.506e5	0.000	2.032
7		0.000	2.334e5	0.000	2.135
8		0.000	1.270e4	0.000	2.224
9		0.000	6.850e5	0.000	2.324
10		0.000	1.587e3	0.000	2.608
11		0.000	3.872e4	0.000	2.727
12		0.000	1.791e5	0.000	2.881
13		0.000	9.491e5	0.000	3.026
14		0.000	2.791e5	0.000	3.189
15		0.000	5.174e4	0.000	3.293
16		0.000	2.211e5	0.000	3.457
17		0.000	2.094e5	0.000	3.536
18		0.000	2.377e5	0.000	3.783
19		0.000	3.657e4 ✓	0.000	3.988
20	TFT SURROGATE	98.739	8.477e5 ✓	4.269	4.281
21		0.000	2.500e5	0.000	4.483
22		0.000	1.535e5	0.000	4.879
23		0.000	5.148e4	0.000	5.140
24		0.000	9.149e4	0.000	5.547

$\frac{2.988e7}{6528}$ = 4577.21 ng/L

$\frac{4577.21-1403.34}{5000} \times 100$ = 63.48 ~~ug/L~~

% Recovery

AK 12/7/03

3 2017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120543.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03120433-2 MSD
Acquired On: 12/6/03 2:14:34 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
GRO MSD:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.327e5	0.000	5.669
26		0.000	3.133e4	0.000	5.816
27		0.000	9.230e4	0.000	5.984
28		0.000	3.318e6	0.000	6.175
29		0.000	5.353e4	0.000	6.479
30		0.000	4.804e4	0.000	6.533
31		0.000	9.838e4	0.000	6.728
32		0.000	5.937e4	0.000	6.831
33		0.000	2.730e4	0.000	6.967
34		0.000	1.839e4	0.000	7.140
35		0.000	6.992e4	0.000	7.316
36		0.000	5.004e4	0.000	7.466
37		0.000	1.605e4	0.000	7.625
38		0.000	2.295e4	0.000	7.705
39		0.000	7.047e5	0.000	7.869
40		0.000	2.733e6	0.000	8.061
41		0.000	5.142e4	0.000	8.227
42		0.000	1.145e6	0.000	8.373
43		0.000	1.767e4	0.000	8.572
44		0.000	1.873e5	0.000	8.682
45		0.000	2.850e4	0.000	8.779
46		0.000	1.584e4	0.000	8.899
47		0.000	1.823e5	0.000	9.029
48		0.000	1.012e6	0.000	9.143
49		0.000	3.455e5	0.000	9.291
50		0.000	6.099e5	0.000	9.353
51		0.000	2.177e4	0.000	9.445
52		0.000	1.473e6	0.000	9.560
53		0.000	7.106e4	0.000	9.726
54		0.000	6.209e5	0.000	9.848
55		0.000	2.780e5	0.000	9.922
56		0.000	3.727e5	0.000	10.064
57		0.000	1.826e5	0.000	10.117
58		0.000	1.303e5	0.000	10.193
59		0.000	3.514e5	0.000	10.333
60		0.000	6.523e5	0.000	10.382
61		0.000	1.250e5	0.000	10.457
62		0.000	1.921e5	0.000	10.577
63		0.000	4.889e5	0.000	10.758
64		0.000	3.082e5	0.000	10.882
65		0.000	4.312e5	0.000	10.975
66		0.000	5.430e5	0.000	11.048
67		0.000	3.310e5	0.000	11.270
68		0.000	1.142e6	0.000	11.353
69		0.000	1.837e5	0.000	11.512
70		0.000	1.552e5	0.000	11.559

3 2018

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031205\03120543.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03120433-2 MSD
Acquired On: 12/6/03 2:14:34 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 305
GRO MSD:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.389e5	0.000	11.626
72		0.000	5.330e4	0.000	11.706
73		0.000	1.142e5	0.000	11.788
74		0.000	4.146e5	0.000	11.896
75		0.000	1.222e5	0.000	12.046
76		0.000	2.669e5	0.000	12.105
77		0.000	6.364e5	0.000	12.228
78		0.000	1.114e5	0.000	12.286
79		0.000	7.173e5	0.000	12.352
80		0.000	8.611e4	0.000	12.465
81		0.000	6.442e4	0.000	12.526
82		0.000	2.115e4	0.000	12.599
83		0.000	2.369e4	0.000	12.648
84		0.000	8.282e4	0.000	12.722
85		0.000	8.082e4	0.000	12.828
86		0.000	9.260e4	0.000	12.901
87		0.000	1.481e5	0.000	13.023
88		0.000	2.310e5	0.000	13.119
89		0.000	5.848e4	0.000	13.271
90		0.000	3.188e4	0.000	13.369
91		0.000	7.972e3	0.000	13.490
92		0.000	8.820e3	0.000	13.549
93		0.000	1.282e4	0.000	13.658
94		0.000	7.872e3	0.000	13.818
95		0.000	4.927e3	0.000	13.871
96		0.000	5.698e3	0.000	13.956
97		0.000	4.080e3	0.000	14.074
98		0.000	1.689e3	0.000	14.186
99		0.000	5.567e3	0.000	14.240
100		0.000	2.228e3	0.000	14.520
Total			3.073e7		

3 2919

Sequence: C:\HPCHEM\2\SEQUENCE\031205.S

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	BTEXNM	GC2	1	Sample		
2	2	GRO	GC2	1	Sample		
3	3	BLANK	GC2	1	Sample		
4	4	BLANK	GC2	1	Sample		
5	5	03120204-3 5mL	GC2	1	Sample		
6	6	03120204-4 5mL	GC2	1	Sample		
7	7	03120204-6 5mL	GC2	1	Sample		
8	8	03120204-5 5D	GC2	1	Sample		
9	9	03120207-2 5D	GC2	1	Sample		
10	10	03120207-3 5D	GC2	1	Sample		
11	11	03120204-1 10D	GC2	1	Sample		
12	12	03120308-3 100D	GC2	1	Sample		
13	13	03120308-4 100D	GC2	1	Sample		
14	14	BLANK	GC2	1	Sample		
15	15	03120207-4 5mL	GC2	1	Sample		
16	16	03120207-5 5mL	GC2	1	Sample		
17	17	03120207-6 5mL	GC2	1	Sample		
18	18	BLANK	GC2	1	Sample		
19	19	BTEXNM	GC2	1	Sample		
20	20	BTEXNM	GC2	1	Sample		
21	21	GRO LCS	GC2	1	Sample		
22	22	GRO	GC2	1	Sample		
23	23	BLANK	GC2	1	Sample		
24	24	BLANK	GC2	1	Sample		
25	25	BLANK	GC2	1	Sample		
26	26	03120428-1 5mL	GC2	1	Sample		
27	27	03120426-2 5mL	GC2	1	Sample		
28	28	03120207-7 5mL	GC2	1	Sample		
29	29	03120207-8 5mL	GC2	1	Sample		
30	30	03120207-9 5mL	GC2	1	Sample		
31	31	03120207-10 5mL	GC2	1	Sample		
32	32	03120207-11 5mL	GC2	1	Sample		
33	33	03120207-12 5mL	GC2	1	Sample		
34	34	03120207-13 5mL	GC2	1	Sample		
35	35	03120207-14 5mL	GC2	1	Sample		
36	36	03120207-15 5mL	GC2	1	Sample		
37	37	03120433-1 5mL	GC2	1	Sample		
38	38	03120433-2 5mL	GC2	1	Sample		
39	39	03120433-3 5mL	GC2	1	Sample		
40	40	03120433-1 MS	GC2	1	Sample		
41	41	03120433-1 MSD	GC2	1	Sample		
42	42	03120433-2 MS	GC2	1	Sample		
43	43	03120433-2 MSD	GC2	1	Sample		
44	44	BTEXNM	GC2	1	Sample		
45	45	GRO	GC2	1	Sample		
46	46	BLANK	GC2	1	Sample		

Sequence Table (Back Injector):

3 2020

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Diesel Range Organics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS Summary*

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DIESEL RANGE ORGANICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: DRO **LAB CODE:** SURR

METHOD NO.: 8015B

Date/Time Analyzed	Sample ID	SS1(OTP) #	Total Out
12/11/03 5:43	MB 12-9 1000C	70	
	Upper Limit	150	
	Lower Limit	50	
12/10/03 20:49	MW-03	49 *	
12/10/03 21:35	MW-02	64	
12/10/03 22:20	MW-05	49 *	
12/10/03 20:49	MW-01	63	

SS1 (TPH) = o-Terphenyl

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

3 3002

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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**DRO**	**LAB CODE:**	**MBW**
METHOD NO.:	**8015B**	**LAB SAMPLE ID:**	**MB 12-9 1000C**
MATRIX:	**Water**		
LAB FILE ID:	**031210\F3121029.D**	**DATE/TIME ANALYZED:**	**12/11/03 05:43**

This Method Blank applies to the following samples:

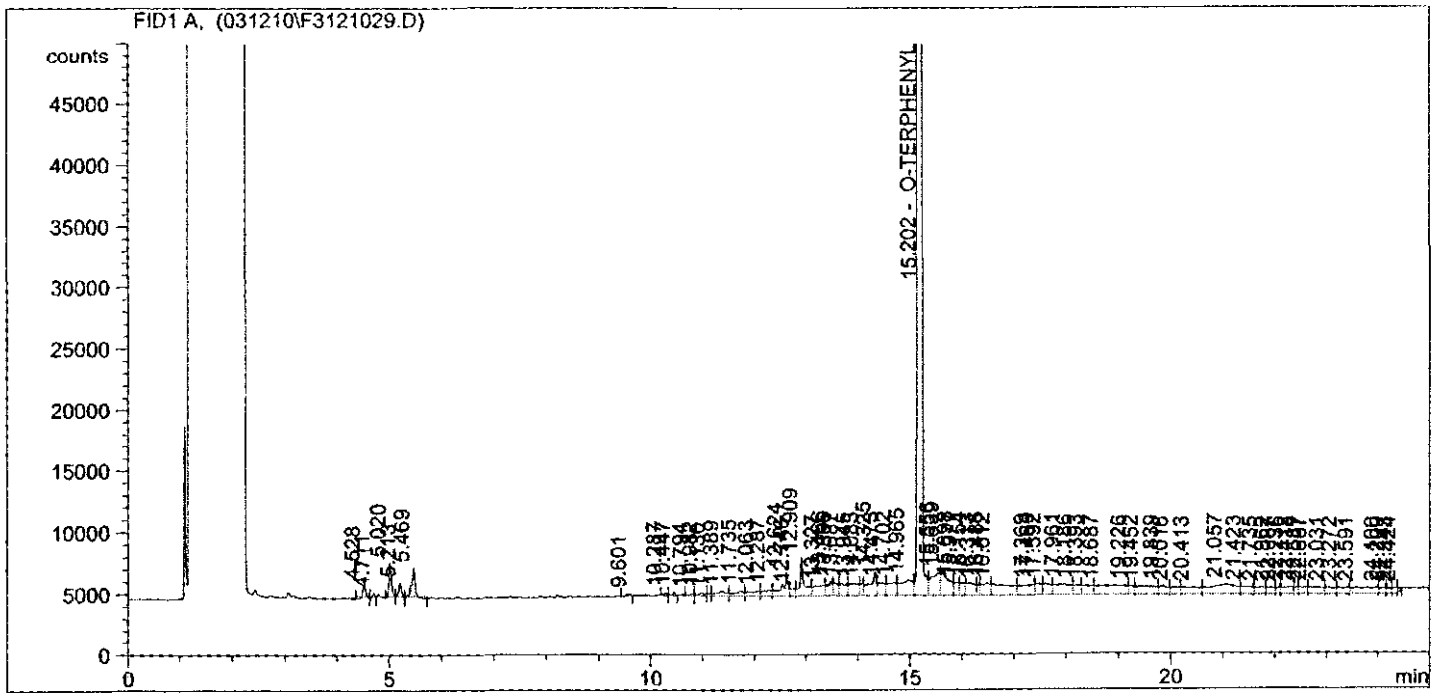
Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
MW-03	03120204-03	031210\F3121013.D	12/10/03 20:49
MW-02	03120204-04	031210\F3121014.D	12/10/03 21:35
MW-05	03120204-05	031210\F3121015.D	12/10/03 22:20
MW-01	03120204-06	031210\B3121013.D	12/10/03 20:49

3 3003

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121029.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: MB WATER 12/9
Acquired On: 12/11/03 5:43:45 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.958e3	0.000	4.528
3		0.000	434.249	0.000	4.711
4		0.000	9.323e3	0.000	5.020
5		0.000	3.681e3	0.000	5.213
6		0.000	8.838e3	0.000	5.469
7		0.000	524.357	0.000	9.601
8		0.000	1.023e3	0.000	10.287
9		0.000	1.279e3	0.000	10.447
10		0.000	1.156e3	0.000	10.794
11		0.000	2.206e3	0.000	10.982
12		0.000	814.354	0.000	11.130
13		0.000	5.078e3	0.000	11.389
14		0.000	5.176e3	0.000	11.735
15		0.000	5.899e3	0.000	12.063
16		0.000	5.623e3	0.000	12.287
17		0.000	1.371e4	0.000	12.624
18		0.000	3.626e3	0.000	12.746
19		0.000	1.846e4	0.000	12.909
20		0.000	1.241e4	0.000	13.327

3 3004

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121029.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: MB WATER 12/9
Acquired On: 12/11/03 5:43:45 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	8.069e3	0.000	13.466
22		0.000	7.194e3	0.000	13.556
23		0.000	9.060e3	0.000	13.687
24		0.000	1.267e4	0.000	13.945
25		0.000	4.551e3	0.000	14.083
26		0.000	1.712e4	0.000	14.325
27		0.000	9.641e3	0.000	14.473
28		0.000	1.269e4	0.000	14.702
29		0.000	2.121e4	0.000	14.965
30	O-TERPHENYL	695.984	3.696e6	15.219	15.202
31		0.000	2.236e4	0.000	15.556
32		0.000	1.995e4	0.000	15.639
33		0.000	6.788e3	0.000	15.898
34		0.000	7.105e3	0.000	15.977
35		0.000	1.188e4	0.000	16.154
36		0.000	3.700e3	0.000	16.313
37		0.000	1.148e4	0.000	16.485
38		0.000	2.359e4	0.000	16.612
39		0.000	1.588e4	0.000	17.369
40		0.000	7.682e3	0.000	17.469
41		0.000	9.339e3	0.000	17.592
42		0.000	1.783e4	0.000	17.961
43		0.000	7.236e3	0.000	18.186
44		0.000	1.013e4	0.000	18.393
45		0.000	2.665e4	0.000	18.687
46		0.000	4.681e3	0.000	19.226
47		0.000	1.595e4	0.000	19.452
48		0.000	7.654e3	0.000	19.839
49		0.000	6.852e3	0.000	20.016
50		0.000	1.318e4	0.000	20.413
51		0.000	2.750e4	0.000	21.057
52		0.000	8.454e3	0.000	21.423
53		0.000	7.176e3	0.000	21.735
54		0.000	5.527e3	0.000	21.962
55		0.000	2.913e3	0.000	22.087
56		0.000	7.981e3	0.000	22.236
57		0.000	2.734e3	0.000	22.418
58		0.000	5.515e3	0.000	22.587
59		0.000	1.014e4	0.000	22.687
60		0.000	6.503e3	0.000	23.031
61		0.000	7.027e3	0.000	23.272
62		0.000	1.528e4	0.000	23.591

3 3005

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121029.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: MB WATER 12/9
Acquired On: 12/11/03 5:43:45 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	3.858e3	0.000	24.100
64		0.000	2.776e3	0.000	24.209
65		0.000	2.778e3	0.000	24.343
66		0.000	1.604e3	0.000	24.424
Total			4.267e6		

3 3006

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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031210\F3121011.D

Date/Time Analyzed: 12/10/03 18:48

FRONT

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	5040	4875	3.3	15

Lab File IDs 031210\B3121011.D

Date/Time Analyzed: 12/10/03 18:48

REAR

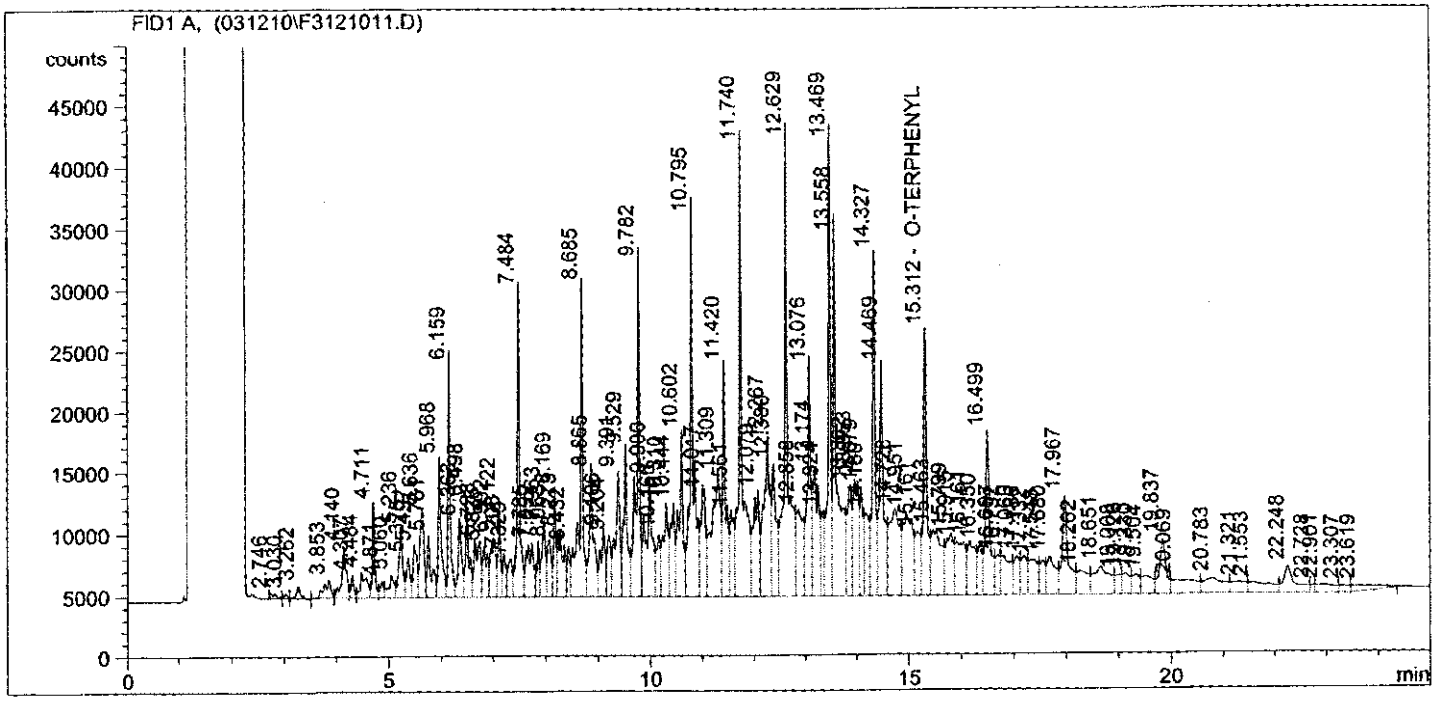
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4740	4232	11.3	15

3 3007

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121011.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF#2 1000mg/L
Acquired On: 12/10/03 6:48:55 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	3.285e3	0.000	2.746
3		0.000	1.656e3	0.000	3.030
4		0.000	5.448e3	0.000	3.262
5		0.000	1.283e4	0.000	3.853
6		0.000	2.613e4	0.000	4.140
7		0.000	7.019e3	0.000	4.307
8		0.000	1.826e4	0.000	4.484
9		0.000	2.595e4	0.000	4.711
10		0.000	5.706e3	0.000	4.871
11		0.000	1.337e4	0.000	5.060
12		0.000	2.872e4	0.000	5.236
13		0.000	1.544e4	0.000	5.375
14		0.000	2.211e4	0.000	5.497
15		0.000	3.990e4	0.000	5.636
16		0.000	2.821e4	0.000	5.761
17		0.000	4.664e4	0.000	5.968
18		0.000	6.339e4	0.000	6.159
19		0.000	3.040e4	0.000	6.363
20		0.000	3.674e4	0.000	6.498

3 3008

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121011.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF#2 1000mg/L
Acquired On: 12/10/03 6:48:55 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	3.752e4	0.000	6.738
22		0.000	2.548e4	0.000	6.826
23		0.000	3.567e4	0.000	6.992
24		0.000	2.452e4	0.000	7.122
25		0.000	1.495e4	0.000	7.208
26		0.000	1.798e4	0.000	7.329
27		0.000	8.905e4	0.000	7.484
28		0.000	4.120e4	0.000	7.735
29		0.000	1.494e4	0.000	7.852
30		0.000	3.018e4	0.000	7.963
31		0.000	2.408e4	0.000	8.063
32		0.000	2.800e4	0.000	8.169
33		0.000	4.288e4	0.000	8.273
34		0.000	1.535e4	0.000	8.432
35		0.000	1.149e5	0.000	8.685
36		0.000	6.410e4	0.000	8.865
37		0.000	3.519e4	0.000	9.106
38		0.000	2.563e4	0.000	9.204
39		0.000	6.263e4	0.000	9.391
40		0.000	6.375e4	0.000	9.529
41		0.000	1.198e5	0.000	9.782
42		0.000	8.537e4	0.000	9.990
43		0.000	2.528e4	0.000	10.166
44		0.000	5.111e4	0.000	10.310
45		0.000	4.284e4	0.000	10.444
46		0.000	7.509e4	0.000	10.602
47		0.000	1.577e5	0.000	10.795
48		0.000	5.797e4	0.000	11.017
49		0.000	1.170e5	0.000	11.309
50		0.000	8.278e4	0.000	11.420
51		0.000	3.792e4	0.000	11.561
52		0.000	1.942e5	0.000	11.740
53		0.000	7.090e4	0.000	12.079
54		0.000	1.073e5	0.000	12.267
55		0.000	6.458e4	0.000	12.380
56		0.000	2.065e5	0.000	12.629
57		0.000	6.519e4	0.000	12.858
58		0.000	9.280e4	0.000	13.076
59		0.000	8.034e4	0.000	13.174
60		0.000	2.778e4	0.000	13.324
61		0.000	1.297e5	0.000	13.469
62		0.000	1.729e5	0.000	13.558

3 3009

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121011.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF#2 1000mg/L
Acquired On: 12/10/03 6:48:55 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	5.664e4	0.000	13.862
64		0.000	7.053e4	0.000	13.953
65		0.000	3.874e4	0.000	14.079
66		0.000	4.540e4	0.000	14.180
67		0.000	1.068e5	0.000	14.327
68		0.000	1.072e5	0.000	14.469
69		0.000	1.010e5	0.000	14.728
70		0.000	8.618e4	0.000	14.951
71		0.000	3.817e4	0.000	15.161
72	O-TERPHENYL	19.701	1.046e5	15.219	15.312
73		0.000	7.297e4	0.000	15.463
74		0.000	5.267e4	0.000	15.799
75		0.000	5.688e4	0.000	15.915
76		0.000	4.495e4	0.000	16.161
77		0.000	2.511e4	0.000	16.350
78		0.000	8.003e4	0.000	16.499
79		0.000	2.139e4	0.000	16.697
80		0.000	3.929e4	0.000	16.792
81		0.000	2.497e4	0.000	17.060
82		0.000	2.575e4	0.000	17.186
83		0.000	3.342e4	0.000	17.332
84		0.000	2.015e4	0.000	17.548
85		0.000	3.630e4	0.000	17.680
86		0.000	6.680e4	0.000	17.967
87		0.000	2.841e4	0.000	18.262
88		0.000	4.830e4	0.000	18.651
89		0.000	1.285e4	0.000	19.008
90		0.000	1.739e4	0.000	19.126
91		0.000	1.601e4	0.000	19.330
92		0.000	2.164e4	0.000	19.504
93		0.000	3.933e4	0.000	19.837
94		0.000	3.603e4	0.000	20.069
95		0.000	3.346e4	0.000	20.783
96		0.000	1.803e4	0.000	21.321
97		0.000	2.720e4	0.000	21.553
98		0.000	3.466e4	0.000	22.248
99		0.000	3.397e3	0.000	22.728
100		0.000	1.678e4	0.000	22.901
101		0.000	8.043e3	0.000	23.307
102		0.000	1.848e4	0.000	23.619
Total			5.040e6 /1000 = 5040		

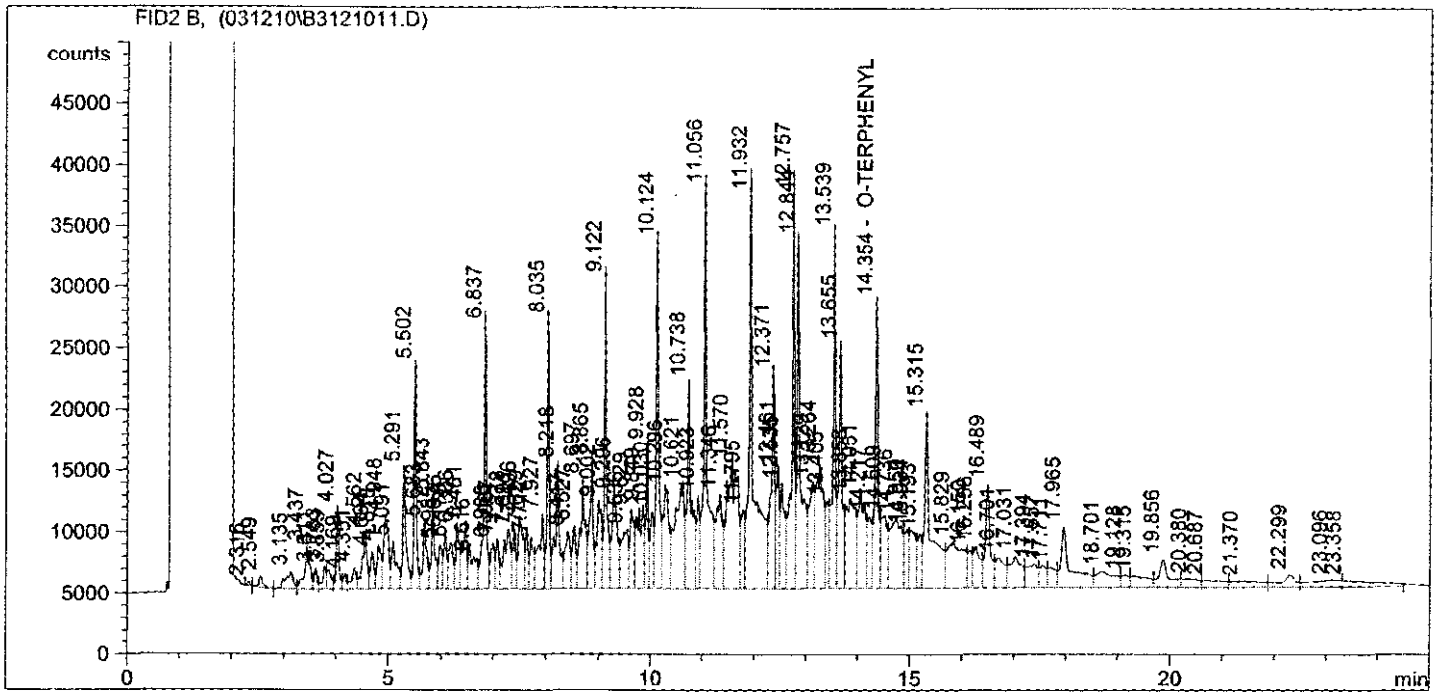
$\frac{4875-5040}{(4875+5040)\div 2} = \frac{-165}{4958} \times 100 = -3.32\%$

3 3010

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\B3121011.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1000mg/L
Acquired On: 12/10/03 6:48:55 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.207e3	0.000	2.316
3		0.000	5.238e3	0.000	2.549
4		0.000	1.459e4	0.000	3.135
5		0.000	2.583e4	0.000	3.437
6		0.000	6.955e3	0.000	3.611
7		0.000	8.475e3	0.000	3.783
8		0.000	9.566e3	0.000	3.859
9		0.000	2.392e4	0.000	4.027
10		0.000	5.257e3	0.000	4.169
11		0.000	1.001e4	0.000	4.351
12		0.000	2.945e4	0.000	4.562
13		0.000	1.502e4	0.000	4.694
14		0.000	1.927e4	0.000	4.818
15		0.000	3.842e4	0.000	4.948
16		0.000	2.649e4	0.000	5.091
17		0.000	4.335e4	0.000	5.291
18		0.000	5.907e4	0.000	5.502
19		0.000	2.834e4	0.000	5.683
20		0.000	3.388e4	0.000	5.843

3 3011

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\B3121011.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1000mg/L
Acquired On: 12/10/03 6:48:55 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.675e4	0.000	5.985
22		0.000	1.905e4	0.000	6.076
23		0.000	2.173e4	0.000	6.178
24		0.000	2.379e4	0.000	6.306
25		0.000	3.310e4	0.000	6.461
26		0.000	2.973e4	0.000	6.616
27		0.000	8.258e4	0.000	6.837
28		0.000	1.916e4	0.000	6.988
29		0.000	1.697e4	0.000	7.067
30		0.000	4.350e4	0.000	7.278
31		0.000	2.010e4	0.000	7.391
32		0.000	4.079e4	0.000	7.496
33		0.000	1.742e4	0.000	7.629
34		0.000	2.132e4	0.000	7.712
35		0.000	4.226e4	0.000	7.927
36		0.000	6.589e4	0.000	8.035
37		0.000	6.022e4	0.000	8.218
38		0.000	3.144e4	0.000	8.417
39		0.000	2.379e4	0.000	8.527
40		0.000	6.003e4	0.000	8.697
41		0.000	5.205e4	0.000	8.865
42		0.000	4.632e4	0.000	9.002
43		0.000	8.749e4	0.000	9.122
44		0.000	5.832e4	0.000	9.296
45		0.000	4.363e4	0.000	9.536
46		0.000	3.523e4	0.000	9.629
47		0.000	6.351e4	0.000	9.849
48		0.000	4.015e4	0.000	9.928
49		0.000	2.801e4	0.000	10.030
50		0.000	1.080e5	0.000	10.124
51		0.000	6.708e4	0.000	10.296
52		0.000	1.076e5	0.000	10.621
53		0.000	1.000e5	0.000	10.738
54		0.000	3.056e4	0.000	10.923
55		0.000	1.655e5	0.000	11.056
56		0.000	6.718e4	0.000	11.346
57		0.000	1.505e5	0.000	11.570
58		0.000	3.294e4	0.000	11.795
59		0.000	2.295e5	0.000	11.932
60		0.000	8.925e4	0.000	12.371
61		0.000	4.025e4	0.000	12.461
62		0.000	4.970e4	0.000	12.535

3 3012

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\B3121011.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1000mg/L
Acquired On: 12/10/03 6:48:55 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	1.307e5	0.000	12.757
64		0.000	1.473e5	0.000	12.844
65		0.000	6.254e4	0.000	13.129
66		0.000	1.012e5	0.000	13.264
67		0.000	3.309e4	0.000	13.405
68		0.000	1.101e5	0.000	13.539
69		0.000	9.383e4	0.000	13.655
70		0.000	9.436e4	0.000	13.858
71		0.000	7.501e4	0.000	14.051
72		0.000	3.454e4	0.000	14.217
73	O-TERPHENYL	21.145	9.904e4	14.234	14.354
74		0.000	5.142e4	0.000	14.509
75		0.000	9.073e4	0.000	14.736
76		0.000	2.818e4	0.000	14.950
77		0.000	3.911e4	0.000	15.034
78		0.000	2.619e4	0.000	15.193
79		0.000	1.294e5	0.000	15.315
80		0.000	8.183e4	0.000	15.829
81		0.000	1.756e4	0.000	16.150
82		0.000	3.201e4	0.000	16.256
83		0.000	5.733e4	0.000	16.489
84		0.000	2.999e4	0.000	16.701
85		0.000	4.087e4	0.000	17.031
86		0.000	2.843e4	0.000	17.394
87		0.000	1.613e4	0.000	17.557
88		0.000	1.840e4	0.000	17.711
89		0.000	6.837e4	0.000	17.965
90		0.000	3.323e4	0.000	18.701
91		0.000	1.003e4	0.000	19.128
92		0.000	2.174e4	0.000	19.315
93		0.000	3.125e4	0.000	19.856
94		0.000	1.483e4	0.000	20.380
95		0.000	1.638e4	0.000	20.687
96		0.000	1.958e4	0.000	21.370
97		0.000	1.884e4	0.000	22.299
98		0.000	2.290e4	0.000	23.096
99		0.000	2.662e4	0.000	23.358
Total			4.740e6 / 1000 = 4740		

$$\frac{4232-4740}{(4232+4740)\div 2} = \frac{-508}{4486} \times 100 = -11.32\%$$

3 3013

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
LCS & LCS DUPLICATE SUMMARY

Lab File IDs 031210\F3121030.D
031210\F3121031.D

Date Analyzed: 12/11/03

Matrix: Water

Sample ID: LCS Water 12-9 1000C

SAMPLE SPIKE DISTILLATE	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	SPIKE CONC (mg/L)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	ND	485	49	50-150

Sample ID: LCSD Water 12-9 1000C

SAMPLE SPIKE DUP DISTILLATE	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	SPK DUP CONC (mg/L)	SPIKE DUP REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Diesel Fuel	1000	ND	772	77	46	20	50-150

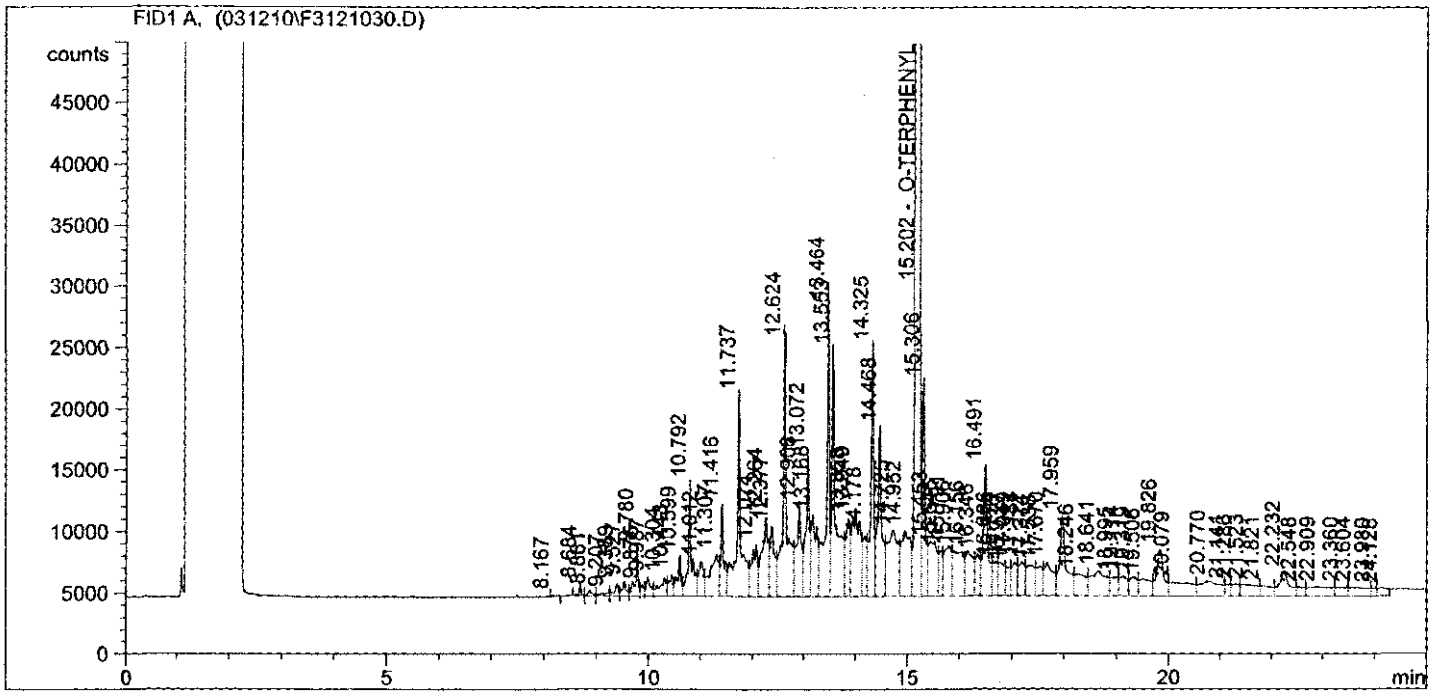
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

3 3014

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121030.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS WATER 12/9
Acquired On: 12/11/03 6:14:25 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	107.909	0.000	8.167
3		0.000	2.756e3	0.000	8.684
4		0.000	2.167e3	0.000	8.861
5		0.000	2.580e3	0.000	9.207
6		0.000	4.831e3	0.000	9.389
7		0.000	6.072e3	0.000	9.527
8		0.000	1.535e4	0.000	9.780
9		0.000	3.981e3	0.000	9.875
10		0.000	8.759e3	0.000	9.987
11		0.000	1.359e4	0.000	10.304
12		0.000	9.505e3	0.000	10.443
13		0.000	1.683e4	0.000	10.599
14		0.000	4.457e4	0.000	10.792
15		0.000	1.907e4	0.000	11.012
16		0.000	3.943e4	0.000	11.307
17		0.000	3.231e4	0.000	11.416
18		0.000	1.006e5	0.000	11.737
19		0.000	3.353e4	0.000	12.074
20		0.000	5.511e4	0.000	12.264

3 3015

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121030.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS WATER 12/9
Acquired On: 12/11/03 6:14:25 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	3.328e4	0.000	12.377
22		0.000	1.190e5	0.000	12.624
23		0.000	4.868e4	0.000	12.906
24		0.000	5.739e4	0.000	13.072
25		0.000	5.145e4	0.000	13.168
26		0.000	1.039e5	0.000	13.464
27		0.000	1.177e5	0.000	13.553
28		0.000	3.861e4	0.000	13.858
29		0.000	7.750e4	0.000	13.949
30		0.000	2.593e4	0.000	14.178
31		0.000	8.525e4	0.000	14.325
32		0.000	7.947e4	0.000	14.468
33		0.000	7.710e4	0.000	14.725
34		0.000	6.431e4	0.000	14.952
35	O-TERPHENYL	686.644	3.646e6	15.219	15.202 - 69%
36		0.000	6.950e4	0.000	15.306
37		0.000	5.092e4	0.000	15.453
38		0.000	1.788e4	0.000	15.646
39		0.000	4.038e4	0.000	15.791
40		0.000	4.856e4	0.000	15.906
41		0.000	3.745e4	0.000	16.156
42		0.000	2.175e4	0.000	16.346
43		0.000	6.552e4	0.000	16.491
44		0.000	1.729e4	0.000	16.686
45		0.000	2.332e4	0.000	16.774
46		0.000	1.201e4	0.000	16.939
47		0.000	2.053e4	0.000	17.049
48		0.000	2.263e4	0.000	17.184
49		0.000	2.708e4	0.000	17.374
50		0.000	2.026e4	0.000	17.538
51		0.000	3.318e4	0.000	17.670
52		0.000	5.760e4	0.000	17.959
53		0.000	2.662e4	0.000	18.246
54		0.000	4.101e4	0.000	18.641
55		0.000	1.493e4	0.000	18.995
56		0.000	1.698e4	0.000	19.114
57		0.000	1.509e4	0.000	19.319
58		0.000	2.201e4	0.000	19.506
59		0.000	3.683e4	0.000	19.826
60		0.000	3.329e4	0.000	20.079
61		0.000	3.342e4	0.000	20.770
62		0.000	6.793e3	0.000	21.141

3 3016

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121030.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS WATER 12/9
Acquired On: 12/11/03 6:14:25 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	9.955e3	0.000	21.286
64		0.000	1.999e4	0.000	21.523
65		0.000	1.278e4	0.000	21.821
66		0.000	2.763e4	0.000	22.232
67		0.000	7.866e3	0.000	22.548
68		0.000	2.330e4	0.000	22.909
69		0.000	1.030e4	0.000	23.360
70		0.000	1.703e4	0.000	23.604
71		0.000	4.426e3	0.000	23.980
72		0.000	8.543e3	0.000	24.126
Total			6.011e6 - 3.646e6		

$$= \frac{2365000}{1000} = 2365$$

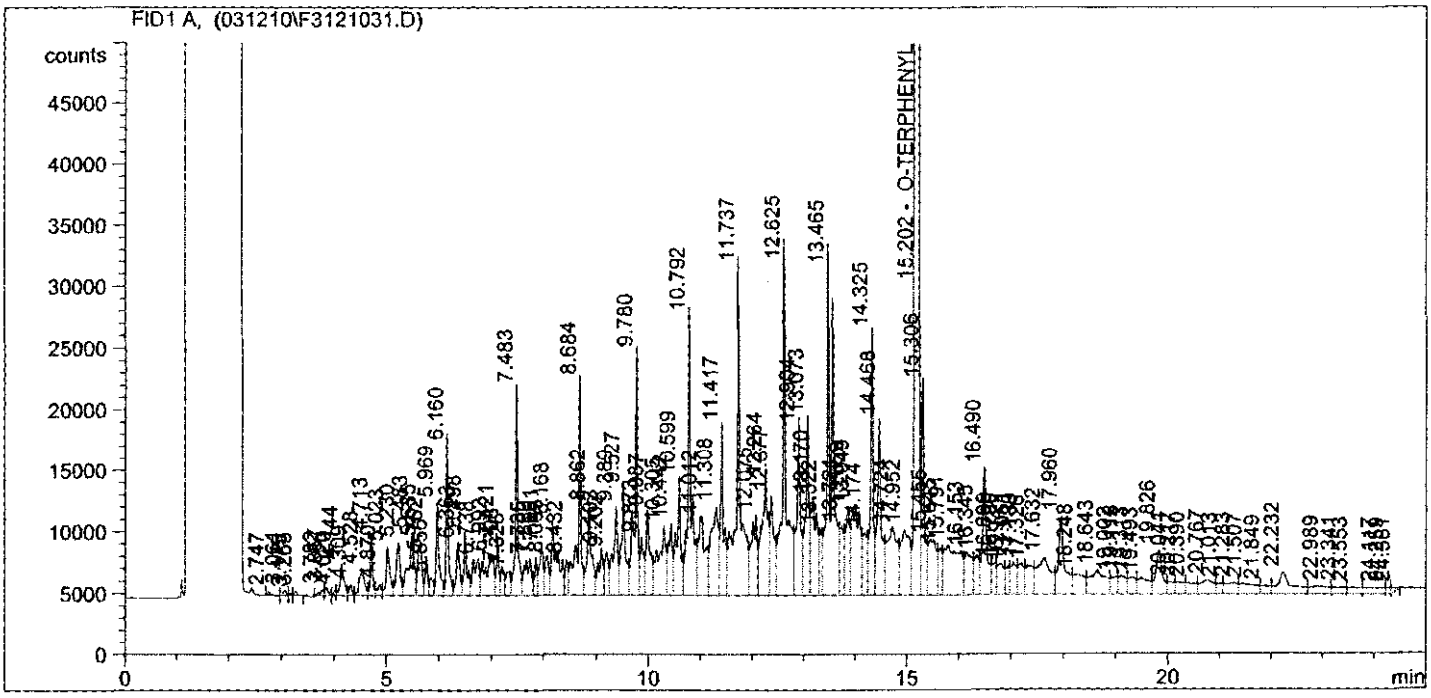
$$\frac{2365}{4875} \times 100 = 49\%$$

3 3017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121031.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCSDWATER 12/9
Acquired On: 12/11/03 6:45:04 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.438e3	0.000	2.747
3		0.000	1.540e3	0.000	3.061
4		0.000	615.602	0.000	3.175
5		0.000	1.155e3	0.000	3.265
6		0.000	2.136e3	0.000	3.782
7		0.000	2.571e3	0.000	3.857
8		0.000	1.122e3	0.000	4.020
9		0.000	1.276e4	0.000	4.144
10		0.000	3.203e3	0.000	4.309
11		0.000	1.481e4	0.000	4.528
12		0.000	1.553e4	0.000	4.713
13		0.000	5.010e3	0.000	4.870
14		0.000	2.022e4	0.000	5.023
15		0.000	2.224e4	0.000	5.230
16		0.000	3.734e4	0.000	5.483
17		0.000	2.429e4	0.000	5.635
18		0.000	1.076e4	0.000	5.762
19		0.000	6.352e3	0.000	5.855
20		0.000	2.941e4	0.000	5.969

3 3018

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121031.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCSDWATER 12/9
Acquired On: 12/11/03 6:45:04 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	3.992e4	0.000	6.160
22		0.000	1.942e4	0.000	6.363
23		0.000	2.307e4	0.000	6.498
24		0.000	2.367e4	0.000	6.738
25		0.000	3.935e4	0.000	6.992
26		0.000	1.588e4	0.000	7.121
27		0.000	9.550e3	0.000	7.208
28		0.000	1.163e4	0.000	7.326
29		0.000	5.917e4	0.000	7.483
30		0.000	2.711e4	0.000	7.735
31		0.000	9.861e3	0.000	7.850
32		0.000	2.047e4	0.000	7.961
33		0.000	1.618e4	0.000	8.063
34		0.000	4.836e4	0.000	8.168
35		0.000	1.061e4	0.000	8.432
36		0.000	7.859e4	0.000	8.684
37		0.000	4.410e4	0.000	8.862
38		0.000	2.404e4	0.000	9.103
39		0.000	1.776e4	0.000	9.202
40		0.000	4.352e4	0.000	9.389
41		0.000	4.601e4	0.000	9.527
42		0.000	8.447e4	0.000	9.780
43		0.000	2.083e4	0.000	9.873
44		0.000	4.005e4	0.000	9.987
45		0.000	5.519e4	0.000	10.305
46		0.000	3.166e4	0.000	10.442
47		0.000	5.326e4	0.000	10.599
48		0.000	1.138e5	0.000	10.792
49		0.000	5.990e4	0.000	11.012
50		0.000	6.904e4	0.000	11.308
51		0.000	6.128e4	0.000	11.417
52		0.000	1.719e5	0.000	11.737
53		0.000	5.251e4	0.000	12.075
54		0.000	8.067e4	0.000	12.264
55		0.000	4.798e4	0.000	12.377
56		0.000	1.580e5	0.000	12.625
57		0.000	7.065e4	0.000	12.904
58		0.000	6.999e4	0.000	13.073
59		0.000	6.237e4	0.000	13.170
60		0.000	2.140e4	0.000	13.322
61		0.000	2.002e5	0.000	13.465
62		0.000	2.955e4	0.000	13.721

3 3919

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121031.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCSDWATER 12/9
Acquired On: 12/11/03 6:45:04 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	4.228e4	0.000	13.859
64		0.000	8.332e4	0.000	13.949
65		0.000	3.351e4	0.000	14.174
66		0.000	8.166e4	0.000	14.325
67		0.000	7.969e4	0.000	14.468
68		0.000	7.788e4	0.000	14.724
69		0.000	6.327e4	0.000	14.952
70	O-TERPHENYL	679.250	3.607e6	15.219	15.202 -68%
71		0.000	6.938e4	0.000	15.306
72		0.000	4.981e4	0.000	15.455
73		0.000	1.804e4	0.000	15.645
74		0.000	8.581e4	0.000	15.791
75		0.000	3.513e4	0.000	16.153
76		0.000	2.125e4	0.000	16.345
77		0.000	6.213e4	0.000	16.490
78		0.000	1.413e4	0.000	16.699
79		0.000	2.338e4	0.000	16.790
80		0.000	1.108e4	0.000	16.941
81		0.000	2.021e4	0.000	17.051
82		0.000	2.017e4	0.000	17.189
83		0.000	2.397e4	0.000	17.326
84		0.000	5.374e4	0.000	17.632
85		0.000	5.318e4	0.000	17.960
86		0.000	2.304e4	0.000	18.248
87		0.000	4.081e4	0.000	18.643
88		0.000	1.205e4	0.000	19.002
89		0.000	1.474e4	0.000	19.118
90		0.000	1.361e4	0.000	19.313
91		0.000	1.984e4	0.000	19.493
92		0.000	3.151e4	0.000	19.826
93		0.000	9.164e3	0.000	20.041
94		0.000	1.088e4	0.000	20.217
95		0.000	1.159e4	0.000	20.390
96		0.000	2.079e4	0.000	20.767
97		0.000	6.845e3	0.000	21.013
98		0.000	1.567e4	0.000	21.283
99		0.000	1.884e4	0.000	21.507
100		0.000	8.669e3	0.000	21.849
101		0.000	3.387e4	0.000	22.232
102		0.000	1.575e4	0.000	22.989
103		0.000	9.261e3	0.000	23.341
104		0.000	9.210e3	0.000	23.553

3 3020

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031210\F3121031.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCSDWATER 12/9
Acquired On: 12/11/03 6:45:04 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	1.227e4	0.000	24.117
106		0.000	2.818e3	0.000	24.259
107		0.000	2.627e3	0.000	24.381
Total			7.369e6 - 3.607e6		

$$= \frac{3762000}{1000} = 3762$$

$$= \frac{3762}{4875} \times 100 = 77\%$$

3 3021

Sequence: C:\HPCHEM\1\SEQUENCE\031210.S

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
2	2	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	3	DCM BLANK	DRO1_ACQ	1	Sample		
4	4	IC #2DF 250ppm	DRO1_ACQ	1	Sample		
5	5	IC #2DF 500ppm	DRO1_ACQ	1	Sample		
6	6	IC #2DF 1000ppm	DRO1_ACQ	1	Sample		
7	7	IC #2DF 2500ppm	DRO1_ACQ	1	Sample		
8	8	IC #2DF 5000ppm	DRO1_ACQ	1	Sample		
9	9	IC #2DF 10000ppm	DRO1_ACQ	1	Sample		
10	10	DCM BLANK	DRO1_ACQ	1	Sample		
11	11	DF#2 1000mg/L	DRO1_ACQ	1	Sample		
12	12	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
13	13	03120204-03 TTI	DRO3_ACQ	1	Sample		
14	14	03120204-04 TTI	DRO3_ACQ	1	Sample		
15	15	03120204-05 TTI	DRO3_ACQ	1	Sample		
16	16	03120416-01 ATP	DRO1_ACQ	1	Sample		
17	17	03120416-02 ATP	DRO1_ACQ	1	Sample		
18	18	DCM BLANK	DRO1_ACQ	1	Sample		
19	19	03120416-03 ATP	DRO1_ACQ	1	Sample		
20	20	03120416-04 ATP	DRO1_ACQ	1	Sample		
21	21	03120406-02 BRC	DRO1_ACQ	1	Sample		
22	22	03120428-03 TEC	DRO1_ACQ	1	Sample		
23	23	03120428-04 TEC	DRO1_ACQ	1	Sample		
24	24	03120428-05 TEC	DRO1_ACQ	1	Sample		
25	25	03120428-06 TEC	DRO1_ACQ	1	Sample		
26	26	03120309-01 TEC	DRO1_ACQ	1	Sample		
27	27	03120426-05 TEC	DRO1_ACQ	1	Sample		
28	28	03120426-06 TEC	DRO1_ACQ	1	Sample		
29	29	MB WATER 12/9	DRO1_ACQ	1	Sample		
30	30	LCS WATER 12/9	DRO1_ACQ	1	Sample		
31	31	LCSDWATER 12/9	DRO1_ACQ	1	Sample		
32	32	LCS SOIL 12/9	DRO1_ACQ	1	Sample		
33	33	LCSD SOIL 12/9	DRO1_ACQ	1	Sample		
34	34	DF#2 1000ppm	DRO1_ACQ	1	Sample		
35	35	BLANK 1000ppm	DRO1_ACQ	1	Sample		
36	36	DCM BLANK	DRO1_ACQ	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		

3 3022

Sequence: C:\HPCHEM\1\SEQUENCE\031210.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
2	52	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	53	03120911-01 SSI	DRO1_ACQ	1	Sample		
4	54	03120510-02 T/C	DRO1_ACQ	1	Sample		
5	55	03120510-03 T/C	DRO1_ACQ	1	Sample		
6	56	03120510-01 T/C	DRO1_ACQ	1	Sample		
7	57	03120401-01 A&A	DRO1_ACQ	1	Sample		
8	58	03120401-02 A&A	DRO1_ACQ	1	Sample		
9	59	03120401-03 A&A	DRO1_ACQ	1	Sample		
10	60	03120401-04 A&A	DRO1_ACQ	1	Sample		
11	61	DF #2 1000mg/L	DRO1_ACQ	1	Sample		
12	62	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
13	63	03120204-06 TTI	DRO3_ACQ	1	Sample		
14	64	03120809-02 TOG	DRO3_ACQ	1	Sample		
15	65	03120810-02 TOG	DRO3_ACQ	1	Sample		
16	66	03120432-01 APX	DRO1_ACQ	1	Sample		
17	67	03120432-02 APX	DRO1_ACQ	1	Sample		
18	68	03120432-03 APX	DRO1_ACQ	1	Sample		
19	69	03120432-04 APX	DRO1_ACQ	1	Sample		
20	70	03120432-05 APX	DRO1_ACQ	1	Sample		
21	71	03120432-06 APX	DRO1_ACQ	1	Sample		
22	72	03120432-08 APX	DRO1_ACQ	1	Sample		
23	73	03120432-09 APX	DRO1_ACQ	1	Sample		
24	74	03120310-01 TEC	DRO1_ACQ	1	Sample		
25	75	03120310-02 TEC	DRO1_ACQ	1	Sample		
26	76	03120426-03 TEC	DRO1_ACQ	1	Sample		
27	77	03120426-04 TEC	DRO1_ACQ	1	Sample		
28	78	DCM BLANK	DRO1_ACQ	1	Sample		
29	79	03120426-03 TEC	DRO1_ACQ	1	Sample		
30	80	03120426-04 TEC	DRO1_ACQ	1	Sample		
31	81	MB SOIL 12/9	DRO1_ACQ	1	Sample		
32	82	LCS SOIL 12/9	DRO1_ACQ	1	Sample		
33	83	03120401-02 MS	DRO1_ACQ	1	Sample		
34	84	03120401-02 MSD	DRO1_ACQ	1	Sample		
35	85	DF #2 1000mg/L	DRO1_ACQ	1	Sample		
36	86	BLANK 1000mg/L	DRO1_ACQ	1	Sample		

3 3023

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Metals

- *Initial Calibration Verification Summary*
- *Continuing Calibration Verification Summary*
- *Duplicate Summary*
- *Matrix Spike Summary*
- *Method Blank Summary (LRB)*
- *LCS Summary (LFB)*

6630 Baltimore National Pike Baltimore, MD 21228 (800) 932-9047 (410) 747-8770 FAX (410) 788-8723

ICV QC Report

Data File: C:\ICPCHEM\1\DATA\031210A2.B\010ICV1.D\010ICV1.D#
Date Acquired: Dec 10 2003 01:56 pm
Acq. Method: 1210.M
Operator:
Sample Name: ICV
Misc Info: 0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number: 1202
Current Method: C:\ICPCHEM\1\METHODS\1210.M
Calibration File: C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update: Dec 10 2003 03:07 pm
Sample Type: ICV1
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
208 Pb	50.74 ppb	1.09	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
209 Bi	311691.28	3.71	344706.00	90.4	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

3 4002

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031210A2.B\029CCV1.D\029CCV1.D#
Date Acquired: Dec 10 2003 03:32 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\METHODS\1210.M
Calibration File: C:\ICPCHEM\1\CALIB\1210.C
Last Cal Update: Dec 10 2003 03:07 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)		Flag
208 Pb	51.14 ppb	1.29	50.00	90 -	110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
209 Bi	290636.09	3.28	344706.00	84.3	30 -	140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031210A2.B\043CCV1.D\043CCV1.D#
Date Acquired: Dec 10 2003 04:44 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031210A2.B\1210.M
Calibration File: C:\ICPCHEM\1\DATA\031210A2.B\1210.C
Last Cal Update: Dec 11 2003 10:10 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
208 Pb	50.55 ppb	0.69	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
209 Bi	279064.13	4.22	344706.00	81.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031210A2.B\057CCV1.D\057CCV1.D#
Date Acquired: Dec 10 2003 05:55 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031210A2.B\1210.M
Calibration File: C:\ICPCHEM\1\DATA\031210A2.B\1210.C
Last Cal Update: Dec 11 2003 10:10 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
208 Pb	50.81 ppb	0.48	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
209 Bi	310988.75	1.50	344706.00	90.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031210A2.B\022AREF.D\022AREF.D#
Date Acquired:	Dec 10 2003 02:57 pm
Acq. Method:	1210.M
Operator:	Lisa Miller
Sample Name:	03120801-03
Misc Info:	
Vial Number:	2102
Current Method:	C:\ICPCHEM\1\METHODS\1210.M
Calibration File:	C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update:	Dec 10 2003 03:07 pm
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
208 Pb	6.52	6.52	ppb	1.96	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
209 Bi	357349.72	3.30	344706.00	103.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

LFM Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031210A2.B\023LFM1.D\023LFM1.D#
Date Acquired:	Dec 10 2003 03:02 pm
Acq. Method:	1210.M
Operator:	
Sample Name:	03120801-03
Misc Info:	
Vial Number:	2103
Current Method:	C:\ICPCHEM\1\METHODS\1210.M
Calibration File:	C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update:	Dec 10 2003 03:07 pm
Sample Type:	LFM1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031210A2.B\022AREF.D\022AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
208 Pb	114.60	6.52	0.67	100.00	108.1	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
209 Bi	346020.3	2.46	344706.0	100.4	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82
S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031210A2.B\041AREF.D\041AREF.D#
Date Acquired:	Dec 10 2003 04:33 pm
Acq. Method:	1210.M
Operator:	Lisa Miller
Sample Name:	03120320-10
Misc Info:	
Vial Number:	2204
Current Method:	C:\ICPCHEM\1\METHODS\1210.M
Calibration File:	C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update:	Dec 10 2003 03:07 pm
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
208 Pb	0.41	0.41	ppb	7.89	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
209 Bi	266441.03	2.09	344706.00	77.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

3 4008

Duplicate QC Report

Data File: C:\ICPCHEM\1\DATA\031210A2.B\046DUP1.D\046DUP1.D#
Date Acquired: Dec 10 2003 04:59 pm
Acq. Method: 1210.M
Operator:
Sample Name: 03120320-10
Misc Info:
Vial Number: 2205
Current Method: C:\ICPCHEM\1\METHODS\1210.M
Calibration File: C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update: Dec 10 2003 03:07 pm
Sample Type: Dup1
Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\031210A2.B\041AREF.D\041AREF.D#

QC Elements

Element	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
208 Pb	0.43	ppb	3.28	0.41	5.10	20	<PQL

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
209 Bi	305634.09	0.61	344706.00	88.7	30 - 140	

ISTD Ref. File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; IS # 168; AU # 174; HCL # X13037

LFM Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031210A2.B\047LFM1.D\047LFM1.D#
Date Acquired:	Dec 10 2003 05:04 pm
Acq. Method:	1210.M
Operator:	
Sample Name:	03120320-10
Misc Info:	
Vial Number:	2206
Current Method:	C:\ICPCHEM\1\METHODS\1210.M
Calibration File:	C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update:	Dec 10 2003 03:07 pm
Sample Type:	LFM1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031210A2.B\041AREF.D\041AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
208 Pb	103.40	0.41	0.81	100.00	103.0	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
209 Bi	282532.5	2.30	344706.0	82.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82
S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

PDS Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031210A2.B\048PDS1.D\048PDS1.D#
Date Acquired:	Dec 10 2003 05:09 pm
Acq. Method:	1210.M
Operator:	
Sample Name:	03120320-10
Misc Info:	
Vial Number:	2207
Current Method:	C:\ICPCHEM\1\METHODS\1210.M
Calibration File:	C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update:	Dec 10 2003 03:07 pm
Sample Type:	PDS1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031210A2.B\041AREF.D\041AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
208 Pb	109.30	0.41	0.34	100.00	108.9	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
209 Bi	284678.1	1.13	344706.0	82.6	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

PB QC Report

Data File: C:\ICPCHEM\1\DATA\031210A2.B\032 PB.D\032 PB.D
Date Acquired: Dec 10 2003 03:47 pm
Acq. Method: 1210.M
Operator:
Sample Name: WATER031210
Misc Info:
Vial Number: 2108
Current Method: C:\ICPCHEM\1\METHODS\1210.M
Calibration File: C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update: Dec 10 2003 03:07 pm
Sample Type: PB
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
208 Pb	0.04 ppb	3.04	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
209 Bi	307171.13	2.14	344706.00	89.1	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

3 4012

LCS QC Report

Data File:	C:\ICPCHEM\1\DATA\031210A2.B\033_LCS.D\033_LCS.D#
Date Acquired:	Dec 10 2003 03:53 pm
Acq. Method:	1210.M
Operator:	
Sample Name:	WATER031210
Misc Info:	
Vial Number:	2109
Current Method:	C:\ICPCHEM\1\METHODS\1210.M
Calibration File:	C:\ICPCHEM\1\CALIB\1210.C
Last Cal. Update:	Dec 10 2003 03:07 pm
Sample Type:	LCS
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
208 Pb	104.50	104.50	ppb	0.26	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
209 Bi	296757.84	3.69	344706.00	86.1	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031210A2.B\002CALB.D\002CALB.D#

Traceability:

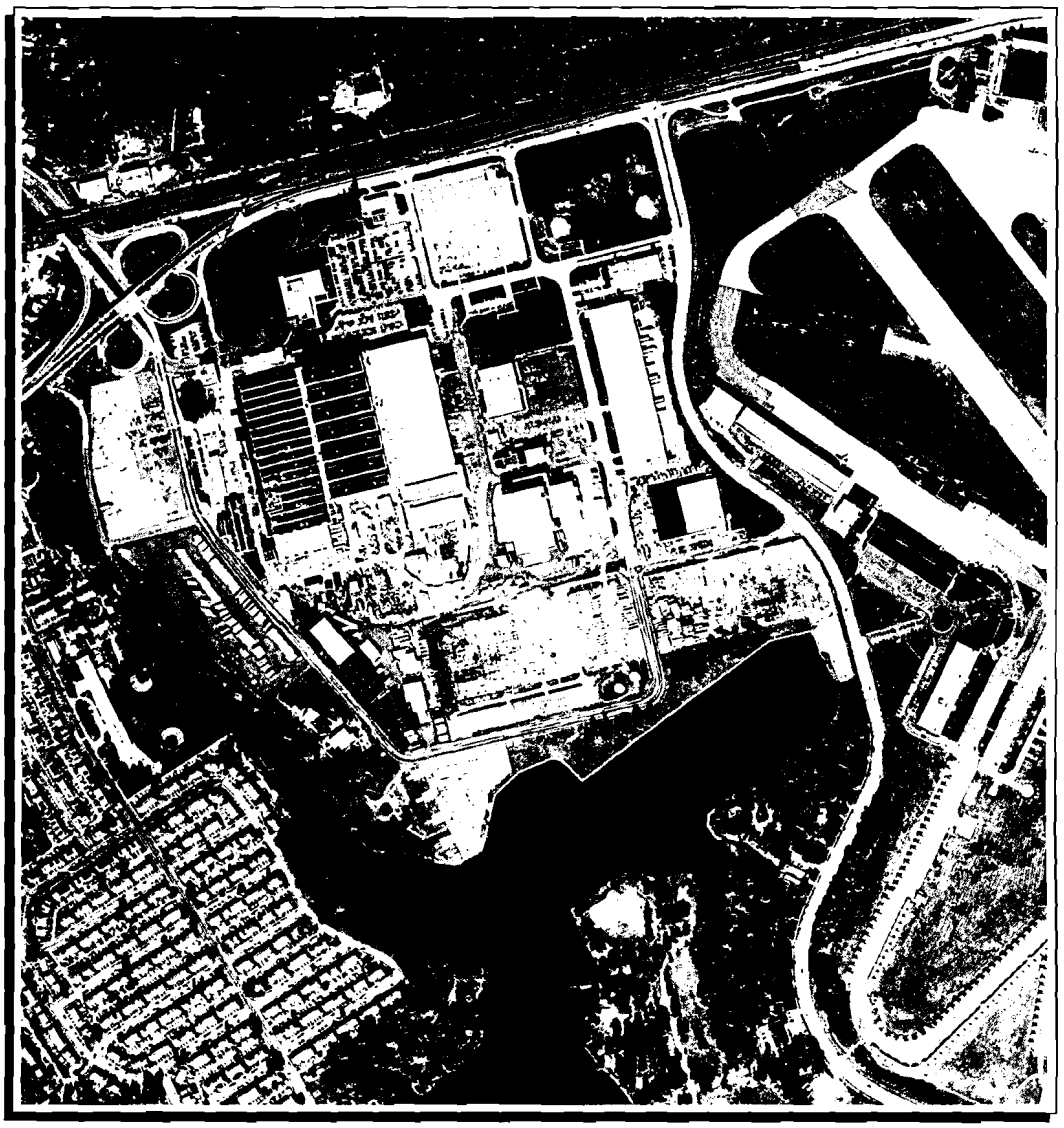
W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

3 4013

VOLUME II OF II

FINAL REPORT
PHASE II SITE INVESTIGATION OF EXTERIOR AREAS
LOCKHEED MARTIN MIDDLE RIVER COMPLEX

2323 Eastern Boulevard
Middle River, Maryland



LOCKHEED MARTIN

Tetra Tech
Environmental Engineers & Scientists
TC#13724-01/February 6, 2004

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Metals

- *Initial Calibration Verification Summary*
- *Continuing Calibration Verification Summary*
- *Duplicate Summary*
- *Matrix Spike Summary*
- *Method Blank Summary (LRB)*
- *LCS Summary (LFB)*

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ICV QC Report

Data File:	C:\ICPCHEM\1\DATA\031202A1.B\010ICV1.D\010ICV1.D#
Date Acquired:	Dec 2 2003 12:19 pm
Acq. Method:	1202.M
Operator:	
Sample Name:	ICV
Misc Info:	0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number:	1202
Current Method:	C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File:	C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update:	Dec 02 2003 05:28 pm
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	52.48 ppb	0.45	50.00	90 - 110	
52 Cr	53.05 ppb	0.48	50.00	90 - 110	
60 Ni	53.27 ppb	0.45	50.00	90 - 110	
63 Cu	52.10 ppb	0.41	50.00	90 - 110	
66 Zn	53.91 ppb	0.85	50.00	90 - 110	
75 As	51.51 ppb	0.17	50.00	90 - 110	
82 Se	51.71 ppb	0.27	50.00	90 - 110	
107 Ag	50.40 ppb	0.18	50.00	90 - 110	
111 Cd	51.98 ppb	0.95	50.00	90 - 110	
121 Sb	52.39 ppb	0.49	50.00	90 - 110	
138 Ba	52.11 ppb	0.02	50.00	90 - 110	
202 Hg	1.91 ppb	0.85	2.00	90 - 110	
205 Tl	51.02 ppb	0.68	50.00	90 - 110	
208 Pb	51.02 ppb	0.60	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	515280.47	1.43	515522.44	100.0	30 - 140	
45 Sc	870330.31	1.12	852443.31	102.1	30 - 140	
72 Ge	173399.88	1.70	168546.89	102.9	30 - 140	
115 In	1311596.60	1.47	1257600.10	104.3	30 - 140	
159 Tb	1697601.60	1.21	1640532.80	103.5	30 - 140	
209 Bi	1042822.50	1.82	1009699.60	103.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

1 7002

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\028CCV1.D\028CCV1.D#
Date Acquired: Dec 2 2003 01:51 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	53.05 ppb	0.81	50.00	90 - 110	
52 Cr	52.15 ppb	0.83	50.00	90 - 110	
60 Ni	51.80 ppb	1.50	50.00	90 - 110	
63 Cu	51.36 ppb	0.51	50.00	90 - 110	
66 Zn	53.59 ppb	0.50	50.00	90 - 110	
75 As	51.41 ppb	0.74	50.00	90 - 110	
82 Se	51.28 ppb	0.88	50.00	90 - 110	
107 Ag	50.13 ppb	0.44	50.00	90 - 110	
111 Cd	51.72 ppb	0.74	50.00	90 - 110	
121 Sb	52.29 ppb	0.77	50.00	90 - 110	
138 Ba	51.91 ppb	0.76	50.00	90 - 110	
202 Hg	1.89 ppb	1.17	2.00	90 - 110	
205 Tl	49.95 ppb	2.20	50.00	90 - 110	
208 Pb	50.59 ppb	0.74	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	508854.88	1.57	515522.44	98.7	30 - 140	
45 Sc	879803.44	1.10	852443.31	103.2	30 - 140	
72 Ge	173949.39	2.03	168546.89	103.2	30 - 140	
115 In	1320267.00	1.64	1257600.10	105.0	30 - 140	
159 Tb	1719786.10	1.90	1640532.80	104.8	30 - 140	
209 Bi	1068698.30	1.34	1009699.60	105.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

1 7003

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\041CCV1.D\041CCV1.D#
Date Acquired: Dec 2 2003 02:58 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	53.19 ppb	0.44	50.00	90 - 110	
52 Cr	52.48 ppb	1.14	50.00	90 - 110	
60 Ni	52.12 ppb	1.09	50.00	90 - 110	
63 Cu	51.59 ppb	0.81	50.00	90 - 110	
66 Zn	53.79 ppb	0.78	50.00	90 - 110	
75 As	51.76 ppb	0.12	50.00	90 - 110	
82 Se	52.22 ppb	0.84	50.00	90 - 110	
107 Ag	50.02 ppb	1.37	50.00	90 - 110	
111 Cd	51.78 ppb	1.09	50.00	90 - 110	
121 Sb	52.36 ppb	1.02	50.00	90 - 110	
138 Ba	52.18 ppb	0.89	50.00	90 - 110	
202 Hg	1.93 ppb	0.50	2.00	90 - 110	
205 Tl	50.72 ppb	0.51	50.00	90 - 110	
208 Pb	51.06 ppb	0.78	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	500740.97	1.47	515522.44	97.1	30 - 140	
45 Sc	865579.94	0.46	852443.31	101.5	30 - 140	
72 Ge	171341.81	1.80	168546.89	101.7	30 - 140	
115 In	1317219.90	2.39	1257600.10	104.7	30 - 140	
159 Tb	1713838.40	1.01	1640532.80	104.5	30 - 140	
209 Bi	1062839.50	1.95	1009699.60	105.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

1 7004

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\053CCV1.D\053CCV1.D#
Date Acquired: Dec 2 2003 04:01 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)		Flag
9 Be	53.91 ppb	0.42	50.00	90 -	110	
52 Cr	52.65 ppb	0.74	50.00	90 -	110	
60 Ni	52.80 ppb	0.82	50.00	90 -	110	
63 Cu	52.28 ppb	0.28	50.00	90 -	110	
66 Zn	53.34 ppb	1.51	50.00	90 -	110	
75 As	51.41 ppb	0.08	50.00	90 -	110	
82 Se	51.78 ppb	0.67	50.00	90 -	110	
107 Ag	49.47 ppb	0.66	50.00	90 -	110	
111 Cd	51.44 ppb	0.68	50.00	90 -	110	
121 Sb	51.50 ppb	0.77	50.00	90 -	110	
138 Ba	51.76 ppb	0.82	50.00	90 -	110	
202 Hg	1.91 ppb	0.31	2.00	90 -	110	
205 Tl	50.18 ppb	1.70	50.00	90 -	110	
208 Pb	50.41 ppb	0.43	50.00	90 -	110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)		Flag
6 Li	469820.00	0.96	515522.44	91.1	30 -	140	
45 Sc	816712.88	1.36	852443.31	95.8	30 -	140	
72 Ge	161204.70	1.58	168546.89	95.6	30 -	140	
115 In	1237533.50	1.97	1257600.10	98.4	30 -	140	
159 Tb	1614914.40	2.22	1640532.80	98.4	30 -	140	
209 Bi	996065.06	0.83	1009699.60	98.6	30 -	140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\065CCV1.D\065CCV1.D#
Date Acquired: Dec 2 2003 05:03 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	54.42 ppb	0.99	50.00	90 - 110	
52 Cr	52.21 ppb	0.96	50.00	90 - 110	
60 Ni	51.27 ppb	1.29	50.00	90 - 110	
63 Cu	51.55 ppb	0.89	50.00	90 - 110	
66 Zn	53.51 ppb	1.32	50.00	90 - 110	
75 As	51.53 ppb	0.40	50.00	90 - 110	
82 Se	52.58 ppb	0.56	50.00	90 - 110	
107 Ag	49.29 ppb	0.75	50.00	90 - 110	
111 Cd	51.02 ppb	0.52	50.00	90 - 110	
121 Sb	49.95 ppb	0.95	50.00	90 - 110	
138 Ba	50.41 ppb	0.94	50.00	90 - 110	
202 Hg	1.88 ppb	2.07	2.00	90 - 110	
205 Tl	48.98 ppb	2.64	50.00	90 - 110	
208 Pb	49.90 ppb	0.27	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	415659.13	0.77	515522.44	80.6	30 - 140	
45 Sc	731881.94	0.08	852443.31	85.9	30 - 140	
72 Ge	143196.39	0.97	168546.89	85.0	30 - 140	
115 In	1118775.90	1.05	1257600.10	89.0	30 - 140	
159 Tb	1502800.80	0.49	1640532.80	91.6	30 - 140	
209 Bi	938252.25	0.79	1009699.60	92.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

1 7006

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\077CCV1.D\077CCV1.D#
Date Acquired: Dec 2 2003 06:07 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal Update: Dec 02 2003 05:28 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	54.75 ppb	0.37	50.00	90 - 110	
52 Cr	54.34 ppb	1.42	50.00	90 - 110	
60 Ni	53.16 ppb	1.57	50.00	90 - 110	
63 Cu	52.32 ppb	0.37	50.00	90 - 110	
66 Zn	53.83 ppb	0.62	50.00	90 - 110	
75 As	52.65 ppb	0.34	50.00	90 - 110	
82 Se	53.69 ppb	0.80	50.00	90 - 110	
107 Ag	49.36 ppb	1.19	50.00	90 - 110	
111 Cd	51.38 ppb	1.58	50.00	90 - 110	
121 Sb	51.01 ppb	2.06	50.00	90 - 110	
138 Ba	51.90 ppb	1.28	50.00	90 - 110	
202 Hg	1.87 ppb	1.14	2.00	90 - 110	
205 Tl	49.05 ppb	1.28	50.00	90 - 110	
208 Pb	49.91 ppb	0.46	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	424459.69	1.09	515522.44	82.3	30 - 140	
45 Sc	739863.56	1.20	852443.31	86.8	30 - 140	
72 Ge	146507.16	0.91	168546.89	86.9	30 - 140	
115 In	1113552.30	1.17	1257600.10	88.5	30 - 140	
159 Tb	1480227.30	2.09	1640532.80	90.2	30 - 140	
209 Bi	923878.13	1.28	1009699.60	91.5	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

All Reference Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031202A1.B\072AREF.D\072AREF.D#**
Date Acquired:	**Dec 2 2003 05:41 pm**
Acq. Method:	**1202.M**
Operator:	**Lisa Miller**
Sample Name:	**03111913-27**
Misc Info:	**DISS**
Vial Number:	**4406**
Current Method:	**C:\ICPCHEM\1\DATA\031202A1.B\1202.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031202A1.B\1202.C**
Last Cal. Update:	**Dec 02 2003 05:28 pm**
Sample Type:	**AllRef**
Dilution Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	4.53	4.53	ppb	3.28	8000.00	
52 Cr	2.68	2.68	ppb	1.96	8000.00	
60 Ni	209.20	209.20	ppb	0.53	8000.00	
63 Cu	10.94	10.94	ppb	0.35	8000.00	
66 Zn	224.90	224.90	ppb	0.20	8000.00	
75 As	0.44	0.44	ppb	12.78	8000.00	
82 Se	0.29	0.29	ppb	55.76	8000.00	
107 Ag	-0.99	-0.99	ppb	0.67	8000.00	
111 Cd	0.11	0.11	ppb	6.38	8000.00	
121 Sb	-0.10	-0.10	ppb	2.32	8000.00	
138 Ba	46.24	46.24	ppb	0.54	8000.00	
202 Hg	0.02	0.02	ppb	24.49	8.00	
205 Tl	0.06	0.06	ppb	8.68	8000.00	
208 Pb	0.43	0.43	ppb	4.14	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	442871.81	1.38	515522.44	85.9	30 - 140	
45 Sc	818292.56	0.14	852443.31	96.0	30 - 140	
72 Ge	165188.30	0.90	168546.89	98.0	30 - 140	
115 In	1241246.30	0.97	1257600.10	98.7	30 - 140	
159 Tb	1620578.80	0.94	1640532.80	98.8	30 - 140	
209 Bi	969090.69	2.67	1009699.60	96.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

1 7008

LFM Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031202A1.B\073LFM1.D\073LFM1.D#
Date Acquired:	Dec 2 2003 05:46 pm
Acq. Method:	1202.M
Operator:	
Sample Name:	03111913-27
Misc Info:	DISS
Vial Number:	4407
Current Method:	C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File:	C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update:	Dec 02 2003 05:28 pm
Sample Type:	LFM1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031202A1.B\072AREF.D\072AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	114.10	4.53	0.63	100.00	109.6	75 - 125	
52 Cr	103.40	2.68	1.30	100.00	100.7	75 - 125	
60 Ni	312.80	209.20	0.95	100.00	103.6	75 - 125	
63 Cu	109.80	10.94	0.40	100.00	98.9	75 - 125	
66 Zn	329.40	224.90	0.48	100.00	104.5	75 - 125	
75 As	104.50	0.44	0.51	100.00	104.1	75 - 125	
82 Se	112.50	0.29	0.94	100.00	112.2	75 - 125	
107 Ag	80.11	-0.99	1.88	100.00	81.1	75 - 125	
111 Cd	99.96	0.11	1.38	100.00	99.9	75 - 125	
121 Sb	97.57	-0.10	1.58	100.00	97.7	75 - 125	
138 Ba	148.70	46.24	1.83	100.00	102.5	75 - 125	
202 Hg	1.89	0.02	2.95	2.00	93.4	75 - 125	
205 Tl	104.30	0.06	2.16	100.00	104.2	75 - 125	
208 Pb	100.50	0.43	3.12	100.00	100.1	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	434661.7	0.65	#######	84.3	30 - 140	
45 Sc	795355.7	0.18	#######	93.3	30 - 140	
72 Ge	161595.9	0.73	#######	95.9	30 - 140	
115 In	1205213.1	1.34	#######	95.8	30 - 140	
159 Tb	1610920.1	1.03	#######	98.2	30 - 140	
209 Bi	940640.3	3.90	#######	93.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82
S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

PB QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\074 PB.D\074 PB.D
Date Acquired: Dec 2 2003 05:51 pm
Acq. Method: 1202.M
Operator:
Sample Name: WATER031120
Misc Info:
Vial Number: 4408
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update: Dec 02 2003 05:28 pm
Sample Type: PB
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
9 Be	0.02 ppb	21.04	0.50	
52 Cr	1.48 ppb	1.97	0.50	
60 Ni	0.13 ppb	12.23	0.50	
63 Cu	0.76 ppb	3.06	0.50	
66 Zn	2.06 ppb	0.82	0.50	
75 As	0.06 ppb	46.98	0.50	
82 Se	0.31 ppb	33.52	0.50	
107 Ag	0.28 ppb	67.95	0.50	
111 Cd	0.01 ppb	166.24	0.50	
121 Sb	0.38 ppb	7.37	0.50	
202 Hg	0.02 ppb	17.64	0.50	
205 Tl	0.11 ppb	7.64	0.50	
208 Pb	0.26 ppb	6.79	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	394930.59	2.00	515522.44	76.6	30 - 140	
45 Sc	704450.25	0.38	852443.31	82.6	30 - 140	
72 Ge	137932.64	1.19	168546.89	81.8	30 - 140	
89 Y	1037926.00	0.46	1304363.10	79.6	30 - 140	
115 In	1035273.20	1.48	1257600.10	82.3	30 - 140	
159 Tb	1389432.80	1.25	1640532.80	84.7	30 - 140	
209 Bi	875067.81	1.03	1009699.60	86.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

1 7012

LCS QC Report

Data File: C:\ICPCHEM\1\DATA\031202A1.B\075_LCS.D\075_LCS.D#
Date Acquired: Dec 2 2003 05:56 pm
Acq. Method: 1202.M
Operator:
Sample Name: WATER031120
Misc Info:
Vial Number: 4409
Current Method: C:\ICPCHEM\1\DATA\031202A1.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031202A1.B\1202.C
Last Cal. Update: Dec 02 2003 05:28 pm
Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
9 Be	106.90	106.90	ppb	0.52	100.00	75 - 125	
52 Cr	104.50	104.50	ppb	1.02	100.00	75 - 125	
60 Ni	102.50	102.50	ppb	0.60	100.00	75 - 125	
63 Cu	102.80	102.80	ppb	0.23	100.00	75 - 125	
66 Zn	103.00	103.00	ppb	0.58	100.00	75 - 125	
75 As	101.90	101.90	ppb	0.39	100.00	75 - 125	
82 Se	102.20	102.20	ppb	0.25	100.00	75 - 125	
107 Ag	95.66	95.66	ppb	0.37	100.00	75 - 125	
111 Cd	99.44	99.44	ppb	0.55	100.00	75 - 125	
121 Sb	98.04	98.04	ppb	0.49	100.00	75 - 125	
202 Hg	1.89	1.89	ppb	0.83	2.00	75 - 125	
205 Tl	101.70	101.70	ppb	1.41	100.00	75 - 125	
208 Pb	98.06	98.06	ppb	0.92	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	399136.78	0.88	515522.44	77.4	30 - 140	
45 Sc	703296.56	0.56	852443.31	82.5	30 - 140	
72 Ge	138041.84	0.98	168546.89	81.9	30 - 140	
89 Y	1050725.30	1.27	1304363.10	80.6	30 - 140	
115 In	1051670.10	1.17	1257600.10	83.6	30 - 140	
159 Tb	1412861.10	1.32	1640532.80	86.1	30 - 140	
209 Bi	878746.44	0.46	1009699.60	87.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031202A1.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115

HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

ICV QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\010ICV1.D\010ICV1.D#
Date Acquired: Dec 1 2003 07:27 pm
Acq. Method: 6020B.M
Operator:
Sample Name: ICV
Misc Info: 0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update: Dec 02 2003 09:46 am
Sample Type: ICV1
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	51.62 ppb	1.21	50.00	90 - 110	
52 Cr	48.85 ppb	1.77	50.00	90 - 110	
60 Ni	53.69 ppb	1.66	50.00	90 - 110	
63 Cu	52.48 ppb	0.99	50.00	90 - 110	
66 Zn	53.51 ppb	1.15	50.00	90 - 110	
75 As	52.58 ppb	0.51	50.00	90 - 110	
82 Se	52.92 ppb	0.32	50.00	90 - 110	
107 Ag	51.01 ppb	0.98	50.00	90 - 110	
111 Cd	52.34 ppb	1.33	50.00	90 - 110	
121 Sb	53.17 ppb	0.46	50.00	90 - 110	
202 Hg	2.00 ppb	0.64	2.00	90 - 110	
205 Tl	50.43 ppb	1.86	50.00	90 - 110	
208 Pb	49.38 ppb	0.81	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	967680.00	1.19	983690.50	98.4	30 - 140	
72 Ge	182452.31	1.39	187495.88	97.3	30 - 140	
115 In	1236007.50	1.50	1242279.00	99.5	30 - 140	
159 Tb	1451003.10	1.33	1453589.50	99.8	30 - 140	
209 Bi	825046.00	1.21	837280.44	98.5	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\028CCV1.D\028CCV1.D#
Date Acquired: Dec 1 2003 09:01 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal Update: Dec 02 2003 09:46 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	49.40 ppb	1.18	50.00	90 - 110	
52 Cr	48.59 ppb	1.98	50.00	90 - 110	
60 Ni	52.41 ppb	1.33	50.00	90 - 110	
63 Cu	51.48 ppb	0.24	50.00	90 - 110	
66 Zn	52.93 ppb	1.30	50.00	90 - 110	
75 As	52.19 ppb	0.20	50.00	90 - 110	
82 Se	53.04 ppb	0.67	50.00	90 - 110	
107 Ag	51.01 ppb	0.85	50.00	90 - 110	
111 Cd	53.12 ppb	1.28	50.00	90 - 110	
121 Sb	53.40 ppb	0.32	50.00	90 - 110	
202 Hg	1.94 ppb	1.45	2.00	90 - 110	
205 Tl	48.49 ppb	1.17	50.00	90 - 110	
208 Pb	48.30 ppb	0.80	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1196923.00	2.24	983690.50	121.7	30 - 140	
72 Ge	227409.25	1.07	187495.88	121.3	30 - 140	
115 In	1486417.00	1.22	1242279.00	119.7	30 - 140	
159 Tb	1751502.00	1.98	1453589.50	120.5	30 - 140	
209 Bi	1003975.20	2.00	837280.44	119.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\040CCV1.D\040CCV1.D#
Date Acquired: Dec 1 2003 10:03 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal Update: Dec 02 2003 09:46 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	49.29 ppb	1.40	50.00	90 - 110	
52 Cr	48.48 ppb	1.11	50.00	90 - 110	
60 Ni	51.46 ppb	1.50	50.00	90 - 110	
63 Cu	50.58 ppb	0.11	50.00	90 - 110	
66 Zn	52.12 ppb	0.76	50.00	90 - 110	
75 As	52.26 ppb	0.37	50.00	90 - 110	
82 Se	52.73 ppb	0.51	50.00	90 - 110	
107 Ag	50.46 ppb	0.77	50.00	90 - 110	
111 Cd	52.09 ppb	1.11	50.00	90 - 110	
121 Sb	52.22 ppb	0.50	50.00	90 - 110	
202 Hg	1.93 ppb	1.38	2.00	90 - 110	
205 Tl	49.21 ppb	0.75	50.00	90 - 110	
208 Pb	48.19 ppb	0.88	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1151147.40	0.15	983690.50	117.0	30 - 140	
72 Ge	217335.30	1.09	187495.88	115.9	30 - 140	
115 In	1472290.50	1.86	1242279.00	118.5	30 - 140	
159 Tb	1767821.00	1.21	1453589.50	121.6	30 - 140	
209 Bi	1012088.60	1.93	837280.44	120.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

1 7017

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#
Date Acquired:	Dec 1 2003 09:32 pm
Acq. Method:	6020B.M
Operator:	Lisa Miller
Sample Name:	03111913-25
Misc Info:	500D-12
Vial Number:	2112
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	8.23	8.23	ppb	2.33	8000.00	
52 Cr	45.35	45.35	ppb	1.46	8000.00	
60 Ni	78.26	78.26	ppb	0.77	8000.00	
63 Cu	37.02	37.02	ppb	0.35	8000.00	
66 Zn	149.40	149.40	ppb	0.64	8000.00	
75 As	-0.19	-0.19	ppb	42.22	8000.00	
82 Se	19.15	19.15	ppb	0.26	8000.00	
107 Ag	-0.10	-0.10	ppb	9.69	8000.00	
111 Cd	0.83	0.83	ppb	6.86	8000.00	
121 Sb	0.02	0.02	ppb	11.41	8000.00	
202 Hg	0.01	0.01	ppb	8.15	8.00	
205 Tl	0.17	0.17	ppb	2.70	8000.00	
208 Pb	40.61	40.61	ppb	1.25	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1311590.60	0.48	983690.50	133.3	30 - 140	
72 Ge	266030.44	1.57	187495.88	141.9	30 - 140	IS FAI
115 In	1476235.50	1.83	1242279.00	118.8	30 - 140	
159 Tb	2408583.00	1.80	1453589.50	165.7	30 - 140	IS FAI
209 Bi	980012.88	0.86	837280.44	117.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

Duplicate QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\035DUP1.D\035DUP1.D#
Date Acquired: Dec 1 2003 09:37 pm
Acq. Method: 6020B.M
Operator:
Sample Name: 03111913-25
Misc Info: 500D-13
Vial Number: 2201
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update: Dec 02 2003 09:46 am
Sample Type: Dup1
Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#

QC Elements

Element	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	7.79	ppb	0.29	8.23	5.56	20	
52 Cr	35.69	ppb	0.54	45.35	23.84	20	Fail
60 Ni	72.91	ppb	0.89	78.26	7.08	20	
63 Cu	33.51	ppb	0.32	37.02	9.95	20	
66 Zn	142.00	ppb	0.27	149.40	5.08	20	
75 As	-0.89	ppb	8.76	-0.19	-131.24	20	<PQL
82 Se	18.63	ppb	1.25	19.15	2.75	20	
107 Ag	-0.16	ppb	3.10	-0.10	-46.48	20	<PQL
111 Cd	0.77	ppb	2.89	0.83	7.89	20	<PQL
121 Sb	0.02	ppb	94.99	0.02	28.33	20	<PQL
202 Hg	0.01	ppb	22.31	0.01	22.31	20	<PQL
205 Tl	0.11	ppb	5.23	0.17	39.68	20	<PQL
208 Pb	38.72	ppb	0.22	40.61	4.76	20	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1273516.80	1.79	983690.50	129.5	30 - 140	
72 Ge	262382.78	1.42	187495.88	139.9	30 - 140	
115 In	1474073.40	2.33	1242279.00	118.7	30 - 140	
159 Tb	2454248.50	2.24	1453589.50	168.8	30 - 140	IS FAIL
209 Bi	987063.63	0.92	837280.44	117.9	30 - 140	

ISTD Ref. File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; IS # 168; AU # 174; HCL # X13037

1 7019

LFM Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\036LFM1.D\036LFM1.D#
Date Acquired:	Dec 1 2003 09:43 pm
Acq. Method:	6020B.M
Operator:	
Sample Name:	03111913-25
Misc Info:	500D-14
Vial Number:	2202
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	LFM1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	103.10	8.23	0.85	100.00	94.9	75 - 125	
52 Cr	67.98	45.35	0.69	100.00	22.6	75 - 125	Fail
60 Ni	128.00	78.26	0.75	100.00	49.7	75 - 125	Fail
63 Cu	111.60	37.02	0.50	100.00	74.6	75 - 125	Fail
66 Zn	213.80	149.40	0.43	100.00	64.4	75 - 125	Fail
75 As	18.65	-0.19	0.46	100.00	18.8	75 - 125	Fail
82 Se	18.24	19.15	0.21	100.00	-0.9	75 - 125	Fail
107 Ag	8.29	-0.10	2.74	100.00	8.4	75 - 125	Fail
111 Cd	103.70	0.83	0.77	100.00	102.9	75 - 125	
121 Sb	13.95	0.02	0.29	100.00	13.9	75 - 125	Fail
202 Hg	1.88	0.01	2.12	2.00	93.4	75 - 125	
205 Tl	72.61	0.17	2.88	100.00	72.4	75 - 125	Fail
208 Pb	91.24	40.61	0.68	100.00	50.6	75 - 125	Fail

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
45 Sc	1207484.6	2.22	#######	122.8	30 - 140	
72 Ge	232078.6	1.75	#######	123.8	30 - 140	
115 In	1540552.0	1.83	#######	124.0	30 - 140	
159 Tb	1935485.6	2.04	#######	133.2	30 - 140	
209 Bi	1035875.9	1.62	#######	123.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82
S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01

1 7020

HCL # X13037; Au IN RINSE #174

PDS Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\037PDS1.D\037PDS1.D#
Date Acquired:	Dec 1 2003 09:48 pm
Acq. Method:	6020B.M
Operator:	
Sample Name:	03111913-25
Misc Info:	500D-15
Vial Number:	2203
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	PDS1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	92.07	8.23	2.06	100.00	83.8	75 - 125	
52 Cr	135.90	45.35	3.43	100.00	90.6	75 - 125	
60 Ni	166.90	78.26	2.85	100.00	88.6	75 - 125	
63 Cu	127.30	37.02	0.78	100.00	90.3	75 - 125	
66 Zn	231.90	149.40	0.53	100.00	82.5	75 - 125	
75 As	83.03	-0.19	0.08	100.00	83.2	75 - 125	
82 Se	101.60	19.15	0.35	100.00	82.5	75 - 125	
107 Ag	98.05	-0.10	1.33	100.00	98.2	75 - 125	
111 Cd	101.00	0.83	1.31	100.00	100.2	75 - 125	
121 Sb	72.70	0.02	0.76	100.00	72.7	75 - 125	Fail
202 Hg	1.96	0.01	1.99	2.00	97.7	75 - 125	
205 Tl	88.68	0.17	4.98	100.00	88.5	75 - 125	
208 Pb	136.60	40.61	1.39	100.00	96.0	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
45 Sc	1270386.5	1.67	983690.5	129.1	30 - 140	
72 Ge	256469.4	1.22	187495.9	136.8	30 - 140	
115 In	1465488.5	1.94	1242279.0	118.0	30 - 140	
159 Tb	2459048.5	1.41	1453589.5	169.2	30 - 140	IS FAIL
209 Bi	997044.3	1.23	837280.4	119.1	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

1 7022

Dilution QC Report

Data File: C:\ICPCHEM\1\DATA\031201A.B\038DIL1.D\038DIL1.D#
Date Acquired: Dec 1 2003 09:53 pm
Acq. Method: 6020B.M
Operator:
Sample Name: 03111913-25
Misc Info: 2500D
Vial Number: 2204
Current Method: C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update: Dec 02 2003 09:46 am
Sample Type: Dil1
Dilution Factor: 5.00

Dilution Ref File: C:\ICPCHEM\1\DATA\031201A.B\034AREF.D\034AREF.D#

QC elements

Element	Conc.	RSD(%)	*Ref conc*	Actual(%)	QC Range(%)	Flag
9 Be	1.78	2.47	8.23	108.05	90 - 110	<100 PB
52 Cr	9.57	1.86	45.35	105.55	90 - 110	<100 PB
60 Ni	16.80	0.87	78.26	107.33	90 - 110	
63 Cu	7.29	1.55	37.02	98.45	90 - 110	<100 PB
66 Zn	33.77	0.36	149.40	113.02	90 - 110	Fail
75 As	0.11	67.35	-0.19	-284.13	90 - 110	<100 PB
82 Se	4.44	0.61	19.15	115.82	90 - 110	<100 PB
107 Ag	-0.10	4.01	-0.10	478.02	90 - 110	<100 PB
111 Cd	0.20	4.62	0.83	117.39	90 - 110	<100 PB
121 Sb	0.06	5.73	0.02	1262.25	90 - 110	<100 PB
202 Hg	0.01	31.21	0.01	540.91	90 - 110	<100 PB
205 Tl	1.65	6.51	0.17	5006.05	90 - 110	<100 PB
208 Pb	7.55	1.23	40.61	93.01	90 - 110	<100 PB

Traceability:
IS #168 ON-LINE
Au IN RINSE #174
HCL LOT #X13037
HNO3 #82

PB QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\021__PB.D\021__PB.D#
Date Acquired:	Dec 1 2003 08:25 pm
Acq. Method:	6020B.M
Operator:	
Sample Name:	SOIL031201
Misc Info:	500D-01
Vial Number:	2101
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	PB
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
9 Be	0.02 ppb	12.95	0.50	
52 Cr	-0.02 ppb	343.15	0.50	
60 Ni	-0.16 ppb	17.61	0.50	
63 Cu	-0.92 ppb	3.33	0.50	
66 Zn	-0.98 ppb	4.93	0.50	
75 As	0.04 ppb	141.23	0.50	
82 Se	-0.01 ppb	94.56	0.50	
107 Ag	-0.14 ppb	11.31	0.50	
111 Cd	0.01 ppb	333.64	0.50	
121 Sb	0.04 ppb	10.86	0.50	
202 Hg	0.02 ppb	30.49	0.50	
205 Tl	0.03 ppb	22.65	0.50	
208 Pb	-0.33 ppb	1.31	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1069963.90	0.97	983690.50	108.8	30 - 140	
72 Ge	202385.75	1.09	187495.88	107.9	30 - 140	
115 In	1391015.30	0.81	1242279.00	112.0	30 - 140	
159 Tb	1643802.00	0.67	1453589.50	113.1	30 - 140	
209 Bi	959416.75	0.68	837280.44	114.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

LCS QC Report

Data File:	C:\ICPCHEM\1\DATA\031201A.B\022_LCS.D\022_LCS.D#
Date Acquired:	Dec 1 2003 08:30 pm
Acq. Method:	6020B.M
Operator:	
Sample Name:	SOIL031201
Misc Info:	500D-02
Vial Number:	2102
Current Method:	C:\ICPCHEM\1\DATA\031201A.B\6020B.M
Calibration File:	C:\ICPCHEM\1\DATA\031201A.B\6020B.C
Last Cal. Update:	Dec 02 2003 09:46 am
Sample Type:	LCS
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
9 Be	108.80	108.80	ppb	1.17	100.00	75 - 125	
52 Cr	106.10	106.10	ppb	1.03	100.00	75 - 125	
60 Ni	112.40	112.40	ppb	0.31	100.00	75 - 125	
63 Cu	109.30	109.30	ppb	0.06	100.00	75 - 125	
66 Zn	113.50	113.50	ppb	0.54	100.00	75 - 125	
75 As	105.70	105.70	ppb	0.07	100.00	75 - 125	
82 Se	109.20	109.20	ppb	0.27	100.00	75 - 125	
107 Ag	47.51	47.51	ppb	1.04	100.00	75 - 125	Fail
111 Cd	113.30	113.30	ppb	1.21	100.00	75 - 125	
121 Sb	108.60	108.60	ppb	1.04	100.00	75 - 125	
202 Hg	1.95	1.95	ppb	0.92	2.00	75 - 125	
205 Tl	108.40	108.40	ppb	0.61	100.00	75 - 125	
208 Pb	104.90	104.90	ppb	1.07	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	1066396.80	0.62	983690.50	108.4	30 - 140	
72 Ge	206101.69	0.27	187495.88	109.9	30 - 140	
115 In	1406919.50	1.61	1242279.00	113.3	30 - 140	
159 Tb	1677808.60	1.63	1453589.50	115.4	30 - 140	
209 Bi	978714.06	2.43	837280.44	116.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201A.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

ICV QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\008ICV1.D\008ICV1.D#
Date Acquired:	Dec 3 2003 03:44 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	ICV
Misc Info:	0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number:	1202
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 03 2003 03:49 pm
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
107 Ag	55.59 ppb	3.27	50.00	90 - 110	Fail
121 Sb	56.09 ppb	3.91	50.00	90 - 110	Fail

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2547947.80	1.12	2459414.30	103.6	30 - 140	
159 Tb	2465008.50	3.23	2521340.50	97.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031203.B\024CCV1.D\024CCV1.D#
Date Acquired: Dec 3 2003 04:37 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File: C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal Update: Dec 04 2003 09:33 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
107 Ag	51.69 ppb	1.88	50.00	90 - 110	
118 (In)	--------	--------	---	##### - #####	
121 Sb	52.14 ppb	5.71	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2293037.30	4.24	2459414.30	93.2	30 - 140	
159 Tb	2292480.50	0.80	2521340.50	90.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:
HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031203.B\036CCV1.D\036CCV1.D#
Date Acquired: Dec 3 2003 05:17 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File: C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal Update: Dec 04 2003 09:33 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
107 Ag	51.57 ppb	1.20	50.00	90 - 110	
118 (In)	--------	--------	---	##### - #####	
121 Sb	50.97 ppb	3.89	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2724721.50	1.16	2459414.30	110.8	30 - 140	
159 Tb	2715165.00	2.57	2521340.50	107.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:
HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#
Date Acquired:	Dec 3 2003 04:54 pm
Acq. Method:	1203.M
Operator:	Lisa Miller
Sample Name:	03111913-25
Misc Info:	500D-12
Vial Number:	2112
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
107 Ag	-0.06	-0.06	ppb	14.23	8000.00	
118 (In)	----	--------	---		#VALUE!	
121 Sb	-1.34	-1.34	ppb	0.35	8000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2474587.50	1.76	2459414.30	100.6	30 - 140	
159 Tb	3273239.50	6.02	2521340.50	129.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

Duplicate QC Report

Data File: C:\ICPCHEM\1\DATA\031203.B\030DUP1.D\030DUP1.D#
Date Acquired: Dec 3 2003 04:58 pm
Acq. Method: 1203.M
Operator:
Sample Name: 03111913-25
Misc Info: 500D-13
Vial Number: 2201
Current Method: C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File: C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update: Dec 04 2003 09:33 am
Sample Type: Dup1
Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#

QC Elements

Element	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
107 Ag	-0.09	ppb	7.00	-0.06	-26.91	20	<PQL
118 (In)	--------		--------	---	#VALUE!	#####	
121 Sb	-1.41	ppb	1.03	-1.34	-5.22	20	<PQL

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2557316.30	1.67	2459414.30	104.0	30 - 140	
159 Tb	3496093.80	6.95	2521340.50	138.7	30 - 140	

ISTD Ref. File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; IS # 168; AU # 174; HCL # X13037

LFM Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031203.B\031LFM1.D\031LFM1.D#**
Date Acquired:	**Dec 3 2003 05:01 pm**
Acq. Method:	**1203.M**
Operator:	
Sample Name:	**03111913-25**
Misc Info:	**500D-14**
Vial Number:	**2202**
Current Method:	**C:\ICPCHEM\1\DATA\031203.B\1203.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031203.B\1203.C**
Last Cal. Update:	**Dec 04 2003 09:33 am**
Sample Type:	**LFM1**
Prep Dil. Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**
Spike Ref. File:	**C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#**

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
107 Ag	94.40	-0.06	1.06	100.00	94.5	75 - 125	
118 (In)	---	---	--------	---	---		
121 Sb	73.02	-1.34	3.95	100.00	74.4	75 - 125	Fail

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
115 In	2651984.3	5.60	#######	107.8	30 - 140	
159 Tb	3562885.0	5.89	#######	141.3	30 - 140	IS FAIL

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82
S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

PDS Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\032PDS1.D\032PDS1.D#
Date Acquired:	Dec 3 2003 05:04 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	03111913-25
Misc Info:	500D-15
Vial Number:	2203
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	PDS1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
107 Ag	94.31	-0.06	0.68	100.00	94.4	75 - 125	
118 (In)	---	---	--	---	---		
121 Sb	76.30	-1.34	1.68	100.00	77.6	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
115 In	2522808.8	1.82	2459414.3	102.6	30 - 140	
159 Tb	3284198.0	1.19	2521340.5	130.3	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

Dilution QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\033DIL1.D\033DIL1.D#
Date Acquired:	Dec 3 2003 05:07 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	03111913-25
Misc Info:	2500D
Vial Number:	2204
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	Dil1
Dilution Factor:	5.00
Dilution Ref File:	C:\ICPCHEM\1\DATA\031203.B\029AREF.D\029AREF.D#

QC elements

Element	Conc.	RSD(%)	*Ref conc*	Actual(%)	QC Range(%)	Flag
107 Ag	0.04	10.84	-0.06	-306.83	90 - 110	<100 PB
118 (In)	--------	--------	---	#VALUE!	##### - #####	
121 Sb	-1.14	1.38	-1.34	424.74	90 - 110	<100 PB

Traceability:

IS #168 ON-LINE
Au IN RINSE #174
HCL LOT #X13037
HNO3 #82

1 7033

PB QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\016__PB.D\016__PB.D#
Date Acquired:	Dec 3 2003 04:11 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	SOIL031202
Misc Info:	500D-01
Vial Number:	2101
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	PB
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
107 Ag	0.05 ppb	35.47	0.50	
118 (In)	--------	--------	---	
121 Sb	-1.05 ppb	5.49	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2259331.00	9.29	2459414.30	91.9	30 - 140	
159 Tb	2157658.00	6.54	2521340.50	85.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

LCS QC Report

Data File:	C:\ICPCHEM\1\DATA\031203.B\017_LCS.D\017_LCS.D#
Date Acquired:	Dec 3 2003 04:14 pm
Acq. Method:	1203.M
Operator:	
Sample Name:	SOIL031202
Misc Info:	500D-02
Vial Number:	2102
Current Method:	C:\ICPCHEM\1\DATA\031203.B\1203.M
Calibration File:	C:\ICPCHEM\1\DATA\031203.B\1203.C
Last Cal. Update:	Dec 04 2003 09:33 am
Sample Type:	LCS
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
107 Ag	94.19	94.19	ppb	1.73	100.00	75 - 125	
118 (In)	#VALUE!	--------		--------	---	##### - #####	
121 Sb	97.44	97.44	ppb	3.72	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
115 In	2344520.80	1.02	2459414.30	95.3	30 - 140	
159 Tb	2237657.80	1.24	2521340.50	88.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

ICV QC Report

Data File: C:\ICPCHEM\1\DATA\031204B.B\007ICV1.D\007ICV1.D#
Date Acquired: Dec 4 2003 12:26 pm
Acq. Method: 1204ZNSE.M
Operator:
Sample Name: ICV
Misc Info: 0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal. Update: Dec 04 2003 12:25 pm
Sample Type: ICV1
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
66 Zn	51.26 ppb	0.95	50.00	90 - 110	
82 Se	52.32 ppb	1.11	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
72 Ge	675196.88	0.06	660691.19	102.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031204B.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031204B.B\021CCV1.D\021CCV1.D#
Date Acquired: Dec 4 2003 01:19 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal Update: Dec 04 2003 03:57 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
66 Zn	50.07 ppb	4.95	50.00	90 - 110	
82 Se	49.76 ppb	5.10	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
72 Ge	668452.56	3.80	660691.19	101.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031204B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031204B.B\035CCV1.D\035CCV1.D#
Date Acquired: Dec 4 2003 02:12 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File: C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal Update: Dec 04 2003 03:57 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
66 Zn	49.71 ppb	1.70	50.00	90 - 110	
82 Se	50.84 ppb	2.35	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
72 Ge	667580.81	1.01	660691.19	101.0	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031204B.B\002CALB.D\002CALB.D#

Traceability:
HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

All Reference Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031204B.B\026AREF.D\026AREF.D#
Date Acquired:	Dec 4 2003 01:38 pm
Acq. Method:	1204ZNSE.M
Operator:	Lisa Miller
Sample Name:	03111913-25
Misc Info:	1000D-ZN-0
Vial Number:	3308
Current Method:	C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File:	C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal. Update:	Dec 04 2003 03:57 pm
Sample Type:	AllRef
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
66 Zn	106.80	106.80	ppb	0.68	8000.00	
82 Se	13.73	13.73	ppb	1.22	8000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
72 Ge	728685.75	0.45	660691.19	110.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031204B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

PDS Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031204B.B\027PDS1.D\027PDS1.D#
Date Acquired:	Dec 4 2003 01:42 pm
Acq. Method:	1204ZNSE.M
Operator:	
Sample Name:	03111913-25
Misc Info:	1000D-ZN-1
Vial Number:	3309
Current Method:	C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.M
Calibration File:	C:\ICPCHEM\1\DATA\031204B.B\1204ZNSE.C
Last Cal. Update:	Dec 04 2003 03:57 pm
Sample Type:	PDS1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031204B.B\026AREF.D\026AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
66 Zn	212.10	106.80	1.21	100.00	105.3	75 - 125	
82 Se	101.30	13.73	0.38	100.00	87.6	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
72 Ge	721858.5	0.23	660691.2	109.3	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

LABORATORY RESULTS

DATE RECEIVED: November 24, 2003

PROJECT: Middle River Complex

Project #: N1605/0000

CERTIFICATE OF ANALYSIS #: *03112414*

PREPARED FOR:

Tetra Tech, Inc.
10670 White Rock Rd., Ste. 100
Rancho Cordova, CA 95670

December 12, 2003

6630 Baltimore National Pike Baltimore, Maryland 21228 (410) 747-8770 (800) 932-9047 fax (410) 788-8723

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 1 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-11-05 / 03112414-01						
Percent Solids						
Percent Solids	**75**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/26/2003
FT (SURR)	**103**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/5/2003
o-Terphenyl (DRO SURR)	**68**	%	EPA 8015B-M		12/3/2003	12/5/2003

Reviewed By: Matt Cellini
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 2 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-11 / 03112414-02						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/25/2003
Toluene	ND	ug/L	EPA 8021B	1		11/25/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/25/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/25/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/25/2003
TFT (SURR)	**86**	%	EPA 8021B			11/25/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/5/2003
o-Terphenyl (DRO SURR)	**56**	%	EPA 8015B-M		12/3/2003	12/5/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
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CERTIFICATE OF ANALYSIS
No. 03112414 Page 3 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-12-05 / 03112414-03						
Percent Solids						
Percent Solids	**75**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/26/2003
T (SURR)	**103**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/5/2003
o-Terphenyl (DRO SURR)	**62**	%	EPA 8015B-M		12/3/2003	12/5/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 4 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-12 / 03112414-04						
Purgeable Aromatics						
Benzene	1	ug/L	EPA 8021B	1		11/25/2003
Toluene	ND	ug/L	EPA 8021B	1		11/25/2003
Ethylbenzene	2	ug/L	EPA 8021B	1		11/25/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/25/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/25/2003
TFT (SURR)	87	%	EPA 8021B			11/25/2003
Total Petroleum Hydrocarbons						
iesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/5/2003
o-Terphenyl (DRO SURR)	32	%	EPA 8015B-M		12/3/2003	12/5/2003

Reviewed By: Matt Ciche
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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CERTIFICATE OF ANALYSIS
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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-13-05 / 03112414-05						
Percent Solids						
Percent Solids	**81**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/26/2003
FT (SURR)	**104**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	25	12/3/2003	12/5/2003
o-Terphenyl (DRO SURR)	**53**	%	EPA 8015B-M		12/3/2003	12/5/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
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ND - Not Detected at a concentration greater than or equal to the PQL.
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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-13 / 03112414-06						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/25/2003
Toluene	ND	ug/L	EPA 8021B	1		11/25/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/25/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/25/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/25/2003
TFT (SURR)	**86**	%	EPA 8021B			11/25/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/5/2003
o-Terphenyl (DRO SURR)	**57**	%	EPA 8015B-M		12/3/2003	12/5/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-14-05 / 03112414-07						
Percent Solids						
Percent Solids	**80**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/26/2003
FT (SURR)	**102**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	25	12/3/2003	12/5/2003
o-Terphenyl (DRO SURR)	**52**	%	EPA 8015B-M		12/3/2003	12/5/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-14 / 03112414-08						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/25/2003
Toluene	ND	ug/L	EPA 8021B	1		11/25/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/25/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/25/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/25/2003
TFT (SURR)	**86**	%	EPA 8021B			11/25/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/5/2003
o-Terphenyl (DRO SURR)	**72**	%	EPA 8015B-M		12/3/2003	12/5/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-15-05 / 03112414-09						
Percent Solids						
Percent Solids	**75**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	**3**	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	**2**	ug/kg	EPA 8021B	1		11/26/2003
FT (SURR)	**104**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**82**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
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Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-15 / 03112414-10						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/25/2003
Toluene	ND	ug/L	EPA 8021B	1		11/25/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/25/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/25/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/25/2003
TFT (SURR)	**86**	%	EPA 8021B			11/25/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**70**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
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Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-16-05 / 03112414-11						
Percent Solids						
Percent Solids	**79**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/26/2003
FT (SURR)	**105**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	25	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**55**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Oikie
Quality Assurance Chemist

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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-16 / 03112414-12						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/25/2003
Toluene	ND	ug/L	EPA 8021B	1		11/25/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/25/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/25/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/25/2003
TFT (SURR)	**86**	%	EPA 8021B			11/25/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**69**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Colice
Quality Assurance Chemist

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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-17-05 / 03112414-13						
Percent Solids						
Percent Solids	**70**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/26/2003
FT (SURR)	**104**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	28	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**49**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Ochie
Quality Assurance Chemist

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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-17 / 03112414-14						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/25/2003
Toluene	ND	ug/L	EPA 8021B	1		11/25/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/25/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/25/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/25/2003
TFT (SURR)	**86**	%	EPA 8021B			11/25/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**76**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-18-05 / 03112414-15						
Percent Solids						
Percent Solids	**70**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/26/2003
FT (SURR)	**103**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	29	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**59**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Cline
Quality Assurance Chemist

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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/19/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-18 / 03112414-16						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/26/2003
Toluene	ND	ug/L	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/L	EPA 8021B	1		11/26/2003
TFT (SURR)	**88**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**81**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Cline
Quality Assurance Chemist

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-05 / 03112414-17						
Percent Solids						
Percent Solids	**70**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.072	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.072	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.072	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.072	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.072	12/5/2003	12/8/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.072	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.072	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**73**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.6	12/1/2003	12/2/2003
Arsenic	**5.5**	mg/kg	EPA 6020	0.72	12/2/2003	12/3/2003
Beryllium	**3.6**	mg/kg	EPA 6020	3.6	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.6	12/1/2003	12/2/2003
Chromium	**26**	mg/kg	EPA 6020	3.6	12/2/2003	12/3/2003
Copper	**45**	mg/kg	EPA 6020	3.6	12/1/2003	12/2/2003
Lead	**7.7**	mg/kg	EPA 6020	3.6	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.14	12/1/2003	12/2/2003
Nickel	**14**	mg/kg	EPA 6020	3.6	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.6	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.6	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.9	12/1/2003	12/2/2003
Zinc	**79**	mg/kg	EPA 6020	36	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 18 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-05 / 03112414-17						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
razine	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 19 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-05 / 03112414-17						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	480	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**64**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**68**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**70**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**86**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**73**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**101**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	29	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**71**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	140		12/2/2003
TFT (SURR)	**86**	%	EPA 8015B			12/2/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
romodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 20 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-05 / 03112414-17						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
ibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 12**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tyrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-05 / 03112414-17						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
nyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	22		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	22		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	72		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	72		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	72		12/3/2003
Acetone	**j 30**	ug/kg	EPA 8260	72		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**98**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**106**	%	EPA 8260			12/3/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
- ults reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-10 / 03112414-18						
Percent Solids						
Percent Solids	**74**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**72**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Arsenic	**1.8**	mg/kg	EPA 6020	0.67	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Chromium	**13**	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Copper	**17**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Lead	**5.0**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.13	12/1/2003	12/2/2003
Nickel	**30**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.7	12/1/2003	12/2/2003
Zinc	**76**	mg/kg	EPA 6020	34	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-10 / 03112414-18						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
razine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 24 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-10 / 03112414-18						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**59**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**64**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**65**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**78**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**66**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**90**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**65**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/27/2003
TFT (SURR)	**95**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-10 / 03112414-18						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 9**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-1-10 / 03112414-18						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
inyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	67		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	67		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	67		12/3/2003
Acetone	ND	ug/kg	EPA 8260	67		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**98**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**105**	%	EPA 8260			12/3/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
Results reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-05 / 03112414-19						
Percent Solids						
Percent Solids	**72**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.069	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.069	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.069	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.069	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.069	12/5/2003	12/8/2003
roclor 1254	ND	mg/kg	EPA 8082	0.069	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.069	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**55**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Arsenic	**4.9**	mg/kg	EPA 6020	0.69	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Chromium	**27**	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
Copper	**17**	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Lead	**4.5**	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.14	12/1/2003	12/2/2003
Nickel	**9.0**	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.8	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	35	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 28 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-05 / 03112414-19						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
razine	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1200	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-05 / 03112414-19						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Pyrene	**j 57**	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Chrysene	**j 52**	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	**j 50**	ug/kg	EPA 8270	460	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**67**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**72**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**77**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**90**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**71**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**103**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	**230**	mg/kg	EPA 8015B-M	28	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**99**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	**190**	ug/kg	EPA 8015B	140		11/27/2003
TFT (SURR)	**92**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-05 / 03112414-19						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 11**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-05 / 03112414-19						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
nyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	21		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	21		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	69		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	69		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	69		12/3/2003
Acetone	**j 35**	ug/kg	EPA 8260	69		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**98**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**97**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**105**	%	EPA 8260			12/3/2003

Reviewed By: Matt Oline
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
ults reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-10 / 03112414-20						
Percent Solids						
Percent Solids	**73**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
roclor 1248	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
oclor 1254	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**70**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Arsenic	**2.4**	mg/kg	EPA 6020	0.68	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Chromium	**14**	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Copper	**15**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Lead	**4.4**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.14	12/1/2003	12/2/2003
Nickel	**8.0**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.7	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	34	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-10 / 03112414-20						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
razine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-10 / 03112414-20						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**67**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**71**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**73**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**85**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**75**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**100**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/11/2003	12/11/2003
o-Terphenyl (DRO SURR)	**97**	%	EPA 8015B-M		12/11/2003	12/11/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	140		11/27/2003
TFT (SURR)	**92**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
romodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 35 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-10 / 03112414-20						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 11**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4-10 / 03112414-20						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
inyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	68		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	68		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	68		12/3/2003
Acetone	**j 15**	ug/kg	EPA 8260	68		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**102**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**97**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**99**	%	EPA 8260			12/3/2003

Reviewed By: Matt Cohen
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
ults reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 37 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4 / 03112414-21						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
,butyl Chlorendate (SURR)	**99**	%	EPA 8082		11/24/2003	11/25/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Beryllium	**47**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Chromium	**110**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Copper	**180**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Lead	**52**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Mercury	ND	ug/L	EPA 6020	1	12/4/2003	12/9/2003
Nickel	**600**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Selenium	**9.0**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Zinc	**880**	ug/L	EPA 6020	50	12/4/2003	12/9/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Chlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Acetophenone	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
'exachloroethane	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
,robenzene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Isophorone	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Nitrophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 38 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4 / 03112414-21						
Semi-Volatile Organic Compounds						
2,4-Dichlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Naphthalene`	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chloroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Caprolactam	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
exachlorocyclopentadiene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Nitroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Acenaphthylene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3-Nitroaniline	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
Acenaphthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
4-Nitrophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
Dibenzofuran	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Diethyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Fluorene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Nitroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Atrazine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Pentachlorophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
enanthrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Carbazole	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Di-n-butyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4 / 03112414-21						
Semi-Volatile Organic Compounds						
Pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Chrysene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Fluorophenol (ASURR)	**7**	%	EPA 8270		12/2/2003	12/2/2003
Phenol d-6 (ASURR)	**15**	%	EPA 8270		12/2/2003	12/2/2003
Nitrobenzene d-5 (BNSURR)	**45**	%	EPA 8270		12/2/2003	12/2/2003
2-Fluorobiphenyl (BNSURR)	**54**	%	EPA 8270		12/2/2003	12/2/2003
2,4,6-Tribromophenol (ASURR)	**13**	%	EPA 8270		12/2/2003	12/2/2003
Terphenyl d-16 (BNSURR)	**66**	%	EPA 8270		12/2/2003	12/2/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**67**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	**110**	ug/L	EPA 8015B	100		11/26/2003
TFT (SURR)	**96**	%	EPA 8015B			11/26/2003
Volatile Organic Compounds						
Benzene	**2**	ug/L	EPA 8260	1		12/2/2003
Bromobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromoform	ND	ug/L	EPA 8260	1		12/2/2003
Bromomethane	ND	ug/L	EPA 8260	1		12/2/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Carbon tetrachloride	ND	ug/L	EPA 8260	1		12/2/2003
Chlorobenzene	**51**	ug/L	EPA 8260	1		12/2/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 40 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4 / 03112414-21						
Volatile Organic Compounds						
Chloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Chloroform	ND	ug/L	EPA 8260	1		12/2/2003
Chloromethane	ND	ug/L	EPA 8260	1		12/2/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2-Dibromoethane	ND	ug/L	EPA 8260	1		12/2/2003
Dibromomethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
cis-1,2-Dichloroethene	**2**	ug/L	EPA 8260	1		12/2/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		12/2/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		12/2/2003
Methylene chloride	ND	ug/L	EPA 8260	1		12/2/2003
Naphthalene	ND	ug/L	EPA 8260	1		12/2/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Styrene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
trachloroethene	ND	ug/L	EPA 8260	1		12/2/2003
Toluene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4 / 03112414-21						
Volatile Organic Compounds						
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Trichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		12/2/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		12/2/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		12/2/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		12/2/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		12/2/2003
Acetone	ND	ug/L	EPA 8260	10		12/2/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		12/2/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		12/2/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromofluoromethane (SURR)	**98**	%	EPA 8260			12/2/2003
Toluene d-8 (SURR)	**94**	%	EPA 8260			12/2/2003
4-Bromofluorobenzene (SURR)	**103**	%	EPA 8260			12/2/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-4 Dissolved / 03112414-22						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Beryllium	**23**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Chromium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Copper	**31**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Lead	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Mercury	ND	ug/L	EPA 6020	1	12/2/2003	12/9/2003
Nickel	**560**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Selenium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Zinc	**610**	ug/L	EPA 6020	50	12/2/2003	12/9/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-05 / 03112414-23						
Percent Solids						
Percent Solids	**78**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.064	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.064	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.064	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.064	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.064	12/5/2003	12/8/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.064	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.064	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**82**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Arsenic	**1.4**	mg/kg	EPA 6020	0.64	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Chromium	**4.8**	mg/kg	EPA 6020	3.2	12/2/2003	12/3/2003
Copper	**3.6**	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Lead	ND	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.13	12/1/2003	12/2/2003
Nickel	**4.5**	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.2	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.2	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.5	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	32	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 44 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-05 / 03112414-23						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	980	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
razine	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-05 / 03112414-23						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
bis (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	420	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**67**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**70**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**73**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**86**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**75**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**104**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	25	12/11/2003	12/11/2003
o-Terphenyl (DRO SURR)	**93**	%	EPA 8015B-M		12/11/2003	12/11/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/27/2003
TFT (SURR)	**96**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	6		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	6		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	6		12/3/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	6		12/3/2003
Bromoform	ND	ug/kg	EPA 8260	6		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	6		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	6		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	6		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	6		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-05 / 03112414-23						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	6		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	6		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	6		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	6		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	6		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	6		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	6		12/3/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	6		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	6		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	6		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	6		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	6		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	6		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	6		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	6		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	6		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	6		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	6		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	6		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	6		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	6		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	6		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	6		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	6		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	6		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	6		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	6		12/3/2003
Methylene chloride	**b 10**	ug/kg	EPA 8260	6		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	6		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	6		12/3/2003
Styrene	ND	ug/kg	EPA 8260	6		12/3/2003
1,1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	6		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	6		12/3/2003
Toluene	ND	ug/kg	EPA 8260	6		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	6		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-05 / 03112414-23						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	6		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	6		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	6		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	6		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	6		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	6		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	6		12/3/2003
inyl chloride	ND	ug/kg	EPA 8260	6		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	19		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	19		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	6		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	64		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	64		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	64		12/3/2003
Acetone	ND	ug/kg	EPA 8260	64		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	6		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	6		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	6		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	6		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	6		12/3/2003
Dibromofluoromethane (SURR)	**98**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**100**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**101**	%	EPA 8260			12/3/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
Results reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Nurnber: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-10 / 03112414-24						
Percent Solids						
Percent Solids	**74**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**75**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Arsenic	**1.1**	mg/kg	EPA 6020	0.68	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Chromium	**3.8**	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Copper	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Lead	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.14	12/1/2003	12/2/2003
Nickel	**4.6**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.7	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	34	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 49 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-10 / 03112414-24						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Naphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
-Chloro-3-methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
razine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 50 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-10 / 03112414-24						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
is (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**70**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**73**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**76**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**87**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**75**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**104**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**86**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	140		11/27/2003
TFT (SURR)	**95**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
romoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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Tetra Tech, Inc.
December 12, 2003

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Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-10 / 03112414-24						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 10**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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Matrix: Soil

Date Sampled: 11/20/2003
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	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-5-10 / 03112414-24						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
inyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	68		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	68		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	68		12/3/2003
Acetone	**j 7**	ug/kg	EPA 8260	68		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**100**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**98**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**100**	%	EPA 8260			12/3/2003

Reviewed By: _____
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
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	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-05 / 03112414-25						
Percent Solids						
Percent Solids	**75**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
oclor 1254	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**76**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Arsenic	**2.1**	mg/kg	EPA 6020	0.67	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Chromium	**3.4**	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Copper	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Lead	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.13	12/1/2003	12/2/2003
Nickel	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.7	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	33	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003

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	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-05 / 03112414-25						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Atrazine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003

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Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-05 / 03112414-25						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**69**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**73**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**75**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**88**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**74**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**105**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**94**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/27/2003
TFT (SURR)	**95**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-05 / 03112414-25						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
ibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	ND	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-05 / 03112414-25						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
nyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	67		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	67		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	67		12/3/2003
Acetone	**j 17**	ug/kg	EPA 8260	67		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**98**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**103**	%	EPA 8260			12/3/2003

Reviewed By: Matt Ochrie
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 58 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-10 / 03112414-26						
Percent Solids						
Percent Solids	**76**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**69**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Arsenic	**0.87**	mg/kg	EPA 6020	0.66	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Chromium	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Copper	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Lead	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.13	12/1/2003	12/2/2003
Nickel	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.6	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	33	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Acetophenone	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
N-Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Hexachloroethane	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Nitrobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Isophorone	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-10 / 03112414-26						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Naphthalene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Caprolactam	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Acenaphthylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Acenaphthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Dibenzofuran	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Fluorene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/10/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
razine	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Phenanthrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Carbazole	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-10 / 03112414-26						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Chrysene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Fluorophenol (ASURR)	**91**	%	EPA 8270		12/3/2003	12/10/2003
Phenol d-6 (ASURR)	**89**	%	EPA 8270		12/3/2003	12/10/2003
Nitrobenzene d-5 (BNSURR)	**90**	%	EPA 8270		12/3/2003	12/10/2003
2-Fluorobiphenyl (BNSURR)	**100**	%	EPA 8270		12/3/2003	12/10/2003
2,4,6-Tribromophenol (ASURR)	**89**	%	EPA 8270		12/3/2003	12/10/2003
Terphenyl d-16 (BNSURR)	**89**	%	EPA 8270		12/3/2003	12/10/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	26	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**77**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/27/2003
TFT (SURR)	**95**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 61 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-10 / 03112414-26						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
ibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	ND	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2-10 / 03112414-26						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
nyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	66		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	66		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	66		12/3/2003
Acetone	**j 11**	ug/kg	EPA 8260	66		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**101**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**97**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**102**	%	EPA 8260			12/3/2003

Reviewed By: Matt Cohen
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.
Results reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2 / 03112414-27						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
butyl Chlorendate (SURR)	**98**	%	EPA 8082		11/24/2003	11/25/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Arsenic	**6.5**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Beryllium	**8.9**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Chromium	**75**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Copper	**99**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Lead	**24**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Mercury	ND	ug/L	EPA 6020	1	12/4/2003	12/9/2003
Nickel	**81**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Selenium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Zinc	**200**	ug/L	EPA 6020	50	12/4/2003	12/9/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Chlorophenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Methylphenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Acetophenone	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Hexachloroethane	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
robenzene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Isophorone	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Nitrophenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2.4-Dimethylphenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2 / 03112414-27						
Semi-Volatile Organic Compounds						
2,4-Dichlorophenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Naphthalene`	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Chloroaniline	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Caprolactam	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
exachlorocyclopentadiene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Nitroaniline	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Acenaphthylene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
3-Nitroaniline	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
Acenaphthene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
4-Nitrophenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
Dibenzofuran	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Diethyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Fluorene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Nitroaniline	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Atrazine	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Pentachlorophenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
enanthrene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Anthracene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Carbazole	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Di-n-butyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Fluoranthene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2 / 03112414-27						
Semi-Volatile Organic Compounds						
Pyrene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Chrysene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
nzo (b) fluoranthene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Fluorophenol (ASURR)	**67**	%	EPA 8270		12/2/2003	12/2/2003
Phenol d-6 (ASURR)	**77**	%	EPA 8270		12/2/2003	12/2/2003
Nitrobenzene d-5 (BNSURR)	**74**	%	EPA 8270		12/2/2003	12/2/2003
2-Fluorobiphenyl (BNSURR)	**90**	%	EPA 8270		12/2/2003	12/2/2003
2,4,6-Tribromophenol (ASURR)	**108**	%	EPA 8270		12/2/2003	12/2/2003
Terphenyl d-16 (BNSURR)	**109**	%	EPA 8270		12/2/2003	12/2/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**70**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	**420**	ug/L	EPA 8015B	100		11/26/2003
TFT (SURR)	**95**	%	EPA 8015B			11/26/2003
Volatile Organic Compounds						
Benzene	**1**	ug/L	EPA 8260	1		12/2/2003
Bromobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromoform	ND	ug/L	EPA 8260	1		12/2/2003
omomethane	ND	ug/L	EPA 8260	1		12/2/2003
utylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Carbon tetrachloride	ND	ug/L	EPA 8260	1		12/2/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 66 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2 / 03112414-27						
Volatile Organic Compounds						
Chloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Chloroform	ND	ug/L	EPA 8260	1		12/2/2003
Chloromethane	ND	ug/L	EPA 8260	1		12/2/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2-Dibromoethane	ND	ug/L	EPA 8260	1		12/2/2003
Dibromomethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethane	**6**	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethene	**2**	ug/L	EPA 8260	1		12/2/2003
cis-1,2-Dichloroethene	**65**	ug/L	EPA 8260	1		12/2/2003
trans-1,2-Dichloroethene	**2**	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		12/2/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		12/2/2003
Methylene chloride	ND	ug/L	EPA 8260	1		12/2/2003
Naphthalene	ND	ug/L	EPA 8260	1		12/2/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Styrene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
trachloroethene	ND	ug/L	EPA 8260	1		12/2/2003
Toluene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 67 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2 / 03112414-27						
Volatile Organic Compounds						
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Trichloroethene	**13**	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl chloride	**7**	ug/L	EPA 8260	1		12/2/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Methyl-t-butyl ether	**E 230**	ug/L	EPA 8260	1		12/2/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		12/2/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		12/2/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		12/2/2003
Acetone	ND	ug/L	EPA 8260	10		12/2/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		12/2/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		12/2/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			12/2/2003
Toluene d-8 (SURR)	**94**	%	EPA 8260			12/2/2003
4-Bromofluorobenzene (SURR)	**102**	%	EPA 8260			12/2/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
E - estimated value, exceeds calibration range.

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-2 Dissolved / 03112414-28						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Beryllium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Chromium	**7.3**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Copper	**39**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Lead	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
ercury	ND	ug/L	EPA 6020	1	12/2/2003	12/9/2003
Nickel	**61**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Selenium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Zinc	**120**	ug/L	EPA 6020	50	12/2/2003	12/9/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-05 / 03112414-29						
Percent Solids						
Percent Solids	**77**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
oclor 1254	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**86**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Arsenic	**1.5**	mg/kg	EPA 6020	0.65	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Chromium	**6.6**	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Copper	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Lead	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.13	12/1/2003	12/2/2003
Nickel	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.6	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	33	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-05 / 03112414-29						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
azine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-05 / 03112414-29						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**70**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**74**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**74**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**87**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**72**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**95**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	26	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**88**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	**490**	ug/kg	EPA 8015B	130		11/27/2003
TFT (SURR)	**96**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-05 / 03112414-29						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
ibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 9**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 73 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-05 / 03112414-29						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
nyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	65		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	65		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	65		12/3/2003
Acetone	**j 12**	ug/kg	EPA 8260	65		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**98**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**98**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**101**	%	EPA 8260			12/3/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
ults reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-10 / 03112414-30						
Percent Solids						
Percent Solids	**76**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
oclor 1254	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**73**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Arsenic	**1.6**	mg/kg	EPA 6020	0.66	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Chromium	**5.2**	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Copper	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Lead	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.13	12/1/2003	12/2/2003
Nickel	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.6	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	33	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-10 / 03112414-30						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
azine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-10 / 03112414-30						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
is (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**71**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**75**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**77**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**89**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**74**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**100**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	26	12/3/2003	12/8/2003
o-Terphenyl (DRO SURR)	**95**	%	EPA 8015B-M		12/3/2003	12/8/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	**4,400**	ug/kg	EPA 8015B	130		11/27/2003
TFT (SURR)	**95**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 77 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-10 / 03112414-30						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
ibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 11**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 78 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-3-10 / 03112414-30						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	66		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	66		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	66		12/3/2003
Acetone	ND	ug/kg	EPA 8260	66		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**94**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**99**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**101**	%	EPA 8260			12/3/2003

Reviewed By: Matt Oehrle
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
Results reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 79 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-05 / 03112414-31						
Percent Solids						
Percent Solids	**77**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.065	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**74**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Arsenic	**0.77**	mg/kg	EPA 6020	0.65	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Chromium	**9.5**	mg/kg	EPA 6020	3.2	12/2/2003	12/3/2003
Copper	**5.4**	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Lead	**4.8**	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.12	12/1/2003	12/2/2003
Nickel	**4.8**	mg/kg	EPA 6020	3.2	12/1/2003	12/2/2003
Selenium	**3.6**	mg/kg	EPA 6020	3.2	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.2	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.6	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	32	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2-Methylphenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Acetophenone	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
4-Methylphenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Hexachloroethane	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Nitrobenzene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Isophorone	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 80 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

Sample ID: SB-6-05 / 03112414-31

Target Compound List - SEMIVOLATILES

	Result	Unit	Method	PQL	Prepared	Analyzed
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Naphthalene`	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Caprolactam	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Acenaphthylene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Acenaphthene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Dibenzofuran	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Fluorene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/5/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
razine	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/5/2003
Phenanthrene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Anthracene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Carbazole	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 81 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-05 / 03112414-31						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Fluoranthene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Pyrene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Chrysene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	430	12/3/2003	12/5/2003
2-Fluorophenol (ASURR)	**68**	%	EPA 8270		12/3/2003	12/5/2003
Phenol d-6 (ASURR)	**73**	%	EPA 8270		12/3/2003	12/5/2003
Nitrobenzene d-5 (BNSURR)	**75**	%	EPA 8270		12/3/2003	12/5/2003
2-Fluorobiphenyl (BNSURR)	**89**	%	EPA 8270		12/3/2003	12/5/2003
2,4,6-Tribromophenol (ASURR)	**74**	%	EPA 8270		12/3/2003	12/5/2003
Terphenyl d-16 (BNSURR)	**97**	%	EPA 8270		12/3/2003	12/5/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	26	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**85**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/27/2003
TFT (SURR)	**94**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
romodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 82 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-05 / 03112414-31						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
ibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 9**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 83 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-05 / 03112414-31						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
inyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	19		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	19		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	65		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	65		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	65		12/3/2003
Acetone	**j 7**	ug/kg	EPA 8260	65		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**100**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**100**	%	EPA 8260			12/3/2003

Reviewed By: Matt Cline
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
ults reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE •

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-10 / 03112414-32						
Percent Solids						
Percent Solids	**75**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
roclor 1254	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.066	12/5/2003	12/8/2003
Dibutyl Chlorendate (SURR)	**73**	%	EPA 8082		12/5/2003	12/8/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Arsenic	**2.0**	mg/kg	EPA 6020	0.66	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Chromium	**22**	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Copper	**14**	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Lead	**7.1**	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.13	12/1/2003	12/2/2003
Nickel	**21**	mg/kg	EPA 6020	3.3	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.3	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.7	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	33	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Acetophenone	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
3,4-Methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Hexachloroethane	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Nitrobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Isophorone	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 85 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-10 / 03112414-32						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Naphthalene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Caprolactam	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Acenaphthylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Acenaphthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Dibenzofuran	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Fluorene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/10/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
razine	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Phenanthrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Carbazole	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-10 / 03112414-32						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (a) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Chrysene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
.s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (b) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (k) fluoranthene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (a) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	440	12/3/2003	12/10/2003
2-Fluorophenol (ASURR)	**87**	%	EPA 8270		12/3/2003	12/10/2003
Phenol d-6 (ASURR)	**86**	%	EPA 8270		12/3/2003	12/10/2003
Nitrobenzene d-5 (BNSURR)	**88**	%	EPA 8270		12/3/2003	12/10/2003
2-Fluorobiphenyl (BNSURR)	**96**	%	EPA 8270		12/3/2003	12/10/2003
2,4,6-Tribromophenol (ASURR)	**83**	%	EPA 8270		12/3/2003	12/10/2003
Terphenyl d-16 (BNSURR)	**88**	%	EPA 8270		12/3/2003	12/10/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/8/2003
o-Terphenyl (DRO SURR)	**82**	%	EPA 8015B-M		12/3/2003	12/8/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		11/27/2003
TFT (SURR)	**94**	%	EPA 8015B			11/27/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
˜romodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 87 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-10 / 03112414-32						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 10**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6-10 / 03112414-32						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
inyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	ND	ug/kg	EPA 8260	66		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	66		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	66		12/3/2003
Acetone	ND	ug/kg	EPA 8260	66		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**100**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**98**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**100**	%	EPA 8260			12/3/2003

Reviewed By: Matt Cline
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
Results reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6 / 03112414-33						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1254	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/24/2003	11/25/2003
ibutyl Chlorendate (SURR)	**105**	%	EPA 8082		11/24/2003	11/25/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Beryllium	**10**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Chromium	**230**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Copper	**130**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Lead	**27**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Mercury	ND	ug/L	EPA 6020	1	12/4/2003	12/9/2003
Nickel	**160**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Selenium	**12**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Zinc	**340**	ug/L	EPA 6020	50	12/4/2003	12/9/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Chlorophenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Methylphenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Acetophenone	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
'lexachloroethane	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
,trobenzene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Isophorone	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Nitrophenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6 / 03112414-33						
Semi-Volatile Organic Compounds						
2,4-Dichlorophenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Naphthalene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Chloroaniline	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Hexachlorobutadiene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Caprolactam	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Hexachlorocyclopentadiene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Nitroaniline	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Acenaphthylene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
3-Nitroaniline	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
Acenaphthene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
4-Nitrophenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
Dibenzofuran	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Diethyl phthalate	**j 5**	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Fluorene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Nitroaniline	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Atrazine	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Pentachlorophenol	ND	ug/L	EPA 8270	31	12/2/2003	12/2/2003
Phenanthrene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Anthracene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Carbazole	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Di-n-butyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Fluoranthene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6 / 03112414-33						
Semi-Volatile Organic Compounds						
Pyrene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Chrysene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	13	12/2/2003	12/2/2003
2-Fluorophenol (ASURR)	**69**	%	EPA 8270		12/2/2003	12/2/2003
Phenol d-6 (ASURR)	**75**	%	EPA 8270		12/2/2003	12/2/2003
Nitrobenzene d-5 (BNSURR)	**79**	%	EPA 8270		12/2/2003	12/2/2003
2-Fluorobiphenyl (BNSURR)	**90**	%	EPA 8270		12/2/2003	12/2/2003
2,4,6-Tribromophenol (ASURR)	**95**	%	EPA 8270		12/2/2003	12/2/2003
Terphenyl d-16 (BNSURR)	**112**	%	EPA 8270		12/2/2003	12/2/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**64**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/26/2003
TFT (SURR)	**95**	%	EPA 8015B			11/26/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		12/2/2003
Bromobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromoform	ND	ug/L	EPA 8260	1		12/2/2003
Bromomethane	ND	ug/L	EPA 8260	1		12/2/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Carbon tetrachloride	**4**	ug/L	EPA 8260	1		12/2/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003

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No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6 / 03112414-33						
Volatile Organic Compounds						
Chloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Chloroform	**2**	ug/L	EPA 8260	1		12/2/2003
Chloromethane	ND	ug/L	EPA 8260	1		12/2/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2-Dibromoethane	ND	ug/L	EPA 8260	1		12/2/2003
Dibromomethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
cis-1,2-Dichloroethene	**7**	ug/L	EPA 8260	1		12/2/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		12/2/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		12/2/2003
Methylene chloride	ND	ug/L	EPA 8260	1		12/2/2003
Naphthalene	ND	ug/L	EPA 8260	1		12/2/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Styrene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
trachloroethene	ND	ug/L	EPA 8260	1		12/2/2003
Toluene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6 / 03112414-33						
Volatile Organic Compounds						
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Trichloroethene	**5**	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		12/2/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Methyl-t-butyl ether	**4**	ug/L	EPA 8260	1		12/2/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		12/2/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		12/2/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		12/2/2003
Acetone	ND	ug/L	EPA 8260	10		12/2/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		12/2/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		12/2/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromofluoromethane (SURR)	**98**	%	EPA 8260			12/2/2003
Toluene d-8 (SURR)	**93**	%	EPA 8260			12/2/2003
4-Bromofluorobenzene (SURR)	**102**	%	EPA 8260			12/2/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
j - estimated value, less than quantitation limit.

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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-6 Dissolved / 03112414-34						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Beryllium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Chromium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Copper	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Lead	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Mercury	ND	ug/L	EPA 6020	1	12/2/2003	12/9/2003
Nickel	**55**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Selenium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Zinc	**67**	ug/L	EPA 6020	50	12/2/2003	12/9/2003

Reviewed By: Matt Cikie
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-20-05 / 03112414-35						
Percent Solids						
Percent Solids	**77**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/27/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/27/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/27/2003
FT (SURR)	**104**	%	EPA 8021B			11/27/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	26	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**79**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Cihlar
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-20-10 / 03112414-36						
Percent Solids						
Percent Solids	**77**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/27/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/27/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/27/2003
FT (SURR)	**104**	%	EPA 8021B			11/27/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	26	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**59**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Gilice
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-21-05 / 03112414-37						
Percent Solids						
Percent Solids	**73**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/26/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/26/2003
FT (SURR)	**106**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	28	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**79**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Cline
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/20/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-21-10 / 03112414-38						
Percent Solids						
Percent Solids	**73**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	**6**	ug/kg	EPA 8021B	1		11/27/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/27/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/27/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/27/2003
FT (SURR)	**105**	%	EPA 8021B			11/27/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**81**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-19-05 / 03112414-39						
Percent Solids						
Percent Solids	**80**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/27/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/27/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/27/2003
FT (SURR)	**105**	%	EPA 8021B			11/27/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	**56**	mg/kg	EPA 8015B-M	25	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**82**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Ochie
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-19-10 / 03112414-40						
Percent Solids						
Percent Solids	**74**		Gravimetry			12/9/2003
Purgeable Aromatics						
Benzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Toluene	ND	ug/kg	EPA 8021B	1		11/27/2003
Ethylbenzene	ND	ug/kg	EPA 8021B	1		11/27/2003
Total Xylenes	ND	ug/kg	EPA 8021B	1		11/27/2003
Naphthalene	ND	ug/kg	EPA 8021B	1		11/27/2003
FT (SURR)	**105**	%	EPA 8021B			11/27/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**79**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Cline
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-19 / 03112414-41						
Purgeable Aromatics						
Benzene	ND	ug/L	EPA 8021B	1		11/26/2003
Toluene	ND	ug/L	EPA 8021B	1		11/26/2003
Ethylbenzene	ND	ug/L	EPA 8021B	1		11/26/2003
Total Xylenes	ND	ug/L	EPA 8021B	1		11/26/2003
Naphthalene	**1**	ug/L	EPA 8021B	1		11/26/2003
TFT (SURR)	**86**	%	EPA 8021B			11/26/2003
Total Petroleum Hydrocarbons						
esel and Residual Range Organics	**3**	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**57**	%	EPA 8015B-M		12/3/2003	12/6/2003

Reviewed By: Matt Cohen
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
USEPA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32-05 / 03112414-42						
Percent Solids						
Percent Solids	**74**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/9/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/9/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/9/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/9/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/9/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/9/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.067	12/5/2003	12/9/2003
Dibutyl Chlorendate (SURR)	**68**	%	EPA 8082		12/5/2003	12/9/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Arsenic	**2.5**	mg/kg	EPA 6020	0.67	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Chromium	**18**	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Copper	**33**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Lead	**68**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Mercury	**1.7**	mg/kg	EPA 6020	0.13	12/1/2003	12/2/2003
Nickel	**22**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.7	12/1/2003	12/2/2003
Zinc	**140**	mg/kg	EPA 6020	34	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Acetophenone	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Hexachloroethane	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Nitrobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Isophorone	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32-05 / 03112414-42						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Naphthalene`	**j 95**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Caprolactam	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Acenaphthylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Acenaphthene	**j 110**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Dibenzofuran	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Fluorene	**j 83**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/10/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
azine	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Phenanthrene	**j 380**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Anthracene	**j 84**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Carbazole	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32-05 / 03112414-42						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Fluoranthene	**j 430**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Pyrene	**450**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (a) anthracene	**j 190**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Chrysene	**j 200**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (b) fluoranthene	**j 170**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (k) fluoranthene	**j 180**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (a) pyrene	**j 170**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Indeno (1,2,3-cd) pyrene	**j 79**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (g,h,i) perylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Fluorophenol (ASURR)	**92**	%	EPA 8270		12/3/2003	12/10/2003
Phenol d-6 (ASURR)	**90**	%	EPA 8270		12/3/2003	12/10/2003
Nitrobenzene d-5 (BNSURR)	**89**	%	EPA 8270		12/3/2003	12/10/2003
2-Fluorobiphenyl (BNSURR)	**95**	%	EPA 8270		12/3/2003	12/10/2003
2,4,6-Tribromophenol (ASURR)	**87**	%	EPA 8270		12/3/2003	12/10/2003
Terphenyl d-16 (BNSURR)	**95**	%	EPA 8270		12/3/2003	12/10/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	**43**	mg/kg	EPA 8015B-M	27	12/3/2003	12/8/2003
o-Terphenyl (DRO SURR)	**94**	%	EPA 8015B-M		12/3/2003	12/8/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	130		12/2/2003
TFT (SURR)	**94**	%	EPA 8015B			12/2/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

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Tetra Tech, Inc.
December 12, 2003

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Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32-05 / 03112414-42						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
ibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 12**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 106 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32-05 / 03112414-42						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
,nyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	**j 13**	ug/kg	EPA 8260	67		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	67		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	67		12/3/2003
Acetone	**77**	ug/kg	EPA 8260	67		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**100**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**99**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**103**	%	EPA 8260			12/3/2003

Reviewed By: Matt Cohen
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
ults reported on a dry weight basis where applicable.

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 107 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32 / 03112414-43						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1254	**17**	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
butyl Chlorendate (SURR)	**122**	%	EPA 8082		11/24/2003	11/26/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Beryllium	**17**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Chromium	**99**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Copper	**110**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Lead	**57**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Mercury	ND	ug/L	EPA 6020	1	12/4/2003	12/9/2003
Nickel	**170**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Selenium	**6.1**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Zinc	**360**	ug/L	EPA 6020	50	12/4/2003	12/9/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Chlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Acetophenone	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachloroethane	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
robenzene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Isophorone	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Nitrophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 108 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32 / 03112414-43						
Semi-Volatile Organic Compounds						
2,4-Dichlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Naphthalene`	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chloroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Caprolactam	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachlorocyclopentadiene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Nitroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Acenaphthylene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3-Nitroaniline	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
Acenaphthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
4-Nitrophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
Dibenzofuran	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Diethyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Fluorene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Nitroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Atrazine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Pentachlorophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
Phenanthrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Carbazole	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Di-n-butyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32 / 03112414-43						
Semi-Volatile Organic Compounds						
Pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Chrysene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (b) fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Fluorophenol (ASURR)	**65**	%	EPA 8270		12/2/2003	12/2/2003
Phenol d-6 (ASURR)	**72**	%	EPA 8270		12/2/2003	12/2/2003
Nitrobenzene d-5 (BNSURR)	**66**	%	EPA 8270		12/2/2003	12/2/2003
2-Fluorobiphenyl (BNSURR)	**77**	%	EPA 8270		12/2/2003	12/2/2003
2,4,6-Tribromophenol (ASURR)	**93**	%	EPA 8270		12/2/2003	12/2/2003
Terphenyl d-16 (BNSURR)	**108**	%	EPA 8270		12/2/2003	12/2/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**48**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/26/2003
TFT (SURR)	**95**	%	EPA 8015B			11/26/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		12/2/2003
Bromobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromoform	ND	ug/L	EPA 8260	1		12/2/2003
Bromomethane	ND	ug/L	EPA 8260	1		12/2/2003
n-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Carbon tetrachloride	ND	ug/L	EPA 8260	1		12/2/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32 / 03112414-43						
Volatile Organic Compounds						
Chloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Chloroform	ND	ug/L	EPA 8260	1		12/2/2003
Chloromethane	ND	ug/L	EPA 8260	1		12/2/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2-Dibromoethane	ND	ug/L	EPA 8260	1		12/2/2003
Dibromomethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
cis-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		12/2/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		12/2/2003
Methylene chloride	ND	ug/L	EPA 8260	1		12/2/2003
Naphthalene	ND	ug/L	EPA 8260	1		12/2/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Styrene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
trachloroethene	ND	ug/L	EPA 8260	1		12/2/2003
oluene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32 / 03112414-43						
Volatile Organic Compounds						
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Trichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		12/2/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		12/2/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		12/2/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		12/2/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		12/2/2003
Acetone	ND	ug/L	EPA 8260	10		12/2/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		12/2/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		12/2/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			12/2/2003
Toluene d-8 (SURR)	**94**	%	EPA 8260			12/2/2003
4-Bromofluorobenzene (SURR)	**101**	%	EPA 8260			12/2/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-32 Dissolved / 03112414-44						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Beryllium	**6.0**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Chromium	**5.6**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Copper	**9.2**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Lead	**5.7**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Mercury	ND	ug/L	EPA 6020	1	12/2/2003	12/9/2003
Nickel	**120**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Selenium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Zinc	**220**	ug/L	EPA 6020	50	12/2/2003	12/9/2003

Reviewed By: Matt Ochee
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33-05 / 03112414-45						
Percent Solids						
Percent Solids	**73**		Gravimetry			12/9/2003
Polychlorinated Biphenyls						
Aroclor 1016	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/9/2003
Aroclor 1221	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/9/2003
Aroclor 1232	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/9/2003
Aroclor 1242	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/9/2003
Aroclor 1248	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/9/2003
Aroclor 1254	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/9/2003
Aroclor 1260	ND	mg/kg	EPA 8082	0.068	12/5/2003	12/9/2003
Dibutyl Chlorendate (SURR)	**70**	%	EPA 8082		12/5/2003	12/9/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Arsenic	**4.9**	mg/kg	EPA 6020	0.68	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Chromium	**23**	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Copper	**54**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Lead	**120**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Mercury	**3.3**	mg/kg	EPA 6020	0.14	12/1/2003	12/2/2003
Nickel	**23**	mg/kg	EPA 6020	3.4	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.4	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.7	12/1/2003	12/2/2003
Zinc	**180**	mg/kg	EPA 6020	34	12/1/2003	12/2/2003
Target Compound List - SEMIVOLATILES						
Phenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Bis (2-chloroethyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Chlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Bis (2-chloroisopropyl) ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Acetophenone	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Nitroso-di-n-propylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Hexachloroethane	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Nitrobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Isophorone	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Nitrophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33-05 / 03112414-45						
Target Compound List - SEMIVOLATILES						
2,4-Dimethylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Bis (2-chloroethoxy) methane	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4-Dichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Naphthalene`	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Chloroaniline	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Hexachlorobutadiene`	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Caprolactam	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Chloro-3-methylphenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Methylnaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Hexachlorocyclopentadiene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4,6-Trichlorophenol	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4,5-Trichlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
1,1'-Biphenyl	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Chloronaphthalene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Dimethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,6-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Acenaphthylene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
3-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Acenaphthene	**j 110**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4-Dinitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
4-Nitrophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Dibenzofuran	**j 65**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2,4-Dinitrotoluene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Diethyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Fluorene	**j 150**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Chlorophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Nitroaniline	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
4,6-Dinitro-2-methylphenol	ND	ug/kg	EPA 8270	1000	12/3/2003	12/10/2003
N-Nitrosodiphenylamine	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
4-Bromophenyl phenyl ether	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Hexachlorobenzene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
azine	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Pentachlorophenol	ND	ug/kg	EPA 8270	1100	12/3/2003	12/10/2003
Phenanthrene	**910**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Anthracene	**j 260**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Carbazole	**j 120**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003

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Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33-05 / 03112414-45						
Target Compound List - SEMIVOLATILES						
Di-n-butyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Fluoranthene	**1,000**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Pyrene	**1,000**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Butyl benzyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
3,3-Dichlorobenzidine	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (a) anthracene	**640**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Chrysene	**610**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
s (2-ethylhexyl) phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Di-n-octyl phthalate	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (b) fluoranthene	**560**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (k) fluoranthene	**580**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (a) pyrene	**570**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Indeno (1,2,3-cd) pyrene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Dibenzo (a,h) anthracene	ND	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
Benzo (g,h,i) perylene	**j 220**	ug/kg	EPA 8270	450	12/3/2003	12/10/2003
2-Fluorophenol (ASURR)	**88**	%	EPA 8270		12/3/2003	12/10/2003
Phenol d-6 (ASURR)	**88**	%	EPA 8270		12/3/2003	12/10/2003
Nitrobenzene d-5 (BNSURR)	**91**	%	EPA 8270		12/3/2003	12/10/2003
2-Fluorobiphenyl (BNSURR)	**98**	%	EPA 8270		12/3/2003	12/10/2003
2,4,6-Tribromophenol (ASURR)	**89**	%	EPA 8270		12/3/2003	12/10/2003
Terphenyl d-16 (BNSURR)	**95**	%	EPA 8270		12/3/2003	12/10/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/kg	EPA 8015B-M	27	12/3/2003	12/8/2003
o-Terphenyl (DRO SURR)	**91**	%	EPA 8015B-M		12/3/2003	12/8/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/kg	EPA 8015B	140		12/2/2003
TFT (SURR)	**91**	%	EPA 8015B			12/2/2003
Volatile Organic Compounds						
Benzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Bromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Bromodichloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
omoform	ND	ug/kg	EPA 8260	7		12/3/2003
Bromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
n-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
sec-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
tert-Butylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 116 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33-05 / 03112414-45						
Volatile Organic Compounds						
Carbon tetrachloride	ND	ug/kg	EPA 8260	7		12/3/2003
Chlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Chloroform	ND	ug/kg	EPA 8260	7		12/3/2003
Chloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
4-Chlorotoluene	ND	ug/kg	EPA 8260	7		12/3/2003
ibromochloromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromo-3-chloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dibromoethane	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromomethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,4-Dichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Dichlorodifluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
cis-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
trans-1,2-Dichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,3-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
2,2-Dichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Ethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Hexachlorobutadiene	ND	ug/kg	EPA 8260	7		12/3/2003
Isopropylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
p-Isopropyltoluene	ND	ug/kg	EPA 8260	7		12/3/2003
Methylene chloride	**b 11**	ug/kg	EPA 8260	7		12/3/2003
Naphthalene	ND	ug/kg	EPA 8260	7		12/3/2003
n-Propylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
Styrene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2,2-Tetrachloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Tetrachloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
Toluene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 117 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33-05 / 03112414-45						
Volatile Organic Compounds						
1,2,4-Trichlorobenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,1-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
1,1,2-Trichloroethane	ND	ug/kg	EPA 8260	7		12/3/2003
Trichloroethene	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,3-Trichloropropane	ND	ug/kg	EPA 8260	7		12/3/2003
1,2,4-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
1,3,5-Trimethylbenzene	ND	ug/kg	EPA 8260	7		12/3/2003
nyl chloride	ND	ug/kg	EPA 8260	7		12/3/2003
m&p-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
o-Xylene	ND	ug/kg	EPA 8260	20		12/3/2003
Methyl-t-butyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
2-Butanone (MEK)	**j 6**	ug/kg	EPA 8260	68		12/3/2003
2-Hexanone (MBK)	ND	ug/kg	EPA 8260	68		12/3/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/kg	EPA 8260	68		12/3/2003
Acetone	**j 59**	ug/kg	EPA 8260	68		12/3/2003
Trichlorofluoromethane	ND	ug/kg	EPA 8260	7		12/3/2003
Carbon disulfide	ND	ug/kg	EPA 8260	7		12/3/2003
Vinyl acetate	ND	ug/kg	EPA 8260	7		12/3/2003
2-Chloroethylvinyl ether	ND	ug/kg	EPA 8260	7		12/3/2003
Cis-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Trans-1,3-Dichloropropene	ND	ug/kg	EPA 8260	7		12/3/2003
Dibromofluoromethane (SURR)	**101**	%	EPA 8260			12/3/2003
Toluene d-8 (SURR)	**99**	%	EPA 8260			12/3/2003
4-Bromofluorobenzene (SURR)	**101**	%	EPA 8260			12/3/2003

Reviewed By: Matt Ochie
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
b - found in blank / suspected lab artifact
j - estimated value, less than quantitation limit.
- ·ults reported on a dry weight basis where applicable.
·PA methods recommend that the appearance of detectable levels of the above 8021B compounds be confirmed when unfamiliar samples are analyzed.

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CERTIFICATE OF ANALYSIS
No. 03112414 Page 118 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33 / 03112414-46						
Polychlorinated Biphenyls						
Aroclor 1016	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1221	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1232	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1242	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1248	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1254	**18**	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
Aroclor 1260	ND	ug/L	EPA 8082	0.5	11/24/2003	11/26/2003
ibutyl Chlorendate (SURR)	**132**	%	EPA 8082		11/24/2003	11/26/2003
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Beryllium	**9.4**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Chromium	**27**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Copper	**160**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Lead	**16**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Mercury	ND	ug/L	EPA 6020	1	12/4/2003	12/9/2003
Nickel	**120**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Selenium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Zinc	**280**	ug/L	EPA 6020	50	12/4/2003	12/9/2003
Semi-Volatile Organic Compounds						
Phenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroethyl) ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Chlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroisopropyl) ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Acetophenone	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3,4-Methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
N-Nitroso-di-n-propylamine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachloroethane	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
trobenzene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Isophorone	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Nitrophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dimethylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-chloroethoxy) methane	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33 / 03112414-46						
Semi-Volatile Organic Compounds						
2,4-Dichlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Naphthalene`	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chloroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachlorobutadiene`	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Caprolactam	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chloro-3-methylphenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Methylnaphthalene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
lexachlorocyclopentadiene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4,6-Trichlorophenol	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4,5-Trichlorophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
1,1'-Biphenyl	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Chloronaphthalene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Nitroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Dimethyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,6-Dinitrotoluene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Acenaphthylene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3-Nitroaniline	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
Acenaphthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dinitrophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
4-Nitrophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
Dibenzofuran	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2,4-Dinitrotoluene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Diethyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Fluorene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Chlorophenyl phenyl ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Nitroaniline	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4,6-Dinitro-2-methylphenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
N-Nitrosodiphenylamine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
4-Bromophenyl phenyl ether	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Hexachlorobenzene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Atrazine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Pentachlorophenol	ND	ug/L	EPA 8270	28	12/2/2003	12/2/2003
henanthrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Carbazole	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Di-n-butyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003

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CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33 / 03112414-46						
Semi-Volatile Organic Compounds						
Pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Butyl benzyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
3,3-Dichlorobenzidine	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (a) anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Chrysene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Bis (2-ethylhexyl) phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Di-n-octyl phthalate	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
enzo (b) fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (k) fluoranthene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (a) pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Indeno (1,2,3-cd) pyrene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Dibenzo (a,h) anthracene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
Benzo (g,h,i) perylene	ND	ug/L	EPA 8270	11	12/2/2003	12/2/2003
2-Fluorophenol (ASURR)	**65**	%	EPA 8270		12/2/2003	12/2/2003
Phenol d-6 (ASURR)	**73**	%	EPA 8270		12/2/2003	12/2/2003
Nitrobenzene d-5 (BNSURR)	**69**	%	EPA 8270		12/2/2003	12/2/2003
2-Fluorobiphenyl (BNSURR)	**81**	%	EPA 8270		12/2/2003	12/2/2003
2,4,6-Tribromophenol (ASURR)	**85**	%	EPA 8270		12/2/2003	12/2/2003
Terphenyl d-16 (BNSURR)	**93**	%	EPA 8270		12/2/2003	12/2/2003
Total Petroleum Hydrocarbons						
Diesel and Residual Range Organics	ND	mg/L	EPA 8015B-M	2	12/3/2003	12/6/2003
o-Terphenyl (DRO SURR)	**38**	%	EPA 8015B-M		12/3/2003	12/6/2003
Total Petroleum Hydrocarbons						
Gasoline Range Organics	ND	ug/L	EPA 8015B	100		11/26/2003
TFT (SURR)	**95**	%	EPA 8015B			11/26/2003
Volatile Organic Compounds						
Benzene	ND	ug/L	EPA 8260	1		12/2/2003
Bromobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Bromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromodichloromethane	ND	ug/L	EPA 8260	1		12/2/2003
Bromoform	ND	ug/L	EPA 8260	1		12/2/2003
Bromomethane	ND	ug/L	EPA 8260	1		12/2/2003
Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
sec-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
tert-Butylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Carbon tetrachloride	ND	ug/L	EPA 8260	1		12/2/2003
Chlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003

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No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33 / 03112414-46						
Volatile Organic Compounds						
Chloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Chloroform	ND	ug/L	EPA 8260	1		12/2/2003
Chloromethane	ND	ug/L	EPA 8260	1		12/2/2003
2-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
4-Chlorotoluene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromochloromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dibromo-3-chloropropane	ND	ug/L	EPA 8260	1		12/2/2003
,2-Dibromoethane	ND	ug/L	EPA 8260	1		12/2/2003
Dibromomethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,4-Dichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
Dichlorodifluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
cis-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
trans-1,2-Dichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
1,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,3-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
2,2-Dichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,1-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Ethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Hexachlorobutadiene	ND	ug/L	EPA 8260	1		12/2/2003
Isopropylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
p-Isopropyltoluene	ND	ug/L	EPA 8260	1		12/2/2003
Methylene chloride	ND	ug/L	EPA 8260	1		12/2/2003
Naphthalene	ND	ug/L	EPA 8260	1		12/2/2003
n-Propylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Styrene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
1,1,2,2-Tetrachloroethane	ND	ug/L	EPA 8260	1		12/2/2003
etrachloroethene	ND	ug/L	EPA 8260	1		12/2/2003
Toluene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trichlorobenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,1,1-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003

OFFICES:
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33 / 03112414-46						
Volatile Organic Compounds						
1,1,2-Trichloroethane	ND	ug/L	EPA 8260	1		12/2/2003
Trichloroethene	ND	ug/L	EPA 8260	1		12/2/2003
1,2,3-Trichloropropane	ND	ug/L	EPA 8260	1		12/2/2003
1,2,4-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
1,3,5-Trimethylbenzene	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl chloride	ND	ug/L	EPA 8260	1		12/2/2003
m&p-Xylene	ND	ug/L	EPA 8260	3		12/2/2003
-Xylene	ND	ug/L	EPA 8260	3		12/2/2003
Methyl-t-butyl ether	ND	ug/L	EPA 8260	1		12/2/2003
2-Butanone (MEK)	ND	ug/L	EPA 8260	10		12/2/2003
2-Hexanone (MBK)	ND	ug/L	EPA 8260	10		12/2/2003
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	EPA 8260	10		12/2/2003
Acetone	ND	ug/L	EPA 8260	10		12/2/2003
Trichlorofluoromethane	ND	ug/L	EPA 8260	1		12/2/2003
Carbon disulfide	ND	ug/L	EPA 8260	1		12/2/2003
Vinyl acetate	ND	ug/L	EPA 8260	1		12/2/2003
2-Chloroethylvinyl ether	ND	ug/L	EPA 8260	1		12/2/2003
Cis-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Trans-1,3-Dichloropropene	ND	ug/L	EPA 8260	1		12/2/2003
Dibromofluoromethane (SURR)	**99**	%	EPA 8260			12/2/2003
Toluene d-8 (SURR)	**95**	%	EPA 8260			12/2/2003
4-Bromofluorobenzene (SURR)	**103**	%	EPA 8260			12/2/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-33 Dissolved / 03112414-47						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Arsenic	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Beryllium	**5.1**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Chromium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Copper	**44**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Lead	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
ercury	ND	ug/L	EPA 6020	1	12/2/2003	12/9/2003
Nickel	**83**	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Selenium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/2/2003	12/9/2003
Zinc	**180**	ug/L	EPA 6020	50	12/2/2003	12/9/2003

Reviewed By: Matt Cilu
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 124 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-34-05 / 03112414-48						
Percent Solids						
Percent Solids	**70**		Gravimetry			12/10/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Arsenic	**1.4**	mg/kg	EPA 6020	0.71	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Chromium	**6.3**	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
Copper	**4.8**	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Lead	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.14	12/1/2003	12/2/2003
Nickel	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.8	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	35	12/1/2003	12/2/2003

Reviewed By: Matt Oliver
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 125 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Soil

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-34-10 / 03112414-49						
Percent Solids						
Percent Solids	**72**		Gravimetry			12/10/2003
Priority Pollutant Metals						
Antimony	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Arsenic	**1.7**	mg/kg	EPA 6020	0.7	12/2/2003	12/3/2003
Beryllium	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Cadmium	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Chromium	**12**	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
opper	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Lead	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Mercury	ND	mg/kg	EPA 6020	0.14	12/1/2003	12/2/2003
Nickel	ND	mg/kg	EPA 6020	3.5	12/1/2003	12/2/2003
Selenium	ND	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
Silver	ND	mg/kg	EPA 6020	3.5	12/2/2003	12/3/2003
Thallium	ND	mg/kg	EPA 6020	2.8	12/1/2003	12/2/2003
Zinc	ND	mg/kg	EPA 6020	35	12/1/2003	12/2/2003

Reviewed By: Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.
Results reported on a dry weight basis where applicable.

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 126 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-34 / 03112414-50						
Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Arsenic	**20**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Beryllium	**26**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Cadmium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Chromium	**1,000**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Copper	**820**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Lead	**510**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Mercury	**1.9**	ug/L	EPA 6020	1	12/4/2003	12/9/2003
Nickel	**670**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Selenium	**33**	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Silver	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Thallium	ND	ug/L	EPA 6020	5	12/4/2003	12/9/2003
Zinc	**750**	ug/L	EPA 6020	50	12/4/2003	12/9/2003

Reviewed By: Matt Celice
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

CERTIFICATE OF ANALYSIS
No. 03112414 Page 127 of 127
Tetra Tech, Inc.
December 12, 2003

Project: Middle River Complex
Site Location: Middle River Complex
Project Number: N1605/0000
Matrix: Water

Date Sampled: 11/21/2003
Date Received: 11/24/2003

	Result	Unit	Method	PQL	Prepared	Analyzed
Sample ID: SB-34 Dissolved / 03112414-51						
Dissolved Priority Pollutant Metals						
Antimony	ND	ug/L	EPA 6020	5		12/9/2003
Arsenic	ND	ug/L	EPA 6020	5		12/9/2003
Beryllium	ND	ug/L	EPA 6020	5		12/9/2003
Cadmium	ND	ug/L	EPA 6020	5		12/9/2003
Chromium	ND	ug/L	EPA 6020	5		12/9/2003
Copper	ND	ug/L	EPA 6020	5		12/9/2003
Lead	ND	ug/L	EPA 6020	5		12/9/2003
ercury	ND	ug/L	EPA 6020	1		12/9/2003
Nickel	**71**	ug/L	EPA 6020	5		12/9/2003
Selenium	ND	ug/L	EPA 6020	5		12/9/2003
Silver	ND	ug/L	EPA 6020	5		12/9/2003
Thallium	ND	ug/L	EPA 6020	5		12/9/2003
Zinc	ND	ug/L	EPA 6020	50		12/9/2003

Reviewed By: Matt Cline
Quality Assurance Chemist

Notes/Comments:
PQL - Practical Quantitation Limit
ND - Not Detected at a concentration greater than or equal to the PQL.

03112414

TETRA TECH NUS, INC. | **CHAIN OF CUSTODY** | **NUMBER** 2131 | **PAGE** 1 **OF** ___

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N1605/0000	MIDDLE RIVER Complex	Nisha Bansil	916-276-7846	Phase Separation Science, Inc.
SAMPLERS (SIGNATURE)		**FIELD OPERATIONS LEADER**	**PHONE NUMBER**	**ADDRESS**
Charles C. Fry III		Charles Laney	301-528-3518	6630 Baltimore National Pike
		CARRIER/WAYBILL NUMBER		**CITY, STATE**
		Drop-Off		Baltimore, MD 21228

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G)
PRESERVATIVE USED

DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	DRO-EXTENDED (ICE-SOIL)	BTEX (HCL-WATER)	Naphthalene (ICE-SOIL)	(HCL-WATER)	(ICE-SOIL)	(HCL-WATER)			COMMENTS
11/19	0919	SB-11-05	SB-11	05	05	SO	G	1	X	X	X						
	1030	SB-11	SB-11	—	—	GW	G	3	X	X	X						
	1100	SB-12-05	SB-12	05	05	SO	G	1	X	X	X						NOTE: Soil Analysis for DRO Extended,
	1115	SB-12	SB-12	—	—	GW	G	3	X	X	X						BTEX & Naphthalene contained in
	1130	SB-13-05	SB-13	05	05	SO	G	1	X	X	X						1-4oz. Glass Jar.
	1144	SB-13	SB-13	—	—	GW	G	3	X	X	X						Water Analysis for DRO Extended
	1210	SB-14-05	SB-14	05	05	SO	G	1	X	X	X						Contained in 1-1L Amber w/HCL
	1220	SB-14	SB-14	—	—	GW	G	3	X	X	X						Water Analysis for BTEX contained
	1246	SB-15-05	SB-15	05	05	SO	G	1	X	X	X						in 1-40mL VOA w/HCL
	1256	SB-15	SB-15	—	—	GW	G	3	X	X	X						Water Analysis for Naphthalene
	1315	SB-16-05	SB-16	05	05	SO	G	1	X	X	X						Contained in 1-40mL VOA w/HCL
	1325	SB-16	SB-16	—	—	GW	G	3	X	X	X						
↓	1347	SB-17-05	SB-17	05	05	SO	G	1	X	X	X						

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Charles C. Fry III	11/24/03	2:05	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY	11/24/03	2:05

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 2132 03112414 | PAGE 2 OF ____

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N16ØS/ØØØØ	MIDDLE RIVER Complex	Nishi Bansal	916-276-7846	Phase Separation Science, Inc.
SAMPLERS (SIGNATURE)		**FIELD OPERATIONS LEADER**	**PHONE NUMBER**	**ADDRESS**
[signature]		Charles Laney	301-528-3018	6630 Baltimore National Pike
		CARRIER/WAYBILL NUMBER		**CITY, STATE**
		Drop-off		Baltimore, MD 21228

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G)
PRESERVATIVE USED

DATE YEAR 2ØØ3	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	DRO-EXTENDED (ICE-SOIL)	BTEX (HCL-WATER)	NAPHTHALENE (ICE-SOIL)	GRO (HCL-WATER)	VOCS (ICE-SOIL)	SVOCS/PCBS (ICE-SOIL)	Total Metals (ICE-SOIL WATER)	Dissolved Metals (HNO3-WATER)	COMMENTS
11/19	1357	SB-17	SB-17	—	—	GW	G	3	X	X	X						
	1430	SB-18-ØS	SB-18	ØS	ØS	SO	G	1	X	X	X						
	1540	SB-18	SB-18	—	—	GW	G	3	X	X	X						
11/20	Ø915	SB-1-ØS	SB-1	ØS	ØS	SO	G	2	X			X	X	X	X		1-4oz. DRO, GRO, VOCs 1-4oz. SVOCs, PCBs, metals
	Ø92Ø	SB-1-1Ø	SB-1	1Ø	1Ø	SO	G	2	X			X	X	X	X		
	Ø95Ø	SB-4-ØS	SB-4	ØS	ØS	SO	G	2	X			X	X	X	X		
	1ØØØ	SB-4-1Ø	SB-4	1Ø	1Ø	SO	G	2	X			X	X	X	X		
	1Ø15	SB-4	SB-4	—	—	GW	G	9	X			X	X	X	X	X	
	11ØS	SB-5-ØS	SB-5	ØS	ØS	SO	G	2	X			X	X	X	X		
	111Ø	SB-5-1Ø	SB-5	1Ø	1Ø	SO	G	2	X			X	X	X	X		
	115Ø	SB-2-ØS	SB-2	ØS	ØS	SO	G	2	X			X	X	X	X		
	12ØØ	SB-2-1Ø	SB-2	1Ø	1Ø	SO	G	2	X			X	X	X	X		
	121Ø	SB-2	SB-2	—	—	GW	G	9	X			X	X	X	X	X	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	11/24/03	205	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY [signature]	11/24/03	205

COMMENTS

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FORM NO. TtNUS-001

TRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 2133 03112414 | PAGE 3 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N1605 / 00000	MIDDLE RIVER COMPLEX	Nisha Bansal	916-276-7846	Phase Separation Science, INC.
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Charles C. Lney III		Charles Laney	301-528-3018	6630 Baltimore National Pike
		CARRIER/WAYBILL NUMBER		CITY, STATE
		Drop-off		Baltimore, MD 21228

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G)
PRESERVATIVE USED

TYPE OF ANALYSIS

DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	DRO-EXTENDED	GRO	VOCS	SVOCS/PCBS	TOTAL metals	Dissolved Metals	BTEX	Naphthalene	COMMENTS
11/20/03	1235	SB-3-05	SB-3	05	05	SO	G	2	X	X	X	X	X				
	1245	SB-3-10	SB-3	10	10	SO	G	2	X	X	X	X	X				
	1303	SB-6-05	SB-6	05	05	SO	G	2	X	X	X	X	X				
	1308	SB-6-10	SB-6	10	10	SO	G	2	X	X	X	X	X				
	1445	SB-6	SB-6	—	—	GW	G	9	X	X	X	X	X	X			
	1525	SB-20-05	SB-20	05	05	SO	G	1	X						X	X	
	1530	SB-20-10	SB-20	10	10	SO	G	1	X						X	X	
	1550	SB-21-05	SB-21	05	05	SO	G	1	X						X	X	
	1600	SB-21-10	SB-21	10	10	SO	G	1	X						X	X	
11/21/03	0920	SB-19-05	SB-19	05	05	SO	G	1	X						X	X	
	0930	SB-19-10	SB-19	10	10	SO	G	1	X						X	X	
	1030	SB-19	SB-19	—	—	GW	G	3	X						X	X	
	1235	SB-32-05	SB-32	05	05	SO	G	3	X	X	X	X	X				

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Charles C. Lney III	11/24/03	2:05	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY	11/24/03	2:05

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

03112414

TETRA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 2134 | PAGE 4 OF

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
N1605 10000	MIDDLE RIVER COMPLEX	Nisha Bansal	916-276-7846	Phase Separation Science, Inc.
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Charles C. Lazy III		Charles Lanzy	301-528-3918	6630 Baltimore National Pike
		CARRIER/WAYBILL NUMBER		CITY, STATE
		Drop-off		Baltimore, MD 21228

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G)

PRESERVATIVE USED

TYPE OF ANALYSIS

DATE YEAR 2003	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	DRO-EXTENDED	GRO	VOCs	SVOCs/PCBs	TOTAL Metals	Dissolved Metals			COMMENTS
11/21/03	1250	SB-32	SB-32	—	—	GW	G	9	X	X	X	X	X	X			
	1320	SB-33-05	SB-33	05	05	SO	G	3	X	X	X	X	X				
	1350	SB-33	SB-33	—	—	GW	G	9	X	X	X	X	X	X			
	1420	SB-34-05	SB-34	05	05	SO	G	2					X				
	1430	SB-34-10	SB-34	10	10	SO	G	2					X				
↓	1450	SB-34	SB-34	—	—	GW	G	2					X	X			

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Charles C. Lazy III	11/24/03	2:05			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME
				11/24/03	2:05

COMMENTS

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4/02R
FORM NO. TtNUS-001

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Volatile Organic Compounds

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS/LCSD Summary*
- *BFB Tune Summary*

6630 Baltimore National Pike Baltimore, MD 21228 (800) 932-9047 (410) 747-8770 FAX (410) 788-8723

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

VOLATILE ORGANIC COMPOUNDS
SYSTEM MONITORING COMPOUND RECOVERY
(SURROGATES)

ANALYSIS: GC/MS Volatiles **LAB CODE:** SURR

METHOD: EPA 8260 **MATRIX:** Water

Date/Time Analyzed	Sample ID / Lab ID	SMC-1 (DBF) #	SMC-2 (TOL) #	SMC-3 (BFB) #	Total Out
	Upper Limit	113	110	113	
	Lower Limit	84	83	67	
12/02/03 20:30	Calibration Verification	98	95	102	
12/02/03 20:55	Calibration Verification - MDE	98	95	101	
12/02/03 21:45	Method Blank	98	94	101	
12/03/03 04:51	LCS 25ppb	91	96	107	
12/02/03 22:11	SB-4 / 03112414-21	98	94	103	
12/02/03 22:35	SB-2 / 03112414-27	99	94	102	
12/02/03 23:01	SB-6 / 03112414-33	98	93	102	
12/02/03 23:26	SB-32 / 03112414-43	99	94	101	
12/02/03 23:50	SB-33 / 03112414-46	99	95	103	

	Water Control Limits	Soil Control Limits
SMC-1 (DBF): Dibromofluoromethane	84-113	74-131
SMC-2 (TOL): Toluene d-8	83-110	82-115
SMC-3 (BFB): Bromofluorobenzene	67-113	59-157

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate diluted out

2 1002

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VOLATILE ORGANIC COMPOUNDS
SYSTEM MONITORING COMPOUND RECOVERY
(SURROGATES)

ANALYSIS: GC/MS Volatiles **LAB CODE:** SURR

METHOD: EPA 8260 **MATRIX:** Soil

Date/Time Analyzed	Sample ID / Lab ID	SMC-1 (DBF) #	SMC-2 (TOL) #	SMC-3 (BFB) #	Total Out
	Upper Limit	131	115	157	
	Lower Limit	74	82	59	
12/03/03 10:59	Calibration Verification	98	98	106	
12/03/03 11:42	Calibration Verification - MDE	96	89	100	
12/03/03 12:37	Method Blank	95	98	103	
12/03/03 22:03	LCS 40ppb	102	96	99	
12/03/03 13:23	SB-1-05 / 03112414-17	99	98	106	
12/03/03 13:51	SB-1-10 / 03112414-18	99	98	105	
12/03/03 14:18	SB-4-05 / 03112414-19	98	97	105	
12/03/03 14:46	SB-4-10 / 03112414-20	102	97	99	
12/03/03 15:14	SB-5-05 / 03112414-23	98	100	101	
12/03/03 15:42	SB-5-10 / 03112414-24	100	98	100	
12/03/03 16:09	SB-2-05 / 03112414-25	99	98	103	
12/03/03 16:37	SB-2-10 / 03112414-26	101	97	102	
12/03/03 17:05	SB-3-05 / 03112414-29	98	98	101	
12/03/03 17:33	SB-3-10 / 03112414-30	94	99	101	
12/03/03 18:01	SB-6-05 / 03112414-31	99	100	100	
12/03/03 18:29	SB-6-10 / 03112414-32	100	98	100	
12/03/03 18:56	SB-32-05 / 03112414-42	100	99	103	
12/03/03 19:24	SB-33-05 / 03112414-45	101	99	101	

	Water Control Limits	Soil Control Limits
SMC-1 (DBF): Dibromofluoromethane	84-113	74-131
SMC-2 (TOL): Toluene d-8	83-110	82-115
SMC-3 (BFB): Bromofluorobenzene	67-113	59-157

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate diluted out

2 1003

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PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANIC COMPOUNDS
METHOD BLANK SUMMARY

ANALYSIS:	**GC/MS Volatiles**	**LAB CODE:**	**Method Blank**
METHOD:	**EPA 8260**	**LAB SAMPLE ID:**	**MBW**
LAB FILE ID:	**03120221.D**	**DATE/TIME ANALYZED:**	**12/02/03 21:45**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-4	03112414-21	03120222.D	12/2/03 22:11
SB-2	03112414-27	03120223.D	12/2/03 22:35
SB-6	03112414-33	03120224.D	12/2/03 23:01
SB-32	03112414-43	03120225.D	12/2/03 23:26
SB-33	03112414-46	03120226.D	12/2/03 23:50

2 1004

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120221.D Vial: 21
Acq On : 2 Dec 03 9:45 pm Operator: MI
Sample : METHOD BLANK 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:41 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.37	168	121930	50.00 ug/L	-0.02
19) 1,4-Difluorobenzene	5.10	114	226660	50.00 ug/L	-0.03
35) Chlorobenzene d-5	8.52	117	189098	50.00 ug/L	-0.02
46) 1,4-Dichlorobenzene d-4	11.71	152	76788	50.00 ug/L	-0.03
System Monitoring Compounds					
17) Dibromofluoromethane SS#1	4.35	113	100680	49.17 ug/L	-0.02
Spiked Amount 50.000			Recovery =	98.34%	
30) Toluene d-8 SS#2	6.74	98	247297	47.20 ug/L	-0.03
Spiked Amount 50.000			Recovery =	94.40%	
49) 4-Bromofluorobenzene SS#3	10.09	95	103882	50.32 ug/L	-0.03
Spiked Amount 50.000			Recovery =	100.64%	

Target Compounds			Qvalue
2) Dichlorodifluoromethane	0.00	85	Not Detected
3) Chloromethane	0.00	50	Not Detected
4) VINYL CHLORIDE	0.00	62	Not Detected
5) Bromomethane	0.00	94	Not Detected
6) Chloroethane	0.00	64	Not Detected
7) Trichlorofluoromethane	0.00	101	Not Detected
8) 1,1-DICHLOROETHENE	0.00	96	Not Detected
9) Methylene chloride	0.00	84	Not Detected
10) trans-1,2-Dichloroethene	0.00	96	Not Detected
11) Methyl-t-Butyl Ether	0.00	73	Not Detected
12) 1,1-Dichloroethane	0.00	63	Not Detected
13) 2,2-Dichloropropane	0.00	77	Not Detected
14) cis-1,2-Dichloroethene	0.00	96	Not Detected
15) Bromochloromethane	0.00	128	Not Detected
16) CHLOROFORM	0.00	83	Not Detected
18) 1,1,1-Trichloroethane	0.00	97	Not Detected
20) Carbon tetrachloride	0.00	117	Not Detected
21) 1,1-Dichloropropene	0.00	75	Not Detected
22) Benzene	0.00	78	Not Detected
23) 1,2-Dichloroethane	0.00	62	Not Detected
24) Trichloroethene	0.00	95	Not Detected
25) 1,2-DICHLOROPROPANE	0.00	63	Not Detected
26) Dibromomethane	0.00	93	Not Detected

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120221.D Vial: 21
Acq On : 2 Dec 03 9:45 pm Operator: MI
Sample : METHOD BLANK 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:41 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	Bromodichloromethane	0.00	83		Not Detected	
28)	2-Chloroethylvinyl Ether	0.00	63		Not Detected	
29)	cis-1,3-Dichloropropene	0.00	75		Not Detected	
31)	TOLUENE	0.00	92		Not Detected	
32)	trans-1,3-Dichloropropene	0.00	75		Not Detected	
33)	1,1,2-Trichloroethane	0.00	83		Not Detected	
34)	Tetrachloroethene	0.00	166		Not Detected	
36)	1,3-Dichloropropane	0.00	76		Not Detected	
37)	Dibromochloromethane	0.00	129		Not Detected	
38)	1,2-Dibromoethane	0.00	107		Not Detected	
39)	Chlorobenzene	0.00	112		Not Detected	
40)	1,1,1,2-Tetrachloroethane	0.00	131		Not Detected	
41)	ETHYLBENZENE	0.00	91		Not Detected	
42)	m&p-Xylene	0.00	106		Not Detected	
43)	o-Xylene	0.00	106		Not Detected	
44)	Styrene	0.00	104		Not Detected	
45)	Bromoform	0.00	173		Not Detected	
47)	Isopropylbenzene	0.00	105		Not Detected	
48)	1,2,3-Trichloropropane	0.00	110		Not Detected	
50)	Bromobenzene	0.00	156		Not Detected	
51)	1,1,2,2-Tetrachloroethane	0.00	83		Not Detected	
52)	n-Propylbenzene	0.00	91		Not Detected	
53)	2-Chlorotoluene	0.00	91		Not Detected	
54)	4-Chlorotoluene	0.00	91		Not Detected	
55)	1,3,5-Trimethylbenzene	0.00	105		Not Detected	
56)	tert-Butylbenzene	0.00	119		Not Detected	
57)	1,2,4-Trimethylbenzene	0.00	105		Not Detected	
58)	sec-Butylbenzene	0.00	105		Not Detected	
59)	1,3-Dichlorobenzene	0.00	146		Not Detected	
60)	4-Isopropyltoluene	0.00	119		Not Detected	
61)	1,4-Dichlorobenzene	0.00	146		Not Detected	
62)	1,2-Dichlorobenzene	0.00	146		Not Detected	
63)	n-Butylbenzene	0.00	91		Not Detected	
64)	1,2-Dibromo-3-chloropropan	0.00	75		Not Detected	
65)	1,2,4-Trichlorobenzene	0.00	180		Not Detected	
66)	Hexachlorobutadiene	0.00	225		Not Detected	
67)	Naphthalene	0.00	128		Not Detected	

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120221.D Vial: 21
Acq On : 2 Dec 03 9:45 pm Operator: MI
Sample : METHOD BLANK 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:41 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
68) 1,2,3-Trichlorobenzene	0.00	180		Not Detected	

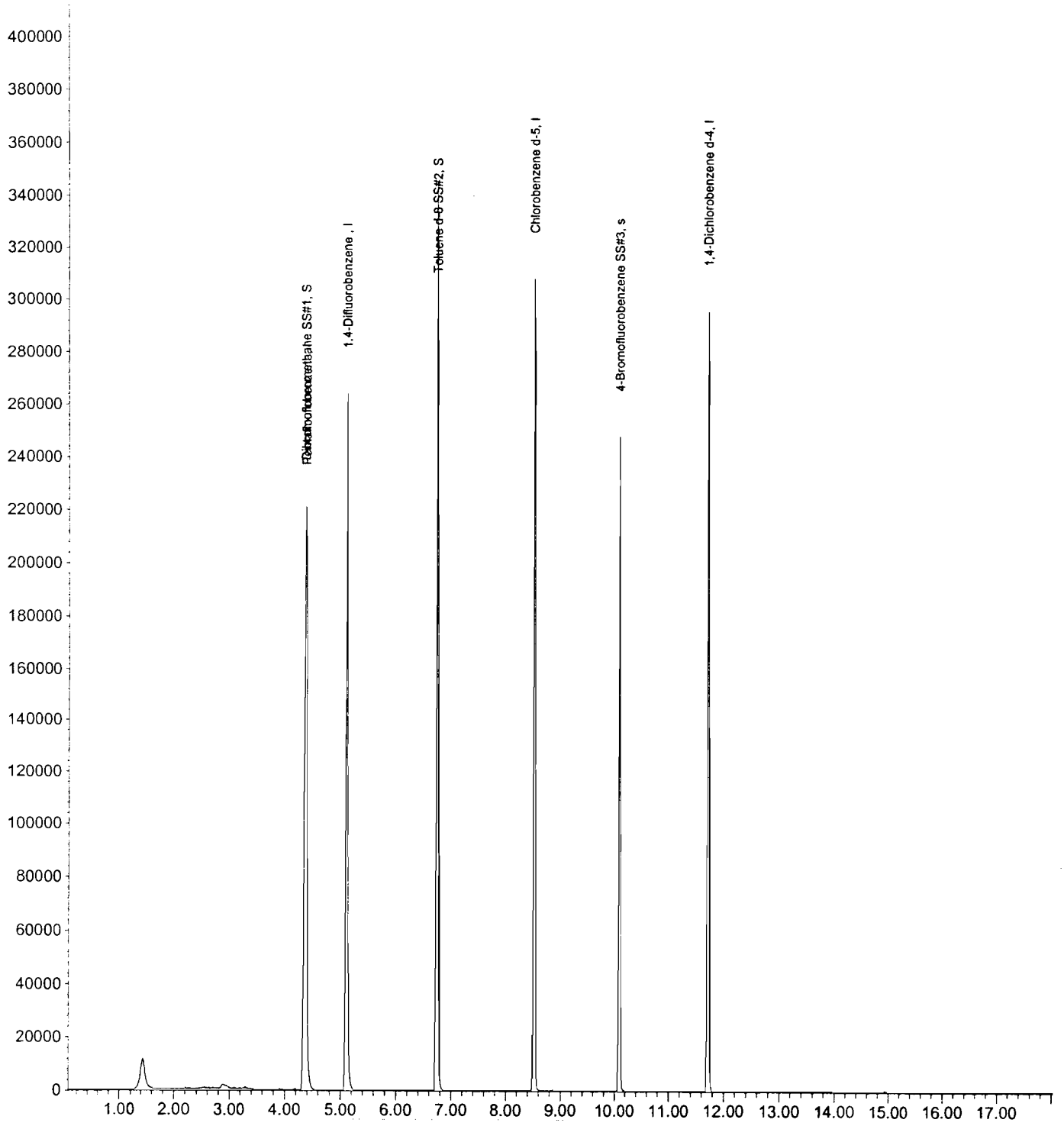
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031202\03120221.D Vial: 21
Acq On : 2 Dec 03 9:45 pm Operator: MI
Sample : METHOD BLANK 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:41 2003 Quant Results File: 8260-W.RES

Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration

TIC: 03120221.D



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ROUTE 40 WEST
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PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANIC COMPOUNDS
METHOD BLANK SUMMARY

ANALYSIS:	**GC/MS Volatiles**	**LAB CODE:**	**Method Blank**
METHOD:	**EPA 8260**	**LAB SAMPLE ID:**	**MBS**
LAB FILE ID:	**03120305.D**	**DATE/TIME ANALYZED:**	**12/03/03 12:37**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-1-05	03112414-17	03120306.D	12/3/03 13:23
SB-1-10	03112414-18	03120307.D	12/3/03 13:51
SB-4-05	03112414-19	03120308.D	12/3/03 14:18
SB-4-10	03112414-20	03120309.D	12/3/03 14:46
SB-5-05	03112414-23	03120310.D	12/3/03 15:14
SB-5-10	03112414-24	03120311.D	12/3/03 15:42
SB-2-05	03112414-25	03120312.D	12/3/03 16:09
SB-2-10	03112414-26	03120313.D	12/3/03 16:37
SB-3-05	03112414-29	03120314.D	12/3/03 17:05
SB-3-10	03112414-30	03120315.D	12/3/03 17:33
SB-6-05	03112414-31	03120316.D	12/3/03 18:01
SB-6-10	03112414-32	03120317.D	12/3/03 18:29
SB-32-05	03112414-42	03120318.D	12/3/03 18:56
SB-33-05	03112414-45	03120319.D	12/3/03 19:24

2 1069

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120305.D Vial: 5
Acq On : 3 Dec 03 12:37 pm Operator: MI
Sample : METHOD BLANK 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #287 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:36 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.37	168	110212	50.00 ug/L	0.00
18) 1,4-Difluorobenzene	5.10	114	206282	50.00 ug/L	-0.01
34) Chlorobenzene d-5	8.52	117	169722	50.00 ug/L	-0.01
45) 1,4-Dichlorobenzene d-4	11.70	152	68702	50.00 ug/L	-0.02
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.33	113	86898	47.31 ug/L	-0.01
Spiked Amount 50.000			Recovery =	94.62%	
29) Toluene d-8 SS#2	6.73	98	225788	48.91 ug/L	-0.01
Spiked Amount 50.000			Recovery =	97.82%	
48) 4-Bromofluorobenzene SS#3	10.09	95	91517	51.29 ug/L	-0.02
Spiked Amount 50.000			Recovery =	102.58%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	0.00	85		Not Detected	
3) Chloromethane	0.00	50		Not Detected	
4) VINYL CHLORIDE	0.00	62		Not Detected	
5) Bromomethane	0.00	94		Not Detected	
6) Chloroethane	0.00	64		Not Detected	
7) 1,1-DICHLOROETHENE	0.00	96		Not Detected	
8) Methylene chloride	2.86	84	8744	5.02 ug/L	92
9) trans-1,2-Dichloroethene	0.00	96		Not Detected	
10) Methyl-t-Butyl Ether	0.00	73		Not Detected	
11) 1,1-Dichloroethane	0.00	63		Not Detected	
12) 2,2-Dichloropropane	0.00	77		Not Detected	
13) cis-1,2-Dichloroethene	0.00	96		Not Detected	
14) Bromochloromethane	0.00	128		Not Detected	
15) CHLOROFORM	0.00	83		Not Detected	
17) 1,1,1-Trichloroethane	0.00	97		Not Detected	
19) Carbon tetrachloride	0.00	117		Not Detected	
20) 1,1-Dichloropropene	0.00	75		Not Detected	
21) Benzene	0.00	78		Not Detected	
22) 1,2-Dichloroethane	0.00	62		Not Detected	
23) Trichloroethene	0.00	95		Not Detected	
24) 1,2-DICHLOROPROPANE	0.00	63		Not Detected	
25) Dibromomethane	0.00	93		Not Detected	
26) Bromodichloromethane	0.00	83		Not Detected	

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120305.D Vial: 5
Acq On : 3 Dec 03 12:37 pm Operator: MI
Sample : METHOD BLANK 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #287 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:36 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

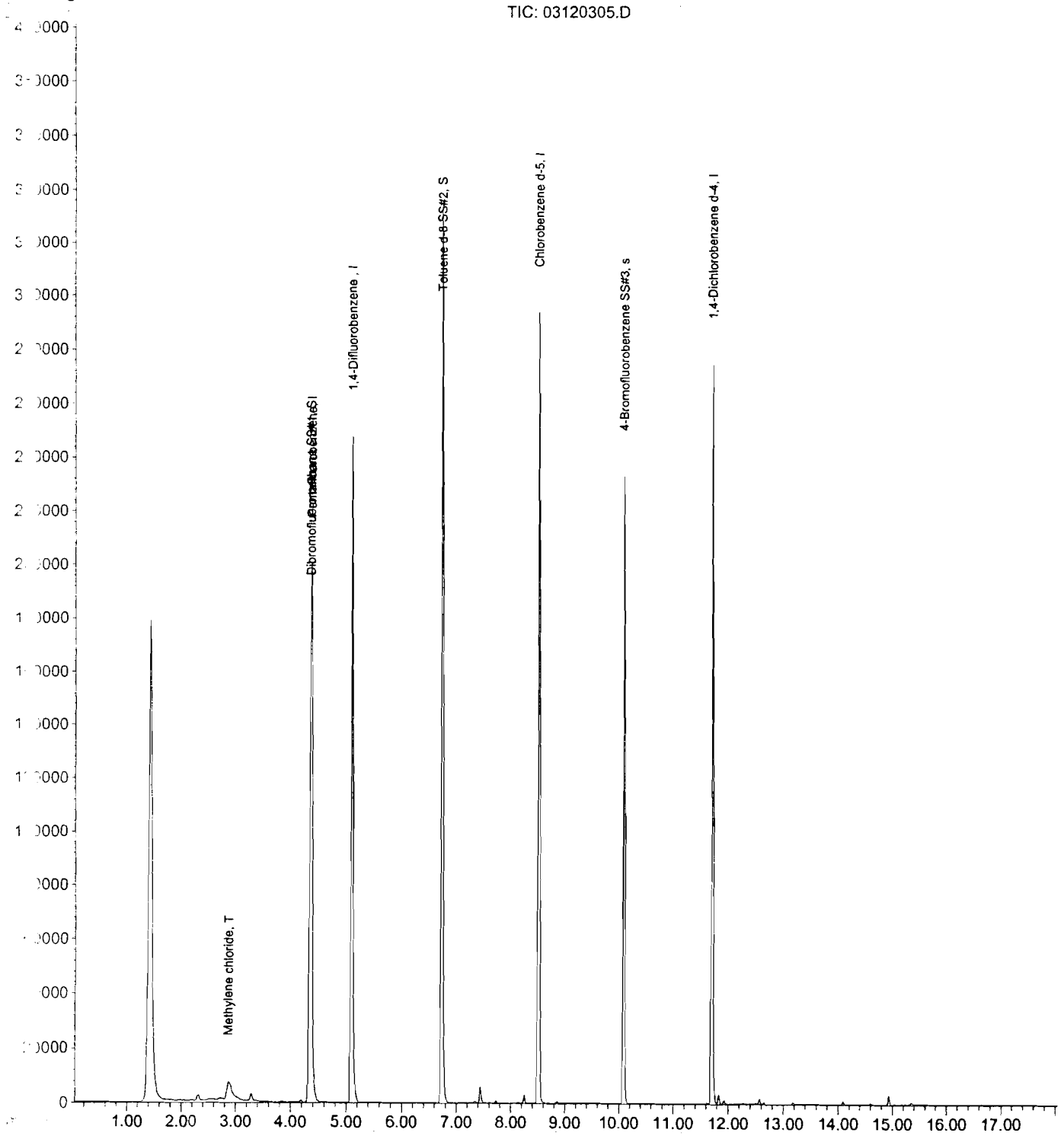
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
2[illegible]) 2-Chloroethylvinyl Ether	0.00	63		Not Detected	
2[illegible]) cis-1,3-Dichloropropene	0.00	75		Not Detected	
3[illegible]) TOLUENE	0.00	92		Not Detected	
3[illegible]) trans-1,3-Dichloropropene	0.00	75		Not Detected	
32) 1,1,2-Trichloroethane	0.00	83		Not Detected	
33) Tetrachloroethene	0.00	166		Not Detected	
35) 1,3-Dichloropropane	0.00	76		Not Detected	
36) Dibromochloromethane	0.00	129		Not Detected	
37) 1,2-Dibromoethane	0.00	107		Not Detected	
38) Chlorobenzene	0.00	112		Not Detected	
39) 1,1,1,2-Tetrachloroethane	0.00	131		Not Detected	
40) ETHYLBENZENE	0.00	91		Not Detected	
41) m&p-Xylene	0.00	106		Not Detected	
42) o-Xylene	0.00	106		Not Detected	
43) Styrene	0.00	104		Not Detected	
44) Bromoform	0.00	173		Not Detected	
45) Isopropylbenzene	0.00	105		Not Detected	
46) 1,2,3-Trichloropropane	0.00	110		Not Detected	
47) Bromobenzene	0.00	156		Not Detected	
50) 1,1,2,2-Tetrachloroethane	0.00	83		Not Detected	
51) n-Propylbenzene	0.00	91		Not Detected	
52) 2-Chlorotoluene	0.00	91		Not Detected	
53) 4-Chlorotoluene	0.00	91		Not Detected	
54) 1,3,5-Trimethylbenzene	0.00	105		Not Detected	
55) tert-Butylbenzene	0.00	119		Not Detected	
56) 1,2,4-Trimethylbenzene	0.00	105		Not Detected	
57) sec-Butylbenzene	0.00	105		Not Detected	
58) 1,3-Dichlorobenzene	0.00	146		Not Detected	
59) 4-Isopropyltoluene	0.00	119		Not Detected	
60) 1,4-Dichlorobenzene	0.00	146		Not Detected	
61) 1,2-Dichlorobenzene	0.00	146		Not Detected	
62) n-Butylbenzene	0.00	91		Not Detected	
63) 1,2-Dibromo-3-chloropropan	0.00	75		Not Detected	
64) 1,2,4-Trichlorobenzene	0.00	180		Not Detected	
65) Hexachlorobutadiene	0.00	225		Not Detected	
66) Naphthalene	0.00	128		Not Detected	
67) 1,2,3-Trichlorobenzene	0.00	180		Not Detected	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

ata File : C:\HPCHEM\2\DATA\031203\03120305.D Vial: 5
cq On : 3 Dec 03 12:37 pm Operator: MI
ample : METHOD BLANK 5mL Inst : GC/MS Ins
isc : IS/Surr 1uL #287 Multiplr: 1.00
S Integration Params: rteint.p
uant Time: Dec 5 19:36 2003 Quant Results File: 8260-S.RES

ethod : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
itle : 524.2 Purgable Organics
ast Update : Fri Oct 31 15:09:42 2003
esponse via : Initial Calibration



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120305.D Vial: 5
Acq On : 3 Dec 03 12:37 pm Operator: MI
Sample : METHOD BLANK 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #287 Multiplr: 1.00
IS Integration Params: rteint.p
Quant Time: Dec 5 19:37 2003 Quant Results File: MDES.RES

Quant Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:37:08 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.37	168	110212	50.00 ug/L	-0.02
2) 1,4-Difluorobenzene	5.10	114	206282	50.00 ug/L	-0.02
3) Chlorobenzene d-5	8.52	117	169722	50.00 ug/L	-0.02
4) 1,4-Dichlorobenzene d-4	11.70	152	68702	50.00 ug/L	-0.03
System Monitoring Compounds					
2) Dibromofluoromethane SS#1	4.33	113	86898	46.20 ug/L	-0.02
Spiked Amount 50.000			Recovery =	92.40%	
3) Toluene d-8 SS#2	6.73	98	225788	45.20 ug/L	-0.02
Spiked Amount 50.000			Recovery =	90.40%	
5) 4-Bromofluorobenzene SS#3	10.09	95	91517	50.05 ug/L	-0.02
Spiked Amount 50.000			Recovery =	100.10%	
Target Compounds					Qvalue
1) Dichlorodifluoromethane	0.00	85		Not Detected	
2) Chloromethane	0.00	50		Not Detected	
3) VINYL CHLORIDE	0.00	62		Not Detected	
4) Bromomethane	0.00	94		Not Detected	
6) Chloroethane	0.00	64		Not Detected	
7) Trichlorofluoromethane	0.00	101		Not Detected	
8) Acetone	0.00	43		Not Detected	
9) 1,1-DICHLOROETHENE	0.00	96		Not Detected	
10) 1,1,2-Trichlorotrifluoroet	0.00	101		Not Detected	
11) Carbon Disulfide	0.00	76		Not Detected	
12) Methyl Acetate	0.00	74		Not Detected	
13) Methylene chloride	0.00	84		Not Detected	
14) trans-1,2-Dichloroethene	0.00	96		Not Detected	
15) Methyl-t-Butyl Ether	0.00	73		Not Detected	
16) 1,1-Dichloroethane	0.00	63		Not Detected	
17) cis-1,2-Dichloroethene	0.00	96		Not Detected	
18) 2-Butanone (MEK)	0.00	43		Not Detected	
19) CHLOROFORM	0.00	83		Not Detected	
20) 1,1,1-Trichloroethane	0.00	97		Not Detected	
21) Cyclohexane	0.00	56		Not Detected	
22) Carbon tetrachloride	0.00	117		Not Detected	
23) Benzene	0.00	78		Not Detected	
24) 1,2-Dichloroethane	0.00	62		Not Detected	

(# = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

ata File : C:\HPCHEM\2\DATA\031203\03120305.D Vial: 5
q On : 3 Dec 03 12:37 pm Operator: MI
mple : METHOD BLANK 5mL Inst : GC/MS Ins
sc : IS/Surr 1uL #287 Multiplr: 1.00
3 Integration Params: rteint.p
ant Time: Dec 5 19:37 2003 Quant Results File: MDES.RES

ant Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
tle : 524.2 Purgable Organics
st Update : Wed Oct 01 16:37:08 2003
sponse via : Initial Calibration
taAcq Meth : RTX1VOA

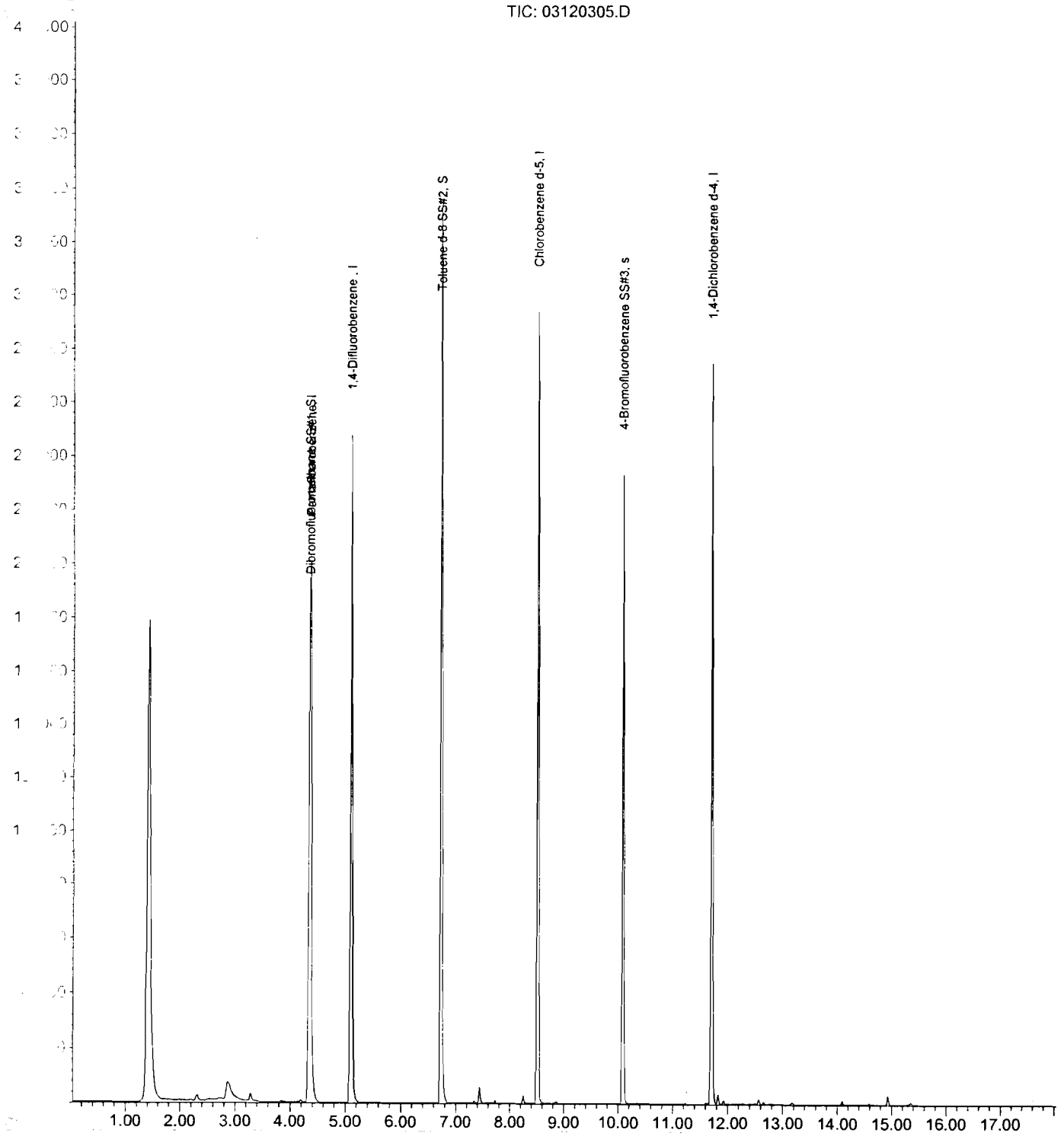
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
2	Trichloroethene	0.00	95		Not Detected	
2	1,2-DICHLOROPROPANE	0.00	63		Not Detected	
2	Methylcyclohexane	0.00	83		Not Detected	
3	Bromodichloromethane	0.00	83		Not Detected	
3	cis-1,3-Dichloropropene	0.00	75		Not Detected	
3	4-Methyl-2-Pentanone (MIBK	0.00	43		Not Detected	
3	TOLUENE	0.00	92		Not Detected	
3	trans-1,3-Dichloropropene	0.00	75		Not Detected	
3	1,1,2-Trichloroethane	0.00	83		Not Detected	
3	Tetrachloroethene	0.00	166		Not Detected	
3	2-Hexanone (MBK)	0.00	43		Not Detected	
4	Dibromochloromethane	0.00	129		Not Detected	
4	1,2-Dibromoethane	0.00	107		Not Detected	
4	Chlorobenzene	0.00	112		Not Detected	
4	ETHYLBENZENE	0.00	91		Not Detected	
4	m&p-Xylene	0.00	106		Not Detected	
4	o-Xylene	0.00	106		Not Detected	
4	Styrene	0.00	104		Not Detected	
4	Bromoform	0.00	173		Not Detected	
4	Isopropylbenzene	0.00	105		Not Detected	
5	1,1,2,2-Tetrachloroethane	0.00	83		Not Detected	
5	1,3-Dichlorobenzene	0.00	146		Not Detected	
5	1,4-Dichlorobenzene	0.00	146		Not Detected	
5	1,2-Dichlorobenzene	0.00	146		Not Detected	
5	1,2-Dibromo-3-chloropropan	0.00	75		Not Detected	
5	1,2,4-Trichlorobenzene	0.00	180		Not Detected	

(# = qualifier out of range (m) = manual integration

Quantitation Report

ta File : C:\HPCHEM\2\DATA\031203\03120305.D Vial: 5
g On : 3 Dec 03 12:37 pm Operator: MI
mple : METHOD BLANK 5mL Inst : GC/MS Ins
sc : IS/Surr 1uL #287 Multiplr: 1.00
Integration Params: rteint.p
ant Time: Dec 5 19:37 2003 Quant Results File: MDES.RES

thod : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
tle : 524.2 Purgable Organics
st Update : Wed Oct 01 16:37:08 2003
sponse via : Initial Calibration



Quantitation Report (QT Reviewed)

ta File : C:\HPCHEM\2\DATA\031203\03120305.D Vial: 5
q On : 3 Dec 03 12:37 pm Operator: MI
mple : METHOD BLANK 5mL Inst : GC/MS Ins
sc : IS/Surr 1uL #287 Multiplr: 1.00
Integration Params: rteint.p
ant Time: Dec 5 19:37 2003 Quant Results File: NEWMTH-S.RES

ant Method : C:\HPCHEM\2\METHODS\NEWMTH-S.M (RTE Integrator)
tle : 524.2 Purgable Organics
st Update : Wed Oct 01 16:44:06 2003
sponse via : Initial Calibration
taAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
Pentafluorobenzene	4.37	168	110212	50.00 ug/L	-0.02

System Monitoring Compounds

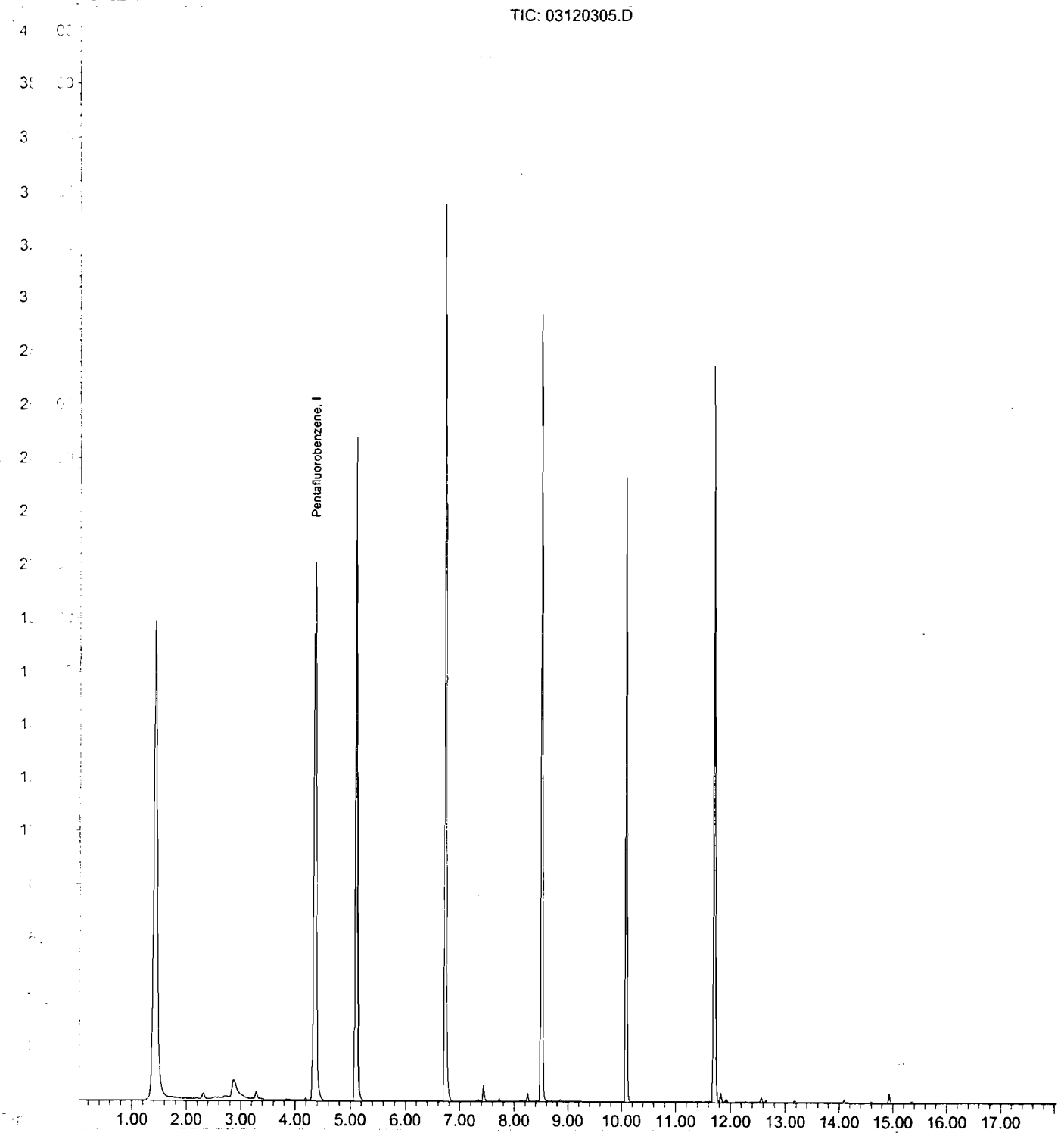
Target Compounds				Qvalue
Acetone	0.00	43	Not Detected	
tert-Butanol	0.00	59	Not Detected	
Isopropyl Ether	0.00	45	Not Detected	
tert-Butyl Ethyl Ether	0.00	59	Not Detected	
2-Butanone (MEK)	0.00	43	Not Detected	
tert-Amyl Methyl Ether	0.00	73	Not Detected	
4-Methyl-2-Pentanone (MIBK	0.00	43	Not Detected	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

a File : C:\HPCHEM\2\DATA\031203\03120305.D Vial: 5
On : 3 Dec 03 12:37 pm Operator: MI
ple : METHOD BLANK 5mL Inst : GC/MS Ins
c : IS/Surr 1uL #287 Multiplr: 1.00
Integration Params: rteint.p
ant Time: Dec 5 19:37 2003 Quant Results File: NEWMTH-S.RES

thod : C:\HPCHEM\2\METHODS\NEWMTH-S.M (RTE Integrator)
le : 524.2 Purgable Organics
t Update : Wed Oct 01 16:44:06 2003
ponse via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031202\03120218.D Vial: 18
Acq On : 2 Dec 03 8:30 pm Operator: MI
Sample : 8260-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 10uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
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	Pentaflourobenzene	1.000	1.000	0.0	66	-0.02
2	T	Dichlorodifluoromethane	0.802	0.790	1.5	66	0.00
3	T	Chloromethane	1.572	1.434	8.8	62	-0.05
4	T	VINYL CHLORIDE	1.180	1.079	8.6	62	-0.01
5	T	Bromomethane	0.815	0.792	2.8	67	-0.04
6	T	Chloroethane	0.643	0.623	3.1	64	-0.01
7	T	Trichlorofluoromethane	0.411	0.478	-16.3	73	-0.07
8	M	1,1-DICHLOROETHENE	0.716	0.696	2.8	66	-0.03
9	T	Methylene chloride	0.912	0.790	13.4	61	-0.02
10	T	trans-1,2-Dichloroethene	0.789	0.788	0.1	67	-0.01
11	T	Methyl-t-Butyl Ether	1.390	1.179	15.2	59	-0.02
1[illegible]	[illegible]	1,1-Dichloroethane	1.630	1.559	4.4	65	-0.02
1[illegible]	T	2,2-Dichloropropane	0.872	0.971	-11.4	76	-0.01
14	T	cis-1,2-Dichloroethene	0.806	0.774	4.0	65	-0.02
15	T	Bromochloromethane	0.362	0.340	6.1	63	-0.02
16	T	CHLOROFORM	1.412	1.354	4.1	65	-0.02
17	S	Dibromofluoromethane SS#1	0.840	0.825	1.8	64	-0.02
18	T	1,1,1-Trichloroethane	0.967	1.055	-9.1	74	-0.02
19	I	1,4-Difluorobenzene	1.000	1.000	0.0	64	-0.02
20	T	Carbon tetrachloride	0.394	0.450	-14.2	75	-0.02
21	T	1,1-Dichloropropene	0.537	0.538	-0.2	66	-0.02
22	M	Benzene	1.384	1.279	7.6	61	-0.02
23	T	1,2-Dichloroethane	0.591	0.553	6.4	62	-0.02
24	M	Trichloroethene	0.386	0.375	2.8	64	-0.02
25	T	1,2-DICHLOROPROPANE	0.430	0.386	10.2	59	-0.02
26	T	Dibromomethane	0.282	0.230	18.4	54	-0.03
27	T	Bromodichloromethane	0.507	0.490	3.4	64	-0.02
28	T	2-Chloroethylvinyl Ether	0.219	0.151	31.1#	44#	-0.02
29	T	cis-1,3-Dichloropropene	0.587	0.549	6.5	62	-0.02
30	S	Toluene d-8 SS#2	1.156	1.093	5.4	61	-0.02
31	M	TOLUENE	0.722	0.706	2.2	65	-0.02
32	T	trans-1,3-Dichloropropene	0.490	0.452	7.8	60	-0.02
33	T	1,1,2-Trichloroethane	0.265	0.209	21.1	53	-0.02
34	T	Tetrachloroethene	0.260	0.263	-1.2	67	-0.02
35	I	Chlorobenzene d-5	1.000	1.000	0.0	63	-0.02

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031202\03120218.D Vial: 18
Acq On : 2 Dec 03 8:30 pm Operator: MI
Sample : 8260-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 10uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
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)
36	T	1,3-Dichloropropane	0.623	0.512	17.8	54	-0.02
37	T	Dibromochloromethane	0.350	0.334	4.6	62	-0.03
38	T	1,2-Dibromoethane	0.377	0.326	13.5	57	-0.02
39	M	Chlorobenzene	0.903	0.915	-1.3	67	-0.02
40	T	1,1,1,2-Tetrachloroethane	0.300	0.316	-5.3	67	-0.02
41	T	ETHYLBENZENE	1.564	1.563	0.1	65	-0.03
42	T	m&p-Xylene	0.537	0.543	-1.1	66	-0.02
43	T	o-Xylene	0.529	0.527	0.4	65	-0.03
44	T	Styrene	0.959	0.948	1.1	64	-0.03
45	T	Bromoform	0.206	0.182	11.7	55	-0.02
4	[illegible]	1,4-Dichlorobenzene d-4	1.000	1.000	0.0	59	-0.02
4[illegible]	[illegible]	Isopropylbenzene	2.895	3.084	-6.5	65	-0.03
48	T	1,2,3-Trichloropropane	0.251	0.209	16.7	53	-0.02
49	s	4-Bromofluorobenzene SS#3	1.344	1.367	-1.7	60	-0.02
50	T	Bromobenzene	0.781	0.822	-5.2	65	-0.02
51	T	1,1,2,2-Tetrachloroethane	1.035	0.827	20.1	50#	-0.02
52	T	n-Propylbenzene	3.846	3.990	-3.7	64	-0.02
53	T	2-Chlorotoluene	2.478	2.641	-6.6	65	-0.02
54	T	4-Chlorotoluene	2.821	3.015	-6.9	66	-0.03
55	T	1,3,5-Trimethylbenzene	2.358	2.555	-8.4	66	-0.02
56	T	tert-Butylbenzene	1.648	1.721	-4.4	64	-0.03
57	T	1,2,4-Trimethylbenzene	2.458	2.626	-6.8	65	-0.02
58	T	sec-Butylbenzene	2.719	2.745	-1.0	62	-0.02
59	T	1,3-Dichlorobenzene	1.322	1.377	-4.2	64	-0.03
60	T	4-Isopropyltoluene	1.877	1.943	-3.5	63	-0.02
61	T	1,4-Dichlorobenzene	1.385	1.412	-1.9	64	-0.02
62	T	1,2-Dichlorobenzene	1.244	1.273	-2.3	63	-0.03
63	T	n-Butylbenzene	2.009	1.974	1.7	59	-0.02
64	T	1,2-Dibromo-3-chloropropane	0.118	0.099	16.1	52	-0.02
65	T	1,2,4-Trichlorobenzene	0.602	0.524	13.0	53	-0.03
66	T	Hexachlorobutadiene	0.211	0.196	7.1	58	-0.02
67	T	Naphthalene	1.168	0.807	30.9#	42#	-0.03
68	T	1,2,3-Trichlorobenzene	0.475	0.349	26.5#	44#	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120218.D Vial: 18
Acq On : 2 Dec 03 8:30 pm Operator: MI
Sample : 8260-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 10uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:39 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.37	168	124031	50.00 ug/L	-0.02
19) 1,4-Difluorobenzene	5.11	114	231458	50.00 ug/L	-0.02
35) Chlorobenzene d-5	8.52	117	193151	50.00 ug/L	-0.02
46) 1,4-Dichlorobenzene d-4	11.72	152	77440	50.00 ug/L	-0.02
System Monitoring Compounds					
17) Dibromofluoromethane SS#1	4.35	113	102322	49.12 ug/L	-0.02
Spiked Amount 50.000			Recovery =	98.24%	
30) Toluene d-8 SS#2	6.74	98	252931	47.27 ug/L	-0.02
Spiked Amount 50.000			Recovery =	94.54%	
49) 4-Bromofluorobenzene SS#3	10.10	95	105835	50.83 ug/L	-0.02
Spiked Amount 50.000			Recovery =	101.66%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.59	85	98033	49.28 ug/L	100
3) Chloromethane	1.68	50	177856	45.60 ug/L	99
4) VINYL CHLORIDE	1.81	62	133875	45.74 ug/L	97
5) Bromomethane	1.97	94	98250	48.57 ug/L	99
6) Chloroethane	2.02	64	77307	48.44 ug/L	94
7) Trichlorofluoromethane	2.14	101	59268m	58.14 ug/L	0
8) 1,1-DICHLOROETHENE	2.55	96	86327	48.63 ug/L	97
9) Methylene chloride	2.88	84	98001	43.32 ug/L	96
10) trans-1,2-Dichloroethene	3.10	96	97684	49.92 ug/L	100
11) Methyl-t-Butyl Ether	3.09	73	146279	42.42 ug/L	100
12) 1,1-Dichloroethane	3.42	63	193320	47.82 ug/L	99
13) 2,2-Dichloropropane	3.94	77	120397	55.66 ug/L	99
14) cis-1,2-Dichloroethene	3.92	96	95944	47.99 ug/L	99
15) Bromochloromethane	4.14	128	42203	46.94 ug/L #	88
16) CHLOROFORM	4.20	83	167959	47.95 ug/L	99
18) 1,1,1-Trichloroethane	4.40	97	130880	54.57 ug/L #	45
20) Carbon tetrachloride	4.57	117	104271	57.19 ug/L	99
21) 1,1-Dichloropropene	4.54	75	124629	50.14 ug/L	99
22) Benzene	4.75	78	295955	46.20 ug/L	98
23) 1,2-Dichloroethane	4.75	62	127915	46.77 ug/L	98
24) Trichloroethene	5.40	95	86779	48.63 ug/L	98
25) 1,2-DICHLOROPROPANE	5.62	63	89333	44.88 ug/L	99
26) Dibromomethane	5.74	93	53266	40.87 ug/L	96

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120218.D Vial: 18
Acq On : 2 Dec 03 8:30 pm Operator: MI
Sample : 8260-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 10uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:39 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	Bromodichloromethane	5.92	83	113464	48.38 ug/L	99
28)	2-Chloroethylvinyl Ether	6.24	63	34836	34.35 ug/L	99
29)	cis-1,3-Dichloropropene	6.42	75	126967	46.76 ug/L	99
31)	TOLUENE	6.82	92	163380	48.92 ug/L	96
32)	trans-1,3-Dichloropropene	7.07	75	104559	46.06 ug/L	99
33)	1,1,2-Trichloroethane	7.29	83	48447	39.50 ug/L	98
34)	Tetrachloroethene	7.49	166	60866	50.49 ug/L	99
36)	1,3-Dichloropropane	7.49	76	98926	41.08 ug/L	100
37)	Dibromochloromethane	7.77	129	64491	47.75 ug/L	99
38)	1,2-Dibromoethane	7.92	107	62893	43.22 ug/L	100
39)	Chlorobenzene	8.56	112	176739	50.69 ug/L	99
40)	1,1,1,2-Tetrachloroethane	8.67	131	60983	52.61 ug/L	99
41)	ETHYLBENZENE	8.71	91	301822	49.95 ug/L	98
42)	m&p-Xylene	8.87	106	209799	101.09 ug/L	97
43)	o-Xylene	9.39	106	101727	49.77 ug/L	98
44)	Styrene	9.41	104	183154	49.41 ug/L	97
45)	Bromoform	9.64	173	35141	44.20 ug/L	99
47)	Isopropylbenzene	9.90	105	238807	53.25 ug/L	98
48)	1,2,3-Trichloropropane	10.35	110	16223	41.71 ug/L	100
50)	Bromobenzene	10.29	156	63687	52.63 ug/L	97
51)	1,1,2,2-Tetrachloroethane	10.30	83	64020	39.94 ug/L	100
52)	n-Propylbenzene	10.48	91	309014	51.87 ug/L	98
53)	2-Chlorotoluene	10.57	91	204545	53.29 ug/L	98
54)	4-Chlorotoluene	10.72	91	233497	53.43 ug/L	100
55)	1,3,5-Trimethylbenzene	10.73	105	197862	54.18 ug/L	99
56)	tert-Butylbenzene	11.17	119	133280	52.22 ug/L	98
57)	1,2,4-Trimethylbenzene	11.25	105	203363	53.42 ug/L	99
58)	sec-Butylbenzene	11.49	105	212605	50.49 ug/L	99
59)	1,3-Dichlorobenzene	11.62	146	106635	52.07 ug/L	99
60)	4-Isopropyltoluene	11.71	119	150459	51.76 ug/L	98
61)	1,4-Dichlorobenzene	11.75	146	109380	50.98 ug/L	100
62)	1,2-Dichlorobenzene	12.27	146	98554	51.14 ug/L	99
63)	n-Butylbenzene	12.29	91	152874	49.13 ug/L	98
64)	1,2-Dibromo-3-chloropropan	13.38	75	7657	41.93 ug/L	99
65)	1,2,4-Trichlorobenzene	14.60	180	40590	43.52 ug/L	98
66)	Hexachlorobutadiene	14.89	225	15179	46.40 ug/L #	100
67)	Naphthalene	14.94	128	62476	34.55 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120218.D Vial: 18
Acq On : 2 Dec 03 8:30 pm Operator: MI
Sample : 8260-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 10uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:39 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
68) 1,2,3-Trichlorobenzene	15.31	180	27054	36.77 ug/L	99

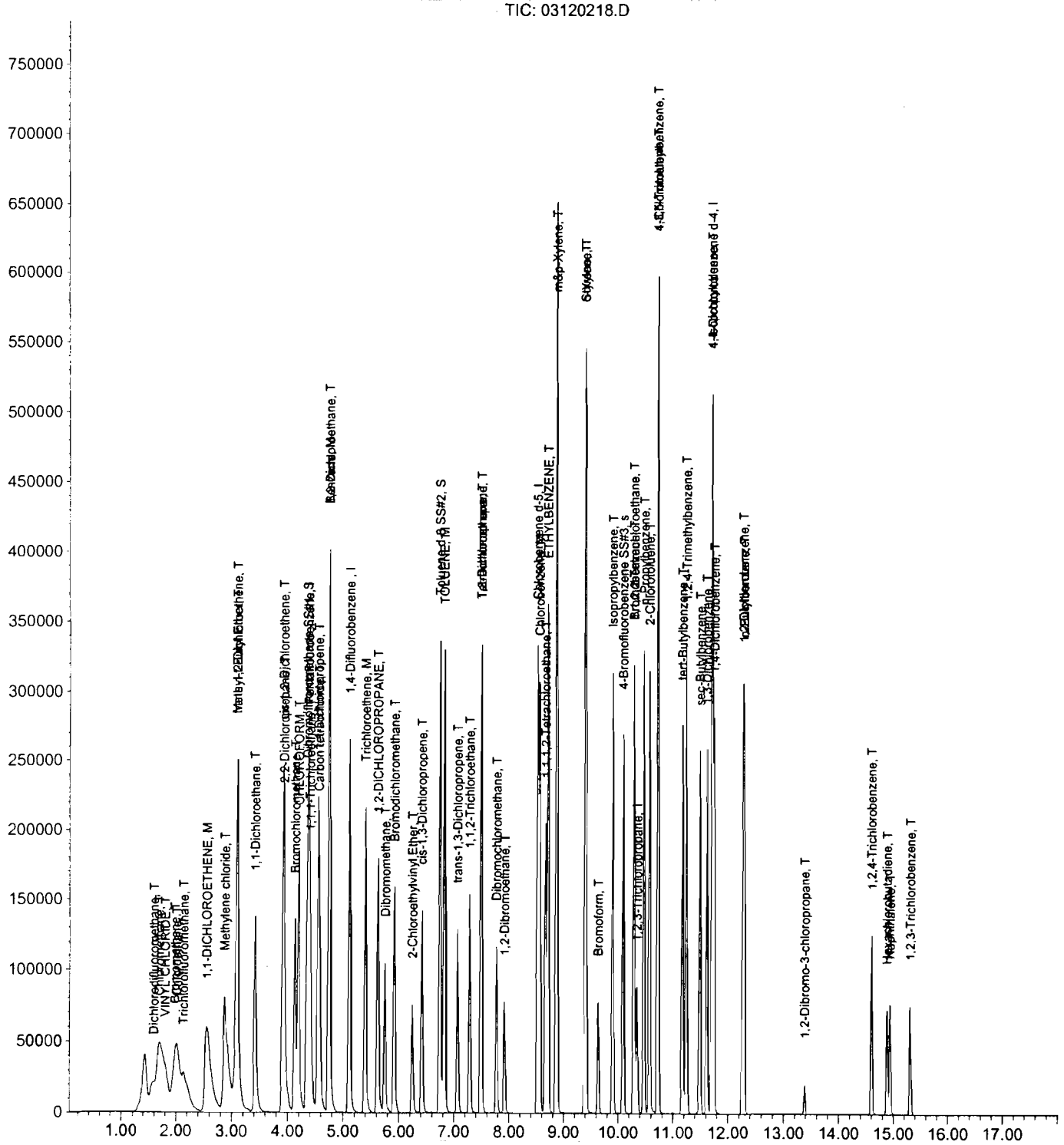
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031202\03120218.D Vial: 18
Acq On : 2 Dec 03 8:30 pm Operator: MI
Sample : 8260-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 10uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:39 2003 Quant Results File: 8260-W.RES

Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration

TIC: 03120218.D



Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031202\03120219.D Vial: 19
Acq On : 2 Dec 03 8:55 pm Operator: MI
Sample : MDE-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 20uL #237 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:11:32 2003
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	Pentaflourobenzene	1.000	1.000	0.0	63	-0.02
2	T	Dichlorodifluoromethane	0.707	0.696	1.6	66	-0.02
3	T	Chloromethane	1.576	1.383	12.2	59	-0.04
4	T	VINYL CHLORIDE	1.161	1.018	12.3	58	-0.02
5	T	Bromomethane	0.819	0.766	6.5	63	-0.02
6	T	Chloroethane	0.663	0.606	8.6	60	0.00
7	T	Trichlorofluoromethane	0.439	0.535	-21.9	78	-0.07
8	T	Acetone	0.224	0.162	27.7#	59	-0.01
9	M	1,1-DICHLOROETHENE	0.731	0.698	4.5	64	-0.05
10	T	1,1,2-Trichlorotrifluoroeth	0.645	0.646	-0.2	64	-0.02
11	T	Carbon Disulfide	2.875	2.723	5.3	62	-0.06
	T	Methyl Acetate	0.086	0.064	25.6#	49#	-0.02
13	T	Methylene chloride	0.963	0.785	18.5	59	-0.03
14	T	trans-1,2-Dichloroethene	0.788	0.756	4.1	64	-0.02
15	T	Methyl-t-Butyl Ether	1.332	1.294	2.9	65	-0.02
16	T	1,1-Dichloroethane	1.656	1.527	7.8	61	-0.02
17	T	cis-1,2-Dichloroethene	0.800	0.744	7.0	62	-0.02
18	T	2-Butanone (MEK)	0.317	0.236	25.6#	49#	-0.02
19	T	CHLOROFORM	1.430	1.350	5.6	63	-0.02
20	S	Dibromofluoromethane SS#1	0.842	0.825	2.0	62	-0.02
21	T	1,1,1-Trichloroethane	0.978	1.048	-7.2	72	-0.02
22	T	Cyclohexane	1.415	1.215	14.1	57	-0.02
23	I	1,4-Difluorobenzene	1.000	1.000	0.0	60	-0.02
24	T	Carbon tetrachloride	0.393	0.452	-15.0	74	-0.02
25	M	Benzene	1.399	1.268	9.4	58	-0.02
26	T	1,2-Dichloroethane	0.580	0.559	3.6	61	-0.02
27	M	Trichloroethene	0.387	0.369	4.7	60	-0.02
28	T	1,2-DICHLOROPROPANE	0.439	0.383	12.8	55	-0.02
29	T	Methylcyclohexane	0.388	0.353	9.0	57	-0.02
30	T	Bromodichloromethane	0.501	0.495	1.2	61	-0.02
31	T	cis-1,3-Dichloropropene	0.572	0.561	1.9	61	-0.02
32	T	4-Methyl-2-Pentanone (MIBK)	0.410	0.310	24.4	47#	-0.02
33	S	Toluene d-8 SS#2	1.159	1.104	4.7	57	-0.02
34	M	TOLUENE	0.728	0.701	3.7	61	-0.02
	T	trans-1,3-Dichloropropene	0.481	0.463	3.7	59	-0.02
36	T	1,1,2-Trichloroethane	0.264	0.216	18.2	51	-0.02

(#) = Out of Range

2 1024

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031202\03120219.D Vial: 19
Acq On : 2 Dec 03 8:55 pm Operator: MI
Sample : MDE-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 20uL #237 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:11:32 2003
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)
37	T	Tetrachloroethene	0.263	0.262	0.4	64	-0.02
38	T	2-Hexanone (MBK)	0.244	0.192	21.3	48#	-0.02
39	I	Chlorobenzene d-5	1.000	1.000	0.0	59	-0.02
40	T	Dibromochloromethane	0.342	0.355	-3.8	62	-0.02
41	T	1,2-Dibromoethane	0.372	0.331	11.0	54	-0.02
42	M	Chlorobenzene	0.912	0.904	0.9	62	-0.02
43	T	ETHYLBENZENE	1.577	1.572	0.3	62	-0.02
44	T	m&p-Xylene	0.537	0.539	-0.4	62	-0.02
45	T	o-Xylene	0.534	0.529	0.9	60	-0.02
46	T	Styrene	0.966	0.965	0.1	61	-0.02
4	T	Bromoform	0.196	0.191	2.6	56	-0.02
48	I	1,4-Dichlorobenzene d-4	1.000	1.000	0.0	56	-0.02
49	T	Isopropylbenzene	2.960	3.081	-4.1	62	-0.02
50	s	4-Bromofluorobenzene SS#3	1.346	1.355	-0.7	57	-0.02
51	T	1,1,2,2-Tetrachloroethane	1.017	0.845	16.9	48#	-0.02
52	T	1,3-Dichlorobenzene	1.297	1.361	-4.9	62	-0.02
53	T	1,4-Dichlorobenzene	1.388	1.393	-0.4	61	-0.02
54	T	1,2-Dichlorobenzene	1.241	1.246	-0.4	59	-0.02
55	T	1,2-Dibromo-3-chloropropane	0.110	0.107	2.7	53	-0.02
56	T	1,2,4-Trichlorobenzene	0.589	0.572	2.9	57	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120219.D Vial: 19
Acq On : 2 Dec 03 8:55 pm Operator: MI
Sample : MDE-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 20uL #237 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:40 2003 Quant Results File: MDE-W.RES

Quant Method : C:\HPCHEM\2\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:11:32 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.37	168	123523	50.00 ug/L	-0.02
23) 1,4-Difluorobenzene	5.11	114	229060	50.00 ug/L	-0.02
39) Chlorobenzene d-5	8.52	117	188384	50.00 ug/L	-0.02
48) 1,4-Dichlorobenzene d-4	11.71	152	77519	50.00 ug/L	-0.02
System Monitoring Compounds					
20) Dibromofluoromethane SS#1	4.34	113	101959	49.00 ug/L	-0.02
Spiked Amount 50.000			Recovery =	98.00%	
33) Toluene d-8 SS#2	6.73	98	252986	47.65 ug/L	-0.02
Spiked Amount 50.000			Recovery =	95.30%	
50) 4-Bromofluorobenzene SS#3	10.09	95	105023	50.32 ug/L	-0.02
Spiked Amount 50.000			Recovery =	100.64%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.58	85	85998	49.25 ug/L	100
3) Chloromethane	1.69	50	170856	43.89 ug/L	100
4) VINYL CHLORIDE	1.80	62	125734	43.84 ug/L	97
5) Bromomethane	1.99	94	94560	46.72 ug/L	99
6) Chloroethane	2.03	64	74851	45.72 ug/L	97
7) Trichlorofluoromethane	2.14	101	66081m	60.97 ug/L	0
8) Acetone	2.51	43	20043	49.97 ug/L	96
9) 1,1-DICHLOROETHENE	2.53	96	86233	47.77 ug/L	96
10) 1,1,2-Trichlorotrifluoroet	2.54	101	79837	50.07 ug/L	95
11) Carbon Disulfide	2.76	76	336310	47.35 ug/L	99
12) Methyl Acetate	2.76	74	7866	36.97 ug/L	96
13) Methylene chloride	2.87	84	96998	40.76 ug/L	96
14) trans-1,2-Dichloroethene	3.09	96	93430	47.97 ug/L	99
15) Methyl-t-Butyl Ether	3.09	73	159881	48.60 ug/L	100
16) 1,1-Dichloroethane	3.41	63	188594	46.10 ug/L	98
17) cis-1,2-Dichloroethene	3.92	96	91890	46.50 ug/L	97
18) 2-Butanone (MEK)	3.90	43	29113	37.15 ug/L	97
19) CHLOROFORM	4.20	83	166759	47.22 ug/L	100
21) 1,1,1-Trichloroethane	4.40	97	129463	53.58 ug/L #	46
22) Cyclohexane	4.47	56	150081	42.94 ug/L	97
24) Carbon tetrachloride	4.57	117	103593	57.53 ug/L	99
5) Benzene	4.75	78	290505	45.32 ug/L	98
26) 1,2-Dichloroethane	4.75	62	128106	48.25 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120219.D Vial: 19
Acq On : 2 Dec 03 8:55 pm Operator: MI
Sample : MDE-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 20uL #237 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:40 2003 Quant Results File: MDE-W.RES

Quant Method : C:\HPCHEM\2\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:11:32 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	Trichloroethene	5.39	95	84420	47.64 ug/L	98
28)	1,2-DICHLOROPROPANE	5.62	63	87708	43.62 ug/L	99
29)	Methylcyclohexane	5.62	83	80952	45.58 ug/L	99
30)	Bromodichloromethane	5.91	83	113452	49.44 ug/L	99
31)	cis-1,3-Dichloropropene	6.41	75	128424	49.04 ug/L	99
32)	4-Methyl-2-Pentanone (MIBK	6.59	43	70997	37.82 ug/L	96
34)	TOLUENE	6.82	92	160484	48.15 ug/L	98
35)	trans-1,3-Dichloropropene	7.06	75	106120	48.20 ug/L	100
36)	1,1,2-Trichloroethane	7.28	83	49566	40.97 ug/L	96
37)	Tetrachloroethene	7.49	166	59982	49.79 ug/L	98
38)	2-Hexanone (MBK)	7.61	43	44005	39.44 ug/L	99
40)	Dibromochloromethane	7.77	129	66792	51.86 ug/L	100
41)	1,2-Dibromoethane	7.91	107	62301	44.42 ug/L	100
42)	Chlorobenzene	8.56	112	170342	49.55 ug/L	100
43)	ETHYLBENZENE	8.71	91	296058	49.82 ug/L	99
44)	m&p-Xylene	8.87	106	203247	100.51 ug/L	97
45)	o-Xylene	9.39	106	99586	49.51 ug/L	98
46)	Styrene	9.40	104	181737	49.92 ug/L	95
47)	Bromoform	9.63	173	35962	48.69 ug/L	99
49)	Isopropylbenzene	9.90	105	238833	52.05 ug/L	98
51)	1,1,2,2-Tetrachloroethane	10.30	83	65539	41.55 ug/L	99
52)	1,3-Dichlorobenzene	11.61	146	105519	52.48 ug/L	100
53)	1,4-Dichlorobenzene	11.75	146	107958	50.17 ug/L	99
54)	1,2-Dichlorobenzene	12.26	146	96617	50.22 ug/L	99
55)	1,2-Dibromo-3-chloropropan	13.38	75	8302	48.70 ug/L	98
56)	1,2,4-Trichlorobenzene	14.60	180	44334	48.59 ug/L	100

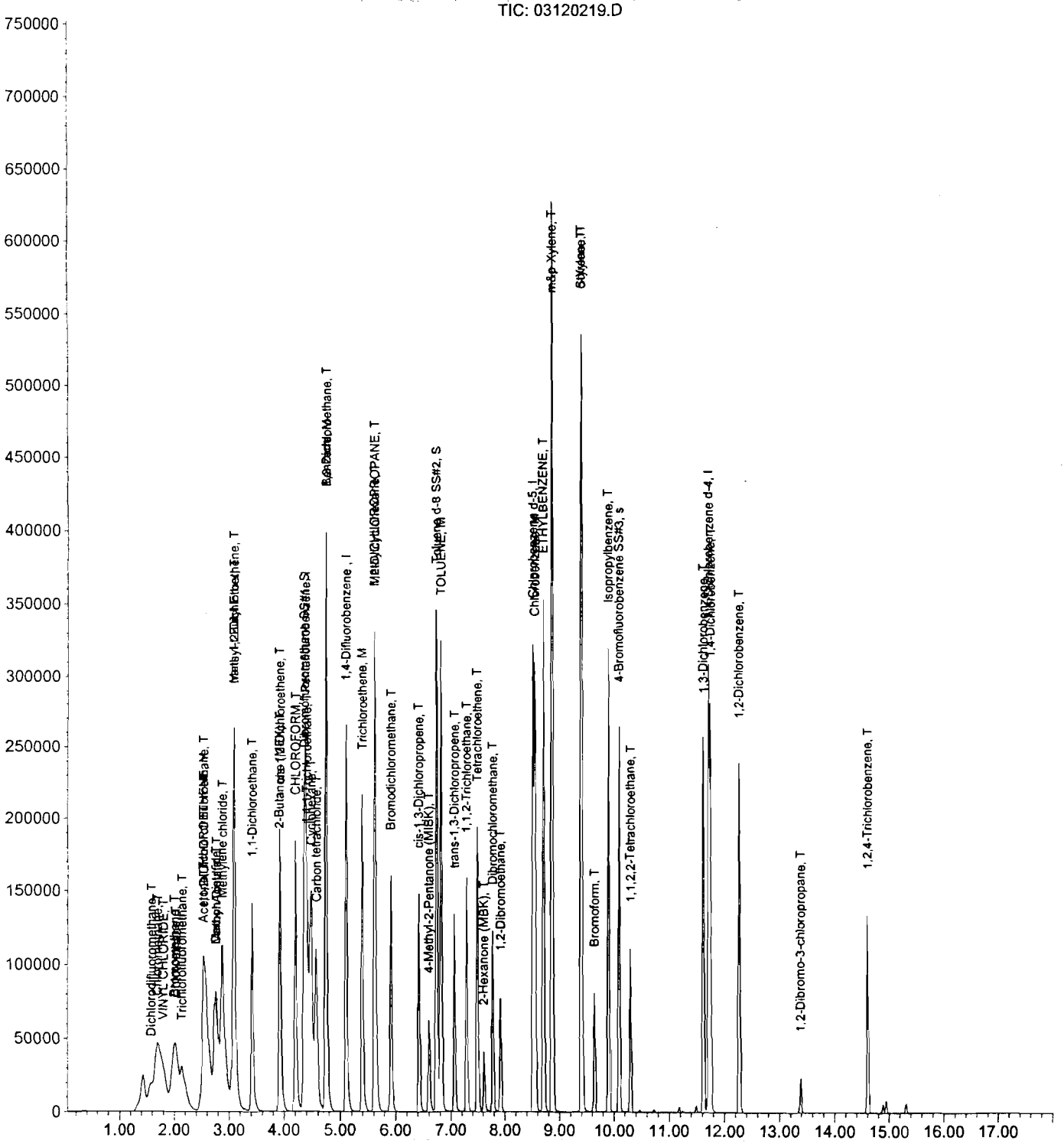
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031202\03120219.D Vial: 19
Acq On : 2 Dec 03 8:55 pm Operator: MI
Sample : MDE-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 20uL #237 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:40 2003 Quant Results File: MDE-W.RES

Method : C:\HPCHEM\2\METHODS\MDE-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:11:32 2003
Response via : Initial Calibration

TIC: 03120219.D



2 1998

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120220.D Vial: 20
Acq On : 2 Dec 03 9:20 pm Operator: MI
Sample : NEWMIX-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 10uL #238/239 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:41 2003 Quant Results File: NEWMTH-W.RES

Quant Method : C:\HPCHEM\2\METHODS\NEWMTH-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Thu Nov 06 11:00:55 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	4.37	168	123283	50.00 ug/L	-0.02

System Monitoring Compounds

Target Compounds					Qvalue
2) Acrolein	2.43	56	7663	52.27 ug/L #	100
3) Acetone	2.52	43	22264	58.62 ug/L	93
4) Iodomethane	2.67	142	145746	51.70 ug/L	92
5) tert-Butanol	2.97	59	8609	44.78 ug/L	100
6) Acrylonitrile	3.03	53	22825	41.98 ug/L	99
7) Vinyl Acetate	3.43	43	356037	42.88 ug/L	100
8) Isopropyl Ether	3.46	45	396334	49.01 ug/L #	93
9) tert-Butyl Ethyl Ether	3.79	59	246010	49.07 ug/L	97
10) 2-Butanone (MEK)	3.90	43	36398	39.20 ug/L	97
11) tert-Amyl Methyl Ether	4.86	73	181845	45.93 ug/L	97
12) 4-Methyl-2-Pentanone (MIBK	6.59	43	80576	37.58 ug/L	95
13) t-1,4-Dichloro-2-butene	10.38	75	14320	51.81 ug/L	90

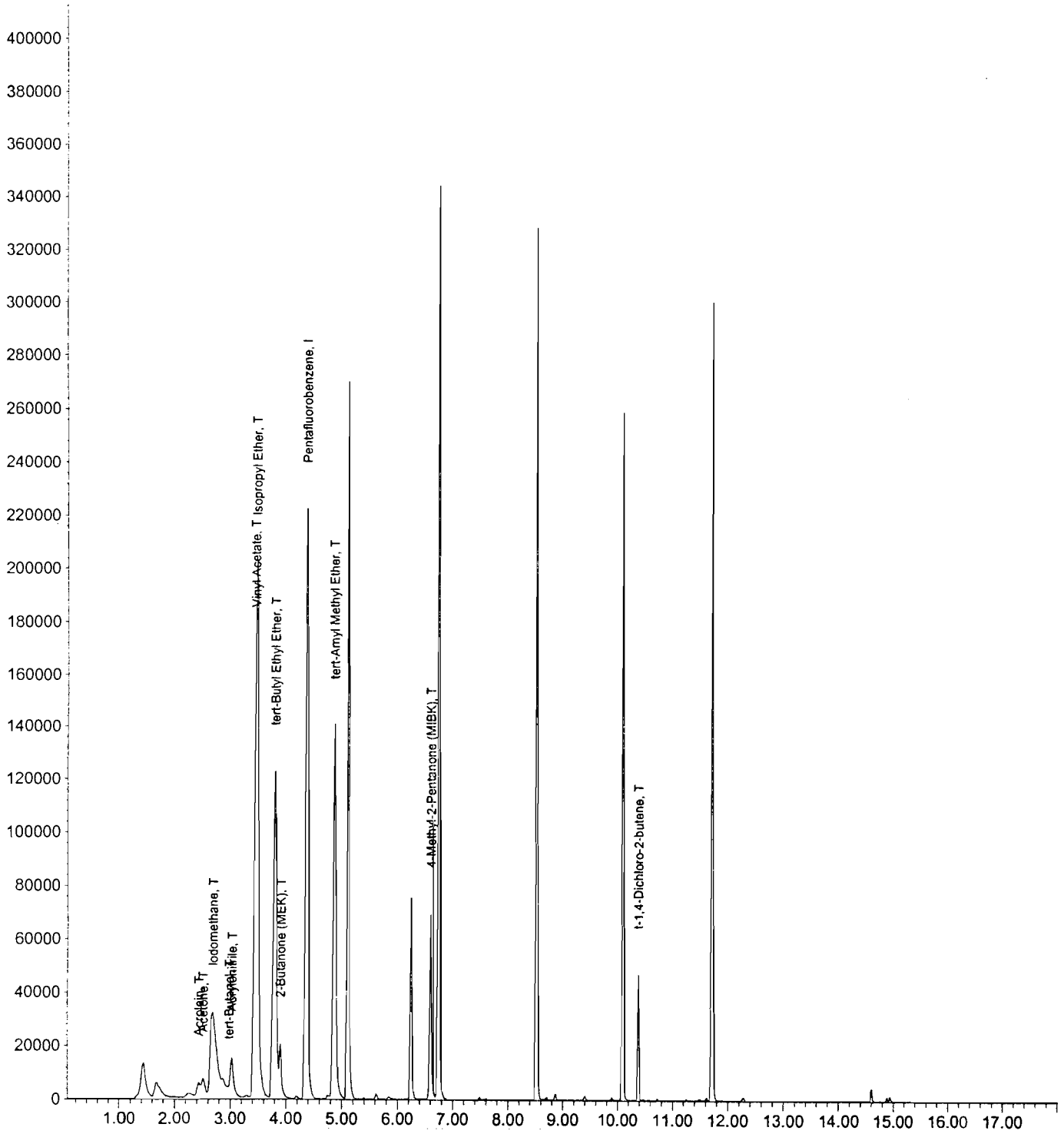
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031202\03120220.D Vial: 20
Acq On : 2 Dec 03 9:20 pm Operator: MI
Sample : NEWMIX-W CCV 50ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, CCV 10uL #238/239 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:41 2003 Quant Results File: NEWMTH-W.RES

Method : C:\HPCHEM\2\METHODS\NEWMTH-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Thu Nov 06 11:00:55 2003
Response via : Initial Calibration

TIC: 03120220.D



2 1030

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031203\03120302.D Vial: 2
Acq On : 3 Dec 03 10:59 am Operator: MI
Sample : 8260-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 2uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
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	Pentaflourobenzene	1.000	1.000	0.0	88	0.00
2	T	Dichlorodifluoromethane	0.849	0.922	-8.6	103	0.00
3	T	Chloromethane	1.420	1.534	-8.0	100	-0.02
4	T	VINYL CHLORIDE	0.935	1.109	-18.6	108	0.03
5	T	Bromomethane	0.744	0.809	-8.7	100	0.00
6	T	Chloroethane	0.550	0.637	-15.8	104	0.00
7	M	1,1-DICHLOROETHENE	0.685	0.738	-7.7	98	0.00
8	T	Methylene chloride	0.952	0.941	1.2	93	0.00
9	T	trans-1,2-Dichloroethene	0.757	0.833	-10.0	99	0.00
10	T	Methyl-t-Butyl Ether	1.462	1.629	-11.4	99	-0.01
11	T	1,1-Dichloroethane	1.634	1.666	-2.0	93	0.00
	T	2,2-Dichloropropane	0.967	1.042	-7.8	99	0.00
13	T	cis-1,2-Dichloroethene	0.864	0.849	1.7	89	0.00
14	T	Bromochloromethane	0.427	0.400	6.3	83	-0.01
15	T	CHLOROFORM	1.519	1.490	1.9	90	0.00
16	S	Dibromofluoromethane SS#1	0.833	0.819	1.7	87	-0.01
17	T	1,1,1-Trichloroethane	1.077	1.156	-7.3	99	-0.01
18	I	1,4-Difluorobenzene	1.000	1.000	0.0	87	-0.01
19	T	Carbon tetrachloride	0.463	0.507	-9.5	100	-0.01
20	T	1,1-Dichloropropene	0.560	0.611	-9.1	100	-0.01
21	M	Benzene	1.434	1.428	0.4	89	-0.01
22	T	1,2-Dichloroethane	0.690	0.728	-5.5	93	-0.01
23	M	Trichloroethene	0.421	0.428	-1.7	93	-0.01
24	T	1,2-DICHLOROPROPANE	0.450	0.438	2.7	87	-0.01
25	T	Dibromomethane	0.335	0.323	3.6	83	-0.01
26	T	Bromodichloromethane	0.579	0.585	-1.0	90	-0.02
27	T	2-Chloroethylvinyl Ether	0.301	0.294	2.3	81	-0.01
28	T	cis-1,3-Dichloropropene	0.674	0.675	-0.1	89	-0.01
29	S	Toluene d-8 SS#2	1.119	1.101	1.6	86	-0.01
30	M	TOLUENE	0.845	0.817	3.3	94	-0.02
31	T	trans-1,3-Dichloropropene	0.610	0.628	-3.0	90	-0.01
32	T	1,1,2-Trichloroethane	0.315	0.300	4.8	83	-0.02
33	T	Tetrachloroethene	0.318	0.325	-2.2	95	-0.02
	I	Chlorobenzene d-5	1.000	1.000	0.0	85	-0.02
35	T	1,3-Dichloropropane	0.732	0.744	-1.6	87	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031203\03120302.D Vial: 2
Acq On : 3 Dec 03 10:59 am Operator: MI
Sample : 8260-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 2uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
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)
36	T	Dibromochloromethane	0.463	0.472	-1.9	87	-0.01
37	T	1,2-Dibromoethane	0.490	0.497	-1.4	87	-0.02
38	M	Chlorobenzene	1.035	1.069	-3.3	92	-0.02
39	T	1,1,1,2-Tetrachloroethane	0.373	0.376	-0.8	87	-0.02
40	T	ETHYLBENZENE	1.773	1.913	-7.9	97	-0.02
41	T	m&p-Xylene	0.616	0.649	-5.4	94	-0.02
42	T	o-Xylene	0.609	0.624	-2.5	90	-0.02
43	T	Styrene	1.123	1.143	-1.8	89	-0.02
44	T	Bromoform	0.324	0.325	-0.3	84	-0.02
45	I	1,4-Dichlorobenzene d-4	1.000	1.000	0.0	80	-0.02
	T	Isopropylbenzene	3.626	3.977	-9.7	94	-0.02
47	T	1,2,3-Trichloropropane	0.386	0.409	-6.0	86	-0.02
48	s	4-Bromofluorobenzene SS#3	1.299	1.376	-5.9	86	-0.02
49	T	Bromobenzene	0.954	0.982	-2.9	87	-0.02
50	T	1,1,2,2-Tetrachloroethane	1.446	1.599	-10.6	89	-0.02
51	T	n-Propylbenzene	4.907	5.487	-11.8	96	-0.02
52	T	2-Chlorotoluene	2.948	3.289	-11.6	95	-0.03
53	T	4-Chlorotoluene	3.329	3.730	-12.0	95	-0.02
54	T	1,3,5-Trimethylbenzene	3.113	3.405	-9.4	93	-0.02
55	T	tert-Butylbenzene	2.361	2.585	-9.5	93	-0.02
56	T	1,2,4-Trimethylbenzene	3.199	3.439	-7.5	92	-0.03
57	T	sec-Butylbenzene	4.232	4.578	-8.2	92	-0.03
58	T	1,3-Dichlorobenzene	1.690	1.747	-3.4	88	-0.02
59	T	4-Isopropyltoluene	2.926	3.174	-8.5	92	-0.03
60	T	1,4-Dichlorobenzene	2.072	1.759	15.1	83	-0.03
61	T	1,2-Dichlorobenzene	1.619	1.613	0.4	83	-0.02
62	T	n-Butylbenzene	3.418	3.706	-8.4	92	-0.03
63	T	1,2-Dibromo-3-chloropropane	0.264	0.306	-15.9	89	-0.02
64	T	1,2,4-Trichlorobenzene	1.134	1.169	-3.1	86	-0.02
65	T	Hexachlorobutadiene	0.533	0.564	-5.8	89	-0.02
66	T	Naphthalene	2.538	2.630	-3.6	84	-0.02
67	T	1,2,3-Trichlorobenzene	1.043	1.064	-2.0	86	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration

Calibration Files
C1 =03103102.D C2 =03103103.D C3 =03103104.D
C4 =03103105.D C5 =03103106.D C6 =03103107.D

		Compound	C1	C2	C3	C4	C5	C6	Avg	%RSD
1)	I	Pentaflourobenzene	----------ISTD----------							
2)	T	Dichlorodifluoromet	0.794	0.955	0.941	0.783	0.817	0.804	0.849	9.14
3)	T	Chloromethane	1.398	1.494	1.602	1.350	1.391	1.285	1.420	7.91
4)	T	VINYL CHLORIDE	0.930	1.132	1.121	0.898	0.833	0.695	0.935	18.06
5)	T	Bromomethane	0.771	0.866	0.851	0.712	0.710	0.552	0.744	15.43
6)	T	Chloroethane	0.524	0.648	0.650	0.539	0.541	0.401	0.550	16.80
7)	M	1,1-DICHLOROETHENE	0.637	0.757	0.763	0.662	0.679	0.615	0.685	9.04
8)	T	Methylene chloride		1.179	1.053	0.886	0.872	0.769	0.952	17.08
9)	T	trans-1,2-Dichloroe	0.735	0.824	0.823	0.738	0.754	0.670	0.757	7.77
10)	T	Methyl-t-Butyl Ethe	1.514	1.726	1.526	1.445	1.355	1.205	1.462	12.01
11)	T	1,1-Dichloroethane	1.616	1.804	1.715	1.572	1.617	1.480	1.634	6.89
12)	T	2,2-Dichloropropane	0.959	1.065	1.058	0.920	0.939	0.862	0.967	8.26
13)	T	cis-1,2-Dichloroeth	0.836	0.974	0.900	0.838	0.855	0.781	0.864	7.62
14)	T	Bromochloromethane	0.409	0.470	0.442	0.422	0.424	0.398	0.427	5.97
[illegible])	T	CHLOROFORM	1.491	1.723	1.564	1.453	1.488	1.397	1.519	7.48
16)	S	Dibromofluoromethan	0.837	0.819	0.834	0.829	0.839	0.843	0.833	1.06
17)	T	1,1,1-Trichloroetha	1.038	1.156	1.156	1.028	1.069	1.013	1.077	5.95
18)	I	1,4-Difluorobenzene	----------ISTD----------							
19)	T	Carbon tetrachlorid	0.437	0.497	0.502	0.442	0.464	0.438	0.463	6.45
20)	T	1,1-Dichloropropene	0.561	0.636	0.596	0.534	0.538	0.496	0.560	8.89
21)	M	Benzene	1.420	1.635	1.494	1.398	1.382	1.276	1.434	8.45
22)	T	1,2-Dichloroethane	0.664	0.793	0.705	0.685	0.667	0.627	0.690	8.21
23)	M	Trichloroethene	0.420	0.487	0.441	0.403	0.403	0.374	0.421	9.30
24)	T	1,2-DICHLOROPROPANE	0.437	0.524	0.464	0.438	0.434	0.405	0.450	9.02
25)	T	Dibromomethane	0.314	0.382	0.343	0.338	0.324	0.309	0.335	7.88
26)	T	Bromodichloromethan	0.531	0.653	0.596	0.569	0.574	0.549	0.579	7.38
27)	T	2-Chloroethylvinyl	0.300	0.321	0.317	0.317	0.277	0.274	0.301	6.95
28)	T	cis-1,3-Dichloropro	0.635	0.772	0.690	0.660	0.654	0.633	0.674	7.73
29)	S	Toluene d-8 SS#2	1.105	1.113	1.133	1.119	1.119	1.125	1.119	0.87
30)	M	TOLUENE	1.065	0.943	0.844	0.755	0.753	0.711	0.845	16.09
31)	T	trans-1,3-Dichlorop	0.555	0.696	0.630	0.613	0.593	0.576	0.610	8.10
32)	T	1,1,2-Trichloroetha	0.307	0.366	0.324	0.315	0.298	0.283	0.315	9.02
33)	T	Tetrachloroethene	0.340	0.359	0.335	0.298	0.296	0.279	0.318	9.87
34)	I	Chlorobenzene d-5	----------ISTD----------							
35)	T	1,3-Dichloropropane	0.721	0.848	0.745	0.730	0.700	0.649	0.732	8.99
[illegible])	T	Dibromochloromethan	0.412	0.524	0.462	0.462	0.464	0.455	0.463	7.75
[illegible])	T	1,2-Dibromoethane	0.462	0.569	0.489	0.486	0.471	0.461	0.490	8.27

(#) = Out of Range

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration

Calibration Files
C1 =03103102.D C2 =03103103.D C3 =03103104.D
C4 =03103105.D C5 =03103106.D C6 =03103107.D

		Compound	C1	C2	C3	C4	C5	C6	Avg	%RSD
38)	M	Chlorobenzene	1.008	1.182	1.060	0.995	1.000	0.965	1.035	7.59
39)	T	1,1,1,2-Tetrachloro	0.348	0.413	0.379	0.367	0.373	0.357	0.373	6.06
40)	T	ETHYLBENZENE	1.735	2.034	1.834	1.683	1.706	1.647	1.773	8.04
41)	T	m&p-Xylene	0.625	0.725	0.652	0.589	0.578	0.529	0.616	11.02
42)	T	o-Xylene	0.597	0.711	0.640	0.589	0.584	0.532	0.609	9.98
43)	T	Styrene	1.076	1.309	1.178	1.094	1.084	0.997	1.123	9.62
44)	T	Bromoform	0.277	0.362	0.329	0.331	0.324	0.321	0.324	8.52
45)	I	1,4-Dichlorobenzene d	----------ISTD----------							
46)	T	Isopropylbenzene	3.456	4.174	3.673	3.387	3.483	3.586	3.626	7.90
47)	T	1,2,3-Trichloroprop	0.379	0.451	0.374	0.381	0.355	0.375	0.386	8.63
48)	s	4-Bromofluorobenzen	1.258	1.309	1.279	1.281	1.295	1.370	1.299	2.98
49)	T	Bromobenzene	0.933	1.106	0.958	0.906	0.913	0.910	0.954	8.03
50)	T	1,1,2,2-Tetrachloro	1.408	1.692	1.411	1.453	1.344	1.367	1.446	8.75
51)	T	n-Propylbenzene	4.686	5.613	5.026	4.587	4.673	4.857	4.907	7.74
52)	T	2-Chlorotoluene	2.845	3.411	2.978	2.777	2.840	2.839	2.948	8.01
53)	T	4-Chlorotoluene	3.260	3.885	3.441	3.160	3.163	3.064	3.329	9.04
54)	T	1,3,5-Trimethylbenz	3.032	3.546	3.239	2.949	2.991	2.919	3.113	7.73
55)	T	tert-Butylbenzene	2.230	2.606	2.447	2.240	2.319	2.325	2.361	6.05
56)	T	1,2,4-Trimethylbenz	3.085	3.627	3.290	3.009	3.066	3.118	3.199	7.19
57)	T	sec-Butylbenzene	4.029	4.692	4.441	3.998	4.113	4.120	4.232	6.50
58)	T	1,3-Dichlorobenzene	1.667	1.916	1.724	1.594	1.629	1.612	1.690	7.08
59)	T	4-Isopropyltoluene	2.768	3.245	3.090	2.769	2.862	2.820	2.926	6.73
60)	T	1,4-Dichlorobenzene	3.233	2.277	1.921	1.705	1.668	1.627	2.072	29.82
61)	T	1,2-Dichlorobenzene	1.552	1.790	1.683	1.565	1.593	1.529	1.619	6.14
62)	T	n-Butylbenzene	3.223	3.783	3.656	3.243	3.353	3.248	3.418	7.07
63)	T	1,2-Dibromo-3-chlor	0.247	0.286	0.261	0.276	0.249	0.265	0.264	5.72
64)	T	1,2,4-Trichlorobenz	1.030	1.334	1.235	1.094	1.052	1.059	1.134	10.79
65)	T	Hexachlorobutadiene	0.487	0.621	0.572	0.512	0.502	0.505	0.533	9.75
66)	T	Naphthalene	2.318	2.949	2.675	2.520	2.310	2.456	2.538	9.57
67)	T	1,2,3-Trichlorobenz	0.972	1.244	1.130	0.997	0.951	0.961	1.043	11.36

(#) = Out of Range

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120302.D Vial: 2
Acq On : 3 Dec 03 10:59 am Operator: MI
Sample : 8260-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 2uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 11:19 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.37	168	117215	50.00 ug/L	0.00
18) 1,4-Difluorobenzene	5.10	114	217637	50.00 ug/L	-0.01
34) Chlorobenzene d-5	8.51	117	180224	50.00 ug/L	-0.02
45) 1,4-Dichlorobenzene d-4	11.70	152	74436	50.00 ug/L	-0.02
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.33	113	95967	49.12 ug/L	-0.01
Spiked Amount 50.000			Recovery	= 98.24%	
29) Toluene d-8 SS#2	6.73	98	239515	49.17 ug/L	-0.01
Spiked Amount 50.000			Recovery	= 98.34%	
48) 4-Bromofluorobenzene SS#3	10.09	95	102456	53.00 ug/L	-0.02
Spiked Amount 50.000			Recovery	= 106.00%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.56	85	172917	86.88 ug/L	100
3) Chloromethane	1.69	50	287777	86.46 ug/L	99
4) VINYL CHLORIDE	1.79	62	208017	122.43 ug/L	99
5) Bromomethane	1.99	94	151673	86.08 ug/L	100
6) Chloroethane	2.01	64	119375	88.94 ug/L	99
7) 1,1-DICHLOROETHENE	2.55	96	138374	86.11 ug/L	95
8) Methylene chloride	2.86	84	176416	95.27 ug/L	98
9) trans-1,2-Dichloroethene	3.09	96	156183	87.97 ug/L	97
10) Methyl-t-Butyl Ether	3.08	73	305571	89.17 ug/L	100
11) 1,1-Dichloroethane	3.41	63	312480	81.58 ug/L	99
12) 2,2-Dichloropropane	3.93	77	195418	86.20 ug/L	98
13) cis-1,2-Dichloroethene	3.92	96	159229	78.62 ug/L	99
14) Bromochloromethane	4.13	128	75103	74.96 ug/L	95
15) CHLOROFORM	4.20	83	279425	78.45 ug/L	100
17) 1,1,1-Trichloroethane	4.39	97	216792	85.89 ug/L #	76
19) Carbon tetrachloride	4.56	117	176503	87.54 ug/L	100
20) 1,1-Dichloropropene	4.54	75	212906	87.35 ug/L	99
21) Benzene	4.74	78	497304	79.66 ug/L	98
22) 1,2-Dichloroethane	4.74	62	253415	84.35 ug/L	99
23) Trichloroethene	5.39	95	149118	81.31 ug/L	96
24) 1,2-DICHLOROPROPANE	5.62	63	152558	77.83 ug/L	100
25) Dibromomethane	5.74	93	112459	77.15 ug/L	98
26) Bromodichloromethane	5.90	83	203619	80.81 ug/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120302.D Vial: 2
Acq On : 3 Dec 03 10:59 am Operator: MI
Sample : 8260-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 2uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 11:19 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	2-Chloroethylvinyl Ether	6.24	63	102216	77.99 ug/L	100
28)	cis-1,3-Dichloropropene	6.41	75	234927	80.08 ug/L	100
30)	TOLUENE	6.81	92	284601	90.88 ug/L	97
31)	trans-1,3-Dichloropropene	7.06	75	218784	82.36 ug/L	99
32)	1,1,2-Trichloroethane	7.28	83	104393	76.07 ug/L	100
33)	Tetrachloroethene	7.48	166	113056	81.70 ug/L	99
35)	1,3-Dichloropropane	7.49	76	214538	81.31 ug/L	100
36)	Dibromochloromethane	7.77	129	136228	81.62 ug/L	100
37)	1,2-Dibromoethane	7.91	107	143248	81.12 ug/L	100
38)	Chlorobenzene	8.55	112	308344	82.66 ug/L	97
39)	1,1,1,2-Tetrachloroethane	8.66	131	108293	80.55 ug/L	99
40)	ETHYLBENZENE	8.71	91	551577	86.29 ug/L	99
41)	m&p-Xylene	8.86	106	374528	168.58 ug/L	98
42)	o-Xylene	9.39	106	180000	82.00 ug/L	99
43)	Styrene	9.40	104	329459	81.40 ug/L	96
44)	Bromoform	9.63	173	93822	80.35 ug/L	99
46)	Isopropylbenzene	9.90	105	473707	87.75 ug/L	98
47)	1,2,3-Trichloropropane	10.34	110	48676	84.70 ug/L	100
49)	Bromobenzene	10.28	156	116944	82.32 ug/L	95
50)	1,1,2,2-Tetrachloroethane	10.29	83	190392	88.47 ug/L	99
51)	n-Propylbenzene	10.46	91	653503	89.46 ug/L	98
52)	2-Chlorotoluene	10.56	91	391708	89.24 ug/L	98
53)	4-Chlorotoluene	10.72	91	444204	89.63 ug/L	100
54)	1,3,5-Trimethylbenzene	10.72	105	405565	87.52 ug/L	99
55)	tert-Butylbenzene	11.17	119	307880	87.59 ug/L	97
56)	1,2,4-Trimethylbenzene	11.24	105	409601	86.00 ug/L	98
57)	sec-Butylbenzene	11.48	105	545213	86.54 ug/L	99
58)	1,3-Dichlorobenzene	11.61	146	208091	82.69 ug/L	98
59)	4-Isopropyltoluene	11.70	119	378029	86.79 ug/L	97
60)	1,4-Dichlorobenzene	11.74	146	209530	85.86 ug/L	98
61)	1,2-Dichlorobenzene	12.26	146	192092	79.72 ug/L	99
62)	n-Butylbenzene	12.28	91	441373	86.75 ug/L	99
63)	1,2-Dibromo-3-chloropropan	13.37	75	36455	92.83 ug/L	95
64)	1,2,4-Trichlorobenzene	14.60	180	139176	82.43 ug/L	99
65)	Hexachlorobutadiene	14.88	225	67163	84.60 ug/L #	99
66)	Naphthalene	14.93	128	313242	82.90 ug/L	100
67)	1,2,3-Trichlorobenzene	15.30	180	126713	81.63 ug/L	99

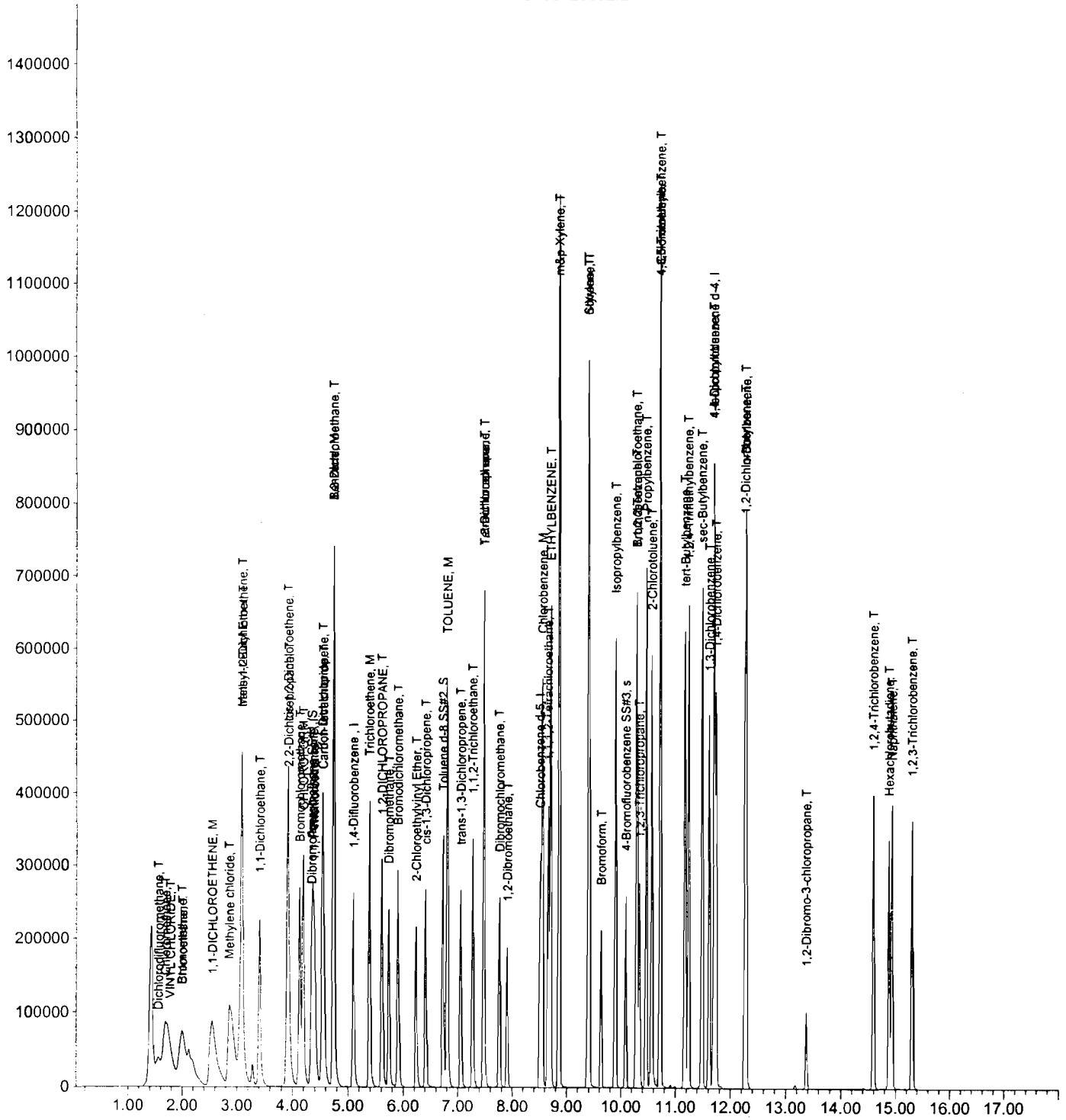
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031203\03120302.D Vial: 2
Acq On : 3 Dec 03 10:59 am Operator: MI
Sample : 8260-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 2uL #233/235/236 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 11:19 2003 Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration

TIC: 03120302.D



2 1037

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031203\03120303.D Vial: 3
Acq On : 3 Dec 03 11:42 am Operator: MI
Sample : MDE-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 4uL #237 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:37:08 2003
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	Pentaflourobenzene	1.000	1.000	0.0	63	-0.02
2	T	Dichlorodifluoromethane	0.814	0.801	1.6	62	-0.02
3	T	Chloromethane	1.546	1.520	1.7	62	-0.04
4	T	VINYL CHLORIDE	1.020	1.108	-8.6	60	0.00
5	T	Bromomethane	0.925	0.827	10.6	58	-0.02
6	T	Chloroethane	0.714	0.660	7.6	59	0.00
7	T	Trichlorofluoromethane	0.626	0.585	6.5	64	-0.08
8	T	Acetone	0.464	0.701	-51.1#	99	0.00
9	M	1,1-DICHLOROETHENE	0.751	0.754	-0.4	66	0.00
10	T	1,1,2-Trichlorotrifluoroeth	0.759	0.772	-1.7	68	-0.01
11	T	Carbon Disulfide	3.006	2.965	1.4	60	-0.03
	T	Methyl Acetate	0.165	0.137	17.0	54	0.00
13	T	Methylene chloride	1.229	0.923	24.9	53	-0.04
14	T	trans-1,2-Dichloroethene	0.840	0.839	0.1	66	0.00
15	T	Methyl-t-Butyl Ether	1.774	1.647	7.2	64	-0.01
16	T	1,1-Dichloroethane	1.816	1.693	6.8	60	-0.01
17	T	cis-1,2-Dichloroethene	0.866	0.831	4.0	62	-0.01
18	T	2-Butanone (MEK)	0.867	0.896	-3.3	69	-0.02
19	T	CHLOROFORM	1.595	1.533	3.9	62	-0.01
20	S	Dibromofluoromethane SS#1	0.853	0.822	3.6	61	-0.01
21	T	1,1,1-Trichloroethane	1.045	1.177	-12.6	75	-0.02
22	T	Cyclohexane	1.715	1.554	9.4	60	-0.01
23	I	1,4-Difluorobenzene	1.000	1.000	0.0	60	-0.02
24	T	Carbon tetrachloride	0.422	0.514	-21.8	77	-0.02
25	M	Benzene	1.564	1.419	9.3	55	-0.02
26	T	1,2-Dichloroethane	0.700	0.710	-1.4	61	-0.02
27	M	Trichloroethene	0.406	0.432	-6.4	66	-0.02
28	T	1,2-DICHLOROPROPANE	0.522	0.437	16.3	51	-0.02
29	T	Methylcyclohexane	0.591	0.617	-4.4	66	-0.02
30	T	Bromodichloromethane	0.614	0.587	4.4	58	-0.03
31	T	cis-1,3-Dichloropropene	0.733	0.667	9.0	55	-0.02
32	T	4-Methyl-2-Pentanone (MIBK)	0.908	0.702	22.7	49#	-0.02
33	S	Toluene d-8 SS#2	1.211	1.081	10.7	54	-0.02
34	M	TOLUENE	0.831	0.804	3.2	60	-0.02
	T	trans-1,3-Dichloropropene	0.664	0.607	8.6	55	-0.02
36	T	1,1,2-Trichloroethane	0.347	0.285	17.9	51	-0.03

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\2\DATA\031203\03120303.D Vial: 3
Acq On : 3 Dec 03 11:42 am Operator: MI
Sample : MDE-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 4uL #237 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:37:08 2003
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)
37	T	Tetrachloroethene	0.298	0.324	-8.7	68	-0.02
38	T	2-Hexanone (MBK)	0.677	0.601	11.2	56	-0.01
39	I	Chlorobenzene d-5	1.000	1.000	0.0	57	-0.03
40	T	Dibromochloromethane	0.442	0.478	-8.1	62	-0.02
41	T	1,2-Dibromoethane	0.476	0.474	0.4	57	-0.02
42	M	Chlorobenzene	1.028	1.064	-3.5	60	-0.03
43	T	ETHYLBENZENE	1.826	1.911	-4.7	60	-0.02
44	T	m&p-Xylene	0.629	0.635	-1.0	58	-0.03
45	T	o-Xylene	0.622	0.635	-2.1	59	-0.02
46	T	Styrene	1.151	1.131	1.7	56	-0.03
	T	Bromoform	0.296	0.312	-5.4	61	-0.03
48	I	1,4-Dichlorobenzene d-4	1.000	1.000	0.0	57	-0.03
49	T	Isopropylbenzene	3.583	4.035	-12.6	64	-0.02
50	s	4-Bromofluorobenzene SS#3	1.331	1.331	0.0	57	-0.02
51	T	1,1,2,2-Tetrachloroethane	1.657	1.479	10.7	52	-0.02
52	T	1,3-Dichlorobenzene	1.598	1.766	-10.5	64	-0.02
53	T	1,4-Dichlorobenzene	1.890	1.763	6.7	61	-0.03
54	T	1,2-Dichlorobenzene	1.539	1.647	-7.0	62	-0.02
55	T	1,2-Dibromo-3-chloropropane	0.281	0.276	1.8	57	-0.02
56	T	1,2,4-Trichlorobenzene	1.048	1.089	-3.9	57	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2 1039

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:37:08 2003
Response via : Initial Calibration

Calibration Files
C1 =03092903.D C2 =03092911.D C3 =03092912.D
C4 =03092913.D C5 =03092914.D C6 =03092915.D

		Compound	C1	C2	C3	C4	C5	C6	Avg	%RSD
1)	I	Pentaflourobenzene	----------ISTD----------							
2)	T	Dichlorodifluoromet	0.818	0.854	0.863	0.806	0.800	0.744	0.814	5.27
3)	T	Chloromethane	1.444	1.681	1.632	1.528	1.645	1.344	1.546	8.54
4)	T	VINYL CHLORIDE	0.725	1.178	1.231	1.162	1.057	0.766	1.020	21.59
5)	T	Bromomethane	0.995	1.033	0.993	0.901	0.893	0.734	0.925	11.77
6)	T	Chloroethane	0.747	0.811	0.788	0.704	0.683	0.549	0.714	13.18
7)	T	Trichlorofluorometh	0.669	0.682	0.628	0.577	0.598	0.600	0.626	6.70
8)	T	Acetone		0.576	0.492	0.442	0.423	0.387	0.464	15.80
9)	M	1,1-DICHLOROETHENE	0.724	0.818	0.798	0.721	0.735	0.708	0.751	6.11
10)	T	1,1,2-Trichlorotrif	0.744	0.853	0.809	0.716	0.727	0.703	0.759	7.81
11)	T	Carbon Disulfide	2.034	3.343	3.289	3.113	3.175	3.080	3.006	16.19
12)	T	Methyl Acetate	0.165	0.183	0.169	0.159	0.158	0.156	0.165	6.26
13)	T	Methylene chloride		1.707	1.355	1.089	1.025	0.971	1.229	24.82
14)	T	trans-1,2-Dichloroe	0.827	0.944	0.892	0.801	0.774	0.803	0.840	7.71
5)	T	Methyl-t-Butyl Ethe	1.777	2.067	1.861	1.617	1.646	1.676	1.774	9.56
16)	T	1,1-Dichloroethane	1.763	1.986	1.889	1.767	1.703	1.790	1.816	5.65
17)	T	cis-1,2-Dichloroeth	0.808	0.971	0.904	0.847	0.810	0.855	0.866	7.21
18)	T	2-Butanone (MEK)	0.908	0.966	0.867	0.820	0.827	0.815	0.867	6.89
19)	T	CHLOROFORM	1.569	1.740	1.640	1.542	1.501	1.576	1.595	5.29
20)	S	Dibromofluoromethan	0.888	0.858	0.854	0.851	0.823	0.845	0.853	2.50
21)	T	1,1,1-Trichloroetha	1.059	1.149	1.090	0.984	0.988	1.000	1.045	6.35
22)	T	Cyclohexane	1.722	1.873	1.795	1.622	1.637	1.640	1.715	5.92
23)	I	1,4-Difluorobenzene	----------ISTD----------							
24)	T	Carbon tetrachlorid	0.410	0.459	0.435	0.404	0.407	0.417	0.422	4.97
25)	M	Benzene	1.405	1.693	1.600	1.547	1.538	1.601	1.564	6.10
26)	T	1,2-Dichloroethane	0.678	0.765	0.713	0.698	0.681	0.665	0.700	5.11
27)	M	Trichloroethene	0.390	0.442	0.414	0.398	0.398	0.393	0.406	4.80
28)	T	1,2-DICHLOROPROPANE	0.486	0.564	0.536	0.520	0.524	0.502	0.522	5.17
29)	T	Methylcyclohexane	0.565	0.641	0.607	0.568	0.581	0.582	0.591	4.88
30)	T	Bromodichloromethan	0.544	0.665	0.629	0.609	0.610	0.625	0.614	6.49
31)	T	cis-1,3-Dichloropro	0.653	0.791	0.744	0.730	0.737	0.745	0.733	6.10
32)	T	4-Methyl-2-Pentanon	0.879	0.988	0.906	0.873	0.903	0.900	0.908	4.56
33)	S	Toluene d-8 SS#2	1.221	1.208	1.205	1.206	1.216	1.210	1.211	0.52
34)	M	TOLUENE	0.768	0.898	0.832	0.813	0.828	0.849	0.831	5.14
35)	T	trans-1,3-Dichlorop	0.588	0.719	0.672	0.662	0.668	0.677	0.664	6.39
36)	T	1,1,2-Trichloroetha	0.310	0.384	0.353	0.340	0.344	0.350	0.347	6.90
37)	T	Tetrachloroethene	0.287	0.318	0.300	0.288	0.293	0.300	0.298	3.86
8)	T	2-Hexanone (MBK)	0.669	0.745	0.679	0.646	0.666	0.659	0.677	5.14

(#) = Out of Range

2 1040

Response Factor Report GC/MS Ins

Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:37:08 2003
Response via : Initial Calibration

Calibration Files
C1 =03092903.D C2 =03092911.D C3 =03092912.D
C4 =03092913.D C5 =03092914.D C6 =03092915.D

		Compound	C1	C2	C3	C4	C5	C6	Avg	%RSD
39)	I	Chlorobenzene d-5	----------ISTD----------							
40)	T	Dibromochloromethan	0.371	0.481	0.447	0.438	0.449	0.463	0.442	8.55
41)	T	1,2-Dibromoethane	0.412	0.526	0.486	0.471	0.479	0.485	0.476	7.79
42)	M	Chlorobenzene	0.922	1.117	1.035	1.001	1.031	1.060	1.028	6.29
43)	T	ETHYLBENZENE	1.656	1.947	1.837	1.789	1.850	1.878	1.826	5.38
44)	T	m&p-Xylene	0.551	0.672	0.644	0.622	0.649	0.635	0.629	6.61
45)	T	o-Xylene	0.558	0.674	0.638	0.610	0.632	0.620	0.622	6.13
46)	T	Styrene	0.952	1.237	1.180	1.144	1.194	1.199	1.151	8.89
47)	T	Bromoform	0.232	0.316	0.303	0.291	0.310	0.325	0.296	11.38
48)	I	1,4-Dichlorobenzene d	----------ISTD----------							
49)	T	Isopropylbenzene	3.151	3.873	3.584	3.555	3.575	3.761	3.583	6.87
50)	s	4-Bromofluorobenzen	1.373	1.327	1.325	1.320	1.322	1.318	1.331	1.57
51)	T	1,1,2,2-Tetrachloro	1.494	1.840	1.673	1.622	1.635	1.677	1.657	6.74
[illegible])	T	1,3-Dichlorobenzene	1.415	1.742	1.606	1.570	1.588	1.665	1.598	6.83
53)	T	1,4-Dichlorobenzene	2.531	2.018	1.782	1.652	1.654	1.703	1.890	18.11
54)	T	1,2-Dichlorobenzene	1.314	1.688	1.564	1.496	1.555	1.617	1.539	8.30
55)	T	1,2-Dibromo-3-chlor	0.268	0.316	0.283	0.276	0.283	0.262	0.281	6.75
56)	T	1,2,4-Trichlorobenz	0.882	1.136	1.046	1.074	1.108	1.041	1.048	8.51

(#) = Out of Range

2 1041

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120303.D Vial: 3
Acq On : 3 Dec 03 11:42 am Operator: MI
Sample : MDE-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 4uL #237 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 12:04 2003 Quant Results File: MDES.RES

Quant Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:37:08 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.37	168	117845	50.00 ug/L	-0.02
23) 1,4-Difluorobenzene	5.10	114	222574	50.00 ug/L	-0.02
39) Chlorobenzene d-5	8.51	117	178840	50.00 ug/L	-0.03
48) 1,4-Dichlorobenzene d-4	11.71	152	75535	50.00 ug/L	-0.03
System Monitoring Compounds					
20) Dibromofluoromethane SS#1	4.34	113	96858	48.16 ug/L	-0.01
Spiked Amount 50.000			Recovery = 96.32%		
33) Toluene d-8 SS#2	6.73	98	240567	44.63 ug/L	-0.02
Spiked Amount 50.000			Recovery = 89.26%		
50) 4-Bromofluorobenzene SS#3	10.09	95	100517	50.00 ug/L	-0.02
Spiked Amount 50.000			Recovery = 100.00%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.56	85	151068	78.72 ug/L	100
3) Chloromethane	1.70	50	286667	78.69 ug/L	95
4) VINYL CHLORIDE	1.80	62	208868	86.90 ug/L	100
5) Bromomethane	1.98	94	155847	71.50 ug/L	99
6) Chloroethane	2.01	64	124453	73.99 ug/L	97
7) Trichlorofluoromethane	2.13	101	110353m	74.84 ug/L	93
8) Acetone	2.52	43	132089	128.91 ug/L	93
9) 1,1-DICHLOROETHENE	2.56	96	142105	80.32 ug/L	93
10) 1,1,2-Trichlorotrifluoroet	2.54	101	145524	81.38 ug/L	95
11) Carbon Disulfide	2.78	76	559020	74.38 ug/L	99
12) Methyl Acetate	2.76	74	25868	66.53 ug/L	87
13) Methylene chloride	2.87	84	173962	67.26 ug/L	96
14) trans-1,2-Dichloroethene	3.09	96	158157	79.86 ug/L	98
15) Methyl-t-Butyl Ether	3.09	73	310559	74.28 ug/L	100
16) 1,1-Dichloroethane	3.42	63	319167	74.55 ug/L	98
17) cis-1,2-Dichloroethene	3.92	96	156748	76.81 ug/L	96
18) 2-Butanone (MEK)	3.90	43	169017	82.71 ug/L	98
19) CHLOROFORM	4.20	83	288990	76.90 ug/L	99
21) 1,1,1-Trichloroethane	4.39	97	221921	90.10 ug/L #	78
22) Cyclohexane	4.47	56	293003	72.49 ug/L	92
24) Carbon tetrachloride	4.56	117	183096	97.45 ug/L	98
25) Benzene	4.74	78	505195	72.57 ug/L	97
26) 1,2-Dichloroethane	4.74	62	253010	81.20 ug/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120303.D Vial: 3
Acq On : 3 Dec 03 11:42 am Operator: MI
Sample : MDE-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 4uL #237 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 12:04 2003 Quant Results File: MDES.RES

Quant Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:37:08 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27) Trichloroethene	5.39	95	153697	85.11 ug/L	99
28) 1,2-DICHLOROPROPANE	5.62	63	155475	66.88 ug/L	99
29) Methylcyclohexane	5.62	83	219548	83.52 ug/L	100
30) Bromodichloromethane	5.90	83	209041	76.52 ug/L	98
31) cis-1,3-Dichloropropene	6.41	75	237582	72.78 ug/L	98
32) 4-Methyl-2-Pentanone (MIBK	6.59	43	250030	61.83 ug/L	95
34) TOLUENE	6.82	92	286387	77.39 ug/L	97
35) trans-1,3-Dichloropropene	7.06	75	216240	73.11 ug/L	100
36) 1,1,2-Trichloroethane	7.28	83	101401	65.71 ug/L	94
37) Tetrachloroethene	7.48	166	115230	86.90 ug/L	97
38) 2-Hexanone (MBK)	7.61	43	214016	70.98 ug/L	96
40) Dibromochloromethane	7.77	129	136843	86.65 ug/L	100
41) 1,2-Dibromoethane	7.91	107	135738	79.66 ug/L	99
42) Chlorobenzene	8.55	112	304375	82.80 ug/L	98
43) ETHYLBENZENE	8.71	91	546799	83.70 ug/L	99
44) m&p-Xylene	8.86	106	363491	161.62 ug/L	91
45) o-Xylene	9.39	106	181561	81.64 ug/L	97
46) Styrene	9.41	104	323534	78.57 ug/L	89
47) Bromoform	9.63	173	89174	84.16 ug/L	99
49) Isopropylbenzene	9.90	105	487699	90.10 ug/L	97
51) 1,1,2,2-Tetrachloroethane	10.29	83	178712	71.40 ug/L	98
52) 1,3-Dichlorobenzene	11.62	146	213447	88.44 ug/L	98
53) 1,4-Dichlorobenzene	11.74	146	213127	84.82 ug/L	97
54) 1,2-Dichlorobenzene	12.26	146	199104	85.64 ug/L	98
55) 1,2-Dibromo-3-chloropropan	13.37	75	33328	78.44 ug/L	97
56) 1,2,4-Trichlorobenzene	14.60	180	131649	83.17 ug/L	99

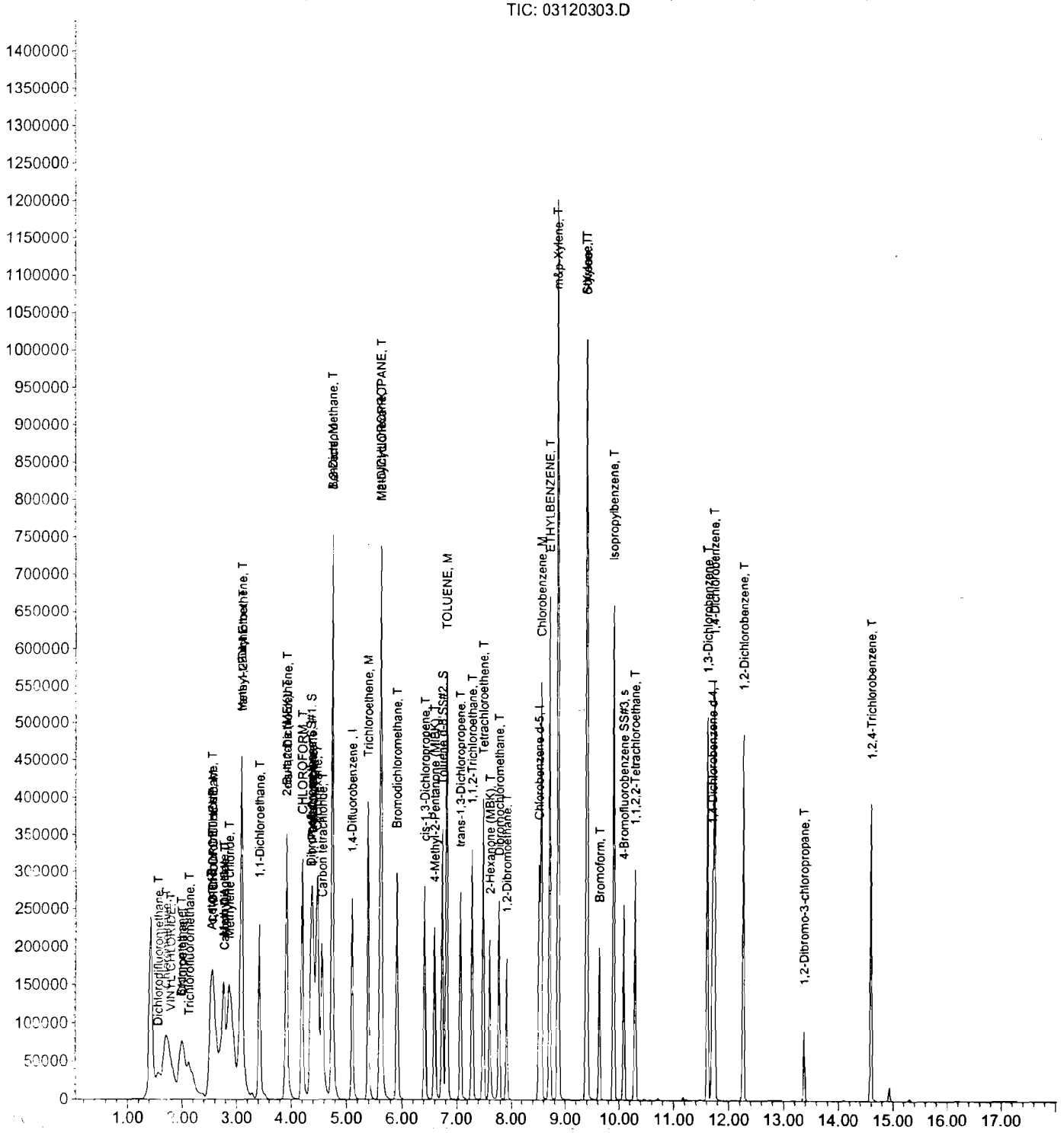
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031203\03120303.D Vial: 3
Acq On : 3 Dec 03 11:42 am Operator: MI
Sample : MDE-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 4uL #237 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 12:04 2003 Quant Results File: MDES.RES

Method : C:\HPCHEM\2\METHODS\MDES.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:37:08 2003
Response via : Initial Calibration

TIC: 03120303.D



2 104

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120304.D Vial: 4
Acq On : 3 Dec 03 12:10 pm Operator: MI
Sample : NEWMIX-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 2uL #238/239 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:36 2003 Quant Results File: NEWMTH-S.RES

Quant Method : C:\HPCHEM\2\METHODS\NEWMTH-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:44:06 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentafluorobenzene	4.37	168	108835	50.00 ug/L	-0.02

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetone	2.51	43	97629	78.66 ug/L	95
3) tert-Butanol	2.91	59	44788	79.62 ug/L	96
4) Isopropyl Ether	3.45	45	705082	60.45 ug/L #	100
5) tert-Butyl Ethyl Ether	3.78	59	474001	75.12 ug/L	97
6) 2-Butanone (MEK)	3.90	43	165424	65.27 ug/L	97
7) tert-Amyl Methyl Ether	4.85	73	377396	71.81 ug/L	95
8) 4-Methyl-2-Pentanone (MIBK	6.59	43	324520	63.83 ug/L	94

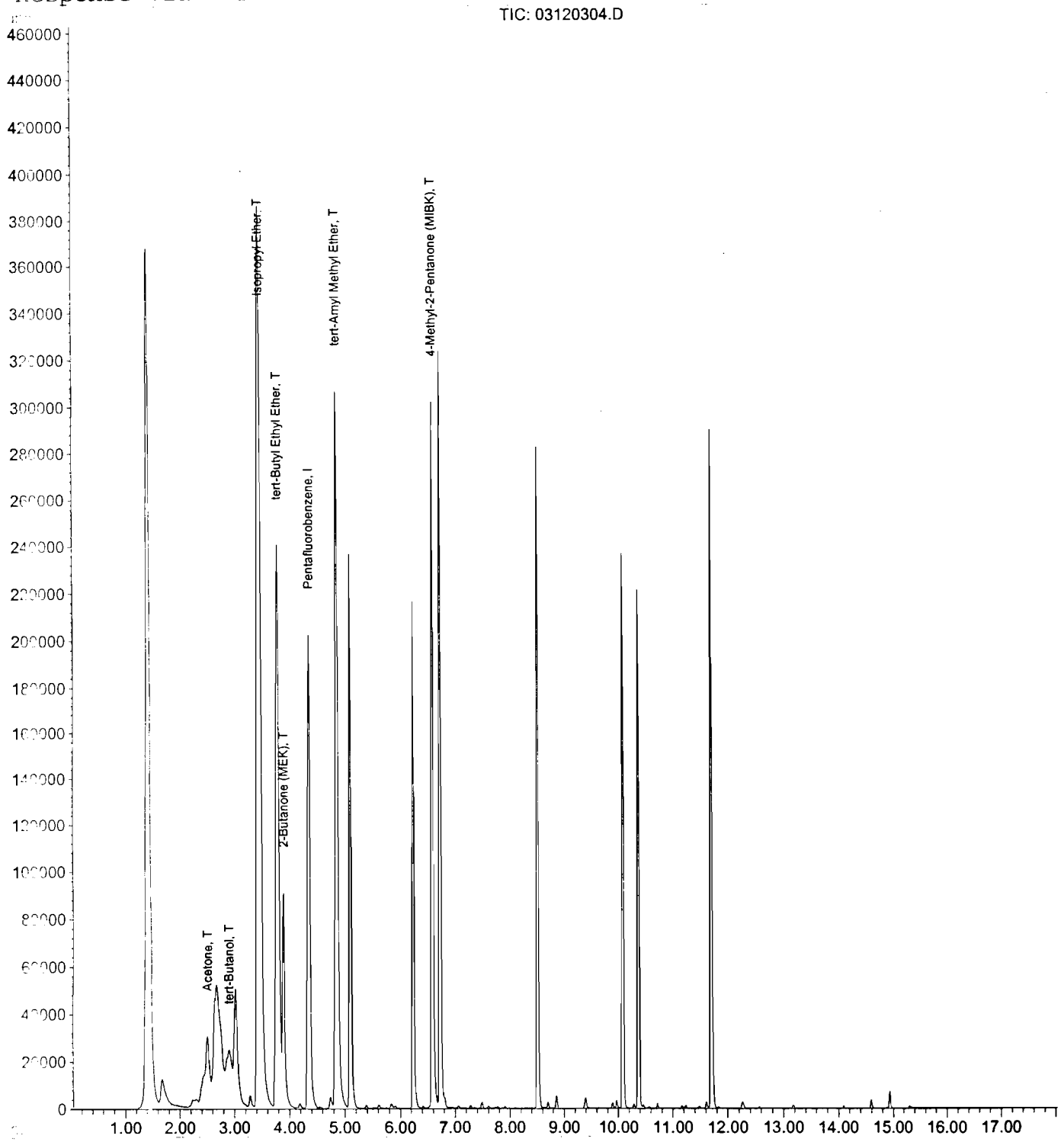
(#) = qualifier out of range (m) = manual integration

2 1045

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031203\03120304.D Vial: 4
Acq On : 3 Dec 03 12:10 pm Operator: MI
Sample : NEWMIX-S, CCV 80ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, CCV 2uL #238/239 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:36 2003 Quant Results File: NEWMTH-S.RES

Method : C:\HPCHEM\2\METHODS\NEWMTH-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Wed Oct 01 16:44:06 2003
Response via : Initial Calibration



2 1046

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

VOLATILE ORGANICS COMPOUNDS
SAMPLE SPIKE AND SAMPLE SPIKE DUPLICATE SUMMARY

DATE ANALYZED: 12/03/03 **BATCH NUMBER:** VOC031202

METHOD: EPA 8260 **LAB FILE IDs:** 03120239.D 03120240.D

MATRIX: Water

Client Sample ID: 03112627-02 MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	QC LIMITS (%)
1,1-Dichloroethene	25	ND	22	90	61-145
Benzene	25	ND	22	88	76-127
Trichloroethene	25	ND	24	95	71-120
Toluene	25	ND	25	99	76-125
Chlorobenzene	25	ND	25	101	75-130

Client Sample ID: 03112627-02 MSD

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPK DUP CONC (ug/L)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
1,1-Dichloroethene	25	ND	23	91	1.2	14	61-145
Benzene	25	ND	22	88	0.2	11	76-127
Trichloroethene	25	ND	24	95	0.2	14	71-120
Toluene	25	ND	24	97	2.2	13	76-125
Chlorobenzene	25	ND	25	99	2.2	13	75-130

* - Values outside of QC Limits

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

2 1047

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120239.D Vial: 39
Acq On : 3 Dec 03 5:17 am Operator: MI
Sample : 03112627-02 MS 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:46 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.36	168	114854	50.00 ug/L	-0.03
19) 1,4-Difluorobenzene	5.10	114	209425	50.00 ug/L	-0.03
35) Chlorobenzene d-5	8.51	117	168989	50.00 ug/L	-0.03
46) 1,4-Dichlorobenzene d-4	11.71	152	59309	50.00 ug/L	-0.03
System Monitoring Compounds					
17) Dibromofluoromethane SS#1	4.34	113	84523	43.82 ug/L	-0.03
Spiked Amount 50.000			Recovery = 87.64%		
30) Toluene d-8 SS#2	6.73	98	232129	47.95 ug/L	-0.03
Spiked Amount 50.000			Recovery = 95.90%		
49) 4-Bromofluorobenzene SS#3	10.09	95	86357	54.16 ug/L	-0.03
Spiked Amount 50.000			Recovery = 108.32%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.58	85	35329	19.18 ug/L	100
3) Chloromethane	1.66	50	71735m	19.86 ug/L	0
4) VINYL CHLORIDE	1.76	62	54124	19.97 ug/L	93
5) Bromomethane	1.95	94	41523	22.17 ug/L	97
6) Chloroethane	2.02	64	34943	23.64 ug/L	87
7) Trichlorofluoromethane	2.14	101	37164m	39.37 ug/L	0
8) 1,1-DICHLOROETHENE	2.52	96	36878	22.43 ug/L	96
9) Methylene chloride	2.86	84	39407	18.81 ug/L	93
10) trans-1,2-Dichloroethene	3.07	96	42983	23.72 ug/L	99
11) Methyl-t-Butyl Ether	3.08	73	57367	17.96 ug/L	100
12) 1,1-Dichloroethane	3.41	63	84645	22.61 ug/L	99
13) 2,2-Dichloropropane	3.92	77	46483	23.21 ug/L	97
14) cis-1,2-Dichloroethene	3.91	96	41388	22.35 ug/L	98
15) Bromochloromethane	4.12	128	15520	18.64 ug/L #	91
16) CHLOROFORM	4.19	83	71898	22.17 ug/L	99
18) 1,1,1-Trichloroethane	4.39	97	61666	27.76 ug/L #	42
20) Carbon tetrachloride	4.55	117	46804	28.37 ug/L	99
21) 1,1-Dichloropropene	4.53	75	54466	24.22 ug/L	99
22) Benzene	4.73	78	127446	21.99 ug/L	98
23) 1,2-Dichloroethane	4.73	62	44698	18.06 ug/L	97
24) Trichloroethene	5.38	95	38382	23.77 ug/L	99
25) 1,2-DICHLOROPROPANE	5.61	63	36188	20.09 ug/L	99
26) Dibromomethane	5.73	93	18167	15.40 ug/L	97

(#) = qualifier out of range (m) = manual integration

2 1048

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120239.D Vial: 39
Acq On : 3 Dec 03 5:17 am Operator: MI
Sample : 03112627-02 MS 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:46 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	Bromodichloromethane	5.90	83	43919	20.70 ug/L	99
28)	2-Chloroethylvinyl Ether	0.00	63		Not Detected	
29)	cis-1,3-Dichloropropene	6.41	75	43118	17.55 ug/L	99
31)	TOLUENE	6.81	92	74835	24.76 ug/L	97
32)	trans-1,3-Dichloropropene	7.06	75	32725	15.93 ug/L	98
33)	1,1,2-Trichloroethane	7.28	83	16177	14.58 ug/L	96
34)	Tetrachloroethene	7.48	166	27987	25.66 ug/L	99
36)	1,3-Dichloropropane	7.48	76	34293	16.28 ug/L	100
37)	Dibromochloromethane	7.77	129	22932	19.40 ug/L	99
38)	1,2-Dibromoethane	7.91	107	19842	15.58 ug/L	97
39)	Chlorobenzene	8.55	112	76887	25.20 ug/L	99
40)	1,1,1,2-Tetrachloroethane	8.66	131	24267	23.93 ug/L	99
41)	ETHYLBENZENE	8.71	91	140663	26.61 ug/L	99
42)	m&p-Xylene	8.86	106	93636	51.57 ug/L	100
43)	o-Xylene	9.38	106	46358	25.92 ug/L	99
44)	Styrene	9.40	104	74104	22.85 ug/L	95
45)	Bromoform	9.63	173	10700	15.38 ug/L	99
47)	Isopropylbenzene	9.90	105	107261	31.23 ug/L	98
48)	1,2,3-Trichloropropane	10.34	110	4713	15.82 ug/L	100
50)	Bromobenzene	10.28	156	24975	26.95 ug/L	98
51)	1,1,2,2-Tetrachloroethane	10.29	83	19390	15.79 ug/L	98
52)	n-Propylbenzene	10.47	91	138545	30.37 ug/L	98
53)	2-Chlorotoluene	10.56	91	92089	31.32 ug/L	99
54)	4-Chlorotoluene	10.72	91	98224	29.35 ug/L	99
55)	1,3,5-Trimethylbenzene	10.72	105	87385	31.24 ug/L	99
56)	tert-Butylbenzene	11.17	119	60989	31.20 ug/L	98
57)	1,2,4-Trimethylbenzene	11.24	105	86004	29.50 ug/L	98
58)	sec-Butylbenzene	11.48	105	92930	28.81 ug/L	98
59)	1,3-Dichlorobenzene	11.61	146	42301	26.97 ug/L	99
60)	4-Isopropyltoluene	11.70	119	66501	29.87 ug/L	98
61)	1,4-Dichlorobenzene	11.74	146	40916	24.90 ug/L	98
62)	1,2-Dichlorobenzene	12.26	146	34699	23.51 ug/L	99
63)	n-Butylbenzene	12.28	91	59067	24.79 ug/L	99
64)	1,2-Dibromo-3-chloropropan	13.37	75	1892	13.53 ug/L	88
65)	1,2,4-Trichlorobenzene	14.59	180	10539	14.75 ug/L	98
6)	Hexachlorobutadiene	14.88	225	5735	22.89 ug/L #	100
67)	Naphthalene	14.93	128	13513	9.76 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120239.D Vial: 39
Acq On : 3 Dec 03 5:17 am Operator: MI
Sample : 03112627-02 MS 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:46 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
68) 1,2,3-Trichlorobenzene	15.30	180	5665	10.05 ug/L	92

(#) = qualifier out of range (m) = manual integration

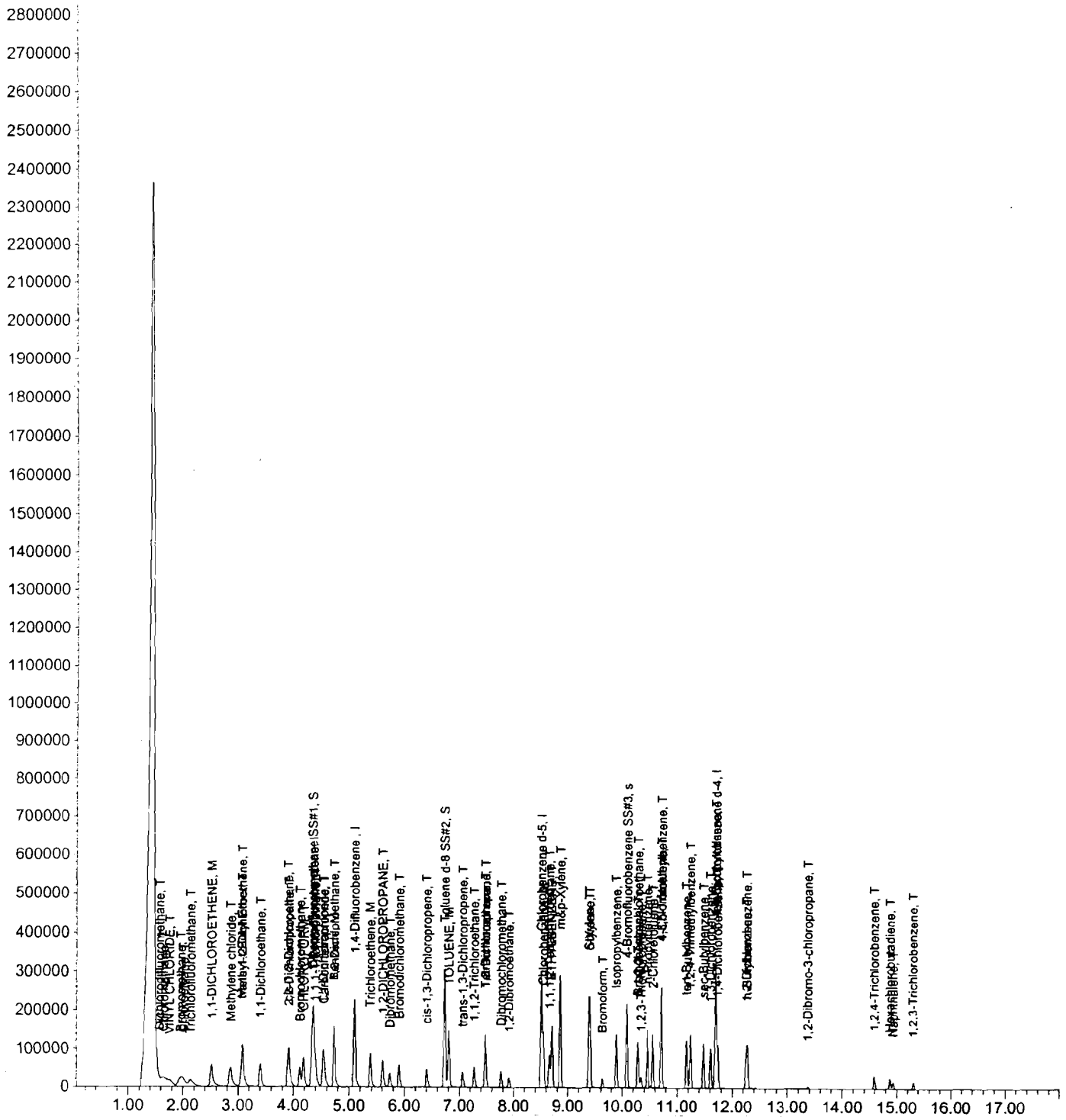
2 1050

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031202\03120239.D Vial: 39
Acq On : 3 Dec 03 5:17 am Operator: MI
Sample : 03112627-02 MS 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:46 2003 Quant Results File: 8260-W.RES

Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration

TIC: 03120239.D



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120240.D Vial: 40
Acq On : 3 Dec 03 5:42 am Operator: MI
Sample : 03112627-02 MSD 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:47 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.36	168	113585	50.00 ug/L	-0.03
19) 1,4-Difluorobenzene	5.10	114	203077	50.00 ug/L	-0.03
35) Chlorobenzene d-5	8.51	117	160226	50.00 ug/L	-0.03
46) 1,4-Dichlorobenzene d-4	11.70	152	54288	50.00 ug/L	-0.03
System Monitoring Compounds					
17) Dibromofluoromethane SS#1	4.33	113	80251	42.07 ug/L	-0.03
Spiked Amount 50.000			Recovery = 84.14%		
30) Toluene d-8 SS#2	6.73	98	224725	47.87 ug/L	-0.03
Spiked Amount 50.000			Recovery = 95.74%		
49) 4-Bromofluorobenzene SS#3	10.09	95	80400	55.09 ug/L	-0.03
Spiked Amount 50.000			Recovery = 110.18%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.57	85	35802	19.65 ug/L	100
3) Chloromethane	1.65	50	71287m	19.96 ug/L	0
4) VINYL CHLORIDE	1.76	62	53882m	20.10 ug/L	0
5) Bromomethane	1.95	94	40417	21.82 ug/L	99
6) Chloroethane	2.01	64	35401	24.22 ug/L	86
7) Trichlorofluoromethane	2.14	101	41327m	44.27 ug/L	0
8) 1,1-DICHLOROETHENE	2.52	96	36880	22.69 ug/L	97
9) Methylene chloride	2.86	84	37498	18.10 ug/L	95
10) trans-1,2-Dichloroethene	3.07	96	42096	23.49 ug/L	99
11) Methyl-t-Butyl Ether	3.08	73	51659	16.36 ug/L	100
12) 1,1-Dichloroethane	3.41	63	82478	22.28 ug/L	100
13) 2,2-Dichloropropane	3.92	77	45245	22.84 ug/L	98
14) cis-1,2-Dichloroethene	3.91	96	39830	21.75 ug/L	98
15) Bromochloromethane	4.12	128	14026	17.03 ug/L #	91
16) CHLOROFORM	4.19	83	68345	21.31 ug/L	100
18) 1,1,1-Trichloroethane	4.39	97	60111	27.37 ug/L #	42
20) Carbon tetrachloride	4.56	117	46958	29.35 ug/L	100
21) 1,1-Dichloropropene	4.53	75	53891	24.71 ug/L	99
22) Benzene	4.73	78	123820	22.03 ug/L	98
23) 1,2-Dichloroethane	4.73	62	40963	17.07 ug/L	98
24) Trichloroethene	5.39	95	37289	23.82 ug/L	98
25) 1,2-DICHLOROPROPANE	5.61	63	33870	19.39 ug/L	99
26) Dibromomethane	5.74	93	16702	14.61 ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120240.D Vial: 40
Acq On : 3 Dec 03 5:42 am Operator: MI
Sample : 03112627-02 MSD 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:47 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	Bromodichloromethane	5.90	83	40835	19.85 ug/L	100
28)	2-Chloroethylvinyl Ether	0.00	63		Not Detected	
29)	cis-1,3-Dichloropropene	6.40	75	38690	16.24 ug/L	99
31)	TOLUENE	6.81	92	70944	24.21 ug/L	98
32)	trans-1,3-Dichloropropene	7.05	75	29195	14.66 ug/L	99
33)	1,1,2-Trichloroethane	7.28	83	14720	13.68 ug/L	95
34)	Tetrachloroethene	7.48	166	27465	25.97 ug/L	99
36)	1,3-Dichloropropane	7.49	76	30500	15.27 ug/L	99
37)	Dibromochloromethane	7.77	129	20501	18.30 ug/L	99
38)	1,2-Dibromoethane	7.91	107	17723	14.68 ug/L	99
39)	Chlorobenzene	8.55	112	71271	24.64 ug/L	98
40)	1,1,1,2-Tetrachloroethane	8.66	131	23380	24.32 ug/L	98
41)	ETHYLBENZENE	8.71	91	135504	27.03 ug/L	99
42)	m&p-Xylene	8.86	106	91134	52.94 ug/L	99
43)	o-Xylene	9.39	106	43977	25.94 ug/L	98
44)	Styrene	9.40	104	69647	22.65 ug/L	95
45)	Bromoform	9.63	173	9395	14.25 ug/L	100
47)	Isopropylbenzene	9.90	105	105041	33.41 ug/L	98
48)	1,2,3-Trichloropropane	10.34	110	4123	15.12 ug/L	100
50)	Bromobenzene	10.28	156	22426	26.44 ug/L	99
51)	1,1,2,2-Tetrachloroethane	10.29	83	17179	15.29 ug/L	99
52)	n-Propylbenzene	10.46	91	133388	31.94 ug/L	99
53)	2-Chlorotoluene	10.56	91	86688	32.21 ug/L	98
54)	4-Chlorotoluene	10.72	91	94286	30.78 ug/L	100
55)	1,3,5-Trimethylbenzene	10.72	105	83924	32.78 ug/L	98
56)	tert-Butylbenzene	11.17	119	59329	33.16 ug/L	98
57)	1,2,4-Trimethylbenzene	11.24	105	82244	30.82 ug/L	99
58)	sec-Butylbenzene	11.48	105	89066	30.17 ug/L	99
59)	1,3-Dichlorobenzene	11.61	146	39418	27.46 ug/L	100
60)	4-Isopropyltoluene	11.70	119	62576	30.71 ug/L	98
61)	1,4-Dichlorobenzene	11.74	146	37431	24.88 ug/L	99
62)	1,2-Dichlorobenzene	12.26	146	30982	22.93 ug/L	100
63)	n-Butylbenzene	12.28	91	55040	25.23 ug/L	99
64)	1,2-Dibromo-3-chloropropan	13.37	75	1445	11.29 ug/L	95
65)	1,2,4-Trichlorobenzene	14.60	180	8288	12.68 ug/L	97
66)	Hexachlorobutadiene	14.88	225	5148	22.45 ug/L #	100
67)	Naphthalene	14.93	128	11785	9.30 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120240.D Vial: 40
Acq On : 3 Dec 03 5:42 am Operator: MI
Sample : 03112627-02 MSD 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:47 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
68) 1,2,3-Trichlorobenzene	15.31	180	5067	9.82 ug/L	98

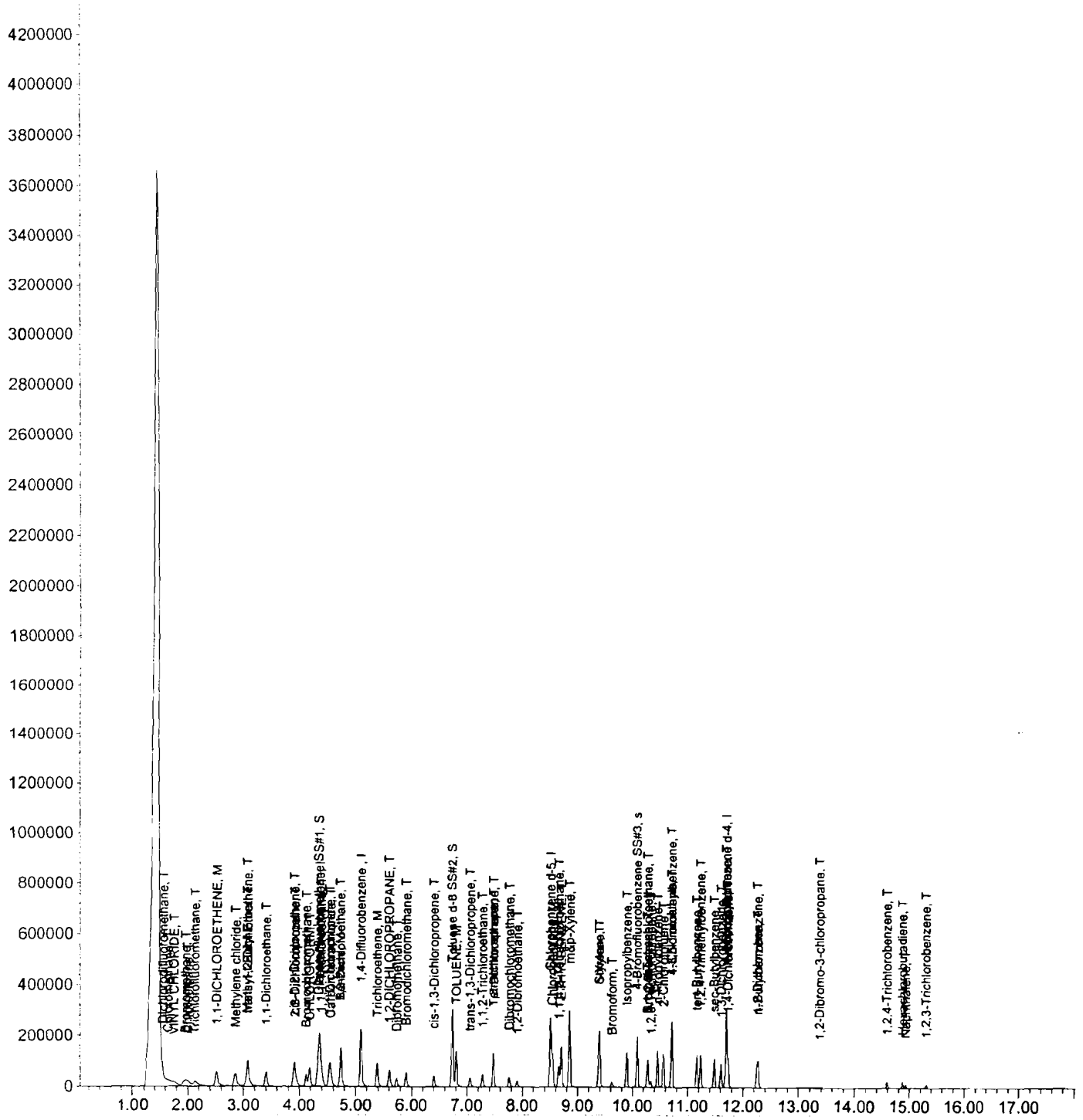
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031202\03120240.D Vial: 40
Acq On : 3 Dec 03 5:42 am Operator: MI
Sample : 03112627-02 MSD 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, MS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:47 2003 Quant Results File: 8260-W.RES

Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration

TIC: 03120240.D



OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANICS COMPOUNDS
SAMPLE SPIKE AND SAMPLE SPIKE DUPLICATE SUMMARY

DATE ANALYZED: 12/03/03 **BATCH NUMBER:** VOC031203

METHOD: EPA 8260 **LAB FILE IDs:** 03120326.D 03120327.D

MATRIX: Soil

Client Sample ID: 03112414-25 MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	QC LIMITS (%)
1,1-Dichloroethene	40	ND	40	99	59-172
Benzene	40	ND	40	99	66-142
Trichloroethene	40	ND	41	101	62-137
Toluene	40	ND	45	113	59-139
Chlorobenzene	40	ND	41	102	60-133

Client Sample ID: 03112414-25 MSD

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
1,1-Dichloroethene	40	ND	40	99	0.1	22	59-172
Benzene	40	ND	39	98	1.9	21	66-142
Trichloroethene	40	ND	40	100	1.1	24	62-137
Toluene	40	ND	45	112	0.4	21	59-139
Chlorobenzene	40	ND	41	104	2.0	21	60-133

* - Values outside of QC Limits

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

2 1056

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120326.D Vial: 26
Acq On : 3 Dec 03 10:58 pm Operator: MI
Sample : 03112414-25 MS 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.36	168	107647	50.00 ug/L	0.00
18) 1,4-Difluorobenzene	5.10	114	199485	50.00 ug/L	0.00
34) Chlorobenzene d-5	8.51	117	170719	50.00 ug/L	-0.02
45) 1,4-Dichlorobenzene d-4	11.71	152	74150	50.00 ug/L	-0.02
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.34	113	91459	50.97 ug/L	0.00
Spiked Amount 50.000			Recovery = 101.94%		
29) Toluene d-8 SS#2	6.73	98	221308	49.57 ug/L	-0.02
Spiked Amount 50.000			Recovery = 99.14%		
48) 4-Bromofluorobenzene SS#3	10.09	95	99170	51.50 ug/L	-0.02
Spiked Amount 50.000			Recovery = 103.00%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.57	85	59651	32.64 ug/L	100
3) Chloromethane	1.68	50	116190	38.01 ug/L	99
4) VINYL CHLORIDE	1.79	62	85142	54.57 ug/L	93
5) Bromomethane	1.97	94	67709	39.74 ug/L	99
6) Chloroethane	2.01	64	55263	42.80 ug/L	97
7) 1,1-DICHLOROETHENE	2.55	96	58665	39.75 ug/L	92
8) Methylene chloride	2.88	84	102823	60.46 ug/L	96
9) trans-1,2-Dichloroethene	3.08	96	70328	43.13 ug/L	96
10) Methyl-t-Butyl Ether	3.08	73	176245	56.00 ug/L	100
11) 1,1-Dichloroethane	3.41	63	146655	41.69 ug/L	99
12) 2,2-Dichloropropane	3.93	77	91781	44.08 ug/L	98
13) cis-1,2-Dichloroethene	3.91	96	75039	40.34 ug/L	98
14) Bromochloromethane	4.13	128	37405	40.65 ug/L	98
15) CHLOROFORM	4.19	83	132703	40.57 ug/L	100
17) 1,1,1-Trichloroethane	4.40	97	101852	43.94 ug/L #	46
19) Carbon tetrachloride	4.56	117	82457	44.62 ug/L	99
20) 1,1-Dichloropropene	4.54	75	95550	42.77 ug/L	98
21) Benzene	4.73	78	227657	39.79 ug/L	98
22) 1,2-Dichloroethane	4.73	62	122392	44.45 ug/L	98
23) Trichloroethene	5.38	95	68117	40.52 ug/L	96
24) 1,2-DICHLOROPROPANE	5.61	63	71429	39.75 ug/L	100
25) Dibromomethane	5.74	93	55312	41.40 ug/L	98
26) Bromodichloromethane	5.91	83	96651	41.85 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120326.D Vial: 26
Acq On : 3 Dec 03 10:58 pm Operator: MI
Sample : 03112414-25 MS 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	2-Chloroethylvinyl Ether	6.24	63	47625	39.65 ug/L	100
28)	cis-1,3-Dichloropropene	6.41	75	101245	37.65 ug/L	100
30)	TOLUENE	6.81	92	129663	45.17 ug/L	98
31)	trans-1,3-Dichloropropene	7.06	75	96490	39.63 ug/L	98
32)	1,1,2-Trichloroethane	7.28	83	50873	40.44 ug/L	100
33)	Tetrachloroethene	7.48	166	50711	39.98 ug/L	97
35)	1,3-Dichloropropane	7.49	76	102704	41.09 ug/L	99
36)	Dibromochloromethane	7.77	129	67444	42.66 ug/L	100
37)	1,2-Dibromoethane	7.91	107	68174	40.76 ug/L	99
38)	Chlorobenzene	8.55	112	143539	40.62 ug/L	95
39)	1,1,1,2-Tetrachloroethane	8.66	131	50871	39.94 ug/L	99
40)	ETHYLBENZENE	8.70	91	254616	42.05 ug/L	99
41)	m&p-Xylene	8.86	106	173787	82.58 ug/L	97
42)	o-Xylene	9.38	106	86871	41.78 ug/L	99
43)	Styrene	9.40	104	155724	40.62 ug/L	94
44)	Bromoform	9.63	173	45779	41.39 ug/L	99
46)	Isopropylbenzene	9.89	105	217459	40.44 ug/L	98
47)	1,2,3-Trichloropropane	10.35	110	23833	41.63 ug/L	100
49)	Bromobenzene	10.29	156	56623	40.01 ug/L	94
50)	1,1,2,2-Tetrachloroethane	10.30	83	94015	43.85 ug/L	100
51)	n-Propylbenzene	10.46	91	309826	42.58 ug/L	98
52)	2-Chlorotoluene	10.57	91	186143	42.57 ug/L	99
53)	4-Chlorotoluene	10.72	91	214338	43.42 ug/L	100
54)	1,3,5-Trimethylbenzene	10.72	105	196304	42.53 ug/L	99
55)	tert-Butylbenzene	11.17	119	147187	42.04 ug/L	97
56)	1,2,4-Trimethylbenzene	11.24	105	196735	41.47 ug/L	98
57)	sec-Butylbenzene	11.48	105	261040	41.59 ug/L	98
58)	1,3-Dichlorobenzene	11.61	146	103853	41.43 ug/L	98
59)	4-Isopropyltoluene	11.70	119	189096	43.58 ug/L	97
60)	1,4-Dichlorobenzene	11.74	146	105204	43.28 ug/L	98
61)	1,2-Dichlorobenzene	12.26	146	98577	41.07 ug/L	98
62)	n-Butylbenzene	12.29	91	212482	41.92 ug/L	99
63)	1,2-Dibromo-3-chloropropan	13.37	75	18405	47.05 ug/L	91
64)	1,2,4-Trichlorobenzene	14.59	180	68532	40.75 ug/L	100
65)	Hexachlorobutadiene	14.88	225	34147	43.18 ug/L #	99
66)	Naphthalene	14.93	128	161670	42.95 ug/L	100
67)	1,2,3-Trichlorobenzene	15.31	180	63243	40.90 ug/L	100

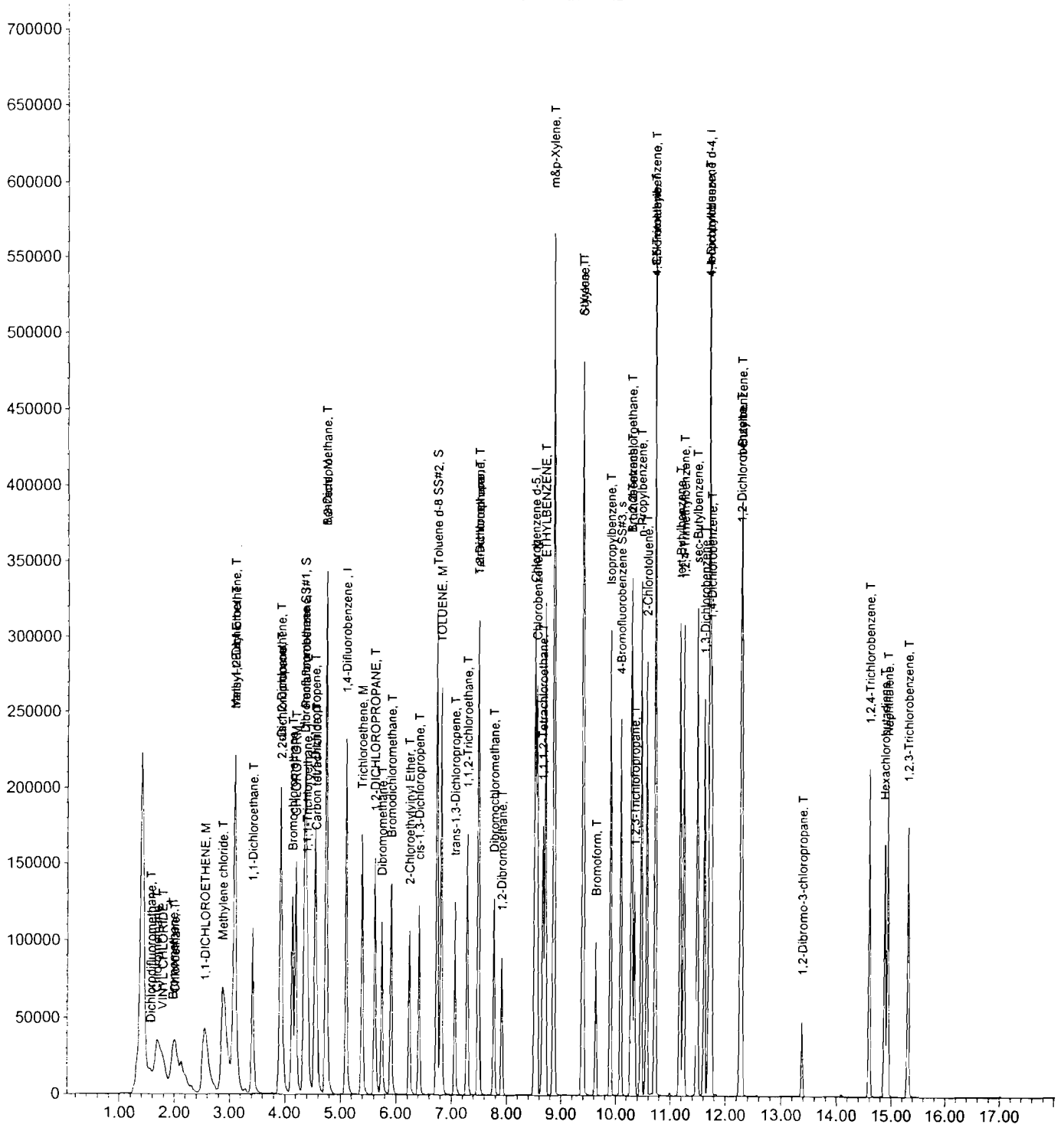
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031203\03120326.D Vial: 26
Acq On : 3 Dec 03 10:58 pm Operator: MI
Sample : 03112414-25 MS 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration

TIC: 03120326.D



2 1059

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120327.D Vial: 27
Acq On : 3 Dec 03 11:26 pm Operator: MI
Sample : 03112414-25 MSD 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.37	168	107943	50.00 ug/L	0.00
18) 1,4-Difluorobenzene	5.11	114	203410	50.00 ug/L	0.00
34) Chlorobenzene d-5	8.51	117	169361	50.00 ug/L	-0.01
45) 1,4-Dichlorobenzene d-4	11.71	152	73316	50.00 ug/L	-0.01
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.34	113	90989	50.57 ug/L	0.00
Spiked Amount 50.000			Recovery	= 101.14%	
29) Toluene d-8 SS#2	6.73	98	222955	48.97 ug/L	-0.01
Spiked Amount 50.000			Recovery	= 97.94%	
48) 4-Bromofluorobenzene SS#3	10.09	95	98496	51.73 ug/L	-0.01
Spiked Amount 50.000			Recovery	= 103.46%	
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.57	85	58080	31.69 ug/L	100
3) Chloromethane	1.68	50	115124	37.56 ug/L	98
4) VINYL CHLORIDE	1.79	62	87871	56.16 ug/L	94
5) Bromomethane	1.98	94	67382	39.43 ug/L	99
6) Chloroethane	2.01	64	54653	42.19 ug/L	98
7) 1,1-DICHLOROETHENE	2.55	96	58844	39.77 ug/L	92
8) Methylene chloride	2.87	84	102740	60.25 ug/L	95
9) trans-1,2-Dichloroethene	3.08	96	70331	43.02 ug/L	98
10) Methyl-t-Butyl Ether	3.08	73	179590	56.91 ug/L	100
11) 1,1-Dichloroethane	3.41	63	147182	41.73 ug/L	99
12) 2,2-Dichloropropane	3.93	77	91997	44.07 ug/L	97
13) cis-1,2-Dichloroethene	3.91	96	74474	39.93 ug/L	96
14) Bromochloromethane	4.13	128	36958	40.05 ug/L	97
15) CHLOROFORM	4.19	83	131375	40.05 ug/L	98
17) 1,1,1-Trichloroethane	4.39	97	102023	43.89 ug/L #	47
19) Carbon tetrachloride	4.56	117	81505	43.25 ug/L	100
20) 1,1-Dichloropropene	4.54	75	95838	42.07 ug/L	98
21) Benzene	4.74	78	227899	39.06 ug/L	98
22) 1,2-Dichloroethane	4.74	62	122222	43.53 ug/L	98
23) Trichloroethene	5.38	95	68670	40.06 ug/L	96
24) 1,2-DICHLOROPROPANE	5.61	63	72672	39.67 ug/L	100
25) Dibromomethane	5.74	93	56820	41.71 ug/L	97
26) Bromodichloromethane	5.91	83	98644	41.88 ug/L	100

(#) = qualifier out of range (m) = manual integration

2 1060

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120327.D Vial: 27
Acq On : 3 Dec 03 11:26 pm Operator: MI
Sample : 03112414-25 MSD 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
27)	2-Chloroethylvinyl Ether	6.24	63	48955	39.97 ug/L		100
28)	cis-1,3-Dichloropropene	6.41	75	103016	37.57 ug/L		98
30)	TOLUENE	6.81	92	131696	44.99 ug/L		97
31)	trans-1,3-Dichloropropene	7.06	75	97578	39.30 ug/L		99
32)	1,1,2-Trichloroethane	7.28	83	52346	40.81 ug/L		100
33)	Tetrachloroethene	7.48	166	51246	39.62 ug/L		97
35)	1,3-Dichloropropane	7.49	76	104567	42.17 ug/L		99
36)	Dibromochloromethane	7.77	129	68969	43.97 ug/L		100
37)	1,2-Dibromoethane	7.91	107	69647	41.97 ug/L		99
38)	Chlorobenzene	8.55	112	145302	41.45 ug/L		96
39)	1,1,1,2-Tetrachloroethane	8.65	131	50808	40.21 ug/L		99
40)	ETHYLBENZENE	8.70	91	255510	42.54 ug/L		99
1)	m&p-Xylene	8.86	106	175015	83.83 ug/L		97
42)	o-Xylene	9.39	106	87280	42.31 ug/L		99
43)	Styrene	9.40	104	154750	40.69 ug/L		95
44)	Bromoform	9.63	173	46422	42.31 ug/L		99
46)	Isopropylbenzene	9.90	105	217083	40.82 ug/L		98
47)	1,2,3-Trichloropropane	10.35	110	24632	43.51 ug/L		100
49)	Bromobenzene	10.28	156	56324	40.25 ug/L		95
50)	1,1,2,2-Tetrachloroethane	10.30	83	94329	44.50 ug/L		99
51)	n-Propylbenzene	10.46	91	306238	42.56 ug/L		98
52)	2-Chlorotoluene	10.57	91	185150	42.83 ug/L		100
53)	4-Chlorotoluene	10.72	91	212052	43.44 ug/L		99
54)	1,3,5-Trimethylbenzene	10.72	105	194029	42.51 ug/L		99
55)	tert-Butylbenzene	11.17	119	148752	42.97 ug/L		97
56)	1,2,4-Trimethylbenzene	11.24	105	198326	42.28 ug/L		98
57)	sec-Butylbenzene	11.48	105	256632	41.36 ug/L		98
58)	1,3-Dichlorobenzene	11.61	146	103416	41.72 ug/L		98
59)	4-Isopropyltoluene	11.70	119	187363	43.67 ug/L		97
60)	1,4-Dichlorobenzene	11.74	146	105210	43.77 ug/L		97
61)	1,2-Dichlorobenzene	12.26	146	98891	41.67 ug/L		98
62)	n-Butylbenzene	12.29	91	211084	42.12 ug/L		100
63)	1,2-Dibromo-3-chloropropan	13.37	75	18731	48.42 ug/L		93
64)	1,2,4-Trichlorobenzene	14.59	180	68043	40.92 ug/L		100
65)	Hexachlorobutadiene	14.88	225	33100	42.33 ug/L	#	99
[illegible])	Naphthalene	14.93	128	164699	44.25 ug/L		100
)	1,2,3-Trichlorobenzene	15.31	180	63553	41.57 ug/L		100

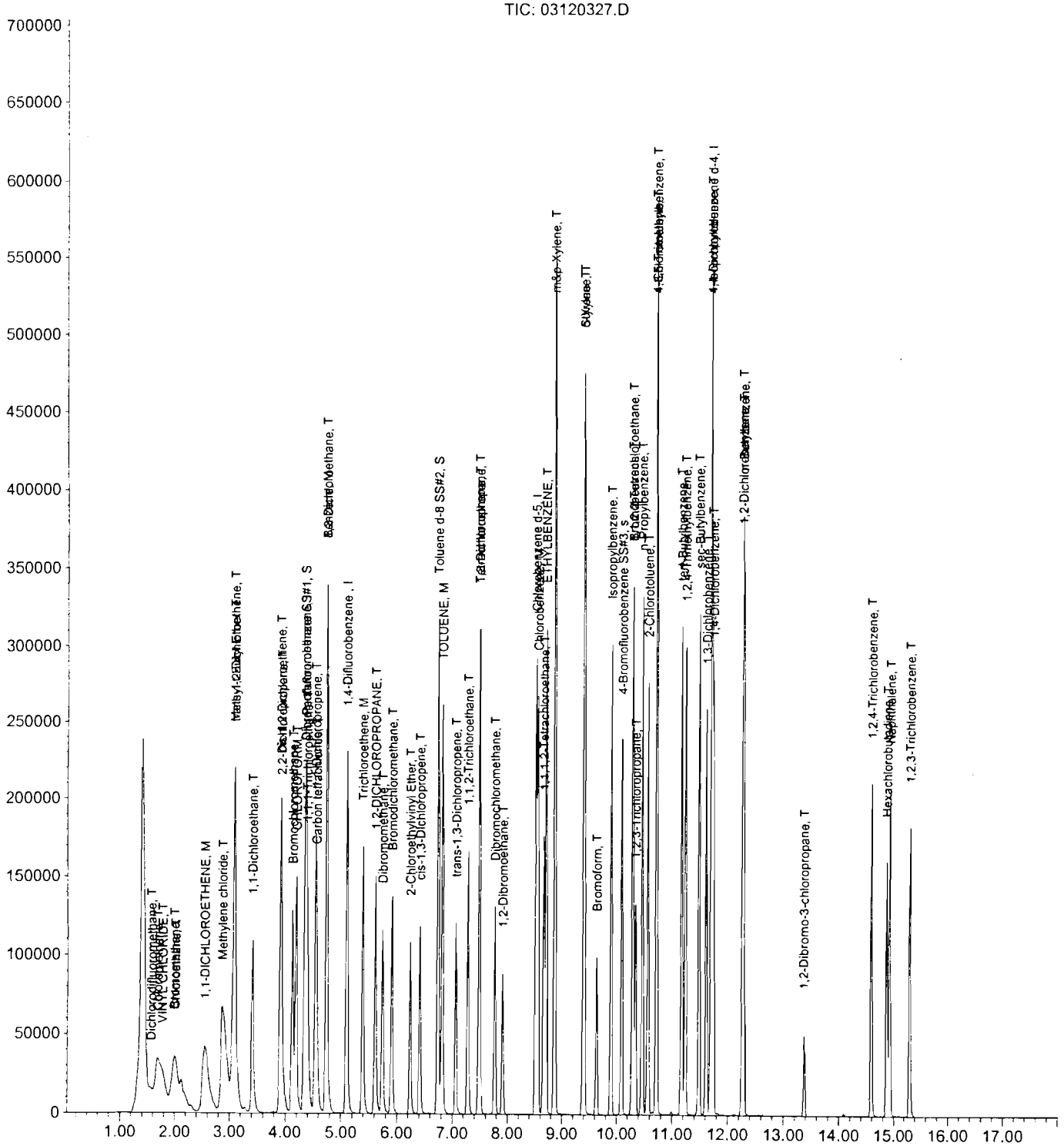
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031203\03120327.D Vial: 27
Acq On : 3 Dec 03 11:26 pm Operator: MI
Sample : 03112414-25 MSD 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, MS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration

TIC: 03120327.D



2 1062

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6630 BALTIMORE NATIONAL PIKE
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PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANICS COMPOUNDS
LABORATORY CONTROL SAMPLE SUMMARY

DATE ANALYZED: 12/03/03 **BATCH NUMBER:** VOC031202

METHOD: EPA 8260 **LAB FILE IDs:** 03120238.D

MATRIX: Water

Client Sample ID: LCS 25ppb

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	QC LIMITS (%)
1,1-Dichloroethene	25	ND	22	89	61-145
Benzene	25	ND	22	89	76-127
Trichloroethene	25	ND	24	95	71-120
Toluene	25	ND	25	98	76-125
Chlorobenzene	25	ND	26	102	75-130

* - Values outside of QC Limits

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Note: QC limits are based on CLP OLM04.2

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120238.D Vial: 38
Acq On : 3 Dec 03 4:51 am Operator: MI
Sample : LCS 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, LCS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:45 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Pentaflourobenzene	4.36	168	115528	50.00	ug/L	-0.03
19) 1,4-Difluorobenzene	5.10	114	214005	50.00	ug/L	-0.03
35) Chlorobenzene d-5	8.51	117	172821	50.00	ug/L	-0.03
46) 1,4-Dichlorobenzene d-4	11.71	152	63293	50.00	ug/L	-0.03
System Monitoring Compounds						
17) Dibromofluoromethane SS#1	4.34	113	88120	45.42	ug/L	-0.03
Spiked Amount 50.000			Recovery = 90.84%			
30) Toluene d-8 SS#2	6.73	98	236424	47.79	ug/L	-0.03
Spiked Amount 50.000			Recovery = 95.58%			
49) 4-Bromofluorobenzene SS#3	10.09	95	90960	53.45	ug/L	-0.03
Spiked Amount 50.000			Recovery = 106.90%			

Target Compounds						Qvalue
2) Dichlorodifluoromethane	1.58	85	37284	20.12	ug/L	100
3) Chloromethane	1.66	50	72806m	20.04	ug/L	0
4) VINYL CHLORIDE	1.77	62	54693	20.06	ug/L	93
5) Bromomethane	1.95	94	42043	22.31	ug/L	99
6) Chloroethane	2.00	64	35291	23.74	ug/L	86
7) Trichlorofluoromethane	2.14	101	35251m	37.12	ug/L	0
8) 1,1-DICHLOROETHENE	2.52	96	36975	22.36	ug/L	95
9) Methylene chloride	2.86	84	41809	19.84	ug/L	92
10) trans-1,2-Dichloroethene	3.08	96	43740	24.00	ug/L	99
11) Methyl-t-Butyl Ether	3.09	73	60402	18.80	ug/L	100
12) 1,1-Dichloroethane	3.41	63	87306	23.19	ug/L	99
13) 2,2-Dichloropropane	3.92	77	46933	23.30	ug/L	99
14) cis-1,2-Dichloroethene	3.91	96	43624	23.42	ug/L	97
15) Bromochloromethane	4.12	128	16576	19.79	ug/L #	91
16) CHLOROFORM	4.19	83	74836	22.94	ug/L	100
18) 1,1,1-Trichloroethane	4.39	97	62225	27.85	ug/L #	43
20) Carbon tetrachloride	4.56	117	48150	28.56	ug/L	100
21) 1,1-Dichloropropene	4.53	75	55678	24.23	ug/L	99
22) Benzene	4.73	78	131812	22.25	ug/L	99
23) 1,2-Dichloroethane	4.74	62	47919	18.95	ug/L	97
24) Trichloroethene	5.39	95	39083	23.69	ug/L	98
25) 1,2-DICHLOROPROPANE	5.61	63	38800	21.08	ug/L	100
26) Dibromomethane	5.73	93	20266	16.82	ug/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120238.D Vial: 38
Acq On : 3 Dec 03 4:51 am Operator: MI
Sample : LCS 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, LCS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:45 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	Bromodichloromethane	5.90	83	46207	21.31 ug/L	98
28)	2-Chloroethylvinyl Ether	6.23	63	11283	12.03 ug/L	98
29)	cis-1,3-Dichloropropene	6.41	75	45752	18.22 ug/L	99
31)	TOLUENE	6.81	92	75820	24.55 ug/L	99
32)	trans-1,3-Dichloropropene	7.05	75	35799	17.06 ug/L	98
33)	1,1,2-Trichloroethane	7.28	83	17997	15.87 ug/L	97
34)	Tetrachloroethene	7.48	166	28001	25.12 ug/L	97
36)	1,3-Dichloropropane	7.48	76	37074	17.21 ug/L	99
37)	Dibromochloromethane	7.77	129	25394	21.01 ug/L	99
38)	1,2-Dibromoethane	7.91	107	21855	16.78 ug/L	100
39)	Chlorobenzene	8.55	112	79809	25.58 ug/L	98
40)	1,1,1,2-Tetrachloroethane	8.66	131	26177	25.24 ug/L	98
41)	ETHYLBENZENE	8.70	91	142363	26.33 ug/L	99
42)	m&p-Xylene	8.86	106	96386	51.91 ug/L	99
43)	o-Xylene	9.38	106	47266	25.85 ug/L	98
44)	Styrene	9.40	104	78437	23.65 ug/L	96
45)	Bromoform	9.63	173	12011	16.88 ug/L	98
47)	Isopropylbenzene	9.90	105	109819	29.96 ug/L	99
48)	1,2,3-Trichloropropane	10.34	110	5331	16.77 ug/L	100
50)	Bromobenzene	10.28	156	26132	26.42 ug/L	98
51)	1,1,2,2-Tetrachloroethane	10.29	83	21669	16.54 ug/L	98
52)	n-Propylbenzene	10.46	91	142347	29.24 ug/L	98
53)	2-Chlorotoluene	10.56	91	94101	29.99 ug/L	98
54)	4-Chlorotoluene	10.71	91	105057	29.41 ug/L	100
55)	1,3,5-Trimethylbenzene	10.72	105	90675	30.38 ug/L	98
56)	tert-Butylbenzene	11.17	119	62137	29.79 ug/L	99
57)	1,2,4-Trimethylbenzene	11.24	105	89593	28.80 ug/L	99
58)	sec-Butylbenzene	11.48	105	94991	27.60 ug/L	99
59)	1,3-Dichlorobenzene	11.61	146	45736	27.33 ug/L	100
60)	4-Isopropyltoluene	11.70	119	67329	28.34 ug/L	98
61)	1,4-Dichlorobenzene	11.74	146	45062	25.70 ug/L	99
62)	1,2-Dichlorobenzene	12.26	146	37786	23.99 ug/L	99
63)	n-Butylbenzene	12.28	91	60307	23.71 ug/L	98
64)	1,2-Dibromo-3-chloropropan	13.37	75	2054	13.76 ug/L	94
65)	1,2,4-Trichlorobenzene	14.60	180	10724	14.07 ug/L	98
66)	Hexachlorobutadiene	14.88	225	6034	22.57 ug/L #	100
67)	Naphthalene	14.93	128	12599	8.52 ug/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031202\03120238.D Vial: 38
Acq On : 3 Dec 03 4:51 am Operator: MI
Sample : LCS 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, LCS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:45 2003 Quant Results File: 8260-W.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
68) 1,2,3-Trichlorobenzene	15.30	180	5658	9.41 ug/L	100

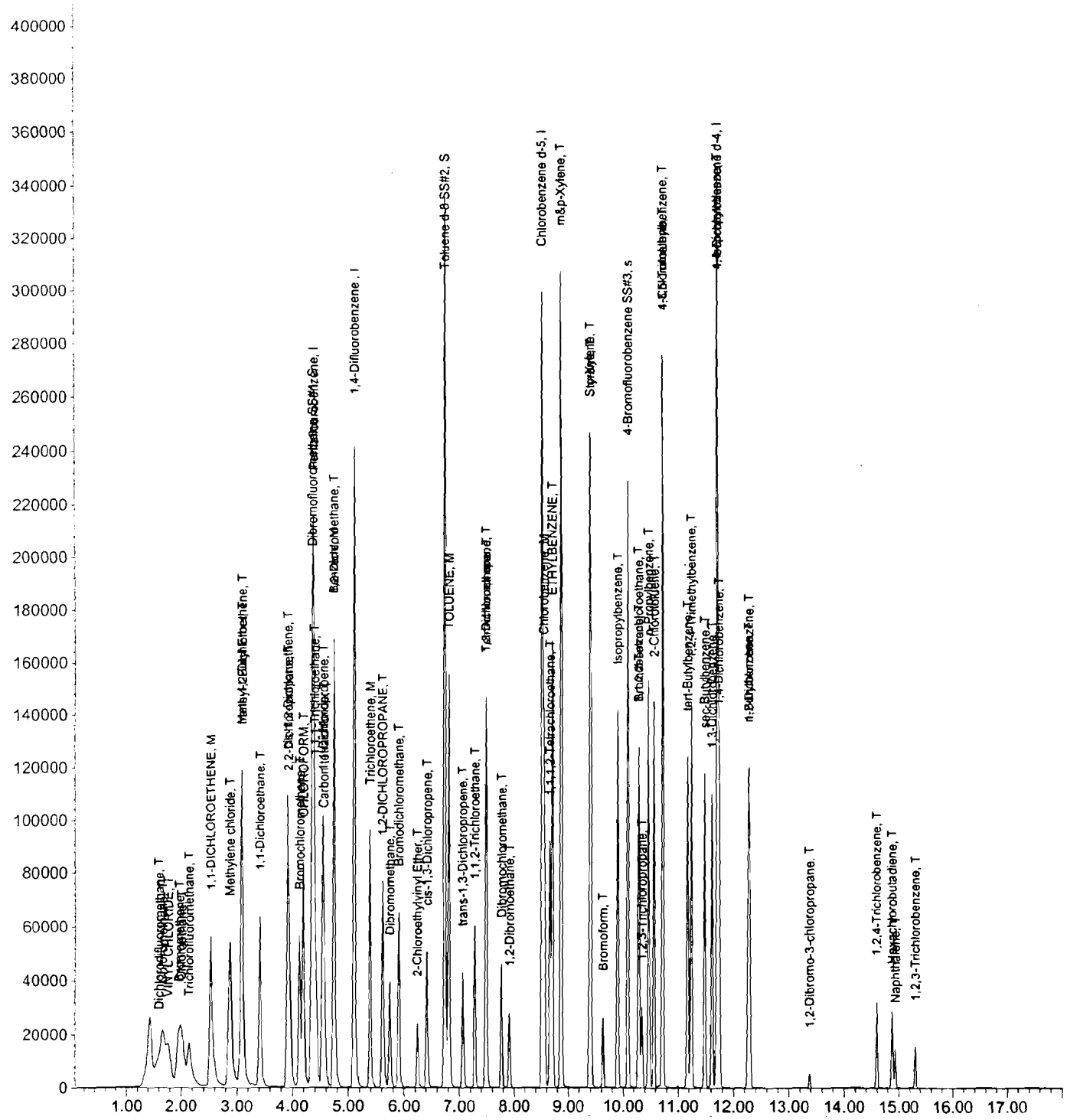
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031202\03120238.D Vial: 38
Acq On : 3 Dec 03 4:51 am Operator: MI
Sample : LCS 25ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #245, LCS 5uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 18:45 2003 Quant Results File: 8260-W.RES

Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Sun Nov 23 11:02:57 2003
Response via : Initial Calibration

TIC: 03120238.D



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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
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PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANICS COMPOUNDS
LCS AND LCS DUPLICATE SUMMARY

DATE ANALYZED: 12/03/03 **BATCH NUMBER:** VOC031203

METHOD: EPA 8260 **LAB FILE IDs:** 03120324.D
03120325.D

MATRIX: Soil

Client Sample ID: LCS 40ppb

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	QC LIMITS (%)
1,1-Dichloroethene	40	ND	48	121	59-172
Benzene	40	ND	46	114	66-142
Trichloroethene	40	ND	47	117	62-137
Toluene	40	ND	52	130	59-139
Chlorobenzene	40	ND	48	121	60-133

Client Sample ID: LCSD 40ppb

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
1,1-Dichloroethene	40	ND	46	116	4.2	22	59-172
Benzene	40	ND	45	112	2.2	21	66-142
Trichloroethene	40	ND	45	112	4.0	24	62-137
Toluene	40	ND	50	126	2.9	21	59-139
Chlorobenzene	40	ND	46	116	4.0	21	60-133

* - Values outside of QC Limits

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

2 1068

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120324.D Vial: 24
Acq On : 3 Dec 03 10:03 pm Operator: MI
Sample : LCS 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, LCS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.36	168	97484	50.00 ug/L	-0.01
18) 1,4-Difluorobenzene	5.10	114	182040	50.00 ug/L	-0.01
34) Chlorobenzene d-5	8.51	117	148909	50.00 ug/L	-0.02
45) 1,4-Dichlorobenzene d-4	11.70	152	67300	50.00 ug/L	-0.02
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.33	113	82791	50.95 ug/L	-0.01
Spiked Amount 50.000			Recovery = 101.90%		
29) Toluene d-8 SS#2	6.73	98	195756	48.05 ug/L	-0.01
Spiked Amount 50.000			Recovery = 96.10%		
48) 4-Bromofluorobenzene SS#3	10.09	95	86753	49.63 ug/L	-0.02
Spiked Amount 50.000			Recovery = 99.26%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.56	85	66321	40.07 ug/L	100
3) Chloromethane	1.68	50	125852	45.46 ug/L	99
4) VINYL CHLORIDE	1.78	62	97678	69.13 ug/L	71
5) Bromomethane	1.98	94	74512	48.89 ug/L	98
6) Chloroethane	2.00	64	61069	52.77 ug/L	98
7) 1,1-DICHLOROETHENE	2.56	96	64461	48.23 ug/L	92
8) Methylene chloride	2.85	84	106264	69.00 ug/L	97
9) trans-1,2-Dichloroethene	3.08	96	75977	51.46 ug/L	97
10) Methyl-t-Butyl Ether	3.07	73	186591	65.47 ug/L	100
11) 1,1-Dichloroethane	3.41	63	156347	49.08 ug/L	99
12) 2,2-Dichloropropane	3.92	77	100537	53.32 ug/L	96
13) cis-1,2-Dichloroethene	3.91	96	80830	47.99 ug/L	97
14) Bromochloromethane	4.12	128	38491	46.19 ug/L	96
15) CHLOROFORM	4.19	83	139368	47.05 ug/L	99
17) 1,1,1-Trichloroethane	4.39	97	108576	51.72 ug/L #	57
19) Carbon tetrachloride	4.56	117	87313	51.77 ug/L	98
20) 1,1-Dichloropropene	4.53	75	99974	49.04 ug/L	98
21) Benzene	4.74	78	238324	45.64 ug/L	98
22) 1,2-Dichloroethane	4.74	62	127485	50.73 ug/L	99
23) Trichloroethene	5.39	95	71647	46.71 ug/L	96
24) 1,2-DICHLOROPROPANE	5.61	63	75397	45.98 ug/L	100
25) Dibromomethane	5.74	93	58015	47.58 ug/L	98
26) Bromodichloromethane	5.90	83	100725	47.79 ug/L	99

(#) = qualifier out of range (m) = manual integration

2 1069

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120324.D Vial: 24
Acq On : 3 Dec 03 10:03 pm Operator: MI
Sample : LCS 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, LCS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	2-Chloroethylvinyl Ether	6.23	63	52627	48.01 ug/L	100
28)	cis-1,3-Dichloropropene	6.40	75	105028	42.80 ug/L	99
30)	TOLUENE	6.81	92	135897	51.88 ug/L	97
31)	trans-1,3-Dichloropropene	7.05	75	98474	44.32 ug/L	98
32)	1,1,2-Trichloroethane	7.28	83	51620	44.97 ug/L	99
33)	Tetrachloroethene	7.48	166	53606	46.32 ug/L	98
35)	1,3-Dichloropropane	7.48	76	104306	47.84 ug/L	100
36)	Dibromochloromethane	7.77	129	68227	49.47 ug/L	99
37)	1,2-Dibromoethane	7.91	107	69459	47.61 ug/L	100
38)	Chlorobenzene	8.55	112	149026	48.35 ug/L	96
39)	1,1,1,2-Tetrachloroethane	8.66	131	53547	48.20 ug/L	99
40)	ETHYLBENZENE	8.70	91	262959	49.79 ug/L	99
41)	m&p-Xylene	8.86	106	179290	97.67 ug/L	97
42)	o-Xylene	9.39	106	90594	49.95 ug/L	100
43)	Styrene	9.40	104	160390	47.96 ug/L	94
44)	Bromoform	9.63	173	45232	46.89 ug/L	99
46)	Isopropylbenzene	9.90	105	230196	47.16 ug/L	97
47)	1,2,3-Trichloropropane	10.34	110	24853	47.83 ug/L	100
49)	Bromobenzene	10.28	156	58213	45.32 ug/L	95
50)	1,1,2,2-Tetrachloroethane	10.29	83	95700	49.18 ug/L	99
51)	n-Propylbenzene	10.46	91	326587	49.45 ug/L	98
52)	2-Chlorotoluene	10.56	91	194549	49.02 ug/L	100
53)	4-Chlorotoluene	10.72	91	225166	50.25 ug/L	99
54)	1,3,5-Trimethylbenzene	10.72	105	210535	50.25 ug/L	99
55)	tert-Butylbenzene	11.17	119	165415	52.05 ug/L	97
56)	1,2,4-Trimethylbenzene	11.24	105	213587	49.60 ug/L	98
57)	sec-Butylbenzene	11.48	105	289141	50.76 ug/L	99
58)	1,3-Dichlorobenzene	11.61	146	111246	48.89 ug/L	99
59)	4-Isopropyltoluene	11.70	119	210591	53.48 ug/L	97
60)	1,4-Dichlorobenzene	11.74	146	112178	50.84 ug/L	99
61)	1,2-Dichlorobenzene	12.26	146	107048	49.14 ug/L	98
62)	n-Butylbenzene	12.29	91	240834	52.36 ug/L	100
63)	1,2-Dibromo-3-chloropropan	13.37	75	21278	59.93 ug/L	91
64)	1,2,4-Trichlorobenzene	14.60	180	80963	53.04 ug/L	99
65)	Hexachlorobutadiene	14.88	225	42126	58.69 ug/L #	99
66)	Naphthalene	14.93	128	188127	55.07 ug/L	100
67)	1,2,3-Trichlorobenzene	15.30	180	77490	55.21 ug/L	99

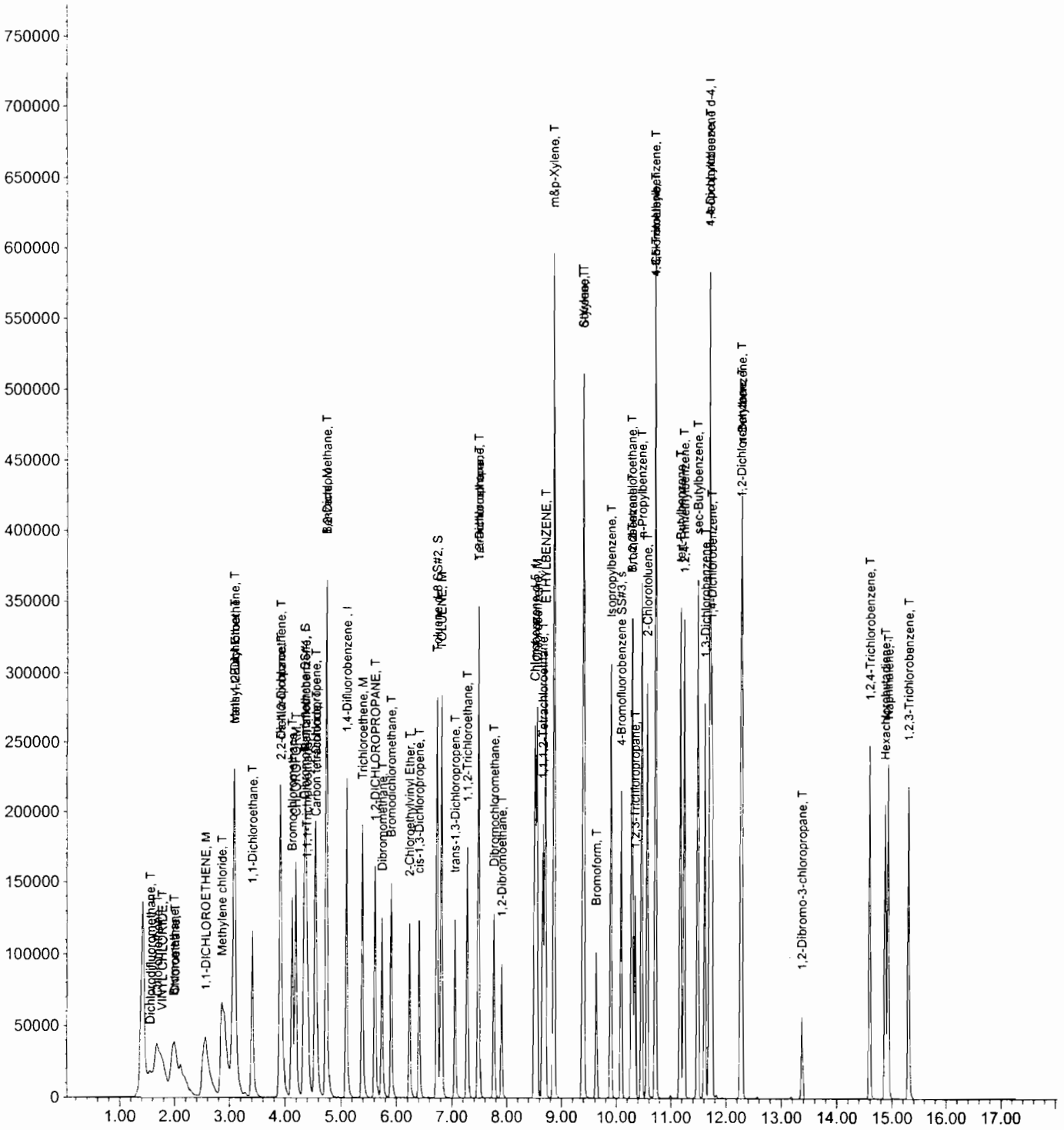
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031203\03120324.D Vial: 24
Acq On : 3 Dec 03 10:03 pm Operator: MI
Sample : LCS 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, LCS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration

TIC: 03120324.D



Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120325.D Vial: 25
Acq On : 3 Dec 03 10:31 pm Operator: MI
Sample : LCS-DUP 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, LCS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) Pentaflourobenzene	4.36	168	97986	50.00 ug/L	-0.01
18) 1,4-Difluorobenzene	5.10	114	178976	50.00 ug/L	-0.01
34) Chlorobenzene d-5	8.51	117	153970	50.00 ug/L	-0.02
45) 1,4-Dichlorobenzene d-4	11.71	152	67729	50.00 ug/L	-0.02
System Monitoring Compounds					
16) Dibromofluoromethane SS#1	4.34	113	84059	51.47 ug/L	-0.01
Spiked Amount 50.000			Recovery = 102.94%		
29) Toluene d-8 SS#2	6.73	98	198736	49.61 ug/L	-0.02
Spiked Amount 50.000			Recovery = 99.22%		
48) 4-Bromofluorobenzene SS#3	10.09	95	90855	51.65 ug/L	-0.02
Spiked Amount 50.000			Recovery = 103.30%		
Target Compounds					Qvalue
2) Dichlorodifluoromethane	1.57	85	62537	37.59 ug/L	100
3) Chloromethane	1.67	50	125115	44.97 ug/L	98
4) VINYL CHLORIDE	1.78	62	94858	66.79 ug/L	96
5) Bromomethane	1.96	94	73322	47.79 ug/L	100
6) Chloroethane	2.01	64	60161	51.66 ug/L	97
7) 1,1-DICHLOROETHENE	2.55	96	62108	46.24 ug/L	93
8) Methylene chloride	2.86	84	101282	65.43 ug/L	96
9) trans-1,2-Dichloroethene	3.08	96	73457	49.50 ug/L	97
10) Methyl-t-Butyl Ether	3.07	73	177836	62.08 ug/L	100
11) 1,1-Dichloroethane	3.41	63	153684	48.00 ug/L	99
12) 2,2-Dichloropropane	3.93	77	95074	50.17 ug/L	97
13) cis-1,2-Dichloroethene	3.91	96	78972	46.64 ug/L	97
14) Bromochloromethane	4.12	128	38880	46.42 ug/L	97
15) CHLOROFORM	4.19	83	136948	45.99 ug/L	98
17) 1,1,1-Trichloroethane	4.39	97	104100	49.34 ug/L #	47
19) Carbon tetrachloride	4.56	117	84189	50.78 ug/L	99
20) 1,1-Dichloropropene	4.53	75	94924	47.36 ug/L	99
21) Benzene	4.73	78	229185	44.64 ug/L	97
22) 1,2-Dichloroethane	4.73	62	126629	51.25 ug/L	98
23) Trichloroethene	5.39	95	67657	44.86 ug/L	97
24) 1,2-DICHLOROPROPANE	5.61	63	72786	45.15 ug/L	100
25) Dibromomethane	5.73	93	57599	48.05 ug/L	97
26) Bromodichloromethane	5.91	83	99668	48.10 ug/L	100

(#) = qualifier out of range (m) = manual integration

2 1972

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\2\DATA\031203\03120325.D Vial: 25
Acq On : 3 Dec 03 10:31 pm Operator: MI
Sample : LCS-DUP 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, LCS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Quant Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration
DataAcq Meth : RTX1VOA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
27)	2-Chloroethylvinyl Ether	6.23	63	50957	47.28 ug/L	99
28)	cis-1,3-Dichloropropene	6.41	75	103019	42.70 ug/L	100
30)	TOLUENE	6.81	92	129761	50.39 ug/L	97
31)	trans-1,3-Dichloropropene	7.06	75	99298	45.45 ug/L	99
32)	1,1,2-Trichloroethane	7.28	83	51344	45.49 ug/L	99
33)	Tetrachloroethene	7.48	166	50110	44.04 ug/L	98
35)	1,3-Dichloropropane	7.48	76	104383	46.31 ug/L	99
36)	Dibromochloromethane	7.76	129	69124	48.48 ug/L	100
37)	1,2-Dibromoethane	7.91	107	69527	46.09 ug/L	99
38)	Chlorobenzene	8.55	112	148000	46.44 ug/L	95
39)	1,1,1,2-Tetrachloroethane	8.66	131	53383	46.48 ug/L	100
40)	ETHYLBENZENE	8.70	91	256142	46.91 ug/L	98
41)	m&p-Xylene	8.86	106	177457	93.50 ug/L	97
42)	o-Xylene	9.39	106	89763	47.87 ug/L	99
43)	Styrene	9.40	104	162297	46.94 ug/L	95
44)	Bromoform	9.63	173	47239	47.36 ug/L	99
46)	Isopropylbenzene	9.89	105	225651	45.94 ug/L	98
47)	1,2,3-Trichloropropane	10.34	110	25492	48.75 ug/L	100
49)	Bromobenzene	10.29	156	59579	46.09 ug/L	94
50)	1,1,2,2-Tetrachloroethane	10.29	83	100108	51.12 ug/L	100
51)	n-Propylbenzene	10.47	91	320662	48.24 ug/L	98
52)	2-Chlorotoluene	10.56	91	192434	48.18 ug/L	100
53)	4-Chlorotoluene	10.72	91	223408	49.54 ug/L	99
54)	1,3,5-Trimethylbenzene	10.72	105	206290	48.93 ug/L	98
55)	tert-Butylbenzene	11.17	119	156267	48.86 ug/L	97
56)	1,2,4-Trimethylbenzene	11.24	105	211126	48.72 ug/L	99
57)	sec-Butylbenzene	11.49	105	275239	48.01 ug/L	99
58)	1,3-Dichlorobenzene	11.62	146	109516	47.83 ug/L	98
59)	4-Isopropyltoluene	11.70	119	201632	50.88 ug/L	97
60)	1,4-Dichlorobenzene	11.74	146	112321	50.58 ug/L	98
61)	1,2-Dichlorobenzene	12.26	146	106829	48.73 ug/L	98
62)	n-Butylbenzene	12.28	91	228397	49.34 ug/L	100
63)	1,2-Dibromo-3-chloropropan	13.37	75	20952	58.63 ug/L	91
64)	1,2,4-Trichlorobenzene	14.60	180	76102	49.54 ug/L	99
65)	Hexachlorobutadiene	14.88	225	37856	52.41 ug/L #	99
66)	Naphthalene	14.94	128	183933	53.50 ug/L	100
67)	1,2,3-Trichlorobenzene	15.31	180	71950	50.94 ug/L	100

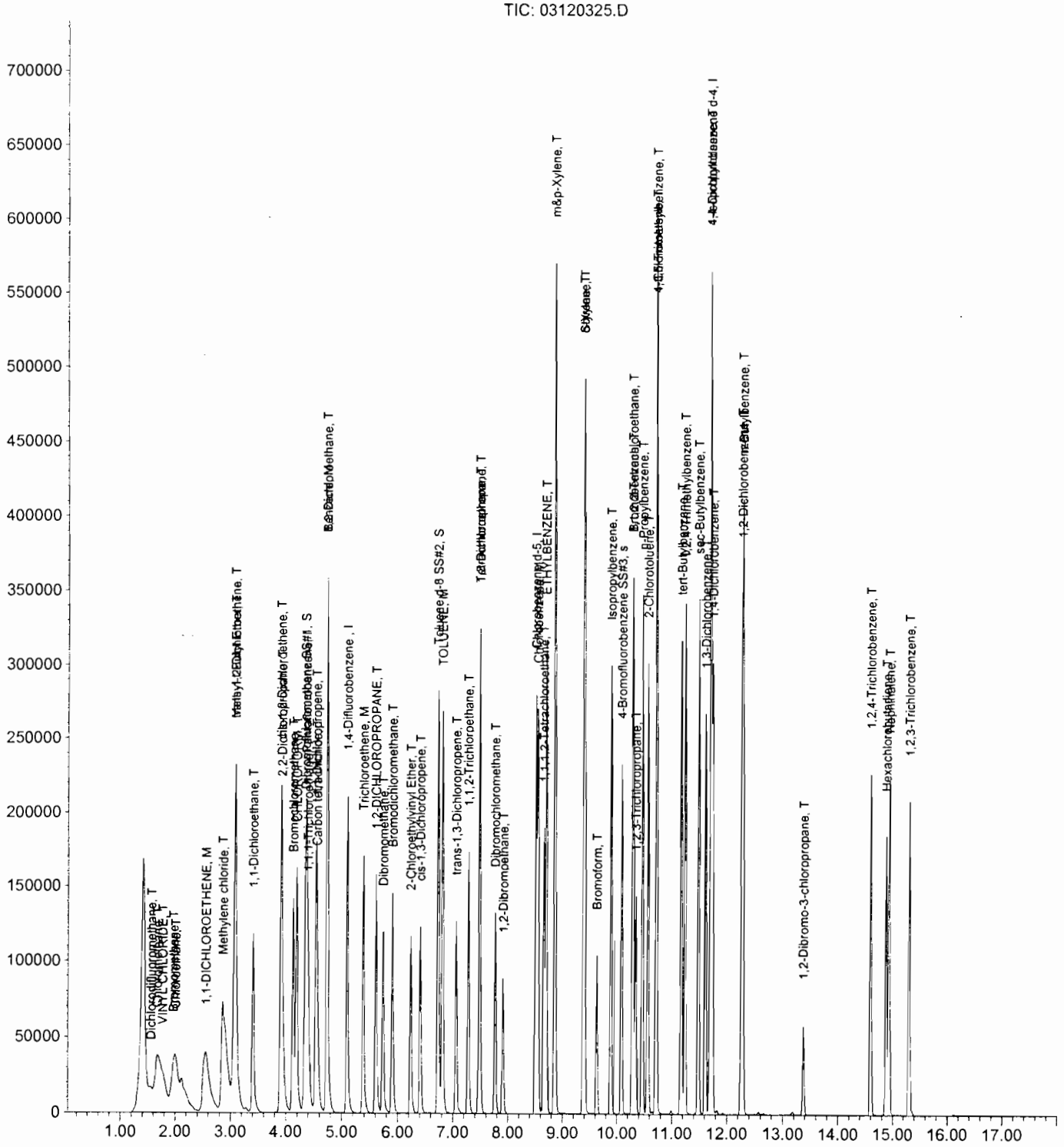
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\2\DATA\031203\03120325.D Vial: 25
Acq On : 3 Dec 03 10:31 pm Operator: MI
Sample : LCS-DUP 40ppb Inst : GC/MS Ins
Misc : IS/Surr 1uL #287, LCS 1uL #42 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 19:38 2003 Quant Results File: 8260-S.RES

Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics
Last Update : Fri Oct 31 15:09:42 2003
Response via : Initial Calibration

TIC: 03120325.D



2 1074

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PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANIC COMPOUNDS
INSTRUMENT AND PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

ANALYSIS:	**GC/MS Volatiles**	**LAB CODE:**	**BFBW**
METHOD:	**EPA 8260**	**LAB SAMPLE ID:**	**BFB Tune**
LAB FILE ID:	**03120201.D**	**DATE/TIME ANALYZED:**	**12/02/03 12:53**

Target Mass	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	28.8
75	30.0 - 60.0% of mass 95	50.8
95	Base peak, 100% relative mass abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than2.0% of mass 174	0.0
174	Greater than 50.0% of mass 95	62.9
175	5.0 - 9.0% of mass 174	7.4
176	Greater than 95.0%, but less than 101.0% of mass 174	97.4
177	5.0 - 9.0% of mass 176	6.6

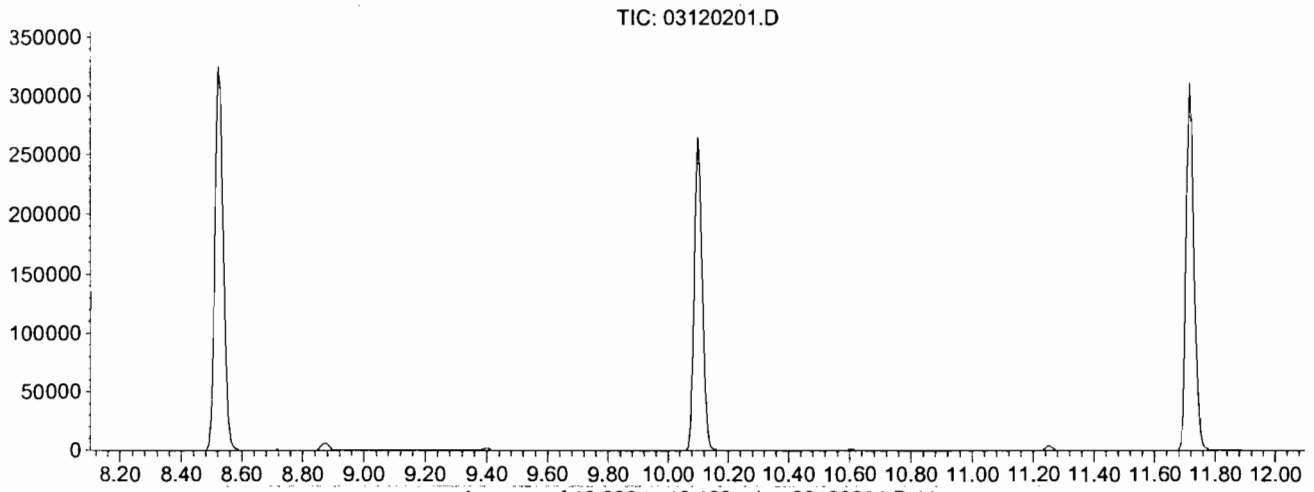
This Tune applies to the following samples:

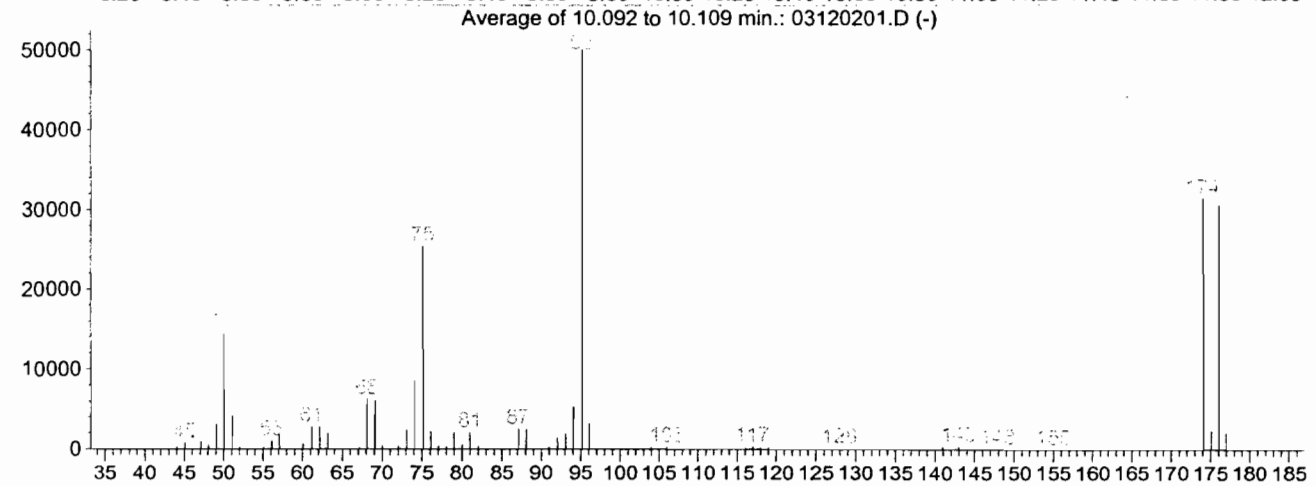
Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-4	03112414-21	03120222.D	12/02/03 22:11
SB-2	03112414-27	03120223.D	12/02/03 22:35
SB-6	03112414-33	03120224.D	12/02/03 23:01
SB-32	03112414-43	03120225.D	12/02/03 23:26
SB-33	03112414-46	03120226.D	12/02/03 23:50

2 1075

BFB

Data File : C:\HPCHEM\2\DATA\031202\03120201.D Vial: 1
Acq On : 2 Dec 03 12:53 pm Operator: MI
Sample : BFB TUNE BLANK Water 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\HPCHEM\2\METHODS\8260-W.M (RTE Integrator)
Title : 524.2 Purgable Organics





AutoFind: Scans 1224, 1225, 1226; Background Corrected with Scan 1218

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	28.8	14391	PASS
75	95	30	60	50.8	25437	PASS
95	95	100	100	100.0	50032	PASS
96	95	5	9	6.5	3231	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	62.9	31477	PASS
175	174	5	9	7.4	2331	PASS
176	174	95	101	97.4	30648	PASS
177	176	5	9	6.6	2034	PASS

03120201.D 8260-W.M Fri Dec 05 18:32:46 2003

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
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PHASE SEPARATION SCIENCE, INC.

VOLATILE ORGANIC COMPOUNDS INSTRUMENT AND PERFORMANCE CHECK BROMOFLUOROBENZENE (BFB)

ANALYSIS:	**GC/MS Volatiles**	**LAB CODE:**	**BFBS**
METHOD:	**EPA 8260**	**LAB SAMPLE ID:**	**BFB Tune**
LAB FILE ID:	**03120301.D**	**DATE/TIME ANALYZED:**	**12/03/03 09:47**

Target Mass	Ion Abundance Criteria	% Relative Abundance
50	15.0 - 40.0% of mass 95	29.7
75	30.0 - 60.0% of mass 95	52.9
95	Base peak, 100% relative mass abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than2.0% of mass 174	0.0
174	Greater than 50.0% of mass 95	63.3
175	5.0 - 9.0% of mass 174	7.4
176	Greater than 95.0%, but less than 101.0% of mass 174	96.9
177	5.0 - 9.0% of mass 176	6.9

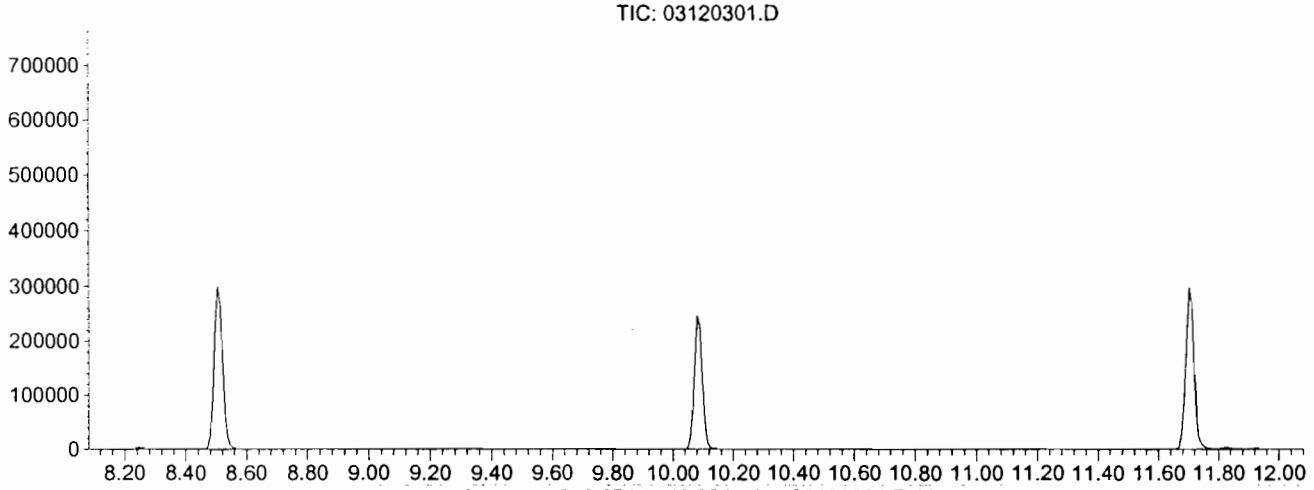
This Tune applies to the following samples:

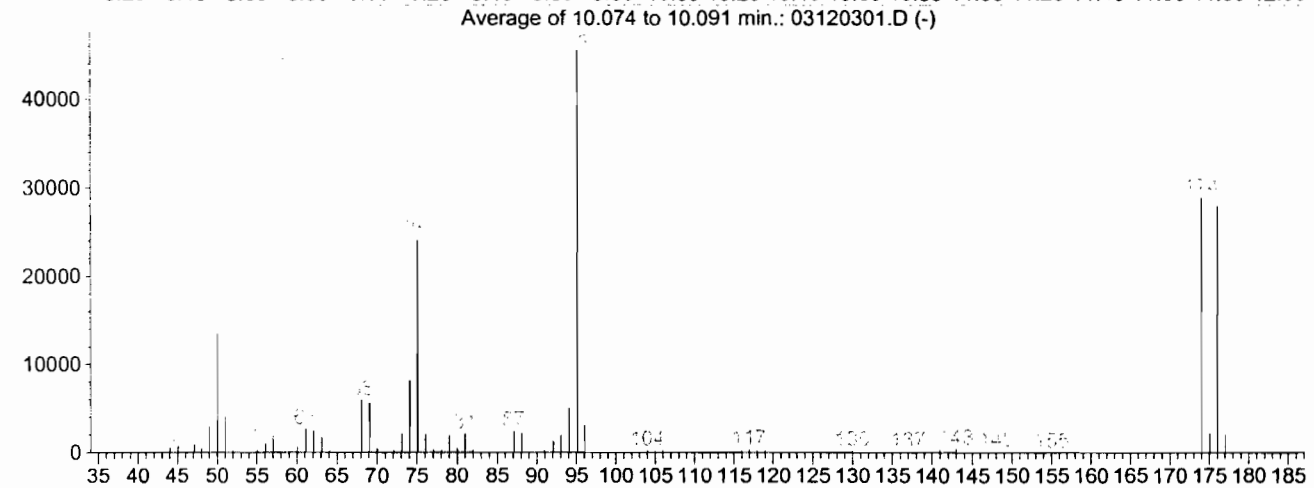
Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-1-05	03112414-17	03120306.D	12/03/03 13:23
SB-1-10	03112414-18	03120307.D	12/03/03 13:51
SB-4-05	03112414-19	03120308.D	12/03/03 14:18
SB-4-10	03112414-20	03120309.D	12/03/03 14:46
SB-5-05	03112414-23	03120310.D	12/03/03 15:14
SB-5-10	03112414-24	03120311.D	12/03/03 15:42
SB-2-05	03112414-25	03120312.D	12/03/03 16:09
SB-2-10	03112414-26	03120313.D	12/03/03 16:37
SB-3-05	03112414-29	03120314.D	12/03/03 17:05
SB-3-10	03112414-30	03120315.D	12/03/03 17:33
SB-6-05	03112414-31	03120316.D	12/03/03 18:01
SB-6-10	03112414-32	03120317.D	12/03/03 18:29
SB-32-05	03112414-42	03120318.D	12/03/03 18:56
SB-33-05	03112414-45	03120319.D	12/03/03 19:24

2 1077

BFB

Data File : C:\HPCHEM\2\DATA\031203\03120301.D Vial: 1
Acq On : 3 Dec 03 9:47 am Operator: MI
Sample : BFB TUNE BLANK Soil 5mL Inst : GC/MS Ins
Misc : IS/Surr 1uL #245 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\HPCHEM\2\METHODS\8260-S.M (RTE Integrator)
Title : 524.2 Purgable Organics





AutoFind: Scans 1222, 1223, 1224; Background Corrected with Scan 1216

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	29.7	13531	PASS
75	95	30	60	52.9	24053	PASS
95	95	100	100	100.0	45507	PASS
96	95	5	9	6.7	3047	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	63.3	28816	PASS
175	174	5	9	7.4	2146	PASS
176	174	95	101	96.9	27912	PASS
177	176	5	9	6.9	1929	PASS

Injection Log

Directory: c:\hpchem\2\data\031202

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1		03120201.d	1.	BFB TUNE BLANK Water 5mL	IS/Surr 1uL #245	2 Dec 03 12:5
2	2	03120202.d	1.	8260-W, CCV 50ppb	IS/Surr 1uL #245, CCV 10uL #233/235/236	2 Dec 03 13:3
3	3	03120203.d	1.	MDE-W, CCV 50ppb	IS/Surr 1uL #245, CCV 20uL #237	2 Dec 03 13:5
4	4	03120204.d	1.	NEWMIX-W, CCV 50ppb	IS/Surr 1uL #245, CCV 10uL #238/239	2 Dec 03 14:2
5	5	03120205.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #245	2 Dec 03 14:4
6	6	03120206.d	1.	03112113-01 5mL	IS/Surr 1uL #245	2 Dec 03 15:1
7	7	03120207.d	1.	03112113-02 5mL	IS/Surr 1uL #245	2 Dec 03 15:3
8	8	03120208.d	1.	03111717-03 5mL	IS/Surr 1uL #245	2 Dec 03 16:0
9	9	03120209.d	1.	03112532-07 5mL	IS/Surr 1uL #245	2 Dec 03 16:2
10	10	03120210.d	1.	03112619-03 5mL	IS/Surr 1uL #245	2 Dec 03 16:5
11	11	03120211.d	1.	03112411-01 5mL	IS/Surr 1uL #245	2 Dec 03 17:1
12	12	03120212.d	1.	03112411-02 5mL	IS/Surr 1uL #245	2 Dec 03 17:4
13	13	03120213.d	1.	03112411-03 5mL	IS/Surr 1uL #245	2 Dec 03 18:0
14	14	03120214.d	1.	03112501-01 5mL	IS/Surr 1uL #245	2 Dec 03 18:3
15	15	03120215.d	1.	03112501-02 5mL	IS/Surr 1uL #245	2 Dec 03 18:5
16	16	03120216.d	1.	03112501-03 5mL	IS/Surr 1uL #245	2 Dec 03 19:2
17	17	03120217.d	1.	03112501-04 5mL	IS/Surr 1uL #245	2 Dec 03 19:4
18	18	03120218.d	1.	8260-W CCV 50ppb	IS/Surr 1uL #245, CCV 10uL #233/235/236	2 Dec 03 20:3
19	19	03120219.d	1.	MDE-W CCV 50ppb	IS/Surr 1uL #245, CCV 20uL #237	2 Dec 03 20:5
20	20	03120220.d	1.	NEWMIX-W CCV 50ppb	IS/Surr 1uL #245, CCV 10uL #238/239	2 Dec 03 21:2
21	21	03120221.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #245	2 Dec 03 21:4
22	22	03120222.d	1.	03112414-21 5mL	IS/Surr 1uL #245	2 Dec 03 22:1
23	23	03120223.d	1.	03112414-27 5mL	IS/Surr 1uL #245	2 Dec 03 22:3
24	24	03120224.d	1.	03112414-33 5mL	IS/Surr 1uL #245	2 Dec 03 23:0
25	25	03120225.d	1.	03112414-43 5mL	IS/Surr 1uL #245	2 Dec 03 23:2
26	26	03120226.d	1.	03112414-46 5mL	IS/Surr 1uL #245	2 Dec 03 23:5
27	27	03120227.d	1.	03112627-01 5mL	IS/Surr 1uL #245	3 Dec 03 00:1
28	28	03120228.d	1.	03112627-02 5mL	IS/Surr 1uL #245	3 Dec 03 00:4
29	29	03120229.d	1.	03112627-03 5mL	IS/Surr 1uL #245	3 Dec 03 01:0
30	30	03120230.d	1.	03112627-04 5mL	IS/Surr 1uL #245	3 Dec 03 01:3
31	31	03120231.d	1.	03112627-06 5mL	IS/Surr 1uL #245	3 Dec 03 01:5
32	32	03120232.d	1.	03112627-07 5mL	IS/Surr 1uL #245	3 Dec 03 02:2
33	33	03120233.d	1.	03112627-08 5mL	IS/Surr 1uL #245	3 Dec 03 02:4
34	34	03120234.d	1.	03112627-09 5mL	IS/Surr 1uL #245	3 Dec 03 03:1
35	35	03120235.d	1.	03112627-10 5mL	IS/Surr 1uL #245	3 Dec 03 03:3
36	36	03120236.d	1.	03112627-11 5mL	IS/Surr 1uL #245	3 Dec 03 04:0
37	37	03120237.d	1.	03112627-05 5mL	IS/Surr 1uL #245	3 Dec 03 04:2
38	38	03120238.d	1.	LCS 25ppb	IS/Surr 1uL #245, LCS 5uL #42	3 Dec 03 04:5
39	39	03120239.d	1.	03112627-02 MS 25ppb	IS/Surr 1uL #245, MS 5uL #42	3 Dec 03 05:1
40	40	03120240.d	1.	03112627-02 MSD 25ppb	IS/Surr 1uL #245, MS 5uL #42	3 Dec 03 05:4
41	41	03120241.d	1.	03112013-09 MS 25ppb	IS/Surr 1uL #245, MS 5uL #42	3 Dec 03 06:0
42	42	03120242.d	1.	03112013-09 MSD 25ppb	IS/Surr 1uL #245, MS 5uL #42	3 Dec 03 06:3
43	43	03120243.d	1.	03112107-04 MS 25ppb	IS/Surr 1uL #245, MS 5uL #42	3 Dec 03 06:5
44	44	03120244.d	1.	03112107-04 MSD 25ppb	IS/Surr 1uL #245, MS 5uL #42	3 Dec 03 07:2
45	45	03120245.d	1.	REG VOC QCO-007-12	IS/Surr 1uL #245	3 Dec 03 07:4
46	46	03120246.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #245	3 Dec 03 08:1
47	47	03120247.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #245	3 Dec 03 08:3

2 1979

Injection Log

Directory: c:\hpchem\2\data\031203

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	03120301.d	1.	BFB TUNE BLANK Soil 5mL	IS/Surr 1uL #245	3 Dec 03 09:4
2	2	03120302.d	1.	8260-S, CCV 80ppb	IS/Surr 1uL #287, CCV 2uL #233/235/236	3 Dec 03 10:5
3	3	03120303.d	1.	MDE-S, CCV 80ppb	IS/Surr 1uL #287, CCV 4uL #237	3 Dec 03 11:4
4	4	03120304.d	1.	NEWMIX-S, CCV 80ppb	IS/Surr 1uL #287, CCV 2uL #238/239	3 Dec 03 12:1
5	5	03120305.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #287	3 Dec 03 12:3
6	6	03120306.d	1.	03112414-17 5.05g	IS/Surr 1uL #287	3 Dec 03 13:2
7	7	03120307.d	1.	03112414-18 5.04g	IS/Surr 1uL #287	3 Dec 03 13:5
8	8	03120308.d	1.	03112414-19 5.07g	IS/Surr 1uL #287	3 Dec 03 14:1
9	9	03120309.d	1.	03112414-20 5.02g	IS/Surr 1uL #287	3 Dec 03 14:4
10	10	03120310.d	1.	03112414-23 5.01g	IS/Surr 1uL #287	3 Dec 03 15:1
11	11	03120311.d	1.	03112414-24 5.07g	IS/Surr 1uL #287	3 Dec 03 15:4
12	12	03120312.d	1.	03112414-25 5.07g	IS/Surr 1uL #287	3 Dec 03 16:0
13	13	03120313.d	1.	03112414-26 5.04g	IS/Surr 1uL #287	3 Dec 03 16:3
14	14	03120314.d	1.	03112414-29 5.06g	IS/Surr 1uL #287	3 Dec 03 17:0
15	15	03120315.d	1.	03112414-30 5.02g	IS/Surr 1uL #287	3 Dec 03 17:3
16	16	03120316.d	1.	03112414-31 5.06g	IS/Surr 1uL #287	3 Dec 03 18:0
17	17	03120317.d	1.	03112414-32 5.0g	IS/Surr 1uL #287	3 Dec 03 18:2
18	18	03120318.d	1.	03112414-42 5.0g	IS/Surr 1uL #287	3 Dec 03 18:5
19	19	03120319.d	1.	03112414-45 5.06g	IS/Surr 1uL #287	3 Dec 03 19:2
20	20	03120320.d	1.	03112533-02 100D	IS/Surr 1uL #287	3 Dec 03 20:1
21	21	03120321.d	1.	03112533-04 100D	IS/Surr 1uL #287	3 Dec 03 20:4
22	22	03120322.d	1.	03112607-02 100D	IS/Surr 1uL #287	3 Dec 03 21:0
23	23	03120323.d	1.	03112607-04 100D	IS/Surr 1uL #287	3 Dec 03 21:3
24	24	03120324.d	1.	LCS 40ppb	IS/Surr 1uL #287, LCS 1uL #42	3 Dec 03 22:0
25	25	03120325.d	1.	LCS-DUP 40ppb	IS/Surr 1uL #287, LCS 1uL #42	3 Dec 03 22:3
26	26	03120326.d	1.	03112414-25 MS 40ppb	IS/Surr 1uL #287, MS 1uL #42	3 Dec 03 22:5
27	27	03120327.d	1.	03112414-25 MSD 40ppb	IS/Surr 1uL #287, MS 1uL #42	3 Dec 03 23:2
28	28	03120328.d	1.	REG VOC QCO-007-12	IS/Surr 1uL #287, QC 1uL	3 Dec 03 23:5
29	29	03120329.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #287	4 Dec 03 00:2
30	30	03120330.d	1.	METHOD BLANK 5mL	IS/Surr 1uL #287	4 Dec 03 00:4

2 1930

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Semivolatile Organic Compounds

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *LCS Summary*
- *DFTPP Tune Summary*

6630 Baltimore National Pike Baltimore, MD 21228 (800) 932-9047 (410) 747-8770 FAX (410) 788-8723

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANIC COMPOUNDS
SYSTEM MONITORING COMPOUND RECOVERY
(SURROGATES)

ANALYSIS: GC/MS Semi-Volatiles **LAB CODE:** SURR

METHOD NO.: EPA 8270

Date/Time Analyzed	Sample ID	S1 A (2FP)	#	S2 A (PHL)	#	S1 BN (NBZ)	#	S2 BN (FBP)	#	S3 A (TBP)	#	S3 BN (TPH)	#	Total Out
	Upper Limit	110		110		114		116		123		141		
	Lower Limit	21		10		35		43		10		33		
12/02/03 09:43	Calibration Verification	95		100		97		97		108		94		
12/02/03 14:37	Method Blank	73		74		70		72		67		66		
12/02/03 15:10	LCS	97		95		92		92		97		97		
12/02/03 11:54	SB-4	7	*	14		41		49		12		60		
12/02/03 12:26	SB-2	54		62		59		72		87		87		
12/02/03 12:59	SB-6	55		60		63		72		76		90		
12/02/03 13:32	SB-32	59		65		60		70		85		98		
12/02/03 14:04	SB-33	59		66		63		74		78		85		

	Control Limits: Water	Control Limits: Soil
S1 A (2FP) = 2-Fluorophenol	21-110	25-121
S2 A (PHL) = Phenol-d6	10-110	24-113
S1 BN (NBZ) = Nitrobenzene-d5	35-114	23-120
S2 BN (FBP) = 2-Fluorobiphenyl	43-116	30-115
S3 A (TBP) = 2,4,6-Tribromophenol	10-123	19-122
S3 BN (TPH) = Terphenyl-d14	33-141	18-137

Column used to flag recovery values
* = Values outside QC limits. Affected by 100 fold dilution.
D: Surrogate diluted out

2 2002

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANIC COMPOUNDS
SYSTEM MONITORING COMPOUND RECOVERY
(SURROGATES)

ANALYSIS: GC/MS Semi-Volatiles **LAB CODE:** SURR

METHOD NO.: EPA 8270

Date/Time Analyzed	Sample ID	S1 A (2FP)	#	S2 A (PHL)	#	S1 BN (NBZ)	#	S2 BN (FBP)	#	S3 A (TBP)	#	S3 BN (TPH)	#	Total Out
	Upper Limit	121		113		120		115		122		137		
	Lower Limit	25		24		23		30		19		18		
12/05/03 13:44	Calibration Verification	95		97		96		100		100		106		
12/09/03 23:07	Calibration Verification	97		97		96		99		99		97		
12/07/03 06:59	Method Blank	90		87		87		96		80		118		
12/06/03 03:42	LCS	82		79		83		84		76		102		
12/05/03 14:59	SB-1-05	64		68		70		86		73		101		
12/05/03 15:32	SB-1-10	59		64		65		78		66		90		
12/05/03 16:03	SB-4-05	67		72		77		90		71		103		
12/05/03 16:35	SB-4-10	67		71		73		85		75		100		
12/05/03 17:07	SB-5-05	67		70		73		86		75		104		
12/05/03 17:38	SB-5-10	70		73		76		87		75		104		
12/05/03 18:10	SB-2-05	69		73		75		88		74		105		
12/10/03 12:38	SB-2-10	91		89		90		100		89		89		
12/05/03 19:14	SB-3-05	70		74		74		87		72		95		
12/05/03 19:46	SB-3-10	71		75		77		89		74		100		
12/05/03 20:17	SB-6-05	68		73		75		89		74		97		
12/10/03 01:09	SB-6-10	87		86		88		96		83		88		
12/10/03 01:39	SB-32-05	92		90		89		95		87		95		
12/10/03 02:10	SB-33-05	88		88		91		98		89		95		

	Control Limits: Water	Soil
S1 A (2FP) = 2-Fluorophenol	21-110	25-121
S2 A (PHL) = Phenol-d6	10-110	24-113
S1 BN (NBZ) = Nitrobenzene-d5	35-114	23-120
S2 BN (FBP) = 2-Fluorobiphenyl	43-116	30-115
S3 A (TBP) = 2,4,6-Tribromophenol	10-123	19-122
S3 BN (TPH) = Terphenyl-d14	33-141	18-137

Column used to flag recovery values
* = Values outside QC limits. Affected by 100 fold dilution.
D: Surrogate diluted out

2 2003

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

SEMI-VOLATILE ORGANIC COMPOUNDS
METHOD BLANK SUMMARY

ANALYSIS:	**GC/MS Semi-Volatiles**	**LAB CODE:**	**MBW**
METHOD NO.:	**EPA 8270**	**LAB SAMPLE ID:**	**METHOD BLANK (E: 12-2-03)**
LAB FILE ID:	**03120211.D**	**DATE/TIME ANALYZED:**	**12/2/03 14:37**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-4	03112414-21	03120206.D	12/2/03 11:54
SB-2	03112414-27	03120207.D	12/2/03 12:26
SB-6	03112414-33	03120208.D	12/2/03 12:59
SB-32	03112414-43	03120209.D	12/2/03 13:32
SB-33	03112414-46	03120210.D	12/2/03 14:04

2 2004

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120211.D Vial: 11
Acq On : 2 Dec 2003 2:37 pm Operator: JR
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:07 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.50	152	213022	50.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.63	136	910178	50.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	8.54	164	489509	50.00 mg/L	0.00
55) Phenanthrene-D10 ISTD	10.77	188	738948	50.00 mg/L	-0.02
67) Chrysene-D12 ISTD	16.07	240	603232	50.00 mg/L	-0.03
76) Perylene-D12	19.84	264	226757	50.00 mg/L	-0.04

System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.38	112	1308869	146.62 mg/L	-0.02
Spiked Amount 200.000	Range 21 - 100		Recovery = 73.31%		
5) Phenol-d6 Acid SS 2	5.15	99	1569695	148.16 mg/L	0.00
Spiked Amount 200.000	Range 10 - 94		Recovery = 74.08%		
20) Nitrobenzene-d5 BN SS 1	6.00	82	621533	69.54 mg/L	-0.02
Spiked Amount 100.000	Range 35 - 114		Recovery = 69.54%		
38) 2-Fluorobiphenyl BN SS 2	7.67	172	1107663	71.81 mg/L	0.00
Spiked Amount 100.000	Range 43 - 116		Recovery = 71.81%		
54) 2,4,6-Tribromophenol Acid	9.66	330	273655	134.30 mg/L	0.00
Spiked Amount 200.000	Range 10 - 123		Recovery = 67.15%		
70) Terphenyl-d14 BN SS 3	13.78	244	1001788	66.02 mg/L	0.00
Spiked Amount 100.000	Range 33 - 141		Recovery = 66.02%		

Target Compounds				Qvalue
2) Pyridine	0.00	79	0	Not Detected
3) N-Nitrosodimethylamine	0.00	74	0	Not Detected
6) PHENOL	5.17	94	581	Not Detected
7) Aniline	0.00	66	0	Not Detected d
8) Bis(2-chloroethyl)ether	5.14	63	3503	Not Detected
9) 2-Chlorophenol	5.34	128	193	Not Detected
10) 1,4'-DICHLOROBENZENE	0.00	146	0	Not Detected
11) 1,3'-Dichlorobenzene	0.00	146	0	Not Detected
12) 1,2'-Dichlorobenzene	0.00	146	0	Not Detected
13) Benzyl Alcohol	5.50	108	323	Not Detected
14) 2-Methylphenol	0.00	107	0	Not Detected
15) bis(2-chloroisopropyl)ethe	0.00	45	0	Not Detected
16) 3,4-Methylphenol	0.00	107	0	Not Detected
17) N-Nitrosodi-n-propyl amine	0.00	70	0	Not Detected
18) Hexachloroethane	0.00	117	0	Not Detected
21) Nitrobenzene	6.00	77	1608	Not Detected
22) Isophorone	0.00	82	0	Not Detected
23) 2-NITROPHENOL	0.00	139	0	Not Detected
24) 2,4-dimethylphenol	6.25	122	101	Not Detected

(#) = qualifier out of range (m) = manual integration

2 2005

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120211.D
Acq On : 2 Dec 2003 2:37 pm
Sample : Method Blank 1000C
Misc : E: 12-2-03 10uL #187; 100uL #188, #146
MS Integration Params: rteint.p
Quant Time: Dec 3 13:07 2003

Vial: 11
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	0.00	105	0	Not Detected	
26) Bis(2-chloroethoxy)methane	0.00	93	0	Not Detected	
27) 2,4-DICHLOROPHENOL	0.00	162	0	Not Detected	
28) 1,2,4'-Trichlorobenzene	0.00	180	0	Not Detected	
29) Naphthalene`	6.32	128	190	Not Detected	
30) 4-Chloroaniline	0.00	127	0	Not Detected	
31) HEXACHLOROBUTADIENE`	0.00	225	0	Not Detected	
32) 4-CHLORO-3-METHYLPHENOL	0.00	107	0	Not Detected	
33) 2-Methylnaphthalene	0.00	142	0	Not Detected	
35) Hexachlorocyclopentadiene	0.00	237	0	Not Detected	
36) 2,4,6-TRICHLOROPHENOL	7.67	97	1923	Not Detected	
37) 2,4,5-trichlorophenol	0.00	97	0	Not Detected	d
39) 2-Chloronaphthalene	7.61	162	119	Not Detected	
40) 2-Nitroaniline	0.00	65	0	Not Detected	
41) 3-Nitroaniline	0.00	138	0	Not Detected	
42) 4-Nitroaniline	0.00	138	0	Not Detected	
43) Dimethylphthalate	0.00	163	0	Not Detected	
44) 2,6-Dinitrotoluene	0.00	165	0	Not Detected	
45) Acenaphthylene	0.00	152	0	Not Detected	
46) ACENAPHTHENE	8.54	154	1346	Not Detected	
47) 2,4-Dinitrophenol	0.00	184	0	Not Detected	
48) 4-nitrophenol	0.00	139	0	Not Detected	
49) 2,4-Dinitrotoluene	0.00	165	0	Not Detected	
50) Dibenzofuran	0.00	168	0	Not Detected	
51) Diethylphthalate	0.00	149	0	Not Detected	
52) 4-chlorophenyl phenyl ethe	0.00	204	0	Not Detected	
53) Fluorene	0.00	166	0	Not Detected	
56) 4,6-Dinitro-2-methylphenol	0.00	198	0	Not Detected	
57) N-NITROSODI-N-PHENYLAMINE	0.00	169	0	Not Detected	
58) 4-bromophenyl phenyl ether	0.00	248	0	Not Detected	
59) Hexachlorobenzene	0.00	142	0	Not Detected	
60) PENTACHLOROPHENOL	0.00	266	0	Not Detected	
61) Phenanthrene	0.00	178	0	Not Detected	
62) Anthracene	0.00	178	0	Not Detected	
63) Carbazole	0.00	167	0	Not Detected	
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	0.00	149	0	Not Detected	
66) FLUORANTHENE	0.00	202	0	Not Detected	
68) Benzidine	0.00	184	0	Not Detected	
69) Pyrene	13.77	202	2699	Not Detected	
71) Butylbenzylphthalate	0.00	149	0	Not Detected	

(#) = qualifier out of range (m) = manual integration

2 2006

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120211.D Vial: 11
Acq On : 2 Dec 2003 2:37 pm Operator: JR
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:07 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	0.00	252	0	Not Detected	
73) Bis(2-ethylhexyl)phthalate	0.00	149	0	Not Detected	
74) Benzo[a]anthracene	16.07	228	1130	Not Detected	
75) Chrysene	16.07	228	1130	Not Detected	
77) DI-N-OCTYLPHTHALATE	17.88	149	199	Not Detected	
78) Benzo[b]fluoranthene	0.00	252	0	Not Detected	
79) Benzo[k]fluoranthene	0.00	252	0	Not Detected	
80) BENZO[A]PYRENE	19.83	252	314	Not Detected	
81) Indeno(1,2,3-c,d)pyrene	0.00	276	0	Not Detected	
82) Dibenzo[a,h]anthracene	0.00	278	0	Not Detected	
83) Benzo[g,h,i]perylene	0.00	276	0	Not Detected	

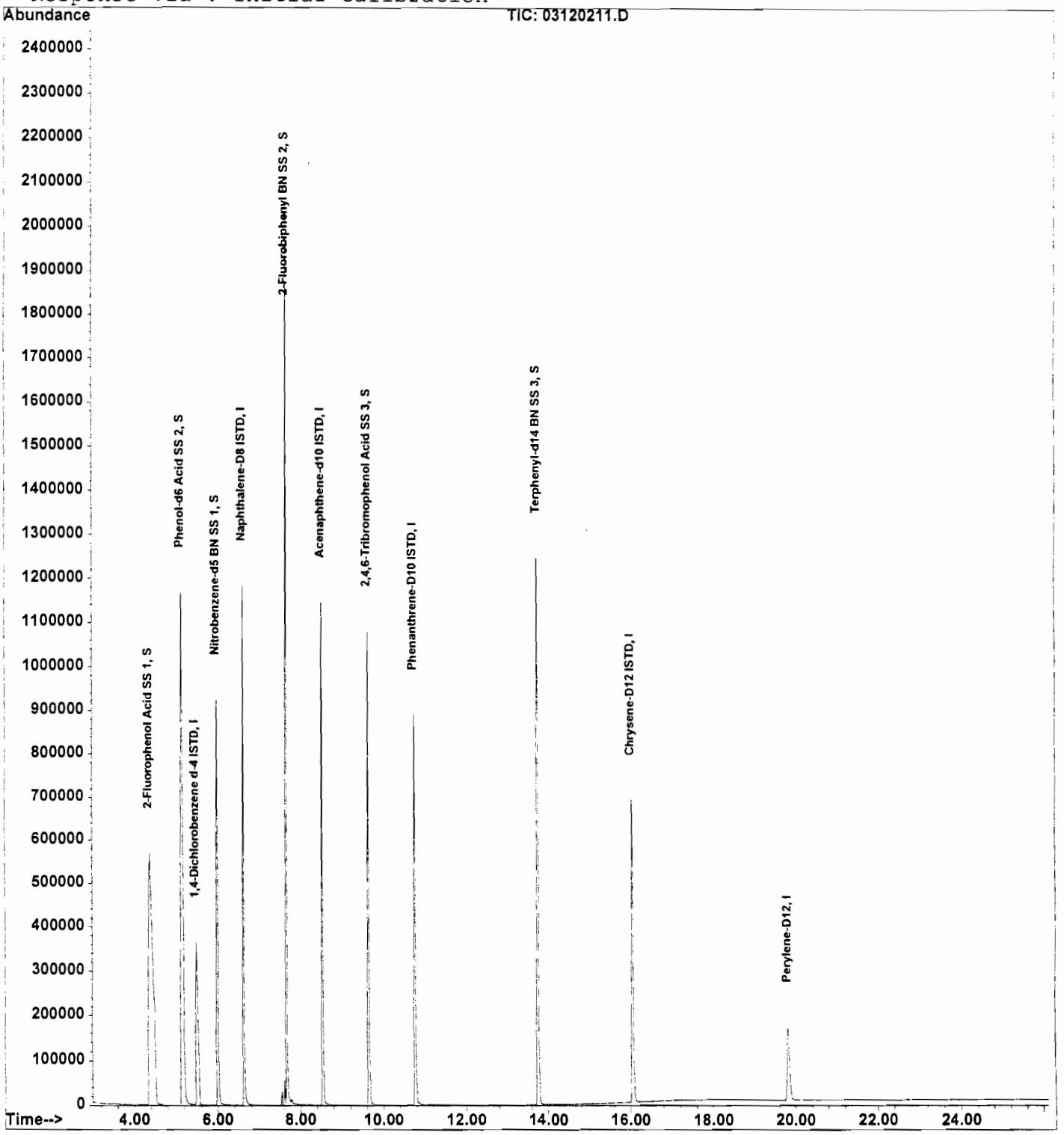
(#) = qualifier out of range (m) = manual integration

2 2007

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031202\03120211.D Vial: 11
Acq On : 2 Dec 2003 2:37 pm Operator: JR
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:07 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



2 2008

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120211.D Vial: 11
Acq On : 2 Dec 2003 2:37 pm Operator: JR
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:27 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.50	152	213022	40.00 mg/L	-0.03
3) Naphthalene-D8 ISTD	6.63	136	909859	40.00 mg/L	-0.02
5) Acenaphthene-d10 ISTD	8.54	164	489509	40.00 mg/L	-0.03

System Monitoring Compounds

Target Compounds				Qvalue
2) Acetophenone	0.00	105	0	Not Detected
4) e-Caprolactam	0.00	55	0	Not Detected
6) Biphenyl	7.78	154	3153	Not Detected
7) Atrazine	0.00	200	0	Not Detected

(#) = qualifier out of range (m) = manual integration

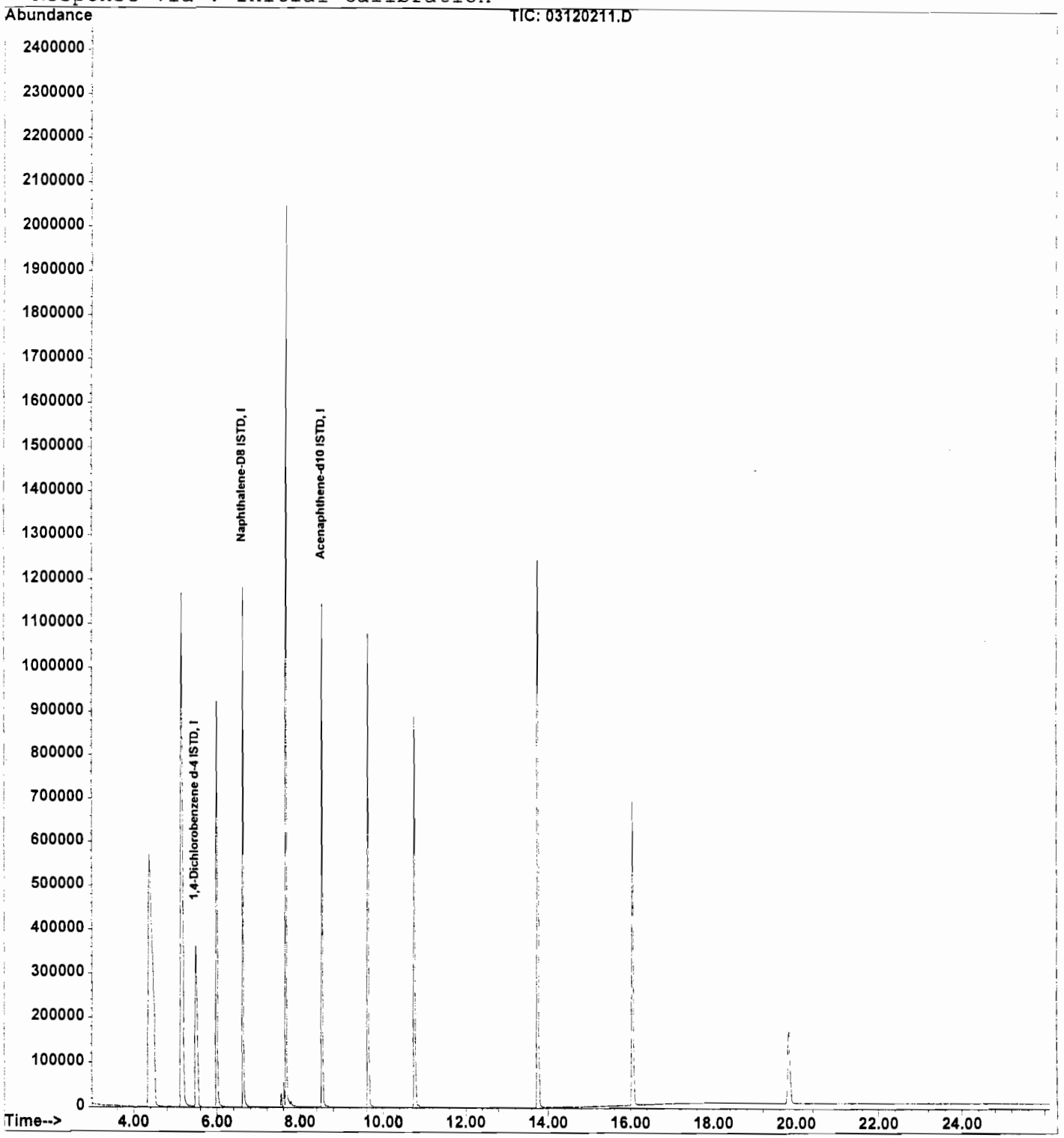
2 2009

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031202\03120211.D
Acq On : 2 Dec 2003 2:37 pm
Sample : Method Blank 1000C
Misc : E: 12-2-03 10uL #187; 100uL #188, #146
MS Integration Params: rteint.p
Quant Time: Dec 3 13:27 2003

Vial: 11
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration



2 2010

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120211.D Vial: 11
Acq On : 2 Dec 2003 2:37 pm Operator: JR
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 4 16:34 2003

Quant Method : C:\HPCHEM\1\METHODS\HPCHN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Fri Aug 08 15:25:14 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.50	152	213022	40.00 mg/L	0.00
4) Acenaphthene-d10 ISTD	8.54	164	489509	40.00 mg/L	0.00
6) Phenanthrene-D10 ISTD	10.77	188	738948	40.00 mg/L	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) n-Decane	0.00	43	0	Not Detected	d
3) alpha-Terpineol	6.63	59	278	Not Detected	
5) 2,3-Dichloroaniline	0.00	161	0	Not Detected	
7) Octadecane	0.00	57	0	Not Detected	

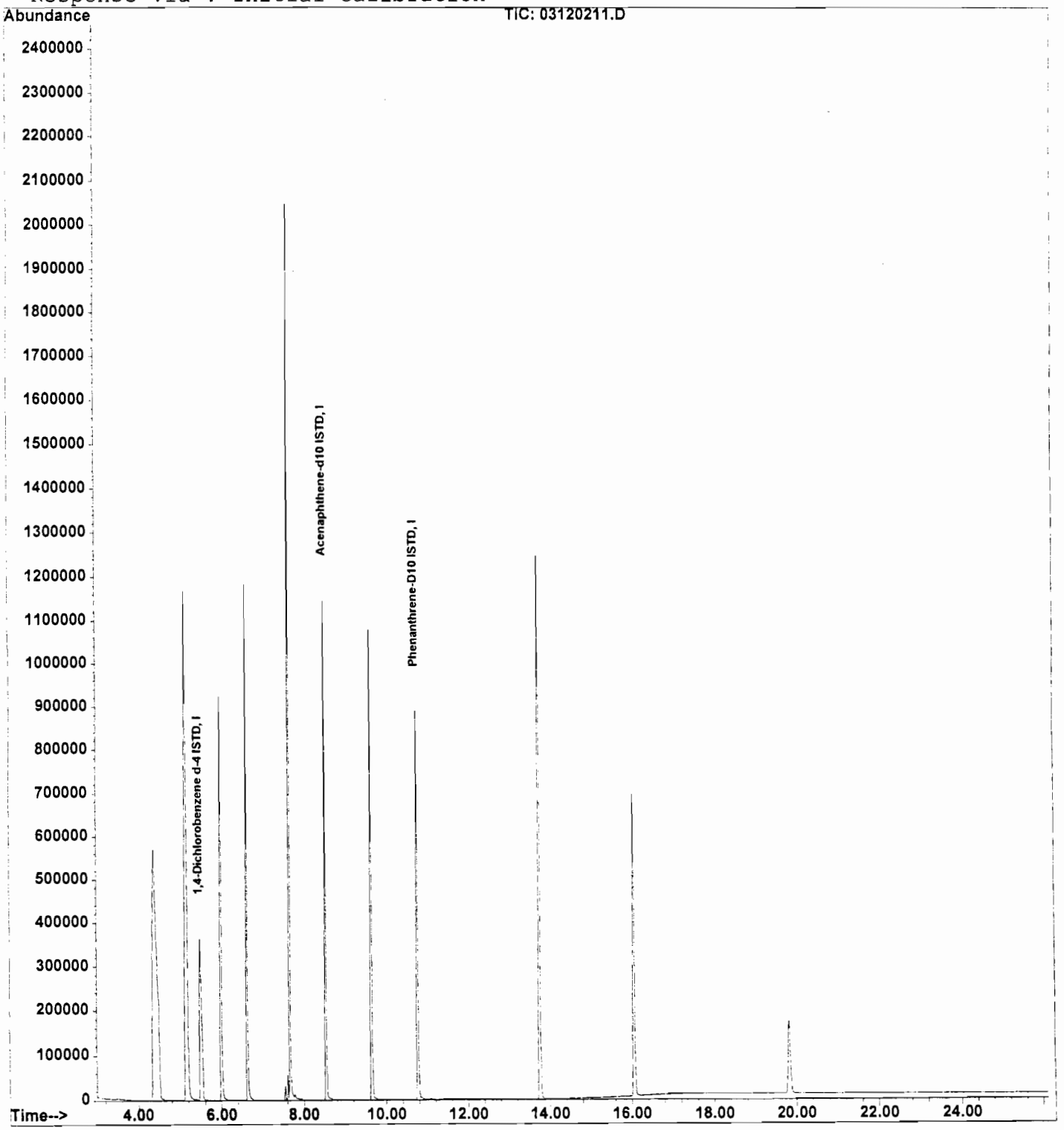
(#) = qualifier out of range (m) = manual integration

2 2011

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031202\03120211.D Vial: 11
Acq On : 2 Dec 2003 2:37 pm Operator: JR
Sample : Method Blank 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 4 16:34 2003

Method : C:\HPCHEM\1\METHODS\HPCHN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Fri Aug 08 15:25:14 2003
Response via : Initial Calibration



2 2012

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

SEMI-VOLATILE ORGANIC COMPOUNDS
METHOD BLANK SUMMARY

ANALYSIS: GC/MS Semi-Volatiles
LAB CODE: MBS
METHOD NO.: EPA 8270
LAB SAMPLE ID: METHOD BLANK (E: 12-3-03)
LAB FILE ID: 03120633.D
DATE/TIME ANALYZED: 12/7/03 6:59
MATRIX: Soil

This Method Blank applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-1-05	03112414-17	03120504.D	12/5/03 14:59
SB-1-10	03112414-18	03120505.D	12/5/03 15:32
SB-4-05	03112414-19	03120506.D	12/5/03 16:03
SB-4-10	03112414-20	03120507.D	12/5/03 16:35
SB-5-05	03112414-23	03120508.D	12/5/03 17:07
SB-5-10	03112414-24	03120509.D	12/5/03 17:38
SB-2-05	03112414-25	03120510.D	12/5/03 18:10
SB-2-10	03112414-26	03120920.D	12/10/03 12:38
SB-3-05	03112414-29	03120512.D	12/5/03 19:14
SB-3-10	03112414-30	03120513.D	12/5/03 19:46
SB-6-05	03112414-31	03120514.D	12/5/03 20:17
SB-6-10	03112414-32	03120921.D	12/10/03 1:09
SB-32-05	03112414-42	03120922.D	12/10/03 1:39
SB-33-05	03112414-45	03120923.D	12/10/03 2:10

2 2013

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031206\03120633.D Vial: 30
Acq On : 7 Dec 2003 6:59 am Operator: JR
Sample : Method Blank 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL 188, 146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 7 21:46 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Sat Dec 06 20:12:56 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.36	152	172598	40.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.47	136	727974	40.00 mg/L	-0.02
34) Acenaphthene-d10 ISTD	8.33	164	382636	40.00 mg/L	-0.02
55) Phenanthrene-D10 ISTD	10.52	188	660627	40.00 mg/L	-0.03
67) Chrysene-D12 ISTD	15.76	240	347670	40.00 mg/L	-0.04
76) Perylene-D12	19.35	264	117921	40.00 mg/L	-0.04
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.24	112	1280448	179.33 mg/L	0.00
Spiked Amount 200.000 Range 21 - 100 Recovery = 89.67%					
5) Phenol-d6 Acid SS 2	5.01	99	1536673	173.35 mg/L	0.00
Spiked Amount 200.000 Range 10 - 94 Recovery = 86.68%					
20) Nitrobenzene-d5 BN SS 1	5.85	82	618720	86.72 mg/L	-0.02
Spiked Amount 100.000 Range 35 - 114 Recovery = 86.72%					
38) 2-Fluorobiphenyl BN SS 2	7.49	172	1103350	96.16 mg/L	0.00
Spiked Amount 100.000 Range 43 - 116 Recovery = 96.16%					
54) 2,4,6-Tribromophenol Acid	9.43	330	285812	160.66 mg/L	-0.02
Spiked Amount 200.000 Range 10 - 123 Recovery = 80.33%					
70) Terphenyl-d14 BN SS 3	13.49	244	1049641	117.74 mg/L	-0.02
Spiked Amount 100.000 Range 33 - 141 Recovery = 117.74%					

Target Compounds				Qvalue
2) Pyridine	0.00	79	0	Not Detected
3) N-Nitrosodimethylamine	0.00	74	0	Not Detected
6) PHENOL	0.00	94	0	Not Detected
7) Aniline	0.00	66	0	Not Detected d
8) Bis(2-chloroethyl)ether	5.00	63	3234	Not Detected
9) 2-Chlorophenol	0.00	128	0	Not Detected
10) 1,4'-DICHLOROBENZENE	0.00	146	0	Not Detected
11) 1,3'-Dichlorobenzene	0.00	146	0	Not Detected
12) 1,2'-Dichlorobenzene	0.00	146	0	Not Detected
13) Benzyl Alcohol	5.36	108	214	Not Detected
14) 2-Methylphenol	0.00	107	0	Not Detected
15) bis(2-chloroisopropyl)ethe	0.00	45	0	Not Detected
16) 3,4-Methylphenol	0.00	107	0	Not Detected
17) N-Nitrosodi-n-propyl amine	0.00	70	0	Not Detected
18) Hexachloroethane	0.00	117	0	Not Detected

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031206\03120633.D Vial: 30
Acq On : 7 Dec 2003 6:59 am Operator: JR
Sample : Method Blank 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL 188, 146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 7 21:46 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Sat Dec 06 20:12:56 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
21) Nitrobenzene	5.85	77	1659	Not Detected	
22) Isophorone	0.00	82	0	Not Detected	
23) 2-NITROPHENOL	0.00	139	0	Not Detected	
24) 2,4-dimethylphenol	0.00	122	0	Not Detected	
25) Benzoic Acid	0.00	105	0	Not Detected	
26) Bis(2-chloroethoxy)methane	0.00	93	0	Not Detected	
27) 2,4-DICHLOROPHENOL	0.00	162	0	Not Detected	
28) 1,2,4'-Trichlorobenzene	0.00	180	0	Not Detected	
29) Naphthalene`	6.17	128	115	Not Detected	
30) 4-Chloroaniline	0.00	127	0	Not Detected	
31) HEXACHLOROBUTADIENE`	0.00	225	0	Not Detected	
32) 4-CHLORO-3-METHYLPHENOL	0.00	107	0	Not Detected	
33) 2-Methylnaphthalene	0.00	142	0	Not Detected	
35) Hexachlorocyclopentadiene	0.00	237	0	Not Detected	
36) 2,4,6-TRICHLOROPHENOL	0.00	97	0	Not Detected	d
37) 2,4,5-trichlorophenol	0.00	97	0	Not Detected	d
39) 2-Chloronaphthalene	7.43	162	222	Not Detected	
40) 2-Nitroaniline	7.49	65	1486	Not Detected	
41) 3-Nitroaniline	0.00	138	0	Not Detected	
42) 4-Nitroaniline	0.00	138	0	Not Detected	
43) Dimethylphthalate	0.00	163	0	Not Detected	
44) 2,6-Dinitrotoluene	0.00	165	0	Not Detected	
45) Acenaphthylene	0.00	152	0	Not Detected	
46) ACENAPHTHENE	8.33	154	942	Not Detected	
47) 2,4-Dinitrophenol	0.00	184	0	Not Detected	d
48) 4-nitrophenol	0.00	139	0	Not Detected	
49) 2,4-Dinitrotoluene	0.00	165	0	Not Detected	
50) Dibenzofuran	0.00	168	0	Not Detected	
51) Diethylphthalate	0.00	149	0	Not Detected	
52) 4-chlorophenyl phenyl ethe	0.00	204	0	Not Detected	
53) Fluorene	0.00	166	0	Not Detected	
56) 4,6-Dinitro-2-methylphenol	0.00	198	0	Not Detected	
57) N-NITROSODI-N-PHENYLAMINE	0.00	169	0	Not Detected	
58) 4-bromophenyl phenyl ether	0.00	248	0	Not Detected	
59) Hexachlorobenzene	0.00	142	0	Not Detected	
60) PENTACHLOROPHENOL	0.00	266	0	Not Detected	
61) Phenanthrene	0.00	178	0	Not Detected	

(#) = qualifier out of range (m) = manual integration

2 2015

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031206\03120633.D Vial: 30
Acq On : 7 Dec 2003 6:59 am Operator: JR
Sample : Method Blank 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL 188, 146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 7 21:46 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Sat Dec 06 20:12:56 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
62) Anthracene	0.00	178	0	Not Detected	
63) Carbazole	0.00	167	0	Not Detected	
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	0.00	149	0	Not Detected	
66) FLUORANTHENE	0.00	202	0	Not Detected	
68) Benzidine	0.00	184	0	Not Detected	
69) Pyrene	13.49	202	2817	Not Detected	
71) Butylbenzylphthalate	0.00	149	0	Not Detected	
72) 3,3'-Dichlorobenzidine	0.00	252	0	Not Detected	
73) Bis(2-ethylhexyl)phthalate	15.69	149	95	Not Detected	
74) Benzo[a]anthracene	15.76	228	732	Not Detected	
75) Chrysene	15.76	228	732	Not Detected	
77) DI-N-OCTYLPHTHALATE	17.00	149	112	Not Detected	
78) Benzo[b]fluoranthene	0.00	252	0	Not Detected	
79) Benzo[k]fluoranthene	0.00	252	0	Not Detected	
80) BENZO[A]PYRENE	0.00	252	0	Not Detected	
81) Indeno(1,2,3-c,d)pyrene	0.00	276	0	Not Detected	
82) Dibenzo[a,h]anthracene	0.00	278	0	Not Detected	
83) Benzo[g,h,i]perylene	0.00	276	0	Not Detected	

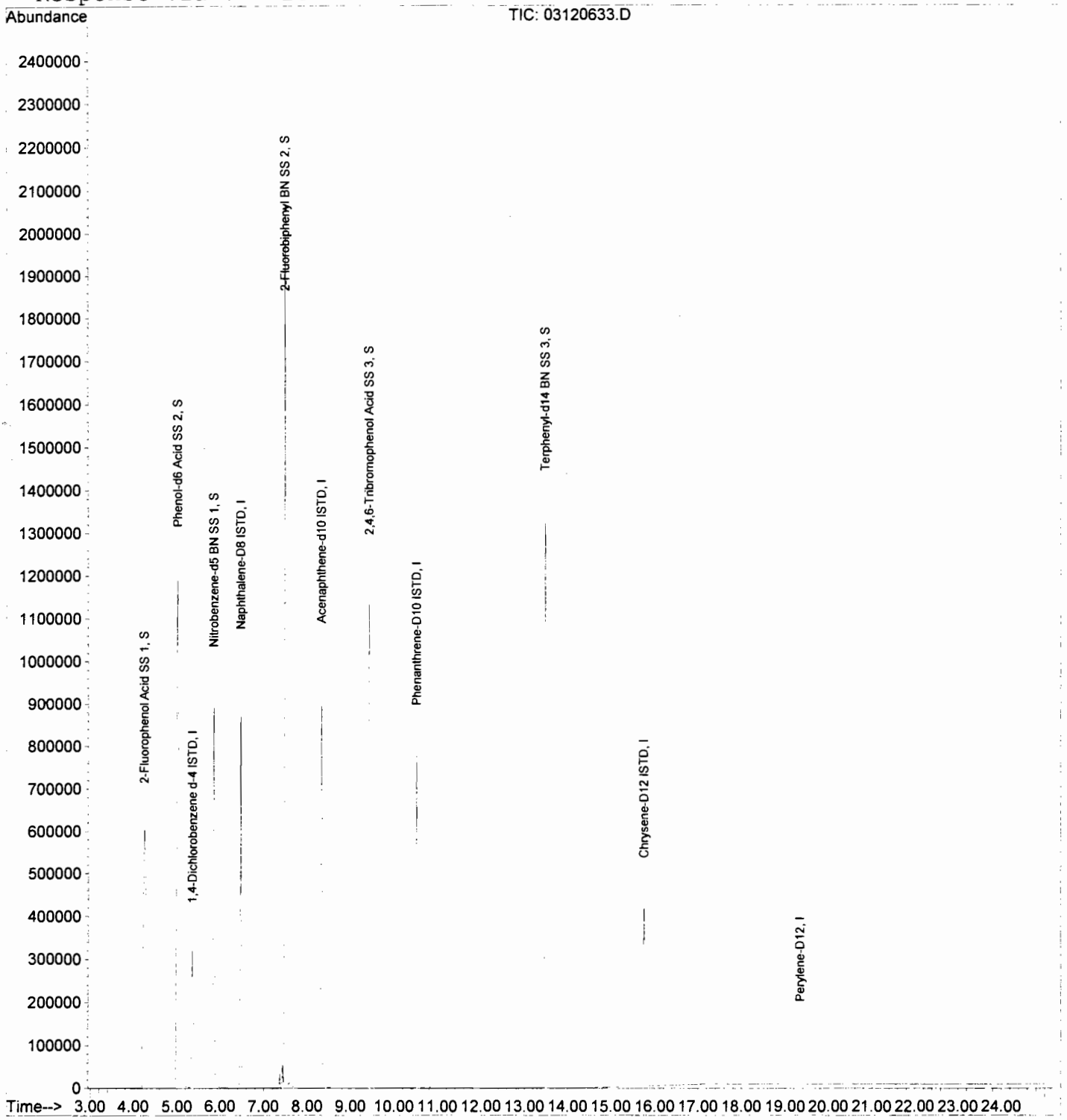
(#) = qualifier out of range (m) = manual integration

2 2016

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031206\03120633.D Vial: 30
Acq On : 7 Dec 2003 6:59 am Operator: JR
Sample : Method Blank 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL 188, 146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 7 21:46 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Wed Dec 31 11:24:35 2003
Response via : Initial Calibration



2 2017

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031206\03120633.D Vial: 30
Acq On : 7 Dec 2003 6:59 am Operator: JR
Sample : Method Blank 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL 188, 146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 7 21:28 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.36	152	172598	40.00 mg/L	0.00
3) Naphthalene-D8 ISTD	6.47	136	727974	40.00 mg/L	0.00
5) Acenaphthene-d10 ISTD	8.33	164	382636	40.00 mg/L	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	0.00	105	0	Not Detected	
4) e-Caprolactam	0.00	55	0	Not Detected	
6) Biphenyl	7.60	154	3292	Not Detected	
7) Atrazine	0.00	200	0	Not Detected	

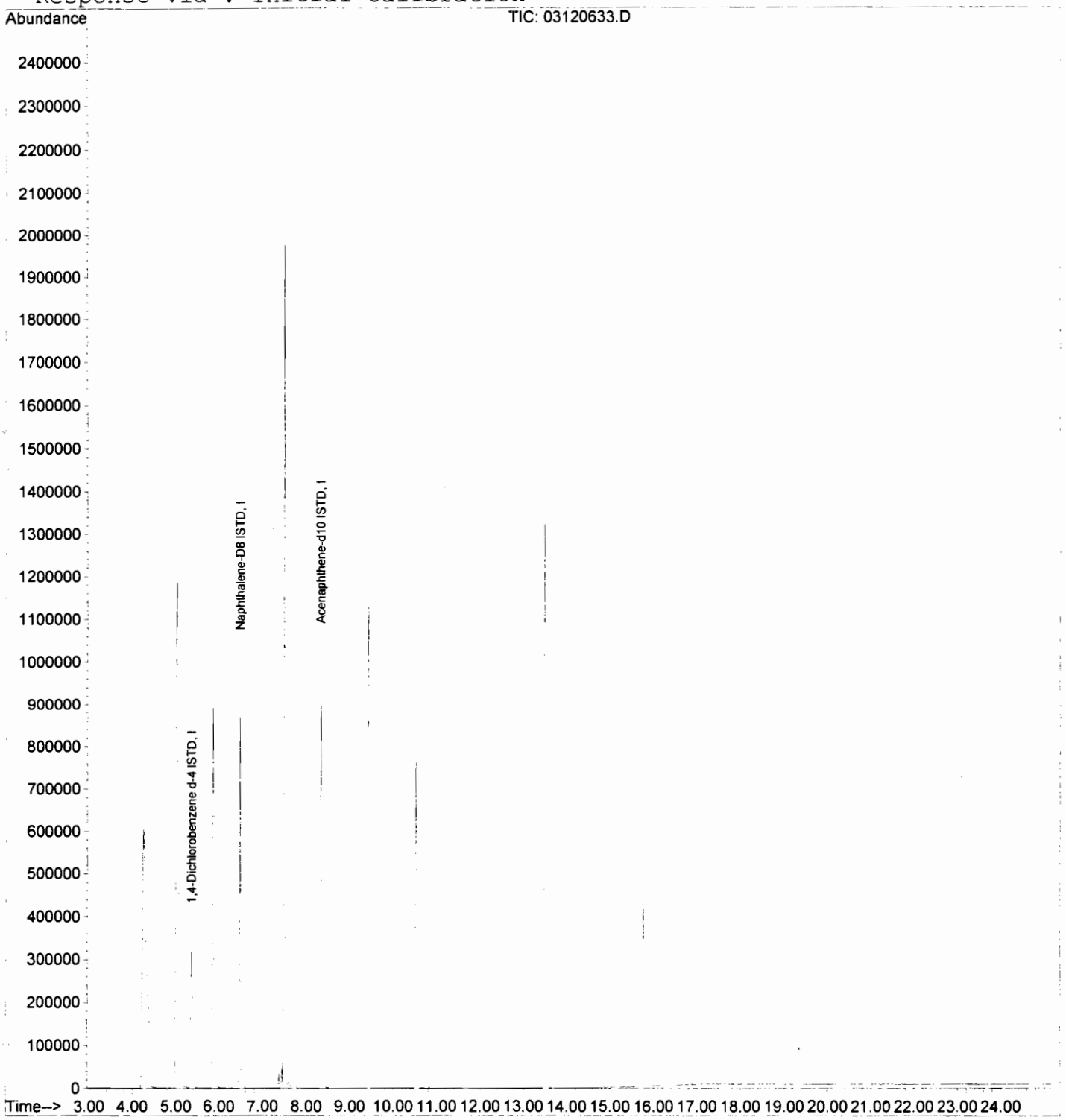
(#) = qualifier out of range (m) = manual integration

2 2018

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031206\03120633.D Vial: 30
Acq On : 7 Dec 2003 6:59 am Operator: JR
Sample : Method Blank 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL 188, 146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 7 21:28 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:03:34 2003
Response via : Initial Calibration



2 2019

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031202\03120202.D Vial: 2
Acq On : 2 Dec 2003 9:43 am Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene d-4 IST	1.000	1.000	0.0	94	0.00
2		Pyridine	1.470	1.372	6.7	95	0.00
3	T	N-Nitrosodimethylamine	1.148	1.179	-2.7	93	0.00
4	S	2-Fluorophenol Acid SS 1	2.095	1.992	4.9	92	0.00
5	S	Phenol-d6 Acid SS 2	2.487	2.490	-0.1	97	0.00
6	M	PHENOL	2.330	2.706	-16.1	107	0.00
7	T	Aniline	1.093	1.081	1.1	97	0.00
8	T	Bis(2-chloroethyl)ether	1.353	1.479	-9.3	97	0.00
9	M	2-Chlorophenol	1.912	1.963	-2.7	93	0.00
10	M	1,4'-DICHLOROBENZENE	2.452	2.447	0.2	86	0.00
11	T	1,3'-Dichlorobenzene	1.164	1.283	-10.2	114	0.00
12	T	1,2'-Dichlorobenzene	1.692	1.755	-3.7	95	0.00
13	T	Benzyl Alcohol	1.337	1.258	5.9	92	0.00
14	T	2-Methylphenol	1.410	1.437	-1.9	93	0.00
	T	bis(2-chloroisopropyl)ether	2.798	2.920	-4.4	93	0.00
	T	3,4-Methylphenol	3.761	3.809	-1.3	95	0.00
17	M	N-Nitrosodi-n-propyl amine	1.231	1.280	-4.0	91	0.00
18	T	Hexachloroethane	0.773	0.793	-2.6	93	0.00
19	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	96	0.00
20	S	Nitrobenzene-d5 BN SS 1	0.491	0.475	3.3	95	0.00
21	T	Nitrobenzene	0.422	0.440	-4.3	96	0.00
22	T	Isophorone	0.875	0.893	-2.1	94	0.00
23	T	2-NITROPHENOL	0.265	0.272	-2.6	95	0.00
24	T	2,4-dimethylphenol	0.446	0.446	0.0	96	0.00
25	T	Benzoic Acid	0.286	0.271	5.2	105	0.00
26	T	Bis(2-chloroethoxy)methane	0.551	0.537	2.5	90	0.00
27	T	2,4-DICHLOROPHENOL	0.320	0.342	-6.9	99	0.00
28	M	1,2,4'-Trichlorobenzene	0.348	0.367	-5.5	97	0.00
29	T	Naphthalene`	1.257	1.294	-2.9	94	0.00
30	T	4-Chloroaniline	0.607	0.657	-8.2	98	0.00
31	T	HEXACHLOROBUTADIENE`	0.170	0.183	-7.6	98	0.00
32	M	4-CHLORO-3-METHYLPHENOL	0.337	0.385	-14.2	107	0.00
33	T	2-Methylnaphthalene	0.748	0.806	-7.8	99	0.00
34	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	100	0.00
35	T	Hexachlorocyclopentadiene	0.221	0.123	44.3#	48#	0.00
36	T	2,4,6-TRICHLOROPHENOL	0.217	0.230	-6.0	102	0.00
37	T	2,4,5-trichlorophenol	0.187	0.210	-12.3	110	0.00
38	S	2-Fluorobiphenyl BN SS 2	1.575	1.531	2.8	97	0.00
	T	2-Chloronaphthalene	1.279	1.311	-2.5	97	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031202\03120202.D Vial: 2
Acq On : 2 Dec 2003 9:43 am Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	2-Nitroaniline	0.398	0.451	-13.3	113	0.00
41	T	3-Nitroaniline	0.382	0.450	-17.8	122	0.00
42	T	4-Nitroaniline	0.314	0.408	-29.9	134	0.00
43	T	Dimethylphthalate	1.558	1.628	-4.5	103	0.00
44	T	2,6-Dinitrotoluene	0.388	0.419	-8.0	107	0.00
45	T	Acenaphthylene	2.103	2.192	-4.2	102	0.00
46	M	ACENAPHTHENE	1.256	1.329	-5.8	102	0.00
47	T	2,4-Dinitrophenol	0.139	0.161	-15.8	114	0.00
48	M	4-nitrophenol	0.243	0.310	-27.6	129	0.00
49	M	2,4-Dinitrotoluene	0.453	0.524	-15.7	112	0.00
50	T	Dibenzofuran	1.711	1.792	-4.7	101	0.00
51	T	Diethylphthalate	1.497	1.611	-7.6	105	0.00
52	T	4-chlorophenyl phenyl ether	0.696	0.751	-7.9	105	0.00
53	T	Fluorene	1.374	1.441	-4.9	103	0.00
	S	2,4,6-Tribromophenol Acid S	0.208	0.224	-7.7	118	0.00
55	I	Phenanthrene-D10 ISTD	1.000	1.000	0.0	113	0.00
56	T	4,6-Dinitro-2-methylphenol	0.144	0.167	-16.0	112	0.00
57	T	N-NITROSODI-N-PHENYLAMINE	1.516	1.383	8.8	108	0.00
58	T	4-bromophenyl phenyl ether	0.250	0.259	-3.6	111	0.00
59	T	Hexachlorobenzene	0.102	0.105	-2.9	111	0.00
60	M	PENTACHLOROPHENOL	0.146	0.165	-13.0	123	0.00
61	T	Phenanthrene	1.210	1.218	-0.7	110	0.00
62	T	Anthracene	1.263	1.308	-3.6	114	0.00
63	T	Carbazole	1.010	1.164	-15.2	125	0.00
64		Decafluororotriphenylphosph	0.191	0.198	-3.7	107	0.00
65	T	Di-n-Butylphthalate	1.783	1.883	-5.6	115	0.00
66	T	FLUORANTHENE	1.246	1.381	-10.8	125	0.00
67	I	Chrysene-D12 ISTD	1.000	1.000	0.0	125	0.00
68	T	Benzidine	0.377	0.281	25.5	65	0.00
69	M	Pyrene	1.663	1.644	1.1	126	0.00
70	S	Terphenyl-d14 BN SS 3	1.258	1.176	6.5	123	0.00
71	T	Butylbenzylphthalate	0.961	0.963	-0.2	127	0.00
72	T	3,3'-Dichlorobenzidine	0.404	0.457	-13.1	126	0.00
73	T	Bis(2-ethylhexyl)phthalate	1.366	1.397	-2.3	127	0.00
74	T	Benzo[a]anthracene	1.329	1.368	-2.9	127	0.00
75	T	Chrysene	1.197	1.237	-3.3	126	0.00
76	I	Perylene-D12	1.000	1.000	0.0	115	0.00
	T	DI-N-OCTYLPHTHALATE	2.799	3.257	-16.4	131	0.00

(#) = Out of Range

2 2021

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031202\03120202.D Vial: 2
Acq On : 2 Dec 2003 9:43 am Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
78	T	Benzo[b]fluoranthene	1.473	1.658	-12.6	121	0.00
79	T	Benzo[k]fluoranthene	1.274	1.363	-7.0	118	0.00
80	T	BENZO[A]PYRENE	1.204	1.294	-7.5	116	0.00
81	T	Indeno(1,2,3-c,d)pyrene	1.058	0.977	7.7	104	0.00
82	T	Dibenzo[a,h]anthracene	0.895	0.863	3.6	108	0.00
83	T	Benzo[g,h,i]perylene	0.837	0.712	14.9	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2 2022

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120202.D Vial: 2
Acq On : 2 Dec 2003 9:43 am Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 2 10:20 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	212372	50.00 mg/L	-0.09
19) Naphthalene-D8 ISTD	6.64	136	853182	50.00 mg/L	-0.13
34) Acenaphthene-d10 ISTD	8.55	164	458390	50.00 mg/L	-0.04
55) Phenanthrene-D10 ISTD	10.79	188	721071	50.00 mg/L	-0.05
67) Chrysene-D12 ISTD	16.09	240	564532	50.00 mg/L	-0.05
76) Perylene-D12	19.88	264	403923	50.00 mg/L	-0.08
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.40	112	422974	47.53 mg/L	-0.09
Spiked Amount 200.000 Range 21 - 100 Recovery = 23.77%					
5) Phenol-d6 Acid SS 2	5.16	99	528762	50.06 mg/L	-0.10
Spiked Amount 200.000 Range 10 - 94 Recovery = 25.03%					
20) Nitrobenzene-d5 BN SS 1	6.02	82	405294	48.38 mg/L	-0.11
Spiked Amount 100.000 Range 35 - 114 Recovery = 48.38%					
38) 2-Fluorobiphenyl BN SS 2	7.68	172	702019	48.60 mg/L	-0.03
Spiked Amount 100.000 Range 43 - 116 Recovery = 48.60%					
54) 2,4,6-Tribromophenol Acid	9.67	330	102816	53.88 mg/L	-0.04
Spiked Amount 200.000 Range 10 - 123 Recovery = 26.94%					
70) Terphenyl-d14 BN SS 3	13.77	244	663906	46.75 mg/L	-0.05
Spiked Amount 100.000 Range 33 - 141 Recovery = 46.75%					

Target Compounds					Qvalue
2) Pyridine	3.28	79	291429	46.66 mg/L	98
3) N-Nitrosodimethylamine	3.27	74	250354	51.35 mg/L	98
6) PHENOL	5.17	94	574752	58.07 mg/L	88
7) Aniline	5.24	66	229663	49.46 mg/L #	65
8) Bis(2-chloroethyl)ether	5.26	63	314034	54.63 mg/L #	87
9) 2-Chlorophenol	5.35	128	416939	51.33 mg/L	98
10) 1,4'-DICHLOROBENZENE	5.52	146	519677m	49.90 mg/L	
11) 1,3'-Dichlorobenzene	5.50	146	272537m	55.14 mg/L	
12) 1,2'-Dichlorobenzene	5.69	146	372779	51.86 mg/L	99
13) Benzyl Alcohol	5.61	108	267257	47.08 mg/L	98
14) 2-Methylphenol	5.69	107	305261	50.96 mg/L #	74
15) bis(2-chloroisopropyl)ethe	5.73	45	620110	52.18 mg/L	82
16) 3,4-Methylphenol	5.82	107	808964	101.28 mg/L	99
17) N-Nitrosodi-n-propyl amine	5.87	70	271907	52.01 mg/L #	83
18) Hexachloroethane	5.97	117	168393	51.31 mg/L	95
21) Nitrobenzene	6.03	77	375577	52.13 mg/L	99
22) Isophorone	6.21	82	761657	50.99 mg/L	100
23) 2-NITROPHENOL	6.29	139	231940	51.27 mg/L	86
24) 2,4-dimethylphenol	6.26	122	380908	50.01 mg/L	99

(#) = qualifier out of range (m) = manual integration

2 2023

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120202.D Vial: 2
Acq On : 2 Dec 2003 9:43 am Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 2 10:20 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.35	105	231206	46.95 mg/L	85
26) Bis(2-chloroethoxy)methane	6.34	93	457815	48.66 mg/L	98
27) 2,4-DICHLOROPHENOL	6.50	162	292001	53.48 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.59	180	313138	52.68 mg/L	98
29) Naphthalene`	6.66	128	1103958	51.45 mg/L #	60
30) 4-Chloroaniline	6.68	127	560392	54.10 mg/L	95
31) HEXACHLOROBUTADIENE`	6.78	225	156464	53.85 mg/L	99
32) 4-CHLORO-3-METHYLPHENOL	7.08	107	328710	57.09 mg/L	97
33) 2-Methylnaphthalene	7.31	142	687301	53.86 mg/L	99
35) Hexachlorocyclopentadiene	7.53	237	56557	27.87 mg/L	99
36) 2,4,6-TRICHLOROPHENOL	7.60	97	105225	52.92 mg/L	90
37) 2,4,5-trichlorophenol	7.65	97	96422	56.21 mg/L #	89
39) 2-Chloronaphthalene	7.85	162	601170	51.26 mg/L	98
40) 2-Nitroaniline	7.95	65	206778	56.65 mg/L	94
41) 3-Nitroaniline	8.45	138	206427	58.91 mg/L	96
42) 4-Nitroaniline	9.32	138	187126	64.98 mg/L	98
43) Dimethylphthalate	8.14	163	746338	52.26 mg/L	99
44) 2,6-Dinitrotoluene	8.26	165	192035	53.98 mg/L	89
45) Acenaphthylene	8.37	152	1004738	52.11 mg/L	100
46) ACENAPHTHENE	8.59	154	609031	52.90 mg/L	96
47) 2,4-Dinitrophenol	8.58	184	73816	50.45 mg/L #	1
48) 4-nitrophenol	8.57	139	141913	63.60 mg/L	97
49) 2,4-Dinitrotoluene	8.78	165	240226	57.91 mg/L	81
50) Dibenzofuran	8.80	168	821623	52.38 mg/L	99
51) Diethylphthalate	9.04	149	738523	53.81 mg/L	100
52) 4-chlorophenyl phenyl ethe	9.21	204	344077	53.92 mg/L	98
53) Fluorene	9.28	166	660619	52.43 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.37	198	120237	48.75 mg/L #	68
57) N-NITROSODI-N-PHENYLAMINE	9.39	169	997043	45.62 mg/L	99
58) 4-bromophenyl phenyl ether	9.95	248	186894	51.74 mg/L	99
59) Hexachlorobenzene	10.26	142	75482	51.26 mg/L	94
60) PENTACHLOROPHENOL	10.52	266	119226	56.62 mg/L #	85
61) Phenanthrene	10.84	178	878431	50.33 mg/L	100
62) Anthracene	10.91	178	943377	51.81 mg/L	99
63) Carbazole	11.15	167	839645	57.65 mg/L	98
64) Decafluororotriphenylphosp	11.19	198	143004	50.65 mg/L	87
65) Di-n-Butylphthalate	11.72	149	1357782	52.82 mg/L	100
66) FLUORANTHENE	13.08	202	996137	55.42 mg/L	99
68) Benzidine	13.24	184	158449	24.31 mg/L	100
69) Pyrene	13.55	202	928316	49.45 mg/L	100
71) Butylbenzylphthalate	14.78	149	543390	50.07 mg/L	99

(#) = qualifier out of range (m) = manual integration

2 2024

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120202.D Vial: 2
Acq On : 2 Dec 2003 9:43 am Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 2 10:20 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72)	3,3'-Dichlorobenzidine	15.94	252	258123	56.60 mg/L	99
73)	Bis(2-ethylhexyl)phthalate	15.97	149	788614	51.13 mg/L	99
74)	Benzo[a]anthracene	16.04	228	772385m	51.48 mg/L	
75)	Chrysene	16.15	228	698300	51.67 mg/L	99
77)	DI-N-OCTYLPHTHALATE	17.34	149	1315444	58.17 mg/L	99
78)	Benzo[b]fluoranthene	18.73	252	669578	56.26 mg/L	99
79)	Benzo[k]fluoranthene	18.80	252	550526	53.50 mg/L	100
80)	BENZO[A]PYRENE	19.70	252	522517	53.73 mg/L	99
81)	Indeno(1,2,3-c,d)pyrene	23.96	276	394546	46.17 mg/L #	95
82)	Dibenzo[a,h]anthracene	23.96	278	348742	48.25 mg/L	98
83)	Benzo[g,h,i]perylene	25.17	276	287695	42.55 mg/L	100

(#) = qualifier out of range (m) = manual integration

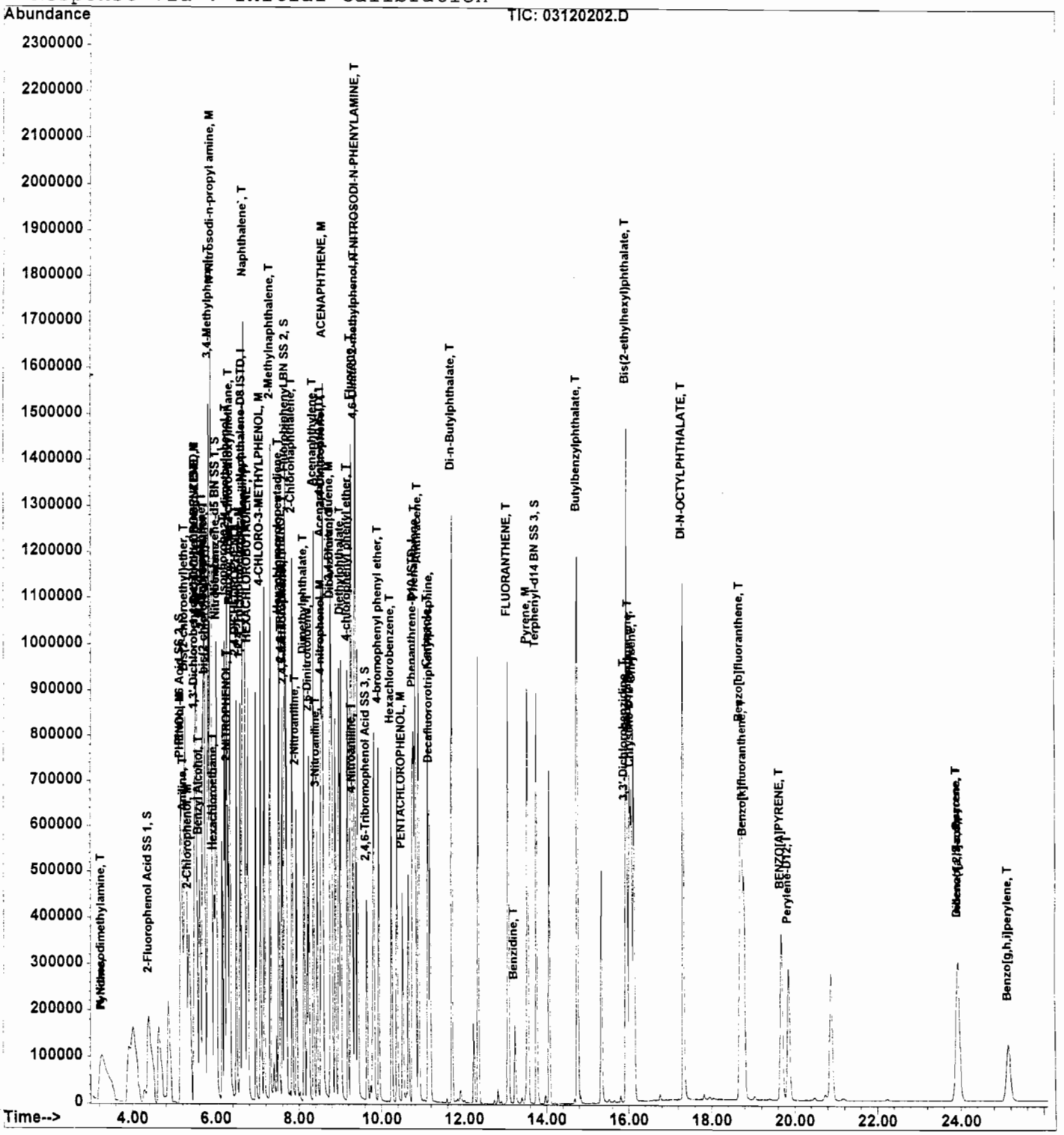
2 2025

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031202\03120202.D
Acq On : 2 Dec 2003 9:43 am
Sample : Supelco CCal @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p
Quant Time: Dec 2 10:20 2003

Vial: 2
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



2 2026

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031202\03120203.D Vial: 3
Acq On : 2 Dec 2003 10:16 am Operator: JR
Sample : MDE CCal @50ppm Inst : SVOC GC/M
Misc : 07-29-03 DJP A084 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
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 d-4 IST	1.000	1.000	0.0	80	0.00
2	T	Acetophenone	1.896	1.887	0.5	81	0.00
3	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	81	0.00
4		e-Caprolactam	0.165	0.177	-7.3	88	0.00
5	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	83	0.00
6	T	Biphenyl	1.430	1.417	0.9	83	0.00
7	T	Atrazine	0.322	0.344	-6.8	88	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2 2027

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120203.D Vial: 3
Acq On : 2 Dec 2003 10:16 am Operator: JR
Sample : MDE CCal @50ppm Inst : SVOC GC/M
Misc : 07-29-03 DJP A084 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 4 16:31 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	276225	40.00 mg/L	-0.02
3) Naphthalene-D8 ISTD	6.64	136	1027919	40.00 mg/L	-0.01
5) Acenaphthene-d10 ISTD	8.54	164	535458	40.00 mg/L	-0.03

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	5.85	105	651381	49.75 mg/L	100
4) e-Caprolactam	6.99	55	227974	53.88 mg/L	98
6) Biphenyl	7.79	154	948374	49.53 mg/L	99
7) Atrazine	10.18	200	230134	53.47 mg/L	98

(#) = qualifier out of range (m) = manual integration

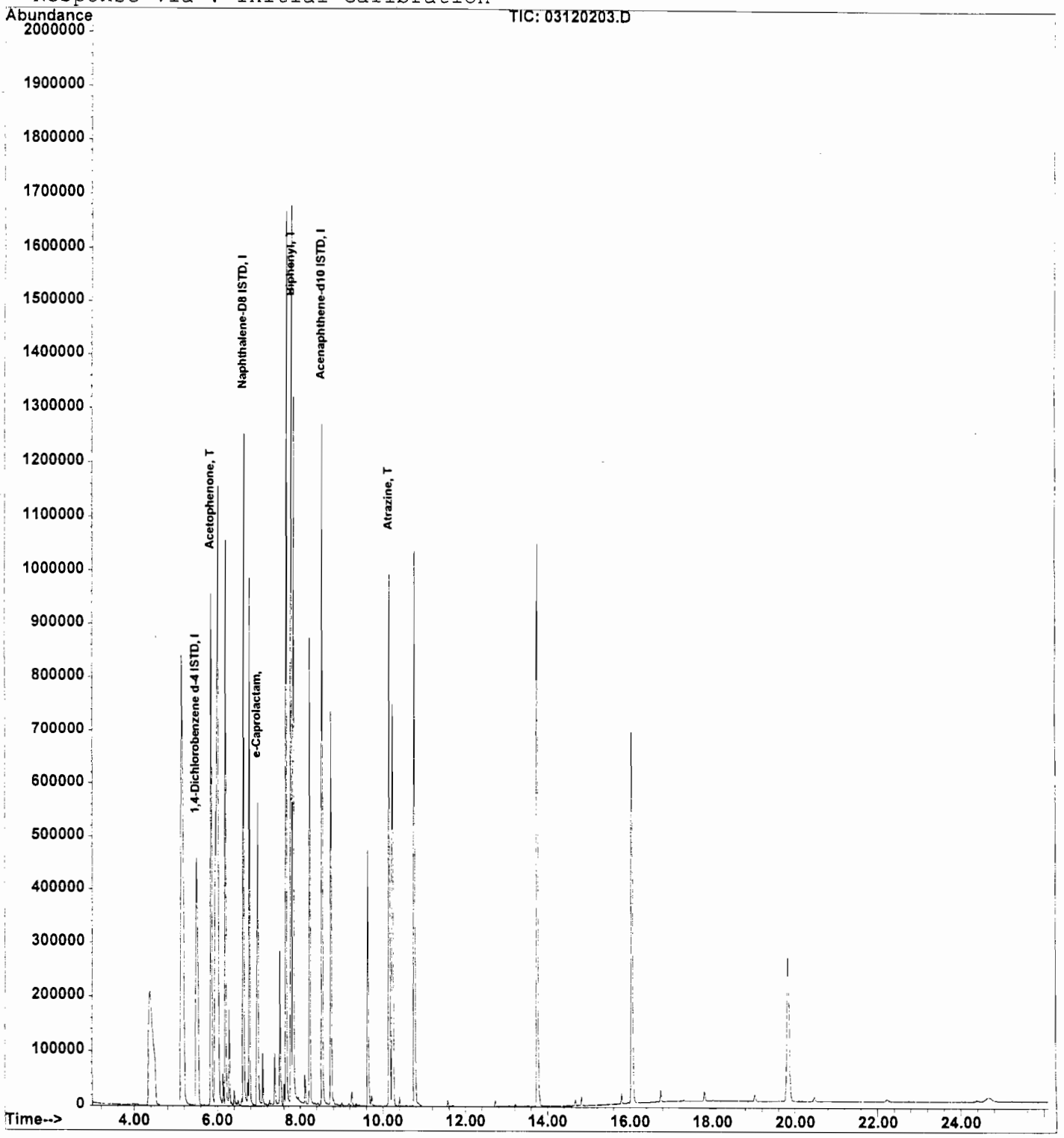
2 2028

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031202\03120203.D
Acq On : 2 Dec 2003 10:16 am
Sample : MDE CCal @50ppm
Misc : 07-29-03 DJP A084
MS Integration Params: rteint.p
Quant Time: Dec 4 16:31 2003

Vial: 3
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration



Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031205\03120502.D Vial: 2
Acq On : 5 Dec 2003 1:44 pm Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene d-4 IST	1.000	1.000	0.0	112	0.02
2		Pyridine	1.140	0.989	13.2	107	0.02
3	T	N-Nitrosodimethylamine	0.886	0.854	3.6	106	0.02
4	S	2-Fluorophenol Acid SS 1	1.671	1.590	4.8	110	0.02
5	S	Phenol-d6 Acid SS 2	2.000	1.931	3.4	111	0.03
6	M	PHENOL	2.047	2.076	-1.4	109	0.02
7	T	Aniline	0.963	0.844	12.4	107	0.02
8	T	Bis(2-chloroethyl)ether	1.080	1.087	-0.6	111	0.02
9	M	2-Chlorophenol	1.537	1.544	-0.5	111	0.02
10	M	1,4'-DICHLOROBENZENE	1.875	1.944	-3.7	110	0.02
11	T	1,3'-Dichlorobenzene	1.017	1.005	1.2	113	0.02
12	T	1,2'-Dichlorobenzene	1.363	1.389	-1.9	112	0.02
13	T	Benzyl Alcohol	1.057	0.962	9.0	109	0.02
14	T	2-Methylphenol	1.103	1.133	-2.7	112	0.03
15	T	bis(2-chloroisopropyl)ether	2.227	2.285	-2.6	111	0.02
16	T	3,4-Methylphenol	3.116	2.846	8.7	110	0.02
17	M	N-Nitrosodi-n-propyl amine	0.933	0.951	-1.9	109	0.03
18	T	Hexachloroethane	0.610	0.641	-5.1	114	0.02
19	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	109	0.02
20	S	Nitrobenzene-d5 BN SS 1	0.385	0.370	3.9	104	0.02
21	T	Nitrobenzene	0.338	0.363	-7.4	112	0.02
22	T	Isophorone	0.697	0.722	-3.6	110	0.02
23	T	2-NITROPHENOL	0.214	0.223	-4.2	109	0.02
24	T	2,4-dimethylphenol	0.341	0.351	-2.9	107	0.03
25	T	Benzoic Acid	0.260	0.234	10.0	113	0.03
26	T	Bis(2-chloroethoxy)methane	0.419	0.441	-5.3	112	0.03
27	T	2,4-DICHLOROPHENOL	0.262	0.276	-5.3	108	0.03
28	M	1,2,4'-Trichlorobenzene	0.285	0.304	-6.7	112	0.03
29	T	Naphthalene`	1.003	1.056	-5.3	110	0.02
30	T	4-Chloroaniline	0.504	0.543	-7.7	111	0.03
31	T	HEXACHLOROBUTADIENE`	0.138	0.149	-8.0	113	0.02
32	M	4-CHLORO-3-METHYLPHENOL	0.288	0.311	-8.0	111	0.03
33	T	2-Methylnaphthalene	0.607	0.655	-7.9	112	0.02
34	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	111	0.03
35	T	Hexachlorocyclopentadiene	0.099	0.102	-3.0	100	0.03
36	T	2,4,6-TRICHLOROPHENOL	0.171	0.178	-4.1	110	0.03
37	T	2,4,5-trichlorophenol	0.153	0.167	-9.2	111	0.03
38	S	2-Fluorobiphenyl BN SS 2	1.179	1.179	0.0	110	0.03
39	T	2-Chloronaphthalene	1.007	1.055	-4.8	109	0.03

(#) = Out of Range

2 2030

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031205\03120502.D Vial: 2
Acq On : 5 Dec 2003 1:44 pm Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	2-Nitroaniline	0.340	0.355	-4.4	107	0.03
41	T	3-Nitroaniline	0.329	0.342	-4.0	107	0.03
42	T	4-Nitroaniline	0.260	0.279	-7.3	106	0.04
43	T	Dimethylphthalate	1.241	1.260	-1.5	109	0.03
44	T	2,6-Dinitrotoluene	0.317	0.335	-5.7	110	0.03
45	T	Acenaphthylene	1.656	1.720	-3.9	110	0.03
46	M	ACENAPHTHENE	0.981	1.018	-3.8	110	0.03
47	T	2,4-Dinitrophenol	0.105	0.120	-14.3	105	0.03
48	M	4-nitrophenol	0.188	0.196	-4.3	98	0.04
49	M	2,4-Dinitrotoluene	0.365	0.401	-9.9	110	0.03
50	T	Dibenzofuran	1.346	1.421	-5.6	111	0.03
51	T	Diethylphthalate	1.207	1.259	-4.3	109	0.04
52	T	4-chlorophenyl phenyl ether	0.553	0.591	-6.9	112	0.03
53	T	Fluorene	1.103	1.142	-3.5	110	0.03
4	S	2,4,6-Tribromophenol Acid S	0.170	0.169	0.6	108	0.04
55	I	Phenanthrene-D10 ISTD	1.000	1.000	0.0	109	0.04
56	T	4,6-Dinitro-2-methylphenol	0.109	0.123	-12.8	107	0.03
57	T	N-NITROSODI-N-PHENYLAMINE	1.211	1.120	7.5	111	0.03
58	T	4-bromophenyl phenyl ether	0.204	0.212	-3.9	112	0.03
59	T	Hexachlorobenzene	0.084	0.085	-1.2	109	0.04
60	M	PENTACHLOROPHENOL	0.112	0.123	-9.8	107	0.04
61	T	Phenanthrene	0.969	0.986	-1.8	108	0.04
62	T	Anthracene	1.011	1.029	-1.8	107	0.04
63	T	Carbazole	0.825	0.854	-3.5	104	0.04
64		Decafluororotriphenylphosph	0.155	0.158	-1.9	110	0.03
65	T	Di-n-Butylphthalate	1.436	1.452	-1.1	107	0.03
66	T	FLUORANTHENE	0.965	0.982	-1.8	103	0.04
67	I	Chrysene-D12 ISTD	1.000	1.000	0.0	88	0.04
68	T	Benzidine	0.145	0.079	45.5#	80	0.04
69	M	Pyrene	1.622	1.814	-11.8	101	0.05
70	S	Terphenyl-d14 BN SS 3	1.212	1.281	-5.7	100	0.04
71	T	Butylbenzylphthalate	0.900	1.003	-11.4	97	0.04
72	T	3,3'-Dichlorobenzidine	0.304	0.311	-2.3	82	0.04
73	T	Bis(2-ethylhexyl)phthalate	1.269	1.378	-8.6	95	0.04
74	T	Benzo[a]anthracene	1.059	1.092	-3.1	89	0.04
75	T	Chrysene	0.960	0.980	-2.1	87	0.04
76	I	Perylene-D12	1.000	1.000	0.0	71	0.07
7	T	DI-N-OCTYLPHTHALATE	3.169	3.752	-18.4	86	0.04

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031205\03120502.D Vial: 2
Acq On : 5 Dec 2003 1:44 pm Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
78	T	Benzo[b]fluoranthene	1.289	1.461	-13.3	82	0.05
79	T	Benzo[k]fluoranthene	1.118	1.159	-3.7	70	0.05
80	T	BENZO[A]PYRENE	0.985	1.052	-6.8	72	0.07
81	T	Indeno(1,2,3-c,d)pyrene	0.718	0.716	0.3	62	0.09
82	T	Dibenzo[a,h]anthracene	0.623	0.627	-0.6	62	0.09
83	T	Benzo[g,h,i]perylene	0.537	0.523	2.6	59	0.10

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120502.D Vial: 2
Acq On : 5 Dec 2003 1:44 pm Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 14:33 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.40	152	300146	40.00 mg/L	0.02
19) Naphthalene-D8 ISTD	6.53	136	1136044	40.00 mg/L	0.02
34) Acenaphthene-d10 ISTD	8.42	164	623199	40.00 mg/L	0.03
55) Phenanthrene-D10 ISTD	10.64	188	931428	40.00 mg/L	0.04
67) Chrysene-D12 ISTD	15.90	240	454487	40.00 mg/L	0.04
76) Perylene-D12	19.56	264	225529	40.00 mg/L	0.07
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.27	112	596452	47.58 mg/L	0.02
Spiked Amount 200.000 Range 21 - 100 Recovery = 23.79%					
5) Phenol-d6 Acid SS 2	5.06	99	724664	48.28 mg/L	0.03
Spiked Amount 200.000 Range 10 - 94 Recovery = 24.14%					
20) Nitrobenzene-d5 BN SS 1	5.91	82	525222	47.99 mg/L	0.02
Spiked Amount 100.000 Range 35 - 114 Recovery = 47.99%					
38) 2-Fluorobiphenyl BN SS 2	7.57	172	918075	49.98 mg/L	0.03
Spiked Amount 100.000 Range 43 - 116 Recovery = 49.98%					
54) 2,4,6-Tribromophenol Acid	9.53	330	131827	49.77 mg/L	0.04
Spiked Amount 200.000 Range 10 - 123 Recovery = 24.89%					
70) Terphenyl-d14 BN SS 3	13.60	244	727537	52.82 mg/L	0.04
Spiked Amount 100.000 Range 33 - 141 Recovery = 52.82%					
Target Compounds					Qvalue
2) Pyridine	3.10	79	371219	43.39 mg/L	91
3) N-Nitrosodimethylamine	3.12	74	320507	48.19 mg/L	95
6) PHENOL	5.07	94	778725	50.71 mg/L	100
7) Aniline	5.14	66	316726	43.84 mg/L	97
8) Bis(2-chloroethyl)ether	5.16	63	407696	50.29 mg/L	98
9) 2-Chlorophenol	5.25	128	579165	50.22 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.41	146	729217	51.84 mg/L	99
11) 1,3'-Dichlorobenzene	5.37	146	377187	49.40 mg/L #	50
12) 1,2'-Dichlorobenzene	5.58	146	521197	50.95 mg/L	100
13) Benzyl Alcohol	5.51	108	360966	45.53 mg/L	98
14) 2-Methylphenol	5.59	107	425043	51.35 mg/L	99
15) bis(2-chloroisopropyl)ethe	5.62	45	857234	51.29 mg/L	99
16) 3,4-Methylphenol	5.74	107	1067905	45.67 mg/L	100
17) N-Nitrosodi-n-propyl amine	5.79	70	356707	50.93 mg/L	98
18) Hexachloroethane	5.86	117	240547	52.53 mg/L	99
21) Nitrobenzene	5.93	77	515269	53.65 mg/L	100
22) Isophorone	6.11	82	1024758	51.76 mg/L	99
23) 2-NITROPHENOL	6.20	139	316795	52.16 mg/L	100
24) 2,4-dimethylphenol	6.18	122	498418	51.51 mg/L	98

(#) = qualifier out of range (m) = manual integration

2 2033

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120502.D Vial: 2
Acq On : 5 Dec 2003 1:44 pm Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 14:33 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.29	105	332470	47.41 mg/L	96
26) Bis(2-chloroethoxy)methane	6.26	93	626267	52.66 mg/L	99
27) 2,4-DICHLOROPHENOL	6.40	162	392128	52.62 mg/L	100
28) 1,2,4'-Trichlorobenzene	6.48	180	431338	53.21 mg/L	99
29) Naphthalene`	6.55	128	1498891	52.61 mg/L #	35
30) 4-Chloroaniline	6.58	127	771429	53.94 mg/L	100
31) HEXACHLOROBUTADIENE`	6.68	225	211657	54.04 mg/L	100
32) 4-CHLORO-3-METHYLPHENOL	6.98	107	442271	53.99 mg/L	97
33) 2-Methylnaphthalene	7.20	142	930707	54.02 mg/L	100
35) Hexachlorocyclopentadiene	7.41	237	79677	44.99 mg/L	100
36) 2,4,6-TRICHLOROPHENOL	7.49	97	138656	52.05 mg/L	99
37) 2,4,5-trichlorophenol	7.55	97	130326	54.68 mg/L	97
39) 2-Chloronaphthalene	7.73	162	822182	52.41 mg/L	98
40) 2-Nitroaniline	7.84	65	276713	52.20 mg/L	99
41) 3-Nitroaniline	8.33	138	266235	51.93 mg/L	98
42) 4-Nitroaniline	9.19	138	217298	53.68 mg/L	99
43) Dimethylphthalate	8.03	163	981249	50.75 mg/L	100
44) 2,6-Dinitrotoluene	8.14	165	261113	52.89 mg/L	99
45) Acenaphthylene	8.24	152	1339947	51.92 mg/L	100
46) ACENAPHTHENE	8.47	154	793215	51.92 mg/L	100
47) 2,4-Dinitrophenol	8.46	184	93300	52.92 mg/L	98
48) 4-nitrophenol	8.47	139	152618	52.12 mg/L	99
49) 2,4-Dinitrotoluene	8.65	165	312009	54.93 mg/L	99
50) Dibenzofuran	8.66	168	1106613	52.79 mg/L	99
51) Diethylphthalate	8.92	149	980545	52.16 mg/L	99
52) 4-chlorophenyl phenyl ethe	9.07	204	460000	53.36 mg/L	99
53) Fluorene	9.14	166	889550	51.77 mg/L	100
56) 4,6-Dinitro-2-methylphenol	9.24	198	143788	49.89 mg/L	98
57) N-NITROSODI-N-PHENYLAMINE	9.25	169	1304372	46.26 mg/L	100
58) 4-bromophenyl phenyl ether	9.80	248	247370	52.19 mg/L	99
59) Hexachlorobenzene	10.11	142	98661	50.72 mg/L	96
60) PENTACHLOROPHENOL	10.38	266	143428	54.91 mg/L #	100
61) Phenanthrene	10.68	178	1148019	50.90 mg/L	100
62) Anthracene	10.77	178	1198344	50.88 mg/L	100
63) Carbazole	10.99	167	994122	51.75 mg/L	100
64) Decafluororotriphenylphosp	11.04	198	184138	51.03 mg/L	99
65) Di-n-Butylphthalate	11.56	149	1689960	50.55 mg/L	100
66) FLUORANTHENE	12.91	202	1143325	50.87 mg/L	99
68) Benzidine	13.08	184	44632	34.52 mg/L	98
69) Pyrene	13.38	202	1030688	55.92 mg/L	100
71) Butylbenzylphthalate	14.61	149	569788	55.73 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120502.D Vial: 2
Acq On : 5 Dec 2003 1:44 pm Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 14:33 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

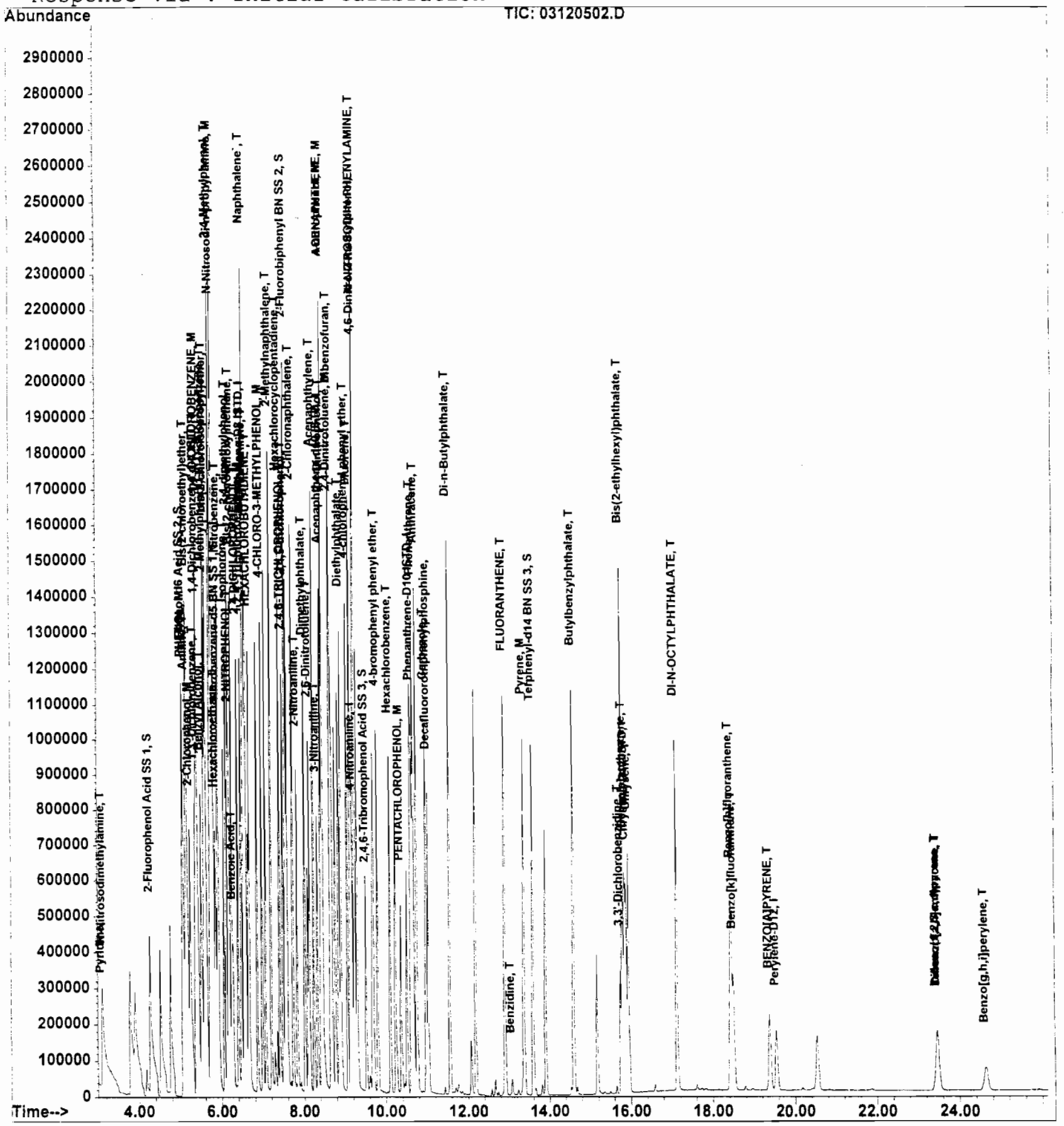
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72)	3,3'-Dichlorobenzidine	15.75	252	176845	51.27 mg/L	100
73)	Bis(2-ethylhexyl)phthalate	15.80	149	782894	54.31 mg/L	99
74)	Benzo[a]anthracene	15.86	228	620245	51.56 mg/L	100
75)	Chrysene	15.96	228	556923	51.08 mg/L	99
77)	DI-N-OCTYLPHTHALATE	17.13	149	1057712	59.21 mg/L	99
78)	Benzo[b]fluoranthene	18.45	252	411826	56.65 mg/L	94
79)	Benzo[k]fluoranthene	18.51	252	326816m	51.84 mg/L	
80)	BENZO[A]PYRENE	19.39	252	296659	53.40 mg/L	99
81)	Indeno(1,2,3-c,d)pyrene	23.47	276	201907	49.86 mg/L #	99
82)	Dibenzo[a,h]anthracene	23.48	278	176774	50.30 mg/L	100
83)	Benzo[g,h,i]perylene	24.63	276	147413	48.70 mg/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120502.D Vial: 2
Acq On : 5 Dec 2003 1:44 pm Operator: JR
Sample : Supelco CCal @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 14:33 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration



2 2036

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031205\03120503.D Vial: 3
Acq On : 5 Dec 2003 2:17 pm Operator: JR
Sample : MDE CCal @50ppm Inst : SVOC GC/M
Misc : 07-29-03 DJP A084 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
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 d-4 IST	1.000	1.000	0.0	104	0.01
2	T	Acetophenone	1.896	1.883	0.7	106	0.01
3	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	103	0.02
4		e-Caprolactam	0.165	0.180	-9.1	113	0.01
5	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	104	0.02
6	T	Biphenyl	1.430	1.385	3.1	102	0.02
7	T	Atrazine	0.322	0.323	-0.3	104	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2 2037

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120503.D Vial: 3
Acq On : 5 Dec 2003 2:17 pm Operator: JR
Sample : MDE CCal @50ppm Inst : SVOC GC/M
Misc : 07-29-03 DJP A084 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 14:59 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.40	152	359587	40.00 mg/L	0.00
3) Naphthalene-D8 ISTD	6.53	136	1310423	40.00 mg/L	0.00
5) Acenaphthene-d10 ISTD	8.41	164	673669	40.00 mg/L	0.00

System Monitoring Compounds

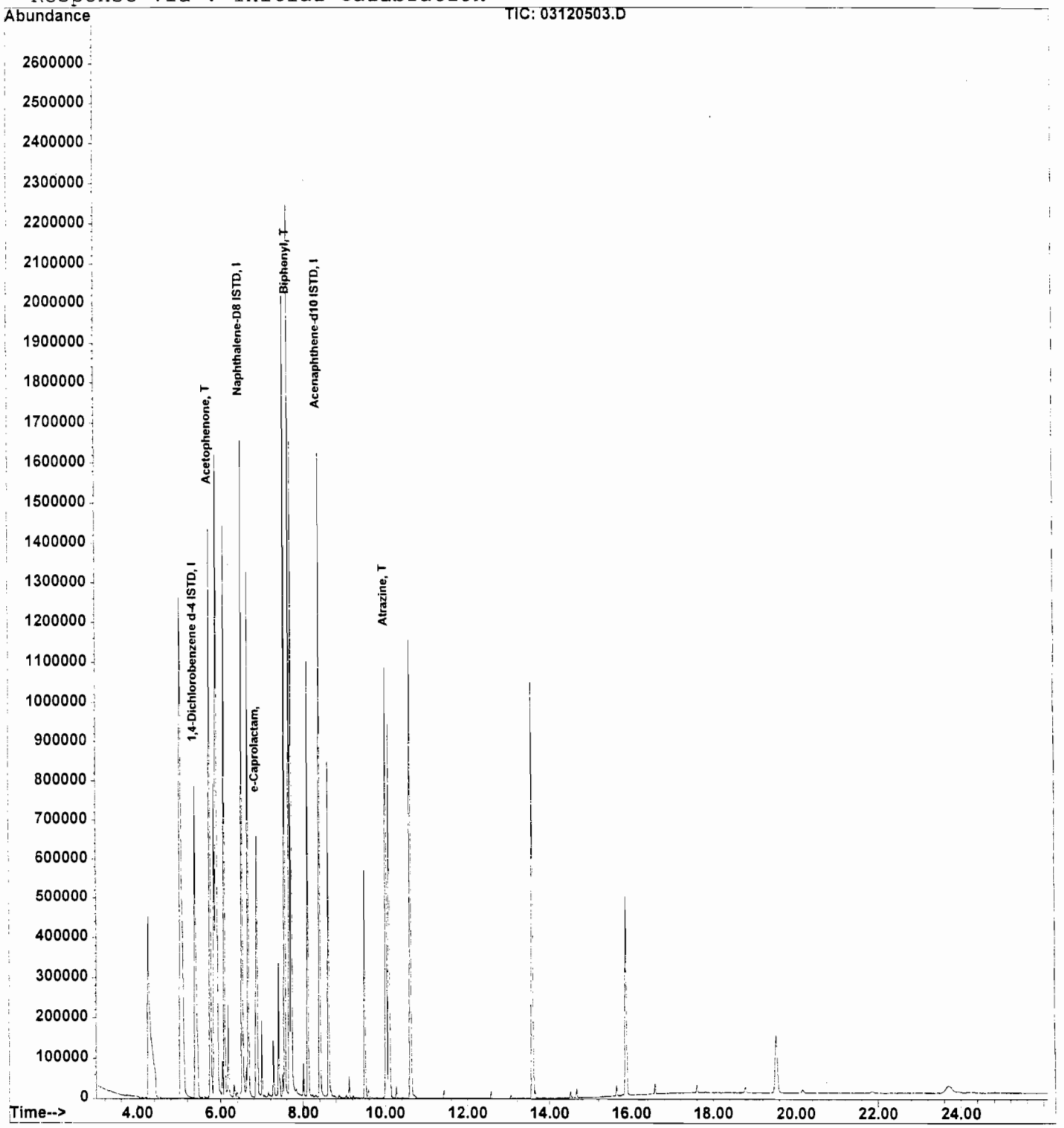
Target Compounds					Qvalue
2) Acetophenone	5.75	105	846168	49.65 mg/L	100
4) e-Caprolactam	6.89	55	295444	54.77 mg/L	100
6) Biphenyl	7.68	154	1166161	48.41 mg/L	100
7) Atrazine	10.04	200	272282	50.28 mg/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120503.D Vial: 3
Acq On : 5 Dec 2003 2:17 pm Operator: JR
Sample : MDE CCal @50ppm Inst : SVOC GC/M
Misc : 07-29-03 DJP A084 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 5 14:59 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration



2 2039

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031209\03120917.D
Acq On : 9 Dec 2003 11:07 pm
Sample : CV @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p

Vial: 9
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Fri Dec 12 10:58:45 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	1,4-Dichlorobenzene d-4 IST	1.000	1.000	0.0	101	0.00
2		Pyridine	1.069	0.990	7.4	99	0.00
3	T	N-Nitrosodimethylamine	0.816	0.844	-3.4	100	0.00
4	S	2-Fluorophenol Acid SS 1	1.631	1.589	2.6	102	0.00
5	S	Phenol-d6 Acid SS 2	2.009	1.958	2.5	101	0.00
6	M	PHENOL	2.039	2.099	-2.9	101	0.00
7	T	Aniline	1.112	0.965	13.2	101	0.00
8	T	Bis(2-chloroethyl)ether	1.134	1.075	5.2	100	0.00
9	M	2-Chlorophenol	1.540	1.607	-4.4	101	0.00
10	M	1,4'-DICHLOROBENZENE	1.843	1.898	-3.0	100	0.00
11	T	1,3'-Dichlorobenzene	1.001	1.073	-7.2	102	0.00
12	T	1,2'-Dichlorobenzene	1.377	1.405	-2.0	100	0.00
13	T	Benzyl Alcohol	1.112	1.053	5.3	101	0.00
14	T	2-Methylphenol	1.123	1.170	-4.2	101	0.00
	T	bis(2-chloroisopropyl)ether	2.165	2.220	-2.5	100	0.00
16	T	3,4-Methylphenol	3.233	2.982	7.8	101	0.00
17	M	N-Nitrosodi-n-propyl amine	0.941	0.972	-3.3	100	0.00
18	T	Hexachloroethane	0.586	0.622	-6.1	100	0.00
19	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	102	0.00
20	S	Nitrobenzene-d5 BN SS 1	0.380	0.364	4.2	101	0.00
21	T	Nitrobenzene	0.338	0.353	-4.4	101	0.00
22	T	Isophorone	0.689	0.729	-5.8	103	0.00
23	T	2-NITROPHENOL	0.209	0.224	-7.2	100	0.00
24	T	2,4-dimethylphenol	0.327	0.347	-6.1	101	0.00
25	T	Benzoic Acid	0.285	0.274	3.9	104	0.00
26	T	Bis(2-chloroethoxy)methane	0.418	0.428	-2.4	100	0.00
27	T	2,4-DICHLOROPHENOL	0.270	0.284	-5.2	100	0.00
28	M	1,2,4'-Trichlorobenzene	0.289	0.299	-3.5	100	0.00
29	T	Naphthalene`	1.012	1.025	-1.3	100	0.00
30	T	4-Chloroaniline	0.536	0.560	-4.5	100	0.00
31	T	HEXACHLOROBUTADIENE`	0.143	0.150	-4.9	103	0.00
32	M	4-CHLORO-3-METHYLPHENOL	0.303	0.327	-7.9	105	0.00
33	T	2-Methylnaphthalene	0.616	0.648	-5.2	101	0.00
34	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	100	0.00
35	T	Hexachlorocyclopentadiene	0.057	0.063	-10.5	96	0.00
36	T	2,4,6-TRICHLOROPHENOL	0.178	0.185	-3.9	101	0.00
37	T	2,4,5-trichlorophenol	0.162	0.172	-6.2	100	0.00
38	S	2-Fluorobiphenyl BN SS 2	1.185	1.178	0.6	102	0.00
	T	2-Chloronaphthalene	1.010	1.047	-3.7	100	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031209\03120917.D Vial: 9
Acq On : 9 Dec 2003 11:07 pm Operator: JR
Sample : CV @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Fri Dec 12 10:58:45 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
40	T	2-Nitroaniline	0.360	0.378	-5.0	101	0.00
41	T	3-Nitroaniline	0.390	0.406	-4.1	99	0.00
42	T	4-Nitroaniline	0.355	0.371	-4.5	97	0.00
43	T	Dimethylphthalate	1.266	1.297	-2.4	101	0.00
44	T	2,6-Dinitrotoluene	0.326	0.344	-5.5	102	0.00
45	T	Acenaphthylene	1.650	1.692	-2.5	100	0.00
46	M	ACENAPHTHENE	0.983	1.004	-2.1	100	0.00
47	T	2,4-Dinitrophenol	0.093	0.120	-29.0	118	0.00
48	M	4-nitrophenol	0.267	0.278	-4.1	98	0.00
49	M	2,4-Dinitrotoluene	0.390	0.412	-5.6	101	0.00
50	T	Dibenzofuran	1.403	1.412	-0.6	100	0.00
51	T	Diethylphthalate	1.262	1.304	-3.3	101	0.00
52	T	4-chlorophenyl phenyl ether	0.581	0.606	-4.3	100	0.00
53	T	Fluorene	1.144	1.179	-3.1	101	0.00
	S	2,4,6-Tribromophenol Acid S	0.197	0.196	0.5	101	0.00
55	I	Phenanthrene-D10 ISTD	1.000	1.000	0.0	100	0.00
56	T	4,6-Dinitro-2-methylphenol	0.095	0.131	-37.9#	111	0.00
57	T	N-NITROSODI-N-PHENYLAMINE	1.128	1.052	6.7	101	0.00
58	T	4-bromophenyl phenyl ether	0.191	0.205	-7.3	102	0.00
59	T	Hexachlorobenzene	0.078	0.081	-3.8	102	0.00
60	M	PENTACHLOROPHENOL	0.120	0.135	-12.5	100	0.00
61	T	Phenanthrene	0.938	0.967	-3.1	100	0.00
62	T	Anthracene	1.014	1.045	-3.1	100	0.00
63	T	Carbazole	0.942	0.972	-3.2	99	0.00
64		Decafluororotriphenylphosph	0.149	0.156	-4.7	102	0.00
65	T	Di-n-Butylphthalate	1.422	1.459	-2.6	99	0.00
66	T	FLUORANTHENE	1.122	1.171	-4.4	101	0.00
67	I	Chrysene-D12 ISTD	1.000	1.000	0.0	101	0.00
68	T	Benzidine	0.458	0.447	2.4	102	0.00
69	M	Pyrene	1.387	1.423	-2.6	100	0.00
70	S	Terphenyl-d14 BN SS 3	1.048	1.015	3.1	100	0.00
71	T	Butylbenzylphthalate	0.816	0.842	-3.2	101	0.00
72	T	3,3'-Dichlorobenzidine	0.418	0.443	-6.0	98	0.00
73	T	Bis(2-ethylhexyl)phthalate	1.075	1.089	-1.3	101	0.00
74	T	Benzo[a]anthracene	1.153	1.196	-3.7	100	0.00
75	T	Chrysene	1.025	1.041	-1.6	99	0.00
76	I	Perylene-D12	1.000	1.000	0.0	97	0.00
	T	DI-N-OCTYLPHTHALATE	3.055	3.282	-7.4	100	0.00

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031209\03120917.D Vial: 9
Acq On : 9 Dec 2003 11:07 pm Operator: JR
Sample : CV @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Fri Dec 12 10:58:45 2003
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 : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
78	T	Benzo[b]fluoranthene	1.417	1.504	-6.1	100	0.00
79	T	Benzo[k]fluoranthene	1.041	1.111	-6.7	99	0.00
80	T	BENZO[A]PYRENE	0.989	1.045	-5.7	98	0.00
81	T	Indeno(1,2,3-c,d)pyrene	0.584	0.616	-5.5	94	0.00
82	T	Dibenzo[a,h]anthracene	0.536	0.566	-5.6	94	0.00
83	T	Benzo[g,h,i]perylene	0.385	0.403	-4.7	93	0.00

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031209\03120917.D Vial: 9
Acq On : 9 Dec 2003 11:07 pm Operator: JR
Sample : CV @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 10 16:33 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Wed Dec 10 16:24:26 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	4.95	152	230177	40.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.05	136	917396	40.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	7.76	164	519419	40.00 mg/L	0.00
55) Phenanthrene-D10 ISTD	9.83	188	865076	40.00 mg/L	0.00
67) Chrysene-D12 ISTD	14.94	240	665318	40.00 mg/L	0.00
76) Perylene-D12	18.08	264	417817	40.00 mg/L	-0.01
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	3.85	112	457224	48.72 mg/L	-0.02
Spiked Amount 200.000 Range 21 - 100 Recovery = 24.36%					
5) Phenol-d6 Acid SS 2	4.63	99	563394	48.73 mg/L	0.00
Spiked Amount 200.000 Range 10 - 94 Recovery = 24.37%					
20) Nitrobenzene-d5 BN SS 1	5.46	82	417877	48.00 mg/L	0.00
Spiked Amount 100.000 Range 35 - 114 Recovery = 48.00%					
38) 2-Fluorobiphenyl BN SS 2	7.00	172	764973	49.72 mg/L	0.01
Spiked Amount 100.000 Range 43 - 116 Recovery = 49.72%					
54) 2,4,6-Tribromophenol Acid	8.79	330	127309	49.66 mg/L	0.00
Spiked Amount 200.000 Range 10 - 123 Recovery = 24.83%					
70) Terphenyl-d14 BN SS 3	12.71	244	843990	48.43 mg/L	-0.01
Spiked Amount 100.000 Range 33 - 141 Recovery = 48.43%					

Target Compounds					Qvalue
2) Pyridine	2.70	79	284857	46.29 mg/L	100
3) N-Nitrosodimethylamine	2.71	74	242914	51.73 mg/L	97
6) PHENOL	4.64	94	603825	51.45 mg/L	96
7) Aniline	4.70	66	277650	43.37 mg/L #	1
8) Bis(2-chloroethyl)ether	4.73	63	309431	47.44 mg/L	94
9) 2-Chlorophenol	4.80	128	462288	52.17 mg/L	100
10) 1,4'-DICHLOROBENZENE	4.96	146	546132m	51.50 mg/L	
11) 1,3'-Dichlorobenzene	4.92	146	308714m	53.57 mg/L	
12) 1,2'-Dichlorobenzene	5.13	146	404136	50.99 mg/L	100
13) Benzyl Alcohol	5.07	108	303043	47.34 mg/L	98
14) 2-Methylphenol	5.15	107	336684	52.10 mg/L #	92
15) bis(2-chloroisopropyl)ethe	5.19	45	638854	51.29 mg/L	86
16) 3,4-Methylphenol	5.29	107	858021	46.13 mg/L	100
17) N-Nitrosodi-n-propyl amine	5.34	70	279646	51.67 mg/L	98
18) Hexachloroethane	5.39	117	178913	53.02 mg/L	99
21) Nitrobenzene	5.48	77	404477	52.10 mg/L	100
22) Isophorone	5.66	82	835870	52.93 mg/L	100
23) 2-NITROPHENOL	5.73	139	256514	53.48 mg/L	98
24) 2,4-dimethylphenol	5.71	122	397425	53.01 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031209\03120917.D Vial: 9
Acq On : 9 Dec 2003 11:07 pm Operator: JR
Sample : CV @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 10 16:33 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Wed Dec 10 16:24:26 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

	Compound	R.T.	QIon	Response	Conc Unit		Qvalue
25)	Benzoic Acid	5.84	105	313804	46.59 mg/L		99
26)	Bis(2-chloroethoxy)methane	5.79	93	490971	51.16 mg/L		99
27)	2,4-DICHLOROPHENOL	5.91	162	325241	52.49 mg/L		100
28)	1,2,4'-Trichlorobenzene	6.00	180	342389	51.66 mg/L		100
29)	Naphthalene`	6.06	128	1174881	50.62 mg/L	#	70
30)	4-Chloroaniline	6.09	127	642121	52.21 mg/L	#	82
31)	HEXACHLOROBUTADIENE`	6.18	225	172355	52.42 mg/L		100
32)	4-CHLORO-3-METHYLPHENOL	6.47	107	374997	53.94 mg/L		98
33)	2-Methylnaphthalene	6.66	142	743063	52.57 mg/L		100
35)	Hexachlorocyclopentadiene	6.86	237	40952	49.38 mg/L		98
36)	2,4,6-TRICHLOROPHENOL	6.93	97	119842	51.83 mg/L		94
37)	2,4,5-trichlorophenol	6.97	97	111648	53.00 mg/L		93
39)	2-Chloronaphthalene	7.14	162	679969	51.84 mg/L		98
40)	2-Nitroaniline	7.24	65	245119	52.46 mg/L		99
41)	3-Nitroaniline	7.70	138	263439	52.03 mg/L		99
42)	4-Nitroaniline	8.50	138	240735	52.28 mg/L		96
43)	Dimethylphthalate	7.43	163	842296	51.25 mg/L		100
44)	2,6-Dinitrotoluene	7.53	165	223651	52.88 mg/L		98
45)	Acenaphthylene	7.60	152	1098590	51.28 mg/L		100
46)	ACENAPHTHENE	7.81	154	651729	51.07 mg/L		100
47)	2,4-Dinitrophenol	7.82	184	78005	59.91 mg/L		98
48)	4-nitrophenol	7.83	139	180531	52.00 mg/L		99
49)	2,4-Dinitrotoluene	8.00	165	267784	52.89 mg/L		99
50)	Dibenzofuran	7.99	168	916858	50.33 mg/L		99
51)	Diethylphthalate	8.26	149	846484	51.64 mg/L		100
52)	4-chlorophenyl phenyl ethe	8.38	204	393335	52.13 mg/L		100
53)	Fluorene	8.44	166	765520	51.55 mg/L		100
56)	4,6-Dinitro-2-methylphenol	8.55	198	141422	55.39 mg/L		96
57)	N-NITROSODI-N-PHENYLAMINE	8.56	169	1137462	46.64 mg/L		100
58)	4-bromophenyl phenyl ether	9.06	248	221348	53.49 mg/L		99
59)	Hexachlorobenzene	9.34	142	87495	52.20 mg/L		98
60)	PENTACHLOROPHENOL	9.59	266	145995	51.18 mg/L	#	100
61)	Phenanthrene	9.88	178	1046024	51.55 mg/L		100
62)	Anthracene	9.95	178	1129804	51.51 mg/L		100
63)	Carbazole	10.18	167	1051489	51.60 mg/L		100
64)	Decafluororotriphenylphosp	10.27	198	168168	52.15 mg/L		99
65)	Di-n-Butylphthalate	10.77	149	1577434	51.30 mg/L		100
66)	FLUORANTHENE	12.01	202	1266775	52.22 mg/L		99
68)	Benzidine	12.20	184	371900	48.07 mg/L		100
69)	Pyrene	12.46	202	1183584	51.30 mg/L		100
71)	Butylbenzylphthalate	13.72	149	700461	51.61 mg/L		100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031209\03120917.D Vial: 9
Acq On : 9 Dec 2003 11:07 pm Operator: JR
Sample : CV @50ppm Inst : SVOC GC/M
Misc : 10-21-03 DJP A147 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 10 16:33 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Wed Dec 10 16:24:26 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	14.84	252	368013	52.91 mg/L	99
73) Bis(2-ethylhexyl)phthalate	14.93	149	905416	50.65 mg/L	100
74) Benzo[a]anthracene	14.90	228	994556	51.87 mg/L	100
75) Chrysene	15.00	228	865659	50.80 mg/L	100
77) DI-N-OCTYLPHTHALATE	16.17	149	1714272	53.72 mg/L	100
78) Benzo[b]fluoranthene	17.20	252	785757	53.09 mg/L	76
79) Benzo[k]fluoranthene	17.25	252	580004m	53.34 mg/L	
80) BENZO[A]PYRENE	17.94	252	545835	52.82 mg/L	100
81) Indeno(1,2,3-c,d)pyrene	21.26	276	321545	52.70 mg/L #	99
82) Dibenzo[a,h]anthracene	21.27	278	295429	52.78 mg/L	99
83) Benzo[g,h,i]perylene	22.18	276	210537	52.36 mg/L	99

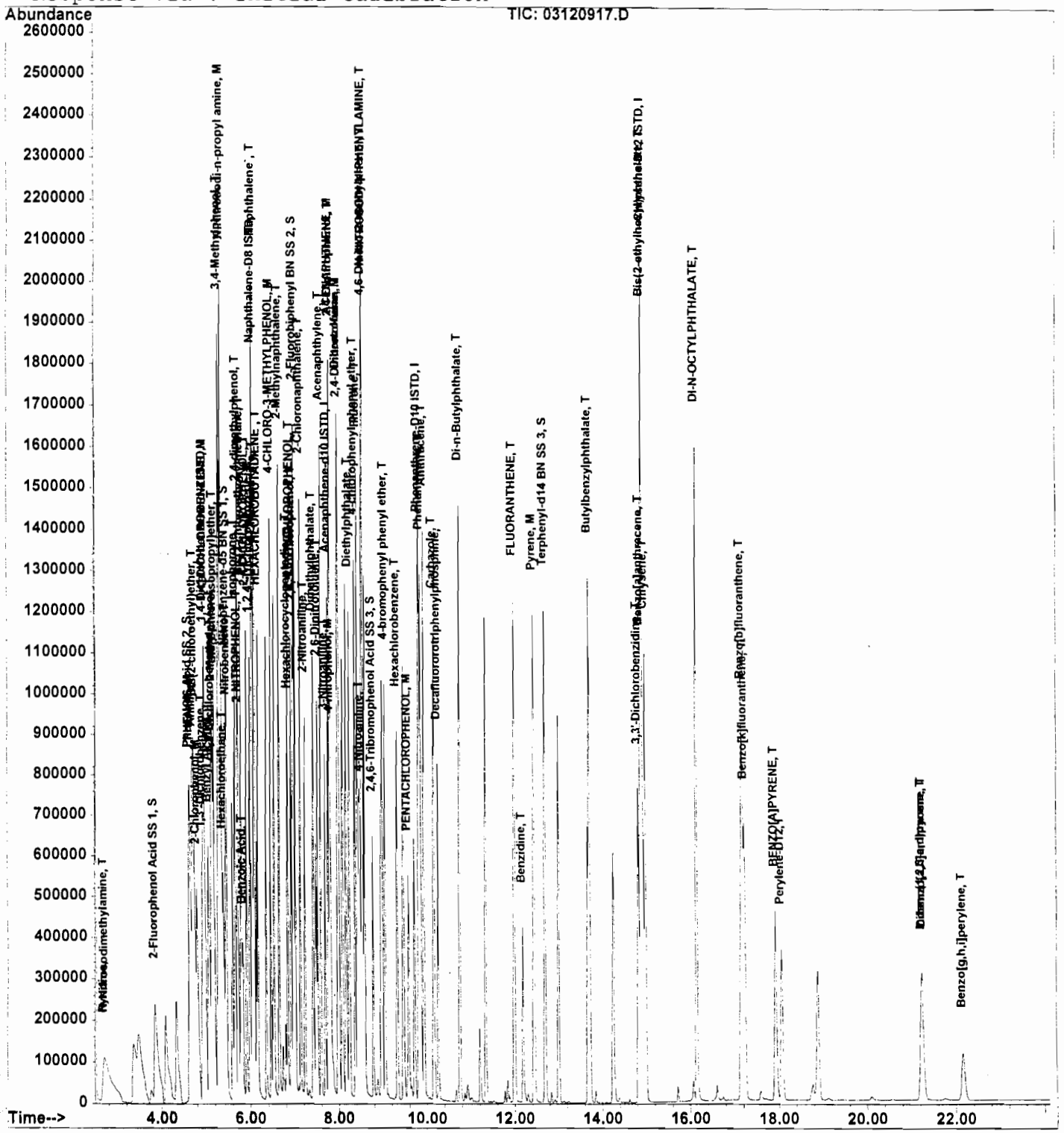
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031209\03120917.D
Acq On : 9 Dec 2003 11:07 pm
Sample : CV @50ppm
Misc : 10-21-03 DJP A147
MS Integration Params: rteint.p
Quant Time: Dec 10 16:33 2003

Vial: 9
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Fri Dec 12 10:58:45 2003
Response via : Initial Calibration



2 2046

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\031209\03120918.D Vial: 10
Acq On : 9 Dec 2003 11:37 pm Operator: JR
Sample : MDE CV @50ppm Inst : SVOC GC/M
Misc : 7-29-03 DJP A084 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:03:34 2003
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 d-4 IST	1.000	1.000	0.0	81	0.00
2	T	Acetophenone	1.896	1.883	0.7	82	0.00
3	I	Naphthalene-D8 ISTD	1.000	1.000	0.0	80	0.00
4		e-Caprolactam	0.165	0.186	-12.7	91	0.00
5	I	Acenaphthene-d10 ISTD	1.000	1.000	0.0	88	0.00
6	T	Biphenyl	1.430	1.354	5.3	84	0.00
7	T	Atrazine	0.322	0.365	-13.4	99	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

2 2047

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031209\03120918.D Vial: 10
Acq On : 9 Dec 2003 11:37 pm Operator: JR
Sample : MDE CV @50ppm Inst : SVOC GC/M
Misc : 7-29-03 DJP A084 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 10 0:06 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Wed Dec 10 00:06:08 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	4.95	152	280455	40.00 mg/L	0.00
3) Naphthalene-D8 ISTD	6.03	136	1018287	40.00 mg/L	0.00
5) Acenaphthene-d10 ISTD	7.76	164	567302	40.00 mg/L	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	5.31	105	660068	49.66 mg/L	99
4) e-Caprolactam	6.38	55	236671	56.46 mg/L	96
6) Biphenyl	7.09	154	960451	47.34 mg/L	99
7) Atrazine	9.30	200	258804	56.75 mg/L	89

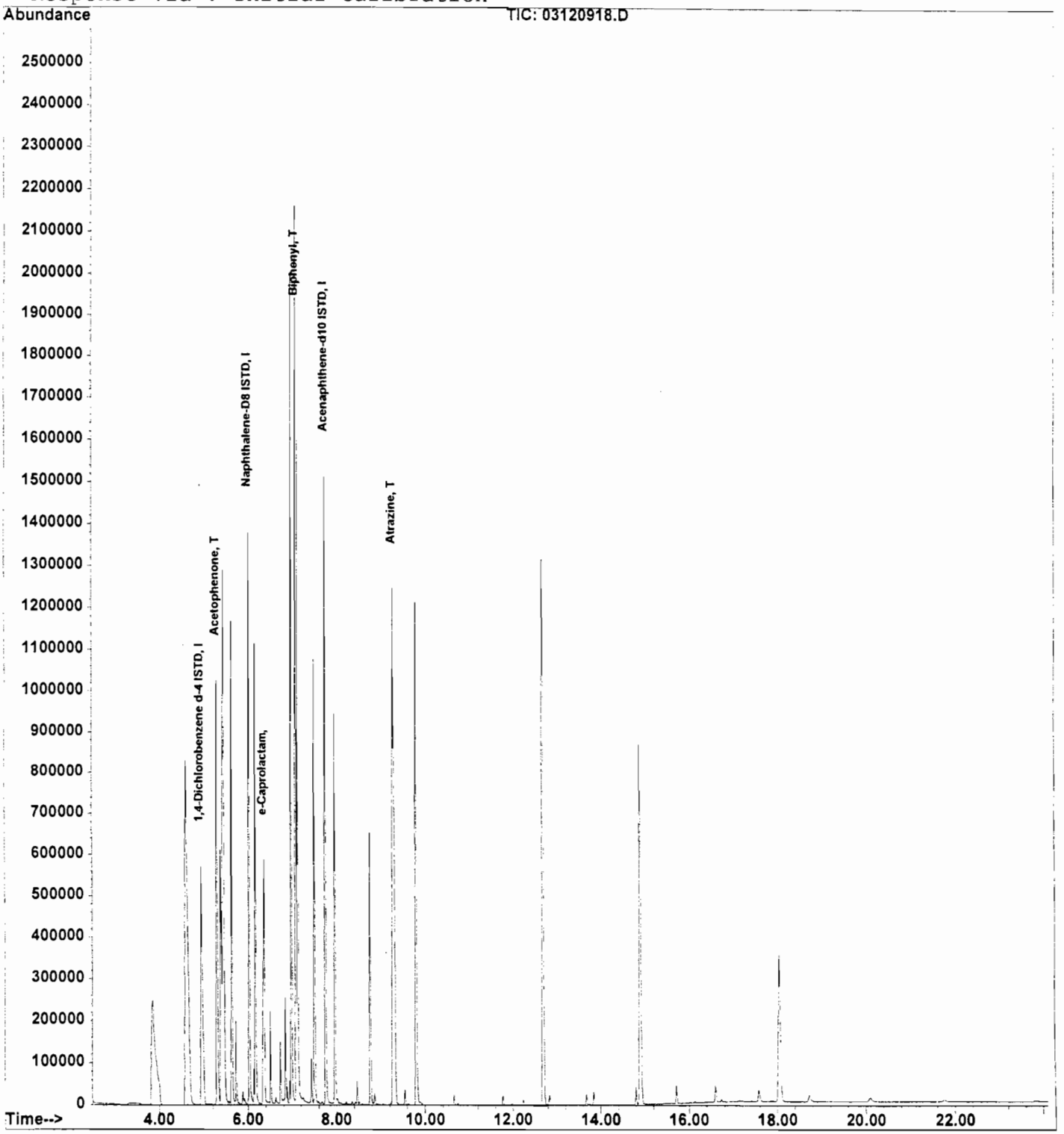
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031209\03120918.D
Acq On : 9 Dec 2003 11:37 pm
Sample : MDE CV @50ppm
Misc : 7-29-03 DJP A084
MS Integration Params: rteint.p
Quant Time: Dec 10 0:06 2003

Vial: 10
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:03:34 2003
Response via : Initial Calibration



OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

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SEMI-VOLATILE ORGANICS COMPOUNDS
MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

DATE ANALYZED: 12/06/03 **Analytical Lot Number:** SVOC031205

METHOD: EPA 8270 **Lab File IDs:** 03120530.D 03120531.D

Matrix: Soil

Sample ID: 03112414-25 MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	LCL (%)	UCL (%)
Phenol	40	ND	34	85	26	90
2-Chlorophenol	40	ND	35	87	25	102
1,4-Dichlorobenzene	40	ND	29	72	28	104
N-Nitroso-di-n-propylamine	40	ND	38	95	41	126
1,2,4-Trichlorobenzene	40	ND	32	80	38	107
4-Chloro-3-methylphenol	40	ND	42	106 *	26	103
Acenaphthene	40	ND	36	90	31	137
4-Nitrophenol	40	ND	42	106	11	114
2,4-Dinitrotoluene	40	ND	38	96 *	28	89
Pentachlorophenol	40	ND	34	85	17	109
Pyrene	40	ND	47	117	35	142

Sample ID: 03112414-25 MSD

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	LCL (%)	UCL (%)
Phenol	40	ND	31	77	9.3	42	26	90
2-Chlorophenol	40	ND	31	77	12.5	40	25	102
1,4-Dichlorobenzene	40	ND	29	72	0.3	28	28	104
N-Nitroso-di-n-propylamine	40	ND	39	99	3.8	38	41	126
1,2,4-Trichlorobenzene	40	ND	32	79	1.0	28	38	107
4-Chloro-3-methylphenol	40	ND	38	95	11.1	42	26	103
Acenaphthene	40	ND	37	93	3.1	31	31	137
4-Nitrophenol	40	ND	38	96	0.0	50	11	114
2,4-Dinitrotoluene	40	ND	39	97 *	1.5	38	28	89
Pentachlorophenol	40	ND	30	76	0.0	50	17	109
Pyrene	40	ND	51	128	8.4	31	35	142

D = Spike compound diluted out
# - Column used to flag out of control recoveries
* = Values outside QC limits.

Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*

Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

Note: QC limits are based on CLP OLM04.2

2 2050

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120530.D Vial: 30
Acq On : 6 Dec 2003 4:46 am Operator: JR
Sample : 03112414-25 MS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:50 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.39	152	241674	40.00 mg/L	0.01
19) Naphthalene-D8 ISTD	6.53	136	966181	40.00 mg/L	0.01
34) Acenaphthene-d10 ISTD	8.42	164	505187	40.00 mg/L	0.02
55) Phenanthrene-D10 ISTD	10.63	188	796093	40.00 mg/L	0.02
67) Chrysene-D12 ISTD	15.89	240	278176	40.00 mg/L	0.03
76) Perylene-D12	19.54	264	123304	40.00 mg/L	0.05
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.26	112	1270972	125.91 mg/L	0.00
Spiked Amount 200.000 Range 21 - 100 Recovery = 62.95%					
5) Phenol-d6 Acid SS 2	5.05	99	1608481	133.10 mg/L	0.01
Spiked Amount 200.000 Range 10 - 94 Recovery = 66.55%					
20) Nitrobenzene-d5 BN SS 1	5.90	82	637311	68.46 mg/L	0.01
Spiked Amount 100.000 Range 35 - 114 Recovery = 68.46%					
38) 2-Fluorobiphenyl BN SS 2	7.56	172	1119575	75.19 mg/L	0.02
Spiked Amount 100.000 Range 43 - 116 Recovery = 75.19%					
54) 2,4,6-Tribromophenol Acid	9.52	330	312692	145.64 mg/L	0.03
Spiked Amount 200.000 Range 10 - 123 Recovery = 72.82%					
70) Terphenyl-d14 BN SS 3	13.60	244	837775	99.38 mg/L	0.04
Spiked Amount 100.000 Range 33 - 141 Recovery = 99.38%					

Target Compounds					Qvalue
2) Pyridine	3.09	79	226912	32.94 mg/L	99
3) N-Nitrosodimethylamine	3.11	74	139814	26.11 mg/L #	88
6) PHENOL	5.06	94	418049	33.81 mg/L	81
7) Aniline	5.15	66	131386	22.58 mg/L #	84
8) Bis(2-chloroethyl)ether	5.16	63	203515	31.17 mg/L #	85
9) 2-Chlorophenol	5.24	128	323360	34.82 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.41	146	325018	28.70 mg/L	99
11) 1,3'-Dichlorobenzene	5.37	146	209304	34.05 mg/L #	51
12) 1,2'-Dichlorobenzene	5.58	146	249419	30.28 mg/L	99
13) Benzyl Alcohol	5.51	108	179580	28.13 mg/L	97
14) 2-Methylphenol	5.58	107	273128	40.98 mg/L #	86
15) bis(2-chloroisopropyl)ethe	5.63	45	422689	31.41 mg/L	95
16) 3,4-Methylphenol	5.70	107	401495	21.32 mg/L	90
17) N-Nitrosodi-n-propyl amine	5.76	70	214117	37.97 mg/L #	64
18) Hexachloroethane	5.85	117	109268	29.64 mg/L	98
21) Nitrobenzene	5.91	77	286156	35.03 mg/L	91
22) Isophorone	6.11	82	566227	33.63 mg/L	99
23) 2-NITROPHENOL	6.19	139	195224	37.80 mg/L	100
24) 2,4-dimethylphenol	6.16	122	325775	39.59 mg/L	97

(#) = qualifier out of range (m) = manual integration

2 2051

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120530.D Vial: 30
Acq On : 6 Dec 2003 4:46 am Operator: JR
Sample : 03112414-25 MS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:50 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.24	105	139333	26.65 mg/L	97
26) Bis(2-chloroethoxy)methane	6.24	93	341787	33.79 mg/L	99
27) 2,4-DICHLOROPHENOL	6.38	162	244533	38.58 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.48	180	219519	31.84 mg/L	99
29) Naphthalene`	6.55	128	782563	32.30 mg/L #	49
30) 4-Chloroaniline	6.58	127	387929	31.89 mg/L #	60
31) HEXACHLOROBUTADIENE`	6.67	225	110419	33.15 mg/L	100
32) 4-CHLORO-3-METHYLPHENOL	6.98	107	294713	42.30 mg/L	97
33) 2-Methylnaphthalene	7.19	142	514535	35.12 mg/L	100
35) Hexachlorocyclopentadiene	7.41	237	19722	17.56 mg/L	98
36) 2,4,6-TRICHLOROPHENOL	7.49	97	91919	42.56 mg/L	90
37) 2,4,5-trichlorophenol	7.55	97	77406	40.06 mg/L	92
39) 2-Chloronaphthalene	7.72	162	426754	33.56 mg/L	99
40) 2-Nitroaniline	7.83	65	150301	34.97 mg/L	100
41) 3-Nitroaniline	8.32	138	114449	27.54 mg/L	98
42) 4-Nitroaniline	9.15	138	67632	20.61 mg/L	96
43) Dimethylphthalate	8.01	163	563058	35.93 mg/L	100
44) 2,6-Dinitrotoluene	8.12	165	144279	36.05 mg/L	88
45) Acenaphthylene	8.23	152	707312	33.81 mg/L	100
46) ACENAPHTHENE	8.46	154	447772	36.15 mg/L	99
47) 2,4-Dinitrophenol	8.44	184	49869	37.66 mg/L	90
48) 4-nitrophenol	8.44	139	100445	42.31 mg/L	100
49) 2,4-Dinitrotoluene	8.63	165	176468	38.33 mg/L	98
50) Dibenzofuran	8.65	168	616555	36.28 mg/L	100
51) Diethylphthalate	8.89	149	597191	39.19 mg/L	100
52) 4-chlorophenyl phenyl ethe	9.06	204	263074	37.64 mg/L	99
53) Fluorene	9.13	166	481404	34.56 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.22	198	80411	34.18 mg/L #	70
57) N-NITROSODI-N-PHENYLAMINE	9.23	169	424518	17.61 mg/L	99
58) 4-bromophenyl phenyl ether	9.80	248	140491	34.68 mg/L	99
59) Hexachlorobenzene	10.09	142	55317	33.27 mg/L	99
60) PENTACHLOROPHENOL	10.37	266	75544	33.84 mg/L #	100
61) Phenanthrene	10.67	178	636607	33.03 mg/L	99
62) Anthracene	10.75	178	647546	32.17 mg/L	100
63) Carbazole	10.97	167	474456	28.89 mg/L	100
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.56	149	995881	34.86 mg/L	100
66) FLUORANTHENE	12.90	202	573838	29.87 mg/L	99
68) Benzidine	13.09	184	2762	-40.00 mg/L #	69
69) Pyrene	13.37	202	529294	46.91 mg/L	100
71) Butylbenzylphthalate	14.59	149	297175	47.49 mg/L	99

(#) = qualifier out of range (m) = manual integration

2 2052

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120530.D Vial: 30
Acq On : 6 Dec 2003 4:46 am Operator: JR
Sample : 03112414-25 MS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:50 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

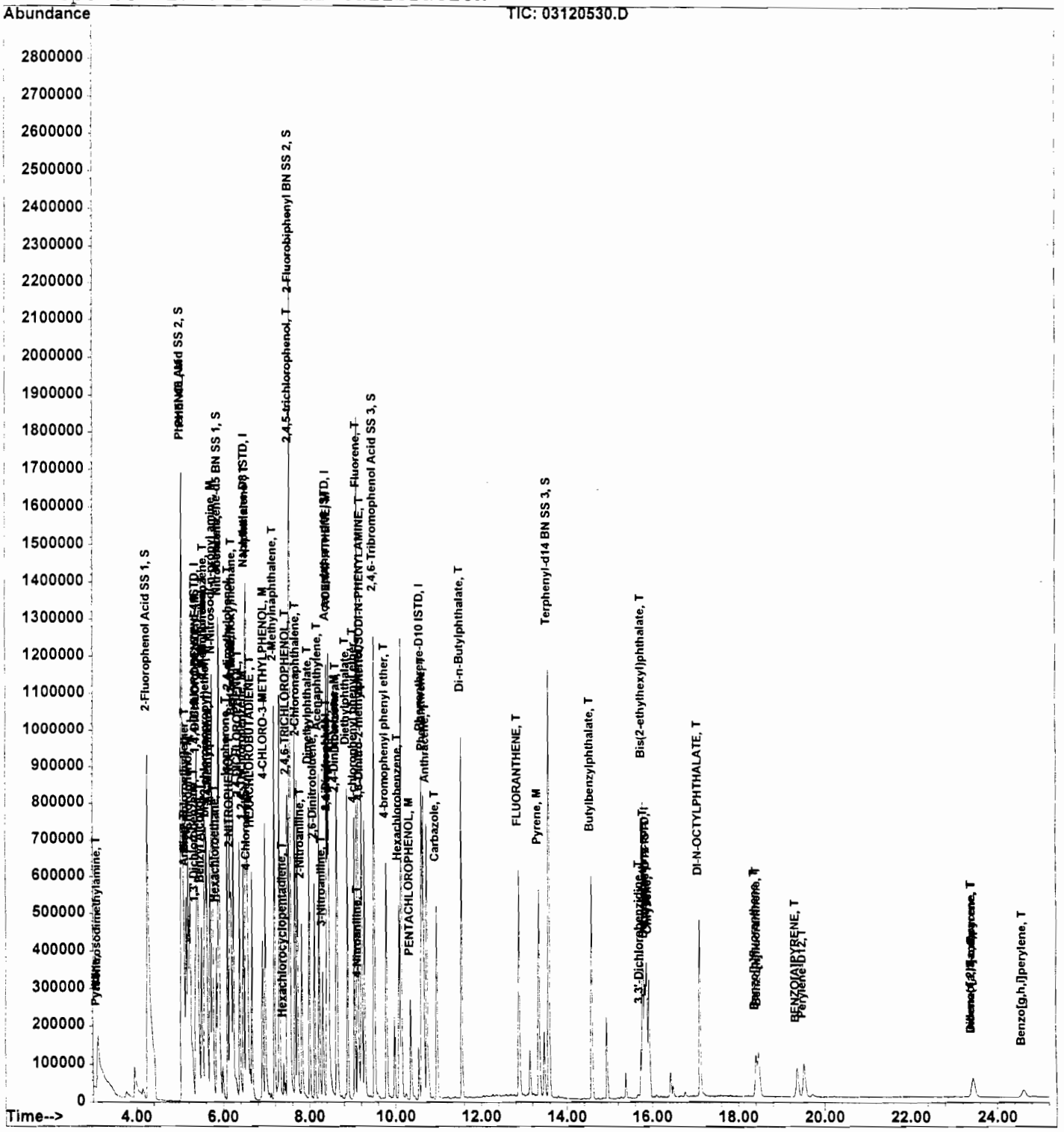
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	15.74	252	66169	31.34 mg/L	100
73) Bis(2-ethylhexyl)phthalate	15.80	149	406010	46.02 mg/L	99
74) Benzo[a]anthracene	15.84	228	274332	37.26 mg/L	100
75) Chrysene	15.94	228	255141	38.24 mg/L	99
77) DI-N-OCTYLPHTHALATE	17.12	149	513140	52.54 mg/L	99
78) Benzo[b]fluoranthene	18.42	252	135651	34.13 mg/L	91
79) Benzo[k]fluoranthene	18.48	252	140853	40.87 mg/L	94
80) BENZO[A]PYRENE	19.38	252	105727	34.81 mg/L	99
81) Indeno(1,2,3-c,d)pyrene	23.45	276	63244	28.56 mg/L #	100
82) Dibenzo[a,h]anthracene	23.45	278	55437	28.85 mg/L	99
83) Benzo[g,h,i]perylene	24.62	276	44069	26.63 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120530.D Vial: 30
Acq On : 6 Dec 2003 4:46 am Operator: JR
Sample : 03112414-25 MS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:50 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:41:44 2003
Response via : Initial Calibration



2 2054

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120530.D Vial: 30
Acq On : 6 Dec 2003 4:46 am Operator: JR
Sample : 03112414-25 MS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:01 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.39	152	241674	40.00 mg/L	0.00
3) Naphthalene-D8 ISTD	6.53	136	965912	40.00 mg/L	0.00
5) Acenaphthene-d10 ISTD	8.42	164	505187	40.00 mg/L	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	5.75	105	344597	30.08 mg/L	98
4) e-Caprolactam	6.92	55	150585	37.87 mg/L	100
6) Biphenyl	7.67	154	567145	31.39 mg/L	99
7) Atrazine	9.98	200	265	Not Detected	

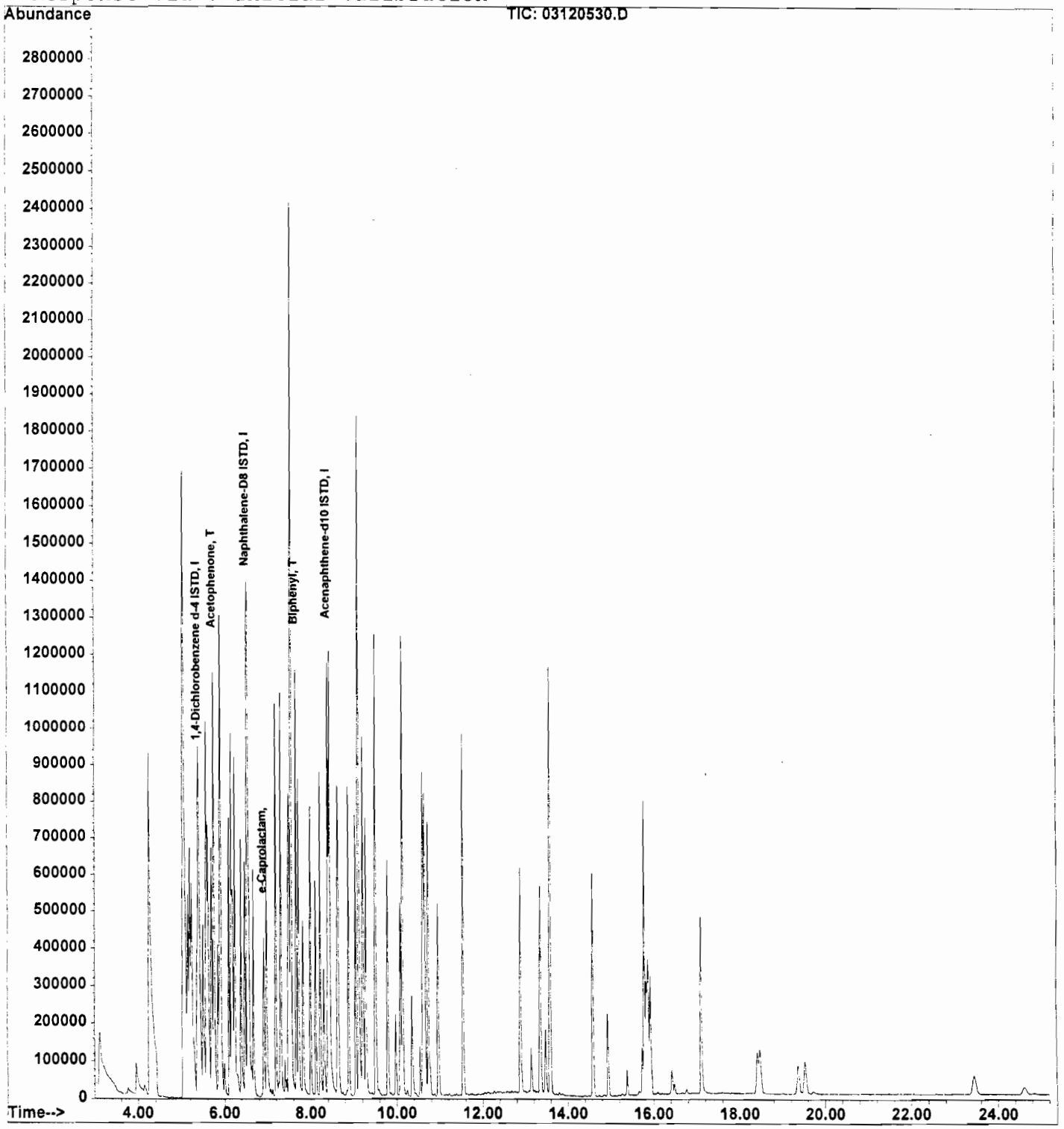
(#) = qualifier out of range (m) = manual integration

2 2055

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120530.D Vial: 30
Acq On : 6 Dec 2003 4:46 am Operator: JR
Sample : 03112414-25 MS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:01 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:03:34 2003
Response via : Initial Calibration



2 2056

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120531.D Vial: 31
Acq On : 6 Dec 2003 5:18 am Operator: JR
Sample : 03112414-25 MSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 14:29 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.39	152	231812	40.00 mg/L	0.01
19) Naphthalene-D8 ISTD	6.53	136	932383	40.00 mg/L	0.01
34) Acenaphthene-d10 ISTD	8.42	164	488565	40.00 mg/L	0.02
55) Phenanthrene-D10 ISTD	10.63	188	766784	40.00 mg/L	0.02
67) Chrysene-D12 ISTD	15.88	240	252226	40.00 mg/L	0.02
76) Perylene-D12	19.54	264	109379	40.00 mg/L	0.05
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.26	112	1171502	120.99 mg/L	0.00
Spiked Amount 200.000 Range 21 - 100 Recovery = 60.50%					
5) Phenol-d6 Acid SS 2	5.05	99	1529910	131.98 mg/L	0.01
Spiked Amount 200.000 Range 10 - 94 Recovery = 65.99%					
20) Nitrobenzene-d5 BN SS 1	5.90	82	606881	67.56 mg/L	0.01
Spiked Amount 100.000 Range 35 - 114 Recovery = 67.56%					
38) 2-Fluorobiphenyl BN SS 2	7.56	172	1091861	75.82 mg/L	0.02
Spiked Amount 100.000 Range 43 - 116 Recovery = 75.82%					
54) 2,4,6-Tribromophenol Acid	9.52	330	306995	147.86 mg/L	0.03
Spiked Amount 200.000 Range 10 - 123 Recovery = 73.93%					
70) Terphenyl-d14 BN SS 3	13.60	244	794614	103.95 mg/L	0.04
Spiked Amount 100.000 Range 33 - 141 Recovery = 103.95%					

Target Compounds					Qvalue
2) Pyridine	3.10	79	211374	31.99 mg/L	99
3) N-Nitrosodimethylamine	3.11	74	129888	25.28 mg/L	87
6) PHENOL	5.06	94	365154	30.79 mg/L	80
7) Aniline	5.14	66	125234	22.44 mg/L #	83
8) Bis(2-chloroethyl)ether	5.16	63	193739	30.94 mg/L #	85
9) 2-Chlorophenol	5.24	128	273731	30.73 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.41	146	310819	28.61 mg/L	99
11) 1,3'-Dichlorobenzene	5.37	146	197326	33.46 mg/L #	51
12) 1,2'-Dichlorobenzene	5.58	146	237535	30.07 mg/L	99
13) Benzyl Alcohol	5.51	108	170029	27.77 mg/L	98
14) 2-Methylphenol	5.58	107	234130	36.63 mg/L #	85
15) bis(2-chloroisopropyl)ethe	5.62	45	398040	30.83 mg/L	94
16) 3,4-Methylphenol	5.70	107	347642	19.25 mg/L	90
17) N-Nitrosodi-n-propyl amine	5.75	70	213369	39.45 mg/L #	63
18) Hexachloroethane	5.85	117	103214	29.18 mg/L	99
21) Nitrobenzene	5.91	77	273932	34.75 mg/L	91
22) Isophorone	6.11	82	544820	33.53 mg/L	99
23) 2-NITROPHENOL	6.19	139	165841	33.27 mg/L	99
24) 2,4-dimethylphenol	6.16	122	284027	35.77 mg/L	99

(#) = qualifier out of range (m) = manual integration

2 2057

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120531.D Vial: 31
Acq On : 6 Dec 2003 5:18 am Operator: JR
Sample : 03112414-25 MSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 14:29 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.24	105	110666m	22.83 mg/L	
26) Bis(2-chloroethoxy)methane	6.24	93	336213	34.45 mg/L	99
27) 2,4-DICHLOROPHENOL	6.38	162	210679	34.45 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.48	180	209629	31.51 mg/L	99
29) Naphthalene`	6.55	128	770917	32.97 mg/L	99
30) 4-Chloroaniline	6.57	127	388690	33.11 mg/L	100
31) HEXACHLOROBUTADIENE`	6.67	225	107765	33.52 mg/L	99
32) 4-CHLORO-3-METHYLPHENOL	6.98	107	254491	37.85 mg/L	97
33) 2-Methylnaphthalene	7.19	142	508557	35.97 mg/L	100
35) Hexachlorocyclopentadiene	7.41	237	17784	16.78 mg/L	95
36) 2,4,6-TRICHLOROPHENOL	7.49	97	81740	39.14 mg/L	89
37) 2,4,5-trichlorophenol	7.55	97	70311	37.63 mg/L	96
39) 2-Chloronaphthalene	7.72	162	420761	34.21 mg/L	99
40) 2-Nitroaniline	7.83	65	147967	35.60 mg/L	100
41) 3-Nitroaniline	8.32	138	113849	28.32 mg/L	97
42) 4-Nitroaniline	9.15	138	71624	22.57 mg/L	93
43) Dimethylphthalate	8.01	163	561930	37.07 mg/L	100
44) 2,6-Dinitrotoluene	8.12	165	140853	36.39 mg/L	88
45) Acenaphthylene	8.23	152	707059	34.95 mg/L	100
46) ACENAPHTHENE	8.46	154	446467	37.28 mg/L	99
47) 2,4-Dinitrophenol	8.45	184	41007	33.12 mg/L #	74
48) 4-nitrophenol	8.45	139	87866	38.27 mg/L	98
49) 2,4-Dinitrotoluene	8.63	165	173239	38.91 mg/L	97
50) Dibenzofuran	8.65	168	610416	37.14 mg/L	100
51) Diethylphthalate	8.89	149	594951	40.37 mg/L	100
52) 4-chlorophenyl phenyl ethe	9.05	204	259706	38.43 mg/L	98
53) Fluorene	9.13	166	480532	35.68 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.22	198	68889	30.97 mg/L #	78
57) N-NITROSODI-N-PHENYLAMINE	9.23	169	425249	18.32 mg/L	100
58) 4-bromophenyl phenyl ether	9.80	248	138832	35.58 mg/L	99
59) Hexachlorobenzene	10.09	142	55049	34.37 mg/L	98
60) PENTACHLOROPHENOL	10.37	266	65004	30.23 mg/L	100
61) Phenanthrene	10.67	178	637536	34.34 mg/L	99
62) Anthracene	10.75	178	644880	33.26 mg/L	99
63) Carbazole	10.97	167	476327	30.12 mg/L	100
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.56	149	990127	35.98 mg/L	100
66) FLUORANTHENE	12.90	202	568567	30.73 mg/L	99
68) Benzidine	13.08	184	2654	-40.00 mg/L #	74
69) Pyrene	13.37	202	521776	51.01 mg/L	100
71) Butylbenzylphthalate	14.59	149	288052	50.76 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120531.D Vial: 31
Acq On : 6 Dec 2003 5:18 am Operator: JR
Sample : 03112414-25 MSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 14:29 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

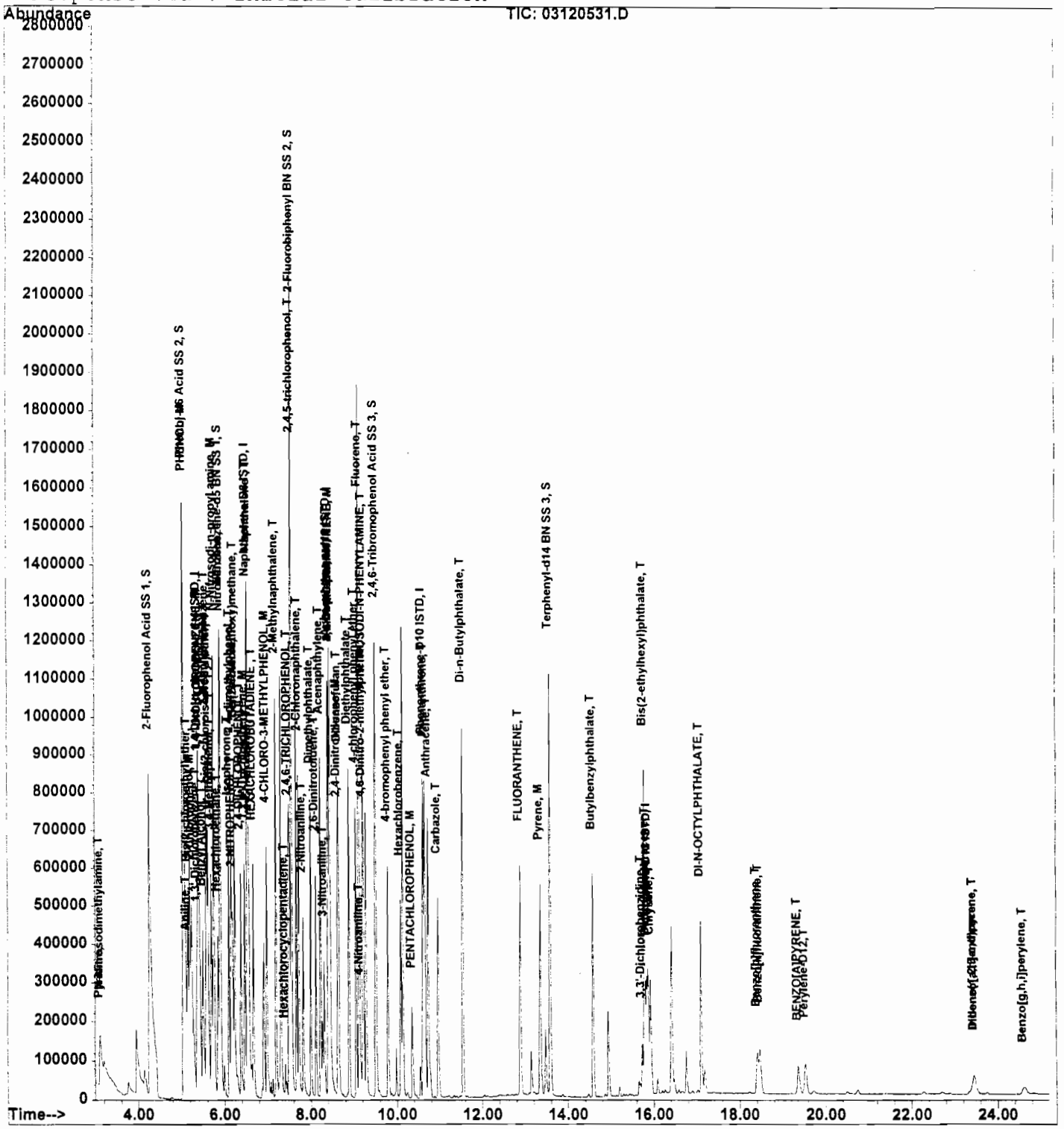
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72)	3,3'-Dichlorobenzidine	15.74	252	67492	35.26 mg/L	99
73)	Bis(2-ethylhexyl)phthalate	15.80	149	394412	49.30 mg/L	100
74)	Benzo[a]anthracene	15.84	228	268531	40.22 mg/L	100
75)	Chrysene	15.94	228	239584	39.60 mg/L	100
77)	DI-N-OCTYLPHTHALATE	17.12	149	486725	56.18 mg/L	99
78)	Benzo[b]fluoranthene	18.42	252	127065	36.04 mg/L	94
79)	Benzo[k]fluoranthene	18.48	252	134514	44.00 mg/L	96
80)	BENZO[A]PYRENE	19.38	252	98416	36.53 mg/L	99
81)	Indeno(1,2,3-c,d)pyrene	23.45	276	57019	29.03 mg/L #	100
82)	Dibenzo[a,h]anthracene	23.46	278	50257	29.49 mg/L	98
83)	Benzo[g,h,i]perylene	24.61	276	39953	27.22 mg/L	98

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120531.D Vial: 31
Acq On : 6 Dec 2003 5:18 am Operator: JR
Sample : 03112414-25 MSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 14:29 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:41:44 2003
Response via : Initial Calibration



2 2060

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120531.D Vial: 31
Acq On : 6 Dec 2003 5:18 am Operator: JR
Sample : 03112414-25 MSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:01 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.39	152	231812	40.00 mg/L	0.00
3) Naphthalene-D8 ISTD	6.53	136	932069	40.00 mg/L	0.00
5) Acenaphthene-d10 ISTD	8.42	164	488565	40.00 mg/L	0.00

System Monitoring Compounds

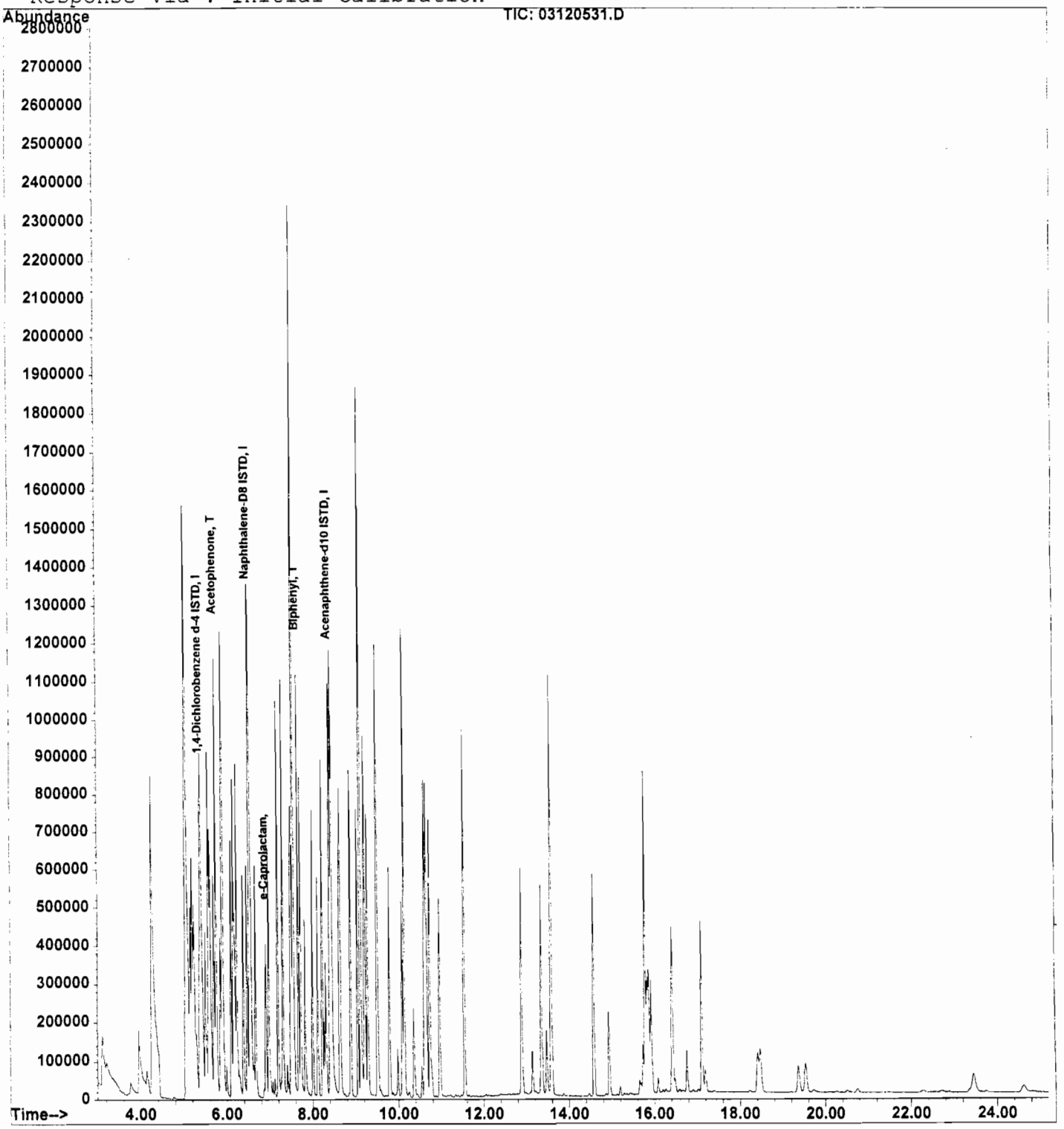
Target Compounds					Qvalue
2) Acetophenone	5.75	105	339663	30.91 mg/L	99
4) e-Caprolactam	6.92	55	145768	37.99 mg/L	100
6) Biphenyl	7.67	154	552119	31.60 mg/L	99
7) Atrazine	9.98	200	97	Not Detected	

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120531.D Vial: 31
Acq On : 6 Dec 2003 5:18 am Operator: JR
Sample : 03112414-25 MSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:01 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:03:34 2003
Response via : Initial Calibration



2 2062

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANICS COMPOUNDS
LABORATORY CONTROL SAMPLE SUMMARY

DATE ANALYZED: 12/02/03 **Analytical Lot Number:** SVOC031202

METHOD: EPA 8270 **Lab File ID:** 03120212.D

Matrix: Water

Sample ID: LCS 1000C

LCS SPIKE COMPOUND	SPIKE ADDED (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	LCL (%)	UCL (%)
Phenol	40	51.08	128	12	110
2-Chlorophenol	40	49.01	123	27	123
1,4-Dichlorobenzene	40	45.08	113 *	36	97
N-Nitroso-di-n-propylamine	40	46.89	117 *	41	116
1,2,4-Trichlorobenzene	40	41.25	103 *	39	98
4-Chloro-3-methylphenol	40	54.71	137 *	23	97
Acenaphthene	40	44.74	112	46	118
4-Nitrophenol	40	60.75	152 *	10	80
2,4-Dinitrotoluene	40	46.52	116 *	24	96
Pentachlorophenol	40	47.75	119 *	9	103
Pyrene	40	43.93	110	26	127

* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*
LCL = Lower Control Limit
UCL = Upper Control Limit

2 2063

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120212.D Vial: 12
Acq On : 2 Dec 2003 3:10 pm Operator: JR
Sample : LCS 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:07 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	162531	50.00 mg/L	0.00
19) Naphthalene-D8 ISTD	6.64	136	676856	50.00 mg/L	0.00
34) Acenaphthene-d10 ISTD	8.54	164	358132	50.00 mg/L	0.00
55) Phenanthrene-D10 ISTD	10.78	188	599189	50.00 mg/L	0.00
67) Chrysene-D12 ISTD	16.08	240	411279	50.00 mg/L	-0.02
76) Perylene-D12	19.85	264	277236	50.00 mg/L	-0.03
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.38	112	1322561	194.18 mg/L	-0.02
Spiked Amount 200.000 Range 21 - 100 Recovery = 97.09%					
5) Phenol-d6 Acid SS 2	5.15	99	1540623	190.59 mg/L	0.00
Spiked Amount 200.000 Range 10 - 94 Recovery = 95.30%#					
20) Nitrobenzene-d5 BN SS 1	6.00	82	612180	92.11 mg/L	-0.02
Spiked Amount 100.000 Range 35 - 114 Recovery = 92.11%					
38) 2-Fluorobiphenyl BN SS 2	7.67	172	1039139	92.08 mg/L	0.00
Spiked Amount 100.000 Range 43 - 116 Recovery = 92.08%					
54) 2,4,6-Tribromophenol Acid	9.67	330	290514	194.87 mg/L	0.00
Spiked Amount 200.000 Range 10 - 123 Recovery = 97.44%					
70) Terphenyl-d14 BN SS 3	13.78	244	1004431	97.09 mg/L	0.00
Spiked Amount 100.000 Range 33 - 141 Recovery = 97.09%					

Target Compounds					Qvalue
2) Pyridine	3.27	79	255885	53.53 mg/L	99
3) N-Nitrosodimethylamine	3.26	74	154663	41.45 mg/L	99
6) PHENOL	5.17	94	386864	51.08 mg/L	76
7) Aniline	5.24	66	104944	29.53 mg/L #	69
8) Bis(2-chloroethyl)ether	5.26	63	192875	43.84 mg/L #	86
9) 2-Chlorophenol	5.35	128	304662	49.01 mg/L	98
10) 1,4'-DICHLOROBENZENE	5.52	146	359278m	45.08 mg/L	
11) 1,3'-Dichlorobenzene	5.48	146	151260m	39.99 mg/L	
12) 1,2'-Dichlorobenzene	5.69	146	234136	42.56 mg/L	99
13) Benzyl Alcohol	5.61	108	150687	34.68 mg/L	98
14) 2-Methylphenol	5.68	107	255615	55.75 mg/L #	97
15) bis(2-chloroisopropyl)ethe	5.72	45	387069	42.56 mg/L #	68
16) 3,4-Methylphenol	5.80	107	364647	59.65 mg/L	90
17) N-Nitrosodi-n-propyl amine	5.85	70	187611	46.89 mg/L #	64
18) Hexachloroethane	5.96	117	105280	41.92 mg/L	100
21) Nitrobenzene	6.02	77	264801	46.33 mg/L	91
22) Isophorone	6.20	82	497263	41.96 mg/L	100
23) 2-NITROPHENOL	6.29	139	186614	51.99 mg/L	97
24) 2,4-dimethylphenol	6.25	122	306433	50.71 mg/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120212.D Vial: 12
Acq On : 2 Dec 2003 3:10 pm Operator: JR
Sample : LCS 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:07 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25)	Benzoic Acid	6.33	105	170771	44.14 mg/L	99
26)	Bis(2-chloroethoxy)methane	6.34	93	306854	41.11 mg/L	100
27)	2,4-DICHLOROPHENOL	6.49	162	219192	50.60 mg/L	99
28)	1,2,4'-Trichlorobenzene	6.58	180	194531	41.25 mg/L	99
29)	Naphthalene`	6.65	128	719416	42.26 mg/L	93
30)	4-Chloroaniline	6.67	127	324498	39.49 mg/L	98
31)	HEXACHLOROBUTADIENE`	6.78	225	100493	43.59 mg/L	99
32)	4-CHLORO-3-METHYLPHENOL	7.08	107	249887	54.71 mg/L	100
33)	2-Methylnaphthalene	7.31	142	455400	44.98 mg/L	100
35)	Hexachlorocyclopentadiene	7.52	237	29048	18.32 mg/L	100
36)	2,4,6-TRICHLOROPHENOL	7.60	97	82476	53.09 mg/L	94
37)	2,4,5-trichlorophenol	7.65	97	70036	52.26 mg/L	99
39)	2-Chloronaphthalene	7.85	162	375001	40.93 mg/L	99
40)	2-Nitroaniline	7.95	65	128218	44.96 mg/L	100
41)	3-Nitroaniline	8.44	138	68786	25.12 mg/L	98
42)	4-Nitroaniline	9.29	138	83174	36.97 mg/L	83
43)	Dimethylphthalate	8.12	163	483065	43.30 mg/L	100
44)	2,6-Dinitrotoluene	8.25	165	119375	42.95 mg/L	88
45)	Acenaphthylene	8.36	152	621756	41.27 mg/L	100
46)	ACENAPHTHENE	8.58	154	402379	44.74 mg/L	100
47)	2,4-Dinitrophenol	8.56	184	58998	51.46 mg/L	93
48)	4-nitrophenol	8.56	139	105891	60.75 mg/L	98
49)	2,4-Dinitrotoluene	8.76	165	150777	46.52 mg/L	97
50)	Dibenzofuran	8.79	168	540094	44.07 mg/L	99
51)	Diethylphthalate	9.02	149	501403	46.76 mg/L	99
52)	4-chlorophenyl phenyl ethe	9.20	204	225971	45.33 mg/L	100
53)	Fluorene	9.27	166	418123	42.47 mg/L	99
56)	4,6-Dinitro-2-methylphenol	9.35	198	98259	47.92 mg/L #	59
57)	N-NITROSODI-N-PHENYLAMINE	9.37	169	354006	19.49 mg/L	98
58)	4-bromophenyl phenyl ether	9.94	248	119785	39.91 mg/L	99
59)	Hexachlorobenzene	10.25	142	48376	39.53 mg/L	95
60)	PENTACHLOROPHENOL	10.51	266	83557	47.75 mg/L #	100
61)	Phenanthrene	10.82	178	576041	39.72 mg/L	100
62)	Anthracene	10.90	178	579503	38.30 mg/L	100
63)	Carbazole	11.13	167	458206	37.86 mg/L	95
64)	Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65)	Di-n-Butylphthalate	11.71	149	900579	42.16 mg/L	100
66)	FLUORANTHENE	13.07	202	620577	41.55 mg/L	99
68)	Benzidine	13.23	184	18720	3.94 mg/L	99
69)	Pyrene	13.54	202	600776	43.93 mg/L	100
71)	Butylbenzylphthalate	14.77	149	365751	46.26 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120212.D Vial: 12
Acq On : 2 Dec 2003 3:10 pm Operator: JR
Sample : LCS 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:07 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Mon Dec 01 10:15:07 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

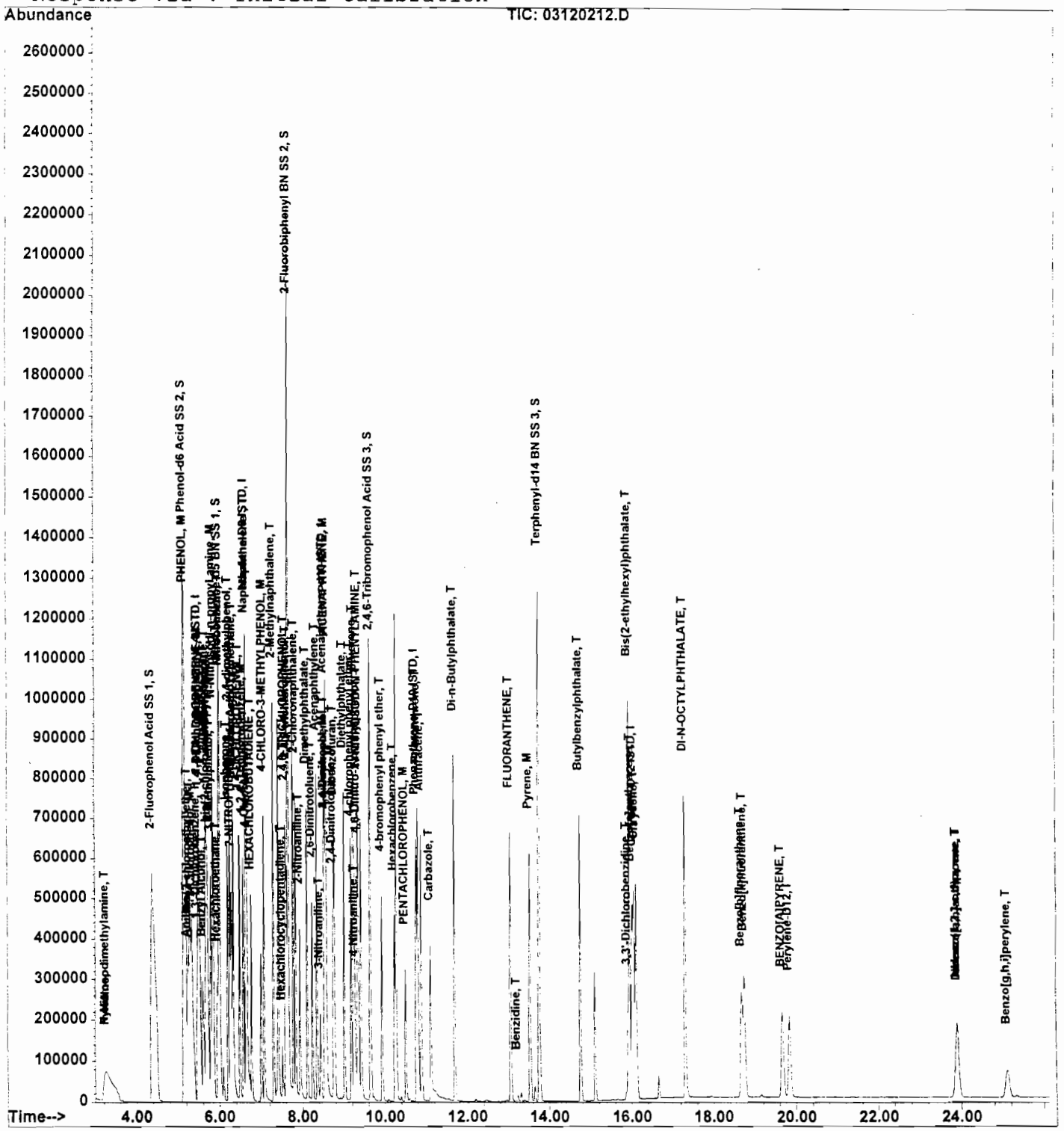
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72)	3,3'-Dichlorobenzidine	15.92	252	112790	33.95 mg/L	99
73)	Bis(2-ethylhexyl)phthalate	15.96	149	522668	46.51 mg/L	99
74)	Benzo[a]anthracene	16.02	228	483423	44.23 mg/L	98
75)	Chrysene	16.13	228	440768	44.77 mg/L	100
77)	DI-N-OCTYLPHTHALATE	17.32	149	868803	55.98 mg/L	100
78)	Benzo[b]fluoranthene	18.69	252	372492m	45.60 mg/L	
79)	Benzo[k]fluoranthene	18.75	252	339651	48.09 mg/L	97
80)	BENZO[A]PYRENE	19.67	252	298494	44.72 mg/L	100
81)	Indeno(1,2,3-c,d)pyrene	23.91	276	222009	37.85 mg/L #	99
82)	Dibenzo[a,h]anthracene	23.92	278	196218	39.55 mg/L	99
83)	Benzo[g,h,i]perylene	25.12	276	159437	34.36 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031202\03120212.D Vial: 12
Acq On : 2 Dec 2003 3:10 pm Operator: JR
Sample : LCS 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:07 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 16:07:44 2003
Response via : Initial Calibration



2 2067

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031202\03120212.D Vial: 12
Acq On : 2 Dec 2003 3:10 pm Operator: JR
Sample : LCS 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:27 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.51	152	162531	40.00 mg/L	-0.02
3) Naphthalene-D8 ISTD	6.64	136	676856	40.00 mg/L	0.00
5) Acenaphthene-d10 ISTD	8.54	164	358132	40.00 mg/L	-0.03

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	5.85	105	322619	41.88 mg/L	98
4) e-Caprolactam	7.01	55	120635	43.30 mg/L	98
6) Biphenyl	7.79	154	499621	39.01 mg/L	99
7) Atrazine	0.00	200	0	Not Detected	

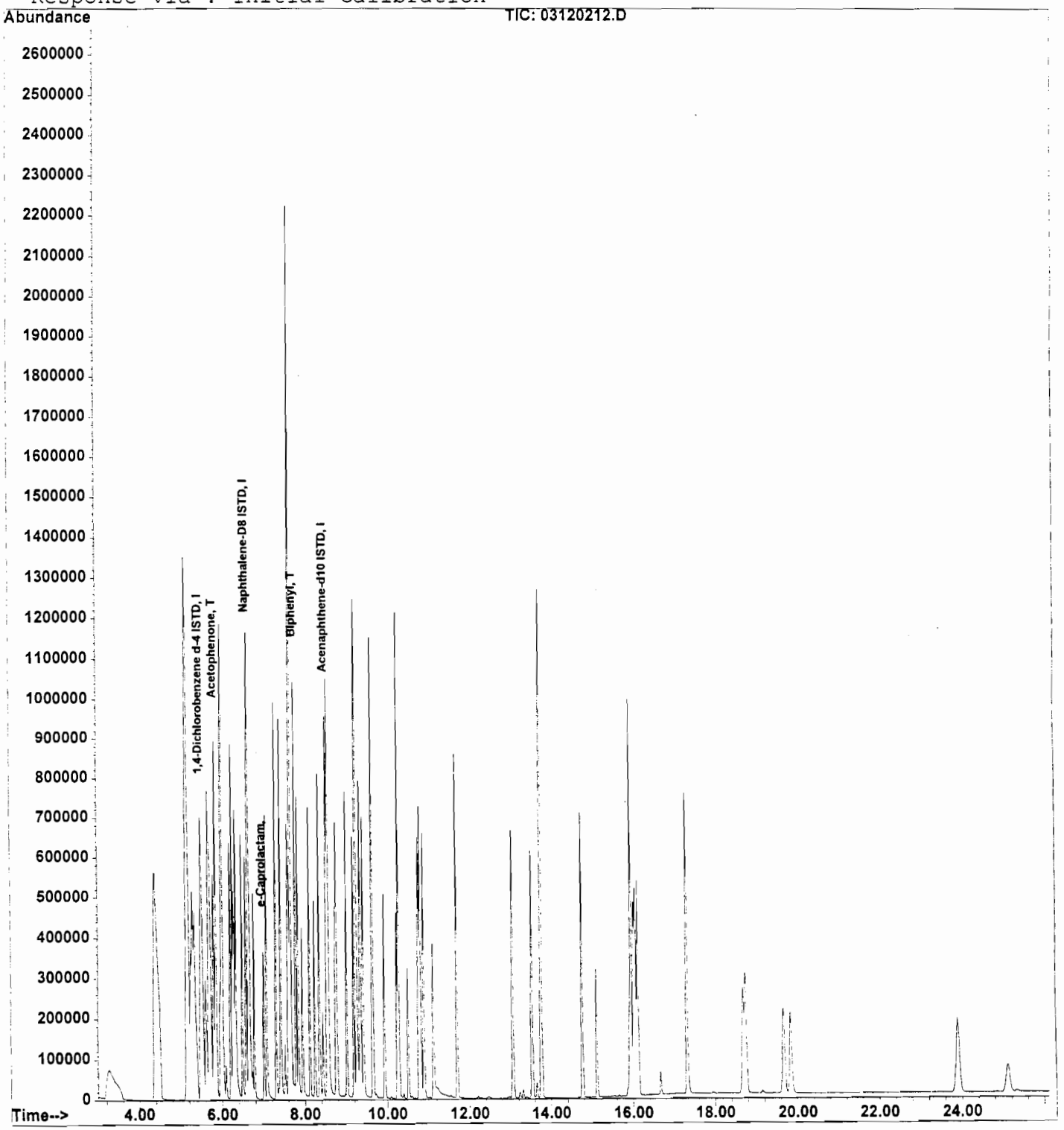
(#) = qualifier out of range (m) = manual integration

2 2068

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031202\03120212.D Vial: 12
Acq On : 2 Dec 2003 3:10 pm Operator: JR
Sample : LCS 1000C Inst : SVOC GC/M
Misc : E: 12-2-03 10uL #187; 100uL #188, #146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 3 13:27 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration



2 2069

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6630 BALTIMORE NATIONAL PIKE
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BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANICS COMPOUNDS
LCS AND LCS DUPLICATE SUMMARY

DATE ANALYZED: 12/06/03 **Analytical Lot Number:** VOC031205

METHOD: EPA 8270 **Lab File IDs:** 03120528.D 03120529.D

Matrix: Soil

Sample ID: LCS 30C (E: 12-3-03)

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	LCL (%)	UCL (%)
Phenol	40	ND	33	82	26	90
2-Chlorophenol	40	ND	34	85	25	102
1,4-Dichlorobenzene	40	ND	41	103	28	104
N-Nitroso-di-n-propylamine	40	ND	45	112	41	126
1,2,4-Trichlorobenzene	40	ND	40	101	38	107
4-Chloro-3-methylphenol	40	ND	37	92	26	103
Acenaphthene	40	ND	42	106	31	137
4-Nitrophenol	40	ND	35	87	11	114
2,4-Dinitrotoluene	40	ND	43	108 *	28	89
Pentachlorophenol	40	ND	28	69	17	109
Pyrene	40	ND	51	128	35	142

Sample ID: LCSD 30C (E: 12-3-03)

SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	LCL (%)	UCL (%)
Phenol	40	ND	36	90	10.1	42	26	90
2-Chlorophenol	40	ND	38	96	12.0	40	25	102
1,4-Dichlorobenzene	40	ND	37	92	12.1	28	28	104
N-Nitroso-di-n-propylamine	40	ND	42	105	6.3	38	41	126
1,2,4-Trichlorobenzene	40	ND	39	97	4.0	28	38	107
4-Chloro-3-methylphenol	40	ND	43	107 *	15.0	42	26	103
Acenaphthene	40	ND	41	103	3.1	31	31	137
4-Nitrophenol	40	ND	39	98	0.0	50	11	114
2,4-Dinitrotoluene	40	ND	41	102 *	5.6	38	28	89
Pentachlorophenol	40	ND	33	82	0.0	50	17	109
Pyrene	40	ND	50	124	3.1	31	35	142

D = Spike compound diluted out
# - Column used to flag out of control recoveries
* = Values outside QC limits.
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
Note: QC limits are based on CLP OLM04.2

2 2070

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120528.D Vial: 28
Acq On : 6 Dec 2003 3:42 am Operator: JR
Sample : LCS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 14:27 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.40	152	233163	40.00 mg/L	0.01
19) Naphthalene-D8 ISTD	6.53	136	936588	40.00 mg/L	0.01
34) Acenaphthene-d10 ISTD	8.41	164	496270	40.00 mg/L	0.01
55) Phenanthrene-D10 ISTD	10.62	188	797890	40.00 mg/L	0.01
67) Chrysene-D12 ISTD	15.88	240	285954	40.00 mg/L	0.02
76) Perylene-D12	19.54	264	123263	40.00 mg/L	0.06
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.26	112	1587850	163.04 mg/L	0.00
Spiked Amount 200.000 Range 21 - 100 Recovery = 81.52%					
5) Phenol-d6 Acid SS 2	5.06	99	1840239	157.83 mg/L	0.02
Spiked Amount 200.000 Range 10 - 94 Recovery = 78.92%					
20) Nitrobenzene-d5 BN SS 1	5.91	82	744720	82.53 mg/L	0.01
Spiked Amount 100.000 Range 35 - 114 Recovery = 82.53%					
38) 2-Fluorobiphenyl BN SS 2	7.56	172	1232441	84.25 mg/L	0.02
Spiked Amount 100.000 Range 43 - 116 Recovery = 84.25%					
54) 2,4,6-Tribromophenol Acid	9.53	330	320253	151.85 mg/L	0.03
Spiked Amount 200.000 Range 10 - 123 Recovery = 75.93%					
70) Terphenyl-d14 BN SS 3	13.60	244	884129	102.02 mg/L	0.05
Spiked Amount 100.000 Range 33 - 141 Recovery = 102.02%					

Target Compounds					Qvalue
2) Pyridine	3.10	79	294936	44.38 mg/L	99
3) N-Nitrosodimethylamine	3.10	74	177565	34.37 mg/L	95
6) PHENOL	5.07	94	389133	32.62 mg/L	81
7) Aniline	5.14	66	140164	24.97 mg/L #	60
8) Bis(2-chloroethyl)ether	5.16	63	257765	40.93 mg/L #	80
9) 2-Chlorophenol	5.24	128	304563	33.99 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.41	146	451959	41.36 mg/L	99
11) 1,3'-Dichlorobenzene	5.37	146	237255	40.00 mg/L #	51
12) 1,2'-Dichlorobenzene	5.58	146	319234	40.18 mg/L	99
13) Benzyl Alcohol	5.51	108	200793	32.60 mg/L	98
14) 2-Methylphenol	5.58	107	256047	39.82 mg/L #	84
15) bis(2-chloroisopropyl)ethe	5.62	45	527341	40.61 mg/L	97
16) 3,4-Methylphenol	5.70	107	359629	19.80 mg/L	90
17) N-Nitrosodi-n-propyl amine	5.75	70	243067	44.68 mg/L #	66
18) Hexachloroethane	5.86	117	141530	39.79 mg/L	98
21) Nitrobenzene	5.92	77	341767	43.16 mg/L	93
22) Isophorone	6.10	82	667793	40.91 mg/L	99
23) 2-NITROPHENOL	6.18	139	182675	36.48 mg/L	97
24) 2,4-dimethylphenol	6.16	122	298482	37.42 mg/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120528.D Vial: 28
Acq On : 6 Dec 2003 3:42 am Operator: JR
Sample : LCS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 14:27 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25)	Benzoic Acid	6.23	105	105568m	21.92 mg/L	
26)	Bis(2-chloroethoxy)methane	6.24	93	408262	41.64 mg/L	99
27)	2,4-DICHLOROPHENOL	6.39	162	215500	35.08 mg/L	98
28)	1,2,4'-Trichlorobenzene	6.48	180	270255	40.44 mg/L	99
29)	Naphthalene`	6.55	128	938863	39.97 mg/L	81
30)	4-Chloroaniline	6.57	127	321758	27.29 mg/L	93
31)	HEXACHLOROBUTADIENE`	6.67	225	138970	43.04 mg/L	100
32)	4-CHLORO-3-METHYLPHENOL	6.98	107	248954	36.86 mg/L	95
33)	2-Methylnaphthalene	7.20	142	610982	43.02 mg/L	100
35)	Hexachlorocyclopentadiene	7.41	237	24602	20.68 mg/L	99
36)	2,4,6-TRICHLOROPHENOL	7.49	97	80091	37.75 mg/L	90
37)	2,4,5-trichlorophenol	7.54	97	64326	33.89 mg/L	93
39)	2-Chloronaphthalene	7.73	162	495374	39.65 mg/L	99
40)	2-Nitroaniline	7.83	65	163467	38.72 mg/L	99
41)	3-Nitroaniline	8.33	138	39764	9.74 mg/L	97
42)	4-Nitroaniline	9.16	138	68718	21.32 mg/L	87
43)	Dimethylphthalate	8.01	163	629212	40.87 mg/L	100
44)	2,6-Dinitrotoluene	8.13	165	159333	40.53 mg/L	88
45)	Acenaphthylene	8.24	152	818577	39.83 mg/L	100
46)	ACENAPHTHENE	8.45	154	516475	42.45 mg/L	98
47)	2,4-Dinitrophenol	8.44	184	34577	28.69 mg/L #	46
48)	4-nitrophenol	8.46	139	81145	34.80 mg/L	99
49)	2,4-Dinitrotoluene	8.63	165	194628	43.03 mg/L	97
50)	Dibenzofuran	8.66	168	709569	42.51 mg/L	99
51)	Diethylphthalate	8.89	149	651992	43.56 mg/L	100
52)	4-chlorophenyl phenyl ethe	9.06	204	295421	43.03 mg/L	99
53)	Fluorene	9.14	166	535331	39.13 mg/L	99
56)	4,6-Dinitro-2-methylphenol	9.21	198	57022	25.74 mg/L	96
57)	N-NITROSODI-N-PHENYLAMINE	9.23	169	451388	18.69 mg/L	99
58)	4-bromophenyl phenyl ether	9.80	248	156041	38.43 mg/L	99
59)	Hexachlorobenzene	10.10	142	62380	37.43 mg/L	98
60)	PENTACHLOROPHENOL	10.36	266	61961	27.69 mg/L	100
61)	Phenanthrene	10.67	178	705971	36.54 mg/L	99
62)	Anthracene	10.74	178	709650	35.17 mg/L	100
63)	Carbazole	10.97	167	249284	15.15 mg/L	99
64)	Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65)	Di-n-Butylphthalate	11.56	149	1101626	38.47 mg/L	100
66)	FLUORANTHENE	12.90	202	647009	33.61 mg/L	100
68)	Benzidine	13.08	184	4094	-40.00 mg/L	79
69)	Pyrene	13.37	202	595236	51.32 mg/L	100
71)	Butylbenzylphthalate	14.60	149	336751	52.35 mg/L	100

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120528.D Vial: 28
Acq On : 6 Dec 2003 3:42 am Operator: JR
Sample : LCS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 14:27 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

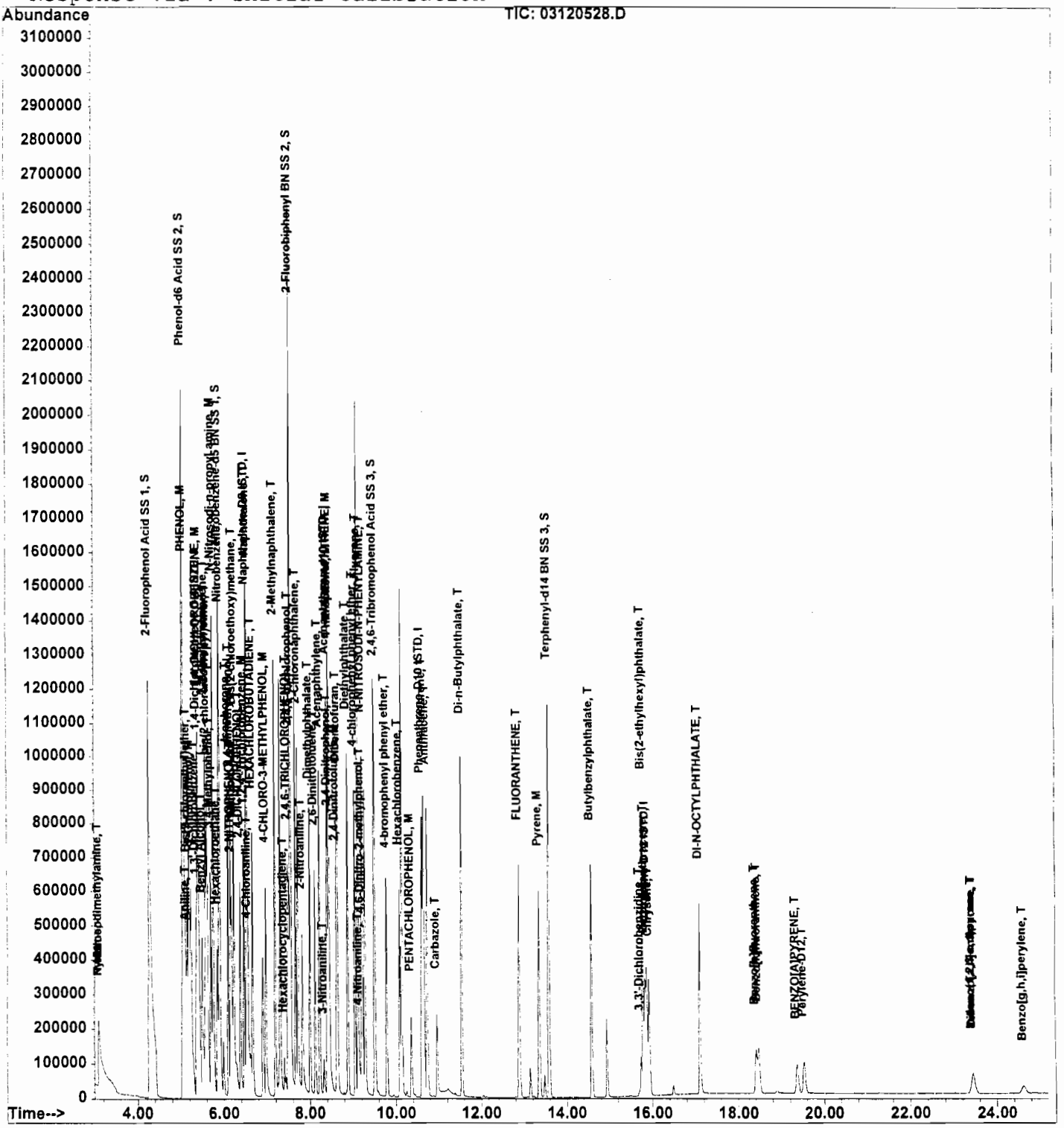
Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72) 3,3'-Dichlorobenzidine	15.74	252	61507	28.34 mg/L	100
73) Bis(2-ethylhexyl)phthalate	15.80	149	456352	50.32 mg/L	99
74) Benzo[a]anthracene	15.84	228	311116	41.11 mg/L	100
75) Chrysene	15.94	228	283404	41.32 mg/L	100
77) DI-N-OCTYLPHTHALATE	17.12	149	577773	59.17 mg/L	99
78) Benzo[b]fluoranthene	18.43	252	156136	39.30 mg/L	91
79) Benzo[k]fluoranthene	18.48	252	157828	45.81 mg/L	93
80) BENZO[A]PYRENE	19.38	252	121339	39.96 mg/L	100
81) Indeno(1,2,3-c,d)pyrene	23.45	276	72863	32.92 mg/L #	100
82) Dibenzo[a,h]anthracene	23.46	278	63904	33.27 mg/L	99
83) Benzo[g,h,i]perylene	24.63	276	52115	31.50 mg/L #	81

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120528.D Vial: 28
Acq On : 6 Dec 2003 3:42 am Operator: JR
Sample : LCS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 14:27 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:41:44 2003
Response via : Initial Calibration



2 2074

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120528.D Vial: 28
Acq On : 6 Dec 2003 3:42 am Operator: JR
Sample : LCS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:01 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.40	152	233163	40.00 mg/L	0.00
3) Naphthalene-D8 ISTD	6.53	136	936264	40.00 mg/L	0.00
5) Acenaphthene-d10 ISTD	8.41	164	496270	40.00 mg/L	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	5.75	105	421549	38.15 mg/L	99
4) e-Caprolactam	6.91	55	158912	41.23 mg/L	99
6) Biphenyl	7.68	154	674172	37.99 mg/L	99
7) Atrazine	0.00	200	0	Not Detected	

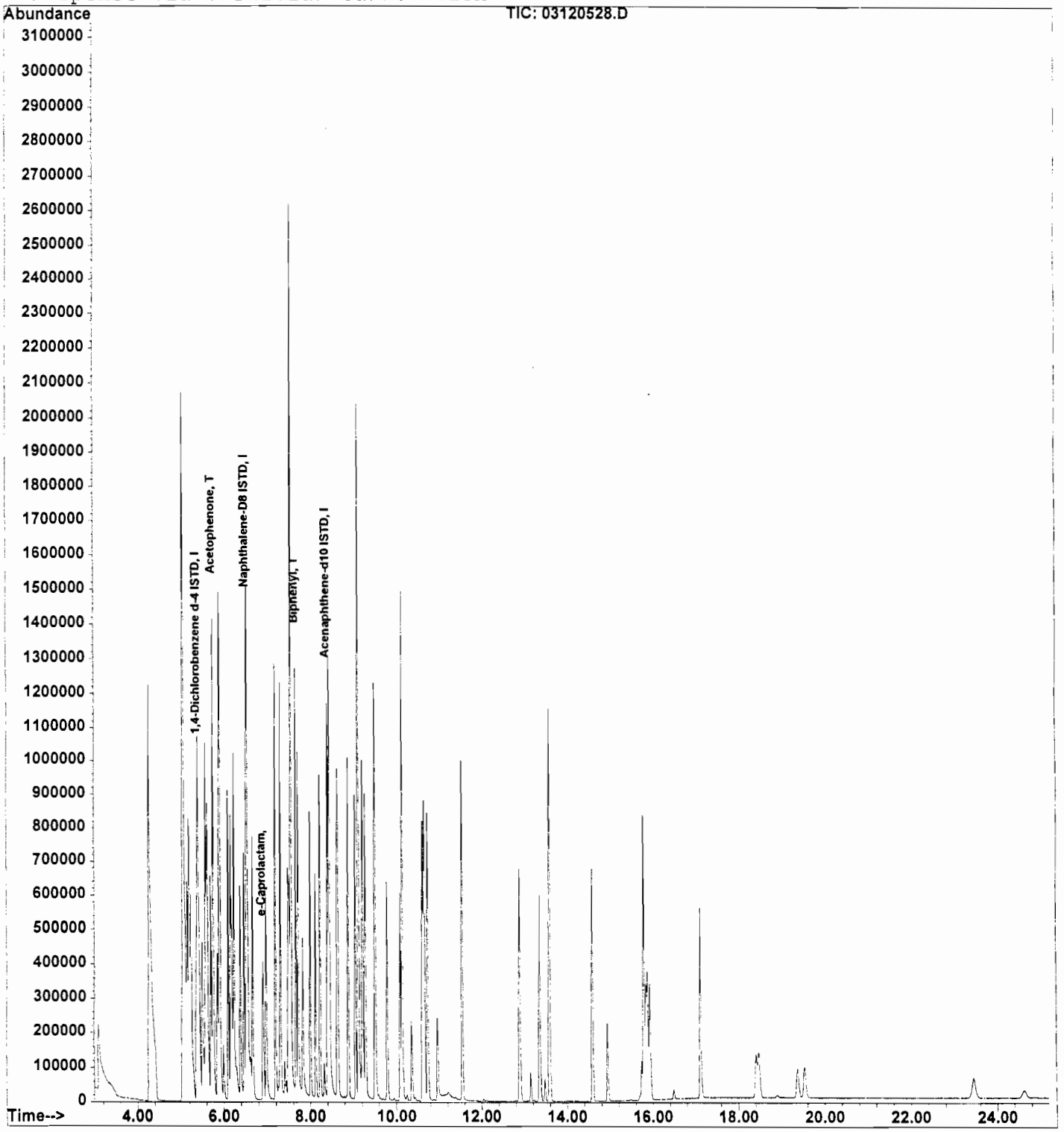
(#) = qualifier out of range (m) = manual integration

2 2075

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120528.D Vial: 28
Acq On : 6 Dec 2003 3:42 am Operator: JR
Sample : LCS 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:01 2003

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:03:34 2003
Response via : Initial Calibration



2 2076

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120529.D Vial: 29
Acq On : 6 Dec 2003 4:14 am Operator: JR
Sample : LCSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:50 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.39	152	239505	40.00 mg/L	0.01
19) Naphthalene-D8 ISTD	6.53	136	944313	40.00 mg/L	0.01
34) Acenaphthene-d10 ISTD	8.42	164	498407	40.00 mg/L	0.02
55) Phenanthrene-D10 ISTD	10.63	188	796953	40.00 mg/L	0.02
67) Chrysene-D12 ISTD	15.89	240	280666	40.00 mg/L	0.03
76) Perylene-D12	19.54	264	121449	40.00 mg/L	0.05
System Monitoring Compounds					
4) 2-Fluorophenol Acid SS 1	4.27	112	1615313	161.47 mg/L	0.01
Spiked Amount 200.000 Range 21 - 100 Recovery = 80.74%					
5) Phenol-d6 Acid SS 2	5.06	99	1869171	156.07 mg/L	0.02
Spiked Amount 200.000 Range 10 - 94 Recovery = 78.04%					
20) Nitrobenzene-d5 BN SS 1	5.90	82	755074	82.99 mg/L	0.01
Spiked Amount 100.000 Range 35 - 114 Recovery = 82.99%					
38) 2-Fluorobiphenyl BN SS 2	7.56	172	1243024	84.61 mg/L	0.02
Spiked Amount 100.000 Range 43 - 116 Recovery = 84.61%					
54) 2,4,6-Tribromophenol Acid	9.52	330	332278	156.87 mg/L	0.03
Spiked Amount 200.000 Range 10 - 123 Recovery = 78.44%					
70) Terphenyl-d14 BN SS 3	13.60	244	882823	103.79 mg/L	0.04
Spiked Amount 100.000 Range 33 - 141 Recovery = 103.79%					
Target Compounds					Qvalue
2) Pyridine	3.09	79	291603	42.72 mg/L	99
3) N-Nitrosodimethylamine	3.10	74	176142	33.19 mg/L	95
6) PHENOL	5.07	94	442303	36.09 mg/L	79
7) Aniline	5.15	66	129265	22.42 mg/L #	54
8) Bis(2-chloroethyl)ether	5.16	63	244988	37.87 mg/L #	81
9) 2-Chlorophenol	5.25	128	352588	38.31 mg/L	99
10) 1,4'-DICHLOROBENZENE	5.41	146	411172	36.63 mg/L	99
11) 1,3'-Dichlorobenzene	5.37	146	264234	43.37 mg/L #	51
12) 1,2'-Dichlorobenzene	5.58	146	309154	37.88 mg/L	99
13) Benzyl Alcohol	5.50	108	194630	30.76 mg/L	98
14) 2-Methylphenol	5.59	107	296529	44.90 mg/L #	85
15) bis(2-chloroisopropyl)ethe	5.63	45	505246	37.88 mg/L	96
16) 3,4-Methylphenol	5.71	107	420896	22.56 mg/L	89
17) N-Nitrosodi-n-propyl amine	5.76	70	234352	41.94 mg/L #	66
18) Hexachloroethane	5.85	117	138986	38.04 mg/L	99
21) Nitrobenzene	5.92	77	336877	42.20 mg/L	92
22) Isophorone	6.11	82	656543	39.89 mg/L	99
23) 2-NITROPHENOL	6.19	139	205916	40.79 mg/L	99
24) 2,4-dimethylphenol	6.16	122	338888	42.14 mg/L	97

(#) = qualifier out of range (m) = manual integration

2 2077

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120529.D
Acq On : 6 Dec 2003 4:14 am
Sample : LCSD 30C
Misc : E: 12-3-03 10uL #187; 100uL #188,146
MS Integration Params: rteint.p
Quant Time: Dec 6 13:50 2003

Vial: 29
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Compound	R.T.	QIon	Response	Conc Unit	Qvalue
25) Benzoic Acid	6.24	105	139583	27.19 mg/L	95
26) Bis(2-chloroethoxy)methane	6.24	93	397740	40.24 mg/L	99
27) 2,4-DICHLOROPHENOL	6.38	162	250593	40.46 mg/L	99
28) 1,2,4'-Trichlorobenzene	6.48	180	261676	38.84 mg/L	99
29) Naphthalene`	6.55	128	919659	38.84 mg/L	81
30) 4-Chloroaniline	6.57	127	320548	26.96 mg/L #	59
31) HEXACHLOROBUTADIENE`	6.67	225	135684	41.68 mg/L	100
32) 4-CHLORO-3-METHYLPHENOL	6.98	107	291785	42.85 mg/L	96
33) 2-Methylnaphthalene	7.19	142	593089	41.42 mg/L	99
35) Hexachlorocyclopentadiene	7.41	237	24076	20.30 mg/L	99
36) 2,4,6-TRICHLOROPHENOL	7.49	97	90990	42.71 mg/L	92
37) 2,4,5-trichlorophenol	7.55	97	74232	38.94 mg/L	92
39) 2-Chloronaphthalene	7.73	162	485679	38.71 mg/L	99
40) 2-Nitroaniline	7.84	65	156773	36.98 mg/L	99
41) 3-Nitroaniline	8.33	138	37602	9.17 mg/L	97
42) 4-Nitroaniline	9.16	138	64783	20.01 mg/L	89
43) Dimethylphthalate	8.01	163	612080	39.58 mg/L	99
44) 2,6-Dinitrotoluene	8.13	165	153938	38.99 mg/L	87
45) Acenaphthylene	8.23	152	793182	38.43 mg/L	100
46) ACENAPHTHENE	8.46	154	502856	41.15 mg/L	99
47) 2,4-Dinitrophenol	8.45	184	45894	35.63 mg/L #	78
48) 4-nitrophenol	8.45	139	91988	39.28 mg/L	100
49) 2,4-Dinitrotoluene	8.63	165	184810	40.69 mg/L	97
50) Dibenzofuran	8.65	168	683244	40.75 mg/L	100
51) Diethylphthalate	8.89	149	634764	42.22 mg/L	100
52) 4-chlorophenyl phenyl ethe	9.06	204	283943	41.18 mg/L	100
53) Fluorene	9.13	166	524039	38.14 mg/L	99
56) 4,6-Dinitro-2-methylphenol	9.22	198	73035	31.49 mg/L #	76
57) N-NITROSODI-N-PHENYLAMINE	9.24	169	437087	18.12 mg/L	99
58) 4-bromophenyl phenyl ether	9.80	248	152482	37.60 mg/L	99
59) Hexachlorobenzene	10.09	142	60034	36.07 mg/L	98
60) PENTACHLOROPHENOL	10.37	266	73215	32.76 mg/L	100
61) Phenanthrene	10.67	178	684032	35.45 mg/L	99
62) Anthracene	10.75	178	684777	33.98 mg/L	100
63) Carbazole	10.97	167	232312	14.13 mg/L	100
64) Decafluororotriphenylphosp	0.00	198	0	Not Detected	
65) Di-n-Butylphthalate	11.56	149	1051586	36.77 mg/L	100
66) FLUORANTHENE	12.89	202	613353	31.90 mg/L	100
68) Benzidine	13.08	184	3530	-40.00 mg/L	81
69) Pyrene	13.36	202	566279	49.75 mg/L	100
71) Butylbenzylphthalate	14.59	149	319302	50.57 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report (QT Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120529.D Vial: 29
Acq On : 6 Dec 2003 4:14 am Operator: JR
Sample : LCSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:50 2003

Quant Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 04 17:09:49 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

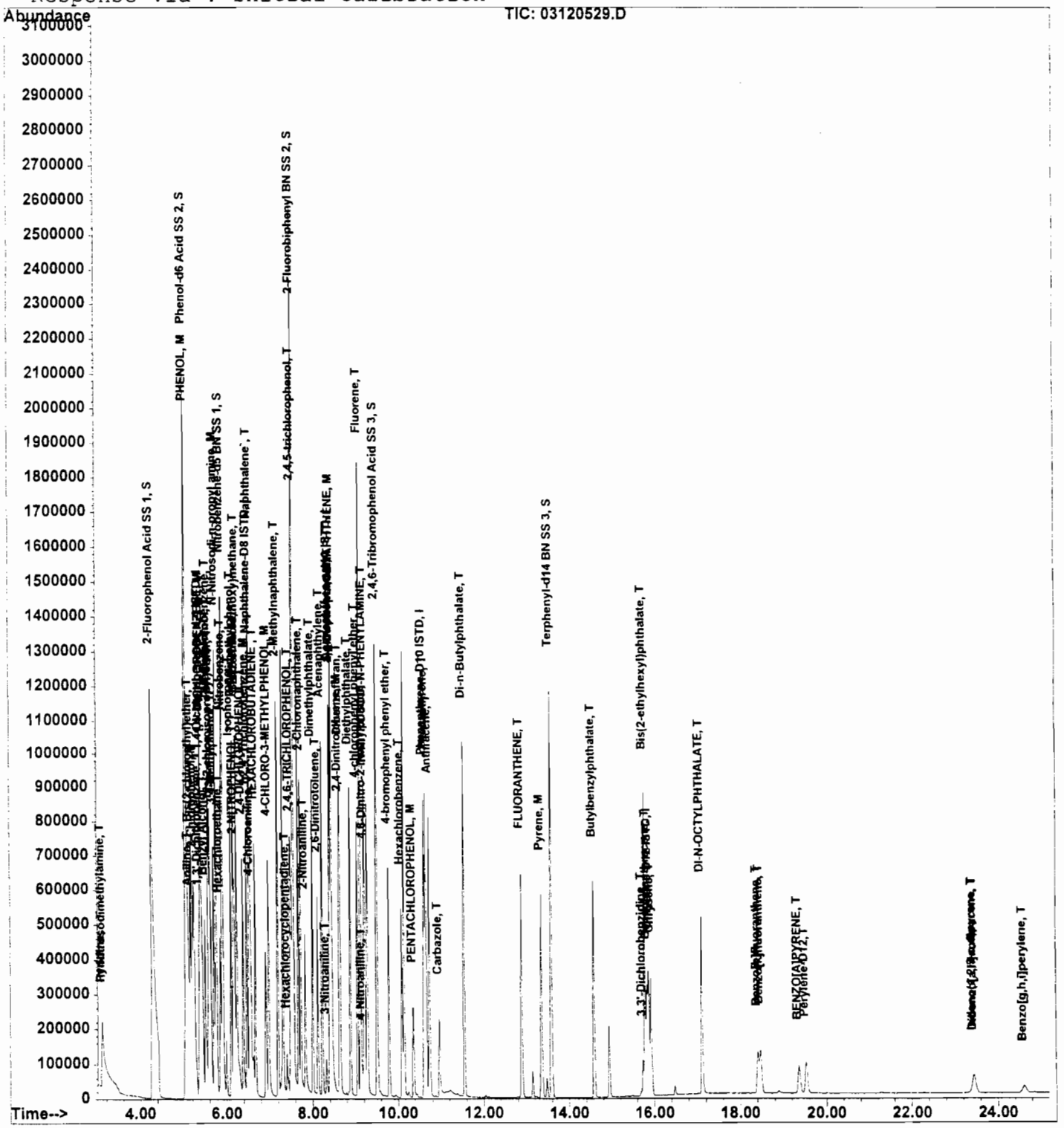
	Compound	R.T.	QIon	Response	Conc Unit	Qvalue
72)	3,3'-Dichlorobenzidine	15.75	252	58344	27.39 mg/L	100
73)	Bis(2-ethylhexyl)phthalate	15.80	149	437464	49.14 mg/L	99
74)	Benzo[a]anthracene	15.85	228	291151	39.19 mg/L	100
75)	Chrysene	15.94	228	274211	40.73 mg/L	99
77)	DI-N-OCTYLPHTHALATE	17.12	149	550989	57.27 mg/L	99
78)	Benzo[b]fluoranthene	18.42	252	160061	40.89 mg/L	89
79)	Benzo[k]fluoranthene	18.49	252	137380	40.47 mg/L	90
80)	BENZO[A]PYRENE	19.37	252	111912	37.41 mg/L	99
81)	Indeno(1,2,3-c,d)pyrene	23.44	276	66726	30.60 mg/L #	98
82)	Dibenzo[a,h]anthracene	23.46	278	59182	31.27 mg/L	99
83)	Benzo[g,h,i]perylene	24.62	276	46210	28.35 mg/L	99

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120529.D Vial: 29
Acq On : 6 Dec 2003 4:14 am Operator: JR
Sample : LCSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:50 2003

Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:41:44 2003
Response via : Initial Calibration



2 2080

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\031205\03120529.D Vial: 29
Acq On : 6 Dec 2003 4:14 am Operator: JR
Sample : LCSD 30C Inst : SVOC GC/M
Misc : E: 12-3-03 10uL #187; 100uL #188,146 Multiplr: 1.00
MS Integration Params: rteint.p
Quant Time: Dec 6 13:01 2003

Quant Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Tue Nov 18 14:05:33 2003
Response via : Initial Calibration
DataAcq Meth : ALSHPBNA

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) 1,4-Dichlorobenzene d-4 IS	5.39	152	239505	40.00 mg/L	0.00
3) Naphthalene-D8 ISTD	6.53	136	944313	40.00 mg/L	0.00
5) Acenaphthene-d10 ISTD	8.42	164	498407	40.00 mg/L	0.00

System Monitoring Compounds

Target Compounds					Qvalue
2) Acetophenone	5.75	105	410828	36.19 mg/L	100
4) e-Caprolactam	6.92	55	153480	39.48 mg/L	100
6) Biphenyl	7.67	154	653586	36.67 mg/L	100
7) Atrazine	0.00	200	0	Not Detected	

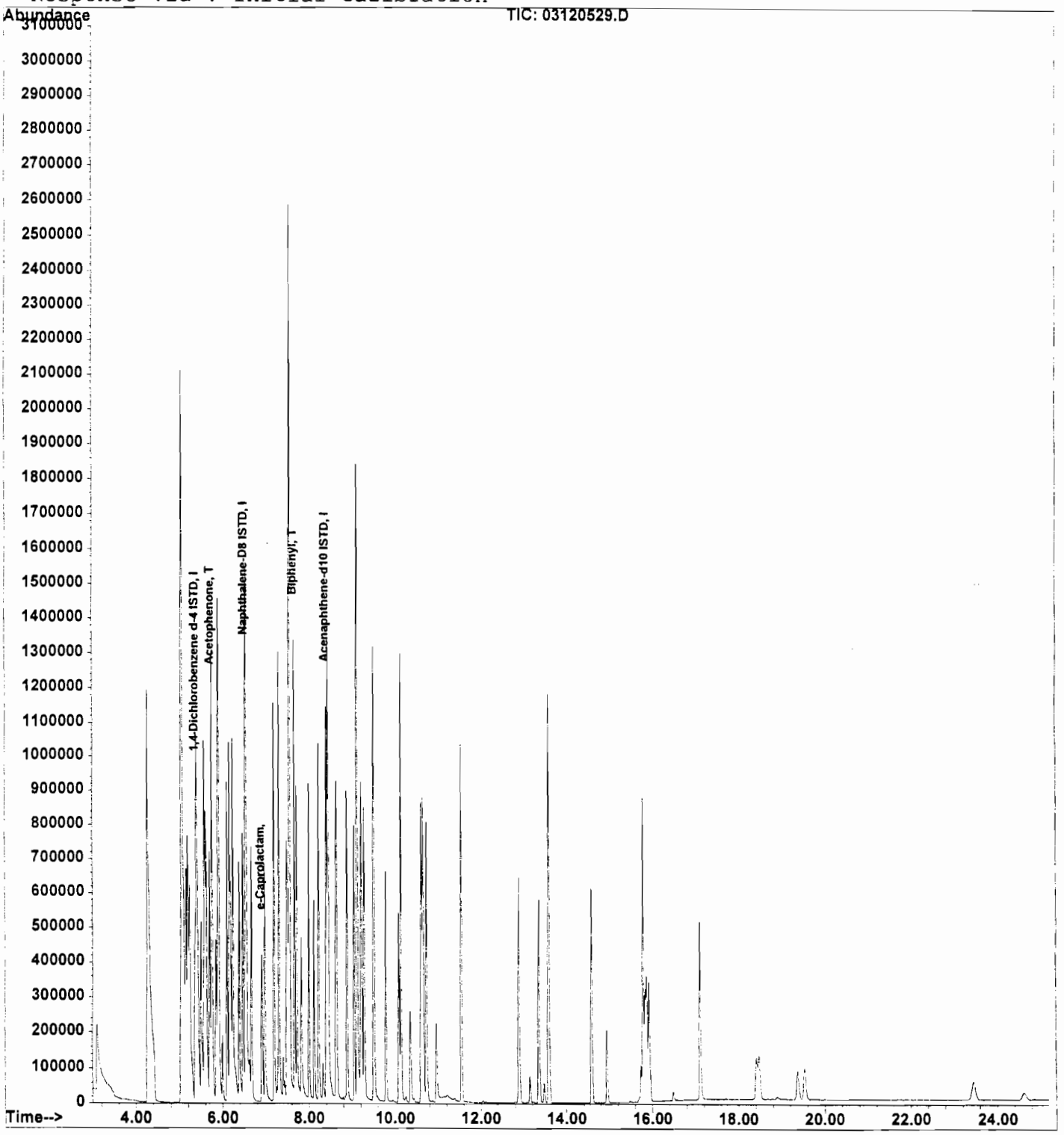
(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\031205\03120529.D
Acq On : 6 Dec 2003 4:14 am
Sample : LCSD 30C
Misc : E: 12-3-03 10uL #187; 100uL #188,146
MS Integration Params: rteint.p
Quant Time: Dec 6 13:01 2003

Vial: 29
Operator: JR
Inst : SVOC GC/M
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\MDEN.M (RTE Integrator)
Title : ALS8270.M
Last Update : Thu Dec 11 18:03:34 2003
Response via : Initial Calibration



2 2082

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

SEMI-VOLATILE ORGANIC COMPOUNDS
INSTRUMENT AND PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

ANALYSIS:	**GC/MS Semi-Volatiles**	**LAB CODE:**	**BFBW**
METHOD NO.:	**EPA 8270**	**LAB SAMPLE ID:**	**DFTPP Tune**
LAB FILE ID:	**03120201.D**	**DATE/TIME ANALYZED:**	**12/2/03 9:11**

Target Mass	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	37.3
68	0 - 2.0% of mass 69	0.0
69	0 - 100.0% of mass 198	49.0
70	0 - 2.0% of mass 69	0.3
127	40.0 - 60.0% of mass 198	44.5
197	0 - 1.0% of mass 198	0.0
198	100% of mass 198	100.0
199	5.0 - 9.0% of mass 198	6.5
275	10.0 - 30.0% of mass 198	21.6
365	1.0 - 100.0% of mass 198	2.1
441	Present but less than mass 443	77.1
442	40.0 - 100.0% of mass 198	76.3
443	17.0 - 23.0% of mass 442	19.3

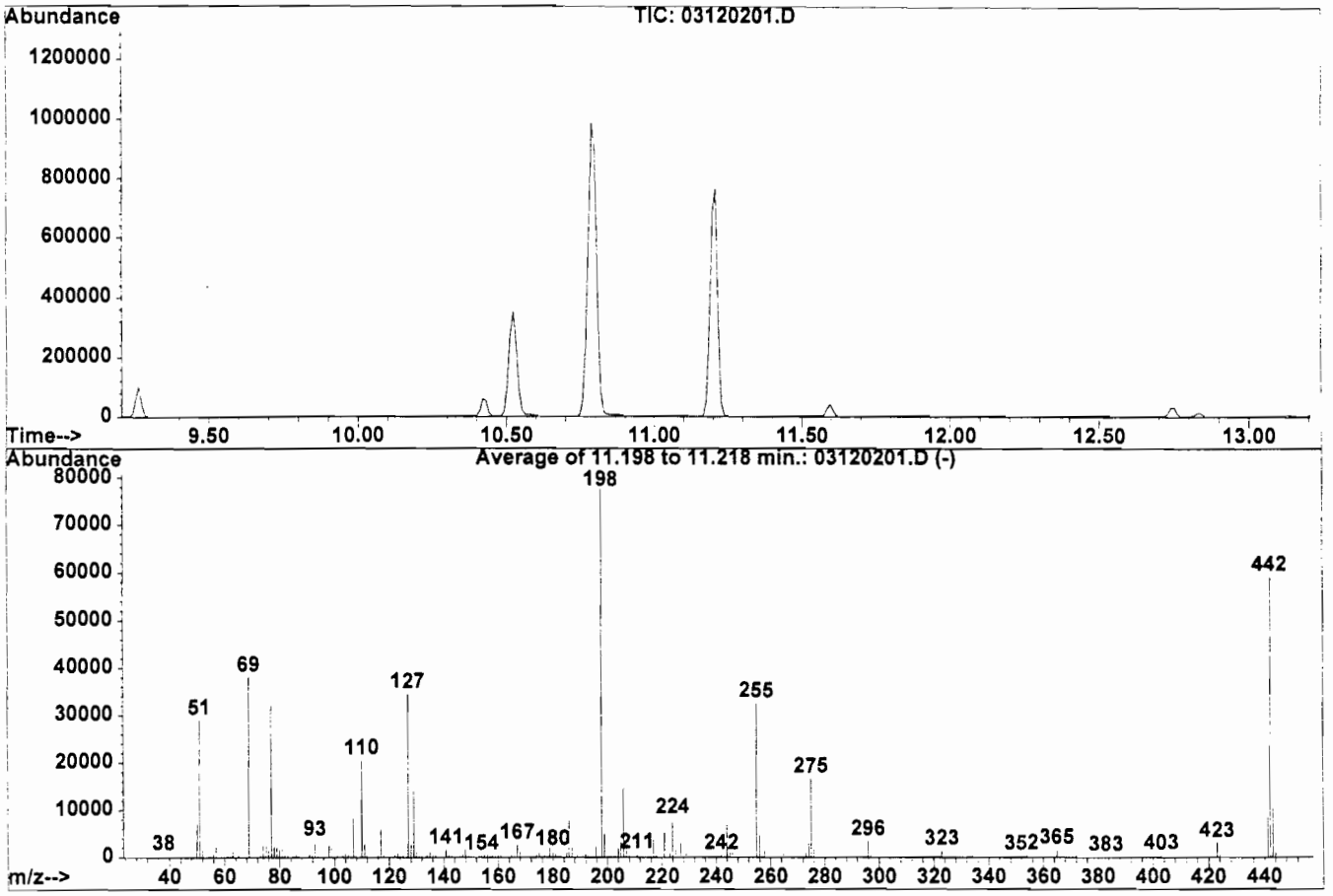
This Tune applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-4	03112414-21	03120206.D	12/2/03 11:54
SB-2	03112414-27	03120207.D	12/2/03 12:26
SB-6	03112414-33	03120208.D	12/2/03 12:59
SB-32	03112414-43	03120209.D	12/2/03 13:32
SB-33	03112414-46	03120210.D	12/2/03 14:04

2 2083

DFTPP

Data File : C:\HPCHEM\1\DATA\031202\03120201.D Vial: 1
Acq On : 2 Dec 2003 9:11 am Operator: JR
Sample : ULTRA Tune Solution @50ppm Inst : SVOC GC/M
Misc : 10-8-03 DJP A142 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M



AutoFind: Scans 804, 805, 806; Background Corrected with Scan 798

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	37.3	28999	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	49.0	38048	PASS
70	69	0.00	2	0.3	132	PASS
127	198	40	60	44.5	34547	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	77685	PASS
199	198	5	9	6.5	5059	PASS
275	198	10	30	21.6	16745	PASS
365	198	1	100	2.1	1656	PASS
441	443	0.01	100	77.1	8816	PASS
442	198	40	100	76.3	59235	PASS
443	442	17	23	19.3	11439	PASS

03120201.D HPBNAN.M Thu Dec 04 16:30:44 2003

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PHASE SEPARATION SCIENCE, INC.

SEMI-VOLATILE ORGANIC COMPOUNDS INSTRUMENT AND PERFORMANCE CHECK DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

ANALYSIS:	**GC/MS Semi-Volatiles**	**LAB CODE:**	**BFBS**
METHOD NO.:	**EPA 8270**	**LAB SAMPLE ID:**	**DFTPP Tune**
LAB FILE ID:	**03120501.D**	**DATE/TIME ANALYZED:**	**12/5/03 13:11**

Target Mass	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	39.0
68	0 - 2.0% of mass 69	0.3
69	0 - 100.0% of mass 198	49.7
70	0 - 2.0% of mass 69	0.4
127	40.0 - 60.0% of mass 198	45.2
197	0 - 1.0% of mass 198	0.0
198	100% of mass 198	100.0
199	5.0 - 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	21.0
365	1.0 - 100.0% of mass 198	1.9
441	Present but less than mass 443	76.6
442	40.0 - 100.0% of mass 198	72.6
443	17.0 - 23.0% of mass 442	19.2

This Tune applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-1-05	03112414-17	03120504.D	12/5/03 14:59
SB-1-10	03112414-18	03120505.D	12/5/03 15:32
SB-4-05	03112414-19	03120506.D	12/5/03 16:03
SB-4-10	03112414-20	03120507.D	12/5/03 16:35
SB-5-05	03112414-23	03120508.D	12/5/03 17:07
SB-5-10	03112414-24	03120509.D	12/5/03 17:38
SB-2-05	03112414-25	03120510.D	12/5/03 18:10
SB-3-05	03112414-29	03120512.D	12/5/03 19:14
SB-3-10	03112414-30	03120513.D	12/5/03 19:46
SB-6-05	03112414-31	03120514.D	12/5/03 20:17

2 2085

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SEMI-VOLATILE ORGANIC COMPOUNDS INSTRUMENT AND PERFORMANCE CHECK DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

ANALYSIS:	**GC/MS Semi-Volatiles**	**LAB CODE:**	**BFBS**
METHOD NO.:	**EPA 8270**	**LAB SAMPLE ID:**	**DFTPP Tune**
LAB FILE ID:	**03120916.D**	**DATE/TIME ANALYZED:**	**12/9/03 22:36**

Target Mass	Ion Abundance Criteria	% Relative Abundance
51	30.0 - 60.0% of mass 198	37.7
68	0 - 2.0% of mass 69	0.0
69	0 - 100.0% of mass 198	49.5
70	0 - 2.0% of mass 69	0.4
127	40.0 - 60.0% of mass 198	44.2
197	0 - 1.0% of mass 198	0.0
198	100% of mass 198	100.0
199	5.0 - 9.0% of mass 198	6.7
275	10.0 - 30.0% of mass 198	21.5
365	1.0 - 100.0% of mass 198	2.0
441	Present but less than mass 443	77.9
442	40.0 - 100.0% of mass 198	69.5
443	17.0 - 23.0% of mass 442	19.5

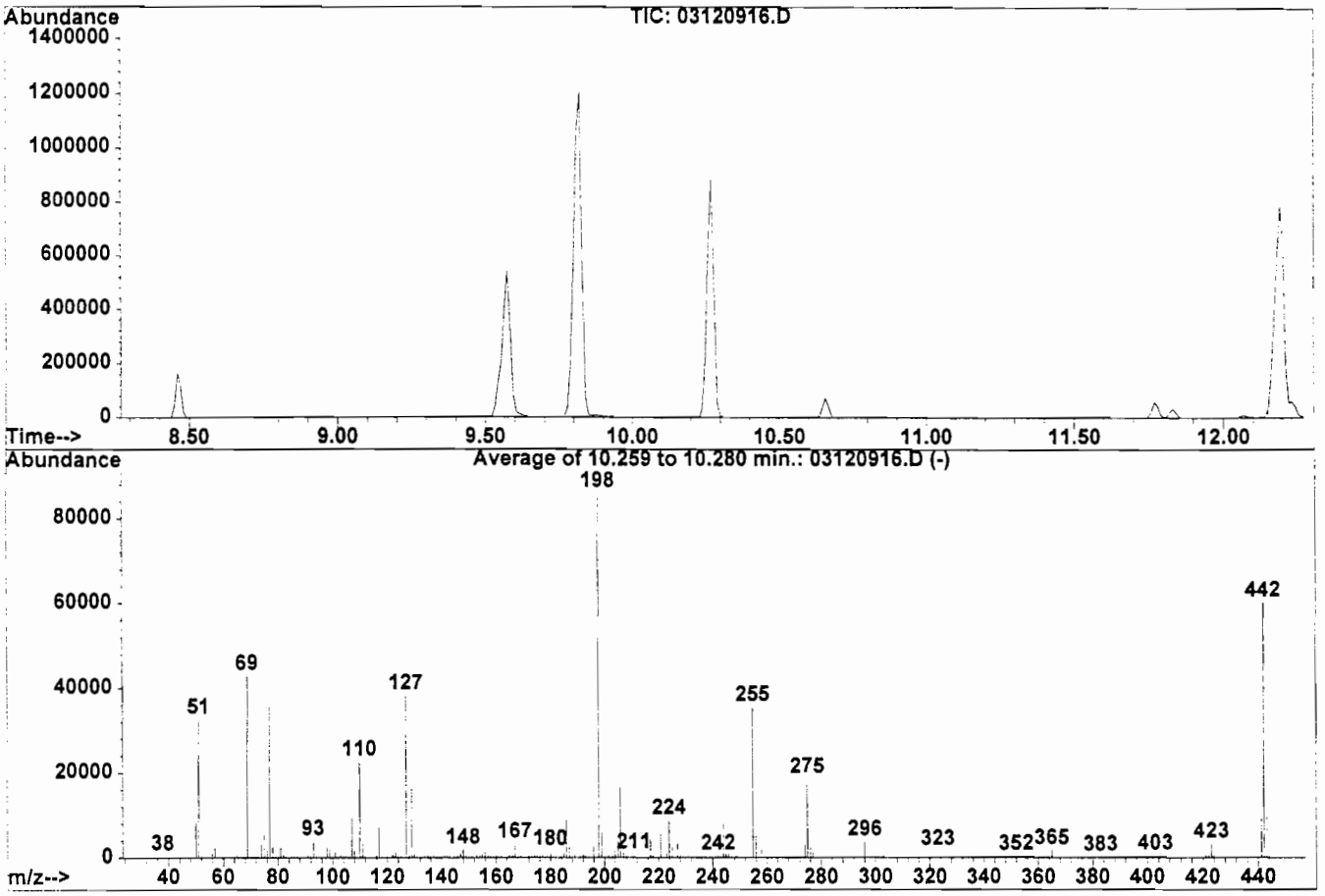
This Tune applies to the following samples:

Sample ID	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-2-10	03112414-26	03120920.D	12/10/03 12:38
SB-6-10	03112414-32	03120921.D	12/10/03 1:09
SB-32-05	03112414-42	03120922.D	12/10/03 1:39
SB-33-05	03112414-45	03120923.D	12/10/03 2:10

2 2037

DFTPP

Data File : C:\HPCHEM\1\DATA\031209\03120916.D Vial: 8
Acq On : 9 Dec 2003 10:36 pm Operator: JR
Sample : ULTRA Tune Solution @50ppm Inst : SVOC GC/M
Misc : 10-9-03 DJP A142 Multiplr: 1.00
MS Integration Params: rteint.p
Method : C:\HPCHEM\1\METHODS\HPBNAN.M (RTE Integrator)
Title : ALS8270.M



AutoFind: Scans 761, 762, 763; Background Corrected with Scan 755

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	37.7	32744	PASS
68	69	0.00	2	0.0	0	PASS
69	198	0.00	100	49.5	42955	PASS
70	69	0.00	2	0.4	154	PASS
127	198	40	60	44.2	38323	PASS
197	198	0.00	1	0.0	0	PASS
198	198	100	100	100.0	86795	PASS
199	198	5	9	6.7	5838	PASS
275	198	10	30	21.5	18645	PASS
365	198	1	100	2.0	1737	PASS
441	443	0.01	100	77.9	9189	PASS
442	198	40	100	69.5	60320	PASS
443	442	17	23	19.5	11792	PASS

03120916.D HPBNAN.M Fri Dec 12 11:00:27 2003

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Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Purgeable Aromatics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS/LCSD Summary*

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PURGEABLE AROMATICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: **BTEX** **LAB CODE: SURR**

METHOD NO.: **EPA 8021**

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/25/03 20:22	SB-11	86	
11/25/03 20:54	SB-12	87	
11/25/03 21:27	SB-13	86	
11/25/03 21:59	SB-14	86	
11/25/03 22:31	SB-15	86	
11/25/03 23:04	SB-16	86	
11/25/03 23:36	SB-17	86	
11/26/03 12:08	SB-18	88	
11/26/03 09:17	SB-19	86	

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

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(SURROGATE)

ANALYSIS: **BTEX** **LAB CODE: SURR**

METHOD NO.: **EPA 8021**

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/26/03 06:04	SB-11-05	103	
11/26/03 06:38	SB-12-05	103	
11/26/03 07:12	SB-13-05	104	
11/26/03 07:46	SB-14-05	102	
11/26/03 08:20	SB-15-05	104	
11/26/03 08:53	SB-16-05	105	
11/26/03 09:27	SB-17-05	104	
11/26/03 10:01	SB-18-05	103	
11/26/03 10:39	SB-21-05	106	

	Control Limits
SS1 (TFT) = a,a,a-Trifluorotoluene	50-150

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

2 3003

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PURGEABLE AROMATICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: **BTEX** **LAB CODE: SURR**

METHOD NO.: **EPA 8021**

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/27/03 11:58	SB-20-05	104	
11/27/03 12:32	SB-20-10	104	
11/27/03 13:05	SB-21-10	105	
11/27/03 13:39	SB-19-05	105	
11/27/03 14:13	SB-19-10	105	

	Control Limits
SS1 (TFT) = a,a,a-Trifluorotoluene	50-150

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

2 3004

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PURGEABLE AROMATICS
METHOD BLANK SUMMARY

ANALYSIS:	**BTEX**	**LAB CODE:**	**MBW**
METHOD NO.:	**EPA 8021**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03112505.D**	**DATE/TIME ANALYZED:**	**11/25/03 18:45**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-11	03112414-02	2\03112508.D	11/25/03 20:22
SB-12	03112414-04	2\03112509.D	11/25/03 20:54
SB-13	03112414-06	2\03112510.D	11/25/03 21:27
SB-14	03112414-08	2\03112511.D	11/25/03 21:59
SB-15	03112414-10	2\03112512.D	11/25/03 22:31
SB-16	03112414-12	2\03112513.D	11/25/03 23:04
SB-17	03112414-14	2\03112514.D	11/25/03 23:36
SB-18	03112414-16	2\03112515.D	11/26/03 12:08

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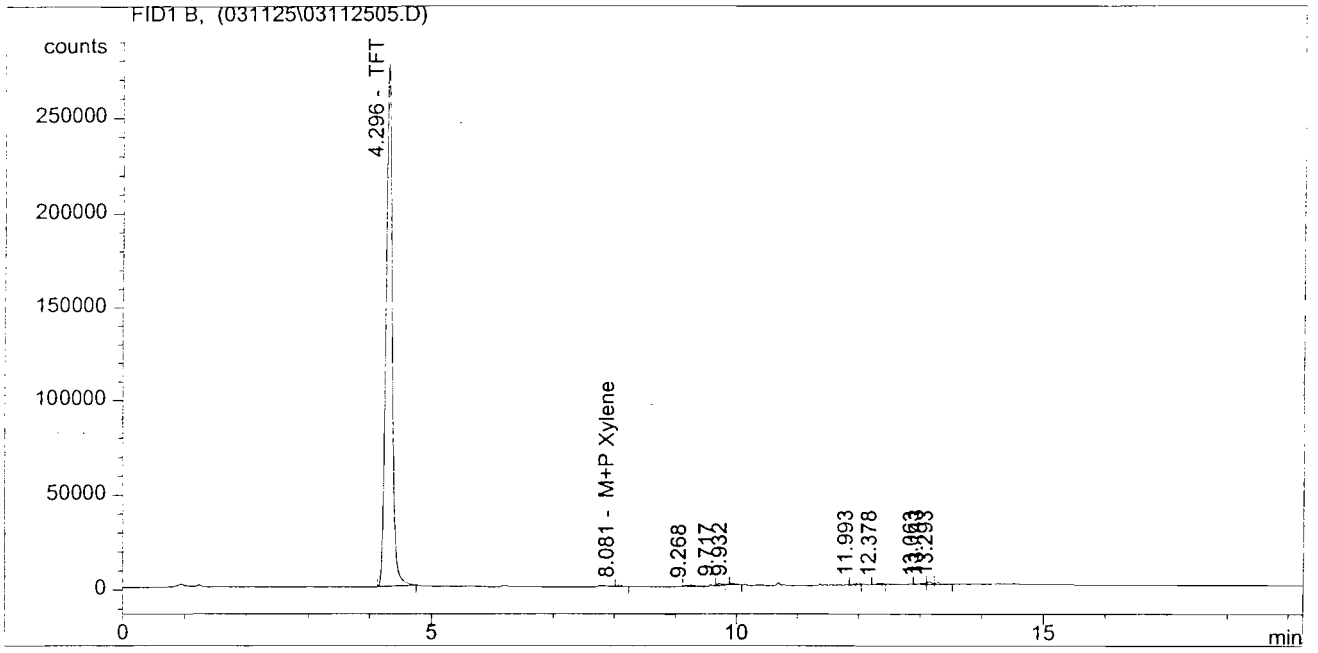
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031125\03112505.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BLANK
Acquired On: 11/25/03 6:45:42 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	0.000	0.000	1.686	0.000
Benzene	0.000	0.000	3.020	0.000
TFT	85.011	1.966e6	4.272	4.296
Toluene	0.000	0.000	6.170	0.000
Ethyl Benzene	0.000	0.000	7.871	0.000
M+P Xylene	0.081	5.081e3	8.065	8.081
Ortho Xylene	0.000	0.000	8.374	0.000
Naphthalene	0.000	0.000	11.352	0.000

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PURGEABLE AROMATICS
METHOD BLANK SUMMARY

ANALYSIS:	**BTEX**	**LAB CODE:**	**MBW**
METHOD NO.:	**EPA 8021**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03112528.D**	**DATE/TIME ANALYZED:**	**11/26/03 07:08**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

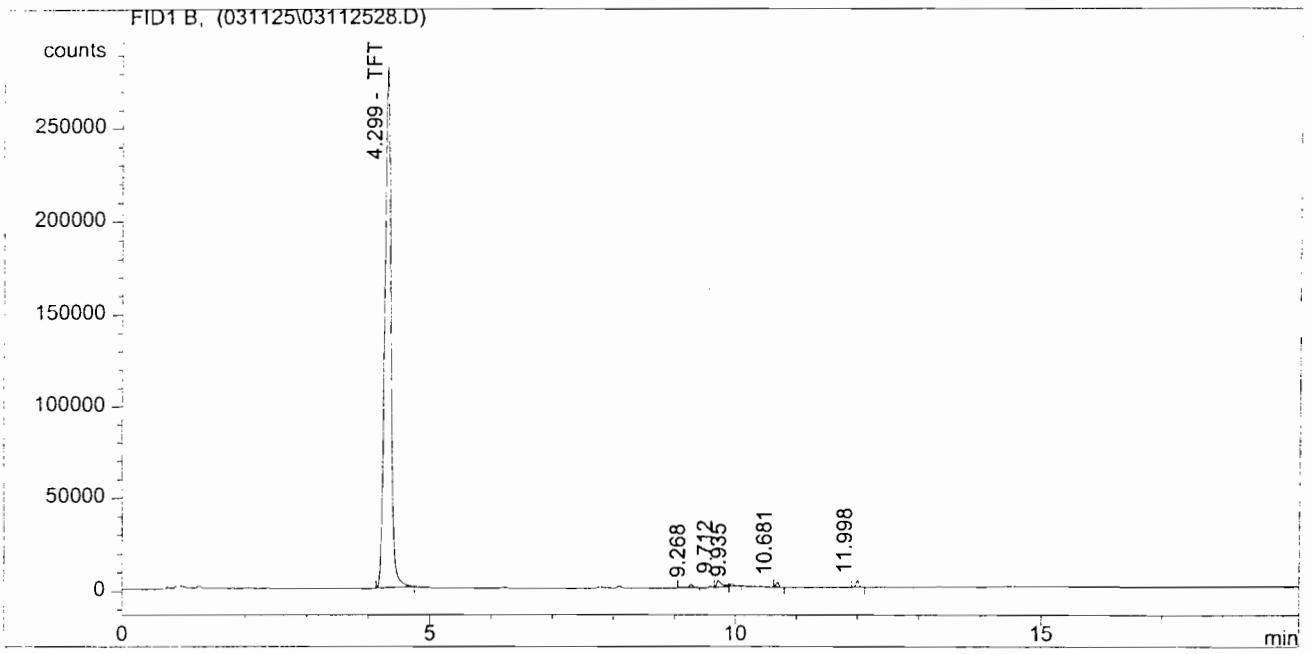
Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-19	03112414-41	2\03112532.D	11/26/03 09:17

2 3007

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031125\03112528.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BLANK
Acquired On: 11/26/03 7:08:14 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	0.000	0.000	1.686	0.000
Benzene	0.000	0.000	3.020	0.000
TFT	85.417	1.976e6	4.272	4.299
Toluene	0.000	0.000	6.170	0.000
Ethyl Benzene	0.000	0.000	7.871	0.000
M+P Xylene	0.000	0.000	8.065	0.000
Ortho Xylene	0.000	0.000	8.374	0.000
Naphthalene	0.000	0.000	11.352	0.000

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PURGEABLE AROMATICS
METHOD BLANK SUMMARY

ANALYSIS:	**BTEX**	**LAB CODE:**	**MBS**
METHOD NO.:	**EPA 8021**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**1\03112529.D**	**DATE/TIME ANALYZED:**	**11/26/03 05:30**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-11-05	03112414-01	1\03112530.D	11/26/03 06:04
SB-12-05	03112414-03	1\03112531.D	11/26/03 06:38
SB-13-05	03112414-05	1\03112532.D	11/26/03 07:12
SB-14-05	03112414-07	1\03112533.D	11/26/03 07:46
SB-15-05	03112414-09	1\03112534.D	11/26/03 08:20
SB-16-05	03112414-11	1\03112535.D	11/26/03 08:53
SB-17-05	03112414-13	1\03112536.D	11/26/03 09:27
SB-18-05	03112414-15	1\03112537.D	11/26/03 10:01
SB-21-05	03112414-37	1\03112538.D	11/26/03 10:39

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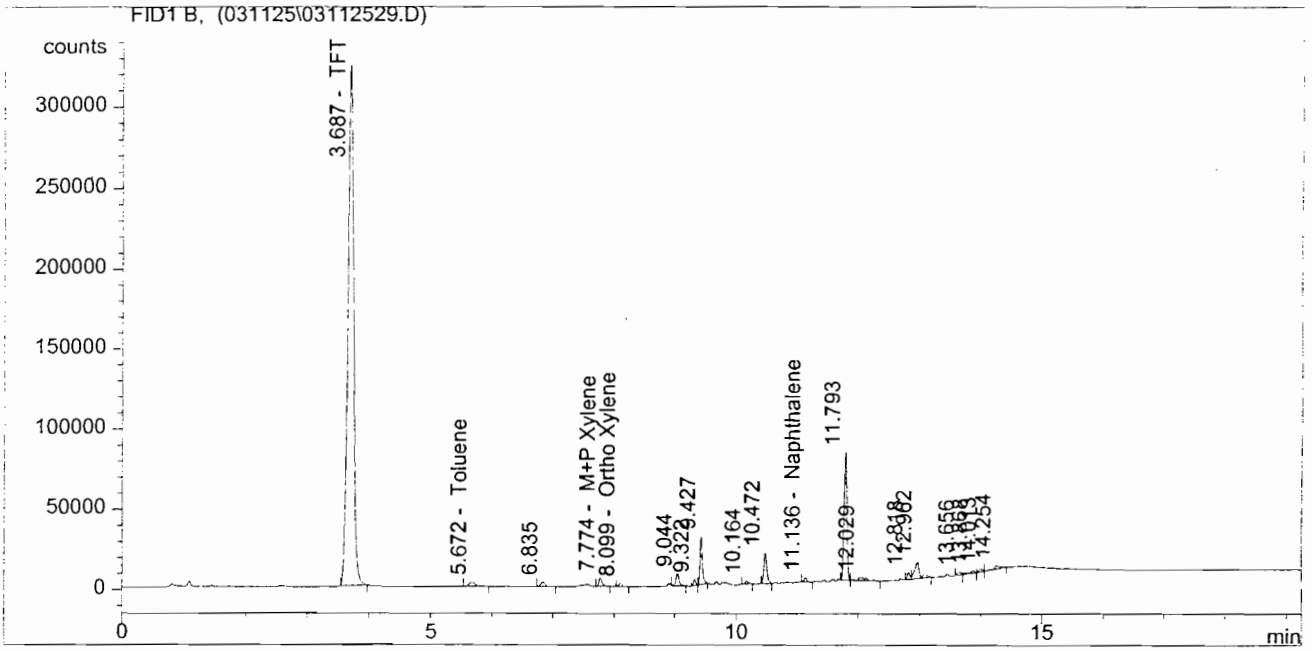
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031125\03112529.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BLANK
Acquired On: 11/26/03 5:30:52 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	0.000	0.000	1.480	0.000
Benzene	0.000	0.000	2.633	0.000
TFT	98.165	2.132e6	3.719	3.687
Toluene	0.384	1.805e4	5.702	5.672
Ethyl Benzene	0.000	0.000	7.584	0.000
M+P Xylene	0.412	1.853e4	7.793	7.774
Ortho Xylene	0.172	6.876e3	8.109	8.099
Naphthalene	0.250	8.152e3	11.127	11.136

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PURGEABLE AROMATICS
METHOD BLANK SUMMARY

ANALYSIS:	**BTEX**	**LAB CODE:**	**MBS**
METHOD NO.:	**EPA 8021**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**1\03112628.D**	**DATE/TIME ANALYZED:**	**11/27/03 05:12**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-20-05	03112414-35	1\03112640.D	11/27/03 11:58
SB-20-10	03112414-36	1\03112641.D	11/27/03 12:32
SB-21-10	03112414-38	1\03112642.D	11/27/03 13:05
SB-19-05	03112414-39	1\03112643.D	11/27/03 13:39
SB-19-10	03112414-40	1\03112644.D	11/27/03 14:13

2 3011

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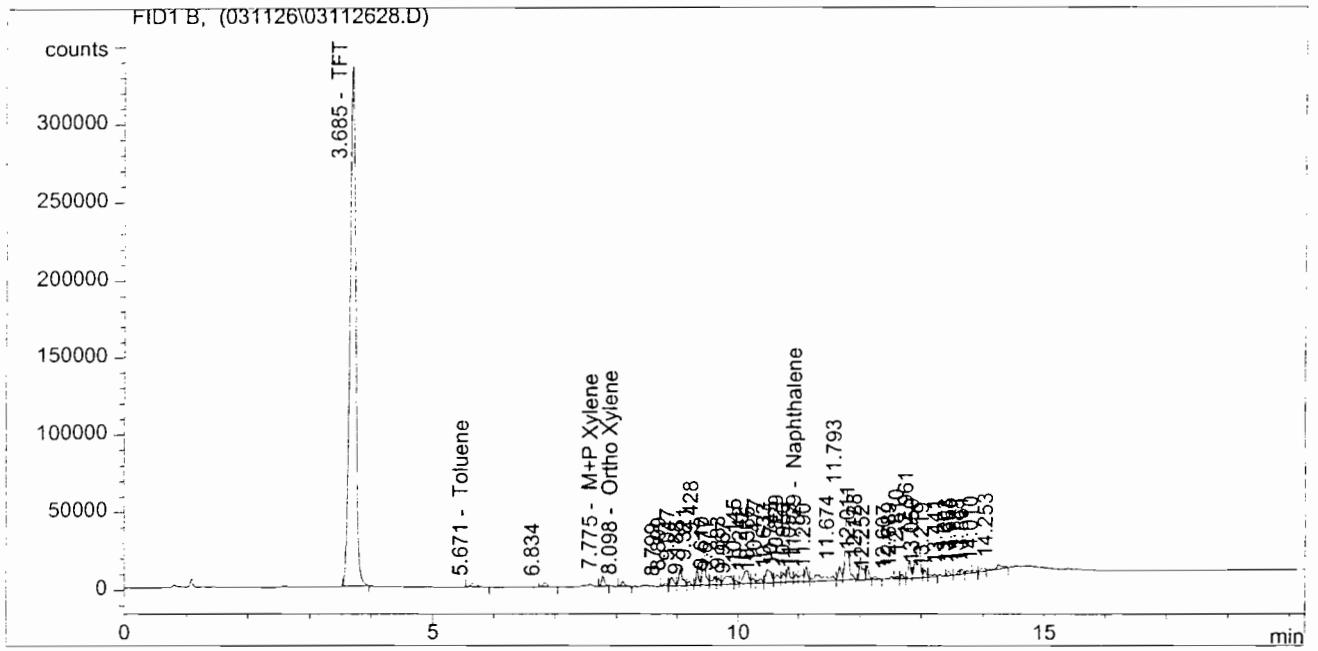
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031126\03112628.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BLANK
Acquired On: 11/27/03 5:12:25 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	0.000	0.000	1.480	0.000
Benzene	0.000	0.000	2.633	0.000
TFT	101.967	2.215e6	3.719	3.685
Toluene	0.393	1.851e4	5.702	5.671
Ethyl Benzene	0.000	0.000	7.584	0.000
M+P Xylene	0.497	2.236e4	7.793	7.775
Ortho Xylene	0.328	1.313e4	8.109	8.098
Naphthalene	0.918	2.991e4	11.127	11.129

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PURGEABLE AROMATICS
CONTINUING CALIBRATION VERIFICATION SUMMARY

LAB FILE ID: 2\03112501.D

DATE ANALYZED: 11/25/03 15:38

MATRIX: Water

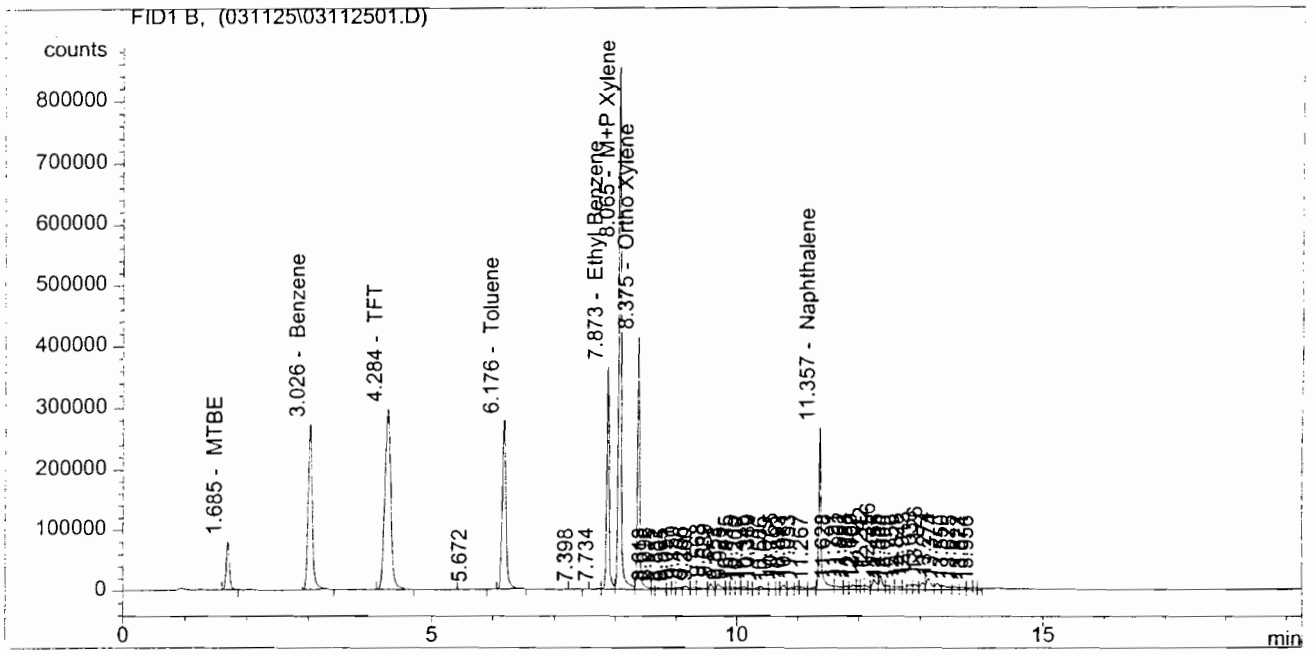
COMPOUND/DISTILLATE	STD REF CONC	STD REC CONC	STD REC (%)	#	QC LIMITS (%)
MTBE	20	18.63	93		85-115
Benzene	20	18.47	92		85-115
Toluene	20	18.83	94		85-115
Ethyl benzene	20	19.24	96		85-115
Xylene, m&p	40	39.56	99		85-115
Xylene, ortho	20	19.45	97		85-115
Naphthalene	20	21.03	105		85-115

2 3013

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031125\03112501.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BTEXNM
Acquired On: 11/25/03 3:38:04 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
8ul 246/40ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	18.633	2.935e5	1.686	1.685
Benzene	18.465	1.281e6	3.020	3.026
TFT	86.421	1.999e6	4.272	4.284
Toluene	18.826	1.206e6	6.170	6.176
Ethyl Benzene	19.244	1.043e6	7.871	7.873
M+P Xylene	39.555	2.477e6	8.065	8.065
Ortho Xylene	19.446	1.106e6	8.374	8.375
Naphthalene	21.026	7.243e5	11.352	11.357

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PURGEABLE AROMATICS
CONTINUING CALIBRATION VERIFICATION SUMMARY

LAB FILE ID: 2\03112524.D

DATE ANALYZED: 11/26/03 4:59

MATRIX: Water

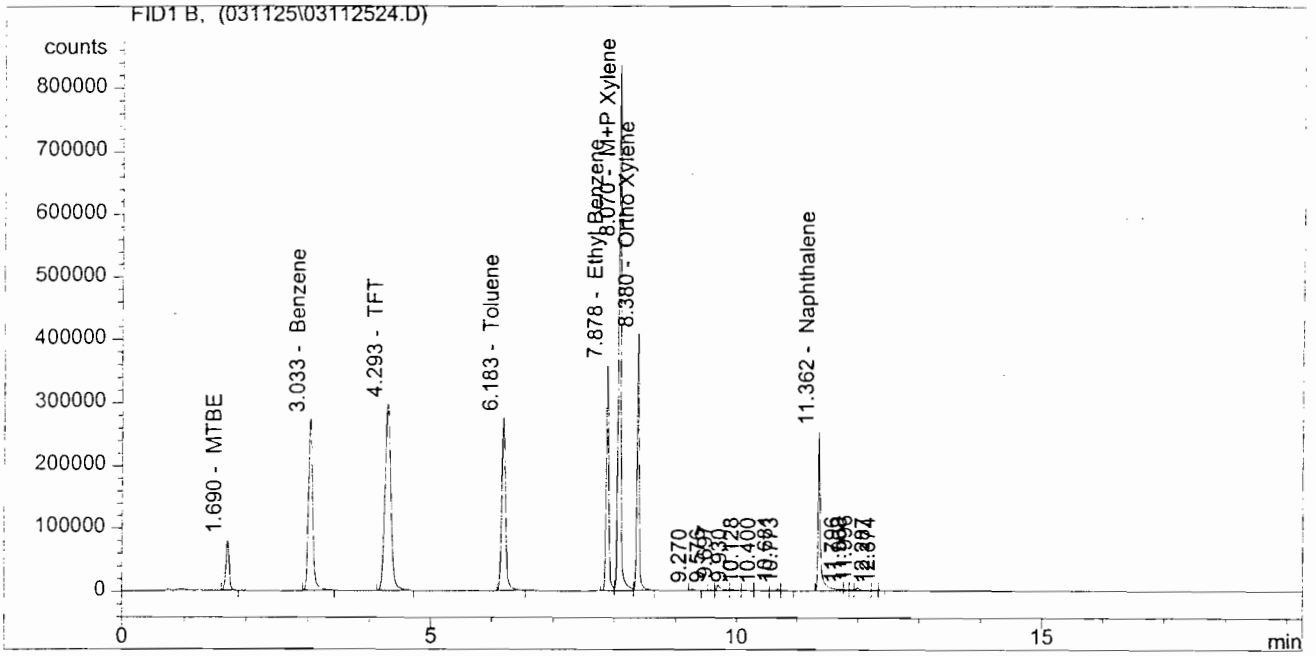
COMPOUND/DISTILLATE	STD REF CONC	STD REC CONC	STD REC (%)	#	QC LIMITS (%)
MTBE	20	18.20	91		85-115
Benzene	20	18.47	92		85-115
Toluene	20	18.55	93		85-115
Ethyl benzene	20	18.51	93		85-115
Xylene, m&p	40	38.11	95		85-115
Xylene, ortho	20	18.80	94		85-115
Naphthalene	20	20.92	105		85-115

2 3015

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031125\03112524.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BTEXNM
Acquired On: 11/26/03 4:59:06 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
8ul 246/40ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	18.203	2.867e5	1.686	1.690
Benzene	18.467	1.282e6	3.020	3.033
TFT	86.429	1.999e6	4.272	4.293
Toluene	18.553	1.188e6	6.170	6.183
Ethyl Benzene	18.510	1.003e6	7.871	7.878
M+P Xylene	38.111	2.386e6	8.065	8.070
Ortho Xylene	18.801	1.069e6	8.374	8.380
Naphthalene	20.923	7.208e5	11.352	11.362

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PURGEABLE AROMATICS
CONTINUING CALIBRATION VERIFICATION SUMMARY

LAB FILE ID: 1\03112523.D

DATE ANALYZED: 11/26/03 2:07

MATRIX: Soil

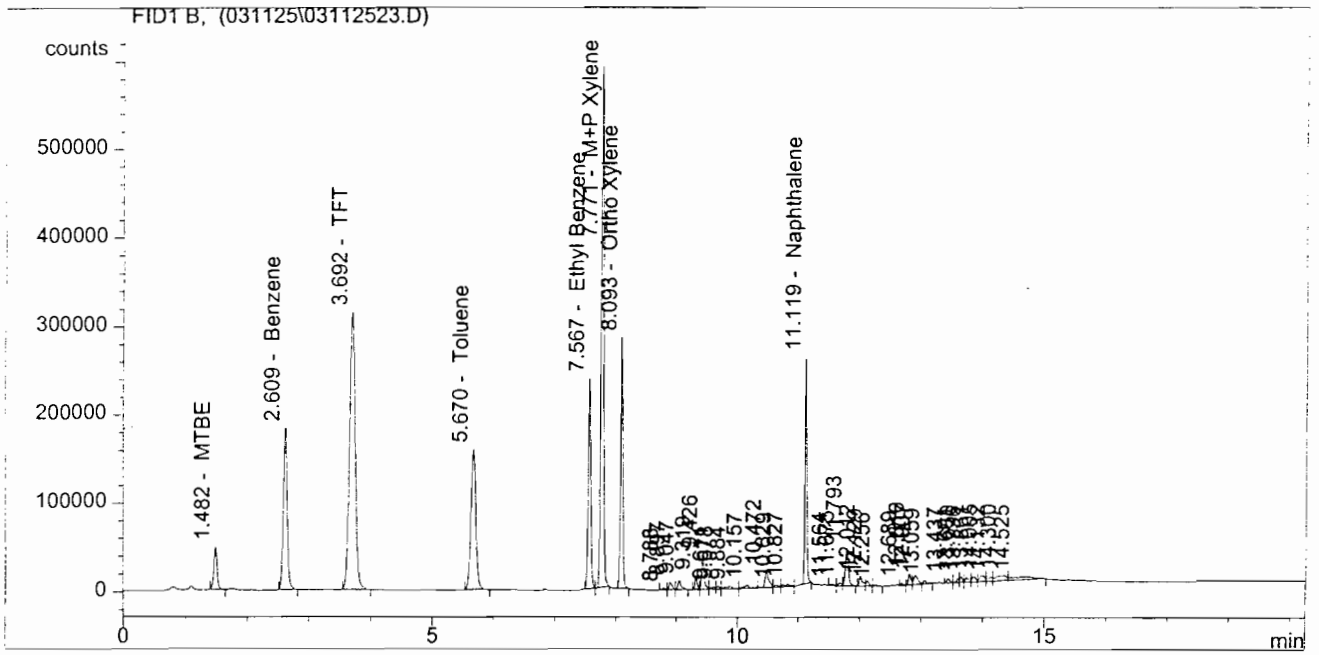
COMPOUND/DISTILLATE	STD REF CONC	STD REC CONC	STD REC (%)	#	QC LIMITS (%)
MTBE	20	18.36	92		85-115
Benzene	20	19.66	98		85-115
Toluene	20	19.02	95		85-115
Ethyl benzene	20	18.72	94		85-115
Xylene, m&p	40	38.85	97		85-115
Xylene, ortho	20	19.30	97		85-115
Naphthalene	20	17.78	89		85-115

2 3017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031125\03112523.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BTEXNM
Acquired On: 11/26/03 2:07:41 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
1ul 246/5ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	18.355	1.721e5	1.480	1.482
Benzene	19.661	8.074e5	2.633	2.609
TFT	94.145	2.045e6	3.719	3.692
Toluene	19.018	8.947e5	5.702	5.670
Ethyl Benzene	18.717	7.127e5	7.584	7.567
M+P Xylene	38.850	1.747e6	7.793	7.771
Ortho Xylene	19.301	7.731e5	8.109	8.093
Naphthalene	17.780	5.795e5	11.127	11.119

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PURGEABLE AROMATICS
CONTINUING CALIBRATION VERIFICATION SUMMARY

LAB FILE ID: 1\03112623.D

DATE ANALYZED: 11/27/03 2:23

MATRIX: Soil

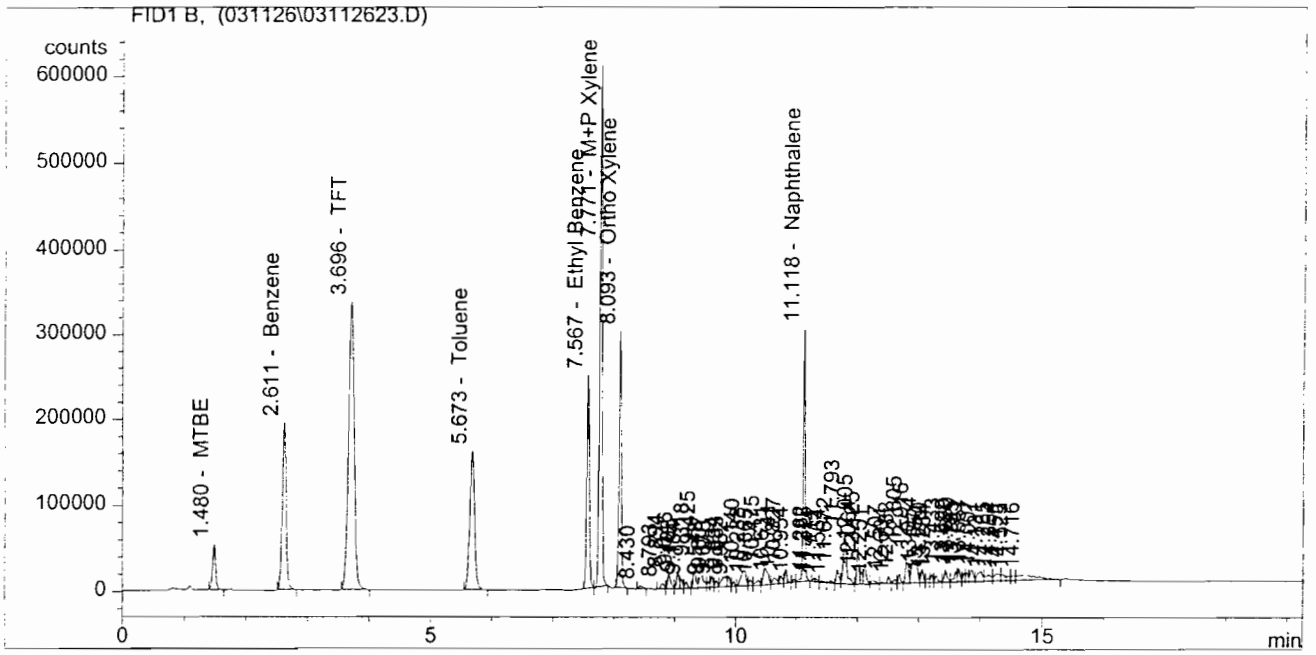
COMPOUND/DISTILLATE	STD REF CONC	STD REC CONC	STD REC (%)	#	QC LIMITS (%)
MTBE	20	19.47	97		85-115
Benzene	20	20.55	103		85-115
Toluene	20	19.00	95		85-115
Ethyl benzene	20	19.53	98		85-115
Xylene, m&p	40	39.56	99		85-115
Xylene, ortho	20	20.28	101		85-115
Naphthalene	20	20.41	102		85-115

2 3019

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031126\03112623.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BTEXNM
Acquired On: 11/27/03 2:23:14 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
1ul 246/5ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	19.470	1.825e5	1.480	1.480
Benzene	20.545	8.437e5	2.633	2.611
TFT	99.626	2.164e6	3.719	3.696
Toluene	19.004	8.940e5	5.702	5.673
Ethyl Benzene	19.529	7.436e5	7.584	7.567
M+P Xylene	39.555	1.779e6	7.793	7.771
Ortho Xylene	20.271	8.119e5	8.109	8.093
Naphthalene	20.408	6.652e5	11.127	11.118

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PURGEABLE AROMATICS
MATRIX SPIKE SUMMARY

LAB FILE ID: 2\03112519.D & 2\03112520.D

DATE ANALYZED: 11/26/03

MATRIX: Water

Sample ID: 03112414-14 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	QC LIMITS (%)
MTBE	50	ND	48	96	70-130
Benzene	50	ND	46	91	70-130
Toluene	50	ND	45	89	70-130
Ethyl benzene	50	ND	44	87	70-130
Xylene, m&p	100	ND	88	88	70-130
Xylene, ortho	50	ND	43	87	70-130
Naphthalene	50	ND	44	89	70-130

Lab Sample ID: 03112414-14 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
MTBE	50	ND	48	96	0.8	15	70-130
Benzene	50	ND	46	91	0.1	15	70-130
Toluene	50	ND	44	89	0.4	15	70-130
Ethyl benzene	50	ND	44	89	1.8	15	70-130
Xylene, m&p	100	ND	87	87	0.9	15	70-130
Xylene, ortho	50	ND	43	86	0.7	15	70-130
Naphthalene	50	ND	47	94	6.0	15	70-130

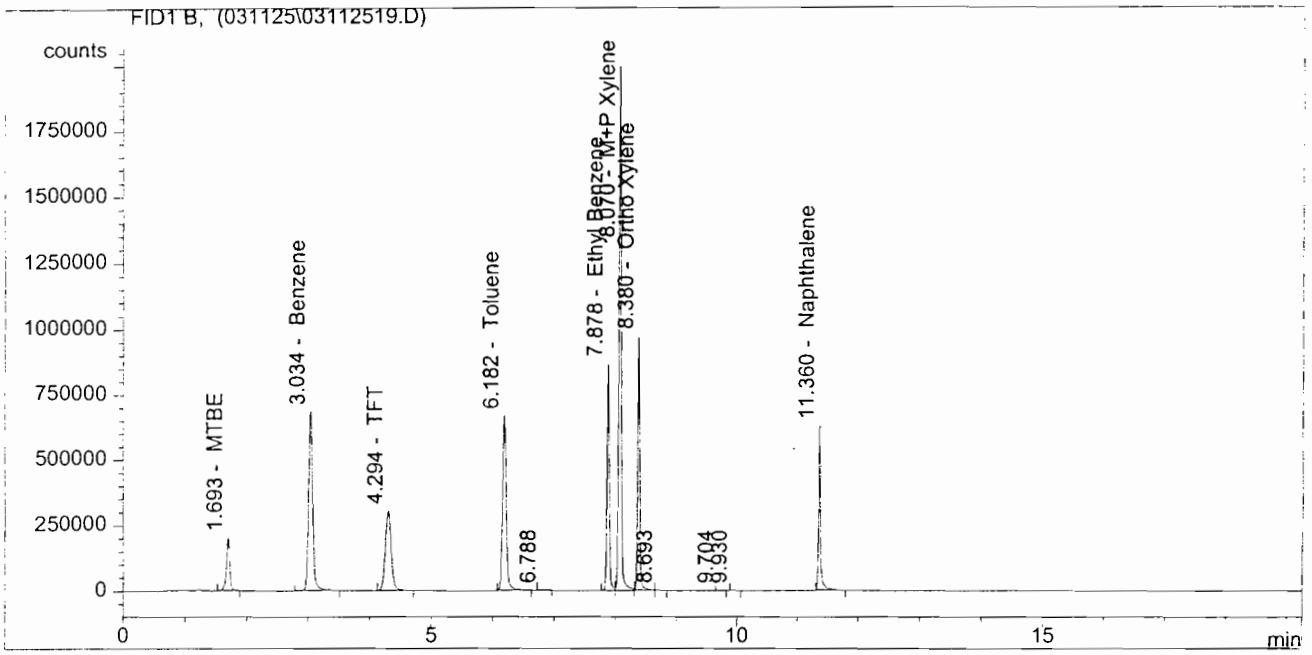
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*

2 3021

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031125\03112519.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: 03112414-14 MS
Acquired On: 11/26/03 2:17:43 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
BTEXNM MS:20ul 246/40ml=50ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	48.170	7.588e5	1.686	1.693
Benzene	45.579	3.163e6	3.020	3.034
TFT	87.817	2.031e6	4.272	4.294
Toluene	44.530	2.852e6	6.170	6.182
Ethyl Benzene	43.588	2.363e6	7.871	7.878
M+P Xylene	87.926	5.505e6	8.065	8.070
Ortho Xylene	43.465	2.471e6	8.374	8.380
Naphthalene	44.287	1.526e6	11.352	11.360

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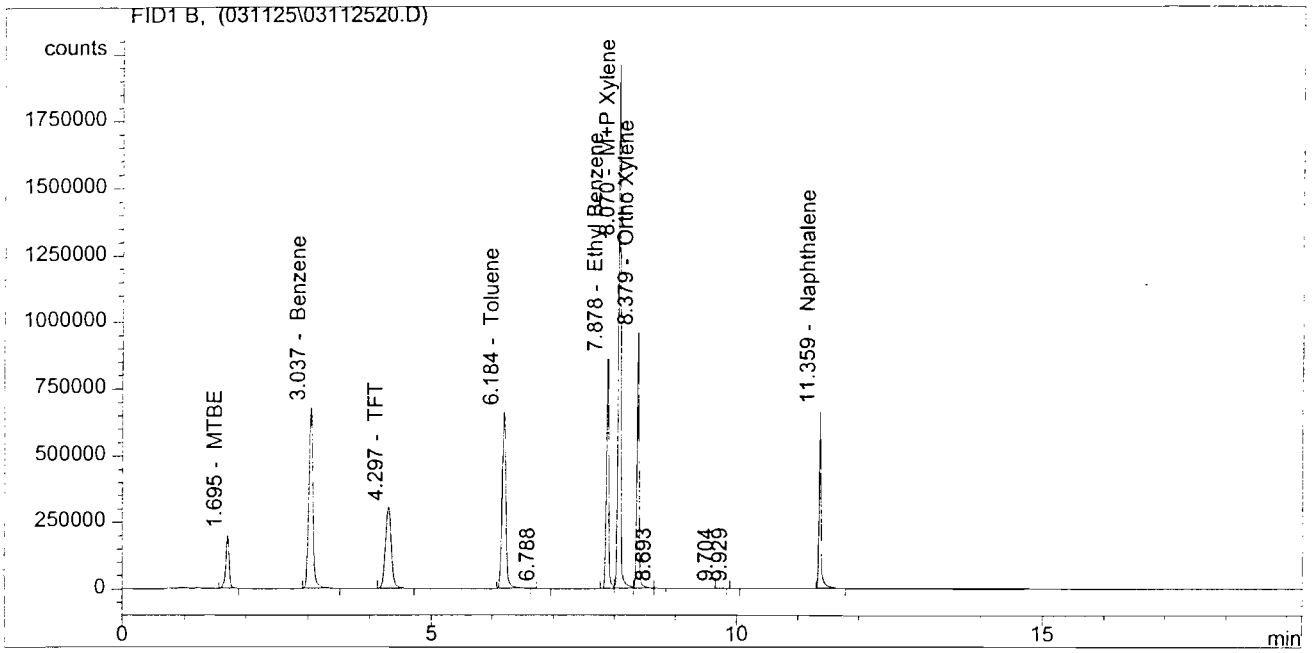
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031125\03112520.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: 03112414-14 MSD
Acquired On: 11/26/03 2:49:53 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
BTEXNM MSD:20ul 246/40ml=50ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	47.769	7.525e5	1.686	1.695
Benzene	45.543	3.161e6	3.020	3.037
TFT	88.304	2.042e6	4.272	4.297
Toluene	44.347	2.841e6	6.170	6.184
Ethyl Benzene	43.370	2.351e6	7.871	7.878
M+P Xylene	87.174	5.458e6	8.065	8.070
Ortho Xylene	43.170	2.454e6	8.374	8.379
Naphthalene	47.007	1.619e6	11.352	11.359

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PURGEABLE AROMATICS
MATRIX SPIKE SUMMARY

LAB FILE ID: **1\03112539.D & 1\03112540.D**

DATE ANALYZED: **11/26/03**

MATRIX: **Soil**

Sample ID: 03112414-37 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%) #	QC LIMITS (%)
MTBE	50	ND	46	93	70-130
Benzene	50	ND	50	101	70-130
Toluene	50	ND	44	87	70-130
Ethyl benzene	50	ND	46	92	70-130
Xylene, m&p	100	ND	90	90	70-130
Xylene, ortho	50	ND	45	90	70-130
Naphthalene	50	ND	36	73	70-130

Lab Sample ID: 03112414-37 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
MTBE	50	ND	43	86	7.1	15	70-130
Benzene	50	ND	48	97	4.3	15	70-130
Toluene	50	ND	42	84	4.3	15	70-130
Ethyl benzene	50	ND	44	87	5.3	15	70-130
Xylene, m&p	100	ND	84	84	6.1	15	70-130
Xylene, ortho	50	ND	43	85	5.6	15	70-130
Naphthalene	50	ND	35	70	3.1	15	70-130

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*

2 3024

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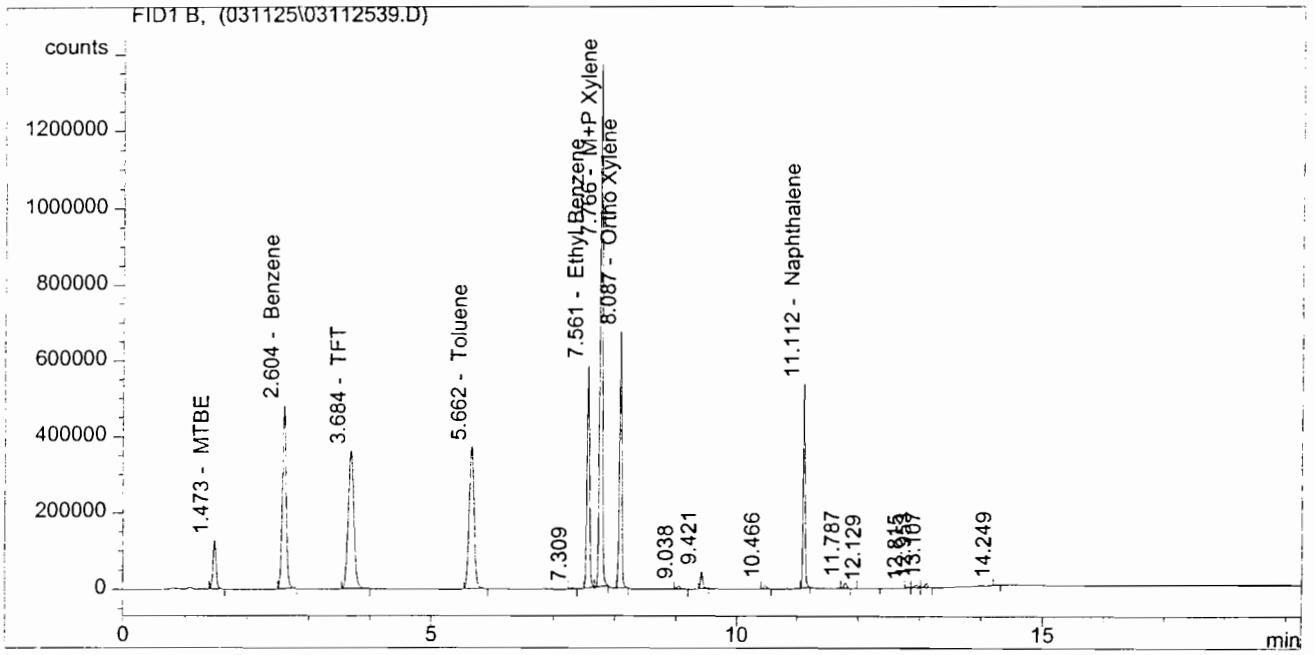
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031125\03112539.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: 03112414-37 MS
Acquired On: 11/26/03 11:34:44 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.02g
BTEXNM MS:2.5ul 246/5ml=50ppb ->

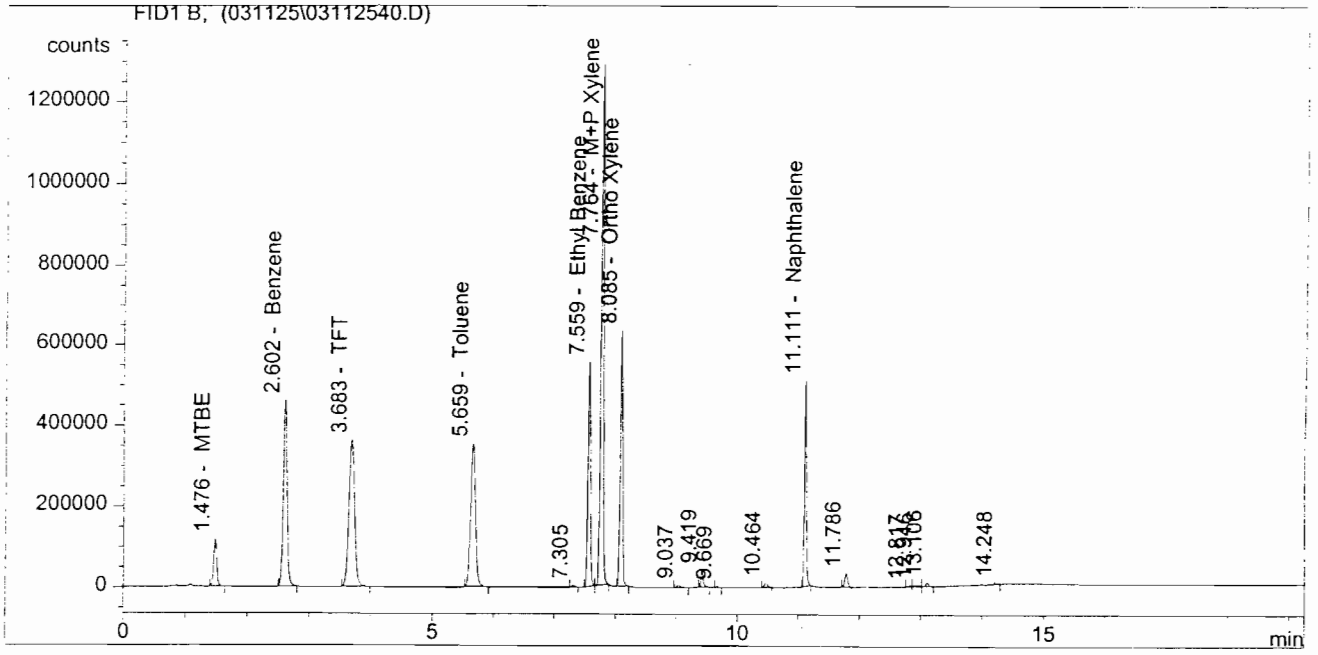


COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	46.401	4.350e5	1.480	1.473
Benzene	50.425	2.071e6	2.633	2.604
TFT	107.604	2.337e6	3.719	3.684
Toluene	43.632	2.053e6	5.702	5.662
Ethyl Benzene	45.899	1.748e6	7.584	7.561
M+P Xylene	89.530	4.027e6	7.793	7.766
Ortho Xylene	45.042	1.804e6	8.109	8.087
Naphthalene	36.270	1.182e6	11.127	11.112

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031125\03112540.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: 03112414-37 MSD
Acquired On: 11/26/03 12:08:35 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.00g
BTEXNM MSD:2.5ul 246/5ml=50ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	43.219	4.051e5	1.480	1.476
Benzene	48.291	1.983e6	2.633	2.602
TFT	107.804	2.341e6	3.719	3.683
Toluene	41.799	1.966e6	5.702	5.659
Ethyl Benzene	43.526	1.657e6	7.584	7.559
M+P Xylene	84.190	3.787e6	7.793	7.764
Ortho Xylene	42.599	1.706e6	8.109	8.085
Naphthalene	35.148	1.146e6	11.127	11.111

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PURGEABLE AROMATICS
MATRIX SPIKE SUMMARY

LAB FILE ID: 1\03112645.D & 1\03112646.D

DATE ANALYZED: 11/27/03

MATRIX: Soil

Sample ID: 03112414-40 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%) #	QC LIMITS (%)
MTBE	50	ND	43	87	70-130
Benzene	50	ND	49	99	70-130
Toluene	50	ND	43	86	70-130
Ethyl benzene	50	ND	44	89	70-130
Xylene, m&p	100	ND	86	86	70-130
Xylene, ortho	50	ND	43	87	70-130
Naphthalene	50	ND	36	72	70-130

Lab Sample ID: 03112414-40 MSD

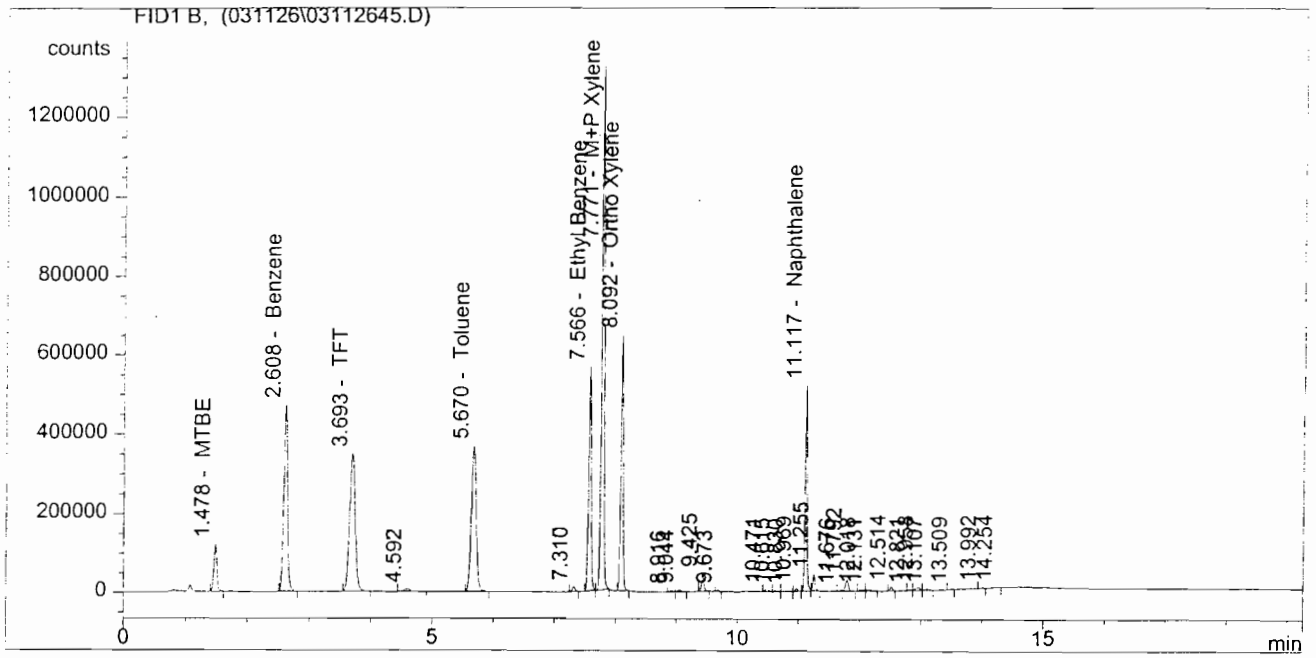
SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
MTBE	50	ND	43	86	0.3	15	70-130
Benzene	50	ND	49	97	1.3	15	70-130
Toluene	50	ND	42	84	2.1	15	70-130
Ethyl benzene	50	ND	43	86	3.4	15	70-130
Xylene, m&p	100	ND	83	83	3.9	15	70-130
Xylene, ortho	50	ND	42	84	3.7	15	70-130
Naphthalene	50	ND	37	74	3.4	15	70-130

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031126\03112645.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: 03112414-40 MS
Acquired On: 11/27/03 2:47:14 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.05g
BTEXNM MS:2.5ul 246/5ml=50ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	43.283	4.057e5	1.480	1.478
Benzene	49.349	2.027e6	2.633	2.608
TFT	104.468	2.269e6	3.719	3.693
Toluene	43.058	2.026e6	5.702	5.670
Ethyl Benzene	44.478	1.694e6	7.584	7.566
M+P Xylene	86.146	3.875e6	7.793	7.771
Ortho Xylene	43.489	1.742e6	8.109	8.092
Naphthalene	35.756	1.165e6	11.127	11.117

2 3028

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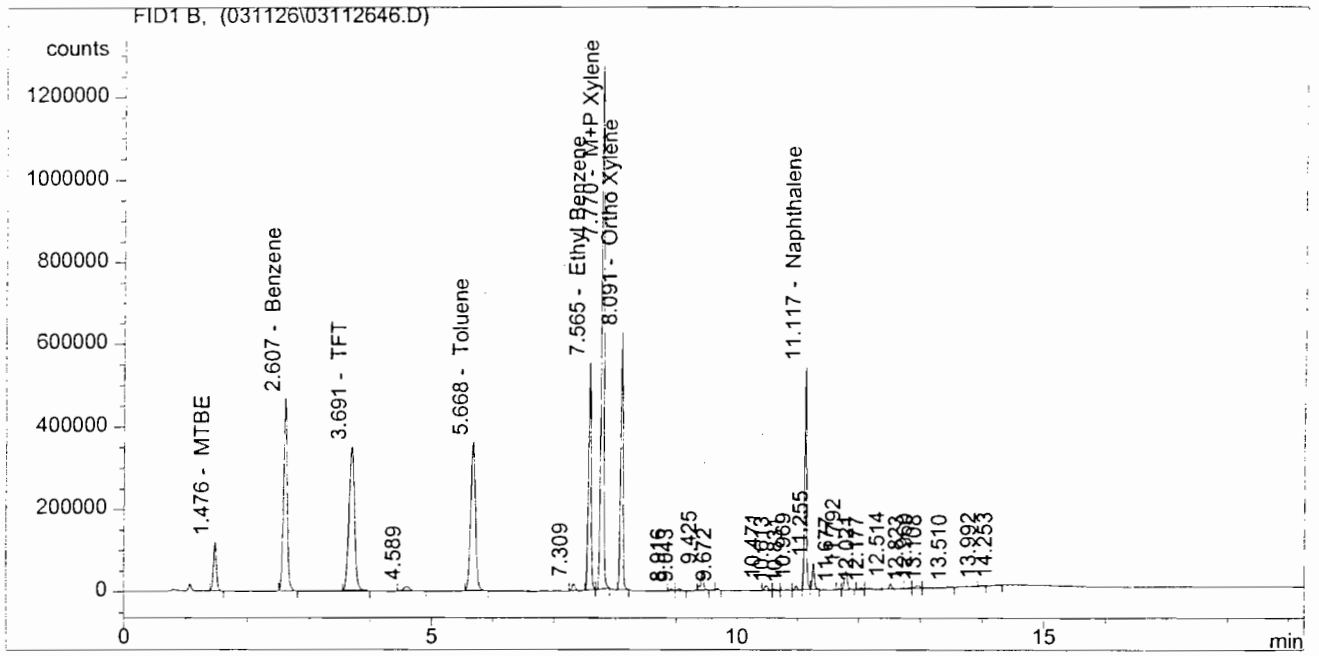
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031126\03112646.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: 03112414-40 MSD
Acquired On: 11/27/03 3:20:59 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.04g
BTEXNM MSD:2.5ul 246/5ml=50ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	43.153	4.045e5	1.480	1.476
Benzene	48.726	2.001e6	2.633	2.607
TFT	104.201	2.263e6	3.719	3.691
Toluene	42.146	1.983e6	5.702	5.668
Ethyl Benzene	42.990	1.637e6	7.584	7.565
M+P Xylene	82.835	3.726e6	7.793	7.770
Ortho Xylene	41.909	1.679e6	8.109	8.091
Naphthalene	36.991	1.206e6	11.127	11.117

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PURGEABLE AROMATICS
LABORATORY CONTROL SAMPLE SUMMARY

LAB FILE ID: 2\03112542.D

DATE ANALYZED: 11/26/03

MATRIX: Water

Sample ID: LCS 20ppb

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	#	QC LIMITS (%)
MTBE	20	19	94		70-130
Benzene	20	19	96		70-130
Toluene	20	19	93		70-130
Ethyl benzene	20	19	93		70-130
Xylene, m&p	40	38	95		70-130
Xylene, ortho	20	19	94		70-130
Naphthalene	20	18	92		70-130

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc)/(spike added)]*100*

2 3030

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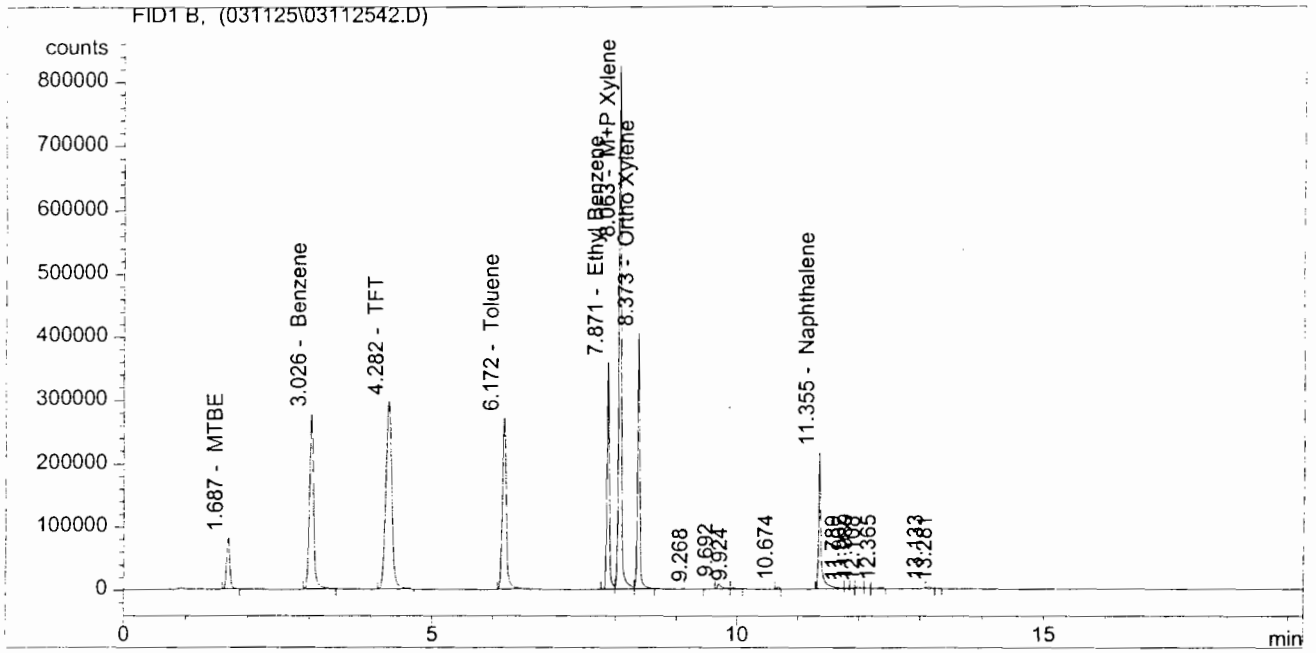
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\2\DATA\031125\03112542.D
Method Name: C:\HPCHEM\2\METHODS\B2W4.M
Sample Name: BTEXNM
Acquired On: 11/26/03 3:05:26 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
8ul 246/40ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	18.858	2.971e5	1.686	1.687
Benzene	19.106	1.326e6	3.020	3.026
TFT	87.315	2.019e6	4.272	4.282
Toluene	18.691	1.197e6	6.170	6.172
Ethyl Benzene	18.515	1.004e6	7.871	7.871
M+P Xylene	37.961	2.377e6	8.065	8.063
Ortho Xylene	18.779	1.068e6	8.374	8.373
Naphthalene	18.343	6.319e5	11.352	11.355

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PURGEABLE AROMATICS
LABORATORY CONTROL SAMPLE SUMMARY

LAB FILE ID: 1\03112541.D

DATE ANALYZED: 11/26/03

MATRIX: Soil

Sample ID: LCS 20ppb

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	#	QC LIMITS (%)
MTBE	20	20	98		70-130
Benzene	20	22	108		70-130
Toluene	20	19	97		70-130
Ethyl benzene	20	20	99		70-130
Xylene, m&p	40	39	97		70-130
Xylene, ortho	20	20	98		70-130
Naphthalene	20	19	95		70-130

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc)/(spike added)]*100*

2 3032

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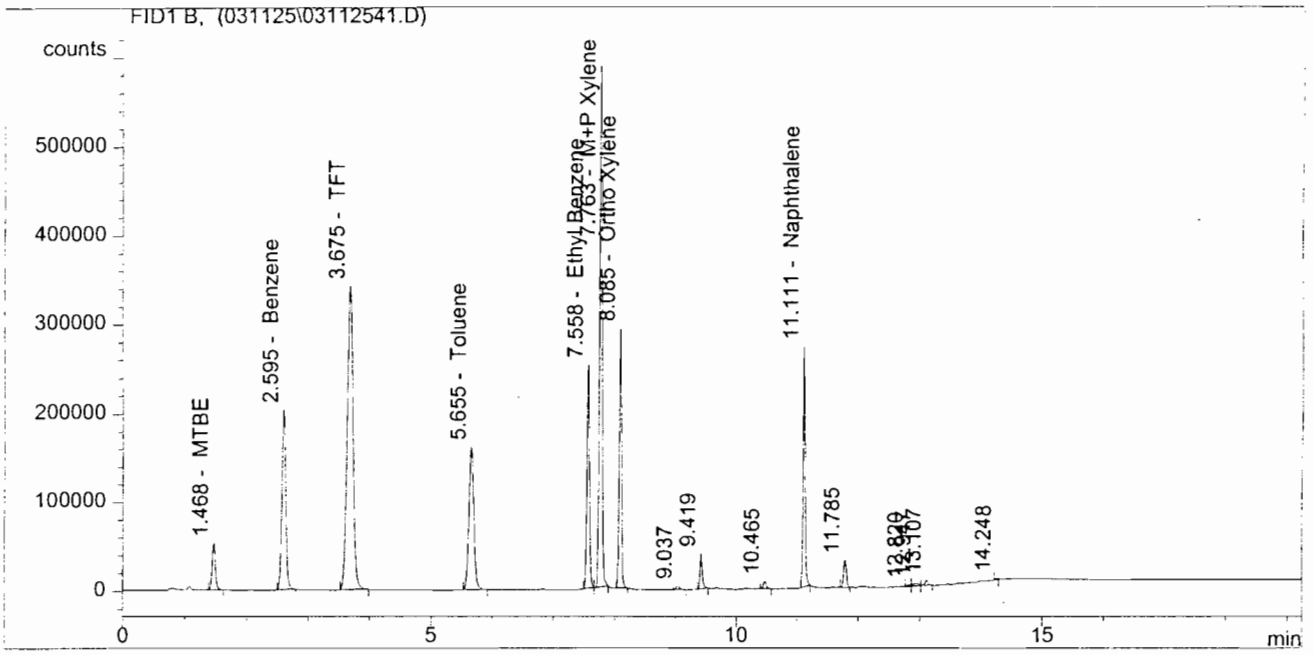
EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031125\03112541.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BTEXNM
Acquired On: 11/26/03 12:42:23 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
1ul 246/5ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	19.670	1.844e5	1.480	1.468
Benzene	21.543	8.847e5	2.633	2.595
TFT	103.935	2.257e6	3.719	3.675
Toluene	19.387	9.120e5	5.702	5.655
Ethyl Benzene	19.797	7.538e5	7.584	7.558
M+P Xylene	38.981	1.753e6	7.793	7.763
Ortho Xylene	19.668	7.878e5	8.109	8.085
Naphthalene	19.093	6.223e5	11.127	11.111

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PURGEABLE AROMATICS
LABORATORY CONTROL SAMPLE SUMMARY

LAB FILE ID: 1\03112649.D

DATE ANALYZED: 11/27/03

MATRIX: Soil

Sample ID: LCS 20ppb

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	#	QC LIMITS (%)
MTBE	20	20	99		70-130
Benzene	20	20	102		70-130
Toluene	20	20	98		70-130
Ethyl benzene	20	19	96		70-130
Xylene, m&p	40	39	98		70-130
Xylene, ortho	20	20	99		70-130
Naphthalene	20	18	91		70-130

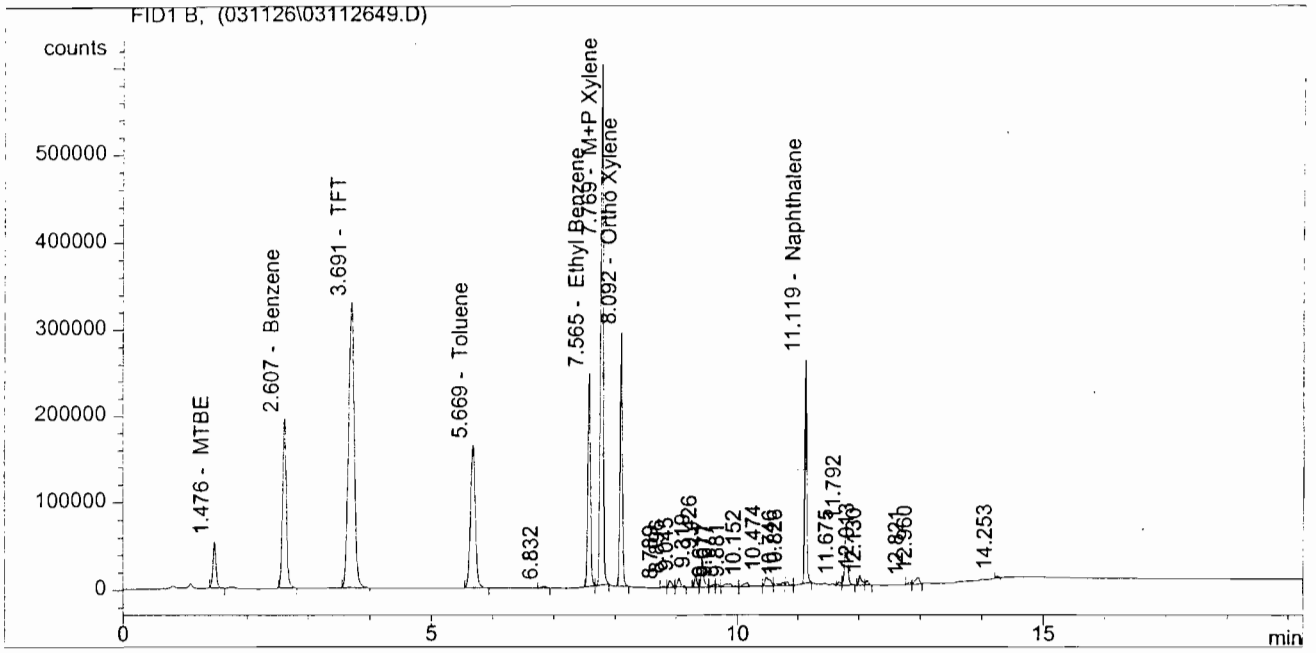
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc)/(spike added)]*100*

2 3034

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8021 : BTEX

Data File Name: C:\HPCHEM\1\DATA\031126\03112649.D
Method Name: C:\HPCHEM\1\METHODS\B1S1.M
Sample Name: BTEXNM
Acquired On: 11/27/03 5:02:26 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
1ul 246/5ml=20ppb ->



COMPOUNDS	AMOUNT(ppb)	AREA	EXP. RT	MEAS. RT
MTBE	19.769	1.853e5	1.480	1.476
Benzene	20.433	8.391e5	2.633	2.607
TFT	98.066	2.130e6	3.719	3.691
Toluene	19.569	9.206e5	5.702	5.669
Ethyl Benzene	19.273	7.339e5	7.584	7.565
M+P Xylene	39.343	1.770e6	7.793	7.769
Ortho Xylene	19.821	7.939e5	8.109	8.092
Naphthalene	18.163	5.920e5	11.127	11.119

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Polychlorinated Biphenyls

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

POLYCHLORINATED BYPHENYLS SYSTEM MONITORING COMPOUNDS (SURROGATES)

ANALYSIS: **PCBs** **LAB CODE:** **SURR**

METHOD NO.: **EPA 8082**

Date Analyzed	Sample ID	Lab ID	Lab File ID	SMC-1(DBC)#
11/25/03	SB-4	03112414-21	031125\B3112504.D	99
11/25/03	SB-2	03112414-27	031125\B3112505.D	98
11/25/03	SB-6	03112414-33	031125\B3112506.D	105
11/26/03	SB-32	03112414-43	031126\F3112609.D	122
11/26/03	SB-33	03112414-46	031126\F3112610.D	132

	Control Limits
SMC-1 (DBC): Dibutyl Chlorendate	30-150

Column used to flag recovery values
* = Values outside QC limits

2 4002

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

POLYCHLORINATED BYPHENYLS SYSTEM MONITORING COMPOUNDS (SURROGATES)

ANALYSIS: PCBs **LAB CODE:** SURR

METHOD NO.: EPA 8082

Date Analyzed	Sample ID	Lab ID	Lab File ID	SMC-1(DBC)#
12/08/03	SB-1-05	03112414-17	031208\B3120806.D	73
12/08/03	SB-1-10	03112414-18	031208\B3120807.D	72
12/08/03	SB-4-05	03112414-19	031208\B3120808.D	55
12/08/03	SB-4-10	03112414-20	031208\B3120809.D	70
12/08/03	SB-5-05	03112414-23	031208\B3120810.D	82
12/08/03	SB-5-10	03112414-24	031208\B3120811.D	75
12/08/03	SB-2-05	03112414-25	031208\B3120814.D	76
12/08/03	SB-2-10	03112414-26	031208\B3120815.D	69
12/08/03	SB-3-05	03112414-29	031208\B3120816.D	86
12/08/03	SB-3-10	03112414-30	031208\B3120817.D	73
12/08/03	SB-6-05	03112414-31	031208\B3120818.D	74
12/08/03	SB-6-10	03112414-32	031208\B3120819.D	73
12/08/03	SB-32-05	03112414-42	031208\B3120820.D	68
12/09/03	SB-33-05	03112414-45	031208\B3120821.D	70

	Control Limits
SMC-1 (DBC): Dibutyl Chlorendate	30-150

Column used to flag recovery values
* = Values outside QC limits

2 4003

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POLYCHLORINATED BIPHENYLS
METHOD BLANK SUMMARY

ANALYSIS:	**PCBs**	**LAB CODE:**	**MBW**
METHOD NO.:	**EPA 8082**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**031125\F3112503.D**	**DATE/TIME ANALYZED:**	**11/25/03**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

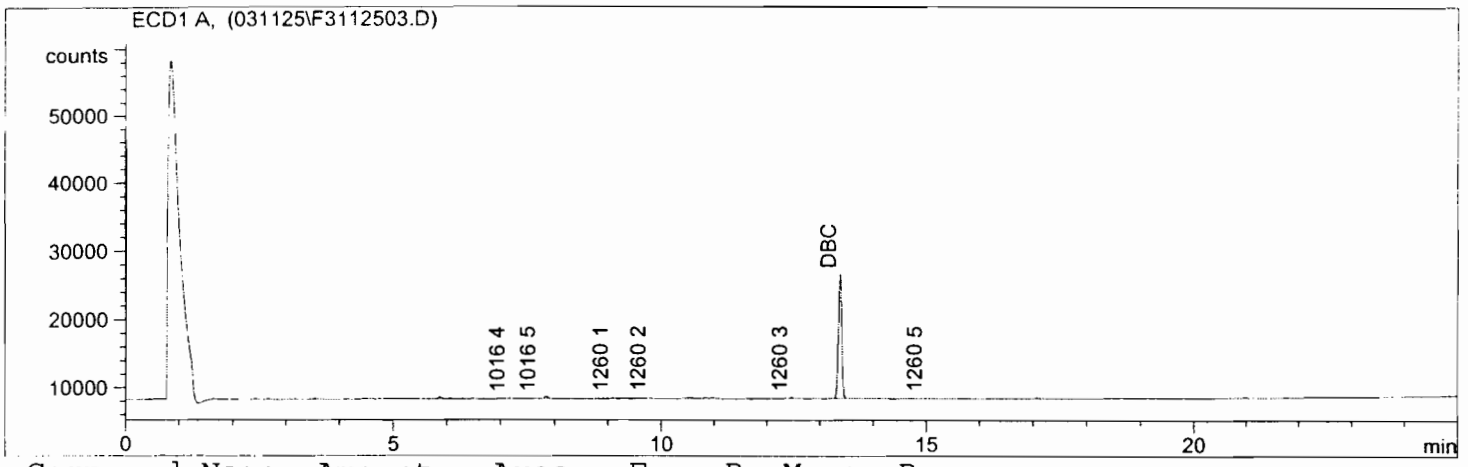
Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
SB-4	03112414-21	031125\B3112504.D	11/25/03
SB-2	03112414-27	031125\B3112505.D	11/25/03
SB-6	03112414-33	031125\B3112506.D	11/25/03
SB-32	03112414-43	031126\F3112609.D	11/26/03
SB-33	03112414-46	031126\F3112610.D	11/26/03

2 4004

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031125\F3112503.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: MBLK
Sample Info: Ex. 11/24 100C ->
Acquired On: 11/25/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.416	0.000
1016 1	0.000	0.000	4.004	0.000
1016 2	0.000	0.000	4.590	0.000
1016 3	0.000	0.000	5.368	0.000
1016 4	0.000	189.437	7.150	7.158
1016 5	0.000	382.668	7.721	7.727
1260 1	0.000	452.677	9.078	9.085
1260 2	0.000	478.385	9.784	9.791
1260 3	0.000	545.596	12.379	12.459
1260 4	0.000	0.000	13.184	0.000
DBC	17.426	8.187e4	13.369	13.371
1260 5	0.000	291.551	15.072	14.996
DCB	0.000	0.000	16.529	0.000

2 4005

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POLYCHLORINATED BIPHENYLS
METHOD BLANK SUMMARY

ANALYSIS:	**PCBs**	**LAB CODE:**	**MBS**
METHOD NO.:	**EPA 8082**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**031208\B3120803.D**	**DATE/TIME ANALYZED:**	**12/08/03**
MATRIX:	**Soil**		

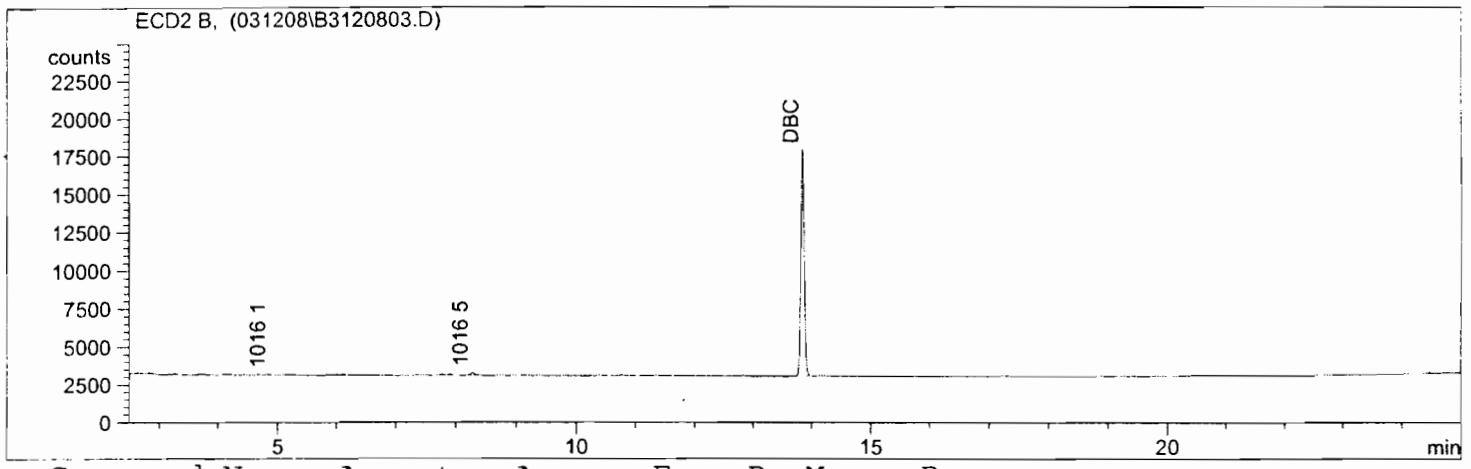
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date Analyzed
SB-1-05	03112414-17	031208\B3120806.D	12/08/03
SB-1-10	03112414-18	031208\B3120807.D	12/08/03
SB-4-05	03112414-19	031208\B3120808.D	12/08/03
SB-4-10	03112414-20	031208\B3120809.D	12/08/03
SB-5-05	03112414-23	031208\B3120810.D	12/08/03
SB-5-10	03112414-24	031208\B3120811.D	12/08/03
SB-2-05	03112414-25	031208\B3120814.D	12/08/03
SB-2-10	03112414-26	031208\B3120815.D	12/08/03
SB-3-05	03112414-29	031208\B3120816.D	12/08/03
SB-3-10	03112414-30	031208\B3120817.D	12/08/03
SB-6-05	03112414-31	031208\B3120818.D	12/08/03
SB-6-10	03112414-32	031208\B3120819.D	12/08/03
SB-32-05	03112414-42	031208\B3120820.D	12/08/03

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031208\B3120803.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: MBLK
Sample Info: Ex. 12/5 1C ->
Acquired On: 12/8/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	4.090	496.228	4.897	4.866
1016 2	0.000	0.000	5.672	0.000
1016 3	0.000	0.000	5.923	0.000
1016 4	0.000	0.000	7.763	0.000
1016 5	14.367	708.391	8.210	8.273
1260 1	0.000	0.000	9.825	0.000
1260 2	0.000	0.000	10.393	0.000
1260 3	0.000	0.000	12.452	0.000
1260 4	0.000	0.000	13.211	0.000
DBC	15.913	5.951e4	13.841	13.844
1260 5	0.000	0.000	14.292	0.000
DCB	0.000	0.000	17.917	0.000

2 4007

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PHASE SEPARATION SCIENCE, INC.

POLYCHLORINATED BYPHENYLS
CALIBRATION VERIFICATION SUMMARY

ANALYSIS: PCBs **DATE ANALYZED:** 11/25/03

METHOD NO.: EPA 8082 **LAB FILE ID:** 031125\F3112501.D

FRONT

Compound	Concentration	True Value	% Recovery	QC Limit
Aroclor 1016	100	100	100	85-115
Aroclor 1260	103	100	103	85-115

ANALYSIS: PCBs **DATE/TIME ANALYZED:** 11/25/03

METHOD NO.: EPA 8082 **LAB FILE ID:** 031125\B3112501.D

REAR

Compound	Concentration	True Value	% Recovery	QC Limit
Aroclor 1016	113	100	113	85-115
Aroclor 1260	117	100	117	85-115

CF - Calibration Factor

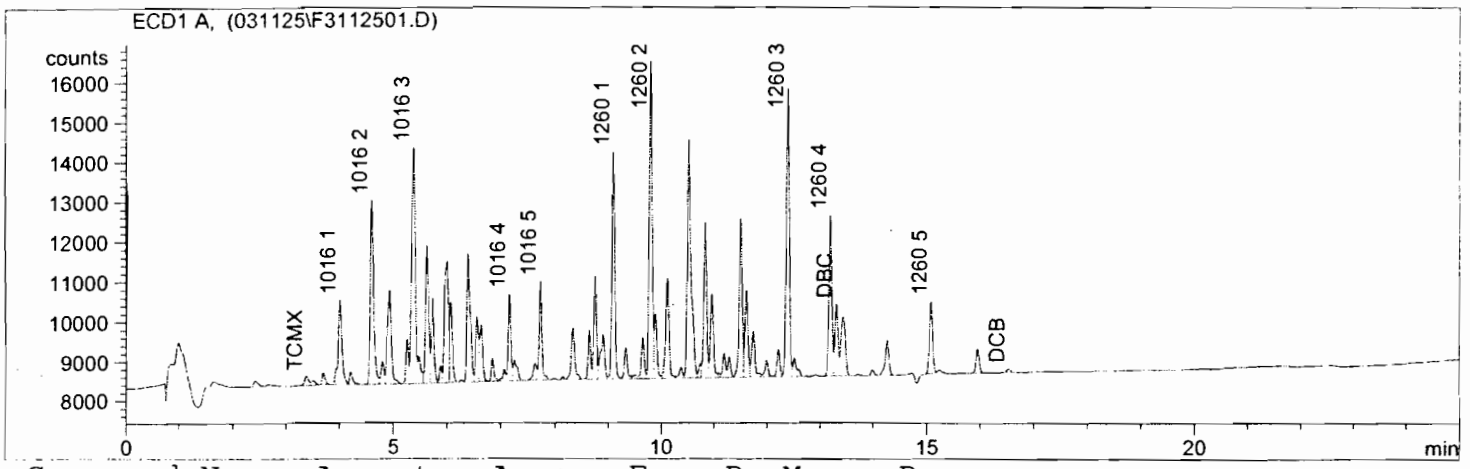
CF Calculation = [Peak Area or Area of Peaks / Concentration] x 0.001

2 4998

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031125\F3112501.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: 1016/1260 ~~150~~ppb
100
Sample Info:
Acquired On: 11/25/03
Analyst: DJP



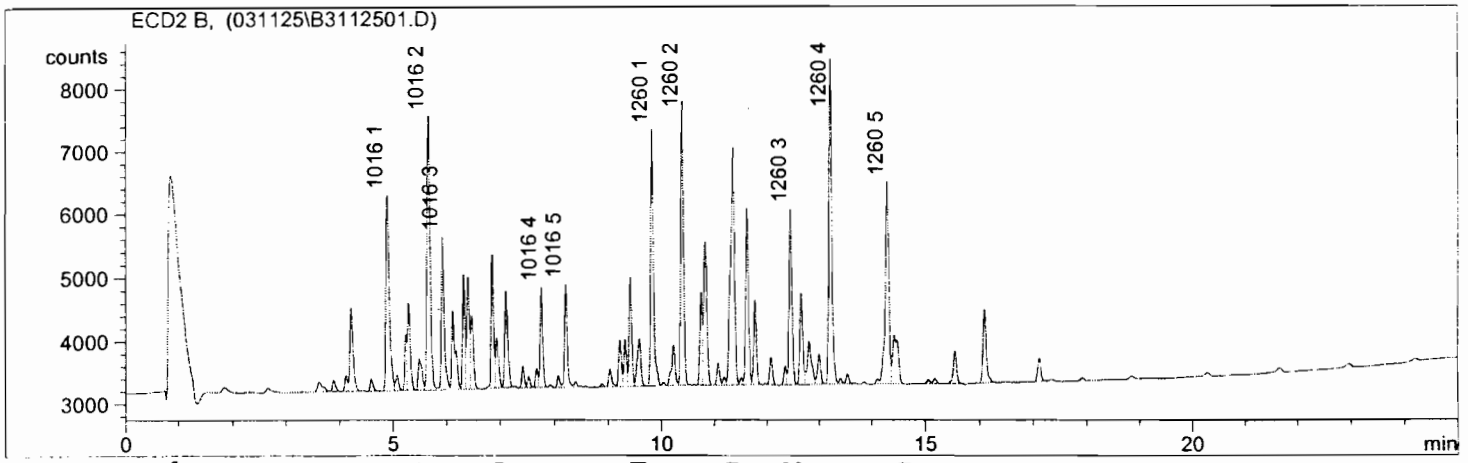
Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	1.194	1.283e3	3.416	3.384
1016 1	90.350	1.048e4	4.004	4.011
1016 2	102.661	2.083e4	4.590	4.600
1016 3	101.029	2.860e4	5.368	5.376
1016 4	101.258	7.655e3	7.150	7.162
1016 5	104.682	9.219e3	7.721	7.732
1260 1	104.948	2.167e4	9.078	9.090
1260 2	103.844	3.060e4	9.784	9.797
1260 3	101.866	3.025e4	12.379	12.389
1260 4	102.187	1.677e4	13.184	13.194
DBC	2.018	7.730e3	13.369	13.312
1260 5	99.862	7.808e3	15.072	15.081
DCB	0.000	483.689	16.529	16.533

2 4009

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031125\B3112501.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: 1016/1260 ~~150~~ppb
100
Sample Info:
Acquired On: 11/25/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	114.491	1.389e4	4.897	4.897
1016 2	109.250	1.846e4	5.672	5.670
1016 3	113.754	9.163e3	5.923	5.923
1016 4	112.815	5.418e3	7.763	7.761
1016 5	115.780	5.709e3	8.210	8.208
1260 1	117.905	1.536e4	9.825	9.824
1260 2	118.187	1.615e4	10.393	10.391
1260 3	117.535	1.088e4	12.452	12.450
1260 4	115.443	2.066e4	13.211	13.208
DBC	0.000	0.000	13.850	0.000
1260 5	117.788	1.518e4	14.292	14.287
DCB	0.000	0.000	17.917	0.000

2 4010

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PHASE SEPARATION SCIENCE, INC.

POLYCHLORINATED BYPHENYLS
CALIBRATION VERIFICATION SUMMARY

ANALYSIS: **PCBs** **DATE ANALYZED: 12/08/03**

METHOD NO.: **EPA 8082** **LAB FILE ID: 031208\B3120801.D**

REAR

Compound	Concentration	True Value	% Recovery	QC Limit
Aroclor 1016	91	100	91	85-115
Aroclor 1260	97	100	97	85-115

CF - Calibration Factor

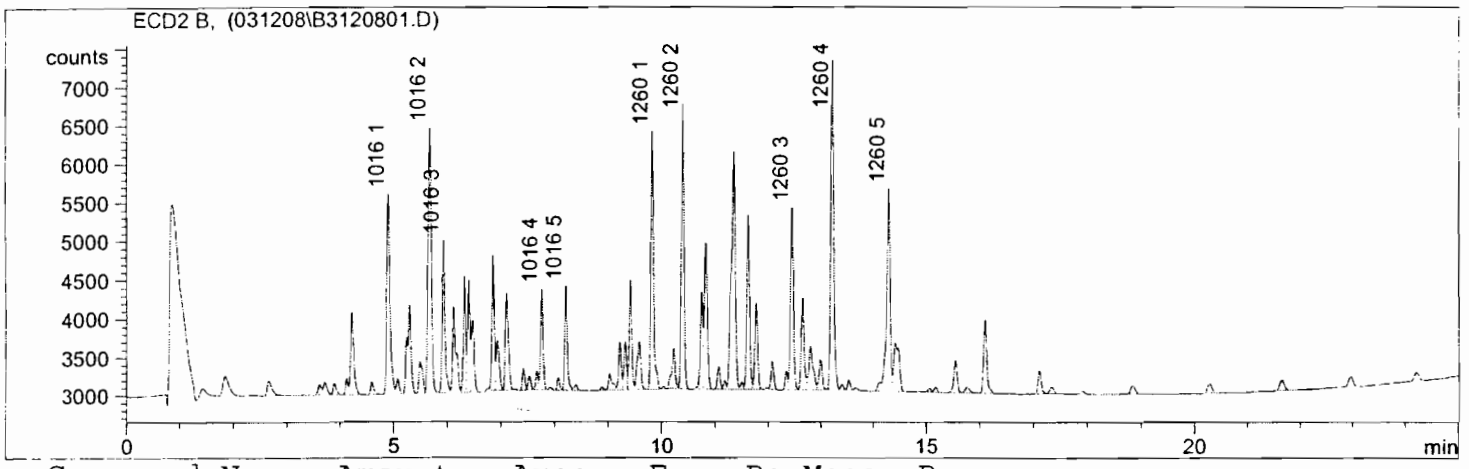
CF Calculation = [Peak Area or Area of Peaks / Concentration] x 0.001

2 4011

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031208\B3120801.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: 1016/1260 100ppb
Sample Info:
Acquired On: 12/8/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	94.238	1.143e4	4.897	4.893
1016 2	85.293	1.441e4	5.672	5.667
1016 3	90.861	7.319e3	5.923	5.920
1016 4	91.801	4.409e3	7.763	7.759
1016 5	94.365	4.653e3	8.210	8.207
1260 1	94.760	1.234e4	9.825	9.821
1260 2	95.124	1.300e4	10.393	10.390
1260 3	99.268	9.188e3	12.452	12.448
1260 4	94.138	1.684e4	13.211	13.208
DBC	0.000	0.000	13.850	0.000
1260 5	99.808	1.287e4	14.292	14.287
DCB	0.000	0.000	17.917	0.000

2 4012

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POLYCHLORINATED BIPHENYLS
MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

Lab ID No. 031208\B3120812.D
031208\B3120813.D

Date Analyzed: 12/08/03

Matrix: Water

Sample ID: 03112414-24 MS

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	QC LIMITS (%)
Aroclor 1260	200	ND	236	118	46-127

Sample ID: 03112414-24 MSD

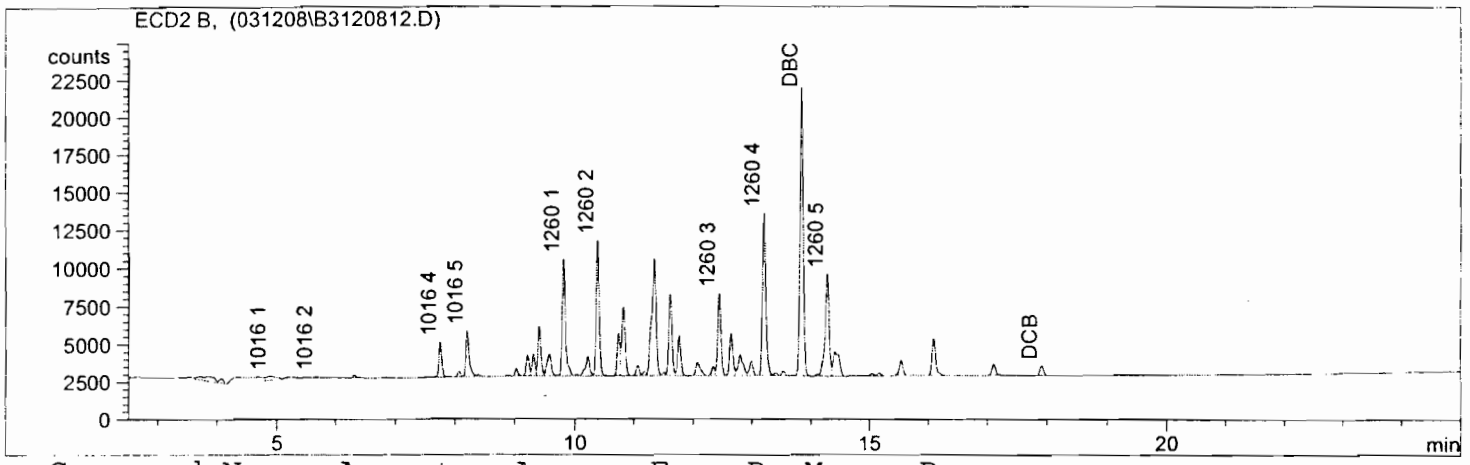
SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/L)	SAMPLE (ug/L)	SPK DUP CONC (ug/L)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
Aroclor 1260	200	ND	254	127 *	7.6	15	46-127

Calculation: spike or spike dup %Recovery
=(spike conc - original sample conc)/(spike added)
Calculation: spike/spike dup Relative Percent Difference
*=absolute value(spike dup conc - spike conc)*2/(spike dup conc + spike conc)*

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031208\B3120812.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: 03112414-24 MS
Sample Info: TTI Ex. 12/5 1C ->
Acquired On: 12/8/03
Analyst: DJP



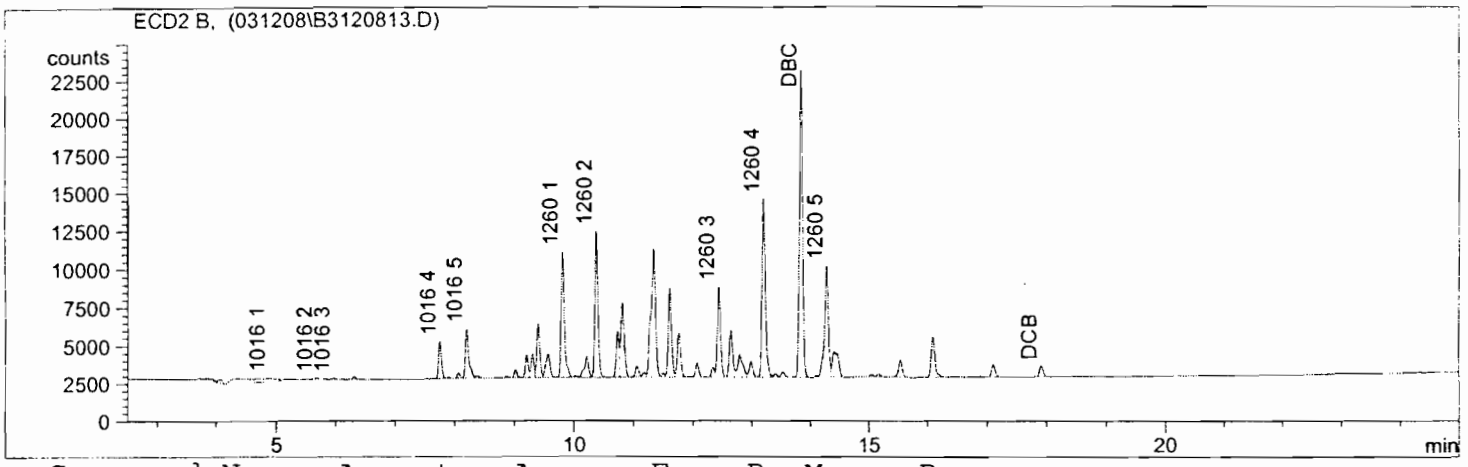
Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	23.883	2.898e3	4.897	4.881
1016 2	2.061	348.151	5.672	5.675
1016 3	0.000	0.000	5.923	0.000
1016 4	166.049	7.975e3	7.763	7.751
1016 5	235.966	1.163e4	8.210	8.200
1260 1	227.313	2.960e4	9.825	9.814
1260 2	236.811	3.235e4	10.393	10.382
1260 3	225.376	2.086e4	12.452	12.439
1260 4	239.252	4.281e4	13.211	13.199
DBC	19.712	7.372e4	13.841	13.838
1260 5	248.934	3.209e4	14.292	14.278
DCB	1.573	2.889e3	17.917	17.905

2 4014

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031208\B3120813.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: 03112414-24 MSD
Sample Info: TTI Ex. 12/5 1C ->
Acquired On: 12/8/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	43.696	5.302e3	4.897	4.882
1016 2	2.192	370.217	5.672	5.679
1016 3	5.060	407.573	5.923	5.970
1016 4	174.766	8.393e3	7.763	7.751
1016 5	262.122	1.292e4	8.210	8.200
1260 1	243.937	3.177e4	9.825	9.814
1260 2	255.386	3.489e4	10.393	10.382
1260 3	246.374	2.280e4	12.452	12.440
1260 4	261.400	4.677e4	13.211	13.199
DBC	21.018	7.861e4	13.841	13.838
1260 5	263.104	3.391e4	14.292	14.278
DCB	1.678	3.081e3	17.917	17.906

2 4015

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POLYCHLORINATED BIPHENYLS
LCS & LCS DUPLICATE SUMMARY

Lab ID No. 031125\F3112504.D
031125\F3112505.D

Date Analyzed: 11/25/03

Matrix: Water

Sample ID: LCS 11-24-03 100C

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONC (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	QC LIMITS (%)
Aroclor 1260	200	ND	243	122	46-127

Sample ID: LCSD 11-24-03 100C

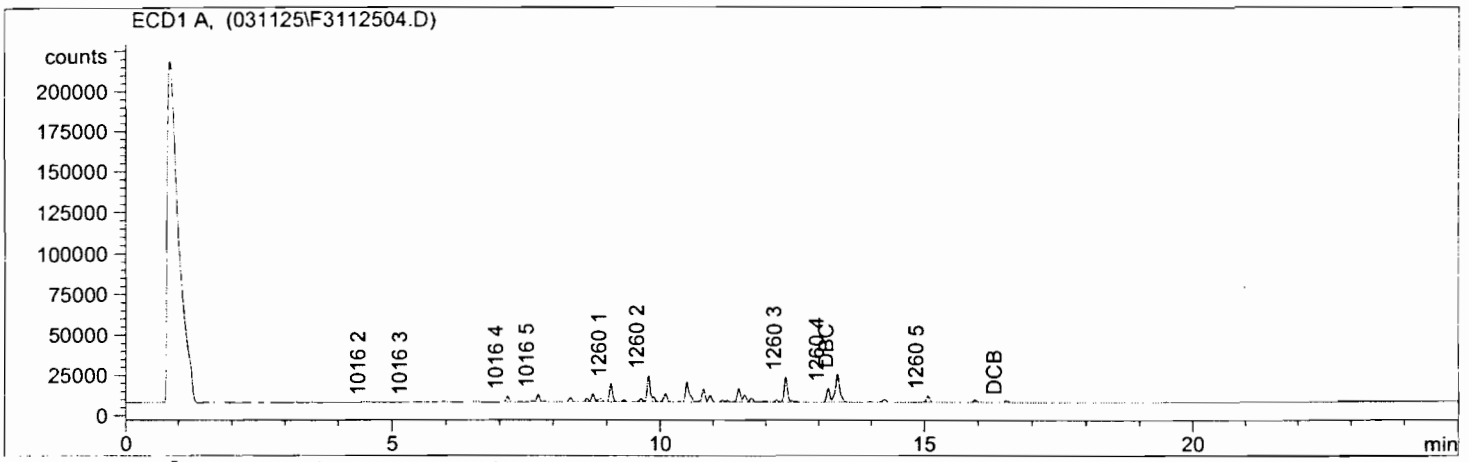
SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/L)	SAMPLE (ug/L)	SPK DUP CONC (ug/L)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
Aroclor 1260	200	ND	273	136 *	11.3	15	46-127

Calculation: spike or spike dup %Recovery
=(spike conc - original sample conc)/(spike added)
Calculation: spike/spike dup Relative Percent Difference
*=absolute value(spike dup conc - spike conc)*2/(spike dup conc + spike conc)*

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031125\F3112504.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: LCS
Sample Info:
Acquired On: 11/25/03
Analyst: DJP



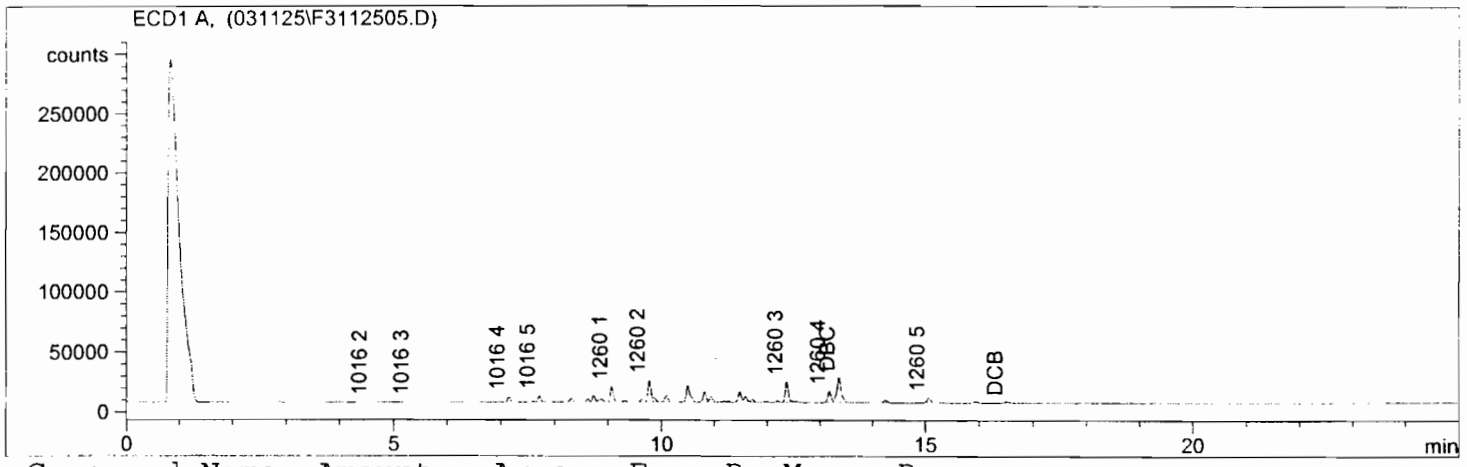
Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.416	0.000
1016 1	0.000	0.000	4.004	0.000
1016 2	0.000	416.112	4.590	4.585
1016 3	0.000	509.382	5.368	5.362
1016 4	192.371	1.323e4	7.150	7.146
1016 5	214.501	1.709e4	7.721	7.716
1260 1	240.464	4.419e4	9.078	9.074
1260 2	245.333	6.454e4	9.784	9.779
1260 3	242.401	6.668e4	12.379	12.373
1260 4	238.173	3.633e4	13.184	13.178
DBC	22.683	1.066e5	13.369	13.361
1260 5	251.051	1.751e4	15.072	15.065
DCB	0.000	5.230e3	16.529	16.522

2 4017

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031125\F3112505.D
Method Name: C:\HPCHEM\2\METHODS\PCB_FRON.M
Sample Name: LCSD
Sample Info: Ex. 11/24 100C ->
Acquired On: 11/25/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.416	0.000
1016 1	0.000	0.000	4.004	0.000
1016 2	0.000	416.826	4.590	4.586
1016 3	0.000	656.059	5.368	5.361
1016 4	230.418	1.556e4	7.150	7.145
1016 5	265.819	2.077e4	7.721	7.715
1260 1	275.942	5.009e4	9.078	9.073
1260 2	278.249	7.244e4	9.784	9.778
1260 3	269.728	7.376e4	12.379	12.371
1260 4	263.160	3.992e4	13.184	13.176
DBC	26.484	1.244e5	13.369	13.359
1260 5	275.843	1.911e4	15.072	15.064
DCB	0.000	5.683e3	16.529	16.520

2 4018

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POLYCHLORINATED BIPHENYLS
LCS & LCS DUPLICATE SUMMARY

Lab ID No. 031125\F3112504.D
031125\F3112505.D

Date Analyzed: 12/08/03

Matrix: Soil

Sample ID: LCS 12-5-03 1C

SAMPLE SPIKE COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE CONC (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	QC LIMITS (%)
Aroclor 1260	200	ND	177	88	46-127

Sample ID: LCSD 11-24-03 100C

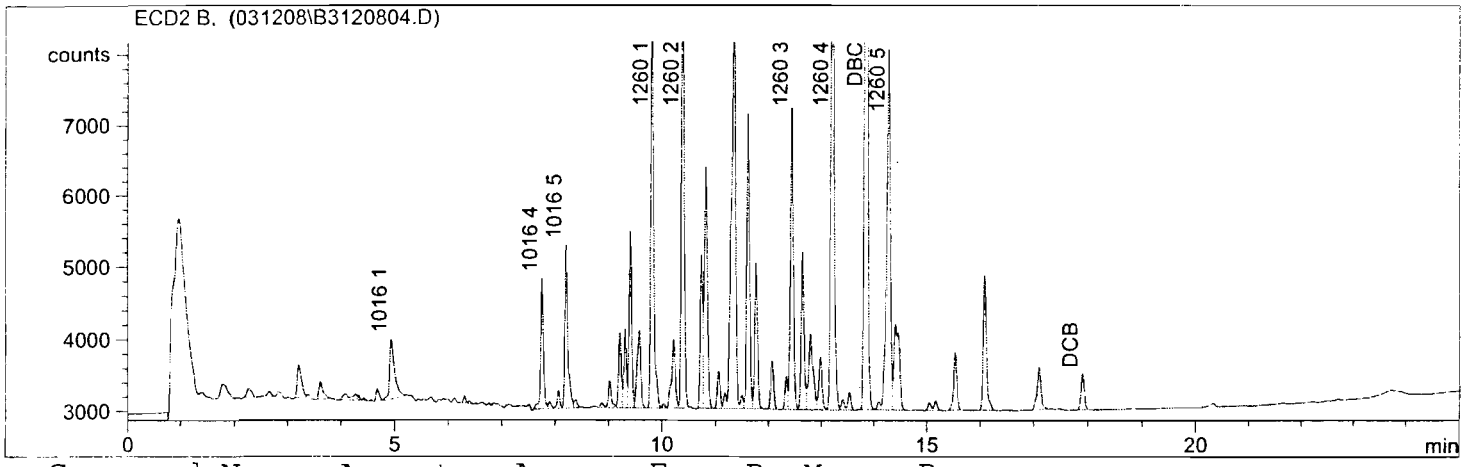
SAMPLE SPIKE DUP COMPOUND	SPIKE ADDED (ug/kg)	SAMPLE (ug/kg)	SPK DUP CONC (ug/kg)	SPIKE DUP REC (%)	RPD (%)	QC RPD (%)	QC LIMITS (%)
Aroclor 1260	200	ND	244	122	32.0	15	46-127

Calculation: spike or spike dup %Recovery
=(spike conc - original sample conc)/(spike added)
Calculation: spike/spike dup Relative Percent Difference
*=absolute value(spike dup conc - spike conc)*2/(spike dup conc + spike conc)*

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031208\B3120804.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: LCS
Sample Info: Ex. 12/5 1C ->
Acquired On: 12/8/03
Analyst: DJP



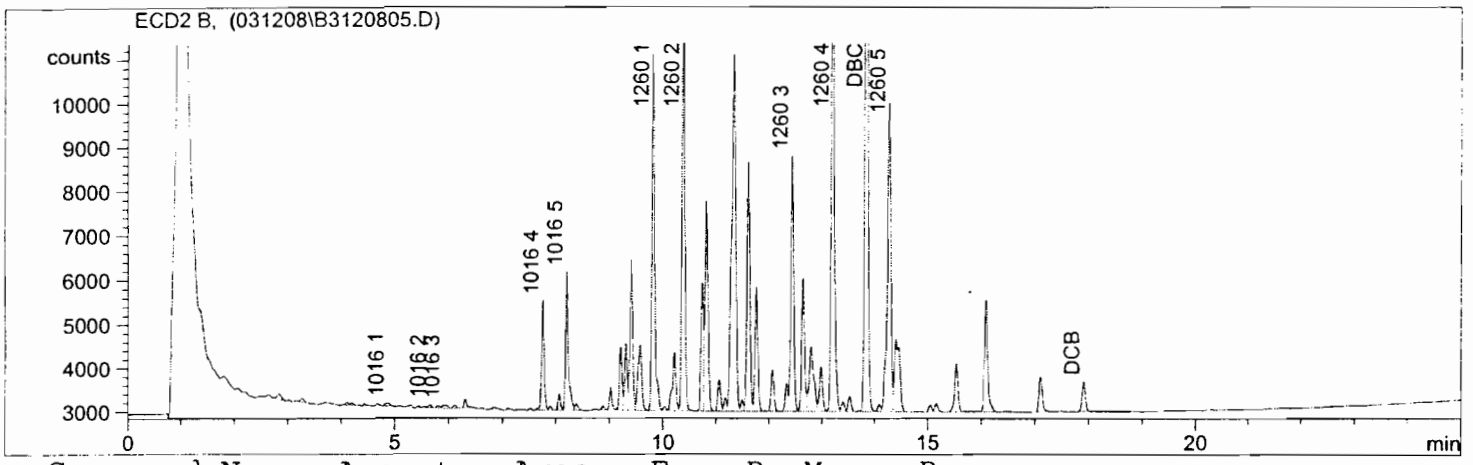
Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	45.719	5.547e3	4.897	4.935
1016 2	0.000	0.000	5.672	0.000
1016 3	0.000	0.000	5.923	0.000
16 4	138.047	6.630e3	7.763	7.751
1016 5	181.912	8.970e3	8.210	8.199
1260 1	167.740	2.185e4	9.825	9.814
1260 2	174.958	2.390e4	10.393	10.382
1260 3	174.976	1.620e4	12.452	12.440
1260 4	182.007	3.257e4	13.211	13.199
DBC	14.771	5.525e4	13.841	13.839
1260 5	183.462	2.365e4	14.292	14.279
DCB	1.180	2.166e3	17.917	17.905

2 4020

Phase Separation Science, Inc.

EPA Method 8082: Polychlorinat->

Data file: C:\HPCHEM\2\DATA\031208\B3120805.D
Method Name: C:\HPCHEM\2\METHODS\PCB_BACK.M
Sample Name: LCSD
Sample Info: Ex. 12/5 1C ->
Acquired On: 12/8/03
Analyst: DJP



Compound Name	Amount	Area	Exp. Re	Meas. R
TCMX	0.000	0.000	3.419	0.000
1016 1	3.720	451.411	4.897	4.873
1016 2	2.393	404.217	5.672	5.652
1016 3	9.100	732.999	5.923	5.912
1016 4	178.424	8.569e3	7.763	7.751
1016 5	245.030	1.208e4	8.210	8.200
1260 1	232.049	3.022e4	9.825	9.814
1260 2	242.174	3.309e4	10.393	10.381
1260 3	240.049	2.222e4	12.452	12.440
1260 4	253.489	4.536e4	13.211	13.199
DBC	18.385	6.876e4	13.841	13.839
1260 5	252.363	3.253e4	14.292	14.278
DCB	1.610	2.956e3	17.917	17.905

2 4021

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	1016/1260 100ppb	ACQMETH2	1	Sample		
2	2	DBC 50ppb	ACQMETH2	1	Sample		
3	3	MBLK	ACQMETH2	1	Sample		
4	4	LCS	ACQMETH2	1	Sample		
5	5	LCSD	ACQMETH2	1	Sample		
6	6	03112032-01	ACQMETH2	1	Sample		
7	7	03112120-10	ACQMETH2	1	Sample		
8	8	03111808-01	ACQMETH2	1	Sample		
9	9	03111809-01	ACQMETH2	1	Sample		
10	10	1016/1260 100ppb	ACQMETH2	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	1016/1260 100ppb	ACQMETH2	1	Sample		
2	52	DBC 50ppb	ACQMETH2	1	Sample		
3	53	03111928-01	ACQMETH2	1	Sample		
4	54	03112414-21	ACQMETH2	1	Sample		
5	55	03112414-27	ACQMETH2	1	Sample		
6	56	03112414-33	ACQMETH2	1	Sample		
7	57	03112414-43	ACQMETH2	1	Sample		
8	58	03112414-46	ACQMETH2	1	Sample		
9	59	03112038-01 OIL	ACQMETH2	1	Sample		
10	60	1016/1260 100ppb	ACQMETH2	1	Sample		

2 4022

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	1016/1260 100ppb	ACQMETH2	1	Sample		
2	2	DBC 50ppb	ACQMETH2	1	Sample		
3	3	03120318-01	ACQMETH2	1	Sample		
4	4	LCS	ACQMETH2	1	Sample		
5	5	LCSD	ACQMETH2	1	Sample		
6	6	MBLK	ACQMETH2	1	Sample		
7	7	03120304-01	ACQMETH2	1	Sample		
8	8	03120304-02	ACQMETH2	1	Sample		
9	9	03120304-03	ACQMETH2	1	Sample		
10	10	03120304-04	ACQMETH2	1	Sample		
11	11	03120304-05	ACQMETH2	1	Sample		
12	12	03120304-06	ACQMETH2	1	Sample		
13	13	03120304-06 MS	ACQMETH2	1	Sample		
14	14	03120304-06 MSD	ACQMETH2	1	Sample		
15	15	03120304-07	ACQMETH2	1	Sample		
16	16	03120304-08	ACQMETH2	1	Sample		
17	17	03120304-09	ACQMETH2	1	Sample		
18	18	1016/1260 100ppb	ACQMETH2	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	1016/1260 100ppb	ACQMETH2	1	Sample		
2	52	DBC 50ppb	ACQMETH2	1	Sample		
3	53	MBLK	ACQMETH2	1	Sample		
4	54	LCS	ACQMETH2	1	Sample		
5	55	LCSD	ACQMETH2	1	Sample		
6	56	03112414-17	ACQMETH2	1	Sample		
7	57	03112414-18	ACQMETH2	1	Sample		
8	58	03112414-19	ACQMETH2	1	Sample		
9	59	03112414-20	ACQMETH2	1	Sample		
10	60	03112414-23	ACQMETH2	1	Sample		
11	61	03112414-24	ACQMETH2	1	Sample		
12	62	03112414-24 MS	ACQMETH2	1	Sample		
13	63	03112414-24 MSD	ACQMETH2	1	Sample		
14	64	03112414-25	ACQMETH2	1	Sample		
15	65	03112414-26	ACQMETH2	1	Sample		
16	66	03112414-29	ACQMETH2	1	Sample		
17	67	03112414-30	ACQMETH2	1	Sample		
18	68	03112414-31	ACQMETH2	1	Sample		
19	69	03112414-32	ACQMETH2	1	Sample		

2 4023

Sequence: C:\HPCHEM\2\SEQUENCE\031208.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
20	70	03112414-42	ACQMETH2	1	Sample		
21	71	03112414-45	ACQMETH2	1	Sample		
22	72	1016/1260 100ppb	ACQMETH2	1	Sample		

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Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Gasoline Range Organics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS/LCSD Summary*

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS SYSTEM MONITORING COMPOUND (SURROGATE)

ANALYSIS: GRO **LAB CODE:** SURR

METHOD NO.: EPA 8015B

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/25/03 6:45 PM	METHOD BLANK	95	
11/26/03 7:08 AM	METHOD BLANK	96	
	Upper Limit	**150**	
	Lower Limit	**50**	
11/26/03 12:41 PM	SB-4	96	
11/26/03 1:13 AM	SB-2	95	
11/26/03 1:45 AM	SB-6	95	
11/26/03 9:49 AM	SB-32	95	
11/26/03 10:22 AM	SB-33	95	

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

2 5002

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GASOLINE RANGE ORGANICS SYSTEM MONITORING COMPOUND (SURROGATE)

ANALYSIS: GRO **LAB CODE:** SURR

METHOD NO.: EPA 8015B

Date/Time Analyzed	Sample ID	SS1 (TFT) #	Total Out
11/27/03 5:12 AM	METHOD BLANK	93	
	Upper Limit	**150**	
	Lower Limit	**50**	
11/27/03 5:46 AM	SB-1-10	95	
11/27/03 6:20 AM	SB-4-05	92	
11/27/03 6:53 AM	SB-4-10	92	
11/27/03 7:27 AM	SB-5-05	96	
11/27/03 8:01 AM	SB-5-10	95	
11/27/03 8:35 AM	SB-2-05	95	
11/27/03 9:09 AM	SB-2-10	95	
11/27/03 9:42 AM	SB-3-05	96	
11/27/03 10:16 AM	SB-3-10	95	
11/27/03 10:50 AM	SB-6-05	94	
11/27/03 11:24 AM	SB-6-10	94	

Control Limits

SS1 (TFT) = a,a,a-Trifluorotoluene 50-150

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

2 5003

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS SYSTEM MONITORING COMPOUND (SURROGATE)

ANALYSIS: GRO **LAB CODE:** SURR

METHOD NO.: EPA 8015B

Date/Time Analyzed	Sample ID	SS1 (TFT)	#	Total Out
12/2/03 11:48 AM	METHOD BLANK	91		
	Upper Limit	**150**		
	Lower Limit	**50**		
12/2/03 6:25 PM	SB-1-05	86		
12/2/03 5:10 PM	SB-32-05	94		
12/2/03 5:51 PM	SB-33-05	91		

Control Limits
50-150

SS1 (TFT) = a,a,a-Trifluorotoluene

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

2 5004

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GASOLINE RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**GRO**	**LAB CODE:**	**MBS**
METHOD No.:	**EPA 8015B**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**1\03112628.D**	**DATE/TIME ANALYZED:**	**11/27/03 05:12**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-1-10	03112414-18	1\03112629.D	11/27/03 05:46
SB-4-05	03112414-19	1\03112630.D	11/27/03 06:20
SB-4-10	03112414-20	1\03112631.D	11/27/03 06:53
SB-5-05	03112414-23	1\03112632.D	11/27/03 07:27
SB-5-10	03112414-24	1\03112633.D	11/27/03 08:01
SB-2-05	03112414-25	1\03112634.D	11/27/03 08:35
SB-2-10	03112414-26	1\03112635.D	11/27/03 09:09
SB-3-05	03112414-29	1\03112636.D	11/27/03 09:42
SB-3-10	03112414-30	1\03112637.D	11/27/03 10:16
SB-6-05	03112414-31	1\03112638.D	11/27/03 10:50
SB-6-10	03112414-32	1\03112639.D	11/27/03 11:24

2 5005

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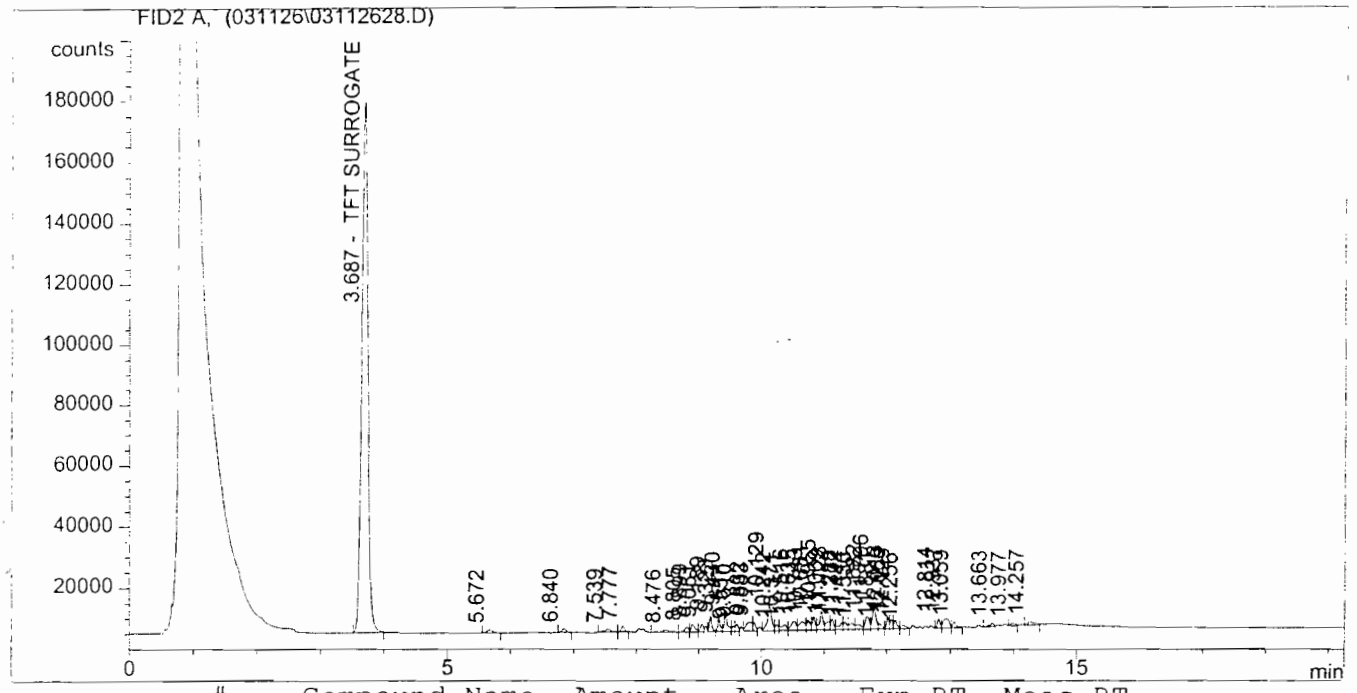
EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112628.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: BLANK
Acquired On: 11/27/03 5:12:25 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	TFT SURROGATE	93.477	1.166e6	3.699	3.687
2		0.000	6.296e3	0.000	5.672
3		0.000	5.193e3	0.000	6.840
4		0.000	8.549e3	0.000	7.539
5		0.000	6.531e3	0.000	7.777
6		0.000	7.623e3	0.000	8.476
7		0.000	7.313e3	0.000	8.805
8		0.000	1.102e4	0.000	8.899
9		0.000	8.425e3	0.000	9.051
10		0.000	1.414e4	0.000	9.189
11		0.000	1.189e4	0.000	9.323
12		0.000	2.275e4	0.000	9.430
13		0.000	5.067e3	0.000	9.557
14		0.000	7.305e3	0.000	9.610
15		0.000	2.041e4	0.000	9.832
16		0.000	8.453e3	0.000	9.883
17		0.000	3.936e4	0.000	10.129
18		0.000	7.161e3	0.000	10.242
19		0.000	1.144e4	0.000	10.371
20		0.000	1.743e4	0.000	10.516
21		0.000	1.805e4	0.000	10.635
22		0.000	1.213e4	0.000	10.743
23		0.000	1.397e4	0.000	10.831
24		0.000	2.295e4	0.000	10.955

507000
9680
= 52.38 ug/L
AK 12/1/03

2 5006

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112628.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: BLANK
Acquired On: 11/27/03 5:12:25 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.324e4	0.000	11.069
26		0.000	1.216e4	0.000	11.128
27		0.000	1.101e4	0.000	11.288
28		0.000	9.183e3	0.000	11.332
29		0.000	1.146e4	0.000	11.444
30		0.000	1.006e4	0.000	11.530
31		0.000	1.906e4	0.000	11.682
32		0.000	2.897e4	0.000	11.796
33		0.000	6.780e3	0.000	11.881
34		0.000	1.052e4	0.000	12.013
35		0.000	8.800e3	0.000	12.069
36		0.000	9.942e3	0.000	12.129
37		0.000	6.283e3	0.000	12.256
38		0.000	9.225e3	0.000	12.814
39		0.000	1.980e4	0.000	12.937
40		0.000	7.823e3	0.000	13.059
41		0.000	5.638e3	0.000	13.663
42		0.000	5.139e3	0.000	13.977
43		0.000	9.202e3	0.000	14.257
Total			1.673e6		

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GASOLINE RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**GRO**	**LAB CODE:**	**MBW**
METHOD No.:	**EPA 8015B**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03112505.D**	**DATE/TIME ANALYZED:**	**11/25/03 18:45**
MATRIX:	**Water**		

This Method Blank applies to the following samples:

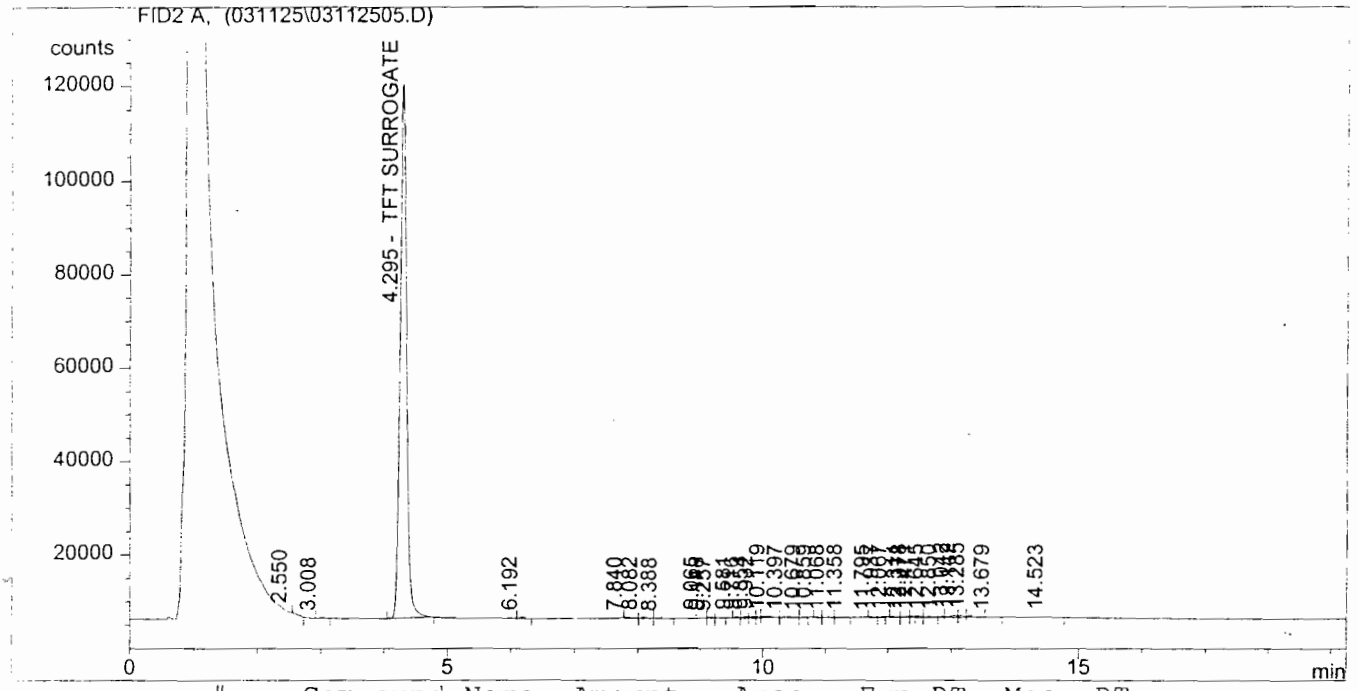
Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-4	03112414-21	2\03112516.D	11/26/03 12:41
SB-2	03112414-27	2\03112517.D	11/26/03 01:13
SB-6	03112414-33	2\03112518.D	11/26/03 01:45

2 5008

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112505.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: BLANK
Acquired On: 11/25/03 6:45:42 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.209e3	0.000	2.550
2		0.000	1.525e3	0.000	3.008
3	TFT SURROGATE	95.220	8.175e5	4.269	4.295
4		0.000	2.210e3	0.000	6.192
5		0.000	2.459e3	0.000	7.840
6		0.000	1.917e3	0.000	8.082
7		0.000	1.224e3	0.000	8.388
8		0.000	1.488e3	0.000	9.065
9		0.000	1.504e3	0.000	9.148
10		0.000	1.419e3	0.000	9.257
11		0.000	1.464e3	0.000	9.581
12		0.000	1.978e3	0.000	9.716
13		0.000	1.952e3	0.000	9.854
14		0.000	1.560e3	0.000	9.932
15		0.000	4.573e3	0.000	10.119
16		0.000	3.224e3	0.000	10.397
17		0.000	1.109e3	0.000	10.679
18		0.000	1.076e3	0.000	10.859
19		0.000	1.732e3	0.000	11.068
20		0.000	2.355e3	0.000	11.358
21		0.000	1.229e3	0.000	11.795
22		0.000	1.518e3	0.000	11.937
23		0.000	1.752e3	0.000	12.067
24		0.000	1.690e3	0.000	12.311

$\frac{61300}{6528}$ = 9.39 ug/L

AK 11/26/03

2 5009

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112505.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: BLANK
Acquired On: 11/25/03 6:45:42 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.352e3	0.000	12.378
26		0.000	1.597e3	0.000	12.471
27		0.000	2.347e3	0.000	12.645
28		0.000	1.091e3	0.000	12.850
29		0.000	3.461e3	0.000	13.042
30		0.000	2.408e3	0.000	13.142
31		0.000	4.100e3	0.000	13.285
32		0.000	1.743e3	0.000	13.679
33		0.000	1.042e3	0.000	14.523
Total			8.788e5		

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**GRO**	**LAB CODE:**	**MBW**
METHOD No.:	**EPA 8015B**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**2\03112528.D**	**DATE/TIME ANALYZED:**	**11/26/03 07:08**
MATRIX:	**Water**		

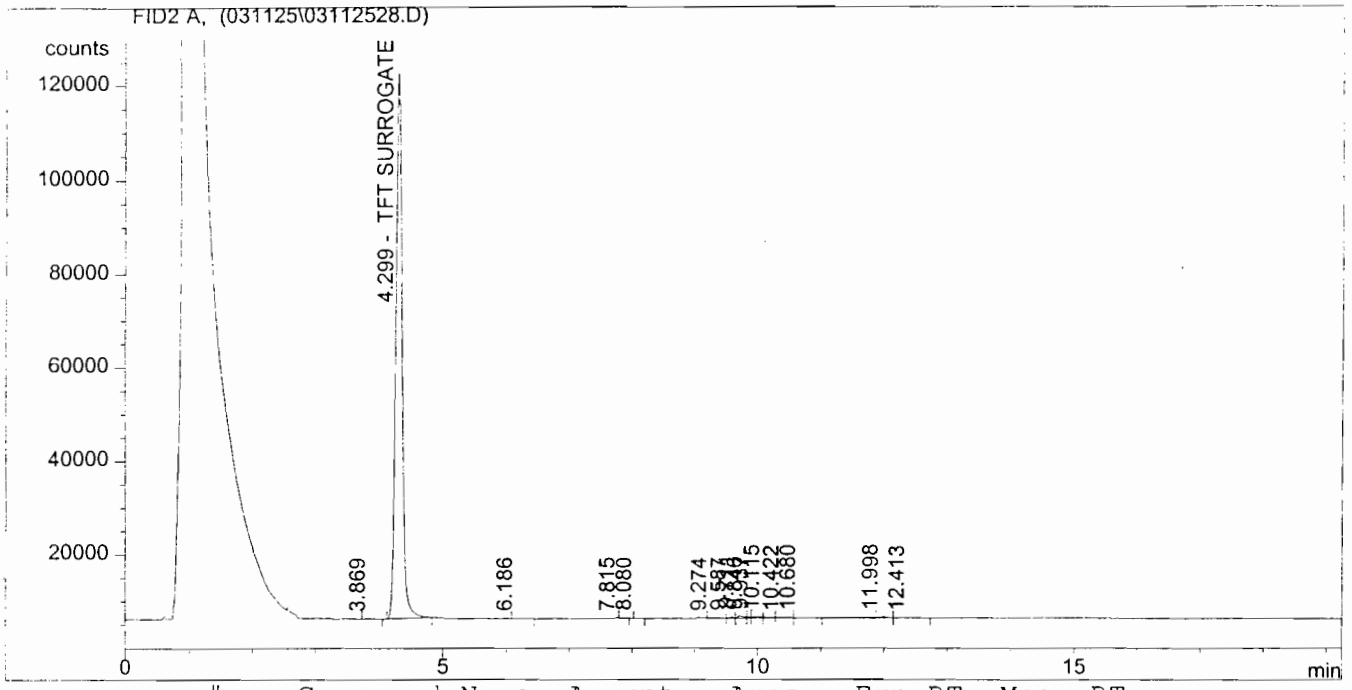
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-32	03112414-43	2\03112533.D	11/26/03 09:49
SB-33	03112414-46	2\03112534.D	11/26/03 10:22

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112528.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: BLANK
Acquired On: 11/26/03 7:08:14 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 25l



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.078e3	0.000	3.869
2	TFT SURROGATE	95.552	8.203e5	4.269	4.299
3		0.000	1.481e3	0.000	6.186
4		0.000	1.307e3	0.000	7.815
5		0.000	1.062e3	0.000	8.080
6		0.000	2.109e3	0.000	9.274
7		0.000	1.058e3	0.000	9.587
8		0.000	3.850e3	0.000	9.711
9		0.000	1.230e3	0.000	9.846
10		0.000	3.185e3	0.000	9.937
11		0.000	1.845e3	0.000	10.115
12		0.000	1.633e3	0.000	10.422
13		0.000	1.199e3	0.000	10.680
14		0.000	1.948e3	0.000	11.998
15		0.000	1.574e3	0.000	12.413
Total			8.449e5		

24600
6528
= 3.77 ug/L
AK 11/26/03

2 5012

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GASOLINE RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**GRO**	**LAB CODE:**	**MBS**
METHOD No.:	**EPA 8015B**	**LAB SAMPLE ID:**	**METHOD BLANK**
LAB FILE ID:	**1\03120205.D**	**DATE/TIME ANALYZED:**	**12/02/03 11:48**
MATRIX:	**Soil**		

This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-1-05	03112414-17	1\03120216.D	12/02/03 18:25
SB-32-05	03112414-42	1\03120214.D	12/02/03 17:10
SB-33-05	03112414-45	1\03120215.D	12/02/03 17:51

2 5013

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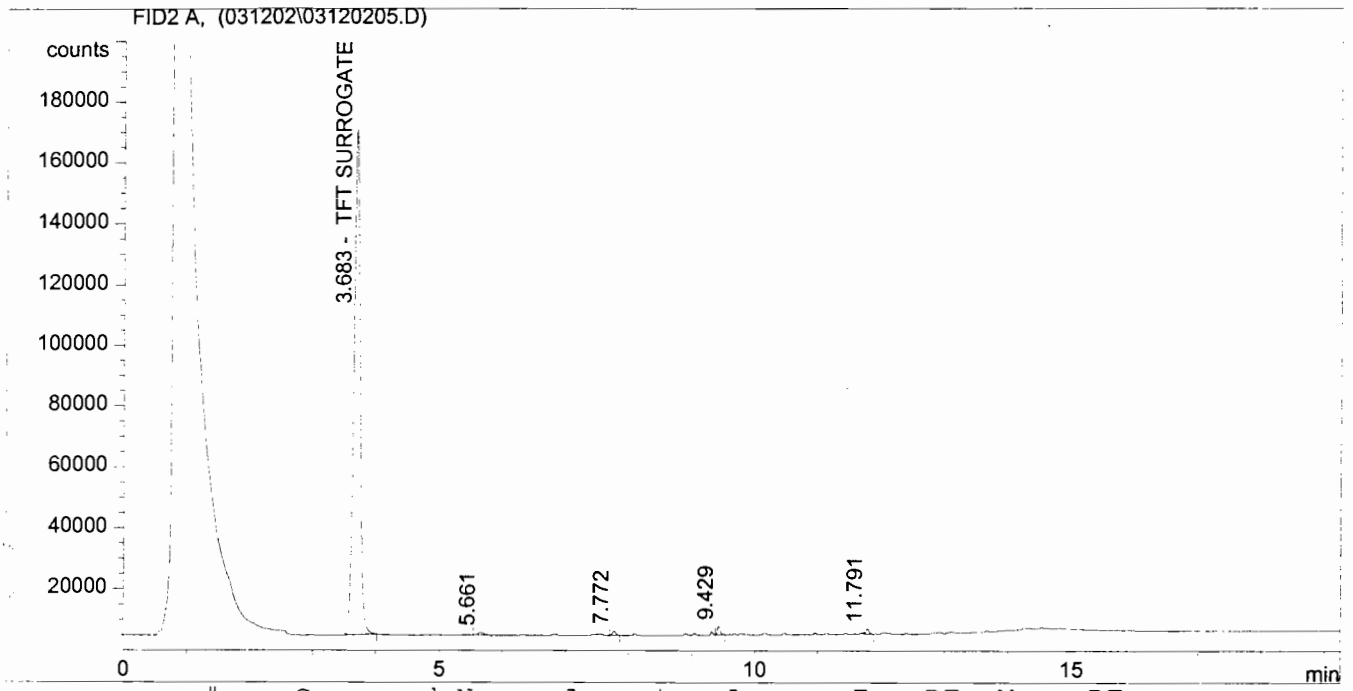
EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120205.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: BLANK
Acquired On: 12/2/03 11:48:22 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	TFT SURROGATE	91.303	1.139e6	3.699	3.683
2		0.000	5.628e3	0.000	5.661
3		0.000	5.192e3	0.000	7.772
4		0.000	8.253e3	0.000	9.429
5		0.000	5.602e3	0.000	11.791
Total			1.163e6		

24000
9600
=2.43ug/L
AK 12/3/03

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

LAB FILE ID: 1\03112624.D

DATE/TIME ANALYZED: 11/27/03 2:57

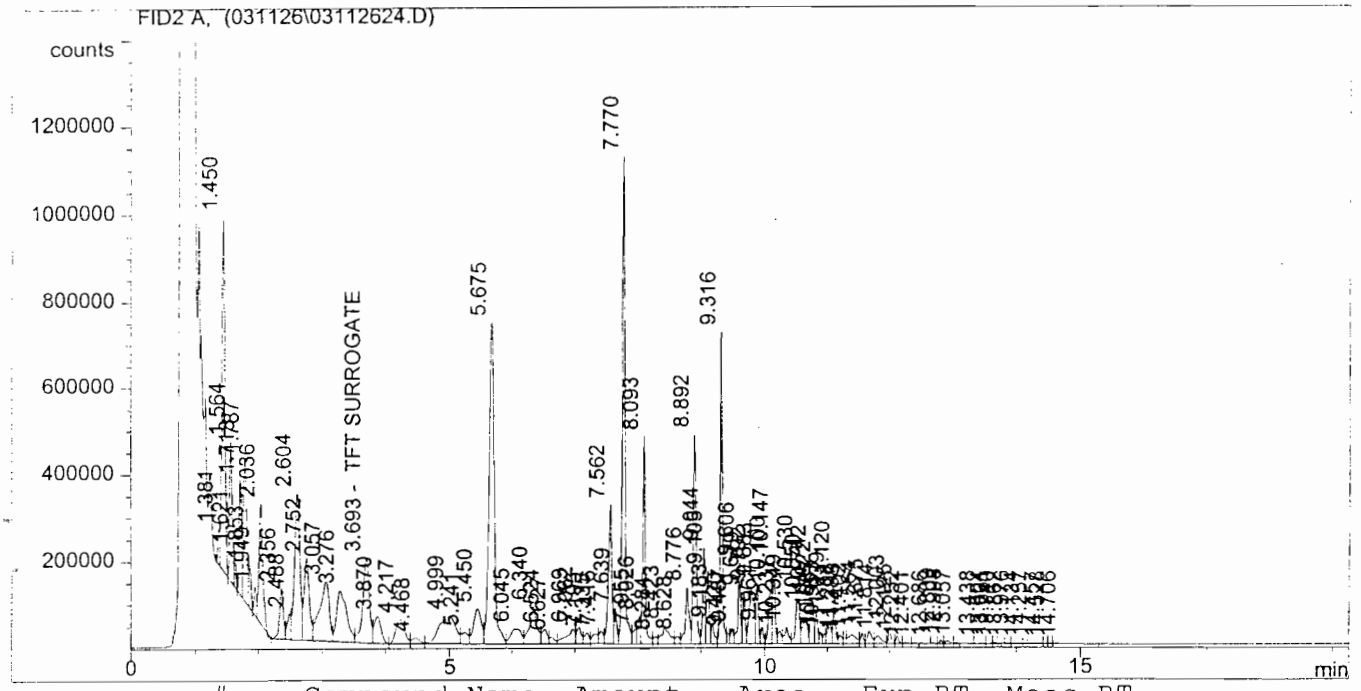
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Gasoline Range Organics	8584	9680	12.0	15

2 5015

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112624.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/27/03 2:57:06 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.476e5	0.000	1.381
2		0.000	2.650e6	0.000	1.450
3		0.000	9.373e5	0.000	1.564
4		0.000	1.637e5	0.000	1.621
5		0.000	8.106e5	0.000	1.713
6		0.000	1.263e6	0.000	1.787
7		0.000	2.408e5	0.000	1.853
8		0.000	1.791e5	0.000	1.949
9		0.000	1.103e6	0.000	2.036
10		0.000	4.987e5	0.000	2.356
11		0.000	2.424e5	0.000	2.488
12		0.000	2.000e6	0.000	2.604
13		0.000	1.094e6	0.000	2.752
14		0.000	1.455e6	0.000	3.057
15		0.000	1.295e6	0.000	3.276
16	TFT SURROGATE	113.400	1.414e6 ✓	3.699	3.693
17		0.000	4.714e5	0.000	3.870
18		0.000	5.465e5	0.000	4.217
19		0.000	1.215e5	0.000	4.468
20		0.000	1.149e6	0.000	4.999
21		0.000	2.084e5	0.000	5.241
22		0.000	7.110e5	0.000	5.450
23		0.000	4.353e6	0.000	5.675
24		0.000	4.148e5	0.000	6.045

$\frac{4.292e7}{5000} = 8584$

$\%D = \frac{9680 - 8584}{9680} \times 100 = 11.32\%$

AK 12/1/03

2 5016

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112624.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/27/03 2:57:06 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	7.100e5	0.000	6.340
26		0.000	1.964e5	0.000	6.524
27		0.000	8.640e4	0.000	6.627
28		0.000	3.285e5	0.000	6.969
29		0.000	1.971e5	0.000	7.062
30		0.000	1.360e5	0.000	7.195
31		0.000	1.434e5	0.000	7.335
32		0.000	1.427e5	0.000	7.416
33		0.000	1.246e6	0.000	7.562
34		0.000	2.617e5	0.000	7.639
35		0.000	3.477e6	0.000	7.770
36		0.000	1.406e5	0.000	7.955
37		0.000	1.801e5	0.000	8.026
38		0.000	1.396e6	0.000	8.093
39		0.000	7.408e4	0.000	8.284
40		0.000	3.469e5	0.000	8.423
41		0.000	7.351e4	0.000	8.628
42		0.000	5.497e5	0.000	8.776
43		0.000	1.602e6	0.000	8.892
44		0.000	5.695e5	0.000	9.044
45		0.000	4.429e5	0.000	9.105
46		0.000	1.598e5	0.000	9.183
47		0.000	1.781e6	0.000	9.316
48		0.000	6.681e4	0.000	9.420
49		0.000	1.055e5	0.000	9.487
50		0.000	5.255e5	0.000	9.606
51		0.000	2.955e5	0.000	9.679
52		0.000	7.016e5	0.000	9.792
53		0.000	3.630e5	0.000	9.883
54		0.000	1.152e5	0.000	9.961
55		0.000	4.478e5	0.000	10.100
56		0.000	5.167e5	0.000	10.147
57		0.000	1.168e5	0.000	10.237
58		0.000	1.789e5	0.000	10.349
59		0.000	5.204e5	0.000	10.530
60		0.000	3.931e5	0.000	10.650
61		0.000	3.437e5	0.000	10.742
62		0.000	2.008e5	0.000	10.822
63		0.000	7.221e4	0.000	10.887
64		0.000	6.277e4	0.000	10.953
65		0.000	2.108e5	0.000	11.039
66		0.000	3.173e5	0.000	11.120
67		0.000	8.089e4	0.000	11.208
68		0.000	4.001e4	0.000	11.288
69		0.000	1.886e5	0.000	11.402
70		0.000	8.001e4	0.000	11.564

2 5017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112624.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/27/03 2:57:06 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.384e5	0.000	11.675
72		0.000	1.276e5	0.000	11.814
73		0.000	1.152e5	0.000	12.003
74		0.000	5.320e4	0.000	12.125
75		0.000	1.539e4	0.000	12.252
76		0.000	8.559e3	0.000	12.401
77		0.000	6.466e3	0.000	12.686
78		0.000	2.314e4	0.000	12.809
79		0.000	3.374e4	0.000	12.908
80		0.000	1.298e4	0.000	13.057
81		0.000	1.099e4	0.000	13.438
82		0.000	6.232e3	0.000	13.604
83		0.000	1.115e4	0.000	13.661
84		0.000	5.312e3	0.000	13.740
85		0.000	9.945e3	0.000	13.862
86		0.000	1.940e4	0.000	13.976
87		0.000	5.965e3	0.000	14.134
88		0.000	2.461e4	0.000	14.257
89		0.000	5.317e3	0.000	14.457
90		0.000	5.637e3	0.000	14.528
91		0.000	3.571e4	0.000	14.706
Total			4.433e7		

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GASOLINE RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

LAB FILE ID: 2\03112502.D

DATE/TIME ANALYZED: 11/25/03 16:49

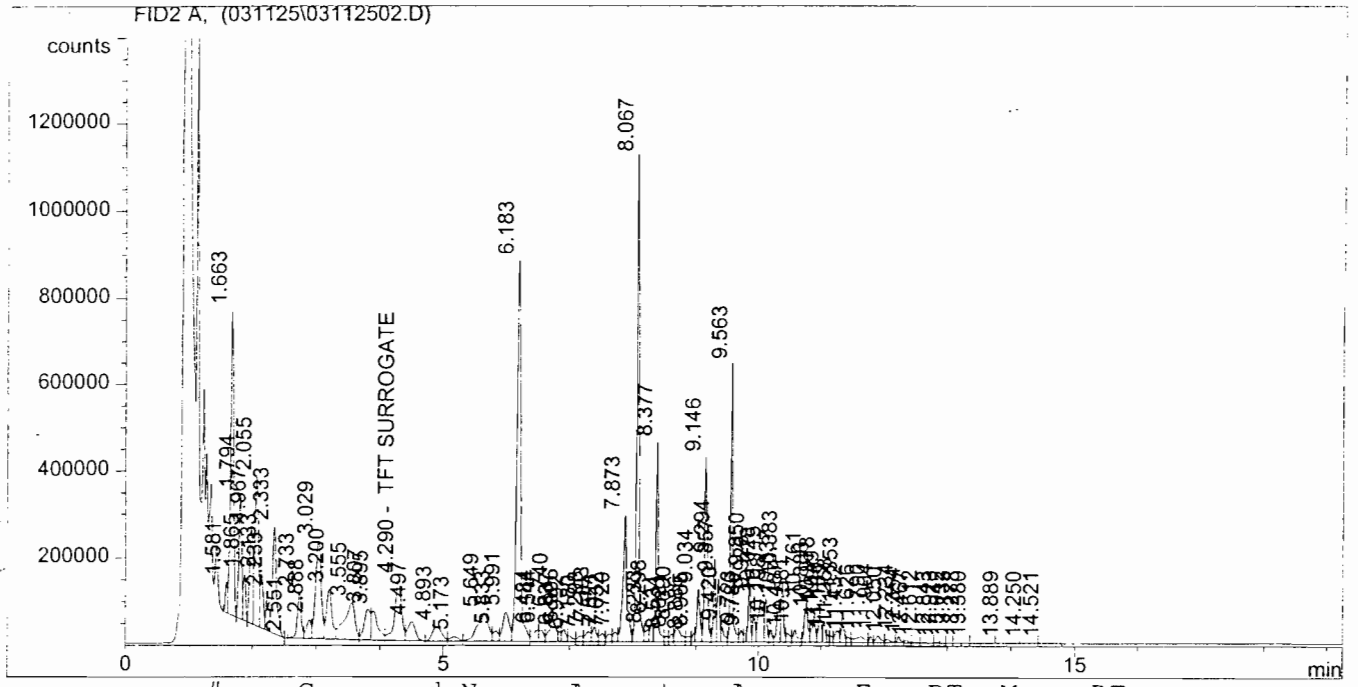
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Gasoline Range Organics	7048	6528	7.7	15

2 5019

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112502.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/25/03 4:49:59 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.568e5	0.000	1.581
2		0.000	2.425e6	0.000	1.663
3		0.000	8.753e5	0.000	1.794
4		0.000	2.876e5	0.000	1.865
5		0.000	7.352e5	0.000	1.967
6		0.000	1.412e6	0.000	2.055
7		0.000	4.423e5	0.000	2.133
8		0.000	2.876e5	0.000	2.233
9		0.000	1.111e6	0.000	2.333
10		0.000	1.509e3	0.000	2.551
11		0.000	4.640e5	0.000	2.733
12		0.000	2.205e5	0.000	2.888
13		0.000	1.386e6	0.000	3.029
14		0.000	6.970e5	0.000	3.200
15		0.000	1.001e6	0.000	3.555
16		0.000	4.735e5	0.000	3.807
17		0.000	4.929e5	0.000	3.895
18	TFT SURROGATE	122.908	1.055e6	4.269	4.290
19		0.000	3.738e5	0.000	4.497
20		0.000	3.386e5	0.000	4.893
21		0.000	9.858e4	0.000	5.173
22		0.000	7.826e5	0.000	5.649
23		0.000	1.454e5	0.000	5.833
24		0.000	4.731e5	0.000	5.991

$\frac{3.524e^7}{5000} = 7048$

%D $= \frac{7048-6528}{6528} \times 100 = 7.97\%$

AK 11/25/03

2 5020

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112502.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/25/03 4:49:59 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.847e6	0.000	6.183
26		0.000	1.633e5	0.000	6.484
27		0.000	1.278e5	0.000	6.544
28		0.000	4.132e5	0.000	6.740
29		0.000	6.536e4	0.000	6.837
30		0.000	1.250e5	0.000	6.906
31		0.000	6.999e4	0.000	6.992
32		0.000	7.600e4	0.000	7.180
33		0.000	1.406e5	0.000	7.298
34		0.000	1.490e5	0.000	7.393
35		0.000	1.001e5	0.000	7.521
36		0.000	8.958e4	0.000	7.632
37		0.000	1.026e5	0.000	7.720
38		0.000	1.261e6	0.000	7.873
39		0.000	3.132e6	0.000	8.067
40		0.000	1.146e5	0.000	8.233
41		0.000	1.486e5	0.000	8.298
42		0.000	1.215e6	0.000	8.377
43		0.000	5.107e4	0.000	8.534
44		0.000	6.513e4	0.000	8.621
45		0.000	2.302e5	0.000	8.690
46		0.000	5.761e4	0.000	8.886
47		0.000	5.539e4	0.000	8.965
48		0.000	4.186e5	0.000	9.034
49		0.000	1.361e6	0.000	9.146
50		0.000	4.642e5	0.000	9.294
51		0.000	3.709e5	0.000	9.357
52		0.000	1.204e5	0.000	9.420
53		0.000	1.536e6	0.000	9.563
54		0.000	9.092e4	0.000	9.723
55		0.000	5.160e4	0.000	9.785
56		0.000	3.879e5	0.000	9.850
57		0.000	2.542e5	0.000	9.926
58		0.000	5.174e5	0.000	10.028
59		0.000	2.665e5	0.000	10.115
60		0.000	8.662e4	0.000	10.198
61		0.000	3.507e5	0.000	10.337
62		0.000	3.473e5	0.000	10.383
63		0.000	9.435e4	0.000	10.467
64		0.000	1.349e5	0.000	10.581
65		0.000	3.648e5	0.000	10.761
66		0.000	2.419e5	0.000	10.886
67		0.000	2.374e5	0.000	10.978
68		0.000	1.324e5	0.000	11.049
69		0.000	4.399e4	0.000	11.110
70		0.000	4.385e4	0.000	11.165

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112502.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/25/03 4:49:59 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.313e5	0.000	11.268
72		0.000	2.056e5	0.000	11.353
73		0.000	5.298e4	0.000	11.432
74		0.000	1.504e5	0.000	11.626
75		0.000	4.332e4	0.000	11.790
76		0.000	8.707e4	0.000	11.904
77		0.000	4.927e4	0.000	12.050
78		0.000	4.747e4	0.000	12.234
79		0.000	2.598e4	0.000	12.354
80		0.000	7.931e3	0.000	12.467
81		0.000	6.552e3	0.000	12.612
82		0.000	2.584e3	0.000	12.843
83		0.000	2.133e3	0.000	12.923
84		0.000	3.968e3	0.000	13.042
85		0.000	5.121e3	0.000	13.133
86		0.000	3.436e3	0.000	13.278
87		0.000	1.693e3	0.000	13.380
88		0.000	1.015e3	0.000	13.889
89		0.000	2.117e3	0.000	14.250
90		0.000	1.762e3	0.000	14.521
Total			3.629e7		

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

LAB FILE ID: 2\03112525.D

DATE/TIME ANALYZED: 11/26/03 5:31

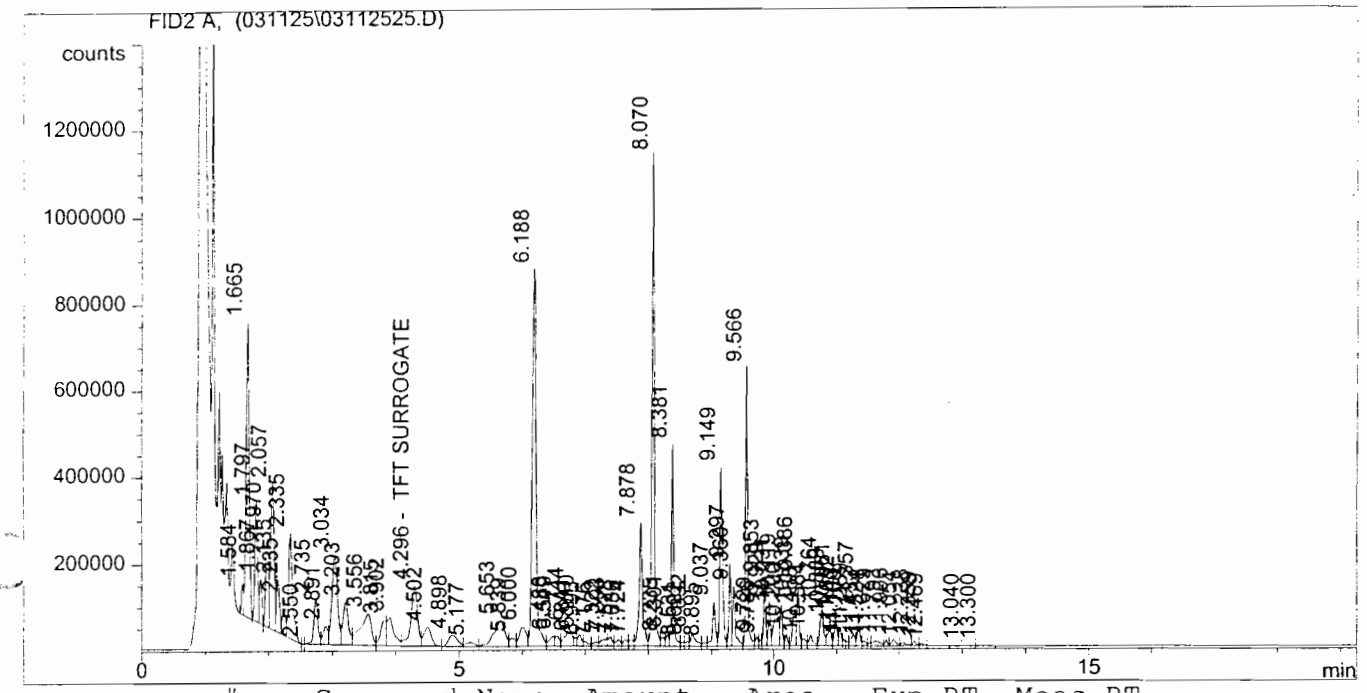
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Gasoline Range Organics	6474	6528	0.8	15

2 5023

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112525.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/26/03 5:31:23 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.581e5	0.000	1.584
2		0.000	2.344e6	0.000	1.665
3		0.000	8.345e5	0.000	1.797
4		0.000	2.779e5	0.000	1.867
5		0.000	6.546e5	0.000	1.970
6		0.000	1.379e6	0.000	2.057
7		0.000	4.359e5	0.000	2.135
8		0.000	2.783e5	0.000	2.235
9		0.000	1.087e6	0.000	2.335
10		0.000	1.368e3	0.000	2.550
11		0.000	4.623e5	0.000	2.735
12		0.000	2.220e5	0.000	2.891
13		0.000	1.269e6	0.000	3.034
14		0.000	5.934e5	0.000	3.203
15		0.000	9.144e5	0.000	3.556
16		0.000	3.641e5	0.000	3.815
17		0.000	5.108e5	0.000	3.902
18	TFT SURROGATE	122.113	1.048e6 ✓	4.269	4.296
19		0.000	3.699e5	0.000	4.502
20		0.000	2.646e5	0.000	4.898
21		0.000	9.267e4	0.000	5.177
22		0.000	7.151e5	0.000	5.653
23		0.000	1.179e5	0.000	5.839
24		0.000	3.362e5	0.000	6.000

$\frac{3.237e^7}{5000} = 6474$

%D

$= \frac{6528-6474}{6528} \times 100$

$= 0.83\%$

AK 11/26/03

2 5024

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112525.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/26/03 5:31:23 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.761e6	0.000	6.188
26		0.000	1.292e5	0.000	6.488
27		0.000	1.158e5	0.000	6.549
28		0.000	3.257e5	0.000	6.744
29		0.000	5.572e4	0.000	6.841
30		0.000	1.208e5	0.000	6.910
31		0.000	5.476e4	0.000	6.995
32		0.000	5.591e4	0.000	7.176
33		0.000	1.147e5	0.000	7.322
34		0.000	9.385e4	0.000	7.393
35		0.000	7.754e4	0.000	7.528
36		0.000	7.010e4	0.000	7.636
37		0.000	6.982e4	0.000	7.724
38		0.000	1.036e6	0.000	7.878
39		0.000	3.103e6	0.000	8.070
40		0.000	8.459e4	0.000	8.235
41		0.000	8.069e4	0.000	8.301
42		0.000	1.197e6	0.000	8.381
43		0.000	3.032e4	0.000	8.531
44		0.000	4.133e4	0.000	8.622
45		0.000	1.541e5	0.000	8.692
46		0.000	3.762e4	0.000	8.895
47		0.000	3.382e5	0.000	9.037
48		0.000	1.293e6	0.000	9.149
49		0.000	4.438e5	0.000	9.297
50		0.000	4.024e5	0.000	9.360
51		0.000	1.502e6	0.000	9.566
52		0.000	6.471e4	0.000	9.729
53		0.000	3.176e4	0.000	9.786
54		0.000	3.580e5	0.000	9.853
55		0.000	2.366e5	0.000	9.929
56		0.000	4.373e5	0.000	10.031
57		0.000	2.380e5	0.000	10.119
58		0.000	7.061e4	0.000	10.200
59		0.000	3.056e5	0.000	10.339
60		0.000	3.263e5	0.000	10.386
61		0.000	7.060e4	0.000	10.468
62		0.000	1.074e5	0.000	10.584
63		0.000	3.365e5	0.000	10.764
64		0.000	2.114e5	0.000	10.889
65		0.000	2.196e5	0.000	10.981
66		0.000	1.233e5	0.000	11.052
67		0.000	3.721e4	0.000	11.113
68		0.000	2.657e4	0.000	11.168
69		0.000	1.175e5	0.000	11.269
70		0.000	2.017e5	0.000	11.357

2 5025

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112525.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/26/03 5:31:23 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	4.425e4	0.000	11.433
72		0.000	2.207e4	0.000	11.524
73		0.000	9.373e4	0.000	11.629
74		0.000	3.749e4	0.000	11.793
75		0.000	7.261e4	0.000	11.906
76		0.000	4.033e4	0.000	12.054
77		0.000	3.568e4	0.000	12.238
78		0.000	1.896e4	0.000	12.359
79		0.000	8.137e3	0.000	12.469
80		0.000	1.221e3	0.000	13.040
81		0.000	1.190e3	0.000	13.300
Total			3.342e7		

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

LAB FILE ID: 1\03120202.D

DATE/TIME ANALYZED: 12/2/03 10:02

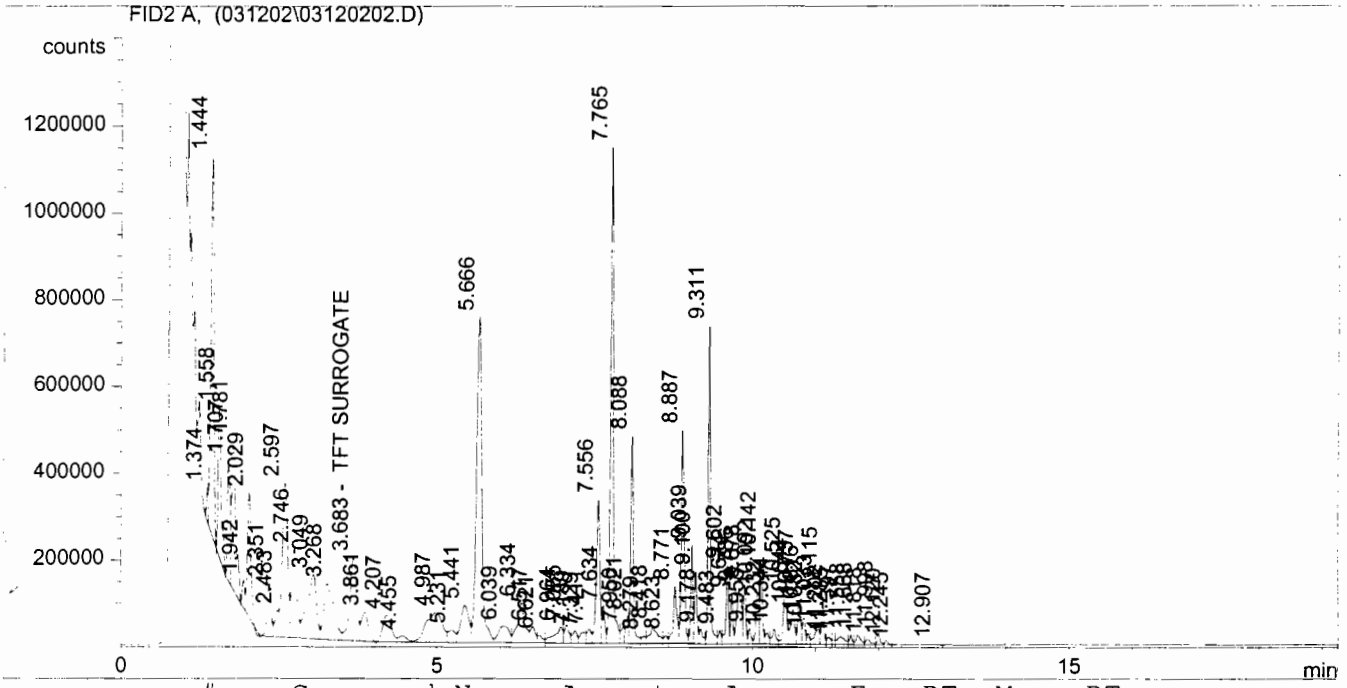
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Gasoline Range Organics	8822	9680	9.3	15

2 5027

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120202.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 10:02:37 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.400e5	0.000	1.374
2		0.000	2.843e6	0.000	1.444
3		0.000	1.171e6	0.000	1.558
4		0.000	8.657e5	0.000	1.707
5		0.000	1.571e6	0.000	1.781
6		0.000	1.668e5	0.000	1.942
7		0.000	1.142e6	0.000	2.029
8		0.000	5.286e5	0.000	2.351
9		0.000	2.499e5	0.000	2.483
10		0.000	2.138e6	0.000	2.597
11		0.000	1.189e6	0.000	2.746
12		0.000	1.590e6	0.000	3.049
13		0.000	1.426e6	0.000	3.268
14	TFT SURROGATE	113.742	1.418e6	3.699	3.683
15		0.000	5.186e5	0.000	3.861
16		0.000	5.957e5	0.000	4.207
17		0.000	1.339e5	0.000	4.455
18		0.000	1.255e6	0.000	4.987
19		0.000	2.286e5	0.000	5.231
20		0.000	7.739e5	0.000	5.441
21		0.000	4.485e6	0.000	5.666
22		0.000	4.563e5	0.000	6.039
23		0.000	7.766e5	0.000	6.334
24		0.000	2.200e5	0.000	6.517

$\frac{4.411e7}{5000} = 8822$

$\%D = \frac{9680 - 8822}{9680} \times 100 = 8.86\%$

AK 12/2/03

2 5028

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120202.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 10:02:37 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	9.807e4	0.000	6.621
26		0.000	3.597e5	0.000	6.964
27		0.000	2.133e5	0.000	7.055
28		0.000	1.522e5	0.000	7.189
29		0.000	1.604e5	0.000	7.329
30		0.000	1.556e5	0.000	7.411
31		0.000	1.301e6	0.000	7.556
32		0.000	2.813e5	0.000	7.634
33		0.000	3.591e6	0.000	7.765
34		0.000	1.550e5	0.000	7.950
35		0.000	1.840e5	0.000	8.021
36		0.000	1.425e6	0.000	8.088
37		0.000	7.817e4	0.000	8.279
38		0.000	3.541e5	0.000	8.418
39		0.000	8.097e4	0.000	8.623
40		0.000	5.550e5	0.000	8.771
41		0.000	1.653e6	0.000	8.887
42		0.000	5.850e5	0.000	9.039
43		0.000	4.515e5	0.000	9.100
44		0.000	1.342e5	0.000	9.178
45		0.000	1.862e6	0.000	9.311
46		0.000	1.006e5	0.000	9.483
47		0.000	5.020e5	0.000	9.602
48		0.000	2.870e5	0.000	9.674
49		0.000	6.920e5	0.000	9.786
50		0.000	3.575e5	0.000	9.878
51		0.000	1.090e5	0.000	9.955
52		0.000	4.343e5	0.000	10.092
53		0.000	4.867e5	0.000	10.142
54		0.000	1.044e5	0.000	10.232
55		0.000	1.531e5	0.000	10.344
56		0.000	5.032e5	0.000	10.525
57		0.000	3.630e5	0.000	10.644
58		0.000	3.224e5	0.000	10.737
59		0.000	1.810e5	0.000	10.816
60		0.000	6.954e4	0.000	10.882
61		0.000	2.255e5	0.000	11.033
62		0.000	2.861e5	0.000	11.115
63		0.000	7.525e4	0.000	11.202
64		0.000	2.931e4	0.000	11.285
65		0.000	1.567e5	0.000	11.397
66		0.000	6.876e4	0.000	11.558
67		0.000	1.145e5	0.000	11.668
68		0.000	7.072e4	0.000	11.818
69		0.000	7.571e4	0.000	11.998
70		0.000	3.396e4	0.000	12.120

2 5029

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120202.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 10:02:37 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	6.121e3	0.000	12.245
72		0.000	5.732e3	0.000	12.907
Total			4.553e7		

2 5030

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS
MATRIX SPIKE SUMMARY

LAB FILE ID's: 2\03112521.D
2\03112522.D

DATE ANALYZED: 11/26/03

MATRIX: Water

Sample ID: 03112414-21 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/L	SAMPLE CONC ug/L	SPIKE CONC ug/L	SPIKE REC (%)	#	QC LIMITS (%)
Gasoline Range Organics	5000	110	4239	83		50-150

Sample ID: 03112414-21 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/L	SAMPLE CONC ug/L	SPIKE CONC ug/L	SPIKE REC (%)	#	RPD (%)	QC RPD (%)	QC LIMITS (%)
Gasoline Range Organics	5000	110	4225	82		0.3	40	50-150

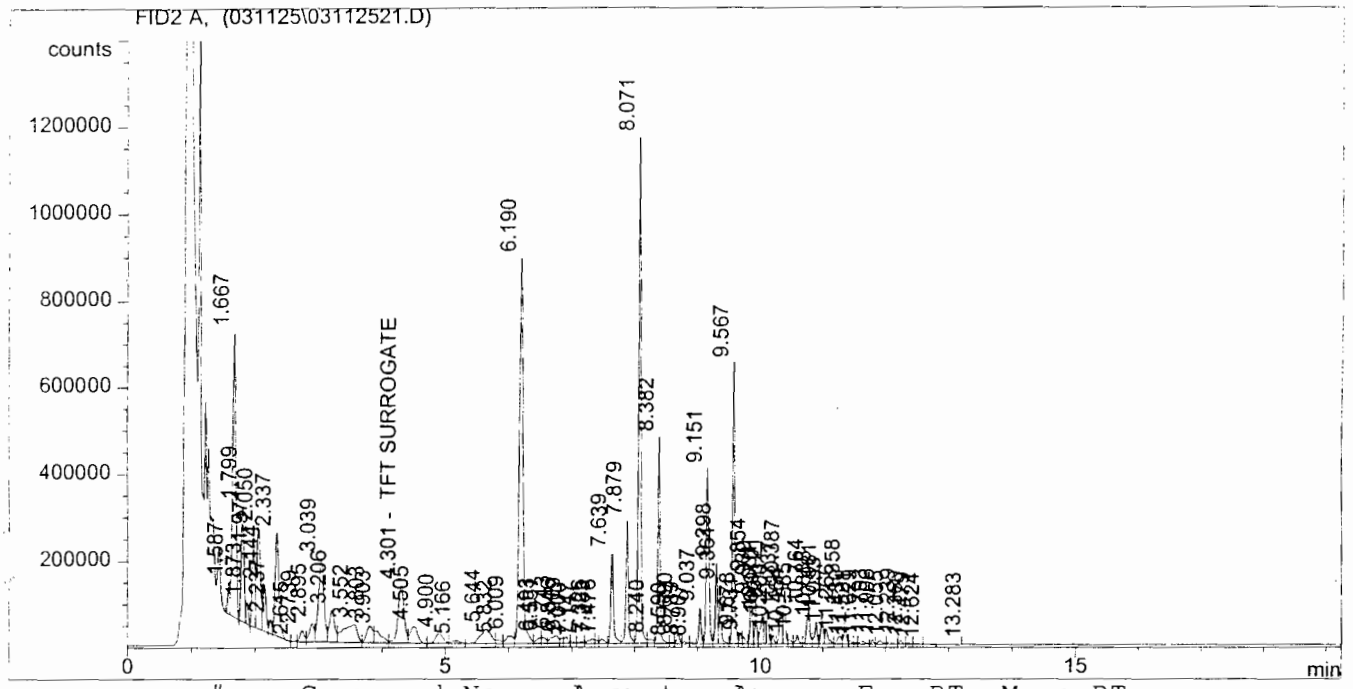
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
ND = not detected

2 5031

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112521.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03112414-21 MS
Acquired On: 11/26/03 3:22:17 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.635e5	0.000	1.587
2		0.000	2.301e6	0.000	1.667
3		0.000	8.108e5	0.000	1.799
4		0.000	1.218e5	0.000	1.873
5		0.000	5.894e5	0.000	1.971
6		0.000	9.699e5	0.000	2.050
7		0.000	3.972e5	0.000	2.144
8		0.000	9.925e4	0.000	2.237
9		0.000	9.656e5	0.000	2.337
10		0.000	9.040e3	0.000	2.615
11		0.000	1.191e5	0.000	2.739
12		0.000	2.227e5	0.000	2.895
13		0.000	1.135e6	0.000	3.039
14		0.000	4.279e5	0.000	3.206
15		0.000	6.592e5	0.000	3.552
16		0.000	2.669e5	0.000	3.803
17		0.000	2.361e5	0.000	3.903
18	TFT SURROGATE	105.332	9.043e5	4.269	4.301
19		0.000	3.280e5	0.000	4.505
20		0.000	1.965e5	0.000	4.900
21		0.000	6.051e4	0.000	5.166
22		0.000	3.891e5	0.000	5.644
23		0.000	4.969e4	0.000	5.832
24		0.000	1.397e5	0.000	6.009

$\frac{2.767e7}{6528}$
= 4238.66 ug/L

84.77%
Recovery
AK 11/26/03

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112521.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03112414-21 MS
Acquired On: 11/26/03 3:22:17 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.699e6	0.000	6.190
26		0.000	6.653e4	0.000	6.493
27		0.000	6.794e4	0.000	6.551
28		0.000	1.544e5	0.000	6.743
29		0.000	4.295e4	0.000	6.846
30		0.000	6.330e4	0.000	6.909
31		0.000	1.589e4	0.000	7.000
32		0.000	1.852e4	0.000	7.147
33		0.000	7.008e4	0.000	7.326
34		0.000	2.554e4	0.000	7.383
35		0.000	5.212e4	0.000	7.476
36		0.000	6.175e5	0.000	7.639
37		0.000	8.276e5	0.000	7.879
38		0.000	3.115e6	0.000	8.071
39		0.000	6.208e4	0.000	8.240
40		0.000	1.198e6	0.000	8.382
41		0.000	1.297e4	0.000	8.590
42		0.000	7.803e4	0.000	8.690
43		0.000	2.403e4	0.000	8.789
44		0.000	1.092e4	0.000	8.907
45		0.000	2.002e5	0.000	9.037
46		0.000	1.235e6	0.000	9.151
47		0.000	4.261e5	0.000	9.298
48		0.000	3.286e5	0.000	9.361
49		0.000	1.482e6	0.000	9.567
50		0.000	6.856e4	0.000	9.678
51		0.000	5.316e4	0.000	9.731
52		0.000	3.357e5	0.000	9.854
53		0.000	2.258e5	0.000	9.930
54		0.000	2.149e5	0.000	10.031
55		0.000	1.071e5	0.000	10.070
56		0.000	1.923e5	0.000	10.121
57		0.000	4.987e4	0.000	10.200
58		0.000	2.469e5	0.000	10.337
59		0.000	2.957e5	0.000	10.387
60		0.000	3.627e4	0.000	10.464
61		0.000	6.649e4	0.000	10.585
62		0.000	2.789e5	0.000	10.764
63		0.000	1.497e5	0.000	10.888
64		0.000	1.842e5	0.000	10.981
65		0.000	1.237e5	0.000	11.053
66		0.000	8.766e4	0.000	11.266
67		0.000	1.911e5	0.000	11.358
68		0.000	2.291e4	0.000	11.430
69		0.000	9.744e3	0.000	11.521
70		0.000	3.852e4	0.000	11.629

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

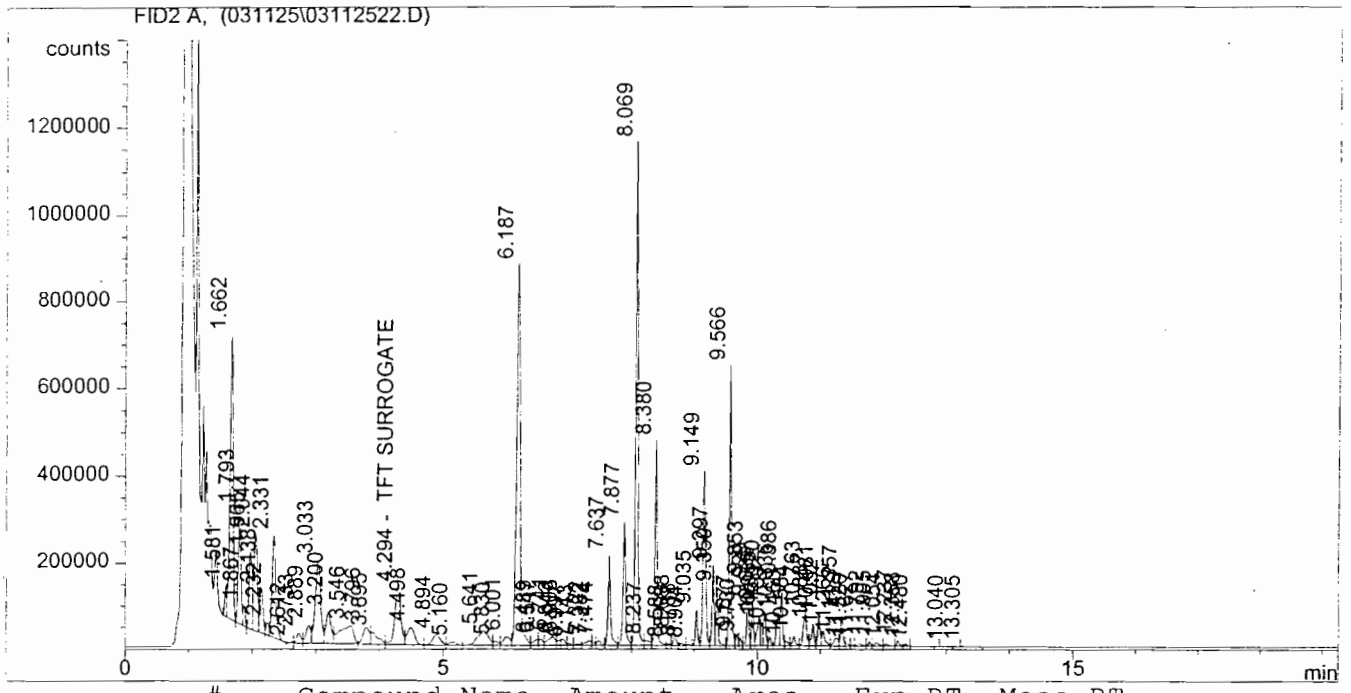
Data File Name: C:\HPCHEM\2\DATA\031125\03112521.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03112414-21 MS
Acquired On: 11/26/03 3:22:17 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	2.462e4	0.000	11.793
72		0.000	4.131e4	0.000	11.906
73		0.000	2.227e4	0.000	12.055
74		0.000	2.708e4	0.000	12.239
75		0.000	1.359e4	0.000	12.360
76		0.000	4.266e3	0.000	12.479
77		0.000	1.157e3	0.000	12.624
78		0.000	1.343e3	0.000	13.283
Total			2.857e7		

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112522.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03112414-21 MSD
Acquired On: 11/26/03 3:54:35 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.599e5	0.000	1.581
2		0.000	2.284e6	0.000	1.662
3		0.000	8.038e5	0.000	1.793
4		0.000	1.144e5	0.000	1.867
5		0.000	5.893e5	0.000	1.965
6		0.000	9.322e5	0.000	2.044
7		0.000	3.910e5	0.000	2.138
8		0.000	9.197e4	0.000	2.232
9		0.000	9.700e5	0.000	2.331
10		0.000	7.832e3	0.000	2.612
11		0.000	1.071e5	0.000	2.733
12		0.000	2.203e5	0.000	2.889
13		0.000	1.137e6	0.000	3.033
14		0.000	4.318e5	0.000	3.200
15		0.000	6.618e5	0.000	3.546
16		0.000	2.707e5	0.000	3.796
17		0.000	2.194e5	0.000	3.895
18	TFT SURROGATE	104.331	8.957e5 ✓	4.269	4.294
19		0.000	3.286e5	0.000	4.498
20		0.000	2.023e5	0.000	4.894
21		0.000	6.001e4	0.000	5.160
22		0.000	3.892e5	0.000	5.641
23		0.000	5.088e4	0.000	5.830
24		0.000	1.435e5	0.000	6.001

$\frac{2.758e7}{6528}$
= 4224.88 ug/L
84.50%
Recovery.
AK 11/26/03

2 5035

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112522.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03112414-21 MSD
Acquired On: 11/26/03 3:54:35 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.683e6	0.000	6.187
26		0.000	6.789e4	0.000	6.489
27		0.000	6.774e4	0.000	6.547
28		0.000	1.553e5	0.000	6.741
29		0.000	4.376e4	0.000	6.843
30		0.000	6.077e4	0.000	6.906
31		0.000	1.692e4	0.000	6.997
32		0.000	1.916e4	0.000	7.143
33		0.000	7.085e4	0.000	7.322
34		0.000	2.791e4	0.000	7.382
35		0.000	5.450e4	0.000	7.474
36		0.000	6.178e5	0.000	7.637
37		0.000	8.326e5	0.000	7.877
38		0.000	3.092e6	0.000	8.069
39		0.000	6.750e4	0.000	8.237
40		0.000	1.192e6	0.000	8.380
41		0.000	1.411e4	0.000	8.588
42		0.000	8.081e4	0.000	8.688
43		0.000	2.572e4	0.000	8.788
44		0.000	1.234e4	0.000	8.904
45		0.000	2.030e5	0.000	9.035
46		0.000	1.231e6	0.000	9.149
47		0.000	4.237e5	0.000	9.297
48		0.000	3.308e5	0.000	9.359
49		0.000	1.473e6	0.000	9.566
50		0.000	6.977e4	0.000	9.677
51		0.000	4.493e4	0.000	9.730
52		0.000	3.451e5	0.000	9.853
53		0.000	2.255e5	0.000	9.929
54		0.000	2.165e5	0.000	10.030
55		0.000	1.074e5	0.000	10.069
56		0.000	1.924e5	0.000	10.120
57		0.000	5.034e4	0.000	10.199
58		0.000	2.491e5	0.000	10.336
59		0.000	2.959e5	0.000	10.386
60		0.000	3.695e4	0.000	10.463
61		0.000	6.884e4	0.000	10.584
62		0.000	2.810e5	0.000	10.763
63		0.000	1.512e5	0.000	10.887
64		0.000	1.860e5	0.000	10.981
65		0.000	1.254e5	0.000	11.052
66		0.000	8.991e4	0.000	11.266
67		0.000	1.778e5	0.000	11.357
68		0.000	2.352e4	0.000	11.429
69		0.000	1.001e4	0.000	11.520
70		0.000	3.978e4	0.000	11.627

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112522.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03112414-21 MSD
Acquired On: 11/26/03 3:54:35 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	2.596e4	0.000	11.792
72		0.000	4.404e4	0.000	11.905
73		0.000	2.436e4	0.000	12.054
74		0.000	3.656e4	0.000	12.237
75		0.000	1.864e4	0.000	12.358
76		0.000	8.392e3	0.000	12.480
77		0.000	1.620e3	0.000	13.040
78		0.000	2.092e3	0.000	13.305
Total			2.848e7		

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS
MATRIX SPIKE SUMMARY

LAB FILE ID's: 1\03112647.D
1\03112648.D

DATE ANALYZED: 11/27/03

MATRIX: Soil

Sample ID: 03112414-18 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/kg	SAMPLE CONC ug/kg	SPIKE CONC ug/kg	SPIKE REC (%) #	QC LIMITS (%)
Gasoline Range Organics	5000	45.1	3879	77	50-150

Sample ID: 03112414-18 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/kg	SAMPLE CONC ug/kg	SPIKE CONC ug/kg	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Gasoline Range Organics	5000	45.1	3902	77	0.6	40	50-150

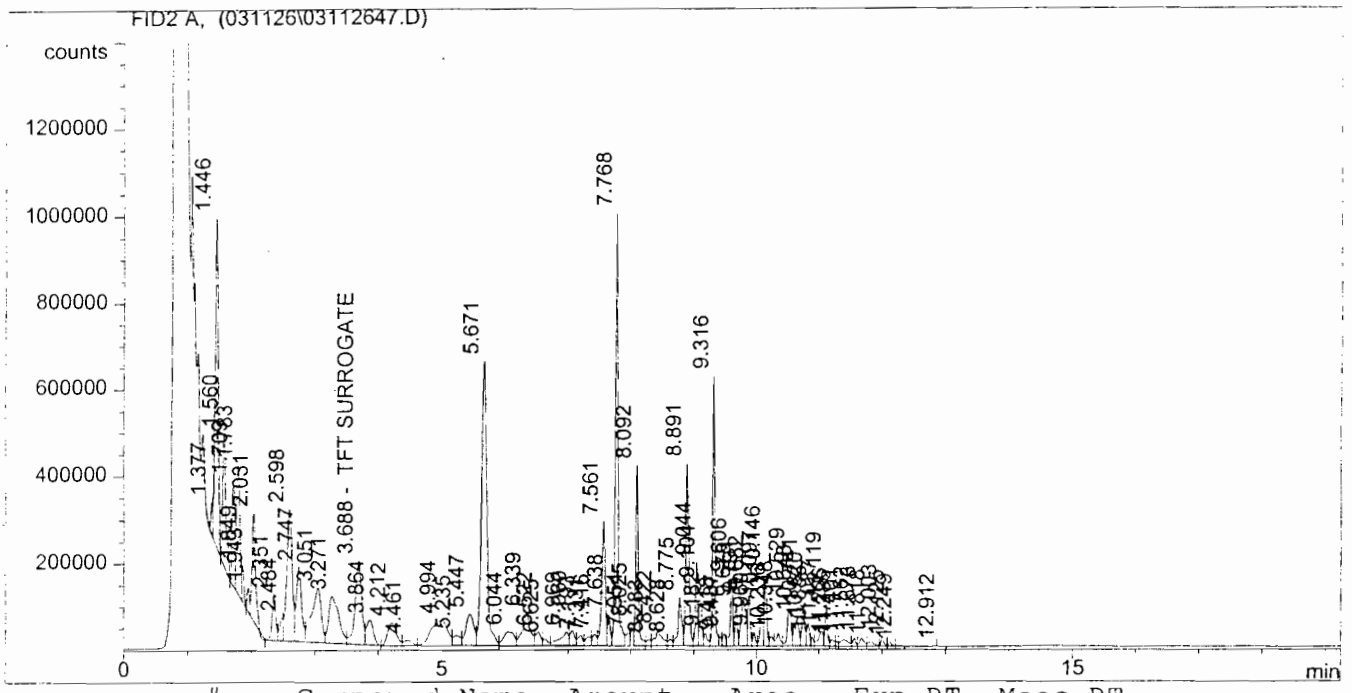
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
ND = not detected

2 5038

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112647.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: 03112414-18 MS
Acquired On: 11/27/03 3:54:47 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.02g
GRO MS:5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.362e5	0.000	1.377
2		0.000	2.434e6	0.000	1.446
3		0.000	1.032e6	0.000	1.560
4		0.000	7.451e5	0.000	1.709
5		0.000	1.138e6	0.000	1.783
6		0.000	1.936e5	0.000	1.849
7		0.000	1.390e5	0.000	1.943
8		0.000	9.604e5	0.000	2.031
9		0.000	4.498e5	0.000	2.351
10		0.000	2.194e5	0.000	2.484
11		0.000	1.822e6	0.000	2.598
12		0.000	9.994e5	0.000	2.747
13		0.000	1.337e6	0.000	3.051
14		0.000	1.196e6	0.000	3.271
15	TFT SURROGATE	111.894	1.395e6	3.699	3.688
16		0.000	4.376e5	0.000	3.864
17		0.000	5.027e5	0.000	4.212
18		0.000	1.130e5	0.000	4.461
19		0.000	1.051e6	0.000	4.994
20		0.000	1.893e5	0.000	5.235
21		0.000	6.479e5	0.000	5.447
22		0.000	3.885e6	0.000	5.671
23		0.000	3.833e5	0.000	6.044
24		0.000	6.487e5	0.000	6.339

$\frac{3.755e7}{9680}$ = 3879.13 ng/kg

$\frac{3879.13 - 45.14}{5000}$ x100 = 76.68% Recovery

AK 12/1/03

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112647.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: 03112414-18 MS
Acquired On: 11/27/03 3:54:47 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.02g
GRO MS:5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.848e5	0.000	6.522
26		0.000	7.952e4	0.000	6.625
27		0.000	3.016e5	0.000	6.969
28		0.000	1.774e5	0.000	7.060
29		0.000	1.255e5	0.000	7.193
30		0.000	1.298e5	0.000	7.331
31		0.000	1.305e5	0.000	7.416
32		0.000	1.115e6	0.000	7.561
33		0.000	2.313e5	0.000	7.638
34		0.000	3.095e6	0.000	7.768
35		0.000	1.262e5	0.000	7.954
36		0.000	1.506e5	0.000	8.025
37		0.000	1.229e6	0.000	8.092
38		0.000	6.573e4	0.000	8.283
39		0.000	2.987e5	0.000	8.422
40		0.000	6.530e4	0.000	8.628
41		0.000	4.720e5	0.000	8.775
42		0.000	1.397e6	0.000	8.891
43		0.000	4.963e5	0.000	9.044
44		0.000	3.828e5	0.000	9.104
45		0.000	1.134e5	0.000	9.182
46		0.000	1.528e6	0.000	9.316
47		0.000	5.524e4	0.000	9.418
48		0.000	8.720e4	0.000	9.487
49		0.000	4.339e5	0.000	9.606
50		0.000	2.479e5	0.000	9.678
51		0.000	5.787e5	0.000	9.791
52		0.000	3.036e5	0.000	9.882
53		0.000	9.359e4	0.000	9.960
54		0.000	3.622e5	0.000	10.097
55		0.000	4.109e5	0.000	10.146
56		0.000	9.078e4	0.000	10.236
57		0.000	1.350e5	0.000	10.348
58		0.000	4.114e5	0.000	10.529
59		0.000	3.018e5	0.000	10.648
60		0.000	2.688e5	0.000	10.741
61		0.000	1.506e5	0.000	10.820
62		0.000	5.502e4	0.000	10.886
63		0.000	1.908e5	0.000	11.037
64		0.000	2.613e5	0.000	11.119
65		0.000	6.393e4	0.000	11.206
66		0.000	2.562e4	0.000	11.286
67		0.000	1.282e5	0.000	11.401
68		0.000	5.710e4	0.000	11.562
69		0.000	9.049e4	0.000	11.673
70		0.000	7.298e4	0.000	11.818

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

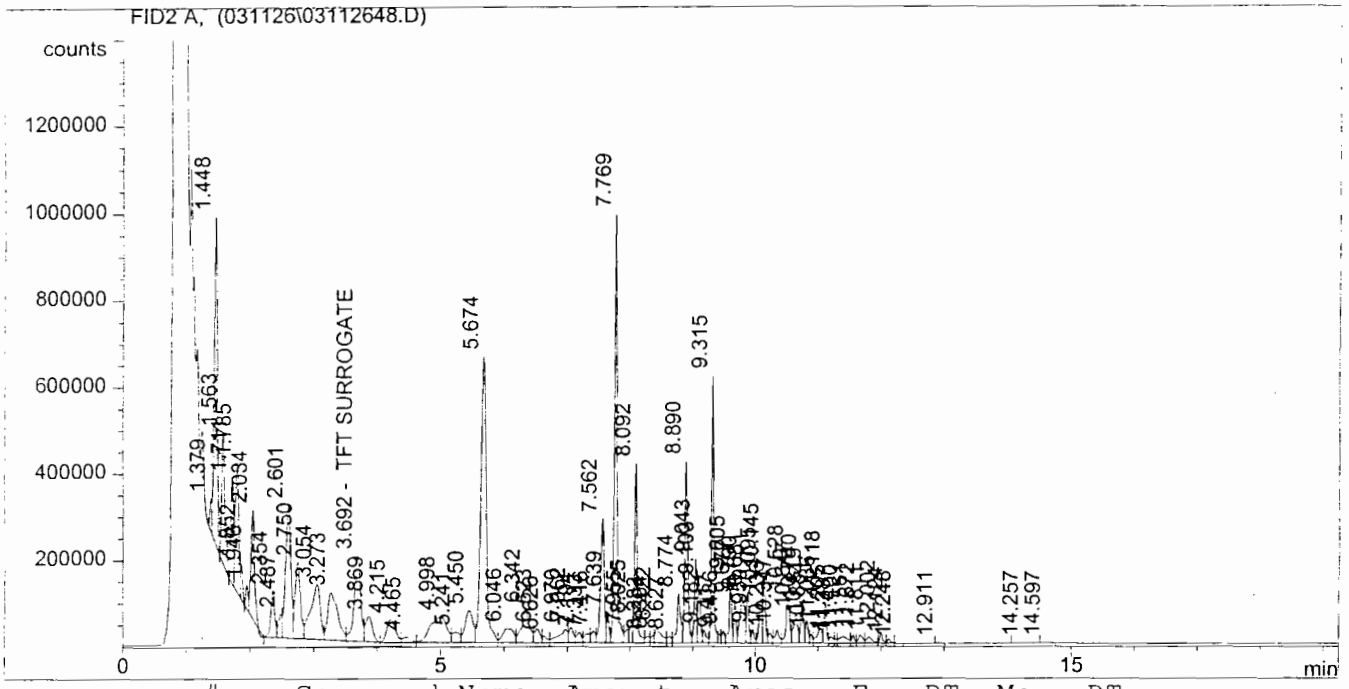
Data File Name: C:\HPCHEM\1\DATA\031126\03112647.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: 03112414-18 MS
Acquired On: 11/27/03 3:54:47 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.02g
GRO MS:5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	6.741e4	0.000	12.003
72		0.000	3.154e4	0.000	12.125
73		0.000	6.467e3	0.000	12.249
74		0.000	8.667e3	0.000	12.912
Total			3.894e7		

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112648.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: 03112414-18 MSD
Acquired On: 11/27/03 4:28:37 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.04g
GRO MSD:5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.382e5	0.000	1.379
2		0.000	2.444e6	0.000	1.448
3		0.000	1.028e6	0.000	1.563
4		0.000	7.502e5	0.000	1.711
5		0.000	1.140e6	0.000	1.785
6		0.000	1.884e5	0.000	1.852
7		0.000	1.413e5	0.000	1.946
8		0.000	9.667e5	0.000	2.034
9		0.000	4.598e5	0.000	2.354
10		0.000	2.229e5	0.000	2.487
11		0.000	1.839e6	0.000	2.601
12		0.000	1.007e6	0.000	2.750
13		0.000	1.356e6	0.000	3.054
14		0.000	1.210e6	0.000	3.273
15	TFT SURROGATE	113.098	1.410e6 ✓	3.699	3.692
16		0.000	4.411e5	0.000	3.869
17		0.000	5.039e5	0.000	4.215
18		0.000	1.140e5	0.000	4.465
19		0.000	1.059e6	0.000	4.998
20		0.000	1.908e5	0.000	5.241
21		0.000	6.503e5	0.000	5.450
22		0.000	3.884e6	0.000	5.674
23		0.000	3.851e5	0.000	6.046
24		0.000	6.534e5	0.000	6.342

$\frac{3.777e^7}{9680}$ = 3901.86 ug/kg

$\frac{3901.86 - 45.14}{5000}$ x100 = 77.13% Recovery

AK 12/1/03

 2 5042

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112648.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: 03112414-18 MSD
Acquired On: 11/27/03 4:28:37 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.04g
GRO MSD:5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.840e5	0.000	6.523
26		0.000	8.020e4	0.000	6.626
27		0.000	3.033e5	0.000	6.970
28		0.000	1.780e5	0.000	7.062
29		0.000	1.257e5	0.000	7.194
30		0.000	1.302e5	0.000	7.333
31		0.000	1.302e5	0.000	7.416
32		0.000	1.114e6	0.000	7.562
33		0.000	2.324e5	0.000	7.639
34		0.000	3.090e6	0.000	7.769
35		0.000	1.274e5	0.000	7.955
36		0.000	1.513e5	0.000	8.025
37		0.000	1.224e6	0.000	8.092
38		0.000	6.562e4	0.000	8.283
39		0.000	5.287e4	0.000	8.364
40		0.000	2.465e5	0.000	8.422
41		0.000	6.567e4	0.000	8.627
42		0.000	4.742e5	0.000	8.774
43		0.000	1.396e6	0.000	8.890
44		0.000	4.971e5	0.000	9.043
45		0.000	3.823e5	0.000	9.103
46		0.000	1.148e5	0.000	9.182
47		0.000	1.524e6	0.000	9.315
48		0.000	5.369e4	0.000	9.417
49		0.000	8.776e4	0.000	9.486
50		0.000	4.339e5	0.000	9.605
51		0.000	2.474e5	0.000	9.677
52		0.000	5.828e5	0.000	9.790
53		0.000	3.037e5	0.000	9.881
54		0.000	9.444e4	0.000	9.959
55		0.000	3.643e5	0.000	10.095
56		0.000	4.117e5	0.000	10.145
57		0.000	9.162e4	0.000	10.236
58		0.000	1.372e5	0.000	10.347
59		0.000	4.313e5	0.000	10.528
60		0.000	3.110e5	0.000	10.647
61		0.000	2.746e5	0.000	10.740
62		0.000	1.540e5	0.000	10.819
63		0.000	5.765e4	0.000	10.884
64		0.000	1.982e5	0.000	11.036
65		0.000	2.530e5	0.000	11.118
66		0.000	6.549e4	0.000	11.205
67		0.000	2.647e4	0.000	11.287
68		0.000	1.389e5	0.000	11.400
69		0.000	5.955e4	0.000	11.561
70		0.000	9.344e4	0.000	11.672

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112648.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: 03112414-18 MSD
Acquired On: 11/27/03 4:28:37 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251 5.04g
GRO MSD:5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	9.223e4	0.000	11.811
72		0.000	7.405e4	0.000	12.002
73		0.000	3.431e4	0.000	12.124
74		0.000	7.165e3	0.000	12.248
75		0.000	8.562e3	0.000	12.911
76		0.000	1.173e4	0.000	14.257
77		0.000	6.322e3	0.000	14.597
Total			3.918e7		

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GASOLINE RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **11/26/03 15:37** **LAB FILE ID:** **2\03112543.D**

METHOD: **EPA 8015B**

MATRIX: **Water**

Sample ID: LCS 5000ppb

SPIKE DISTILLATE	SPIKE ADDED (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	QC LIMITS (%)
Gasoline	5000.00	4776.35	96	50-150

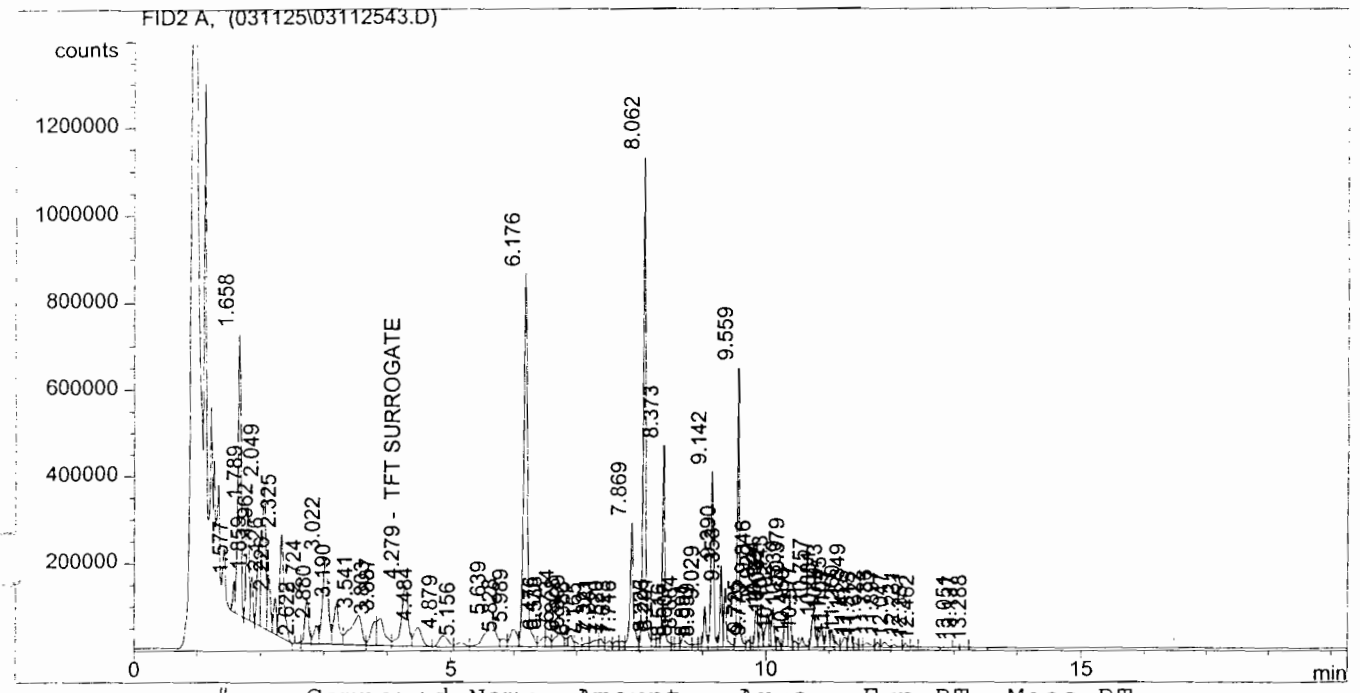
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

2 5045

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112543.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/26/03 3:37:37 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.588e5	0.000	1.577
2		0.000	2.253e6	0.000	1.658
3		0.000	8.040e5	0.000	1.789
4		0.000	2.814e5	0.000	1.859
5		0.000	6.279e5	0.000	1.962
6		0.000	1.377e6	0.000	2.049
7		0.000	4.326e5	0.000	2.126
8		0.000	2.771e5	0.000	2.226
9		0.000	1.061e6	0.000	2.325
10		0.000	1.266e4	0.000	2.622
11		0.000	4.412e5	0.000	2.724
12		0.000	2.181e5	0.000	2.880
13		0.000	1.218e6	0.000	3.022
14		0.000	5.677e5	0.000	3.190
15		0.000	8.576e5	0.000	3.541
16		0.000	3.212e5	0.000	3.803
17		0.000	5.220e5	0.000	3.887
18	TFT SURROGATE	122.067	1.048e6	4.269	4.279
19		0.000	3.630e5	0.000	4.484
20		0.000	2.477e5	0.000	4.879
21		0.000	8.977e4	0.000	5.156
22		0.000	6.873e5	0.000	5.639
23		0.000	1.157e5	0.000	5.828
24		0.000	3.054e5	0.000	5.989

$\frac{3.118e7}{6528}$ = 4776.35 ug/L

95.53% Recovery
AK 11/26/03

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112543.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/26/03 3:37:37 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.736e6	0.000	6.176
26		0.000	1.248e5	0.000	6.476
27		0.000	1.133e5	0.000	6.538
28		0.000	3.078e5	0.000	6.734
29		0.000	5.579e4	0.000	6.828
30		0.000	1.197e5	0.000	6.899
31		0.000	5.110e4	0.000	6.986
32		0.000	5.142e4	0.000	7.165
33		0.000	1.111e5	0.000	7.321
34		0.000	8.137e4	0.000	7.381
35		0.000	7.386e4	0.000	7.520
36		0.000	6.717e4	0.000	7.628
37		0.000	6.391e4	0.000	7.716
38		0.000	9.803e5	0.000	7.869
39		0.000	3.098e6	0.000	8.062
40		0.000	7.764e4	0.000	8.226
41		0.000	6.385e4	0.000	8.291
42		0.000	1.190e6	0.000	8.373
43		0.000	2.242e4	0.000	8.516
44		0.000	3.586e4	0.000	8.607
45		0.000	1.305e5	0.000	8.684
46		0.000	3.412e4	0.000	8.891
47		0.000	2.107e4	0.000	8.959
48		0.000	2.653e5	0.000	9.029
49		0.000	1.266e6	0.000	9.142
50		0.000	4.361e5	0.000	9.290
51		0.000	3.709e5	0.000	9.353
52		0.000	1.470e6	0.000	9.559
53		0.000	5.194e4	0.000	9.725
54		0.000	2.118e4	0.000	9.779
55		0.000	3.411e5	0.000	9.846
56		0.000	2.262e5	0.000	9.922
57		0.000	2.671e5	0.000	10.024
58		0.000	1.237e5	0.000	10.062
59		0.000	2.203e5	0.000	10.113
60		0.000	6.157e4	0.000	10.192
61		0.000	2.772e5	0.000	10.330
62		0.000	3.133e5	0.000	10.379
63		0.000	5.518e4	0.000	10.460
64		0.000	8.637e4	0.000	10.577
65		0.000	3.151e5	0.000	10.757
66		0.000	1.884e5	0.000	10.881
67		0.000	2.057e5	0.000	10.973
68		0.000	1.169e5	0.000	11.045
69		0.000	4.418e4	0.000	11.107
70		0.000	1.066e5	0.000	11.260

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031125\03112543.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/26/03 3:37:37 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.855e5	0.000	11.349
72		0.000	3.734e4	0.000	11.425
73		0.000	1.958e4	0.000	11.515
74		0.000	6.935e4	0.000	11.622
75		0.000	3.373e4	0.000	11.786
76		0.000	6.101e4	0.000	11.897
77		0.000	3.475e4	0.000	12.047
78		0.000	3.066e4	0.000	12.231
79		0.000	1.604e4	0.000	12.351
80		0.000	6.278e3	0.000	12.462
81		0.000	1.348e3	0.000	13.051
82		0.000	2.555e3	0.000	13.137
83		0.000	2.134e3	0.000	13.288
Total			3.223e7		

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **11/27/03 17:36** **LAB FILE ID:** **1\03112650.D**

METHOD: **EPA 8015B**

MATRIX: **Water**

Sample ID: LCS 5000ppb

SPIKE DISTILLATE	SPIKE ADDED (mg/L)	SPIKE CONC (ug/L)	SPIKE REC (%) #	QC LIMITS (%)
Gasoline	5000	4165	83	50-150

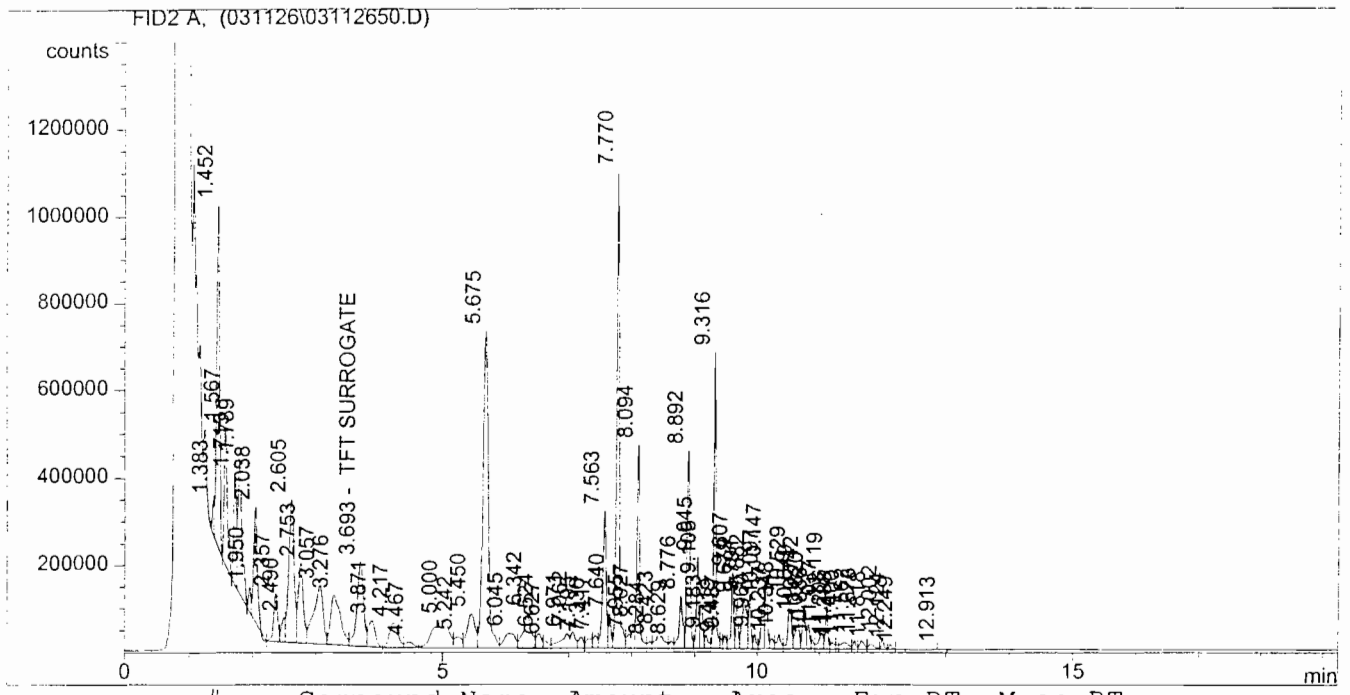
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

2 5049

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112650.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/27/03 5:36:13 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.395e5	0.000	1.383
2		0.000	2.553e6	0.000	1.452
3		0.000	1.069e6	0.000	1.567
4		0.000	7.802e5	0.000	1.715
5		0.000	1.375e6	0.000	1.789
6		0.000	1.441e5	0.000	1.950
7		0.000	1.015e6	0.000	2.038
8		0.000	4.712e5	0.000	2.357
9		0.000	2.241e5	0.000	2.490
10		0.000	1.947e6	0.000	2.605
11		0.000	1.052e6	0.000	2.753
12		0.000	1.406e6	0.000	3.057
13		0.000	1.243e6	0.000	3.276
14	TFT SURROGATE	112.338	1.401e6 ✓	3.699	3.693
15		0.000	4.612e5	0.000	3.871
16		0.000	5.353e5	0.000	4.217
17		0.000	1.201e5	0.000	4.467
18		0.000	1.131e6	0.000	5.000
19		0.000	2.053e5	0.000	5.242
20		0.000	6.925e5	0.000	5.450
21		0.000	4.279e6	0.000	5.675
22		0.000	4.081e5	0.000	6.045
23		0.000	6.893e5	0.000	6.342
24		0.000	1.926e5	0.000	6.524

$\frac{4.032e^7}{9680}$
= 4165.29 ug/kg

83.31% Recovery
AK 12/1/03

 2 5050

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112650.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/27/03 5:36:13 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	8.639e4	0.000	6.627
26		0.000	3.241e5	0.000	6.971
27		0.000	1.941e5	0.000	7.062
28		0.000	1.348e5	0.000	7.195
29		0.000	1.424e5	0.000	7.336
30		0.000	1.399e5	0.000	7.417
31		0.000	1.213e6	0.000	7.563
32		0.000	2.535e5	0.000	7.640
33		0.000	3.379e6	0.000	7.770
34		0.000	1.373e5	0.000	7.955
35		0.000	1.583e5	0.000	8.027
36		0.000	1.367e6	0.000	8.094
37		0.000	7.192e4	0.000	8.284
38		0.000	3.277e5	0.000	8.423
39		0.000	7.224e4	0.000	8.629
40		0.000	5.110e5	0.000	8.776
41		0.000	1.510e6	0.000	8.892
42		0.000	5.378e5	0.000	9.045
43		0.000	4.199e5	0.000	9.105
44		0.000	1.196e5	0.000	9.183
45		0.000	1.669e6	0.000	9.316
46		0.000	5.857e4	0.000	9.419
47		0.000	9.613e4	0.000	9.487
48		0.000	4.847e5	0.000	9.607
49		0.000	2.801e5	0.000	9.679
50		0.000	6.122e5	0.000	9.791
51		0.000	3.276e5	0.000	9.882
52		0.000	1.023e5	0.000	9.960
53		0.000	3.923e5	0.000	10.097
54		0.000	4.415e5	0.000	10.147
55		0.000	9.906e4	0.000	10.237
56		0.000	1.488e5	0.000	10.348
57		0.000	4.500e5	0.000	10.529
58		0.000	3.216e5	0.000	10.649
59		0.000	2.975e5	0.000	10.742
60		0.000	1.662e5	0.000	10.820
61		0.000	5.775e4	0.000	10.886
62		0.000	2.042e5	0.000	11.037
63		0.000	2.759e5	0.000	11.119
64		0.000	6.625e4	0.000	11.206
65		0.000	3.038e4	0.000	11.288
66		0.000	1.347e5	0.000	11.400
67		0.000	6.212e4	0.000	11.562
68		0.000	1.009e5	0.000	11.673
69		0.000	7.918e4	0.000	11.818
70		0.000	7.554e4	0.000	12.002

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031126\03112650.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/27/03 5:36:13 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	3.520e4	0.000	12.124
72		0.000	7.240e3	0.000	12.249
73		0.000	9.461e3	0.000	12.913
Total			4.172e7		

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GASOLINE RANGE ORGANICS
LCS & LCS DUPLICATE SUMMARY

LAB FILE ID's: 1\03120219.D
1\03120220.D

DATE ANALYZED: 12/02/03

MATRIX: Soil

Sample ID: LCS 5000ppb

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED mg/kg	SAMPLE CONC mg/kg	SPIKE CONC mg/kg	SPIKE REC (%) #	QC LIMITS (%)
Gasoline Range Organics	5000	ND	4409	88	50-150

Sample ID: LCSD 5000ppb

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED mg/kg	SAMPLE CONC mg/kg	SPIKE CONC mg/kg	SPIKE REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Gasoline Range Organics	5000	ND	4236	85	4.0	40	50-150

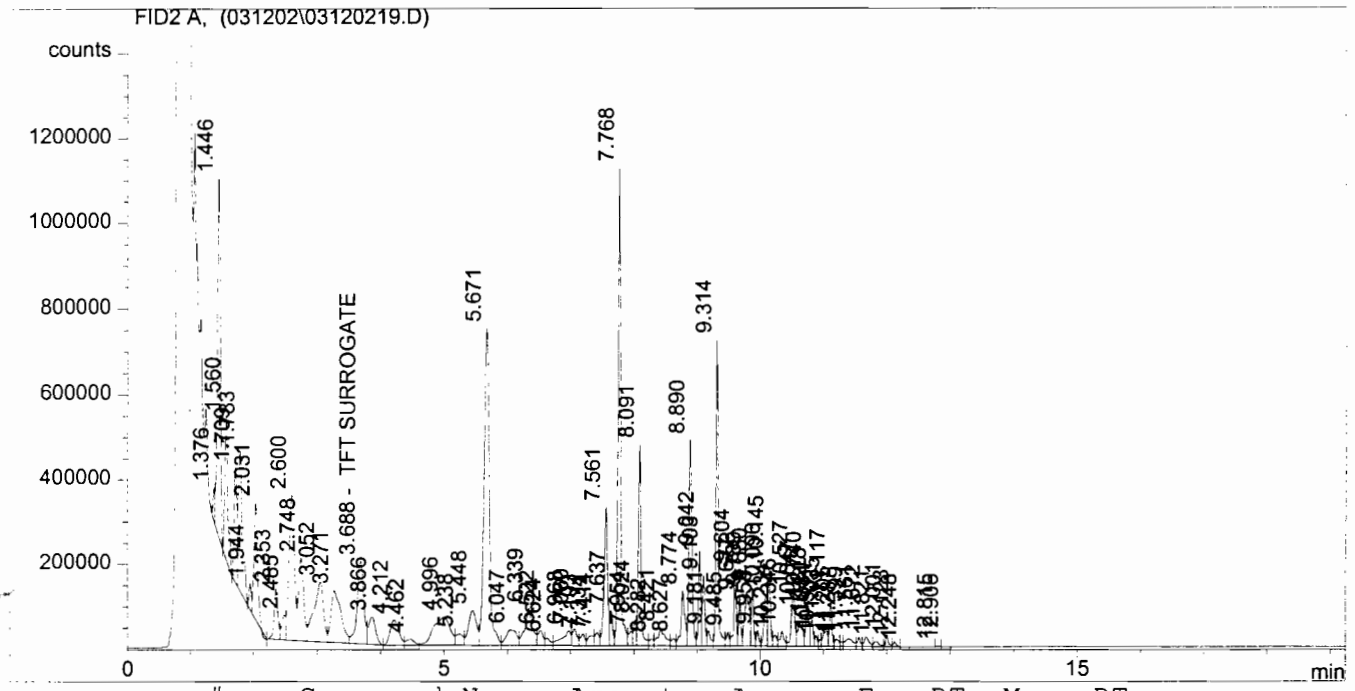
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
ND = not detected

2 5053

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120219.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 8:07:15 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.469e5	0.000	1.376
2		0.000	2.716e6	0.000	1.446
3		0.000	1.127e6	0.000	1.560
4		0.000	8.373e5	0.000	1.709
5		0.000	1.482e6	0.000	1.783
6		0.000	1.517e5	0.000	1.944
7		0.000	1.068e6	0.000	2.031
8		0.000	5.021e5	0.000	2.353
9		0.000	2.360e5	0.000	2.485
10		0.000	2.035e6	0.000	2.600
11		0.000	1.112e6	0.000	2.748
12		0.000	1.490e6	0.000	3.052
13		0.000	1.336e6	0.000	3.271
14	TFT SURROGATE	113.166	1.411e6	3.699	3.688
15		0.000	4.906e5	0.000	3.866
16		0.000	5.604e5	0.000	4.212
17		0.000	1.277e5	0.000	4.462
18		0.000	1.184e6	0.000	4.996
19		0.000	2.159e5	0.000	5.238
20		0.000	7.241e5	0.000	5.448
21		0.000	4.389e6	0.000	5.671
22		0.000	4.313e5	0.000	6.047
23		0.000	7.315e5	0.000	6.339
24		0.000	2.101e5	0.000	6.522

$\frac{4.268e7}{5000} = 8536$

%D

$= \frac{9680 - 8536}{9680} \times 100 = 11.82\%$

<15%

AK 12/3/03

2 5054

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120219.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 8:07:15 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	9.148e4	0.000	6.624
26		0.000	3.409e5	0.000	6.968
27		0.000	2.022e5	0.000	7.060
28		0.000	1.417e5	0.000	7.193
29		0.000	1.512e5	0.000	7.334
30		0.000	1.453e5	0.000	7.414
31		0.000	1.266e6	0.000	7.561
32		0.000	2.673e5	0.000	7.637
33		0.000	3.520e6	0.000	7.768
34		0.000	1.476e5	0.000	7.954
35		0.000	1.746e5	0.000	8.024
36		0.000	1.404e6	0.000	8.091
37		0.000	7.551e4	0.000	8.282
38		0.000	3.454e5	0.000	8.421
39		0.000	7.688e4	0.000	8.627
40		0.000	5.486e5	0.000	8.774
41		0.000	1.620e6	0.000	8.890
42		0.000	5.728e5	0.000	9.042
43		0.000	4.432e5	0.000	9.103
44		0.000	1.360e5	0.000	9.181
45		0.000	1.837e6	0.000	9.314
46		0.000	1.033e5	0.000	9.485
47		0.000	5.056e5	0.000	9.604
48		0.000	2.885e5	0.000	9.677
49		0.000	6.885e5	0.000	9.789
50		0.000	3.561e5	0.000	9.880
51		0.000	1.103e5	0.000	9.958
52		0.000	4.316e5	0.000	10.096
53		0.000	4.889e5	0.000	10.145
54		0.000	1.075e5	0.000	10.234
55		0.000	1.589e5	0.000	10.346
56		0.000	4.946e5	0.000	10.527
57		0.000	3.664e5	0.000	10.647
58		0.000	3.234e5	0.000	10.740
59		0.000	1.808e5	0.000	10.818
60		0.000	6.853e4	0.000	10.884
61		0.000	4.027e4	0.000	10.951
62		0.000	1.940e5	0.000	11.035
63		0.000	2.923e5	0.000	11.117
64		0.000	7.569e4	0.000	11.205
65		0.000	3.046e4	0.000	11.287
66		0.000	1.623e5	0.000	11.399
67		0.000	7.053e4	0.000	11.561
68		0.000	1.191e5	0.000	11.672
69		0.000	7.332e4	0.000	11.821
70		0.000	7.959e4	0.000	12.001

2 5055

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

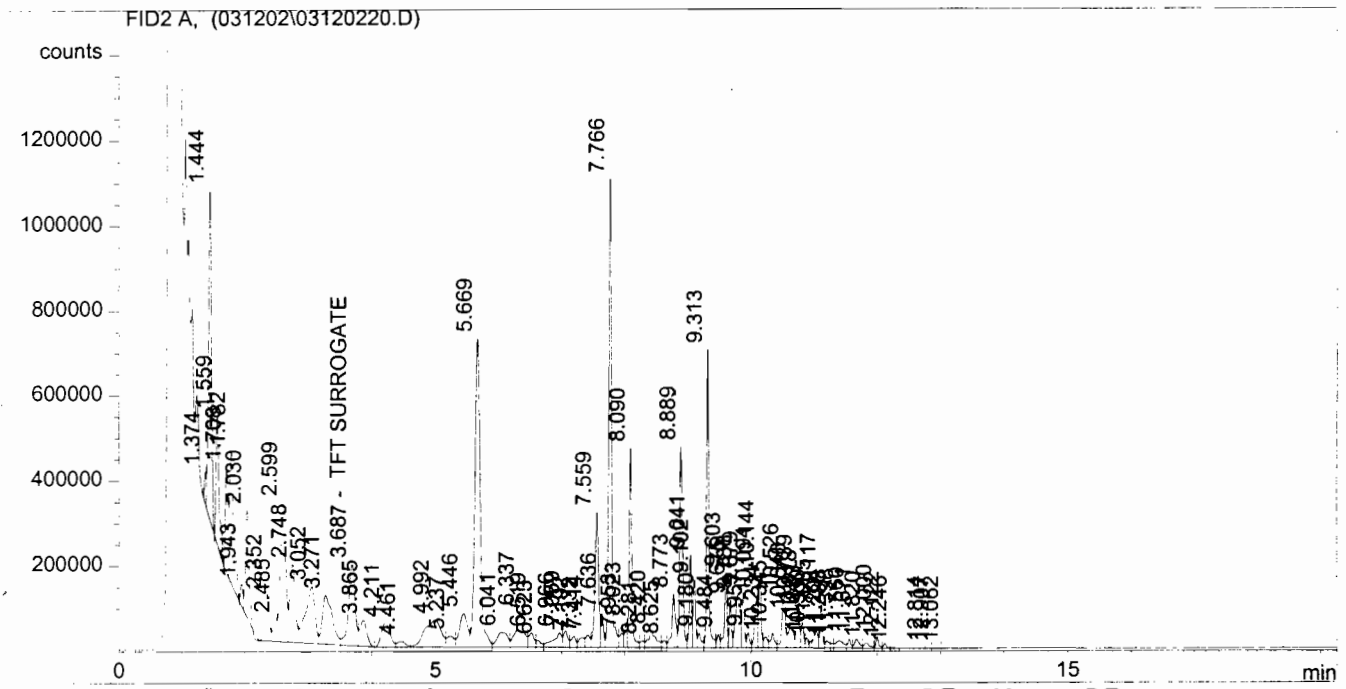
Data File Name: C:\HPCHEM\1\DATA\031202\03120219.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 8:07:15 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	3.610e4	0.000	12.123
72		0.000	7.132e3	0.000	12.248
73		0.000	5.362e3	0.000	12.815
74		0.000	7.366e3	0.000	12.906
Total			4.409e7		

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120220.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 8:41:06 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.373e5	0.000	1.374
2		0.000	2.566e6	0.000	1.444
3		0.000	1.039e6	0.000	1.559
4		0.000	7.769e5	0.000	1.708
5		0.000	1.390e6	0.000	1.782
6		0.000	1.362e5	0.000	1.943
7		0.000	9.746e5	0.000	2.030
8		0.000	4.638e5	0.000	2.352
9		0.000	2.120e5	0.000	2.485
10		0.000	1.949e6	0.000	2.599
11		0.000	1.063e6	0.000	2.748
12		0.000	1.415e6	0.000	3.052
13		0.000	1.270e6	0.000	3.271
14	TFT SURROGATE	111.222	1.387e6	3.699	3.687
15		0.000	4.685e5	0.000	3.865
16		0.000	5.400e5	0.000	4.211
17		0.000	1.222e5	0.000	4.461
18		0.000	1.142e6	0.000	4.992
19		0.000	2.074e5	0.000	5.237
20		0.000	6.990e5	0.000	5.446
21		0.000	4.290e6	0.000	5.669
22		0.000	4.163e5	0.000	6.041
23		0.000	7.069e5	0.000	6.337
24		0.000	1.988e5	0.000	6.519

$\frac{4.100e7}{5000} = 8200$

$\%D = \frac{9680 - 8200}{9680} \times 100 = 15.29\%$

AK 12/3/03

2 5057

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120220.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 8:41:06 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	8.756e4	0.000	6.623
26		0.000	3.286e5	0.000	6.966
27		0.000	1.965e5	0.000	7.059
28		0.000	1.369e5	0.000	7.192
29		0.000	1.449e5	0.000	7.332
30		0.000	1.426e5	0.000	7.414
31		0.000	1.232e6	0.000	7.559
32		0.000	2.595e5	0.000	7.636
33		0.000	3.437e6	0.000	7.766
34		0.000	1.413e5	0.000	7.953
35		0.000	1.669e5	0.000	8.023
36		0.000	1.376e6	0.000	8.090
37		0.000	7.334e4	0.000	8.281
38		0.000	3.366e5	0.000	8.420
39		0.000	7.427e4	0.000	8.625
40		0.000	5.336e5	0.000	8.773
41		0.000	1.572e6	0.000	8.889
42		0.000	5.590e5	0.000	9.041
43		0.000	4.306e5	0.000	9.102
44		0.000	1.310e5	0.000	9.180
45		0.000	1.784e6	0.000	9.313
46		0.000	1.011e5	0.000	9.484
47		0.000	4.934e5	0.000	9.603
48		0.000	2.804e5	0.000	9.675
49		0.000	6.621e5	0.000	9.788
50		0.000	3.441e5	0.000	9.879
51		0.000	1.072e5	0.000	9.957
52		0.000	4.143e5	0.000	10.094
53		0.000	4.682e5	0.000	10.144
54		0.000	1.049e5	0.000	10.234
55		0.000	1.558e5	0.000	10.345
56		0.000	4.796e5	0.000	10.526
57		0.000	3.544e5	0.000	10.646
58		0.000	3.119e5	0.000	10.739
59		0.000	1.736e5	0.000	10.818
60		0.000	6.607e4	0.000	10.883
61		0.000	3.876e4	0.000	10.950
62		0.000	1.870e5	0.000	11.035
63		0.000	2.774e5	0.000	11.117
64		0.000	7.320e4	0.000	11.204
65		0.000	3.064e4	0.000	11.286
66		0.000	1.563e5	0.000	11.398
67		0.000	6.774e4	0.000	11.560
68		0.000	1.129e5	0.000	11.671
69		0.000	7.289e4	0.000	11.820
70		0.000	7.926e4	0.000	12.000

2 5058

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031202\03120220.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 12/2/03 8:41:06 PM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	3.565e4	0.000	12.122
72		0.000	6.858e3	0.000	12.246
73		0.000	5.064e3	0.000	12.814
74		0.000	7.093e3	0.000	12.907
75		0.000	5.200e3	0.000	13.062
Total			4.239e7		

2 5059

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Diesel Range Organics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS Summary*

6630 Baltimore National Pike Baltimore, MD 21228 (800) 932-9047 (410) 747-8770 FAX (410) 788-8723

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
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410-747-8770
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PHASE SEPARATION SCIENCE, INC.

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DIESEL RANGE ORGANICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: DRO **LAB CODE:** SURR

METHOD NO.: 8015B

Date/Time Analyzed	Sample ID	SS1(OTP) #	Total Out
12/6/03 13:40	MB 12-3-03 1000C	90	
	Upper Limit	**150**	
	Lower Limit	**50**	
12/5/03 21:01	SB-11	56	
12/5/03 21:46	SB-12	32 *	
12/5/03 22:32	SB-13	57	
12/5/03 23:17	SB-14	72	
12/6/03 12:02	SB-15	70	
12/6/03 12:47	SB-16	69	
12/6/03 1:33	SB-17	76	
12/6/03 2:18	SB-18	81	
12/6/03 3:03	SB-4	67	
12/6/03 3:48	SB-2	70	
12/6/03 4:34	SB-6	64	
12/6/03 5:19	SB-19	57	
12/6/03 6:04	SB-32	48 *	
12/6/03 6:49	SB-33	38 *	

SS1 (TPH) = o-Terphenyl

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

2 6002

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PHASE SEPARATION SCIENCE, INC.

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DIESEL RANGE ORGANICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: DRO **LAB CODE:** SURR

METHOD NO.: 8015B

Date/Time Analyzed	Sample ID	SS1(OTP)	#	Total Out
12/5/03 5:53	MB 12-3-03 30C	44	*	
	Upper Limit	**150**		
	Lower Limit	**50**		
12/5/03 21:01	SB-11-05	68		
12/5/03 21:43	SB-12-05	62		
12/5/03 22:32	SB-13-05	53		
12/5/03 11:17	SB-14-05	52		
12/6/03 0:02	SB-15-05	82		
12/6/03 0:47	SB-16-05	55		
12/6/03 1:33	SB-17-05	49	*	
12/6/03 2:18	SB-18-05	59		
12/6/03 3:03	SB-1-05	71		
12/6/03 3:48	SB-1-10	65		
12/6/03 18:53	SB-4-05	99		
12/11/03 22:01	SB-4-10	97		
12/11/03 22:31	SB-5-05	93		
12/6/03 21:43	SB-5-10	86		
12/6/03 22:28	SB-2-05	94		
12/6/03 23:13	SB-2-10	77		
12/6/03 23:58	SB-3-05	88		
12/8/03 20:35	SB-3-10	95		
12/6/03 18:53	SB-6-05	85		
12/8/03 21:20	SB-6-10	82		
12/6/03 19:38	SB-20-05	79		
12/6/03 20:58	SB-20-10	59		
12/6/03 21:43	SB-21-05	79		
12/6/03 22:28	SB-21-10	81		
12/6/03 23:13	SB-19-05	82		
12/6/03 23:58	SB-19-10	79		
12/8/03 20:35	SB-32-05	94		
12/8/03 21:20	SB-33-05	91		

SS1 (TPH) = o-Terphenyl

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

2 S003

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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**DRO**	**LAB CODE:**	**MBW**
METHOD NO.:	**8015B**	**LAB SAMPLE ID:**	**MB 12-3-03 1000C**
MATRIX:	**Water**		
LAB FILE ID:	**031205\F3120541.D**	**DATE/TIME ANALYZED:**	**12/06/03 13:40**

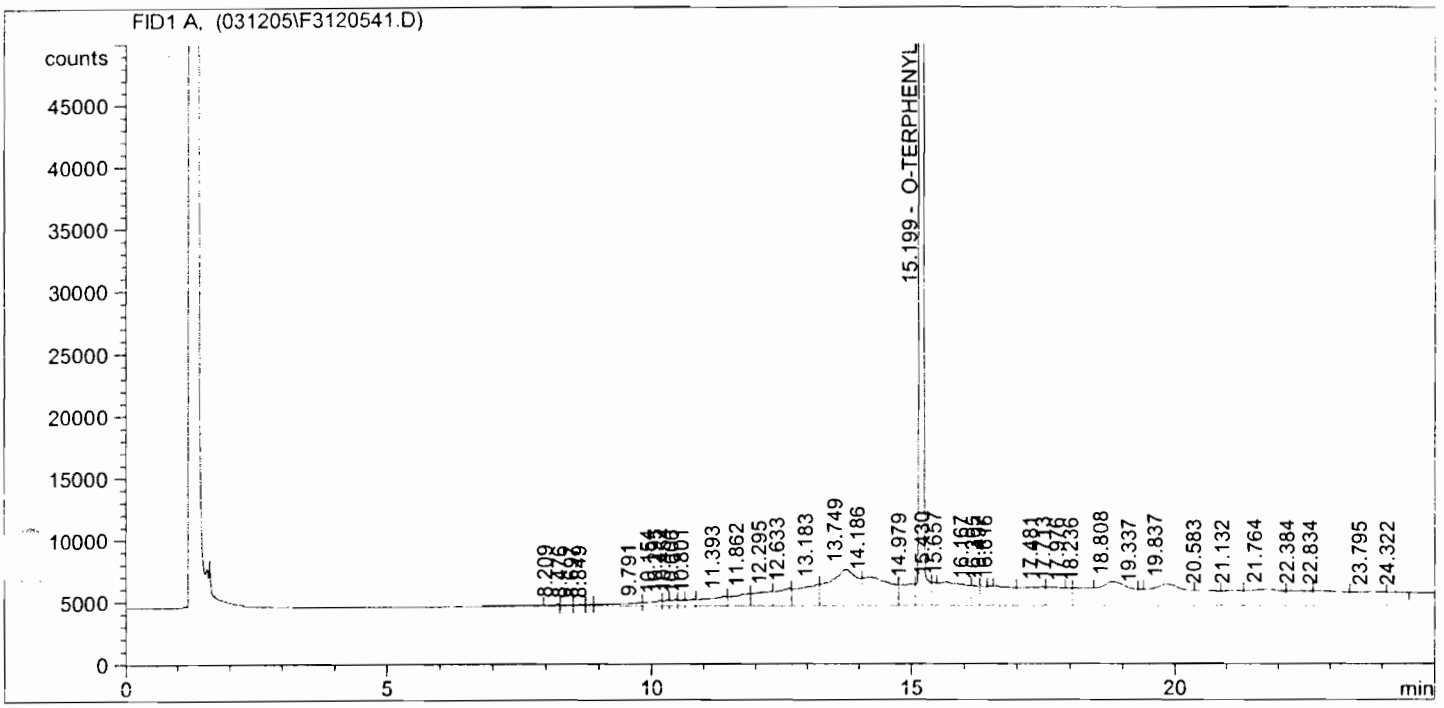
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-11	03112414-02	031205\F3120515.D	12/05/03 21:01
SB-12	03112414-04	031205\F3120516.D	12/05/03 21:46
SB-13	03112414-06	031205\F3120517.D	12/05/03 22:32
SB-14	03112414-08	031205\F3120518.D	12/05/03 23:17
SB-15	03112414-10	031205\F3120519.D	12/06/03 12:02
SB-16	03112414-12	031205\F3120520.D	12/06/03 12:47
SB-17	03112414-14	031205\F3120521.D	12/06/03 01:33
SB-18	03112414-16	031205\03120522.D	12/06/03 02:18
SB-4	03112414-21	031205\03120523.D	12/06/03 03:03
SB-2	03112414-27	031205\F3120524.D	12/06/03 03:48
SB-6	03112414-33	031205\F3120525.D	12/06/03 04:34
SB-19	03112414-41	031205\F3120526.D	12/06/03 05:19
SB-32	03112414-43	031205\F3120527.D	12/06/03 06:04
SB-33	03112414-46	031205\F3120528.D	12/06/03 06:49

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120541.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: MB WATER
Acquired On: 12/6/03 1:40:40 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.323e3	0.000	8.209
3		0.000	1.251e3	0.000	8.476
4		0.000	1.469e3	0.000	8.697
5		0.000	1.118e3	0.000	8.849
6		0.000	1.020e4	0.000	9.791
7		0.000	7.457e3	0.000	10.154
8		0.000	3.543e3	0.000	10.295
9		0.000	4.447e3	0.000	10.454
10		0.000	3.890e3	0.000	10.606
11		0.000	6.113e3	0.000	10.801
12		0.000	2.278e4	0.000	11.393
13		0.000	2.265e4	0.000	11.862
14		0.000	2.704e4	0.000	12.295
15		0.000	2.749e4	0.000	12.633
16		0.000	4.824e4	0.000	13.183
17		0.000	1.147e5	0.000	13.749
18		0.000	8.374e4	0.000	14.186
19		0.000	3.257e4	0.000	14.979
20	O-TERPHENYL	903.010	2.432e6	15.346	15.199

2 S005

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120541.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: MB WATER
Acquired On: 12/6/03 1:40:40 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.102e4	0.000	15.430
22		0.000	6.866e4	0.000	15.657
23		0.000	1.599e4	0.000	16.167
24		0.000	1.263e4	0.000	16.395
25		0.000	1.056e4	0.000	16.497
26		0.000	3.913e4	0.000	16.616
27		0.000	4.875e4	0.000	17.481
28		0.000	3.210e4	0.000	17.713
29		0.000	1.117e4	0.000	17.976
30		0.000	3.464e4	0.000	18.236
31		0.000	8.076e4	0.000	18.808
32		0.000	8.069e3	0.000	19.337
33		0.000	8.553e4	0.000	19.837
34		0.000	3.750e4	0.000	20.583
35		0.000	3.187e4	0.000	21.132
36		0.000	6.170e4	0.000	21.764
37		0.000	3.735e4	0.000	22.384
38		0.000	4.887e4	0.000	22.834
39		0.000	4.757e4	0.000	23.795
40		0.000	2.827e4	0.000	24.322
Total			3.604e6		

2 S006

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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**DRO**	**LAB CODE:**	**MBS**
METHOD NO.:	**8015B**	**LAB SAMPLE ID:**	**MB 12-3-03 30C**
MATRIX:	**Soil**		
LAB FILE ID:	**031204\B3120435.D**	**DATE/TIME ANALYZED:**	**12/05/03 05:53**

This Method Blank applies to the following samples:

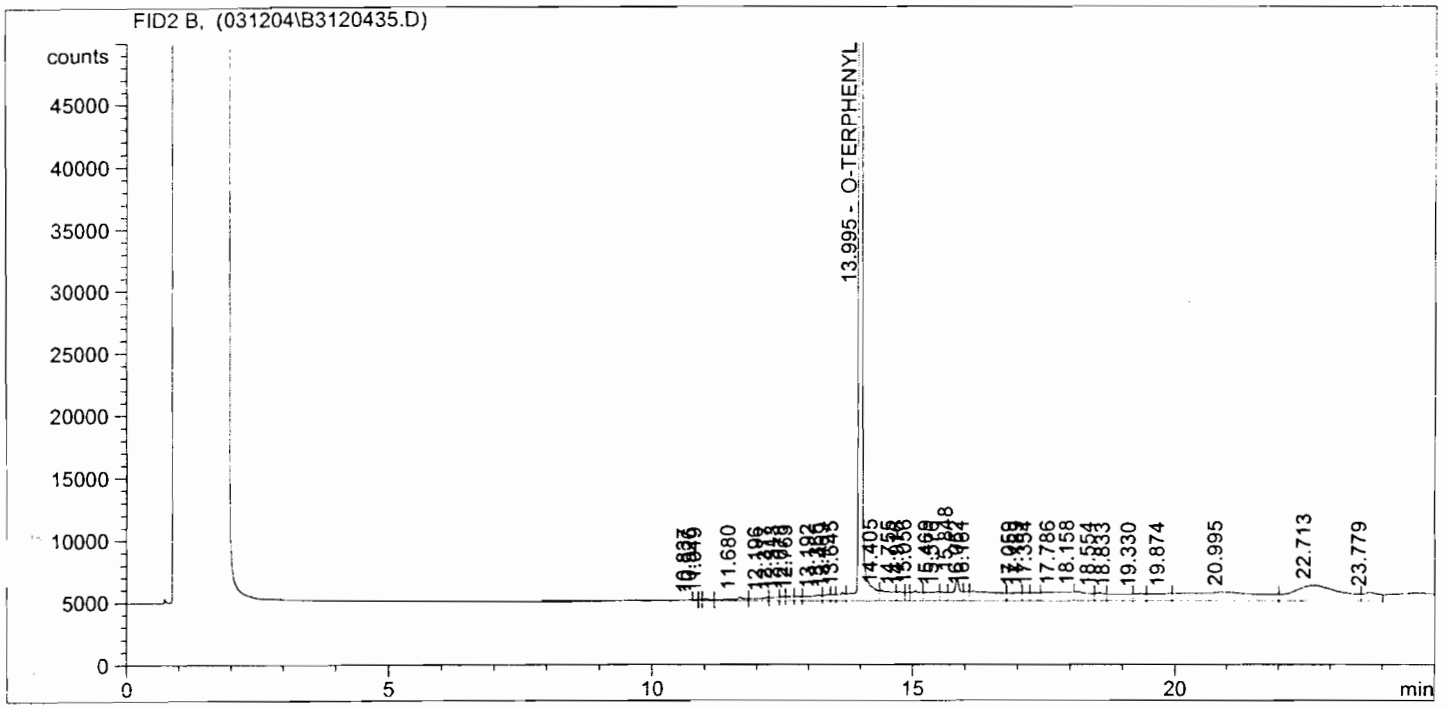
Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-11-05	03112414-01	031205\B3120515.D	12/05/03 21:01
SB-12-05	03112414-03	031205\B3120516.D	12/05/03 21:43
SB-13-05	03112414-05	031205\B3120517.D	12/05/03 22:32
SB-14-05	03112414-07	031205\B3120518.D	12/05/03 11:17
SB-15-05	03112414-09	031205\B3120519.D	12/06/03 00:02
SB-16-05	03112414-11	031205\B3120520.D	12/06/03 00:47
SB-17-05	03112414-13	031205\B3120521.D	12/06/03 01:33
SB-18-05	03112414-15	031205\B3120522.D	12/06/03 02:18
SB-1-05	03112414-17	031205\B3120523.D	12/06/03 03:03
SB-1-10	03112414-18	031205\B3120524.D	12/06/03 03:48
SB-4-05	03112414-19	031206\F3120603.D	12/06/03 18:53
SB-4-10	03112414-20	031211\B3121121.D	12/11/03 22:01
SB-5-05	03112414-23	031211\B3121122.D	12/11/03 22:31
SB-5-10	03112414-24	031206\F3120606.D	12/06/03 21:43
SB-2-05	03112414-25	031206\F3120607.D	12/06/03 22:28
SB-2-10	03112414-26	031206\F3120608.D	12/06/03 23:13
SB-3-05	03112414-29	031206\F3120609.D	12/06/03 23:58
SB-3-10	03112414-30	031208\F3120816.D	12/08/03 20:35
SB-6-05	03112414-31	031206\B3120603.D	12/06/03 18:53
SB-6-10	03112414-32	031208\F3120817.D	12/08/03 21:20
SB-20-05	03112414-35	031206\B3120604.D	12/06/03 19:38
SB-20-10	03112414-36	031206\B3120605.D	12/06/03 20:58
SB-21-05	03112414-37	031206\B3120606.D	12/06/03 21:43
SB-21-10	03112414-38	031206\B3120607.D	12/06/03 22:28
SB-19-05	03112414-39	031206\B3120608.D	12/06/03 23:13
SB-19-10	03112414-40	031206\B3120609.D	12/06/03 23:58
SB-32-05	03112414-42	031208\B3120816.D	12/08/03 20:35
SB-33-05	03112414-45	031208\B3120817.D	12/08/03 21:20

2 6007

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120435.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: MB SOIL 12/3
Acquired On: 12/5/03 5:53:23 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	604.229	0.000	10.837
3		0.000	477.249	0.000	10.926
4		0.000	1.502e3	0.000	11.019
5		0.000	5.464e3	0.000	11.680
6		0.000	4.267e3	0.000	12.196
7		0.000	3.143e3	0.000	12.377
8		0.000	2.087e3	0.000	12.513
9		0.000	3.468e3	0.000	12.678
10		0.000	3.047e3	0.000	12.763
11		0.000	9.055e3	0.000	13.192
12		0.000	4.430e3	0.000	13.365
13		0.000	3.023e3	0.000	13.469
14		0.000	6.411e3	0.000	13.645
15	O-TERPHENYL	443.234	2.288e6	14.062	13.995 - 44%
16		0.000	1.418e4	0.000	14.405
17		0.000	6.767e3	0.000	14.755
18		0.000	3.954e3	0.000	14.916
19		0.000	1.060e4	0.000	15.056
20		0.000	1.310e4	0.000	15.469

2 S008

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120435.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: MB SOIL 12/3
Acquired On: 12/5/03 5:53:23 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	6.273e3	0.000	15.576
22		0.000	1.644e4	0.000	15.848
23		0.000	5.147e3	0.000	16.052
24		0.000	2.892e4	0.000	16.161
25		0.000	1.102e4	0.000	17.059
26		0.000	5.892e3	0.000	17.189
27		0.000	7.729e3	0.000	17.354
28		0.000	2.681e4	0.000	17.786
29		0.000	1.483e4	0.000	18.158
30		0.000	8.415e3	0.000	18.554
31		0.000	1.676e4	0.000	18.833
32		0.000	8.834e3	0.000	19.330
33		0.000	1.650e4	0.000	19.874
34		0.000	7.448e4	0.000	20.995
35		0.000	8.086e4	0.000	22.713
36		0.000	1.477e4	0.000	23.779
Total			2.727e6		

2 S009

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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031205\F3120501.D

Date/Time Analyzed: 12/5/03 11:55

FRONT

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	2824	2648	6.4	15

Lab File IDs 031205\F3120513.D

Date/Time Analyzed: 12/5/03 19:17

FRONT

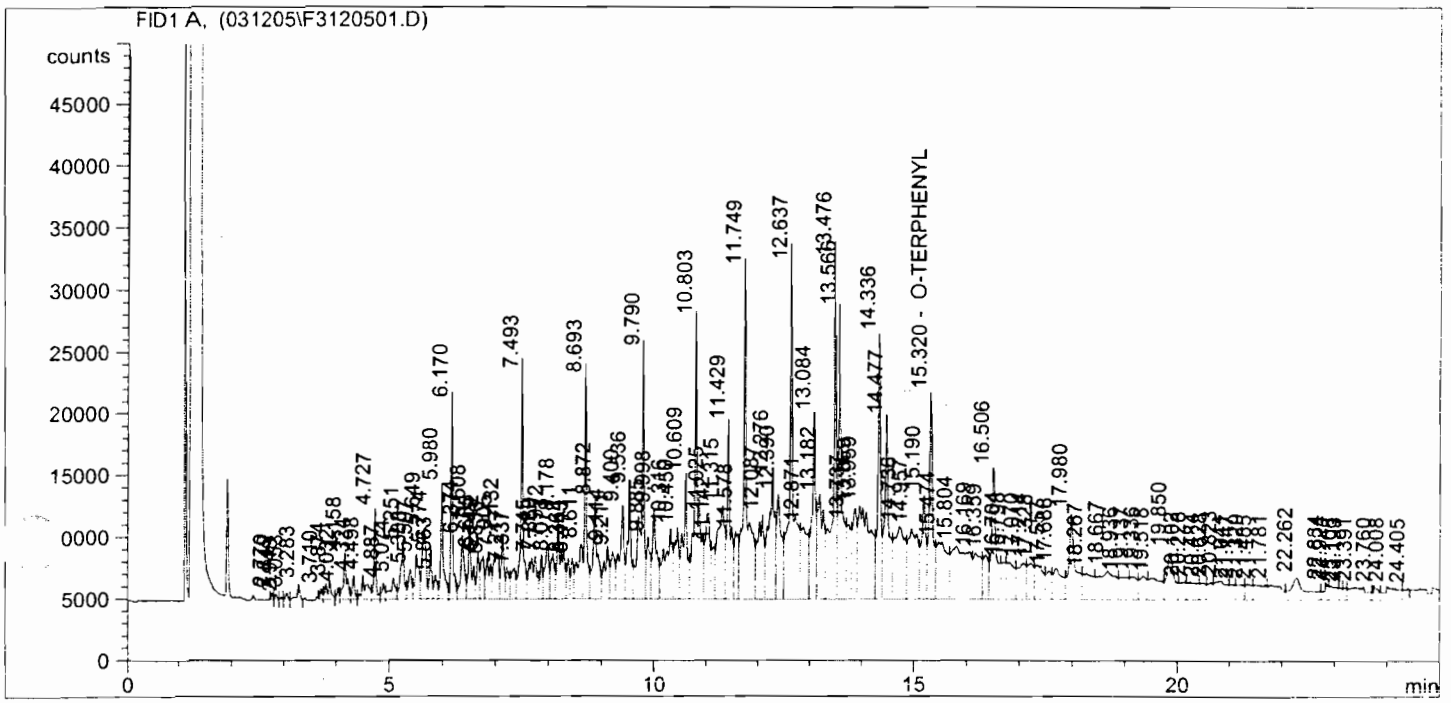
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	2684	2648	1.4	15

2 8010

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120501.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 11:55:15 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.087e3	0.000	2.770
3		0.000	1.099e3	0.000	2.849
4		0.000	410.710	0.000	2.948
5		0.000	1.359e3	0.000	3.053
6		0.000	4.163e3	0.000	3.283
7		0.000	2.527e3	0.000	3.710
8		0.000	8.820e3	0.000	3.874
9		0.000	2.515e3	0.000	4.032
10		0.000	1.667e4	0.000	4.158
11		0.000	5.930e3	0.000	4.324
12		0.000	1.345e4	0.000	4.498
13		0.000	1.970e4	0.000	4.727
14		0.000	4.505e3	0.000	4.887
15		0.000	1.126e4	0.000	5.074
16		0.000	2.168e4	0.000	5.251
17		0.000	1.059e4	0.000	5.388
18		0.000	1.766e4	0.000	5.507
19		0.000	2.977e4	0.000	5.649
20		0.000	1.313e4	0.000	5.774

2 8011

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120501.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 11:55:15 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	8.078e3	0.000	5.863
22		0.000	3.276e4	0.000	5.980
23		0.000	4.615e4	0.000	6.170
24		0.000	2.401e4	0.000	6.374
25		0.000	2.771e4	0.000	6.508
26		0.000	1.256e4	0.000	6.665
27		0.000	1.597e4	0.000	6.749
28		0.000	1.953e4	0.000	6.836
29		0.000	2.704e4	0.000	7.005
30		0.000	1.873e4	0.000	7.132
31		0.000	1.090e4	0.000	7.217
32		0.000	1.447e4	0.000	7.337
33		0.000	6.581e4	0.000	7.493
34		0.000	3.251e4	0.000	7.745
35		0.000	1.161e4	0.000	7.860
36		0.000	2.325e4	0.000	7.972
37		0.000	1.848e4	0.000	8.073
38		0.000	4.307e4	0.000	8.178
39		0.000	1.117e4	0.000	8.364
40		0.000	1.206e4	0.000	8.443
41		0.000	3.122e4	0.000	8.611
42		0.000	5.506e4	0.000	8.693
43		0.000	4.964e4	0.000	8.872
44		0.000	2.780e4	0.000	9.114
45		0.000	2.002e4	0.000	9.211
46		0.000	4.752e4	0.000	9.400
47		0.000	4.325e4	0.000	9.536
48		0.000	9.386e4	0.000	9.790
49		0.000	2.338e4	0.000	9.885
50		0.000	4.363e4	0.000	9.998
51		0.000	5.886e4	0.000	10.316
52		0.000	3.339e4	0.000	10.450
53		0.000	5.834e4	0.000	10.609
54		0.000	1.201e5	0.000	10.803
55		0.000	4.591e4	0.000	11.025
56		0.000	1.795e4	0.000	11.142
57		0.000	7.242e4	0.000	11.315
58		0.000	6.631e4	0.000	11.429
59		0.000	3.019e4	0.000	11.578
60		0.000	1.515e5	0.000	11.749
61		0.000	5.807e4	0.000	12.087
62		0.000	8.549e4	0.000	12.276

2 S012

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120501.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 11:55:15 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	5.306e4	0.000	12.390
64		0.000	1.637e5	0.000	12.637
65		0.000	5.457e4	0.000	12.871
66		0.000	7.418e4	0.000	13.084
67		0.000	6.813e4	0.000	13.182
68		0.000	1.255e5	0.000	13.476
69		0.000	1.086e5	0.000	13.566
70		0.000	3.363e4	0.000	13.737
71		0.000	4.511e4	0.000	13.869
72		0.000	1.281e5	0.000	13.959
73		0.000	8.361e4	0.000	14.336
74		0.000	8.645e4	0.000	14.477
75		0.000	8.482e4	0.000	14.736
76		0.000	7.420e4	0.000	14.957
77		0.000	4.761e4	0.000	15.190
78	O-TERPHENYL	30.508	8.289e4	15.346	15.320
79		0.000	6.684e4	0.000	15.474
80		0.000	9.848e4	0.000	15.804
81		0.000	3.946e4	0.000	16.169
82		0.000	2.416e4	0.000	16.359
83		0.000	6.947e4	0.000	16.506
84		0.000	1.742e4	0.000	16.704
85		0.000	3.091e4	0.000	16.798
86		0.000	3.252e4	0.000	17.070
87		0.000	2.443e4	0.000	17.214
88		0.000	3.037e4	0.000	17.328
89		0.000	1.695e4	0.000	17.557
90		0.000	3.113e4	0.000	17.688
91		0.000	5.957e4	0.000	17.980
92		0.000	2.835e4	0.000	18.267
93		0.000	5.230e4	0.000	18.667
94		0.000	2.145e4	0.000	18.936
95		0.000	1.858e4	0.000	19.137
96		0.000	1.918e4	0.000	19.336
97		0.000	2.929e4	0.000	19.518
98		0.000	3.911e4	0.000	19.850
99		0.000	1.240e4	0.000	20.102
100		0.000	2.030e4	0.000	20.228
101		0.000	1.136e4	0.000	20.484
102		0.000	9.532e3	0.000	20.628
103		0.000	2.546e4	0.000	20.823
104		0.000	8.891e3	0.000	21.041

2 6013

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120501.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 11:55:15 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	1.317e4	0.000	21.147
106		0.000	1.121e4	0.000	21.329
107		0.000	1.900e4	0.000	21.485
108		0.000	2.136e4	0.000	21.781
109		0.000	3.680e4	0.000	22.262
110		0.000	8.056e3	0.000	22.834
111		0.000	1.216e4	0.000	22.924
112		0.000	3.942e3	0.000	23.108
113		0.000	4.668e3	0.000	23.193
114		0.000	2.406e4	0.000	23.391
115		0.000	7.773e3	0.000	23.760
116		0.000	2.016e4	0.000	24.008
117		0.000	5.053e3	0.000	24.405
Total			4.236e6/1500 = 2824		

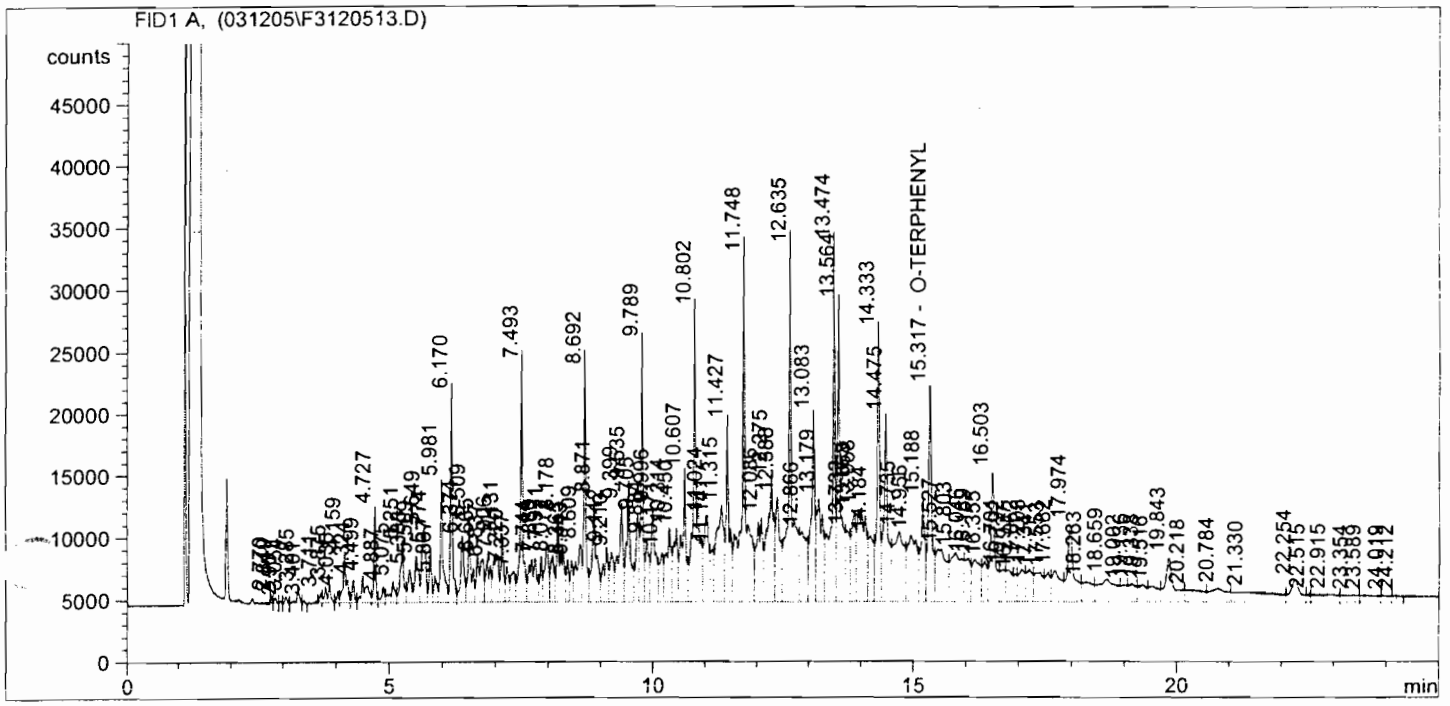
$$\frac{2648 - 2824}{(2648 + 2824) \div 2} = \frac{-176}{2736} \times 100 = -6.43\%$$

2 S014

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120513.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 7:17:34 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.063e3	0.000	2.770
3		0.000	1.066e3	0.000	2.849
4		0.000	307.679	0.000	2.951
5		0.000	1.201e3	0.000	3.054
6		0.000	3.957e3	0.000	3.285
7		0.000	278.424	0.000	3.401
8		0.000	1.895e3	0.000	3.711
9		0.000	8.581e3	0.000	3.875
10		0.000	2.279e3	0.000	4.035
11		0.000	1.797e4	0.000	4.159
12		0.000	5.285e3	0.000	4.324
13		0.000	1.443e4	0.000	4.499
14		0.000	1.890e4	0.000	4.727
15		0.000	4.971e3	0.000	4.887
16		0.000	1.054e4	0.000	5.075
17		0.000	2.242e4	0.000	5.251
18		0.000	1.172e4	0.000	5.388
19		0.000	1.726e4	0.000	5.509
20		0.000	3.057e4	0.000	5.649

2 S015

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120513.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 7:17:34 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.327e4	0.000	5.774
22		0.000	8.636e3	0.000	5.867
23		0.000	3.592e4	0.000	5.981
24		0.000	4.811e4	0.000	6.170
25		0.000	2.377e4	0.000	6.374
26		0.000	2.841e4	0.000	6.509
27		0.000	2.881e4	0.000	6.665
28		0.000	1.969e4	0.000	6.837
29		0.000	2.755e4	0.000	7.006
30		0.000	1.893e4	0.000	7.131
31		0.000	1.163e4	0.000	7.220
32		0.000	1.409e4	0.000	7.337
33		0.000	6.835e4	0.000	7.493
34		0.000	3.259e4	0.000	7.744
35		0.000	1.154e4	0.000	7.860
36		0.000	2.357e4	0.000	7.971
37		0.000	1.861e4	0.000	8.072
38		0.000	4.426e4	0.000	8.178
39		0.000	1.131e4	0.000	8.363
40		0.000	1.181e4	0.000	8.443
41		0.000	3.200e4	0.000	8.609
42		0.000	5.702e4	0.000	8.692
43		0.000	5.007e4	0.000	8.871
44		0.000	2.786e4	0.000	9.112
45		0.000	2.024e4	0.000	9.210
46		0.000	4.873e4	0.000	9.399
47		0.000	5.068e4	0.000	9.535
48		0.000	2.822e4	0.000	9.705
49		0.000	6.386e4	0.000	9.789
50		0.000	2.358e4	0.000	9.884
51		0.000	4.403e4	0.000	9.996
52		0.000	1.999e4	0.000	10.171
53		0.000	4.030e4	0.000	10.314
54		0.000	3.409e4	0.000	10.450
55		0.000	5.823e4	0.000	10.607
56		0.000	1.243e5	0.000	10.802
57		0.000	4.685e4	0.000	11.024
58		0.000	1.711e4	0.000	11.141
59		0.000	7.340e4	0.000	11.315
60		0.000	6.641e4	0.000	11.427
61		0.000	1.829e5	0.000	11.748
62		0.000	5.596e4	0.000	12.086

2 S016

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120513.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 7:17:34 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	8.587e4	0.000	12.275
64		0.000	5.074e4	0.000	12.388
65		0.000	1.647e5	0.000	12.635
66		0.000	5.217e4	0.000	12.866
67		0.000	7.179e4	0.000	13.083
68		0.000	6.672e4	0.000	13.179
69		0.000	1.245e5	0.000	13.474
70		0.000	1.081e5	0.000	13.564
71		0.000	3.179e4	0.000	13.732
72		0.000	4.285e4	0.000	13.868
73		0.000	8.744e4	0.000	13.958
74		0.000	3.533e4	0.000	14.184
75		0.000	8.316e4	0.000	14.333
76		0.000	8.452e4	0.000	14.475
77		0.000	7.975e4	0.000	14.735
78		0.000	6.826e4	0.000	14.956
79		0.000	4.500e4	0.000	15.188
80	O-TERPHENYL	30.330	8.168e4	15.346	15.317
81		0.000	5.925e4	0.000	15.527
82		0.000	6.067e4	0.000	15.803
83		0.000	2.703e4	0.000	16.046
84		0.000	3.634e4	0.000	16.169
85		0.000	1.998e4	0.000	16.355
86		0.000	6.399e4	0.000	16.503
87		0.000	1.706e4	0.000	16.701
88		0.000	2.123e4	0.000	16.792
89		0.000	9.533e3	0.000	16.937
90		0.000	2.197e4	0.000	17.062
91		0.000	2.177e4	0.000	17.203
92		0.000	2.651e4	0.000	17.341
93		0.000	1.629e4	0.000	17.553
94		0.000	2.936e4	0.000	17.682
95		0.000	5.394e4	0.000	17.974
96		0.000	2.232e4	0.000	18.263
97		0.000	4.223e4	0.000	18.659
98		0.000	1.137e4	0.000	19.002
99		0.000	1.444e4	0.000	19.136
100		0.000	1.506e4	0.000	19.338
101		0.000	1.638e4	0.000	19.516
102		0.000	4.267e4	0.000	19.843
103		0.000	2.211e4	0.000	20.218
104		0.000	2.483e4	0.000	20.784

2 S017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120513.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 7:17:34 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	4.506e4	0.000	21.330
106		0.000	2.280e4	0.000	22.254
107		0.000	3.234e3	0.000	22.515
108		0.000	1.907e4	0.000	22.915
109		0.000	1.148e4	0.000	23.354
110		0.000	1.224e4	0.000	23.589
111		0.000	5.714e3	0.000	24.019
112		0.000	6.144e3	0.000	24.212
Total			4.028e6/1500 = 2685		

$$\frac{2648 - 2685}{(2648 + 2685) \div 2} = \frac{-37}{2667} \times 100 = -1.38\%$$

2 S018

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ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031204\B3120415.D

Date/Time Analyzed: 12/4/03 19:19

REAR

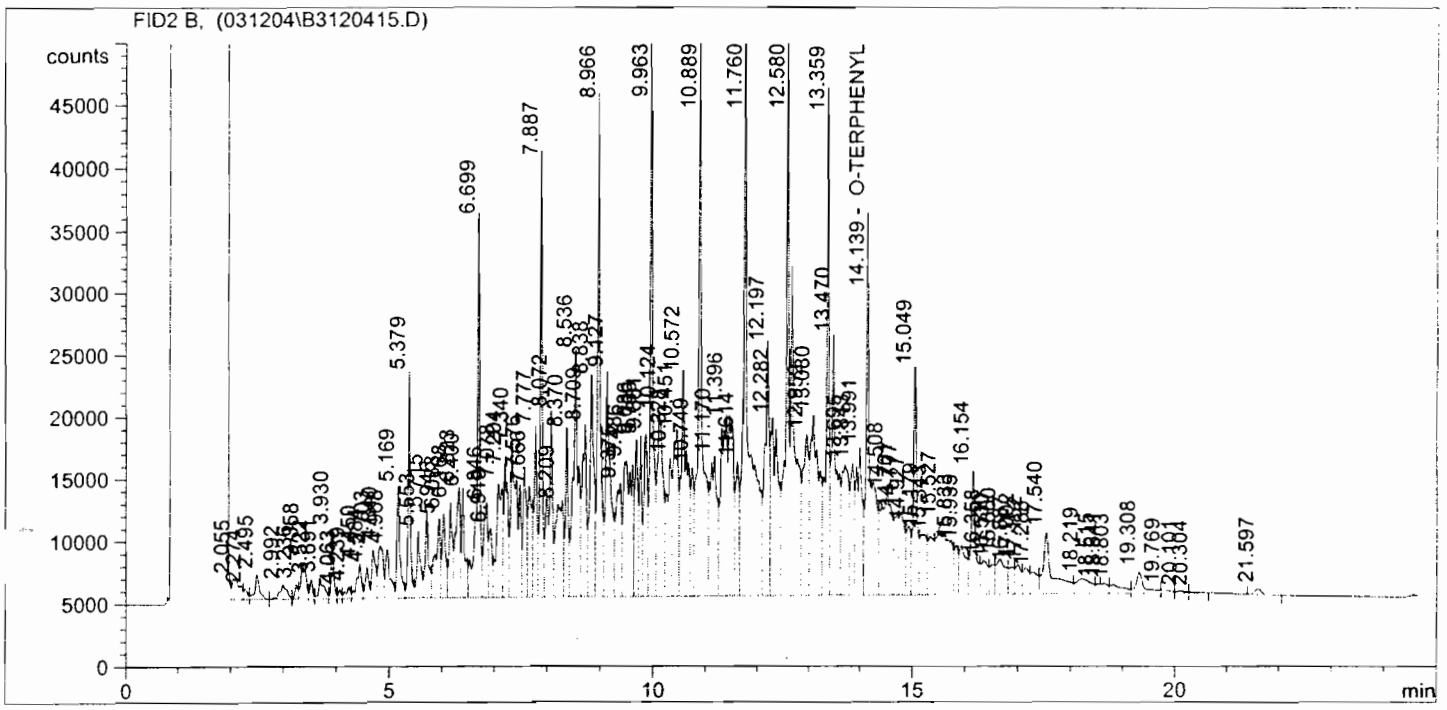
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4378	4232	3.4	15

2 6019

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120415.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/4/03 7:19:43 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.705e4	0.000	2.055
3		0.000	4.074e3	0.000	2.274
4		0.000	1.242e4	0.000	2.495
5		0.000	1.091e4	0.000	2.992
6		0.000	4.656e3	0.000	3.236
7		0.000	1.970e4	0.000	3.358
8		0.000	6.000e3	0.000	3.522
9		0.000	1.233e4	0.000	3.691
10		0.000	1.845e4	0.000	3.930
11		0.000	2.703e3	0.000	4.063
12		0.000	6.009e3	0.000	4.239
13		0.000	1.731e4	0.000	4.450
14		0.000	1.138e4	0.000	4.584
15		0.000	1.931e4	0.000	4.703
16		0.000	2.846e4	0.000	4.840
17		0.000	2.351e4	0.000	4.968
18		0.000	3.709e4	0.000	5.169
19		0.000	5.772e4	0.000	5.379
20		0.000	2.578e4	0.000	5.553

2 8020

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120415.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/4/03 7:19:43 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	3.145e4	0.000	5.715
22		0.000	4.163e4	0.000	5.946
23		0.000	3.240e4	0.000	6.033
24		0.000	3.361e4	0.000	6.168
25		0.000	5.205e4	0.000	6.323
26		0.000	3.703e4	0.000	6.400
27		0.000	1.281e5	0.000	6.699
28		0.000	3.935e4	0.000	6.846
29		0.000	2.391e4	0.000	6.919
30		0.000	7.182e4	0.000	7.078
31		0.000	5.596e4	0.000	7.204
32		0.000	1.190e5	0.000	7.340
33		0.000	4.541e4	0.000	7.576
34		0.000	4.484e4	0.000	7.666
35		0.000	5.481e4	0.000	7.777
36		0.000	1.048e5	0.000	7.887
37		0.000	8.774e4	0.000	8.072
38		0.000	7.463e4	0.000	8.209
39		0.000	5.048e4	0.000	8.370
40		0.000	1.276e5	0.000	8.536
41		0.000	7.992e4	0.000	8.709
42		0.000	9.534e4	0.000	8.838
43		0.000	1.516e5	0.000	8.966
44		0.000	1.218e5	0.000	9.127
45		0.000	6.718e4	0.000	9.375
46		0.000	1.255e5	0.000	9.486
47		0.000	5.322e4	0.000	9.686
48		0.000	4.177e4	0.000	9.766
49		0.000	5.841e4	0.000	9.861
50		0.000	1.664e5	0.000	9.963
51		0.000	1.163e5	0.000	10.124
52		0.000	7.241e4	0.000	10.328
53		0.000	9.410e4	0.000	10.451
54		0.000	1.443e5	0.000	10.572
55		0.000	4.070e4	0.000	10.749
56		0.000	2.447e5	0.000	10.889
57		0.000	1.048e5	0.000	11.170
58		0.000	2.238e5	0.000	11.396
59		0.000	5.168e4	0.000	11.614
60		0.000	3.574e5	0.000	11.760
61		0.000	1.206e5	0.000	12.197
62		0.000	1.369e5	0.000	12.282

2 S021

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120415.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/4/03 7:19:43 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	3.736e5	0.000	12.580
64		0.000	1.000e5	0.000	12.952
65		0.000	1.693e5	0.000	13.080
66		0.000	1.528e5	0.000	13.359
67		0.000	1.484e5	0.000	13.470
68		0.000	9.910e4	0.000	13.695
69		0.000	5.877e4	0.000	13.843
70		0.000	9.858e4	0.000	13.991
71	O-TERPHENYL	37.876	1.955e5	14.062	14.139
72		0.000	1.181e5	0.000	14.508
73		0.000	3.720e4	0.000	14.701
74		0.000	4.873e4	0.000	14.777
75		0.000	3.222e4	0.000	14.927
76		0.000	8.812e4	0.000	15.049
77		0.000	4.320e4	0.000	15.179
78		0.000	3.605e4	0.000	15.343
79		0.000	1.008e5	0.000	15.527
80		0.000	2.036e4	0.000	15.833
81		0.000	3.543e4	0.000	15.935
82		0.000	6.367e4	0.000	16.154
83		0.000	2.521e4	0.000	16.358
84		0.000	1.600e4	0.000	16.530
85		0.000	3.485e4	0.000	16.660
86		0.000	1.590e4	0.000	16.887
87		0.000	1.805e4	0.000	17.002
88		0.000	1.697e4	0.000	17.152
89		0.000	1.718e4	0.000	17.288
90		0.000	6.402e4	0.000	17.540
91		0.000	2.426e4	0.000	18.219
92		0.000	4.169e3	0.000	18.515
93		0.000	7.547e3	0.000	18.641
94		0.000	1.267e4	0.000	18.803
95		0.000	1.890e4	0.000	19.308
96		0.000	3.162e3	0.000	19.769
97		0.000	2.202e3	0.000	20.101
98		0.000	1.338e3	0.000	20.304
99		0.000	4.278e3	0.000	21.597
Total			6.567e6 / 1500 = 4378		

$= \frac{-(4232 - 4378)}{(4232 + 4378) \div 2}$

$= \frac{-146}{4305} \times 100$

$= -3.39\%$

2 6022

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800-932-9047
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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031205\B3120513.D

Date/Time Analyzed: 12/5/03 19:17

REAR

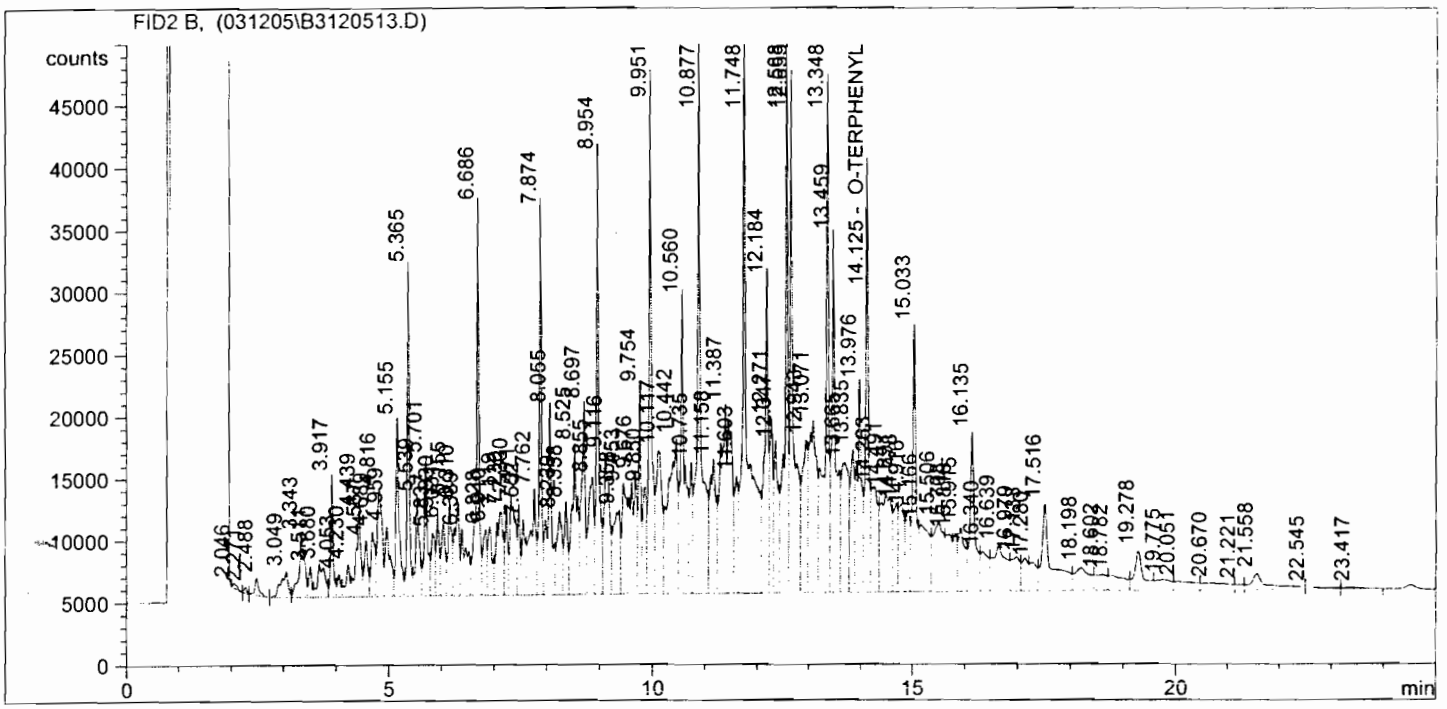
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4446	4232	4.9	15

2 6023

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\B3120513.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 7:17:34 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	2.240e3	0.000	2.046
3		0.000	1.617e3	0.000	2.271
4		0.000	7.821e3	0.000	2.488
5		0.000	2.065e4	0.000	3.049
6		0.000	3.675e4	0.000	3.343
7		0.000	9.834e3	0.000	3.511
8		0.000	2.625e4	0.000	3.680
9		0.000	3.465e4	0.000	3.917
10		0.000	7.884e3	0.000	4.053
11		0.000	1.445e4	0.000	4.230
12		0.000	4.327e4	0.000	4.439
13		0.000	2.189e4	0.000	4.567
14		0.000	2.713e4	0.000	4.689
15		0.000	5.678e4	0.000	4.816
16		0.000	3.855e4	0.000	4.959
17		0.000	6.260e4	0.000	5.155
18		0.000	8.596e4	0.000	5.365
19		0.000	4.050e4	0.000	5.539
20		0.000	4.858e4	0.000	5.701

2 S024

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\B3120513.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 7:17:34 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	2.509e4	0.000	5.837
22		0.000	2.729e4	0.000	5.930
23		0.000	3.050e4	0.000	6.031
24		0.000	3.533e4	0.000	6.155
25		0.000	4.751e4	0.000	6.310
26		0.000	4.294e4	0.000	6.389
27		0.000	1.195e5	0.000	6.686
28		0.000	2.686e4	0.000	6.828
29		0.000	3.153e4	0.000	6.910
30		0.000	5.800e4	0.000	7.119
31		0.000	2.668e4	0.000	7.230
32		0.000	5.904e4	0.000	7.330
33		0.000	2.457e4	0.000	7.471
34		0.000	2.772e4	0.000	7.552
35		0.000	6.378e4	0.000	7.762
36		0.000	9.414e4	0.000	7.874
37		0.000	8.700e4	0.000	8.055
38		0.000	4.509e4	0.000	8.239
39		0.000	3.391e4	0.000	8.358
40		0.000	8.769e4	0.000	8.525
41		0.000	7.449e4	0.000	8.697
42		0.000	6.512e4	0.000	8.855
43		0.000	1.259e5	0.000	8.954
44		0.000	8.279e4	0.000	9.116
45		0.000	6.118e4	0.000	9.358
46		0.000	5.556e4	0.000	9.453
47		0.000	8.586e4	0.000	9.676
48		0.000	5.720e4	0.000	9.754
49		0.000	3.902e4	0.000	9.850
50		0.000	1.559e5	0.000	9.951
51		0.000	9.208e4	0.000	10.117
52		0.000	1.546e5	0.000	10.442
53		0.000	1.379e5	0.000	10.560
54		0.000	4.050e4	0.000	10.735
55		0.000	2.498e5	0.000	10.877
56		0.000	8.881e4	0.000	11.158
57		0.000	2.174e5	0.000	11.387
58		0.000	4.484e4	0.000	11.603
59		0.000	3.334e5	0.000	11.748
60		0.000	1.300e5	0.000	12.184
61		0.000	5.723e4	0.000	12.271
62		0.000	6.758e4	0.000	12.347

2 S025

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\B3120513.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/5/03 7:17:34 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	1.906e5	0.000	12.568
64		0.000	2.114e5	0.000	12.655
65		0.000	9.104e4	0.000	12.943
66		0.000	1.390e5	0.000	13.071
67		0.000	2.025e5	0.000	13.348
68		0.000	1.629e5	0.000	13.459
69		0.000	1.009e5	0.000	13.665
70		0.000	6.472e4	0.000	13.835
71		0.000	1.119e5	0.000	13.976
72	O-TERPHENYL	28.483	1.449e5	14.062	14.125
73		0.000	7.542e4	0.000	14.263
74		0.000	1.132e5	0.000	14.491
75		0.000	4.237e4	0.000	14.691
76		0.000	5.248e4	0.000	14.778
77		0.000	3.703e4	0.000	14.916
78		0.000	1.031e5	0.000	15.033
79		0.000	7.208e4	0.000	15.166
80		0.000	7.657e4	0.000	15.506
81		0.000	3.843e4	0.000	15.708
82		0.000	2.460e4	0.000	15.818
83		0.000	4.436e4	0.000	15.915
84		0.000	8.652e4	0.000	16.135
85		0.000	3.349e4	0.000	16.340
86		0.000	6.442e4	0.000	16.639
87		0.000	3.194e4	0.000	16.979
88		0.000	2.209e4	0.000	17.133
89		0.000	2.350e4	0.000	17.280
90		0.000	9.111e4	0.000	17.516
91		0.000	3.661e4	0.000	18.198
92		0.000	2.058e4	0.000	18.602
93		0.000	2.600e4	0.000	18.782
94		0.000	3.711e4	0.000	19.278
95		0.000	1.806e4	0.000	19.775
96		0.000	1.900e4	0.000	20.051
97		0.000	1.983e4	0.000	20.670
98		0.000	4.460e3	0.000	21.221
99		0.000	2.822e4	0.000	21.558
100		0.000	5.110e3	0.000	22.545
101		0.000	3.118e3	0.000	23.417
Total			6.670e6	/1500 = 4446	

$$\frac{4232 - 4446}{(4232 + 4446) \div 2} = \frac{-214}{4339} \times 100 = -4.93\%$$

2 S026

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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031206\F3120601.D

Date/Time Analyzed: 12/6/03 16:59

FRONT

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	2562	2648	3.3	15

Lab File IDs 031206\B3120601.D

Date/Time Analyzed: 12/6/03 16:59

REAR

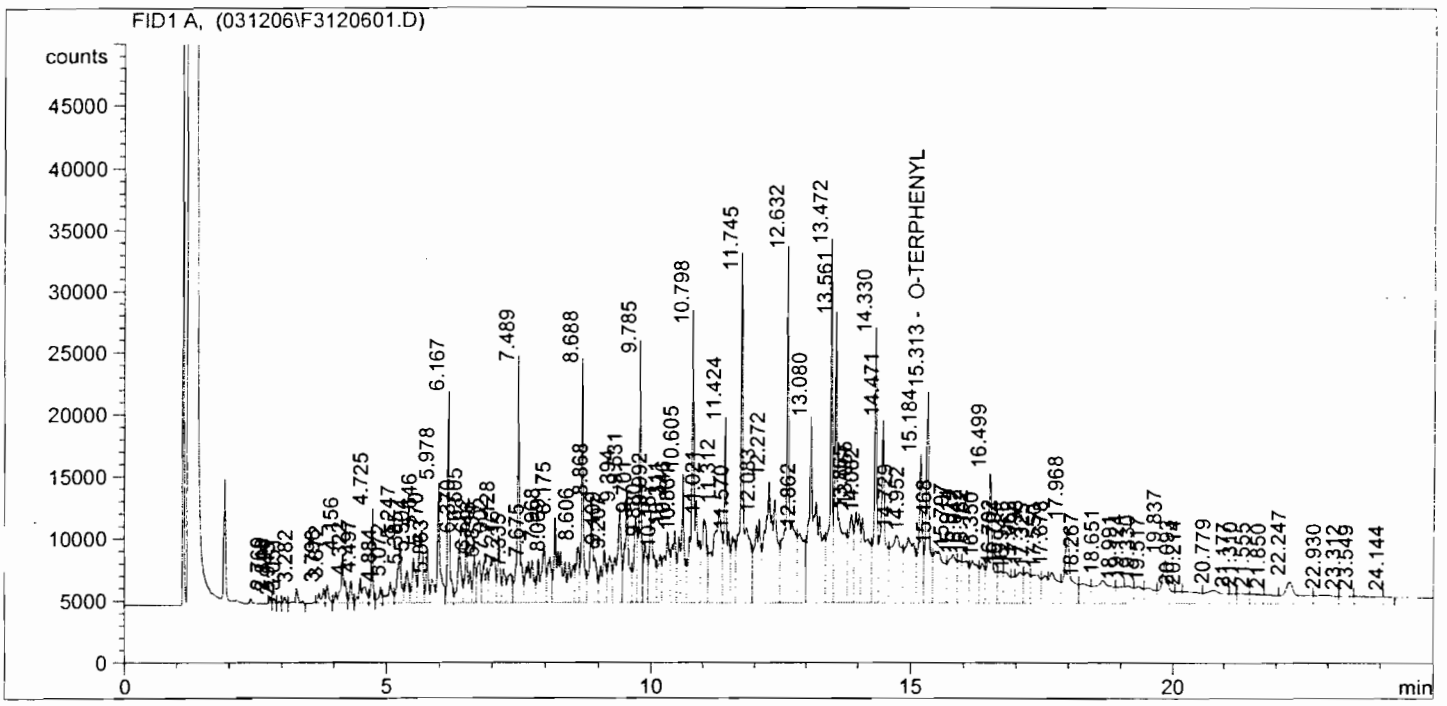
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4690	4232	10.3	15

2 6027

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031206\F3120601.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/6/03 4:59:26 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.107e3	0.000	2.769
3		0.000	1.057e3	0.000	2.848
4		0.000	330.135	0.000	2.945
5		0.000	1.189e3	0.000	3.051
6		0.000	4.149e3	0.000	3.282
7		0.000	5.544e3	0.000	3.798
8		0.000	4.572e3	0.000	3.872
9		0.000	1.955e4	0.000	4.156
10		0.000	5.130e3	0.000	4.322
11		0.000	1.402e4	0.000	4.497
12		0.000	1.819e4	0.000	4.725
13		0.000	4.862e3	0.000	4.884
14		0.000	1.025e4	0.000	5.072
15		0.000	2.158e4	0.000	5.247
16		0.000	1.137e4	0.000	5.385
17		0.000	1.681e4	0.000	5.504
18		0.000	2.949e4	0.000	5.646
19		0.000	1.281e4	0.000	5.770
20		0.000	8.286e3	0.000	5.863

2 6028

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031206\F3120601.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/6/03 4:59:26 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	3.461e4	0.000	5.978
22		0.000	4.644e4	0.000	6.167
23		0.000	2.289e4	0.000	6.370
24		0.000	2.743e4	0.000	6.505
25		0.000	1.239e4	0.000	6.662
26		0.000	1.545e4	0.000	6.746
27		0.000	1.903e4	0.000	6.834
28		0.000	2.662e4	0.000	7.002
29		0.000	1.842e4	0.000	7.128
30		0.000	1.124e4	0.000	7.216
31		0.000	1.351e4	0.000	7.335
32		0.000	6.637e4	0.000	7.489
33		0.000	3.171e4	0.000	7.675
34		0.000	3.395e4	0.000	7.968
35		0.000	1.784e4	0.000	8.069
36		0.000	7.614e4	0.000	8.175
37		0.000	2.025e4	0.000	8.606
38		0.000	5.507e4	0.000	8.688
39		0.000	4.841e4	0.000	8.868
40		0.000	2.686e4	0.000	9.109
41		0.000	1.947e4	0.000	9.207
42		0.000	4.724e4	0.000	9.394
43		0.000	4.883e4	0.000	9.531
44		0.000	2.804e4	0.000	9.701
45		0.000	6.169e4	0.000	9.785
46		0.000	2.227e4	0.000	9.880
47		0.000	4.313e4	0.000	9.992
48		0.000	1.943e4	0.000	10.167
49		0.000	3.902e4	0.000	10.311
50		0.000	3.307e4	0.000	10.446
51		0.000	1.804e4	0.000	10.531
52		0.000	3.874e4	0.000	10.605
53		0.000	1.208e5	0.000	10.798
54		0.000	4.531e4	0.000	11.021
55		0.000	8.925e4	0.000	11.312
56		0.000	6.492e4	0.000	11.424
57		0.000	2.923e4	0.000	11.570
58		0.000	1.499e5	0.000	11.745
59		0.000	5.553e4	0.000	12.083
60		0.000	1.344e5	0.000	12.272
61		0.000	1.619e5	0.000	12.632
62		0.000	5.125e4	0.000	12.862

2 S029

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031206\F3120601.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/6/03 4:59:26 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	1.578e5	0.000	13.080
64		0.000	1.003e5	0.000	13.472
65		0.000	1.357e5	0.000	13.561
66		0.000	4.437e4	0.000	13.865
67		0.000	5.482e4	0.000	13.955
68		0.000	6.561e4	0.000	14.082
69		0.000	8.090e4	0.000	14.330
70		0.000	8.141e4	0.000	14.471
71		0.000	7.795e4	0.000	14.729
72		0.000	6.771e4	0.000	14.952
73		0.000	5.573e4	0.000	15.184
74	O-TERPHENYL	29.599	7.971e4	15.346	15.313
75		0.000	5.851e4	0.000	15.468
76		0.000	4.166e4	0.000	15.797
77		0.000	1.802e4	0.000	15.914
78		0.000	2.688e4	0.000	16.042
79		0.000	3.546e4	0.000	16.162
80		0.000	2.047e4	0.000	16.350
81		0.000	6.442e4	0.000	16.499
82		0.000	1.669e4	0.000	16.702
83		0.000	2.019e4	0.000	16.794
84		0.000	1.028e4	0.000	16.941
85		0.000	2.204e4	0.000	17.062
86		0.000	1.997e4	0.000	17.198
87		0.000	2.744e4	0.000	17.325
88		0.000	1.611e4	0.000	17.550
89		0.000	3.042e4	0.000	17.678
90		0.000	5.456e4	0.000	17.968
91		0.000	2.126e4	0.000	18.267
92		0.000	4.232e4	0.000	18.651
93		0.000	1.279e4	0.000	18.991
94		0.000	1.529e4	0.000	19.124
95		0.000	1.465e4	0.000	19.330
96		0.000	1.842e4	0.000	19.517
97		0.000	3.568e4	0.000	19.837
98		0.000	8.912e3	0.000	20.093
99		0.000	2.164e4	0.000	20.214
100		0.000	2.909e4	0.000	20.779
101		0.000	7.093e3	0.000	21.177
102		0.000	1.225e4	0.000	21.310
103		0.000	1.290e4	0.000	21.555
104		0.000	1.195e4	0.000	21.850

2 S030

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031206\F3120601.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/6/03 4:59:26 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	3.529e4	0.000	22.247
106		0.000	1.981e4	0.000	22.930
107		0.000	1.073e4	0.000	23.312
108		0.000	1.985e4	0.000	23.549
109		0.000	7.368e3	0.000	24.144
Total			3.979e6 / 1500 = 2652		

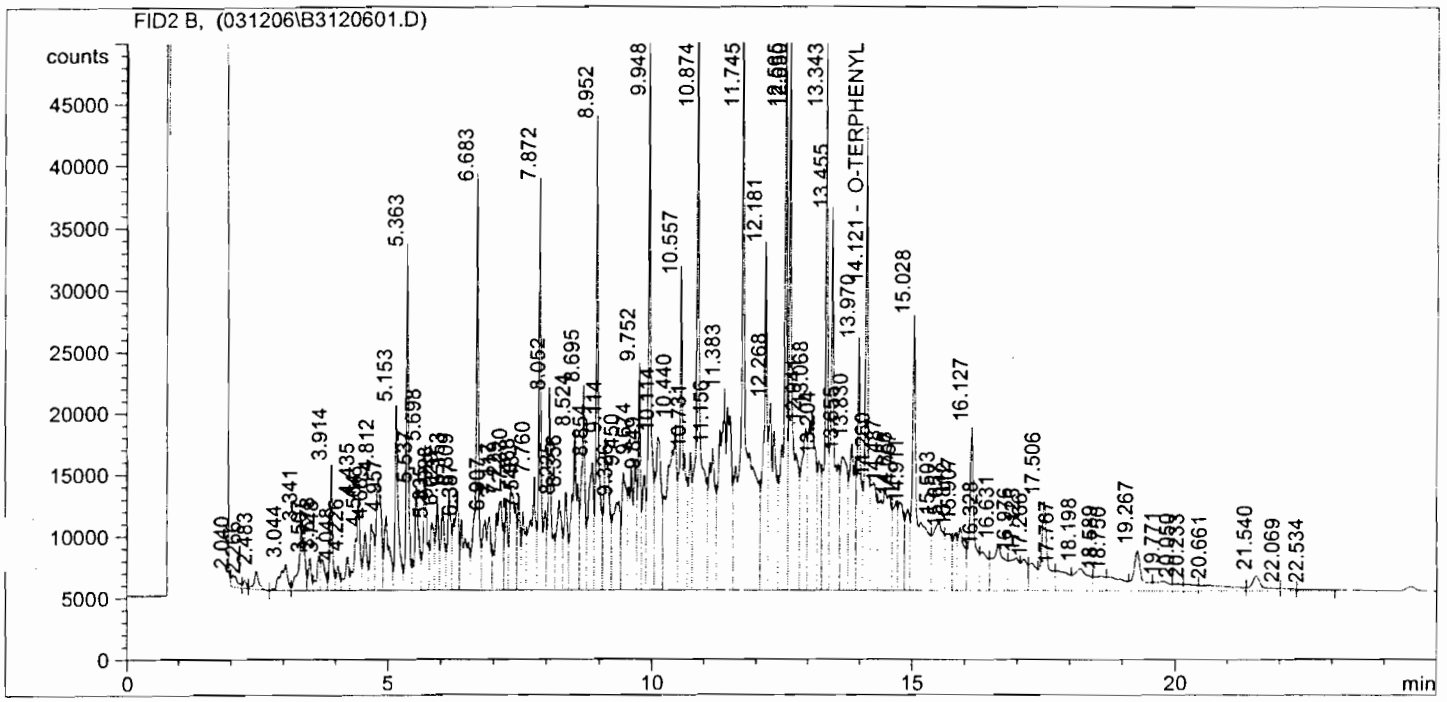
$$\frac{2648 - 2652}{(2648 + 2652) \div 2} = \frac{-4}{2650} \times 100 = -0.15\%$$

2 S031

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031206\B3120601.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/6/03 4:59:26 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	7.422e3	0.000	2.040
3		0.000	2.882e3	0.000	2.266
4		0.000	9.300e3	0.000	2.483
5		0.000	2.126e4	0.000	3.044
6		0.000	3.830e4	0.000	3.341
7		0.000	1.051e4	0.000	3.507
8		0.000	1.337e4	0.000	3.678
9		0.000	1.447e4	0.000	3.748
10		0.000	3.671e4	0.000	3.914
11		0.000	8.626e3	0.000	4.048
12		0.000	1.515e4	0.000	4.226
13		0.000	4.606e4	0.000	4.435
14		0.000	2.353e4	0.000	4.564
15		0.000	2.862e4	0.000	4.689
16		0.000	6.025e4	0.000	4.812
17		0.000	4.160e4	0.000	4.957
18		0.000	6.657e4	0.000	5.153
19		0.000	9.192e4	0.000	5.363
20		0.000	4.312e4	0.000	5.537

2 S032

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031206\B3120601.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/6/03 4:59:26 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	5.142e4	0.000	5.698
22		0.000	2.765e4	0.000	5.835
23		0.000	2.910e4	0.000	5.928
24		0.000	3.294e4	0.000	6.029
25		0.000	3.768e4	0.000	6.153
26		0.000	5.084e4	0.000	6.309
27		0.000	4.635e4	0.000	6.387
28		0.000	1.278e5	0.000	6.683
29		0.000	5.783e4	0.000	6.907
30		0.000	6.915e4	0.000	7.117
31		0.000	2.823e4	0.000	7.229
32		0.000	6.331e4	0.000	7.330
33		0.000	2.703e4	0.000	7.468
34		0.000	2.993e4	0.000	7.548
35		0.000	6.997e4	0.000	7.760
36		0.000	1.235e5	0.000	7.872
37		0.000	7.180e4	0.000	8.052
38		0.000	4.893e4	0.000	8.235
39		0.000	3.688e4	0.000	8.356
40		0.000	9.485e4	0.000	8.524
41		0.000	8.052e4	0.000	8.695
42		0.000	6.953e4	0.000	8.854
43		0.000	1.363e5	0.000	8.952
44		0.000	8.949e4	0.000	9.114
45		0.000	6.740e4	0.000	9.326
46		0.000	6.012e4	0.000	9.450
47		0.000	9.279e4	0.000	9.674
48		0.000	6.157e4	0.000	9.752
49		0.000	4.224e4	0.000	9.849
50		0.000	1.679e5	0.000	9.948
51		0.000	9.973e4	0.000	10.114
52		0.000	1.672e5	0.000	10.440
53		0.000	1.465e5	0.000	10.557
54		0.000	4.918e4	0.000	10.731
55		0.000	2.651e5	0.000	10.874
56		0.000	9.773e4	0.000	11.156
57		0.000	2.342e5	0.000	11.383
58		0.000	4.046e5	0.000	11.745
59		0.000	1.391e5	0.000	12.181
60		0.000	1.336e5	0.000	12.268
61		0.000	2.033e5	0.000	12.565
62		0.000	2.255e5	0.000	12.650

2 6033

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031206\B3120601.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/6/03 4:59:26 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	9.812e4	0.000	12.941
64		0.000	1.445e5	0.000	13.068
65		0.000	4.943e4	0.000	13.204
66		0.000	1.640e5	0.000	13.343
67		0.000	1.707e5	0.000	13.455
68		0.000	1.043e5	0.000	13.655
69		0.000	9.529e4	0.000	13.830
70		0.000	9.431e4	0.000	13.970
71	O-TERPHENYL	29.614	1.507e5	14.062	14.121
72		0.000	7.236e4	0.000	14.260
73		0.000	1.212e5	0.000	14.487
74		0.000	4.250e4	0.000	14.686
75		0.000	5.291e4	0.000	14.767
76		0.000	3.801e4	0.000	14.911
77		0.000	1.793e5	0.000	15.028
78		0.000	7.696e4	0.000	15.503
79		0.000	3.814e4	0.000	15.657
80		0.000	2.409e4	0.000	15.812
81		0.000	4.453e4	0.000	15.907
82		0.000	8.738e4	0.000	16.127
83		0.000	3.255e4	0.000	16.328
84		0.000	5.941e4	0.000	16.631
85		0.000	3.482e4	0.000	16.976
86		0.000	2.110e4	0.000	17.125
87		0.000	2.228e4	0.000	17.266
88		0.000	6.189e4	0.000	17.506
89		0.000	2.646e4	0.000	17.767
90		0.000	3.461e4	0.000	18.198
91		0.000	1.830e4	0.000	18.589
92		0.000	2.429e4	0.000	18.750
93		0.000	3.565e4	0.000	19.267
94		0.000	1.545e4	0.000	19.771
95		0.000	6.961e3	0.000	20.050
96		0.000	8.638e3	0.000	20.233
97		0.000	2.036e4	0.000	20.661
98		0.000	1.768e4	0.000	21.540
99		0.000	3.432e3	0.000	22.069
100		0.000	5.239e3	0.000	22.534
Total			7.036e6/1500=		

$\frac{4232 - 4690}{(4232 + 4690) \div 2} = \frac{-458}{4461} \times 100 = -10.27\%$

2 6034

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031208\F3120814.D

Date/Time Analyzed: 12/8/03 18:45

FRONT

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	2563	2648	3.3	15

Lab File IDs 031208\B03120814.D

Date/Time Analyzed: 12/8/03 18:45

REAR

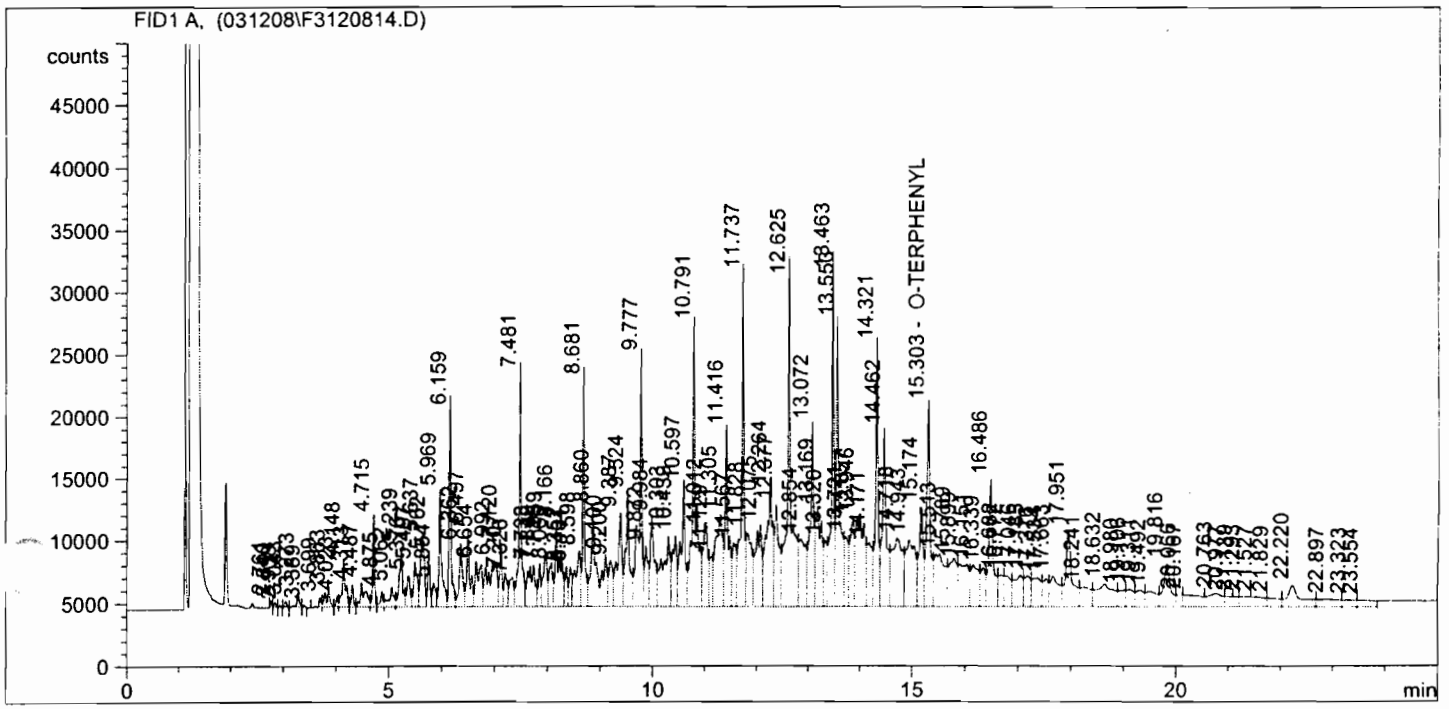
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4703	4232	10.5	15

2 S035

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031208\F3120814.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/8/03 6:45:00 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.049e3	0.000	2.761
3		0.000	1.020e3	0.000	2.840
4		0.000	283.653	0.000	2.938
5		0.000	1.134e3	0.000	3.043
6		0.000	3.716e3	0.000	3.273
7		0.000	260.077	0.000	3.389
8		0.000	1.929e3	0.000	3.699
9		0.000	7.921e3	0.000	3.863
10		0.000	2.119e3	0.000	4.023
11		0.000	1.697e4	0.000	4.148
12		0.000	4.798e3	0.000	4.313
13		0.000	1.326e4	0.000	4.487
14		0.000	1.787e4	0.000	4.715
15		0.000	4.473e3	0.000	4.875
16		0.000	9.706e3	0.000	5.062
17		0.000	2.109e4	0.000	5.239
18		0.000	1.093e4	0.000	5.376
19		0.000	1.623e4	0.000	5.497
20		0.000	2.896e4	0.000	5.637

2 S036

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031208\F3120814.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/8/03 6:45:00 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.256e4	0.000	5.762
22		0.000	8.103e3	0.000	5.854
23		0.000	3.401e4	0.000	5.969
24		0.000	4.586e4	0.000	6.159
25		0.000	2.232e4	0.000	6.362
26		0.000	2.672e4	0.000	6.497
27		0.000	2.713e4	0.000	6.654
28		0.000	4.457e4	0.000	6.992
29		0.000	1.779e4	0.000	7.120
30		0.000	1.086e4	0.000	7.207
31		0.000	1.320e4	0.000	7.326
32		0.000	6.483e4	0.000	7.481
33		0.000	3.050e4	0.000	7.733
34		0.000	1.095e4	0.000	7.848
35		0.000	2.222e4	0.000	7.959
36		0.000	1.745e4	0.000	8.060
37		0.000	4.178e4	0.000	8.166
38		0.000	1.061e4	0.000	8.352
39		0.000	1.103e4	0.000	8.431
40		0.000	3.004e4	0.000	8.598
41		0.000	5.415e4	0.000	8.681
42		0.000	4.730e4	0.000	8.860
43		0.000	2.614e4	0.000	9.100
44		0.000	1.905e4	0.000	9.200
45		0.000	4.599e4	0.000	9.387
46		0.000	4.762e4	0.000	9.524
47		0.000	8.745e4	0.000	9.777
48		0.000	2.200e4	0.000	9.872
49		0.000	4.148e4	0.000	9.984
50		0.000	5.750e4	0.000	10.303
51		0.000	3.228e4	0.000	10.439
52		0.000	5.478e4	0.000	10.597
53		0.000	1.180e5	0.000	10.791
54		0.000	4.422e4	0.000	11.012
55		0.000	1.636e4	0.000	11.129
56		0.000	7.009e4	0.000	11.305
57		0.000	6.331e4	0.000	11.416
58		0.000	2.804e4	0.000	11.567
59		0.000	1.015e5	0.000	11.737
60		0.000	4.406e4	0.000	11.828
61		0.000	5.394e4	0.000	12.075
62		0.000	8.140e4	0.000	12.264

2 6037

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031208\F3120814.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/8/03 6:45:00 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	4.894e4	0.000	12.377
64		0.000	1.567e5	0.000	12.625
65		0.000	4.974e4	0.000	12.854
66		0.000	7.021e4	0.000	13.072
67		0.000	6.232e4	0.000	13.169
68		0.000	2.251e4	0.000	13.320
69		0.000	9.684e4	0.000	13.463
70		0.000	1.033e5	0.000	13.553
71		0.000	3.016e4	0.000	13.721
72		0.000	4.127e4	0.000	13.857
73		0.000	8.339e4	0.000	13.946
74		0.000	3.434e4	0.000	14.171
75		0.000	7.877e4	0.000	14.321
76		0.000	8.072e4	0.000	14.462
77		0.000	7.728e4	0.000	14.718
78		0.000	6.738e4	0.000	14.943
79		0.000	4.366e4	0.000	15.174
80	O-TERPHENYL	30.462	7.844e4	15.346	15.303
81		0.000	5.914e4	0.000	15.513
82		0.000	4.030e4	0.000	15.789
83		0.000	4.418e4	0.000	15.899
84		0.000	3.475e4	0.000	16.151
85		0.000	2.003e4	0.000	16.339
86		0.000	6.150e4	0.000	16.486
87		0.000	1.711e4	0.000	16.682
88		0.000	2.165e4	0.000	16.772
89		0.000	2.985e4	0.000	17.046
90		0.000	2.095e4	0.000	17.185
91		0.000	2.639e4	0.000	17.376
92		0.000	1.588e4	0.000	17.534
93		0.000	2.905e4	0.000	17.663
94		0.000	5.239e4	0.000	17.951
95		0.000	2.182e4	0.000	18.241
96		0.000	4.096e4	0.000	18.632
97		0.000	1.172e4	0.000	18.980
98		0.000	1.391e4	0.000	19.106
99		0.000	1.424e4	0.000	19.311
100		0.000	1.747e4	0.000	19.492
101		0.000	3.361e4	0.000	19.816
102		0.000	7.254e3	0.000	20.066
103		0.000	2.195e4	0.000	20.167
104		0.000	2.136e4	0.000	20.763

2 6038

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031208\F3120814.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/8/03 6:45:00 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	7.532e3	0.000	20.977
106		0.000	5.801e3	0.000	21.139
107		0.000	1.056e4	0.000	21.293
108		0.000	1.365e4	0.000	21.527
109		0.000	1.106e4	0.000	21.829
110		0.000	3.217e4	0.000	22.220
111		0.000	1.676e4	0.000	22.897
112		0.000	9.587e3	0.000	23.323
113		0.000	1.174e4	0.000	23.554
Total			3.845e6 / 1500 = 2563		

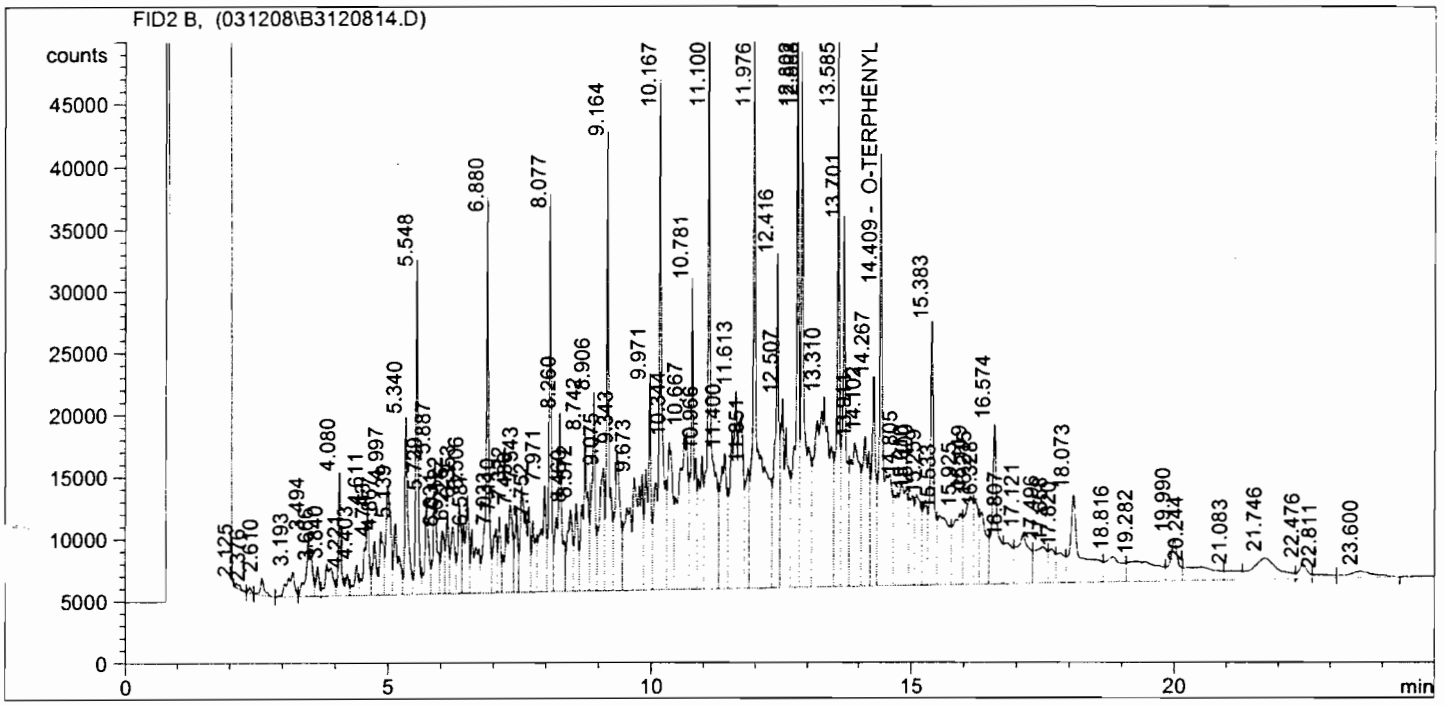
$$\frac{2648-2563}{(2648+2563)\div 2} = \frac{85}{2606} \times 100 = 3.26\%$$

2 S039

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031208\B3120814.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/8/03 6:45:00 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	2.382e3	0.000	2.125
3		0.000	1.624e3	0.000	2.376
4		0.000	7.721e3	0.000	2.610
5		0.000	1.982e4	0.000	3.193
6		0.000	3.588e4	0.000	3.494
7		0.000	9.552e3	0.000	3.666
8		0.000	2.539e4	0.000	3.840
9		0.000	3.394e4	0.000	4.080
10		0.000	7.352e3	0.000	4.221
11		0.000	1.391e4	0.000	4.403
12		0.000	4.180e4	0.000	4.611
13		0.000	2.115e4	0.000	4.743
14		0.000	2.720e4	0.000	4.867
15		0.000	5.434e4	0.000	4.997
16		0.000	3.754e4	0.000	5.139
17		0.000	6.083e4	0.000	5.340
18		0.000	8.405e4	0.000	5.548
19		0.000	3.946e4	0.000	5.729
20		0.000	4.790e4	0.000	5.887

2 S040

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031208\B3120814.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/8/03 6:45:00 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	2.338e4	0.000	6.031
22		0.000	2.656e4	0.000	6.122
23		0.000	3.067e4	0.000	6.225
24		0.000	3.332e4	0.000	6.353
25		0.000	4.646e4	0.000	6.506
26		0.000	4.150e4	0.000	6.587
27		0.000	1.175e5	0.000	6.880
28		0.000	2.663e4	0.000	7.033
29		0.000	2.410e4	0.000	7.110
30		0.000	6.083e4	0.000	7.322
31		0.000	2.873e4	0.000	7.436
32		0.000	8.140e4	0.000	7.543
33		0.000	3.047e4	0.000	7.752
34		0.000	5.940e4	0.000	7.971
35		0.000	9.462e4	0.000	8.077
36		0.000	8.608e4	0.000	8.260
37		0.000	4.491e4	0.000	8.460
38		0.000	3.367e4	0.000	8.572
39		0.000	8.497e4	0.000	8.742
40		0.000	7.571e4	0.000	8.906
41		0.000	6.456e4	0.000	9.075
42		0.000	1.277e5	0.000	9.164
43		0.000	8.219e4	0.000	9.343
44		0.000	1.650e5	0.000	9.673
45		0.000	9.404e4	0.000	9.971
46		0.000	2.116e5	0.000	10.167
47		0.000	8.186e4	0.000	10.344
48		0.000	1.578e5	0.000	10.667
49		0.000	1.229e5	0.000	10.781
50		0.000	6.633e4	0.000	10.966
51		0.000	2.476e5	0.000	11.100
52		0.000	9.585e4	0.000	11.400
53		0.000	2.226e5	0.000	11.613
54		0.000	5.062e4	0.000	11.851
55		0.000	3.407e5	0.000	11.976
56		0.000	1.336e5	0.000	12.416
57		0.000	1.374e5	0.000	12.507
58		0.000	1.947e5	0.000	12.802
59		0.000	2.251e5	0.000	12.888
60		0.000	3.131e5	0.000	13.310
61		0.000	1.590e5	0.000	13.585
62		0.000	1.441e5	0.000	13.701

2 6041

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031208\B3120814.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/8/03 6:45:00 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	1.478e5	0.000	13.911
64		0.000	1.107e5	0.000	14.102
65		0.000	8.280e4	0.000	14.267
66	O-TERPHENYL	47.269	2.316e5	14.062	14.409
67		0.000	1.307e5	0.000	14.805
68		0.000	4.595e4	0.000	15.010
69		0.000	5.986e4	0.000	15.100
70		0.000	4.077e4	0.000	15.259
71		0.000	1.106e5	0.000	15.383
72		0.000	8.357e4	0.000	15.533
73		0.000	6.746e4	0.000	15.925
74		0.000	8.062e4	0.000	16.119
75		0.000	3.910e4	0.000	16.215
76		0.000	5.161e4	0.000	16.328
77		0.000	9.659e4	0.000	16.574
78		0.000	3.684e4	0.000	16.807
79		0.000	6.800e4	0.000	17.121
80		0.000	4.685e4	0.000	17.496
81		0.000	2.294e4	0.000	17.658
82		0.000	2.557e4	0.000	17.820
83		0.000	1.074e5	0.000	18.073
84		0.000	4.464e4	0.000	18.816
85		0.000	6.425e4	0.000	19.282
86		0.000	3.678e4	0.000	19.990
87		0.000	4.487e4	0.000	20.244
88		0.000	1.525e4	0.000	21.083
89		0.000	5.976e4	0.000	21.746
90		0.000	1.423e4	0.000	22.476
91		0.000	7.875e3	0.000	22.811
92		0.000	1.879e4	0.000	23.600
Total			7.055e6 / 4703		

$$\frac{4232-4703}{(4232+4703)\div 2} = \frac{-471}{4468} \times 100 = -10.54\%$$

2 6042

OFFICES:
6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031211\B3121115.D

Date/Time Analyzed: 12/11/03 18:35

REAR

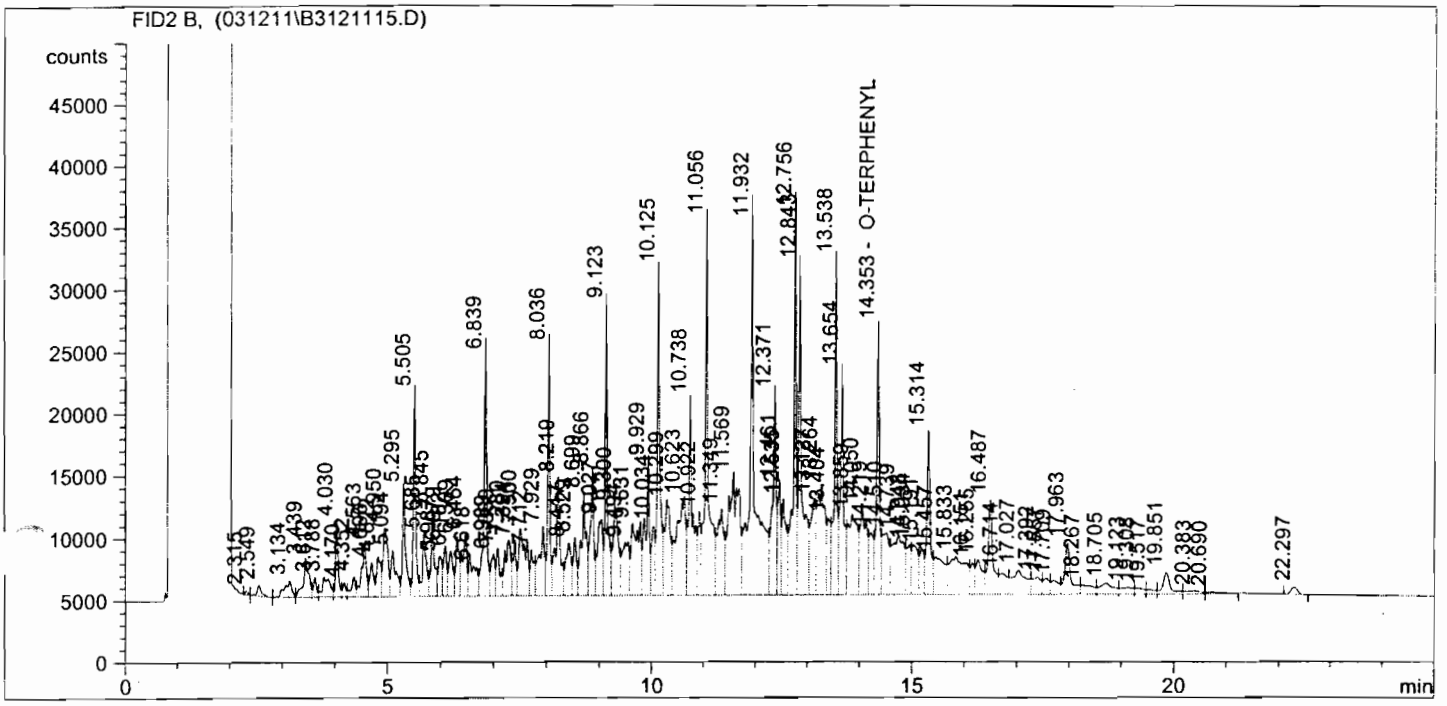
COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4101	4232	3.1	15

2 6043

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031211\B3121115.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1000mg/L
Acquired On: 12/11/03 6:35:11 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.155e3	0.000	2.315
3		0.000	5.103e3	0.000	2.549
4		0.000	1.318e4	0.000	3.134
5		0.000	2.344e4	0.000	3.439
6		0.000	6.442e3	0.000	3.612
7		0.000	1.626e4	0.000	3.788
8		0.000	2.180e4	0.000	4.030
9		0.000	4.856e3	0.000	4.170
10		0.000	9.010e3	0.000	4.352
11		0.000	2.747e4	0.000	4.563
12		0.000	1.405e4	0.000	4.696
13		0.000	1.753e4	0.000	4.822
14		0.000	3.592e4	0.000	4.950
15		0.000	2.485e4	0.000	5.094
16		0.000	3.991e4	0.000	5.295
17		0.000	5.487e4	0.000	5.505
18		0.000	2.601e4	0.000	5.685
19		0.000	3.122e4	0.000	5.845
20		0.000	1.556e4	0.000	5.987

2 6044

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031211\B3121115.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1000mg/L
Acquired On: 12/11/03 6:35:11 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.733e4	0.000	6.079
22		0.000	2.007e4	0.000	6.182
23		0.000	2.186e4	0.000	6.309
24		0.000	3.077e4	0.000	6.464
25		0.000	2.779e4	0.000	6.618
26		0.000	7.655e4	0.000	6.839
27		0.000	1.748e4	0.000	6.989
28		0.000	1.999e4	0.000	7.069
29		0.000	3.603e4	0.000	7.280
30		0.000	1.873e4	0.000	7.394
31		0.000	5.362e4	0.000	7.500
32		0.000	1.956e4	0.000	7.712
33		0.000	3.900e4	0.000	7.929
34		0.000	6.138e4	0.000	8.036
35		0.000	5.572e4	0.000	8.219
36		0.000	2.904e4	0.000	8.417
37		0.000	2.194e4	0.000	8.529
38		0.000	5.529e4	0.000	8.699
39		0.000	4.855e4	0.000	8.866
40		0.000	4.193e4	0.000	9.027
41		0.000	8.178e4	0.000	9.123
42		0.000	5.332e4	0.000	9.300
43		0.000	4.031e4	0.000	9.494
44		0.000	6.641e4	0.000	9.631
45		0.000	6.052e4	0.000	9.929
46		0.000	2.507e4	0.000	10.034
47		0.000	1.003e5	0.000	10.125
48		0.000	6.110e4	0.000	10.299
49		0.000	9.839e4	0.000	10.623
50		0.000	9.063e4	0.000	10.738
51		0.000	2.433e4	0.000	10.922
52		0.000	1.554e5	0.000	11.056
53		0.000	6.080e4	0.000	11.349
54		0.000	1.379e5	0.000	11.569
55		0.000	2.406e5	0.000	11.932
56		0.000	8.184e4	0.000	12.371
57		0.000	3.648e4	0.000	12.461
58		0.000	4.458e4	0.000	12.535
59		0.000	1.191e5	0.000	12.756
60		0.000	1.350e5	0.000	12.843
61		0.000	5.398e4	0.000	13.127
62		0.000	9.034e4	0.000	13.264

2 S045

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031211\B3121115.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1000mg/L
Acquired On: 12/11/03 6:35:11 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	2.878e4	0.000	13.404
64		0.000	9.707e4	0.000	13.538
65		0.000	8.319e4	0.000	13.654
66		0.000	8.170e4	0.000	13.859
67		0.000	6.538e4	0.000	14.050
68		0.000	2.937e4	0.000	14.219
69	O-TERPHENYL	18.080	8.735e4	14.234	14.353
70		0.000	4.547e4	0.000	14.510
71		0.000	7.414e4	0.000	14.739
72		0.000	2.380e4	0.000	14.948
73		0.000	3.277e4	0.000	15.034
74		0.000	2.155e4	0.000	15.191
75		0.000	6.356e4	0.000	15.314
76		0.000	4.261e4	0.000	15.457
77		0.000	6.634e4	0.000	15.833
78		0.000	1.401e4	0.000	16.151
79		0.000	2.573e4	0.000	16.255
80		0.000	5.067e4	0.000	16.487
81		0.000	1.864e4	0.000	16.714
82		0.000	3.700e4	0.000	17.027
83		0.000	1.619e4	0.000	17.392
84		0.000	1.101e4	0.000	17.557
85		0.000	1.203e4	0.000	17.709
86		0.000	3.441e4	0.000	17.963
87		0.000	1.226e4	0.000	18.267
88		0.000	1.659e4	0.000	18.705
89		0.000	8.906e3	0.000	19.123
90		0.000	5.918e3	0.000	19.308
91		0.000	4.018e3	0.000	19.517
92		0.000	1.708e4	0.000	19.851
93		0.000	5.113e3	0.000	20.383
94		0.000	4.023e3	0.000	20.690
95		0.000	5.164e3	0.000	22.297
Total			4.101e6 / 1000 = 4101		

$$\frac{4232-4101}{(4232+4101)\div 2} = \frac{131}{4167} \times 100 = 3.14\%$$

2 6046

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

Lab File IDs 031204\B3120438.D
031204\B3120439.D

Date Analyzed: 12/05/03

Matrix: Soil

Sample ID: 03112401-03MS

SAMPLE SPIKE DISTILLATE	SPIKE ADDED (mg/kg)	SAMPLE CONC (mg/kg)	SPIKE CONC (mg/kg)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	ND	688	69	50-150

Sample ID: 03112401-03MSD

SAMPLE SPIKE DUP DISTILLATE	SPIKE ADDED (mg/kg)	SAMPLE CONC (mg/kg)	SPK DUP CONC (mg/kg)	SPIKE DUP REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Diesel Fuel	1000	ND	788	79	14	20	50-150

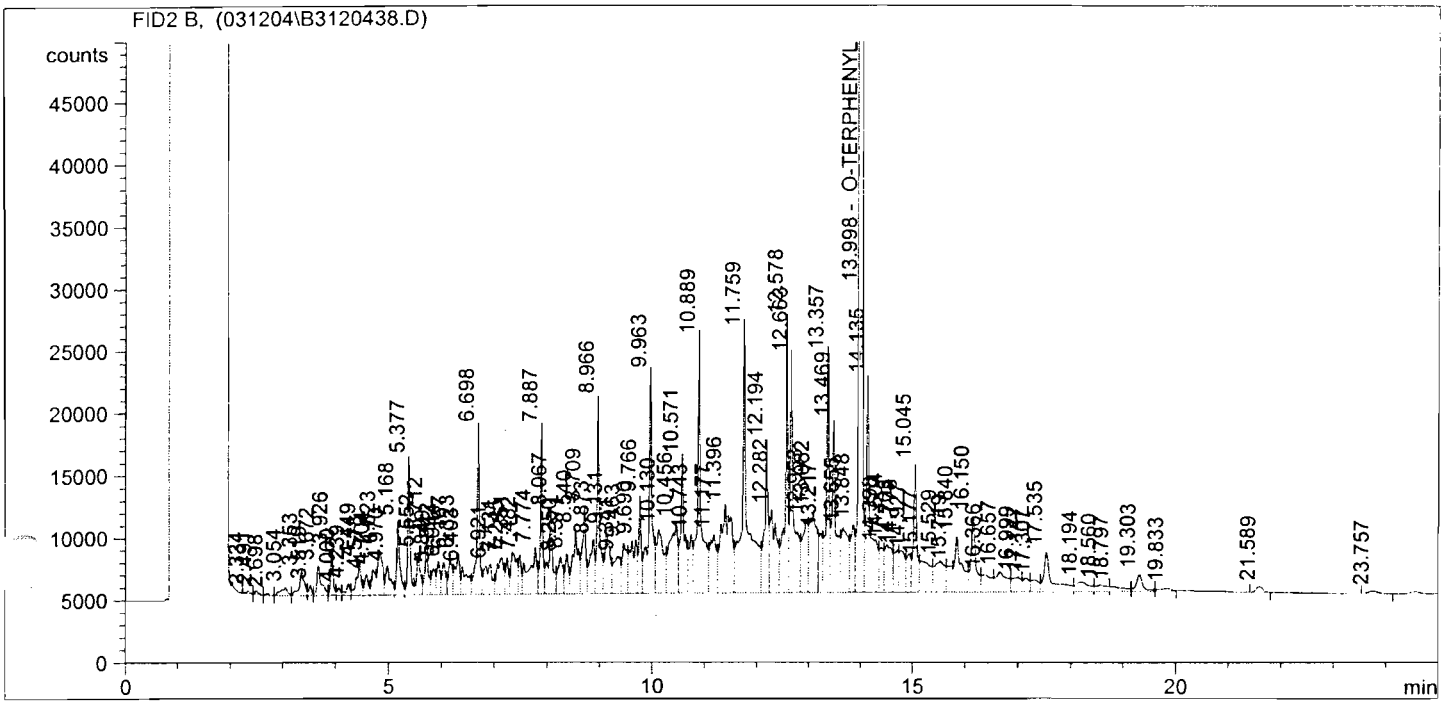
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

2 S047

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120438.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: 03112401-03 MS
Acquired On: 12/5/03 7:24:51 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.314e3	0.000	2.334
3		0.000	1.532e3	0.000	2.491
4		0.000	823.276	0.000	2.698
5		0.000	6.052e3	0.000	3.054
6		0.000	1.318e4	0.000	3.353
7		0.000	3.069e3	0.000	3.519
8		0.000	1.394e4	0.000	3.672
9		0.000	1.254e4	0.000	3.926
10		0.000	2.370e3	0.000	4.060
11		0.000	4.662e3	0.000	4.239
12		0.000	1.592e4	0.000	4.449
13		0.000	8.218e3	0.000	4.578
14		0.000	1.055e4	0.000	4.704
15		0.000	2.320e4	0.000	4.823
16		0.000	1.524e4	0.000	4.970
17		0.000	2.549e4	0.000	5.168
18		0.000	3.622e4	0.000	5.377
19		0.000	1.662e4	0.000	5.552
20		0.000	2.006e4	0.000	5.712

2 S048

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120438.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: 03112401-03 MS
Acquired On: 12/5/03 7:24:51 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.047e4	0.000	5.849
22		0.000	1.113e4	0.000	5.942
23		0.000	1.274e4	0.000	6.044
24		0.000	1.470e4	0.000	6.167
25		0.000	2.010e4	0.000	6.323
26		0.000	1.796e4	0.000	6.403
27		0.000	5.186e4	0.000	6.698
28		0.000	2.493e4	0.000	6.921
29		0.000	2.487e4	0.000	7.131
30		0.000	1.125e4	0.000	7.245
31		0.000	2.572e4	0.000	7.351
32		0.000	1.071e4	0.000	7.482
33		0.000	3.989e4	0.000	7.774
34		0.000	4.195e4	0.000	7.887
35		0.000	3.818e4	0.000	8.067
36		0.000	1.962e4	0.000	8.250
37		0.000	1.473e4	0.000	8.371
38		0.000	3.836e4	0.000	8.540
39		0.000	3.356e4	0.000	8.709
40		0.000	2.736e4	0.000	8.873
41		0.000	5.756e4	0.000	8.966
42		0.000	3.676e4	0.000	9.131
43		0.000	2.728e4	0.000	9.341
44		0.000	2.579e4	0.000	9.463
45		0.000	3.820e4	0.000	9.690
46		0.000	2.633e4	0.000	9.766
47		0.000	8.934e4	0.000	9.963
48		0.000	4.927e4	0.000	10.130
49		0.000	6.039e4	0.000	10.456
50		0.000	5.860e4	0.000	10.571
51		0.000	2.370e4	0.000	10.743
52		0.000	1.135e5	0.000	10.889
53		0.000	4.111e4	0.000	11.177
54		0.000	9.866e4	0.000	11.396
55		0.000	1.736e5	0.000	11.759
56		0.000	5.960e4	0.000	12.194
57		0.000	5.837e4	0.000	12.282
58		0.000	8.808e4	0.000	12.578
59		0.000	9.926e4	0.000	12.663
60		0.000	4.294e4	0.000	12.953
61		0.000	6.464e4	0.000	13.082
62		0.000	2.234e4	0.000	13.217

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120438.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: 03112401-03 MS
Acquired On: 12/5/03 7:24:51 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	7.460e4	0.000	13.357
64		0.000	7.567e4	0.000	13.469
65		0.000	4.986e4	0.000	13.655
66		0.000	3.096e4	0.000	13.848
67	O-TERPHENYL	599.837	3.096e6	14.062	13.998 -60%
68		0.000	1.050e5	0.000	14.135
69		0.000	2.064e4	0.000	14.398
70		0.000	3.847e4	0.000	14.504
71		0.000	1.990e4	0.000	14.703
72		0.000	2.501e4	0.000	14.778
73		0.000	1.754e4	0.000	14.927
74		0.000	4.896e4	0.000	15.045
75		0.000	3.391e4	0.000	15.177
76		0.000	3.452e4	0.000	15.529
77		0.000	1.459e4	0.000	15.719
78		0.000	4.262e4	0.000	15.840
79		0.000	3.879e4	0.000	16.150
80		0.000	1.816e4	0.000	16.366
81		0.000	2.438e4	0.000	16.657
82		0.000	1.374e4	0.000	16.999
83		0.000	9.251e3	0.000	17.147
84		0.000	9.851e3	0.000	17.307
85		0.000	3.559e4	0.000	17.535
86		0.000	1.373e4	0.000	18.194
87		0.000	8.007e3	0.000	18.560
88		0.000	7.326e3	0.000	18.797
89		0.000	1.225e4	0.000	19.303
90		0.000	3.867e3	0.000	19.833
91		0.000	4.027e3	0.000	21.589
92		0.000	2.613e3	0.000	23.757
Total			6.007e6		-3.096e6

$$= \frac{291000}{4232} = 687.854$$

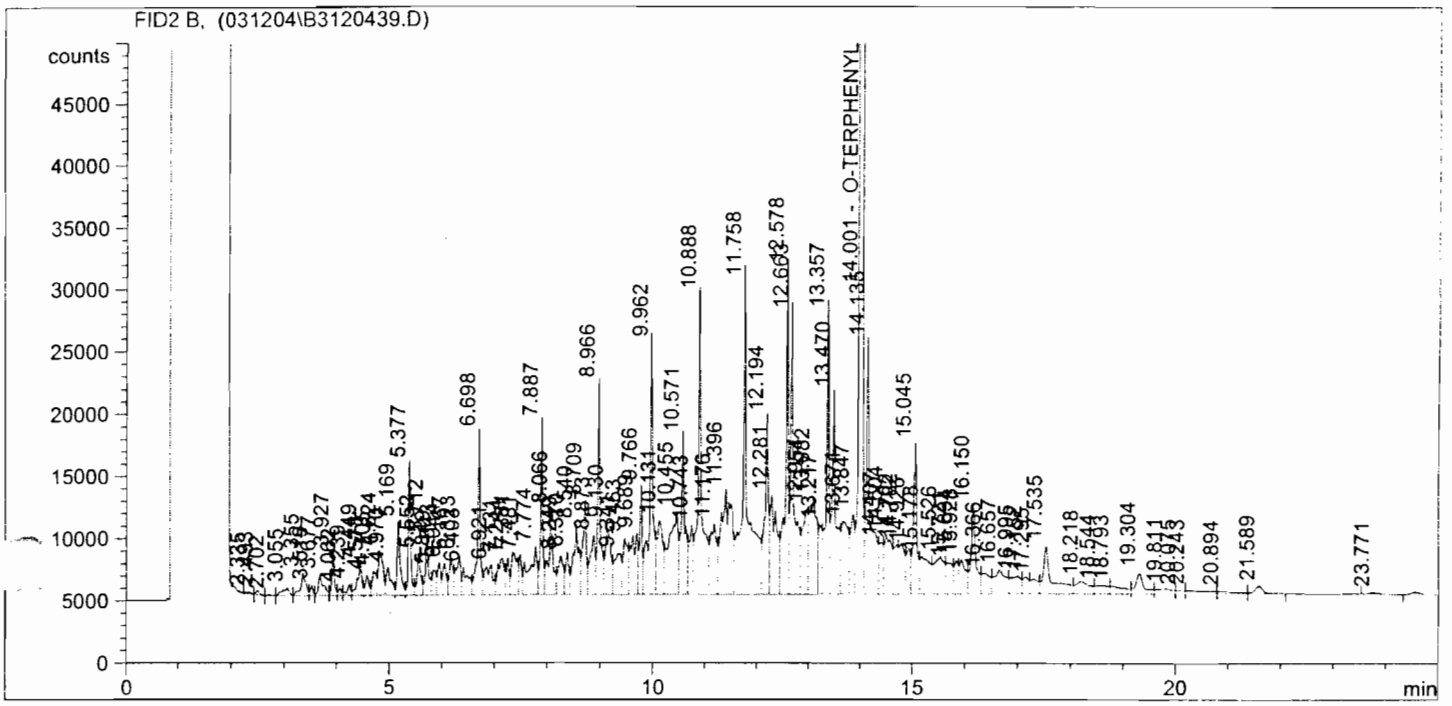
$$\frac{687.854}{1000} \times 100 = 68.785\%$$

2 6050

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120439.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: 03112401-02 MSD
Acquired On: 12/5/03 7:55:16 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.030e3	0.000	2.335
3		0.000	1.534e3	0.000	2.493
4		0.000	520.393	0.000	2.702
5		0.000	5.830e3	0.000	3.055
6		0.000	1.280e4	0.000	3.355
7		0.000	3.053e3	0.000	3.519
8		0.000	1.138e4	0.000	3.677
9		0.000	1.219e4	0.000	3.927
10		0.000	2.371e3	0.000	4.062
11		0.000	4.568e3	0.000	4.239
12		0.000	1.551e4	0.000	4.449
13		0.000	8.037e3	0.000	4.578
14		0.000	1.030e4	0.000	4.705
15		0.000	2.255e4	0.000	4.824
16		0.000	1.492e4	0.000	4.970
17		0.000	2.505e4	0.000	5.169
18		0.000	3.522e4	0.000	5.377
19		0.000	1.640e4	0.000	5.552
20		0.000	1.981e4	0.000	5.712

2 S051

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120439.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: 03112401-02 MSD
Acquired On: 12/5/03 7:55:16 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.002e4	0.000	5.849
22		0.000	1.098e4	0.000	5.943
23		0.000	1.268e4	0.000	6.044
24		0.000	1.446e4	0.000	6.167
25		0.000	1.994e4	0.000	6.323
26		0.000	1.780e4	0.000	6.403
27		0.000	5.145e4	0.000	6.698
28		0.000	2.491e4	0.000	6.921
29		0.000	2.510e4	0.000	7.131
30		0.000	1.155e4	0.000	7.244
31		0.000	2.656e4	0.000	7.351
32		0.000	1.096e4	0.000	7.481
33		0.000	4.158e4	0.000	7.774
34		0.000	4.341e4	0.000	7.887
35		0.000	4.033e4	0.000	8.066
36		0.000	2.082e4	0.000	8.249
37		0.000	1.571e4	0.000	8.370
38		0.000	4.128e4	0.000	8.540
39		0.000	3.624e4	0.000	8.709
40		0.000	3.003e4	0.000	8.873
41		0.000	6.303e4	0.000	8.966
42		0.000	4.086e4	0.000	9.130
43		0.000	3.066e4	0.000	9.341
44		0.000	2.847e4	0.000	9.463
45		0.000	4.353e4	0.000	9.689
46		0.000	2.996e4	0.000	9.766
47		0.000	1.025e5	0.000	9.962
48		0.000	4.665e4	0.000	10.131
49		0.000	8.106e4	0.000	10.455
50		0.000	6.779e4	0.000	10.571
51		0.000	2.886e4	0.000	10.743
52		0.000	1.337e5	0.000	10.888
53		0.000	4.888e4	0.000	11.176
54		0.000	1.180e5	0.000	11.396
55		0.000	2.078e5	0.000	11.758
56		0.000	7.122e4	0.000	12.194
57		0.000	6.986e4	0.000	12.281
58		0.000	1.045e5	0.000	12.578
59		0.000	1.177e5	0.000	12.663
60		0.000	5.109e4	0.000	12.954
61		0.000	7.616e4	0.000	13.082
62		0.000	2.594e4	0.000	13.217

2 S052

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120439.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: 03112401-02 MSD
Acquired On: 12/5/03 7:55:16 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	8.761e4	0.000	13.357
64		0.000	9.119e4	0.000	13.470
65		0.000	5.581e4	0.000	13.674
66		0.000	3.590e4	0.000	13.847
67	O-TERPHENYL	724.600	3.740e6	14.062	14.001 - 72/
68		0.000	1.250e5	0.000	14.135
69		0.000	2.315e4	0.000	14.407
70		0.000	4.641e4	0.000	14.504
71		0.000	2.305e4	0.000	14.702
72		0.000	3.069e4	0.000	14.782
73		0.000	2.054e4	0.000	14.926
74		0.000	5.852e4	0.000	15.045
75		0.000	3.882e4	0.000	15.178
76		0.000	4.121e4	0.000	15.526
77		0.000	2.084e4	0.000	15.721
78		0.000	1.521e4	0.000	15.834
79		0.000	2.379e4	0.000	15.928
80		0.000	4.651e4	0.000	16.150
81		0.000	1.976e4	0.000	16.366
82		0.000	2.958e4	0.000	16.657
83		0.000	1.973e4	0.000	16.995
84		0.000	1.099e4	0.000	17.152
85		0.000	1.228e4	0.000	17.295
86		0.000	4.756e4	0.000	17.535
87		0.000	1.893e4	0.000	18.218
88		0.000	1.159e4	0.000	18.544
89		0.000	1.204e4	0.000	18.793
90		0.000	1.858e4	0.000	19.304
91		0.000	8.294e3	0.000	19.811
92		0.000	2.985e3	0.000	20.075
93		0.000	7.655e3	0.000	20.243
94		0.000	4.484e3	0.000	20.894
95		0.000	6.594e3	0.000	21.589
96		0.000	1.962e3	0.000	23.771
Total			7.075e6 - 3.740e6		

$= \frac{3335000}{4232} = 788.043$

$\frac{788.043}{1000} \times 100 = 78.8043\%$

2 S053

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DIESEL RANGE ORGANICS
LCS & LCS DUPLICATE SUMMARY

Lab File IDs 031205\F3120542.D
031205\F3120543.D

Date Analyzed: 12/06/03

Matrix: Water

Sample ID: LCS 12-3-03 1000C

SAMPLE SPIKE DISTILLATE	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	SPIKE CONC (mg/L)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	ND	906	91	50-150

Sample ID: LCSD 12-3-03 1000C

SAMPLE SPIKE DUP DISTILLATE	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	SPK DUP CONC (mg/L)	SPIKE DUP REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Diesel Fuel	1000	ND	708	71	24	20	50-150

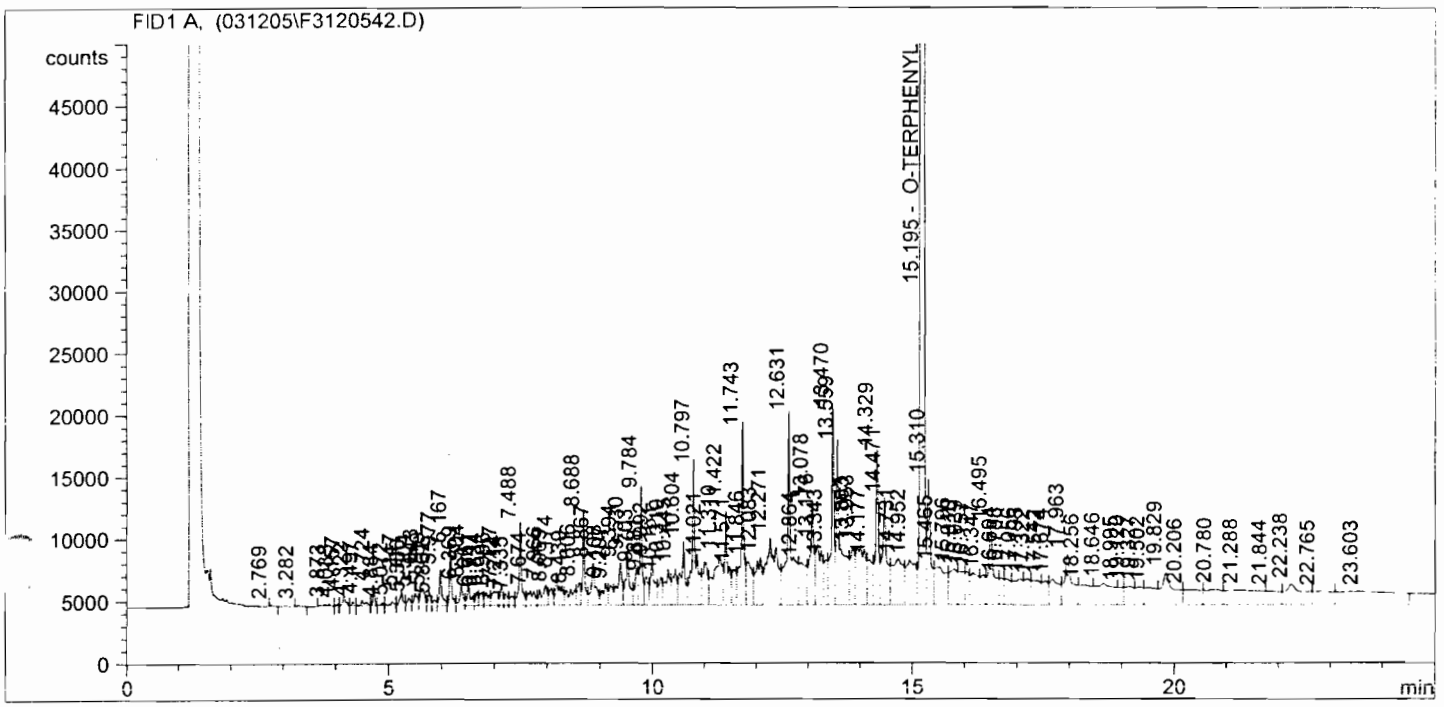
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

2 6054

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120542.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS WATER
Acquired On: 12/6/03 2:11:08 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	265.630	0.000	2.769
3		0.000	105.888	0.000	3.282
4		0.000	1.126e3	0.000	3.873
5		0.000	369.938	0.000	4.033
6		0.000	3.533e3	0.000	4.157
7		0.000	795.765	0.000	4.322
8		0.000	2.828e3	0.000	4.497
9		0.000	3.702e3	0.000	4.724
10		0.000	837.861	0.000	4.884
11		0.000	2.074e3	0.000	5.072
12		0.000	4.796e3	0.000	5.247
13		0.000	2.668e3	0.000	5.386
14		0.000	4.517e3	0.000	5.504
15		0.000	7.615e3	0.000	5.643
16		0.000	3.408e3	0.000	5.769
17		0.000	2.056e3	0.000	5.862
18		0.000	9.880e3	0.000	5.977
19		0.000	1.283e4	0.000	6.167
20		0.000	7.021e3	0.000	6.369

2 6055

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120542.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS WATER
Acquired On: 12/6/03 2:11:08 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	7.926e3	0.000	6.504
22		0.000	3.563e3	0.000	6.661
23		0.000	4.778e3	0.000	6.747
24		0.000	6.054e3	0.000	6.834
25		0.000	8.299e3	0.000	6.996
26		0.000	6.061e3	0.000	7.127
27		0.000	3.808e3	0.000	7.214
28		0.000	4.349e3	0.000	7.335
29		0.000	2.249e4	0.000	7.488
30		0.000	1.107e4	0.000	7.674
31		0.000	1.221e4	0.000	7.966
32		0.000	6.780e3	0.000	8.069
33		0.000	1.642e4	0.000	8.174
34		0.000	1.323e4	0.000	8.439
35		0.000	8.012e3	0.000	8.606
36		0.000	2.185e4	0.000	8.688
37		0.000	2.005e4	0.000	8.867
38		0.000	1.140e4	0.000	9.108
39		0.000	8.365e3	0.000	9.207
40		0.000	2.076e4	0.000	9.394
41		0.000	2.187e4	0.000	9.530
42		0.000	1.270e4	0.000	9.703
43		0.000	2.814e4	0.000	9.784
44		0.000	1.054e4	0.000	9.881
45		0.000	2.047e4	0.000	9.992
46		0.000	1.111e4	0.000	10.161
47		0.000	1.937e4	0.000	10.310
48		0.000	1.678e4	0.000	10.445
49		0.000	2.875e4	0.000	10.604
50		0.000	6.100e4	0.000	10.797
51		0.000	2.329e4	0.000	11.021
52		0.000	4.783e4	0.000	11.310
53		0.000	3.472e4	0.000	11.422
54		0.000	1.613e4	0.000	11.571
55		0.000	5.580e4	0.000	11.743
56		0.000	2.628e4	0.000	11.846
57		0.000	3.171e4	0.000	12.083
58		0.000	7.742e4	0.000	12.271
59		0.000	9.266e4	0.000	12.631
60		0.000	3.166e4	0.000	12.864
61		0.000	4.257e4	0.000	13.078
62		0.000	3.982e4	0.000	13.176

2 6056

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120542.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS WATER
Acquired On: 12/6/03 2:11:08 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	1.684e4	0.000	13.343
64		0.000	5.798e4	0.000	13.470
65		0.000	8.665e4	0.000	13.559
66		0.000	2.950e4	0.000	13.863
67		0.000	5.790e4	0.000	13.953
68		0.000	2.432e4	0.000	14.177
69		0.000	5.031e4	0.000	14.329
70		0.000	5.215e4	0.000	14.471
71		0.000	5.463e4	0.000	14.731
72		0.000	4.443e4	0.000	14.952
73	O-TERPHENYL	769.103	2.071e6	15.346	15.195
74		0.000	4.673e4	0.000	15.310
75		0.000	4.461e4	0.000	15.465
76		0.000	2.901e4	0.000	15.796
77		0.000	2.287e4	0.000	15.910
78		0.000	1.391e4	0.000	16.039
79		0.000	2.695e4	0.000	16.157
80		0.000	1.627e4	0.000	16.347
81		0.000	4.753e4	0.000	16.495
82		0.000	1.186e4	0.000	16.694
83		0.000	1.757e4	0.000	16.788
84		0.000	2.663e4	0.000	17.056
85		0.000	1.702e4	0.000	17.195
86		0.000	2.315e4	0.000	17.322
87		0.000	1.486e4	0.000	17.542
88		0.000	2.637e4	0.000	17.674
89		0.000	4.217e4	0.000	17.963
90		0.000	2.577e4	0.000	18.256
91		0.000	4.136e4	0.000	18.646
92		0.000	9.752e3	0.000	18.995
93		0.000	1.779e4	0.000	19.120
94		0.000	1.433e4	0.000	19.327
95		0.000	2.119e4	0.000	19.502
96		0.000	4.397e4	0.000	19.829
97		0.000	2.705e4	0.000	20.206
98		0.000	2.733e4	0.000	20.780
99		0.000	5.509e4	0.000	21.288
100		0.000	2.013e4	0.000	21.844
101		0.000	4.080e4	0.000	22.238
102		0.000	2.726e4	0.000	22.765
103		0.000	8.499e4	0.000	23.603

2 6057

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120542.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS WATER
Acquired On: 12/6/03 2:11:08 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

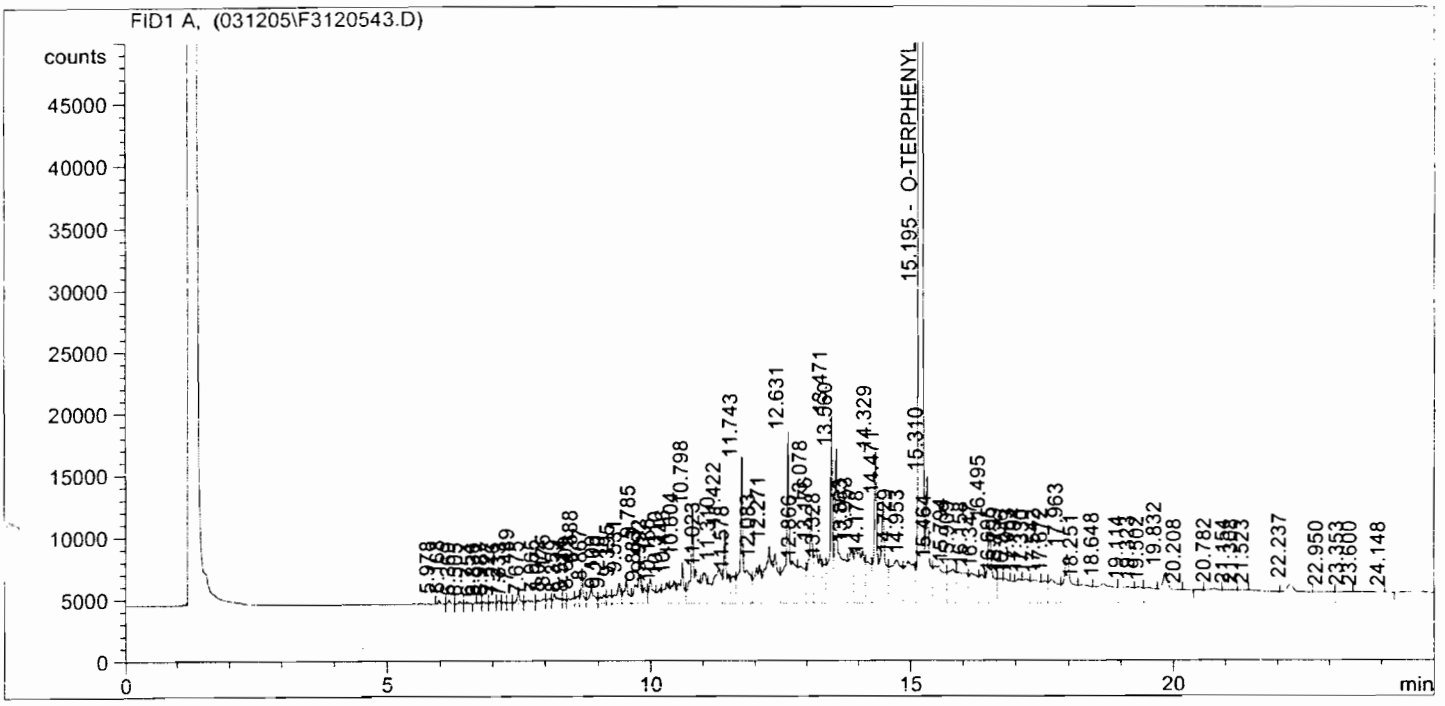
#	Compound Name	Amount	Area	Exp.RT	Meas.RT
Total			4.469e6		

2 S058

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120543.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCSD WATER
Acquired On: 12/6/03 2:41:35 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	684.641	0.000	5.978
3		0.000	863.641	0.000	6.168
4		0.000	663.025	0.000	6.369
5		0.000	582.987	0.000	6.505
6		0.000	565.118	0.000	6.754
7		0.000	828.878	0.000	6.836
8		0.000	1.072e3	0.000	6.987
9		0.000	1.017e3	0.000	7.127
10		0.000	692.811	0.000	7.216
11		0.000	604.228	0.000	7.333
12		0.000	4.590e3	0.000	7.489
13		0.000	2.417e3	0.000	7.675
14		0.000	3.030e3	0.000	7.965
15		0.000	2.090e3	0.000	8.072
16		0.000	5.140e3	0.000	8.175
17		0.000	1.333e3	0.000	8.359
18		0.000	3.226e3	0.000	8.514
19		0.000	2.845e3	0.000	8.609
20		0.000	8.109e3	0.000	8.688

2 S059

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120543.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCSD WATER
Acquired On: 12/6/03 2:41:35 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	8.188e3	0.000	8.867
22		0.000	4.830e3	0.000	9.109
23		0.000	3.715e3	0.000	9.210
24		0.000	1.001e4	0.000	9.395
25		0.000	1.090e4	0.000	9.531
26		0.000	2.208e4	0.000	9.785
27		0.000	5.909e3	0.000	9.883
28		0.000	1.212e4	0.000	9.992
29		0.000	5.843e3	0.000	10.166
30		0.000	1.200e4	0.000	10.310
31		0.000	1.079e4	0.000	10.446
32		0.000	1.860e4	0.000	10.604
33		0.000	4.244e4	0.000	10.798
34		0.000	1.757e4	0.000	11.023
35		0.000	3.471e4	0.000	11.310
36		0.000	2.681e4	0.000	11.422
37		0.000	1.262e4	0.000	11.578
38		0.000	6.522e4	0.000	11.743
39		0.000	2.610e4	0.000	12.083
40		0.000	6.563e4	0.000	12.271
41		0.000	8.250e4	0.000	12.631
42		0.000	2.805e4	0.000	12.866
43		0.000	3.846e4	0.000	13.078
44		0.000	3.566e4	0.000	13.176
45		0.000	1.357e4	0.000	13.328
46		0.000	5.539e4	0.000	13.471
47		0.000	7.972e4	0.000	13.560
48		0.000	2.747e4	0.000	13.863
49		0.000	5.470e4	0.000	13.953
50		0.000	2.256e4	0.000	14.178
51		0.000	4.840e4	0.000	14.329
52		0.000	5.026e4	0.000	14.471
53		0.000	5.100e4	0.000	14.729
54		0.000	4.262e4	0.000	14.953
55	O-TERPHENYL	771.976	2.079e6	15.346	15.195
56		0.000	4.636e4	0.000	15.310
57		0.000	4.357e4	0.000	15.464
58		0.000	2.874e4	0.000	15.794
59		0.000	3.282e4	0.000	15.909
60		0.000	2.601e4	0.000	16.158
61		0.000	1.512e4	0.000	16.347
62		0.000	4.382e4	0.000	16.495

2 8060

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031205\F3120543.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCSD WATER
Acquired On: 12/6/03 2:41:35 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	1.331e4	0.000	16.695
64		0.000	1.560e4	0.000	16.799
65		0.000	8.208e3	0.000	16.936
66		0.000	1.626e4	0.000	17.053
67		0.000	1.720e4	0.000	17.194
68		0.000	2.154e4	0.000	17.330
69		0.000	1.337e4	0.000	17.542
70		0.000	2.460e4	0.000	17.672
71		0.000	4.023e4	0.000	17.963
72		0.000	2.353e4	0.000	18.251
73		0.000	3.832e4	0.000	18.648
74		0.000	2.445e4	0.000	19.114
75		0.000	1.316e4	0.000	19.323
76		0.000	1.869e4	0.000	19.502
77		0.000	3.929e4	0.000	19.832
78		0.000	1.346e4	0.000	20.208
79		0.000	2.237e4	0.000	20.782
80		0.000	1.866e4	0.000	21.154
81		0.000	1.329e4	0.000	21.308
82		0.000	3.504e4	0.000	21.523
83		0.000	3.878e4	0.000	22.237
84		0.000	2.240e4	0.000	22.950
85		0.000	1.837e4	0.000	23.353
86		0.000	3.195e4	0.000	23.600
87		0.000	9.275e3	0.000	24.148
Total			3.954e6		

2 6061

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
LCS & LCS DUPLICATE SUMMARY

Lab File IDs 031204\B3120436.D
031204\B3120437.D

Date Analyzed: 12/05/03

Matrix: Soil

Sample ID: LCS 12-3-03 30C

SAMPLE SPIKE DISTILLATE	SPIKE ADDED (mg/kg)	SAMPLE CONC (mg/kg)	SPIKE CONC (mg/kg)	SPIKE REC (%)	#	QC LIMITS (%)
Diesel Fuel	1000	ND	612	61		50-150

Sample ID: LCSD 12-3-03 30C

SAMPLE SPIKE DUP DISTILLATE	SPIKE ADDED (mg/kg)	SAMPLE CONC (mg/kg)	SPK DUP CONC (mg/kg)	SPIKE DUP REC (%)	#	RPD (%)	QC RPD (%)	QC LIMITS (%)
Diesel Fuel	1000	ND	296	30	*	70	20	50-150

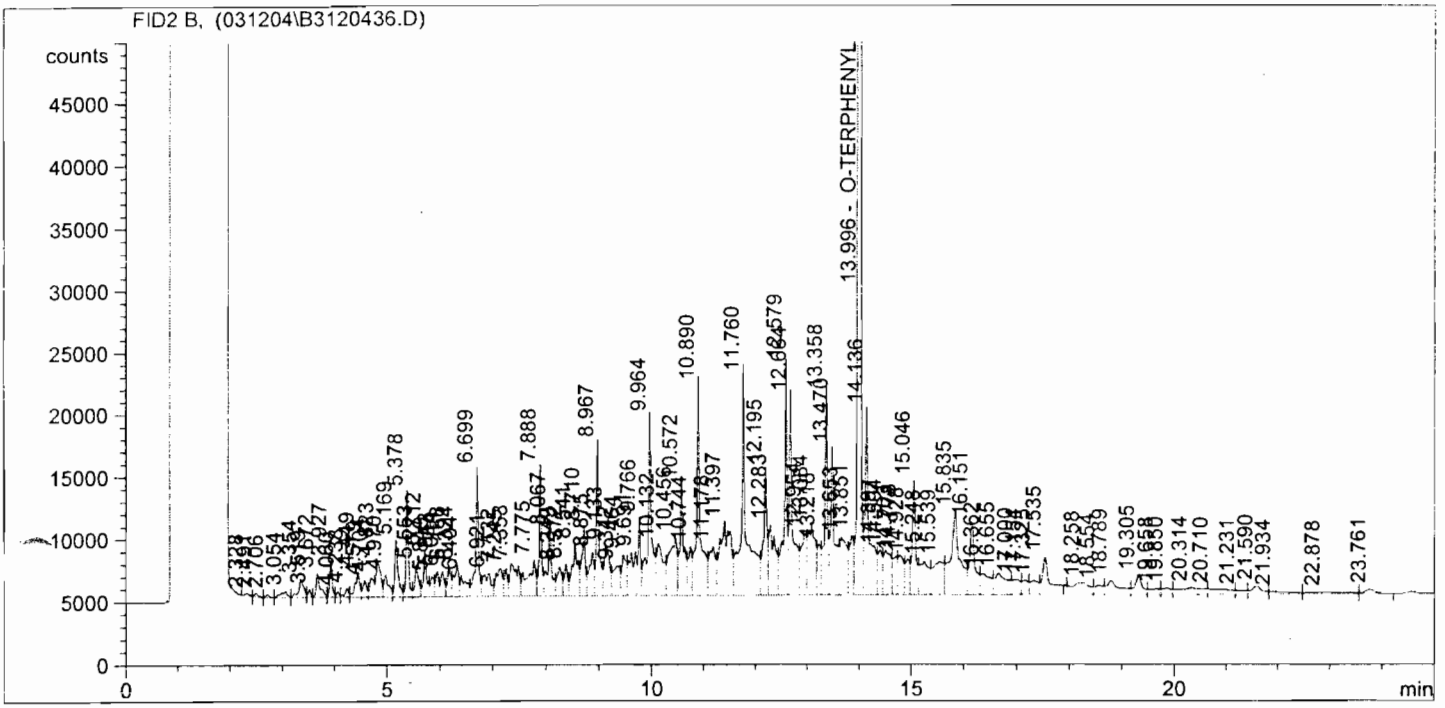
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

2 6062

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120436.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/5/03 6:23:56 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.233e3	0.000	2.328
3		0.000	1.377e3	0.000	2.491
4		0.000	1.202e3	0.000	2.706
5		0.000	4.572e3	0.000	3.054
6		0.000	1.003e4	0.000	3.354
7		0.000	2.257e3	0.000	3.519
8		0.000	1.085e4	0.000	3.672
9		0.000	9.669e3	0.000	3.927
10		0.000	1.651e3	0.000	4.060
11		0.000	3.360e3	0.000	4.238
12		0.000	1.197e4	0.000	4.449
13		0.000	6.412e3	0.000	4.579
14		0.000	8.288e3	0.000	4.704
15		0.000	1.775e4	0.000	4.823
16		0.000	1.149e4	0.000	4.970
17		0.000	1.933e4	0.000	5.169
18		0.000	2.785e4	0.000	5.378
19		0.000	1.268e4	0.000	5.553
20		0.000	1.535e4	0.000	5.712

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120436.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/5/03 6:23:56 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	7.814e3	0.000	5.849
22		0.000	8.428e3	0.000	5.943
23		0.000	9.697e3	0.000	6.044
24		0.000	1.113e4	0.000	6.168
25		0.000	1.534e4	0.000	6.324
26		0.000	1.353e4	0.000	6.404
27		0.000	3.980e4	0.000	6.699
28		0.000	1.897e4	0.000	6.921
29		0.000	1.903e4	0.000	7.132
30		0.000	8.625e3	0.000	7.245
31		0.000	2.798e4	0.000	7.353
32		0.000	3.077e4	0.000	7.775
33		0.000	3.279e4	0.000	7.888
34		0.000	3.004e4	0.000	8.067
35		0.000	1.527e4	0.000	8.249
36		0.000	1.156e4	0.000	8.372
37		0.000	3.019e4	0.000	8.541
38		0.000	2.671e4	0.000	8.710
39		0.000	2.154e4	0.000	8.875
40		0.000	4.612e4	0.000	8.967
41		0.000	2.965e4	0.000	9.133
42		0.000	2.214e4	0.000	9.342
43		0.000	2.058e4	0.000	9.464
44		0.000	3.101e4	0.000	9.691
45		0.000	2.170e4	0.000	9.766
46		0.000	7.576e4	0.000	9.964
47		0.000	3.804e4	0.000	10.132
48		0.000	4.948e4	0.000	10.456
49		0.000	4.879e4	0.000	10.572
50		0.000	1.930e4	0.000	10.744
51		0.000	9.516e4	0.000	10.890
52		0.000	3.433e4	0.000	11.178
53		0.000	8.254e4	0.000	11.397
54		0.000	1.459e5	0.000	11.760
55		0.000	5.012e4	0.000	12.195
56		0.000	4.929e4	0.000	12.283
57		0.000	7.447e4	0.000	12.579
58		0.000	8.419e4	0.000	12.664
59		0.000	3.643e4	0.000	12.954
60		0.000	5.517e4	0.000	13.084
61		0.000	1.922e4	0.000	13.218
62		0.000	6.304e4	0.000	13.358

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120436.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/5/03 6:23:56 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	6.495e4	0.000	13.470
64		0.000	4.479e4	0.000	13.653
65		0.000	2.768e4	0.000	13.851
66	O-TERPHENYL	528.109	2.726e6	14.062	13.996 -53%
67		0.000	9.369e4	0.000	14.136
68		0.000	2.127e4	0.000	14.397
69		0.000	3.476e4	0.000	14.504
70		0.000	1.778e4	0.000	14.703
71		0.000	2.409e4	0.000	14.778
72		0.000	1.623e4	0.000	14.928
73		0.000	4.468e4	0.000	15.046
74		0.000	3.315e4	0.000	15.248
75		0.000	3.854e4	0.000	15.539
76		0.000	8.292e4	0.000	15.835
77		0.000	4.190e4	0.000	16.151
78		0.000	2.206e4	0.000	16.362
79		0.000	2.705e4	0.000	16.655
80		0.000	1.301e4	0.000	17.000
81		0.000	9.759e3	0.000	17.154
82		0.000	1.224e4	0.000	17.325
83		0.000	3.201e4	0.000	17.535
84		0.000	2.255e4	0.000	18.258
85		0.000	8.383e3	0.000	18.554
86		0.000	1.929e4	0.000	18.789
87		0.000	1.450e4	0.000	19.305
88		0.000	6.202e3	0.000	19.658
89		0.000	6.066e3	0.000	19.850
90		0.000	1.729e4	0.000	20.314
91		0.000	1.163e4	0.000	20.710
92		0.000	3.939e3	0.000	21.231
93		0.000	9.029e3	0.000	21.590
94		0.000	6.107e3	0.000	21.934
95		0.000	7.547e3	0.000	22.878
96		0.000	5.116e3	0.000	23.761
Total			5.315e6 - 2.726e6		

$= \frac{2589000}{4232} = 611.767$ ppm

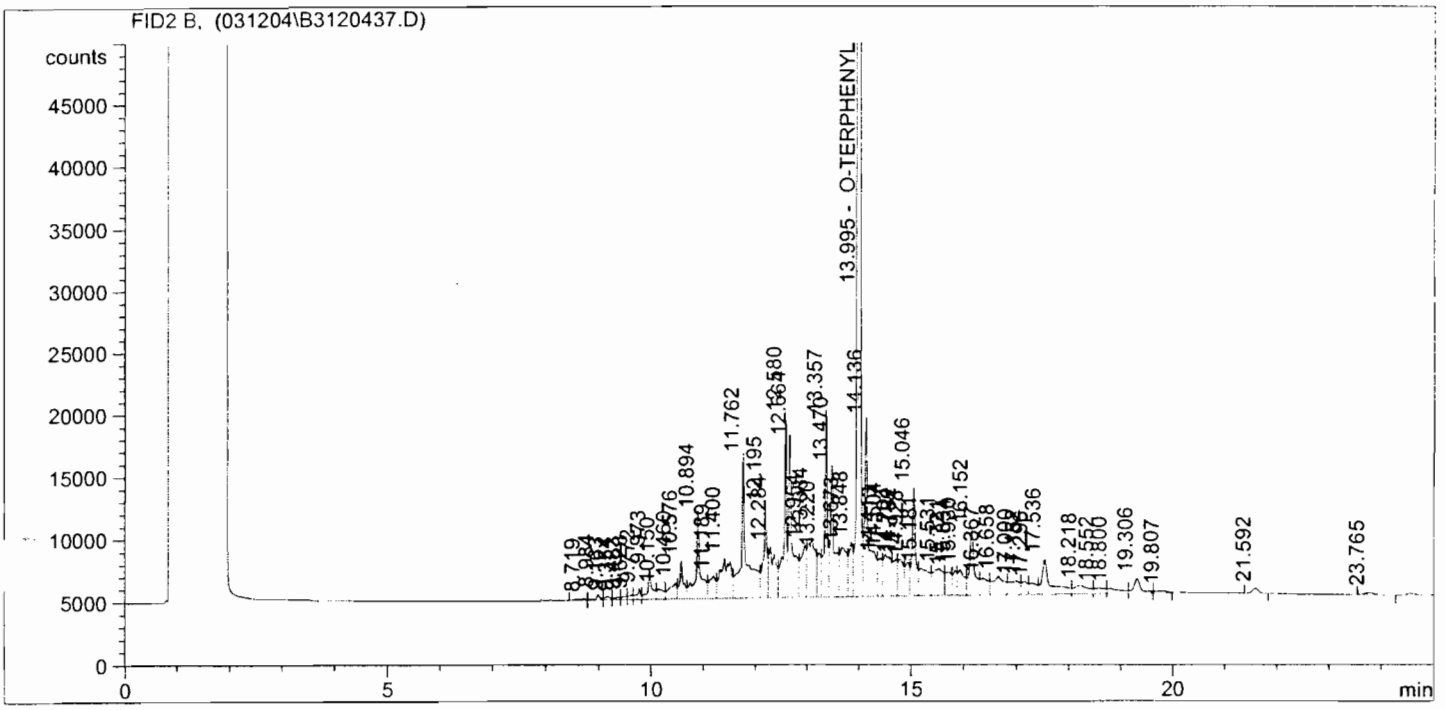
$\frac{611.767}{1000} \times 100 = 61.17\%$

2 5065

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120437.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCSD SOIL 12/3
Acquired On: 12/5/03 6:54:24 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.192e3	0.000	8.719
3		0.000	2.601e3	0.000	8.984
4		0.000	1.881e3	0.000	9.163
5		0.000	1.596e3	0.000	9.354
6		0.000	1.861e3	0.000	9.483
7		0.000	2.016e3	0.000	9.623
8		0.000	4.341e3	0.000	9.772
9		0.000	1.363e4	0.000	9.973
10		0.000	7.523e3	0.000	10.150
11		0.000	1.269e4	0.000	10.460
12		0.000	1.585e4	0.000	10.576
13		0.000	4.464e4	0.000	10.894
14		0.000	1.577e4	0.000	11.189
15		0.000	4.388e4	0.000	11.400
16		0.000	9.153e4	0.000	11.762
17		0.000	3.537e4	0.000	12.195
18		0.000	3.600e4	0.000	12.284
19		0.000	5.770e4	0.000	12.580
20		0.000	6.687e4	0.000	12.664

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031204\B3120437.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCSD SOIL 12/3
Acquired On: 12/5/03 6:54:24 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	3.016e4	0.000	12.954
22		0.000	4.677e4	0.000	13.084
23		0.000	1.675e4	0.000	13.220
24		0.000	5.529e4	0.000	13.357
25		0.000	5.895e4	0.000	13.470
26		0.000	3.730e4	0.000	13.673
27		0.000	2.408e4	0.000	13.848
28	O-TERPHENYL	488.434	2.521e6	14.062	13.995 -49%
29		0.000	8.847e4	0.000	14.136
30		0.000	1.686e4	0.000	14.413
31		0.000	3.379e4	0.000	14.504
32		0.000	1.742e4	0.000	14.704
33		0.000	2.142e4	0.000	14.782
34		0.000	1.519e4	0.000	14.928
35		0.000	4.210e4	0.000	15.046
36		0.000	2.952e4	0.000	15.181
37		0.000	2.999e4	0.000	15.531
38		0.000	1.505e4	0.000	15.721
39		0.000	1.097e4	0.000	15.834
40		0.000	1.773e4	0.000	15.930
41		0.000	3.527e4	0.000	16.152
42		0.000	1.404e4	0.000	16.367
43		0.000	2.297e4	0.000	16.658
44		0.000	1.584e4	0.000	17.000
45		0.000	8.412e3	0.000	17.152
46		0.000	9.285e3	0.000	17.296
47		0.000	3.410e4	0.000	17.536
48		0.000	1.294e4	0.000	18.218
49		0.000	6.491e3	0.000	18.552
50		0.000	7.475e3	0.000	18.800
51		0.000	1.131e4	0.000	19.306
52		0.000	2.989e3	0.000	19.807
53		0.000	3.310e3	0.000	21.592
54		0.000	2.464e3	0.000	23.765
Total			3.773e6 - 2.521e6		

$= \frac{1252000}{4232} = 295.841$

$\frac{295.84}{1000} \times 100 = 29.58\%$

2 6067

Sequence: C:\HPCHEM\1\SEQUENCE\031204.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	53	03112401-01 RBC	DRO1_ACQ	1	Sample		
4	54	03112401-02 RBC	DRO1_ACQ	1	Sample		
5	55	03112401-03 RBC	DRO1_ACQ	1	Sample		
6	56	03112401-04 RBC	DRO1_ACQ	1	Sample		
7	57	03112401-05 RBC	DRO1_ACQ	1	Sample		
8	58	03112401-06 RBC	DRO1_ACQ	1	Sample		
9	59	03112401-01 RBC	DRO1_ACQ	1	Sample		
10	60	03112401-06 RBC	DRO1_ACQ	1	Sample		
11	61	03112516-02 A&A	DRO1_ACQ	1	Sample		
12	62	03112017-01 RBC	DRO1_ACQ	1	Sample		
13	63	03112017-02 RBC	DRO1_ACQ	1	Sample		
14	64	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
15	65	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
16	66	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
17	67	03112017-03 RBC	DRO1_ACQ	1	Sample		
18	68	03112017-04 RBC	DRO1_ACQ	1	Sample		
19	69	03112017-05 RBC	DRO1_ACQ	1	Sample		
20	70	03112017-06 RBC	DRO1_ACQ	1	Sample		
21	71	03112017-07 RBC	DRO1_ACQ	1	Sample		
22	72	03112017-08 RBC	DRO1_ACQ	1	Sample		
23	73	03112017-09 RBC	DRO1_ACQ	1	Sample		
24	74	03112017-10 RBC	DRO1_ACQ	1	Sample		
25	75	03112017-11 RBC	DRO1_ACQ	1	Sample		
26	76	03112017-12 RBC	DRO1_ACQ	1	Sample		
27	77	03112017-13 RBC	DRO1_ACQ	1	Sample		
28	78	03112017-14 RBC	DRO1_ACQ	1	Sample		
29	79	03112017-15 RBC	DRO1_ACQ	1	Sample		
30	80	03112017-16 RBC	DRO1_ACQ	1	Sample		
31	81	03112017-17 RBC	DRO1_ACQ	1	Sample		
32	82	03112017-18 RBC	DRO1_ACQ	1	Sample		
33	83	03112017-19 RBC	DRO1_ACQ	1	Sample		
34	84	03112017-20 RBC	DRO1_ACQ	1	Sample		
35	85	MB SOIL 12/3	DRO1_ACQ	1	Sample		
36	86	LCS SOIL 12/3	DRO1_ACQ	1	Sample		
37	87	LCSD SOIL 12/3	DRO1_ACQ	1	Sample		
38	88	03112401-03 MS	DRO1_ACQ	1	Sample		
39	89	03112401-02 MSD	DRO1_ACQ	1	Sample		
40	90	DF #2 1500mg/L	DRO1_ACQ	1	Sample		

Sequence: C:\HPCHEM\1\SEQUENCE\031205.S

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	53	03112017-04 RBC	DRO1_ACQ	1	Sample		
4	54	03112017-10 RBC	DRO1_ACQ	1	Sample		
5	55	03112017-14 RBC	DRO1_ACQ	1	Sample		
6	56	03112017-16 RBC	DRO1_ACQ	1	Sample		
7	57	03112017-19 RBC	DRO1_ACQ	1	Sample		
8	58	03112017-20 RBC	DRO1_ACQ	1	Sample		
9	59	DCM BLANK	DRO1_ACQ	1	Sample		
10	60	03112616-01 EBI	DRO1_ACQ	1	Sample		
11	61	03112616-02 EBI	DRO1_ACQ	1	Sample		
12	62	03112616-03 EBI	DRO1_ACQ	1	Sample		
13	63	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
14	64	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
15	65	03112414-01 TTI	DRO3_ACQ	1	Sample		
16	66	03112414-03 TTI	DRO3_ACQ	1	Sample		
17	67	03112414-05 TTI	DRO3_ACQ	1	Sample		
18	68	03112414-07 TTI	DRO3_ACQ	1	Sample		
19	69	03112414-09 TTI	DRO3_ACQ	1	Sample		
20	70	03112414-11 TTI	DRO3_ACQ	1	Sample		
21	71	03112414-13 TTI	DRO3_ACQ	1	Sample		
22	72	03112414-15 TTI	DRO3_ACQ	1	Sample		
23	73	03112414-17 TTI	DRO3_ACQ	1	Sample		
24	74	03112414-18 TTI	DRO3_ACQ	1	Sample		
25	75	LCS SOIL 12/5	DRO3_ACQ	1	Sample		
26	76	LCSD SOIL 12/5	DRO3_ACQ	1	Sample		
27	77	03112535-04 MS	DRO3_ACQ	1	Sample		
28	78	03112535-04 MSD	DRO3_ACQ	1	Sample		
29	79	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
30	80	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
31	81	03112535-01 SES	DRO1_ACQ	1	Sample		
32	82	03112535-02 SES	DRO1_ACQ	1	Sample		
33	83	03112535-03 SES	DRO1_ACQ	1	Sample		
34	84	03112535-04 SES	DRO1_ACQ	1	Sample		
35	85	03112535-05 SES	DRO1_ACQ	1	Sample		
36	86	03112535-06 SES	DRO1_ACQ	1	Sample		
37	87	03112535-07 SES	DRO1_ACQ	1	Sample		
38	88	03112535-08 SES	DRO1_ACQ	1	Sample		
39	89	03112535-09 SES	DRO1_ACQ	1	Sample		
40	90	03112535-10 SES	DRO1_ACQ	1	Sample		
41	91	MB SOIL	DRO1_ACQ	1	Sample		
42	92	LCS SOIL	DRO1_ACQ	1	Sample		
43	93	LCSD SOIL	DRO1_ACQ	1	Sample		
44	94	MB SOIL 12/5	DRO1_ACQ	1	Sample		
45	95	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
46	96	BLANK 1000mg/L	DRO1_ACQ	1	Sample		

Sequence: C:\HPCHEM\1\SEQUENCE\031206.S

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	2	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	3	03112414-19 TTI	DRO3_ACQ	1	Sample		
4	4	03112414-20 TTI	DRO3_ACQ	1	Sample - Carryover Re-Run 12/11		
5	5	03112414-23 TTI	DRO3_ACQ	1	Sample - Carryover Re-Run 12/11		
6	6	03112414-24 TTI	DRO3_ACQ	1	Sample		
7	7	03112414-25 TTI	DRO3_ACQ	1	Sample		
8	8	03112414-26 TTI	DRO3_ACQ	1	Sample		
9	9	03112414-29 TTI	DRO3_ACQ	1	Sample		
10	10	03112414-30 TTI	DRO3_ACQ	1	Sample		
11	11	03112414-32 TTI	DRO3_ACQ	1	Sample		
12	12	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
13	13	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
14	14	03112625-03 ECC	DRO1_ACQ	1	Sample		
15	15	03112625-04 ECC	DRO1_ACQ	1	Sample		
16	16	03112625-05 ECC	DRO1_ACQ	1	Sample		
17	17	03112625-06 ECC	DRO1_ACQ	1	Sample		
18	18	03112625-07 ECC	DRO1_ACQ	1	Sample		
19	19 (*)	03112625-08 ECC	DRO1_ACQ	1	Sample		
20	20	03112625-09 ECC	DRO1_ACQ	1	Sample		
21	21	03112625-10 ECC	DRO1_ACQ	1	Sample		
22	22	03112625-11 ECC	DRO1_ACQ	1	Sample		
23	23	03112625-12 ECC	DRO1_ACQ	1	Sample		
24	24	03112625-13 ECC	DRO1_ACQ	1	Sample		
25	25	03112625-14 ECC	DRO1_ACQ	1	Sample		
26	26	03112625-01 ECC	DRO1_ACQ	1	Sample		
27	27	03112625-02 ECC	DRO1_ACQ	1	Sample		
28	28	MB SOIL 12/5	DRO1_ACQ	1	Sample		
29	29	LCS SOIL 12/5	DRO1_ACQ	1	Sample		
30	30	LCSD SOIL 12/5	DRO1_ACQ	1	Sample		
31	31	03112625-13 MS	DRO1_ACQ	1	Sample		
32	32	03112625-13 MSD	DRO1_ACQ	1	Sample		
33	33	DF #2 1500g/L	DRO1_ACQ	1	Sample		
34	34	BLANK 1000mg/L	DRO1_ACQ	1	Sample		

(*) Sequence stopped for rear injector due to vial's label restricted movement.
Pl. see next day's run for cont.

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	53	03112414-31 TTI	DRO3_ACQ	1	Sample		

2 50:0

Sequence: C:\HPCHEM\1\SEQUENCE\031206.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
4	54	03112414-35 TTI	DRO3_ACQ	1	Sample		
5	55	03112414-36 TTI	DRO3_ACQ	1	Sample		
6	56	03112414-37 TTI	DRO3_ACQ	1	Sample		
7	57	03112414-38 TTI	DRO3_ACQ	1	Sample		
8	58	03112414-39 TTI	DRO3_ACQ	1	Sample		
9	59	03112414-40 TTI	DRO3_ACQ	1	Sample		
10	60	03112414-42 TTI	DRO3_ACQ	1	Sample		
11	61	03112414-45 TTI	DRO3_ACQ	1	Sample		
12	62	DF #2 1500g/L	DRO1_ACQ	1	Sample		
13	63	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
14	64	03112625-17 ECC	DRO1_ACQ	1	Sample		
15	65	03112625-18 ECC	DRO1_ACQ	1	Sample		
16	66	03112625-19 ECC	DRO1_ACQ	1	Sample		
17	67	03112625-20 ECC	DRO1_ACQ	1	Sample		
18	68	03112625-15 ECC	DRO1_ACQ	1	Sample		
19	69	03112625-16 ECC	DRO1_ACQ	1	Sample		
20	70	03112620-01 SE	DRO1_ACQ	1	Sample		
21	71	03112620-02 SE	DRO1_ACQ	1	Sample		
22	72	03112620-03 SE	DRO1_ACQ	1	Sample		
23	73	03112620-04 SE	DRO1_ACQ	1	Sample		
24	74	03112620-05 SE	DRO1_ACQ	1	Sample		
25	75	03112620-06 SE	DRO1_ACQ	1	Sample		
26	76	03112626-01 ECC	DRO1_ACQ	1	Sample		
27	77	03112626-02 ECC	DRO1_ACQ	1	Sample		
28	78	03112626-03 ECC	DRO1_ACQ	1	Sample		
29	79	MB SOIL 12/5	DRO1_ACQ	1	Sample		
30	80	LCS SOIL	DRO1_ACQ	1	Sample		
31	81	LCSD SOIL	DRO1_ACQ	1	Sample		
32	82	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
33	83	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
34	84	DCM BLANK	DRO1_ACQ	1	Sample		

2 6071

Sequence: C:\HPCHEM\1\SEQUENCE\031208.S

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	2	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	3	03112626-01 ECC	DRO1_ACQ	1	Sample		
4	4	03112626-02 ECC	DRO1_ACQ	1	Sample		
5	5	03112626-03 ECC	DRO1_ACQ	1	Sample		
6	6	03112620-01 SE	DRO1_ACQ	1	Sample		
7	7	03112620-02 SE	DRO1_ACQ	1	Sample		
8	8	MB SOIL 12/5	DRO1_ACQ	1	Sample		
9	9	03112625-03 ECC	DRO1_ACQ	1	Sample		
10	10	03112625-04 ECC	DRO1_ACQ	1	Sample		
11	11	03112625-05 ECC	DRO1_ACQ	1	Sample		
12	12	03112625-06 ECC	DRO1_ACQ	1	Sample		
13	13	03112017-09 RBC	DRO1_ACQ	1	Sample		
14	14	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
15	15	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
16	16	03112414-30 TTI	DRO3_ACQ	1	Sample		
17	17	03112414-32 TTI	DRO3_ACQ	1	Sample		
18	18	03112625-01 ECC	DRO1_ACQ	1	Sample		
19	19	03112625-02 ECC	DRO1_ACQ	1	Sample		
20	20	03112625-05 ECC	DRO1_ACQ	1	Sample		
21	21	03112625-06 ECC	DRO1_ACQ	1	Sample		
22	22	03112625-07 ECC	DRO1_ACQ	1	Sample		
23	23	03112625-08 ECC	DRO1_ACQ	1	Sample		
24	24	03112625-16 ECC	DRO1_ACQ	1	Sample		
25	25	LCS SOIL 12/5	DRO1_ACQ	1	Sample		
26	26	LCSD SOIL 12/5	DRO1_ACQ	1	Sample		
27	27	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
28	28	BLANK 1000mg/L	DRO1_ACQ	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	53	03112620-03 SE	DRO1_ACQ	1	Sample		
4	54	03112620-05 SE	DRO1_ACQ	1	Sample		
5	55	03112620-06 SE	DRO1_ACQ	1	Sample		
6	56	03112620-04 SE	DRO1_ACQ	1	Sample		
7	57	DCM BLANK	DRO1_ACQ	1	Sample		
8	58	03112017-09 RBC	DRO1_ACQ	1	Sample		
9	59	03112625-17 ECC	DRO1_ACQ	1	Sample		

2 S072

Sequence: C:\HPCHEM\1\SEQUENCE\031208.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
10	60	03112625-18 ECC	DRO1_ACQ	1	Sample		
11	61	03112625-19 ECC	DRO1_ACQ	1	Sample		
12	62	03112625-20 ECC	DRO1_ACQ	1	Sample		
13	63	03112625-15 ECC	DRO1_ACQ	1	Sample		
14	64	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
15	65	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
16	66	03112414-42 TTI	DRO3_ACQ	1	Sample		
17	67	03112414-45 TTI	DRO3_ACQ	1	Sample		
18	68	03112625-09 ECC	DRO1_ACQ	1	Sample		
19	69	03112625-10 ECC	DRO1_ACQ	1	Sample		
20	70	03112625-11 ECC	DRO1_ACQ	1	Sample		
21	71	03112625-12 ECC	DRO1_ACQ	1	Sample		
22	72	03112625-13 ECC	DRO1_ACQ	1	Sample		
23	73	03112625-14 ECC	DRO1_ACQ	1	Sample		
24	74	03112625-13 MS	DRO1_ACQ	1	Sample		
25	75	03112625-13 MSD	DRO1_ACQ	1	Sample		
26	76	MB SOIL 12/5	DRO1_ACQ	1	Sample		
27	77	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
28	78	BLANK 1000mg/L	DRO1_ACQ	1	Sample		

2 6073

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1000mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	53	03121002-11 EMG	DRO3_ACQ	1	Sample		
4	54	DCM BLANK	DRO3_ACQ	1	Sample		
5	55	03120808-01 ENST	DRO1_ACQ	1	Sample		
6	56	03120808-02 ENST	DRO1_ACQ	1	Sample		
7	57	03120808-03 ENST	DRO1_ACQ	1	Sample		
8	58	03120805-01 SMO	DRO1_ACQ	1	Sample		
9	59	03120416-03 ATP	DRO1_ACQ	1	Sample		
10	60	03120416-04 ATP	DRO1_ACQ	1	Sample		
11	61	MB SOIL 12/10	DRO1_ACQ	1	Sample		
12	62	03121101-04 WSH	DRO3_ACQ	1	Sample		
13	63	03121101-05 WSH	DRO3_ACQ	1	Sample		
14	64	03121101-06 WSH	DRO3_ACQ	1	Sample		
15	65	DF #2 1000mg/L	DRO1_ACQ	1	Sample		
16	66	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
17	67	03120418-01	DRO1_ACQ	1	Sample		
18	68	03120418-02	DRO1_ACQ	1	Sample		
+19	69	03120419-01	DRO1_ACQ	1	Sample		
20	70	03120419-02	DRO1_ACQ	1	Sample		
21	71	03112414-20 TTI	DRO1_ACQ	1	Sample		
22	72	03112414-23 TTI	DRO1_ACQ	1	Sample		
23	73	03120432-01 APX	DRO1_ACQ	1	Sample		
24	74	03120432-02 APX	DRO1_ACQ	1	Sample		
25	75	03120432-03 APX	DRO1_ACQ	1	Sample		
26	76	03120432-04 APX	DRO1_ACQ	1	Sample		
27	77	03120432-05 APX	DRO1_ACQ	1	Sample		
28	78	03120432-06 APX	DRO1_ACQ	1	Sample		
29	79	03120432-07 APX	DRO1_ACQ	1	Sample		
30	80	03120432-08 APX	DRO1_ACQ	1	Sample		
31	81	03120432-09 APX	DRO1_ACQ	1	Sample		
32	82	03120432-10 APX	DRO1_ACQ	1	Sample		
33	83	03120919-01 APX	DRO1_ACQ	1	Sample		
34	84	03120919-02 APX	DRO1_ACQ	1	Sample		
35	85	03120921-01 A&A	DRO1_ACQ	1	Sample		
36	86	03120921-02 A&A	DRO1_ACQ	1	Sample		
37	87	03120921-03 A&A	DRO1_ACQ	1	Sample		
+38	88	03120501-01 SSI	DRO1_ACQ	1	Sample		
+39	89	03120501-02 SSI	DRO1_ACQ	1	Sample		
40	90	MB WATER 12/11	DRO1_ACQ	1	Sample		
41	91	LCS WATER 12/11	DRO1_ACQ	1	Sample		
42	92	LCSDWATER 12/11	DRO1_ACQ	1	Sample		
43	93	03120919-02 MS	DRO1_ACQ	1	Sample		
44	94	03120919-02 MSD	DRO1_ACQ	1	Sample		
45	95	DF #2 1000 mg/L	DRO1_ACQ	1	Sample		
46	96	BLANK 1000mg/L	DRO1_ACQ	1	Sample		

2 S074

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Metals

- *Initial Calibration Verification Summary*
- *Continuing Calibration Verification Summary*
- *Duplicate Summary*
- *Matrix Spike Summary*
- *Method Blank Summary (LRB)*
- *LCS Summary (LFB)*

6630 Baltimore National Pike Baltimore, MD 21228 (800) 932-9047 (410) 747-8770 FAX (410) 788-8723

ICV QC Report

Data File: C:\ICPCHEM\1\DATA\031209A.B\010ICV1.D\010ICV1.D#
Date Acquired: Dec 9 2003 11:33 am
Acq. Method: 6020B.M
Operator:
Sample Name: ICV
Misc Info: 0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031209A.B\6020B.C
Last Cal. Update: Dec 09 2003 12:29 pm
Sample Type: ICV1
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	50.10 ppb	2.42	50.00	90 - 110	
52 Cr	47.88 ppb	1.98	50.00	90 - 110	
60 Ni	49.96 ppb	1.65	50.00	90 - 110	
63 Cu	50.54 ppb	1.74	50.00	90 - 110	
66 Zn	51.33 ppb	0.18	50.00	90 - 110	
75 As	50.69 ppb	0.48	50.00	90 - 110	
82 Se	51.08 ppb	1.25	50.00	90 - 110	
107 Ag	49.77 ppb	0.80	50.00	90 - 110	
111 Cd	49.41 ppb	1.47	50.00	90 - 110	
121 Sb	50.02 ppb	1.29	50.00	90 - 110	
202 Hg	2.01 ppb	0.67	2.00	90 - 110	
205 Tl	49.98 ppb	0.48	50.00	90 - 110	
208 Pb	50.19 ppb	0.61	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1080013.50	2.23	1010445.80	106.9	30 - 140	
45 Sc	1167225.90	1.99	1227938.90	95.1	30 - 140	
72 Ge	185580.11	1.42	195169.80	95.1	30 - 140	
115 In	1065119.10	2.40	1102617.10	96.6	30 - 140	
159 Tb	1105271.40	3.25	1106480.30	99.9	30 - 140	
209 Bi	466935.31	2.38	461447.03	101.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

2 7002

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031209A.B\028CCV1.D\028CCV1.D#
Date Acquired: Dec 9 2003 01:07 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031209A.B\6020B.C
Last Cal Update: Dec 09 2003 12:29 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	52.10 ppb	1.17	50.00	90 - 110	
52 Cr	48.63 ppb	1.03	50.00	90 - 110	
60 Ni	50.94 ppb	0.78	50.00	90 - 110	
63 Cu	49.66 ppb	1.15	50.00	90 - 110	
66 Zn	51.85 ppb	0.66	50.00	90 - 110	
75 As	50.89 ppb	0.37	50.00	90 - 110	
82 Se	51.46 ppb	0.40	50.00	90 - 110	
107 Ag	50.33 ppb	1.24	50.00	90 - 110	
111 Cd	51.24 ppb	1.57	50.00	90 - 110	
121 Sb	50.74 ppb	1.58	50.00	90 - 110	
202 Hg	2.01 ppb	1.27	2.00	90 - 110	
205 Tl	51.00 ppb	1.32	50.00	90 - 110	
208 Pb	50.56 ppb	0.90	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1058934.00	1.42	1010445.80	104.8	30 - 140	
45 Sc	1131100.50	1.29	1227938.90	92.1	30 - 140	
72 Ge	183748.56	1.85	195169.80	94.1	30 - 140	
115 In	1030644.70	1.35	1102617.10	93.5	30 - 140	
159 Tb	1071131.00	2.46	1106480.30	96.8	30 - 140	
209 Bi	452815.19	3.76	461447.03	98.1	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7003

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031209A.B\042CCV1.D\042CCV1.D#
Date Acquired: Dec 9 2003 02:20 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031209A.B\6020B.C
Last Cal Update: Dec 09 2003 12:29 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	49.51 ppb	0.26	50.00	90 - 110	
52 Cr	47.73 ppb	0.97	50.00	90 - 110	
60 Ni	50.68 ppb	1.29	50.00	90 - 110	
63 Cu	48.41 ppb	1.18	50.00	90 - 110	
66 Zn	51.62 ppb	0.92	50.00	90 - 110	
75 As	50.59 ppb	0.39	50.00	90 - 110	
82 Se	50.82 ppb	0.63	50.00	90 - 110	
107 Ag	49.51 ppb	0.33	50.00	90 - 110	
111 Cd	50.56 ppb	0.61	50.00	90 - 110	
121 Sb	50.56 ppb	0.98	50.00	90 - 110	
202 Hg	1.99 ppb	0.99	2.00	90 - 110	
205 Tl	49.79 ppb	0.64	50.00	90 - 110	
208 Pb	49.88 ppb	0.78	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1083543.50	1.69	1010445.80	107.2	30 - 140	
45 Sc	1121150.60	1.68	1227938.90	91.3	30 - 140	
72 Ge	181032.92	0.90	195169.80	92.8	30 - 140	
115 In	1025237.10	2.12	1102617.10	93.0	30 - 140	
159 Tb	1056675.30	2.88	1106480.30	95.5	30 - 140	
209 Bi	443257.19	5.96	461447.03	96.1	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7004

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031209A.B\054CCV1.D\054CCV1.D#
Date Acquired: Dec 9 2003 03:23 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031209A.B\6020B.C
Last Cal Update: Dec 09 2003 12:29 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	49.40 ppb	2.29	50.00	90 - 110	
52 Cr	45.00 ppb	1.48	50.00	90 - 110	
60 Ni	46.80 ppb	0.53	50.00	90 - 110	
63 Cu	54.97 ppb	0.40	50.00	90 - 110	
66 Zn	50.37 ppb	0.26	50.00	90 - 110	
75 As	50.18 ppb	0.10	50.00	90 - 110	
82 Se	50.18 ppb	0.82	50.00	90 - 110	
107 Ag	49.95 ppb	0.29	50.00	90 - 110	
111 Cd	49.92 ppb	1.31	50.00	90 - 110	
121 Sb	51.26 ppb	0.84	50.00	90 - 110	
202 Hg	1.98 ppb	1.51	2.00	90 - 110	
205 Tl	48.85 ppb	1.73	50.00	90 - 110	
208 Pb	49.85 ppb	0.23	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1058108.50	1.36	1010445.80	104.7	30 - 140	
45 Sc	1115257.10	1.91	1227938.90	90.8	30 - 140	
72 Ge	169412.08	1.91	195169.80	86.8	30 - 140	
115 In	902863.19	1.25	1102617.10	81.9	30 - 140	
159 Tb	915358.94	0.31	1106480.30	82.7	30 - 140	
209 Bi	385572.41	1.09	461447.03	83.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7005

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031209A.B\066CCV1.D\066CCV1.D#
Date Acquired: Dec 9 2003 04:27 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031209A.B\6020B.C
Last Cal Update: Dec 09 2003 12:29 pm
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	48.51 ppb	2.11	50.00	90 - 110	
52 Cr	46.92 ppb	1.29	50.00	90 - 110	
60 Ni	47.24 ppb	3.12	50.00	90 - 110	
63 Cu	52.69 ppb	2.08	50.00	90 - 110	
66 Zn	50.53 ppb	1.23	50.00	90 - 110	
75 As	50.58 ppb	0.44	50.00	90 - 110	
82 Se	51.19 ppb	1.88	50.00	90 - 110	
107 Ag	52.30 ppb	0.42	50.00	90 - 110	
111 Cd	52.28 ppb	1.09	50.00	90 - 110	
121 Sb	52.14 ppb	0.87	50.00	90 - 110	
202 Hg	2.04 ppb	1.12	2.00	90 - 110	
205 Tl	51.59 ppb	0.67	50.00	90 - 110	
208 Pb	50.30 ppb	0.10	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1044791.40	3.75	1010445.80	103.4	30 - 140	
45 Sc	1055687.00	0.74	1227938.90	86.0	30 - 140	
72 Ge	163773.80	1.84	195169.80	83.9	30 - 140	
115 In	822488.25	1.74	1102617.10	74.6	30 - 140	
159 Tb	866128.00	0.74	1106480.30	78.3	30 - 140	
209 Bi	394817.38	2.06	461447.03	85.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7006

All Reference Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031209A.B\056AREF.D\056AREF.D#**
Date Acquired:	**Dec 9 2003 03:34 pm**
Acq. Method:	**6020B.M**
Operator:	**Lisa Miller**
Sample Name:	**03112414-51**
Misc Info:	
Vial Number:	**2303**
Current Method:	**C:\ICPCHEM\1\DATA\031209A.B\6020B.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031209A.B\6020B.C**
Last Cal. Update:	**Dec 09 2003 12:29 pm**
Sample Type:	**AllRef**
Dilution Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	0.09	0.09	ppb	23.20	8000.00	
52 Cr	-0.19	-0.19	ppb	99.69	8000.00	
60 Ni	70.85	70.85	ppb	0.13	8000.00	
63 Cu	2.40	2.40	ppb	5.90	8000.00	
66 Zn	40.48	40.48	ppb	0.88	8000.00	
75 As	1.25	1.25	ppb	1.54	8000.00	
82 Se	0.29	0.29	ppb	19.69	8000.00	
107 Ag	0.00	0.00	ppb	48.90	8000.00	
111 Cd	0.15	0.15	ppb	26.38	8000.00	
121 Sb	0.19	0.19	ppb	0.19	8000.00	
202 Hg	0.01	0.01	ppb	25.24	8.00	
205 Tl	0.13	0.13	ppb	15.31	8000.00	
208 Pb	0.57	0.57	ppb	5.00	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1136542.60	1.98	1010445.80	112.5	30 - 140	
45 Sc	1339569.50	1.82	1227938.90	109.1	30 - 140	
72 Ge	215676.13	1.55	195169.80	110.5	30 - 140	
115 In	1192390.50	0.87	1102617.10	108.1	30 - 140	
159 Tb	1220238.90	1.70	1106480.30	110.3	30 - 140	
209 Bi	496373.38	2.33	461447.03	107.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

2 7007

2 7008

LFM Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031209A.B\057LFM1.D\057LFM1.D#**
Date Acquired:	**Dec 9 2003 03:39 pm**
Acq. Method:	**6020B.M**
Operator:	
Sample Name:	**03112414-51**
Misc Info:	
Vial Number:	**2304**
Current Method:	**C:\ICPCHEM\1\DATA\031209A.B\6020B.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031209A.B\6020B.C**
Last Cal. Update:	**Dec 09 2003 12:29 pm**
Sample Type:	**LFM1**
Prep Dil. Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**
Spike Ref. File:	**C:\ICPCHEM\1\DATA\031209A.B\056AREF.D\056AREF.D#**

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	108.00	0.09	3.09	100.00	107.9	75 - 125	
52 Cr	94.60	-0.19	2.42	100.00	94.8	75 - 125	
60 Ni	164.10	70.85	1.75	100.00	93.3	75 - 125	
63 Cu	94.48	2.40	0.35	100.00	92.1	75 - 125	
66 Zn	145.50	40.48	0.68	100.00	105.0	75 - 125	
75 As	104.20	1.25	0.29	100.00	102.9	75 - 125	
82 Se	113.80	0.29	0.39	100.00	113.5	75 - 125	
107 Ag	91.55	0.00	2.29	100.00	91.5	75 - 125	
111 Cd	99.20	0.15	0.84	100.00	99.1	75 - 125	
121 Sb	98.73	0.19	0.89	100.00	98.5	75 - 125	
202 Hg	1.80	0.01	0.96	2.00	89.6	75 - 125	
205 Tl	102.10	0.13	0.89	100.00	102.0	75 - 125	
208 Pb	98.90	0.57	1.36	100.00	98.3	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	1145852.8	2.10	#######	113.4	30 - 140	
45 Sc	1334626.6	1.81	#######	108.7	30 - 140	
72 Ge	213572.1	1.32	#######	109.4	30 - 140	
115 In	1171183.3	2.95	#######	106.2	30 - 140	
159 Tb	1208311.1	1.41	#######	109.2	30 - 140	
209 Bi	471368.7	6.08	#######	102.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82

2 7009

S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

2 7010

PB QC Report

Data File: C:\ICPCHEM\1\DATA\031209A.B\025__PB.D\025__PB.D#
Date Acquired: Dec 9 2003 12:51 pm
Acq. Method: 6020B.M
Operator:
Sample Name: WATER031202
Misc Info:
Vial Number: 2105
Current Method: C:\ICPCHEM\1\DATA\031209A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031209A.B\6020B.C
Last Cal. Update: Dec 09 2003 12:29 pm
Sample Type: PB
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
9 Be	0.22 ppb	8.77	0.50	
52 Cr	0.40 ppb	19.06	0.50	
60 Ni	-0.31 ppb	11.28	0.50	
63 Cu	2.79 ppb	1.37	0.50	Fail
66 Zn	2.71 ppb	0.60	0.50	Fail
75 As	0.18 ppb	10.63	0.50	
82 Se	0.16 ppb	14.84	0.50	
107 Ag	0.19 ppb	6.64	0.50	
111 Cd	0.24 ppb	20.11	0.50	
121 Sb	0.37 ppb	2.59	0.50	
202 Hg	0.02 ppb	37.62	0.50	
205 Tl	0.14 ppb	7.98	0.50	
208 Pb	0.24 ppb	4.50	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1120459.60	0.88	1010445.80	110.9	30 - 140	
45 Sc	1194627.50	1.93	1227938.90	97.3	30 - 140	
72 Ge	189332.25	2.40	195169.80	97.0	30 - 140	
115 In	1063906.90	2.89	1102617.10	96.5	30 - 140	
159 Tb	1086659.60	2.09	1106480.30	98.2	30 - 140	
209 Bi	455817.03	3.40	461447.03	98.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

2 7011

LCS QC Report

Data File: C:\ICPCHEM\1\DATA\031209A.B\026_LCS.D\026_LCS.D#
Date Acquired: Dec 9 2003 12:56 pm
Acq. Method: 6020B.M
Operator:
Sample Name: WATER031202
Misc Info:
Vial Number: 2106
Current Method: C:\ICPCHEM\1\DATA\031209A.B\6020B.M
Calibration File: C:\ICPCHEM\1\DATA\031209A.B\6020B.C
Last Cal. Update: Dec 09 2003 12:29 pm
Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
9 Be	92.44	92.44	ppb	1.00	100.00	75 - 125	
52 Cr	91.33	91.33	ppb	1.86	100.00	75 - 125	
60 Ni	92.10	92.10	ppb	0.94	100.00	75 - 125	
63 Cu	94.47	94.47	ppb	0.80	100.00	75 - 125	
66 Zn	101.60	101.60	ppb	1.15	100.00	75 - 125	
75 As	90.97	90.97	ppb	0.24	100.00	75 - 125	
82 Se	90.93	90.93	ppb	0.29	100.00	75 - 125	
107 Ag	87.25	87.25	ppb	0.65	100.00	75 - 125	
111 Cd	90.48	90.48	ppb	0.48	100.00	75 - 125	
121 Sb	90.54	90.54	ppb	0.65	100.00	75 - 125	
202 Hg	1.82	1.82	ppb	1.57	2.00	75 - 125	
205 Tl	91.35	91.35	ppb	1.60	100.00	75 - 125	
208 Pb	91.00	91.00	ppb	0.19	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1092396.80	0.41	1010445.80	108.1	30 - 140	
45 Sc	1146375.30	0.31	1227938.90	93.4	30 - 140	
72 Ge	184510.77	0.77	195169.80	94.5	30 - 140	
115 In	1043461.60	1.29	1102617.10	94.6	30 - 140	
159 Tb	1081358.50	1.72	1106480.30	97.7	30 - 140	
209 Bi	459802.34	1.97	461447.03	99.6	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209A.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

2 7012

ICV QC Report

Data File: C:\ICPCHEM\1\DATA\031209B.B\011ICV1.D\011ICV1.D#
Date Acquired: Dec 9 2003 06:03 pm
Acq. Method: 1202.M
Operator:
Sample Name: ICV
Misc Info: 0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209B.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031209B.B\1202.C
Last Cal. Update: Dec 10 2003 10:02 am
Sample Type: ICV1
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	49.04 ppb	0.73	50.00	90 - 110	
52 Cr	47.03 ppb	2.20	50.00	90 - 110	
60 Ni	50.08 ppb	1.11	50.00	90 - 110	
63 Cu	49.22 ppb	1.19	50.00	90 - 110	
66 Zn	49.77 ppb	2.19	50.00	90 - 110	
75 As	49.62 ppb	0.40	50.00	90 - 110	
82 Se	49.82 ppb	1.13	50.00	90 - 110	
107 Ag	49.48 ppb	0.83	50.00	90 - 110	
111 Cd	49.38 ppb	0.33	50.00	90 - 110	
121 Sb	49.61 ppb	1.06	50.00	90 - 110	
202 Hg	1.85 ppb	2.19	2.00	90 - 110	
205 Tl	49.82 ppb	0.73	50.00	90 - 110	
208 Pb	48.43 ppb	0.66	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1134960.90	3.51	1053023.00	107.8	30 - 140	
45 Sc	1033214.30	1.37	1026490.30	100.7	30 - 140	
72 Ge	158034.20	2.34	157774.95	100.2	30 - 140	
115 In	781312.88	1.46	785302.13	99.5	30 - 140	
159 Tb	804882.75	1.15	818276.94	98.4	30 - 140	
209 Bi	361261.75	0.57	363362.41	99.4	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

2 7013

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031209B.B\030CCV1.D\030CCV1.D#
Date Acquired: Dec 9 2003 07:36 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209B.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031209B.B\1202.C
Last Cal Update: Dec 10 2003 10:02 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	47.60 ppb	1.00	50.00	90 - 110	
52 Cr	47.16 ppb	0.89	50.00	90 - 110	
60 Ni	48.06 ppb	0.44	50.00	90 - 110	
63 Cu	53.49 ppb	0.29	50.00	90 - 110	
66 Zn	48.97 ppb	0.79	50.00	90 - 110	
75 As	49.16 ppb	0.47	50.00	90 - 110	
82 Se	49.63 ppb	0.79	50.00	90 - 110	
107 Ag	48.37 ppb	0.07	50.00	90 - 110	
111 Cd	49.28 ppb	0.63	50.00	90 - 110	
121 Sb	49.67 ppb	0.73	50.00	90 - 110	
202 Hg	1.85 ppb	3.07	2.00	90 - 110	
205 Tl	48.57 ppb	0.96	50.00	90 - 110	
208 Pb	47.78 ppb	0.44	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	995069.13	1.26	1053023.00	94.5	30 - 140	
45 Sc	1002115.30	1.89	1026490.30	97.6	30 - 140	
72 Ge	150140.58	1.74	157774.95	95.2	30 - 140	
115 In	732704.50	2.55	785302.13	93.3	30 - 140	
159 Tb	748060.25	2.58	818276.94	91.4	30 - 140	
209 Bi	340804.91	3.10	363362.41	93.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7014

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031209B.B\044CCV1.D\044CCV1.D#
Date Acquired: Dec 9 2003 08:46 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209B.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031209B.B\1202.C
Last Cal Update: Dec 10 2003 10:02 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	46.77 ppb	2.56	50.00	90 - 110	
52 Cr	47.18 ppb	1.04	50.00	90 - 110	
60 Ni	46.78 ppb	2.65	50.00	90 - 110	
63 Cu	50.61 ppb	0.56	50.00	90 - 110	
66 Zn	49.19 ppb	0.86	50.00	90 - 110	
75 As	48.76 ppb	0.11	50.00	90 - 110	
82 Se	48.91 ppb	1.42	50.00	90 - 110	
107 Ag	48.47 ppb	0.88	50.00	90 - 110	
111 Cd	49.11 ppb	1.53	50.00	90 - 110	
121 Sb	49.45 ppb	0.25	50.00	90 - 110	
202 Hg	1.82 ppb	0.27	2.00	90 - 110	
205 Tl	45.53 ppb	0.70	50.00	90 - 110	
208 Pb	48.35 ppb	1.48	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1090270.90	3.84	1053023.00	103.5	30 - 140	
45 Sc	1019742.20	1.41	1026490.30	99.3	30 - 140	
72 Ge	147345.44	1.41	157774.95	93.4	30 - 140	
115 In	699893.19	1.75	785302.13	89.1	30 - 140	
159 Tb	715646.69	2.07	818276.94	87.5	30 - 140	
209 Bi	319224.19	1.57	363362.41	87.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7015

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031209B.B\058CCV1.D\058CCV1.D#
Date Acquired: Dec 9 2003 09:55 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031209B.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031209B.B\1202.C
Last Cal Update: Dec 10 2003 10:02 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	47.55 ppb	0.28	50.00	90 - 110	
52 Cr	47.23 ppb	1.02	50.00	90 - 110	
60 Ni	45.95 ppb	0.73	50.00	90 - 110	
63 Cu	49.12 ppb	0.46	50.00	90 - 110	
66 Zn	48.32 ppb	0.07	50.00	90 - 110	
75 As	48.54 ppb	0.28	50.00	90 - 110	
82 Se	48.87 ppb	0.45	50.00	90 - 110	
107 Ag	48.74 ppb	0.61	50.00	90 - 110	
111 Cd	48.69 ppb	1.24	50.00	90 - 110	
121 Sb	48.68 ppb	0.59	50.00	90 - 110	
202 Hg	1.80 ppb	2.70	2.00	90 - 110	Fail
205 Tl	45.65 ppb	1.65	50.00	90 - 110	
208 Pb	47.93 ppb	0.39	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1162580.00	2.79	1053023.00	110.4	30 - 140	
45 Sc	1002546.60	0.76	1026490.30	97.7	30 - 140	
72 Ge	143226.20	1.38	157774.95	90.8	30 - 140	
115 In	666988.81	2.03	785302.13	84.9	30 - 140	
159 Tb	685527.38	1.11	818276.94	83.8	30 - 140	
209 Bi	309839.34	1.81	363362.41	85.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7016

All Reference Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031209B.B\042AREF.D\042AREF.D#**
Date Acquired:	**Dec 9 2003 08:36 pm**
Acq. Method:	**1202.M**
Operator:	**Lisa Miller**
Sample Name:	**03112414-43**
Misc Info:	
Vial Number:	**3205**
Current Method:	**C:\ICPCHEM\1\DATA\031209B.B\1202.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031209B.B\1202.C**
Last Cal. Update:	**Dec 10 2003 10:02 am**
Sample Type:	**AllRef**
Dilution Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	16.94	16.94	ppb	0.86	8000.00	
52 Cr	98.67	98.67	ppb	1.75	8000.00	
60 Ni	172.60	172.60	ppb	1.78	8000.00	
63 Cu	111.80	111.80	ppb	0.38	8000.00	
66 Zn	359.20	359.20	ppb	0.75	8000.00	
75 As	0.16	0.16	ppb	84.93	8000.00	
82 Se	6.09	6.09	ppb	2.03	8000.00	
107 Ag	1.01	1.01	ppb	3.14	8000.00	
111 Cd	0.68	0.68	ppb	4.67	8000.00	
121 Sb	0.26	0.26	ppb	11.11	8000.00	
202 Hg	0.21	0.21	ppb	5.20	8.00	
205 Tl	0.31	0.31	ppb	0.69	8000.00	
208 Pb	57.16	57.16	ppb	1.01	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1007187.90	0.66	1053023.00	95.6	30 - 140	
45 Sc	1146343.30	1.12	1026490.30	111.7	30 - 140	
72 Ge	156880.53	1.65	157774.95	99.4	30 - 140	
115 In	692749.00	1.55	785302.13	88.2	30 - 140	
159 Tb	768054.25	1.43	818276.94	93.9	30 - 140	
209 Bi	318845.25	1.70	363362.41	87.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

2 7017

2 7018

Duplicate QC Report

Data File: C:\ICPCHEM\1\DATA\031209B.B\047DUP1.D\047DUP1.D#
Date Acquired: Dec 9 2003 09:00 pm
Acq. Method: 1202.M
Operator:
Sample Name: 03112414-43
Misc Info:
Vial Number: 3206
Current Method: C:\ICPCHEM\1\DATA\031209B.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031209B.B\1202.C
Last Cal. Update: Dec 10 2003 10:02 am
Sample Type: Dupl
Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\031209B.B\042AREF.D\042AREF.D#

QC Elements

Element	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	17.85	ppb	2.02	16.94	5.23	20	
52 Cr	95.25	ppb	2.34	98.67	3.53	20	
60 Ni	182.30	ppb	3.93	172.60	5.47	20	
63 Cu	105.90	ppb	0.42	111.80	5.42	20	
66 Zn	376.40	ppb	1.05	359.20	4.68	20	
75 As	0.32	ppb	12.66	0.16	68.94	20	<PQL
82 Se	6.39	ppb	1.89	6.09	4.66	20	
107 Ag	0.95	ppb	3.09	1.01	6.12	20	<PQL
111 Cd	0.60	ppb	10.74	0.68	12.55	20	<PQL
121 Sb	0.19	ppb	3.77	0.26	31.20	20	<PQL
202 Hg	0.18	ppb	6.41	0.21	14.47	20	<PQL
205 Tl	0.33	ppb	5.12	0.31	6.27	20	<PQL
208 Pb	57.13	ppb	0.83	57.16	0.05	20	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1028494.40	1.40	1053023.00	97.7	30 - 140	
45 Sc	1123353.40	1.31	1026490.30	109.4	30 - 140	
72 Ge	158055.06	2.09	157774.95	100.2	30 - 140	
115 In	701435.31	2.95	785302.13	89.3	30 - 140	
159 Tb	764283.56	3.28	818276.94	93.4	30 - 140	
209 Bi	306015.56	4.86	363362.41	84.2	30 - 140	

ISTD Ref. File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; IS # 168; AU # 174; HCL # X13037

2 7019

LFM Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031209B.B\048LFM1.D\048LFM1.D#**
Date Acquired:	**Dec 9 2003 09:05 pm**
Acq. Method:	**1202.M**
Operator:	
Sample Name:	**03112414-43**
Misc Info:	
Vial Number:	**3207**
Current Method:	**C:\ICPCHEM\1\DATA\031209B.B\1202.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031209B.B\1202.C**
Last Cal. Update:	**Dec 10 2003 10:02 am**
Sample Type:	**LFM1**
Prep Dil. Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**
Spike Ref. File:	**C:\ICPCHEM\1\DATA\031209B.B\042AREF.D\042AREF.D#**

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	97.51	16.94	1.45	100.00	80.6	75 - 125	
52 Cr	174.40	98.67	1.57	100.00	75.7	75 - 125	
60 Ni	256.50	172.60	2.22	100.00	83.9	75 - 125	
63 Cu	199.90	111.80	0.76	100.00	88.1	75 - 125	
66 Zn	447.70	359.20	0.35	100.00	88.5	75 - 125	
75 As	28.11	0.16	0.53	100.00	28.0	75 - 125	Fail
82 Se	29.55	6.09	1.19	100.00	23.5	75 - 125	Fail
107 Ag	92.81	1.01	0.77	100.00	91.8	75 - 125	
111 Cd	91.66	0.68	1.11	100.00	91.0	75 - 125	
121 Sb	42.17	0.26	0.79	100.00	41.9	75 - 125	Fail
202 Hg	1.84	0.21	2.83	2.00	81.4	75 - 125	
205 Tl	57.56	0.31	0.81	100.00	57.2	75 - 125	Fail
208 Pb	146.20	57.16	0.44	100.00	89.0	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	999479.4	2.76	#######	94.9	30 - 140	
45 Sc	1084472.5	0.77	#######	105.6	30 - 140	
72 Ge	155348.2	1.61	#######	98.5	30 - 140	
115 In	692223.4	1.97	#######	88.1	30 - 140	
159 Tb	769310.3	1.60	#######	94.0	30 - 140	
209 Bi	315090.6	1.46	#######	86.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82

2 7020

S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

PDS Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031209B.B\049PDS1.D\049PDS1.D#**
Date Acquired:	**Dec 9 2003 09:10 pm**
Acq. Method:	**1202.M**
Operator:	
Sample Name:	**03112414-43**
Misc Info:	
Vial Number:	**3208**
Current Method:	**C:\ICPCHEM\1\DATA\031209B.B\1202.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031209B.B\1202.C**
Last Cal. Update:	**Dec 10 2003 10:02 am**
Sample Type:	**PDS1**
Prep Dil. Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**
Spike Ref. File:	**C:\ICPCHEM\1\DATA\031209B.B\042AREF.D\042AREF.D#**

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	96.94	16.94	1.07	100.00	80.0	75 - 125	
52 Cr	188.90	98.67	0.35	100.00	90.2	75 - 125	
60 Ni	244.20	172.60	1.67	100.00	71.6	75 - 125	Fail
63 Cu	209.60	111.80	0.71	100.00	97.8	75 - 125	
66 Zn	447.00	359.20	0.24	100.00	87.8	75 - 125	
75 As	88.51	0.16	0.42	100.00	88.4	75 - 125	
82 Se	92.13	6.09	0.29	100.00	86.0	75 - 125	
107 Ag	96.97	1.01	0.59	100.00	96.0	75 - 125	
111 Cd	96.96	0.68	0.63	100.00	96.3	75 - 125	
121 Sb	91.00	0.26	2.01	100.00	90.7	75 - 125	
202 Hg	1.98	0.21	0.17	2.00	88.8	75 - 125	
205 Tl	76.97	0.31	3.28	100.00	76.7	75 - 125	
208 Pb	153.00	57.16	0.70	100.00	95.8	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	1046036.6	1.94	1053023.0	99.3	30 - 140	
45 Sc	1178000.9	0.26	1026490.3	114.8	30 - 140	
72 Ge	158161.7	1.39	157775.0	100.2	30 - 140	
115 In	699774.3	2.91	785302.1	89.1	30 - 140	
159 Tb	766266.0	4.09	818276.9	93.6	30 - 140	
209 Bi	307471.2	6.24	363362.4	84.6	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

2 7022

PB QC Report

Data File: C:\ICPCHEM\1\DATA\031209B.B\037__PB.D\037__PB.D#
Date Acquired: Dec 9 2003 08:11 pm
Acq. Method: 1202.M
Operator:
Sample Name: WATER031204
Misc Info:
Vial Number: 3112
Current Method: C:\ICPCHEM\1\DATA\031209B.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031209B.B\1202.C
Last Cal. Update: Dec 10 2003 10:02 am
Sample Type: PB
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
9 Be	-0.01 ppb	44.91	0.50	
52 Cr	-0.11 ppb	146.44	0.50	
60 Ni	0.08 ppb	41.43	0.50	
63 Cu	5.07 ppb	15.02	0.50	Fail
66 Zn	-0.54 ppb	14.16	0.50	
75 As	-0.19 ppb	25.17	0.50	
82 Se	-0.02 ppb	410.29	0.50	
107 Ag	0.01 ppb	46.11	0.50	
111 Cd	0.29 ppb	16.76	0.50	
121 Sb	0.00 ppb	366.86	0.50	
202 Hg	0.01 ppb	20.43	0.50	
205 Tl	-0.02 ppb	7.03	0.50	
208 Pb	-0.36 ppb	2.80	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1007186.10	0.81	1053023.00	95.6	30 - 140	
45 Sc	986810.00	0.99	1026490.30	96.1	30 - 140	
72 Ge	149817.45	1.87	157774.95	95.0	30 - 140	
115 In	723831.44	1.46	785302.13	92.2	30 - 140	
159 Tb	731770.06	1.13	818276.94	89.4	30 - 140	
209 Bi	335721.59	1.45	363362.41	92.4	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

2 7023

LCS QC Report

Data File: C:\ICPCHEM\1\DATA\031209B.B\038_LCS.D\038_LCS.D#
Date Acquired: Dec 9 2003 08:16 pm
Acq. Method: 1202.M
Operator:
Sample Name: WATER031204
Misc Info:
Vial Number: 3201
Current Method: C:\ICPCHEM\1\DATA\031209B.B\1202.M
Calibration File: C:\ICPCHEM\1\DATA\031209B.B\1202.C
Last Cal. Update: Dec 10 2003 10:02 am
Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
9 Be	90.17	90.17	ppb	0.31	100.00	75 - 125	
52 Cr	94.29	94.29	ppb	1.80	100.00	75 - 125	
60 Ni	89.53	89.53	ppb	0.72	100.00	75 - 125	
63 Cu	95.60	95.60	ppb	0.70	100.00	75 - 125	
66 Zn	97.24	97.24	ppb	0.43	100.00	75 - 125	
75 As	94.13	94.13	ppb	0.64	100.00	75 - 125	
82 Se	96.68	96.68	ppb	0.31	100.00	75 - 125	
107 Ag	93.99	93.99	ppb	0.76	100.00	75 - 125	
111 Cd	94.82	94.82	ppb	0.86	100.00	75 - 125	
121 Sb	95.11	95.11	ppb	0.48	100.00	75 - 125	
202 Hg	1.72	1.72	ppb	1.17	2.00	75 - 125	
205 Tl	92.65	92.65	ppb	0.85	100.00	75 - 125	
208 Pb	89.41	89.41	ppb	1.09	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1011502.70	3.48	1053023.00	96.1	30 - 140	
45 Sc	1039160.10	1.79	1026490.30	101.2	30 - 140	
72 Ge	154228.16	1.54	157774.95	97.8	30 - 140	
115 In	743509.00	2.10	785302.13	94.7	30 - 140	
159 Tb	749143.13	2.55	818276.94	91.6	30 - 140	
209 Bi	340379.44	3.31	363362.41	93.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031209B.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

2 7024

ICV QC Report

Data File: C:\ICPCHEM\1\DATA\031201B.B\010ICV1.D\010ICV1.D#
Date Acquired: Dec 2 2003 03:32 am
Acq. Method: 1201PP.M
Operator:
Sample Name: ICV
Misc Info: 0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File: C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal. Update: Dec 02 2003 10:09 am
Sample Type: ICV1
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	53.29 ppb	0.67	50.00	90 - 110	
52 Cr	51.52 ppb	2.06	50.00	90 - 110	
60 Ni	53.79 ppb	0.79	50.00	90 - 110	
63 Cu	52.60 ppb	0.39	50.00	90 - 110	
66 Zn	53.75 ppb	1.51	50.00	90 - 110	
75 As	53.50 ppb	0.94	50.00	90 - 110	
82 Se	54.44 ppb	1.42	50.00	90 - 110	
107 Ag	51.30 ppb	0.29	50.00	90 - 110	
111 Cd	52.68 ppb	2.19	50.00	90 - 110	
121 Sb	52.65 ppb	0.67	50.00	90 - 110	
202 Hg	1.93 ppb	1.82	2.00	90 - 110	
205 Tl	49.73 ppb	1.06	50.00	90 - 110	
208 Pb	47.44 ppb	0.80	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	509257.81	1.14	530481.94	96.0	30 - 140	
45 Sc	935916.75	0.70	966559.56	96.8	30 - 140	
72 Ge	176650.67	1.59	182670.69	96.7	30 - 140	
115 In	1346585.40	1.88	1380774.60	97.5	30 - 140	
159 Tb	1715245.30	0.64	1738718.30	98.6	30 - 140	
209 Bi	1062858.90	0.67	1074875.50	98.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

2 7025

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031201B.B\028CCV1.D\028CCV1.D#
Date Acquired: Dec 2 2003 05:00 am
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File: C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal Update: Dec 02 2003 10:09 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	52.47 ppb	0.83	50.00	90 - 110	
52 Cr	52.81 ppb	2.37	50.00	90 - 110	
60 Ni	52.14 ppb	2.54	50.00	90 - 110	
63 Cu	51.92 ppb	0.91	50.00	90 - 110	
66 Zn	53.38 ppb	0.66	50.00	90 - 110	
75 As	57.32 ppb	1.32	50.00	90 - 110	Fail
82 Se	59.17 ppb	0.99	50.00	90 - 110	Fail
107 Ag	48.56 ppb	0.80	50.00	90 - 110	
111 Cd	52.13 ppb	0.22	50.00	90 - 110	
121 Sb	51.70 ppb	0.50	50.00	90 - 110	
202 Hg	1.90 ppb	1.29	2.00	90 - 110	
205 Tl	48.46 ppb	1.74	50.00	90 - 110	
208 Pb	46.40 ppb	1.35	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	517717.03	0.79	530481.94	97.6	30 - 140	
45 Sc	966496.44	1.55	966559.56	100.0	30 - 140	
72 Ge	179210.25	0.61	182670.69	98.1	30 - 140	
115 In	1373848.60	0.92	1380774.60	99.5	30 - 140	
159 Tb	1760997.60	1.10	1738718.30	101.3	30 - 140	
209 Bi	1085037.10	0.45	1074875.50	100.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7026

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031201B.B\042CCV1.D\042CCV1.D#
Date Acquired: Dec 2 2003 06:09 am
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File: C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal Update: Dec 02 2003 10:09 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	52.39 ppb	0.88	50.00	90 - 110	
52 Cr	56.84 ppb	1.17	50.00	90 - 110	Fail
60 Ni	52.58 ppb	1.29	50.00	90 - 110	
63 Cu	51.33 ppb	0.45	50.00	90 - 110	
66 Zn	53.48 ppb	1.58	50.00	90 - 110	
75 As	61.23 ppb	0.46	50.00	90 - 110	Fail
82 Se	65.17 ppb	1.13	50.00	90 - 110	Fail
107 Ag	48.02 ppb	1.43	50.00	90 - 110	
111 Cd	51.95 ppb	0.49	50.00	90 - 110	
121 Sb	52.36 ppb	0.18	50.00	90 - 110	
202 Hg	1.93 ppb	2.98	2.00	90 - 110	
205 Tl	48.04 ppb	3.24	50.00	90 - 110	
208 Pb	46.28 ppb	2.04	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	499903.28	0.50	530481.94	94.2	30 - 140	
45 Sc	920606.94	1.00	966559.56	95.2	30 - 140	
72 Ge	172492.09	1.17	182670.69	94.4	30 - 140	
115 In	1312374.30	1.08	1380774.60	95.0	30 - 140	
159 Tb	1667069.00	0.95	1738718.30	95.9	30 - 140	
209 Bi	1030155.20	1.96	1074875.50	95.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7027

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031201B.B\049CCV1.D\049CCV1.D#
Date Acquired: Dec 2 2003 06:44 am
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File: C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal Update: Dec 02 2003 10:09 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
9 Be	52.62 ppb	1.18	50.00	90 - 110	
52 Cr	56.03 ppb	1.54	50.00	90 - 110	Fail
60 Ni	51.49 ppb	1.36	50.00	90 - 110	
63 Cu	51.76 ppb	0.25	50.00	90 - 110	
66 Zn	53.14 ppb	0.74	50.00	90 - 110	
75 As	61.46 ppb	0.21	50.00	90 - 110	Fail
82 Se	65.48 ppb	0.99	50.00	90 - 110	Fail
107 Ag	47.69 ppb	1.17	50.00	90 - 110	
111 Cd	51.87 ppb	1.03	50.00	90 - 110	
121 Sb	51.97 ppb	0.85	50.00	90 - 110	
202 Hg	1.90 ppb	1.90	2.00	90 - 110	
205 Tl	47.68 ppb	1.61	50.00	90 - 110	
208 Pb	45.80 ppb	2.24	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	501329.31	0.95	530481.94	94.5	30 - 140	
45 Sc	936273.63	0.85	966559.56	96.9	30 - 140	
72 Ge	171900.58	0.85	182670.69	94.1	30 - 140	
115 In	1313852.30	1.48	1380774.60	95.2	30 - 140	
159 Tb	1671153.30	0.49	1738718.30	96.1	30 - 140	
209 Bi	1026832.80	3.13	1074875.50	95.5	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7028

All Reference Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031201B.B\044AREF.D\044AREF.D#**
Date Acquired:	**Dec 2 2003 06:19 am**
Acq. Method:	**1201PP.M**
Operator:	**Lisa Miller**
Sample Name:	**03112414-49**
Misc Info:	**500D-18**
Vial Number:	**3206**
Current Method:	**C:\ICPCHEM\1\DATA\031201B.B\1201PP.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031201B.B\1201PP.C**
Last Cal. Update:	**Dec 02 2003 10:09 am**
Sample Type:	**AllRef**
Dilution Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
9 Be	0.14	0.14	ppb	17.87	8000.00	
52 Cr	24.74	24.74	ppb	3.15	8000.00	
60 Ni	3.16	3.16	ppb	2.60	8000.00	
63 Cu	4.02	4.02	ppb	0.67	8000.00	
66 Zn	5.45	5.45	ppb	1.83	8000.00	
75 As	3.14	3.14	ppb	1.48	8000.00	
82 Se	0.30	0.30	ppb	15.67	8000.00	
107 Ag	0.28	0.28	ppb	9.29	8000.00	
111 Cd	0.00	0.00	ppb	1031.40	8000.00	
121 Sb	-0.39	-0.39	ppb	3.46	8000.00	
202 Hg	0.03	0.03	ppb	16.77	8.00	
205 Tl	-0.05	-0.05	ppb	19.28	8000.00	
208 Pb	1.32	1.32	ppb	5.19	40000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	483098.28	1.70	530481.94	91.1	30 - 140	
45 Sc	895396.00	1.31	966559.56	92.6	30 - 140	
72 Ge	166201.50	1.14	182670.69	91.0	30 - 140	
115 In	1263144.60	2.01	1380774.60	91.5	30 - 140	
159 Tb	1613469.10	0.35	1738718.30	92.8	30 - 140	
209 Bi	981233.81	2.16	1074875.50	91.3	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

2 7029

Duplicate QC Report

Data File: C:\ICPCHEM\1\DATA\031201B.B\045DUP1.D\045DUP1.D#
Date Acquired: Dec 2 2003 06:24 am
Acq. Method: 1201PP.M
Operator:
Sample Name: 03112414-49
Misc Info: 500D-19
Vial Number: 3207
Current Method: C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File: C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal. Update: Dec 02 2003 10:09 am
Sample Type: Dupl
Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\031201B.B\044AREF.D\044AREF.D#

QC Elements

Element	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
9 Be	0.11	ppb	21.46	0.14	24.05	20	<PQL
52 Cr	20.54	ppb	1.04	24.74	18.55	20	
60 Ni	3.43	ppb	2.98	3.16	8.32	20	<PQL
63 Cu	4.29	ppb	1.39	4.02	6.28	20	<PQL
66 Zn	5.16	ppb	1.36	5.45	5.43	20	
75 As	2.45	ppb	2.39	3.14	24.67	20	<PQL
82 Se	0.25	ppb	4.73	0.30	16.80	20	<PQL
107 Ag	0.24	ppb	3.22	0.28	13.89	20	<PQL
111 Cd	-0.06	ppb	11.00	0.00	-178.77	20	<PQL
121 Sb	-0.43	ppb	2.05	-0.39	-10.58	20	<PQL
202 Hg	0.02	ppb	5.68	0.03	45.66	20	<PQL
205 Tl	-0.09	ppb	7.58	-0.05	-60.07	20	<PQL
208 Pb	1.19	ppb	4.37	1.32	9.88	20	<PQL

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	488236.59	1.65	530481.94	92.0	30 - 140	
45 Sc	902668.81	1.22	966559.56	93.4	30 - 140	
72 Ge	168111.39	1.73	182670.69	92.0	30 - 140	
115 In	1275801.80	2.18	1380774.60	92.4	30 - 140	
159 Tb	1627423.30	1.78	1738718.30	93.6	30 - 140	
209 Bi	976816.13	1.74	1074875.50	90.9	30 - 140	

ISTD Ref. File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; IS # 168; AU # 174; HCL # X13037

2 7031

LFM Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031201B.B\046LFM1.D\046LFM1.D#
Date Acquired:	Dec 2 2003 06:29 am
Acq. Method:	1201PP.M
Operator:	
Sample Name:	03112414-49
Misc Info:	500D-20
Vial Number:	3208
Current Method:	C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File:	C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal. Update:	Dec 02 2003 10:09 am
Sample Type:	LFM1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031201B.B\044AREF.D\044AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
9 Be	108.50	0.14	0.74	100.00	108.4	75 - 125	
52 Cr	112.70	24.74	2.18	100.00	88.0	75 - 125	
60 Ni	110.40	3.16	2.43	100.00	107.2	75 - 125	
63 Cu	110.40	4.02	0.40	100.00	106.4	75 - 125	
66 Zn	112.70	5.45	0.74	100.00	107.3	75 - 125	
75 As	75.88	3.14	0.48	100.00	72.7	75 - 125	Fail
82 Se	88.56	0.30	0.60	100.00	88.3	75 - 125	
107 Ag	12.17	0.28	1.13	100.00	11.9	75 - 125	Fail
111 Cd	105.00	0.00	1.02	100.00	105.0	75 - 125	
121 Sb	42.54	-0.39	0.54	100.00	42.9	75 - 125	Fail
202 Hg	1.62	0.03	0.34	2.00	79.9	75 - 125	
205 Tl	93.08	-0.05	3.28	100.00	93.1	75 - 125	
208 Pb	97.55	1.32	0.49	100.00	96.2	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
6 Li	490252.4	1.33	#######	92.4	30 - 140	
45 Sc	905640.2	1.51	#######	93.7	30 - 140	
72 Ge	170717.7	1.36	#######	93.5	30 - 140	
115 In	1305510.1	0.79	#######	94.5	30 - 140	
159 Tb	1671297.0	1.73	#######	96.1	30 - 140	
209 Bi	982503.8	0.45	#######	91.4	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82

2 7032

S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

Dilution QC Report

Data File: C:\ICPCHEM\1\DATA\031201B.B\048DIL1.D\048DIL1.D#
Date Acquired: Dec 2 2003 06:39 am
Acq. Method: 1201PP.M
Operator:
Sample Name: 03112414-49
Misc Info: 2500D
Vial Number: 3210
Current Method: C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File: C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal. Update: Dec 02 2003 10:09 am
Sample Type: Dil1
Dilution Factor: 5.00

Dilution Ref File: C:\ICPCHEM\1\DATA\031201B.B\044AREF.D\044AREF.D#

QC elements

Element	Conc.	RSD(%)	*Ref conc*	Actual(%)	QC Range(%)	Flag
9 Be	0.00	814.96	0.14	-10.87	90 - 110	<100 PB
52 Cr	11.32	0.35	24.74	228.78	90 - 110	<100 PB
60 Ni	0.42	3.30	3.16	66.21	90 - 110	<100 PB
63 Cu	-0.59	3.73	4.02	-73.51	90 - 110	<100 PB
66 Zn	-0.27	7.93	5.45	-24.87	90 - 110	<100 PB
75 As	0.67	6.74	3.14	107.46	90 - 110	<100 PB
82 Se	0.00	513.70	0.30	-7.28	90 - 110	<100 PB
107 Ag	0.22	7.65	0.28	400.79	90 - 110	<100 PB
111 Cd	-0.05	46.71	0.00	8300.03	90 - 110	<100 PB
121 Sb	-0.47	2.41	-0.39	601.74	90 - 110	<100 PB
202 Hg	0.01	74.43	0.03	150.11	90 - 110	<100 PB
205 Tl	0.28	21.48	-0.05	-2836.06	90 - 110	<100 PB
208 Pb	-0.16	10.62	1.32	-62.38	90 - 110	<100 PB

Traceability:
IS #168 ON-LINE
Au IN RINSE #174
HCL LOT #X13037
HNO3 #82

2 7034

PB QC Report

Data File:	C:\ICPCHEM\1\DATA\031201B.B\021__PB.D\021__PB.D#
Date Acquired:	Dec 2 2003 04:26 am
Acq. Method:	1201PP.M
Operator:	
Sample Name:	SOIL031201B
Misc Info:	500D-01
Vial Number:	3101
Current Method:	C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File:	C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal. Update:	Dec 02 2003 10:09 am
Sample Type:	PB
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
9 Be	-0.04 ppb	12.26	0.50	
52 Cr	4.58 ppb	4.63	0.50	Fail
60 Ni	-0.23 ppb	4.24	0.50	
63 Cu	-1.22 ppb	1.90	0.50	
66 Zn	-1.49 ppb	1.47	0.50	
75 As	0.05 ppb	119.01	0.50	
82 Se	-0.06 ppb	112.58	0.50	
107 Ag	1.12 ppb	7.73	0.50	
111 Cd	-0.06 ppb	38.45	0.50	
121 Sb	-0.37 ppb	1.27	0.50	
202 Hg	0.02 ppb	6.68	0.50	
205 Tl	-0.10 ppb	9.53	0.50	
208 Pb	-0.49 ppb	0.40	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	510024.72	0.95	530481.94	96.1	30 - 140	
45 Sc	956506.44	0.43	966559.56	99.0	30 - 140	
72 Ge	177761.08	0.83	182670.69	97.3	30 - 140	
115 In	1360504.60	1.53	1380774.60	98.5	30 - 140	
159 Tb	1734366.10	1.20	1738718.30	99.7	30 - 140	
209 Bi	1066610.30	1.04	1074875.50	99.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

2 7035

LCS QC Report

Data File: C:\ICPCHEM\1\DATA\031201B.B\022_LCS.D\022_LCS.D#
Date Acquired: Dec 2 2003 04:31 am
Acq. Method: 1201PP.M
Operator:
Sample Name: SOIL031201B
Misc Info: 500D-02
Vial Number: 3102
Current Method: C:\ICPCHEM\1\DATA\031201B.B\1201PP.M
Calibration File: C:\ICPCHEM\1\DATA\031201B.B\1201PP.C
Last Cal. Update: Dec 02 2003 10:09 am
Sample Type: LCS
Prep Dil. Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
9 Be	110.20	110.20	ppb	0.59	100.00	75 - 125	
52 Cr	111.10	111.10	ppb	1.12	100.00	75 - 125	
60 Ni	108.90	108.90	ppb	0.90	100.00	75 - 125	
63 Cu	108.60	108.60	ppb	0.25	100.00	75 - 125	
66 Zn	111.50	111.50	ppb	0.50	100.00	75 - 125	
75 As	114.20	114.20	ppb	0.23	100.00	75 - 125	
82 Se	120.00	120.00	ppb	1.09	100.00	75 - 125	
107 Ag	46.85	46.85	ppb	0.19	100.00	75 - 125	Fail
111 Cd	108.30	108.30	ppb	1.01	100.00	75 - 125	
121 Sb	105.40	105.40	ppb	0.87	100.00	75 - 125	
202 Hg	1.85	1.85	ppb	0.34	2.00	75 - 125	
205 Tl	105.40	105.40	ppb	2.06	100.00	75 - 125	
208 Pb	96.97	96.97	ppb	1.44	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	509750.56	0.65	530481.94	96.1	30 - 140	
45 Sc	953180.38	1.01	966559.56	98.6	30 - 140	
72 Ge	178234.81	0.60	182670.69	97.6	30 - 140	
115 In	1375053.30	0.53	1380774.60	99.6	30 - 140	
159 Tb	1757311.40	1.40	1738718.30	101.1	30 - 140	
209 Bi	1100905.60	1.15	1074875.50	102.4	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031201B.B\002CALB.D\002CALB.D#

Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

2 7036

ICV QC Report

Data File: C:\ICPCHEM\1\DATA\031203B.B\007ICV1.D\007ICV1.D#
Date Acquired: Dec 3 2003 07:53 pm
Acq. Method: 1201T.M
Operator:
Sample Name: ICV
Misc Info: 0.125 ML #115; 1.25 ML #A100-50 ML
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File: C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal. Update: Dec 04 2003 10:00 am
Sample Type: ICV1
Dilution Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
52 Cr	51.43 ppb	0.41	50.00	90 - 110	
75 As	52.43 ppb	0.64	50.00	90 - 110	
82 Se	55.07 ppb	0.64	50.00	90 - 110	Fail
107 Ag	50.97 ppb	3.64	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2411245.30	0.65	2490276.00	96.8	30 - 140	
72 Ge	501115.53	1.56	483032.25	103.7	30 - 140	
115 In	3323031.80	4.52	3230758.50	102.9	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:

0.05 ML # 115; 1.25 ML # A100; HG 0.1 ML # A097
HNO3 #82; HCL #X13037; Au #174; IS # 168

2 7037

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031203B.B\024CCV1.D\024CCV1.D#
Date Acquired: Dec 3 2003 09:07 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File: C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal Update: Dec 04 2003 10:00 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
52 Cr	49.80 ppb	2.37	50.00	90 - 110	
75 As	51.78 ppb	0.70	50.00	90 - 110	
82 Se	53.33 ppb	0.98	50.00	90 - 110	
107 Ag	49.62 ppb	1.55	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2841883.80	1.78	2490276.00	114.1	30 - 140	
72 Ge	569285.44	1.08	483032.25	117.9	30 - 140	
115 In	3752731.30	2.60	3230758.50	116.2	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7038

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031203B.B\025CCV1.D\025CCV1.D#
Date Acquired: Dec 3 2003 09:12 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File: C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal Update: Dec 04 2003 10:00 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
52 Cr	50.90 ppb	1.32	50.00	90 - 110	
75 As	50.93 ppb	2.01	50.00	90 - 110	
82 Se	52.51 ppb	2.21	50.00	90 - 110	
107 Ag	49.14 ppb	1.47	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2916372.50	1.47	2490276.00	117.1	30 - 140	
72 Ge	586690.81	1.33	483032.25	121.5	30 - 140	
115 In	3911286.50	1.93	3230758.50	121.1	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:
HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031203B.B\037CCV1.D\037CCV1.D#
Date Acquired: Dec 3 2003 10:04 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File: C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal Update: Dec 04 2003 10:00 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
52 Cr	49.94 ppb	0.59	50.00	90 - 110	
75 As	51.34 ppb	1.37	50.00	90 - 110	
82 Se	53.50 ppb	1.43	50.00	90 - 110	
107 Ag	48.63 ppb	3.08	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2704256.50	4.48	2490276.00	108.6	30 - 140	
72 Ge	551542.56	1.02	483032.25	114.2	30 - 140	
115 In	3737066.30	1.50	3230758.50	115.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:
HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7040

CCV QC Report

Data File: C:\ICPCHEM\1\DATA\031203B.B\050CCV1.D\050CCV1.D#
Date Acquired: Dec 3 2003 11:01 pm
Operator:
Sample Name: CCV
Misc Info:
Vial Number: 1202
Current Method: C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File: C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal Update: Dec 04 2003 10:00 am
Sample Type: CCV1
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
52 Cr	49.54 ppb	0.86	50.00	90 - 110	
75 As	51.83 ppb	0.77	50.00	90 - 110	
82 Se	53.67 ppb	1.52	50.00	90 - 110	
107 Ag	48.62 ppb	0.18	50.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2710131.30	0.15	2490276.00	108.8	30 - 140	
72 Ge	531662.19	3.18	483032.25	110.1	30 - 140	
115 In	3654158.30	2.56	3230758.50	113.1	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:

HNO3 #82; HCL #X13037; Au # 174; IS # 168
0.05 ML # 115; 1.25 ML # A100; HG 0.1ML#A098

2 7041

All Reference Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031203B.B\036AREF.D\036AREF.D#**
Date Acquired:	**Dec 3 2003 10:00 pm**
Acq. Method:	**1201T.M**
Operator:	**Lisa Miller**
Sample Name:	**03112414-49**
Misc Info:	**500D-18**
Vial Number:	**3206**
Current Method:	**C:\ICPCHEM\1\DATA\031203B.B\1201T.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031203B.B\1201T.C**
Last Cal. Update:	**Dec 04 2003 10:00 am**
Sample Type:	**AllRef**
Dilution Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**

QC Elements

Element	Corr Conc	Raw Conc	Units	RSD(%)	High Limit	Flag
52 Cr	17.34	17.34	ppb	1.93	8000.00	
75 As	2.46	2.46	ppb	2.75	8000.00	
82 Se	0.25	0.25	ppb	12.64	8000.00	
107 Ag	-0.11	-0.11	ppb	1.67	8000.00	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2673833.80	2.31	2490276.00	107.4	30 - 140	
72 Ge	534175.94	1.04	483032.25	110.6	30 - 140	
115 In	3524671.30	3.33	3230758.50	109.1	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL# X13037; Au #174; IS #168

2 7042

Duplicate QC Report

Data File: C:\ICPCHEM\1\DATA\031203B.B\040DUP1.D\040DUP1.D#
Date Acquired: Dec 3 2003 10:17 pm
Acq. Method: 1201T.M
Operator:
Sample Name: 03112414-49
Misc Info: 500D-19
Vial Number: 3207
Current Method: C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File: C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal. Update: Dec 04 2003 10:00 am
Sample Type: Dupl
Dilution Factor: 1.00

Duplicate Ref File: C:\ICPCHEM\1\DATA\031203B.B\036AREF.D\036AREF.D#

QC Elements

Element	Conc.		RSD(%)	Ref Conc	Differ(%)	High Limit	Flag
52 Cr	11.15	ppb	4.29	17.34	43.45	20	Fail
75 As	2.04	ppb	0.58	2.46	18.57	20	<PQL
82 Se	0.26	ppb	15.79	0.25	4.49	20	<PQL
107 Ag	-0.11	ppb	10.41	-0.11	-3.39	20	<PQL

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2824876.00	0.42	2490276.00	113.4	30 - 140	
72 Ge	554315.81	0.68	483032.25	114.8	30 - 140	
115 In	3711498.80	1.24	3230758.50	114.9	30 - 140	

ISTD Ref. File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; IS # 168; AU # 174; HCL # X13037

LFM Sample QC Report

Data File:	**C:\ICPCHEM\1\DATA\031203B.B\041LFM1.D\041LFM1.D#**
Date Acquired:	**Dec 3 2003 10:22 pm**
Acq. Method:	**1201T.M**
Operator:	
Sample Name:	**03112414-49**
Misc Info:	**500D-20**
Vial Number:	**3208**
Current Method:	**C:\ICPCHEM\1\DATA\031203B.B\1201T.M**
Calibration File:	**C:\ICPCHEM\1\DATA\031203B.B\1201T.C**
Last Cal. Update:	**Dec 04 2003 10:00 am**
Sample Type:	**LFM1**
Prep Dil. Factor:	**1.00**
Autodil Factor:	**Undiluted**
Final Dil Factor:	**1.00**
Spike Ref. File:	**C:\ICPCHEM\1\DATA\031203B.B\036AREF.D\036AREF.D#**

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
52 Cr	109.40	17.34	2.67	100.00	92.1	75 - 125	
75 As	65.72	2.46	0.38	100.00	63.3	75 - 125	Fail
82 Se	76.96	0.25	1.29	100.00	76.7	75 - 125	
107 Ag	4.22	-0.11	4.02	100.00	4.3	75 - 125	Fail

ISTD Elements

Element	Counts	RSD(%)	Counts	Rec(%)	QC Range(%)	QC Flag
45 Sc	2677327.5	1.52	#######	107.5	30 - 140	
72 Ge	547832.7	1.46	#######	113.4	30 - 140	
115 In	3641200.3	1.87	#######	112.7	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:

W 0.1 ML #A098; 0.1 ML #A100; 0.05 ML #115; HNO3 # 82
S 1.0 ML #A098; 1.0ML #A100; 0.5 ML # 115; H2O2 # X44A01
HCL # X13037; Au IN RINSE #174

PDS Sample QC Report

Data File:	C:\ICPCHEM\1\DATA\031203B.B\042PDS1.D\042PDS1.D#
Date Acquired:	Dec 3 2003 10:26 pm
Acq. Method:	1201T.M
Operator:	
Sample Name:	03112414-49
Misc Info:	500D-21
Vial Number:	3209
Current Method:	C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File:	C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal. Update:	Dec 04 2003 10:00 am
Sample Type:	PDS1
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00
Spike Ref. File:	C:\ICPCHEM\1\DATA\031203B.B\036AREF.D\036AREF.D#

QC Elements

Element	Conc	Ref Conc	RSD(%)	Spk Amt	Rec(%)	QC Range(%)	QC Flag
52 Cr	111.90	17.34	0.64	100.00	94.6	75 - 125	
75 As	93.34	2.46	2.49	100.00	90.9	75 - 125	
82 Se	89.28	0.25	2.55	100.00	89.0	75 - 125	
107 Ag	89.18	-0.11	0.59	100.00	89.3	75 - 125	

ISTD Elements

Element	Counts	RSD(%)	Ref. Counts	Rec(%)	QC Range(%)	QC Flag
45 Sc	2892833.5	2.19	2490276.0	116.2	30 - 140	
72 Ge	571618.7	1.05	483032.3	118.3	30 - 140	
115 In	3823480.3	3.02	3230758.5	118.3	30 - 140	

Traceability:

W: 0.01 ML # 115; 0.1 ML # A100; 0.02 ML A098
S: 0.01 ML #115; 0.1 ML #A100; 0.02 MLA098
H202 #X44A01; HNO3 #82; HCL #X13037; Au #174; IS #168

Dilution QC Report

Data File: C:\ICPCHEM\1\DATA\031203B.B\043DIL1.D\043DIL1.D#
Date Acquired: Dec 3 2003 10:30 pm
Acq. Method: 1201T.M
Operator:
Sample Name: 03112414-49
Misc Info: 2500D
Vial Number: 3210
Current Method: C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File: C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal. Update: Dec 04 2003 10:00 am
Sample Type: Dil1
Dilution Factor: 5.00

Dilution Ref File: C:\ICPCHEM\1\DATA\031203B.B\036AREF.D\036AREF.D#

QC elements

Element	Conc.	RSD(%)	*Ref conc*	Actual(%)	QC Range(%)	Flag
52 Cr	3.39	5.69	17.34	97.61	90 - 110	<100 PB
75 As	0.65	12.62	2.46	132.70	90 - 110	<100 PB
82 Se	0.07	49.22	0.25	135.54	90 - 110	<100 PB
107 Ag	-0.03	16.95	-0.11	143.99	90 - 110	<100 PB

Traceability:
IS #168 ON-LINE
Au IN RINSE #174
HCL LOT #X13037
HNO3 #82

PB QC Report

Data File:	C:\ICPCHEM\1\DATA\031203B.B\016__PB.D\016__PB.D#
Date Acquired:	Dec 3 2003 08:32 pm
Acq. Method:	1201T.M
Operator:	
Sample Name:	SOIL031202
Misc Info:	500D-01
Vial Number:	3101
Current Method:	C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File:	C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal. Update:	Dec 04 2003 10:00 am
Sample Type:	PB
Dilution Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	High Limit	Flag
52 Cr	-0.04 ppb	565.47	0.50	
75 As	0.07 ppb	40.55	0.50	
82 Se	0.00 ppb	1622.40	0.50	
107 Ag	-0.04 ppb	25.60	0.50	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2590393.30	1.33	2490276.00	104.0	30 - 140	
72 Ge	507023.38	1.53	483032.25	105.0	30 - 140	
115 In	3298726.80	2.92	3230758.50	102.1	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

Traceability:

H202 # X44A01; HNO3 # 82; HCL # X13037; Au #174; IS # 168

2 7047

LCS QC Report

Data File:	C:\ICPCHEM\1\DATA\031203B.B\017_LCS.D\017_LCS.D#
Date Acquired:	Dec 3 2003 08:36 pm
Acq. Method:	1201T.M
Operator:	
Sample Name:	SOIL031202
Misc Info:	500D-02
Vial Number:	3102
Current Method:	C:\ICPCHEM\1\DATA\031203B.B\1201T.M
Calibration File:	C:\ICPCHEM\1\DATA\031203B.B\1201T.C
Last Cal. Update:	Dec 04 2003 10:00 am
Sample Type:	LCS
Prep Dil. Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

Analyte Elements

Element	Corr. Conc.	Raw Conc.		RSD(%)	Expected	QC Range(%)	Flag
52 Cr	94.60	94.60	ppb	0.55	100.00	75 - 125	
75 As	91.33	91.33	ppb	0.62	100.00	75 - 125	
82 Se	89.23	89.23	ppb	0.68	100.00	75 - 125	
107 Ag	90.59	90.59	ppb	1.74	100.00	75 - 125	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
45 Sc	2698716.50	2.85	2490276.00	108.4	30 - 140	
72 Ge	532871.75	2.16	483032.25	110.3	30 - 140	
115 In	3419400.30	2.50	3230758.50	105.8	30 - 140	

ISTD Ref File : C:\ICPCHEM\1\DATA\031203B.B\002CALB.D\002CALB.D#

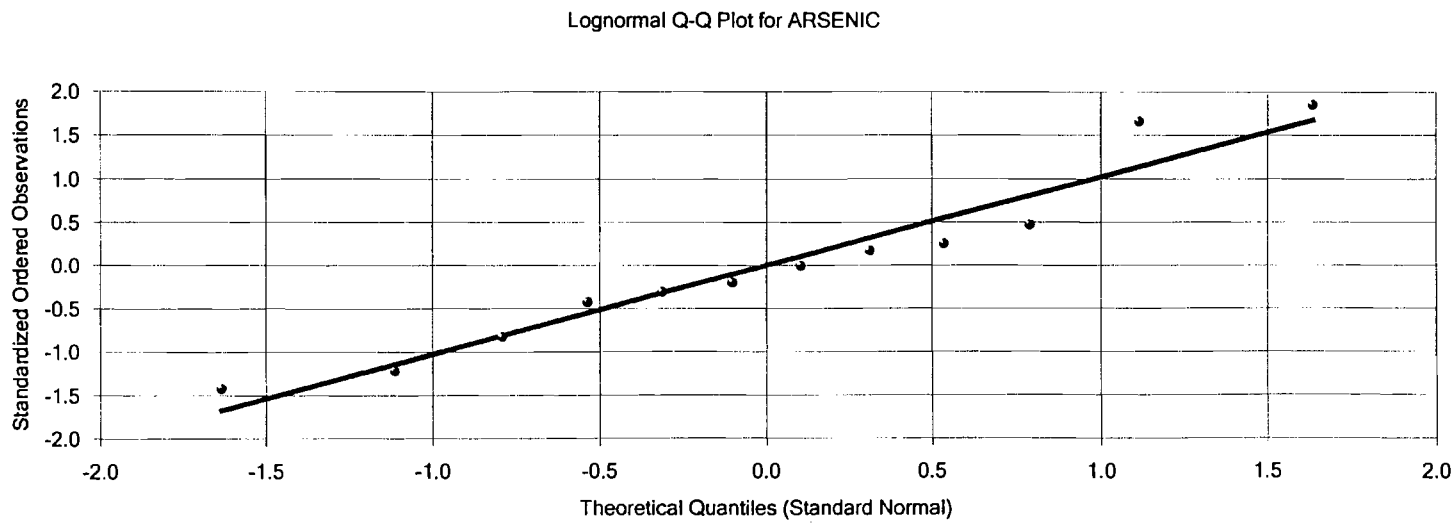
Traceability:

W: 0.1 ML #A098; 0.1 ML # A100; 0.05 ML #115
S: 1.0 ML # A098; 1.0 ML #A100; 0.5 ML #115
HCL #X13037; AU #174; IS #168;HNO3 # 82; H2O2 #X44A01

APPENDIX F
SOIL ARSENIC CONC.
STATISTICAL EVAL.

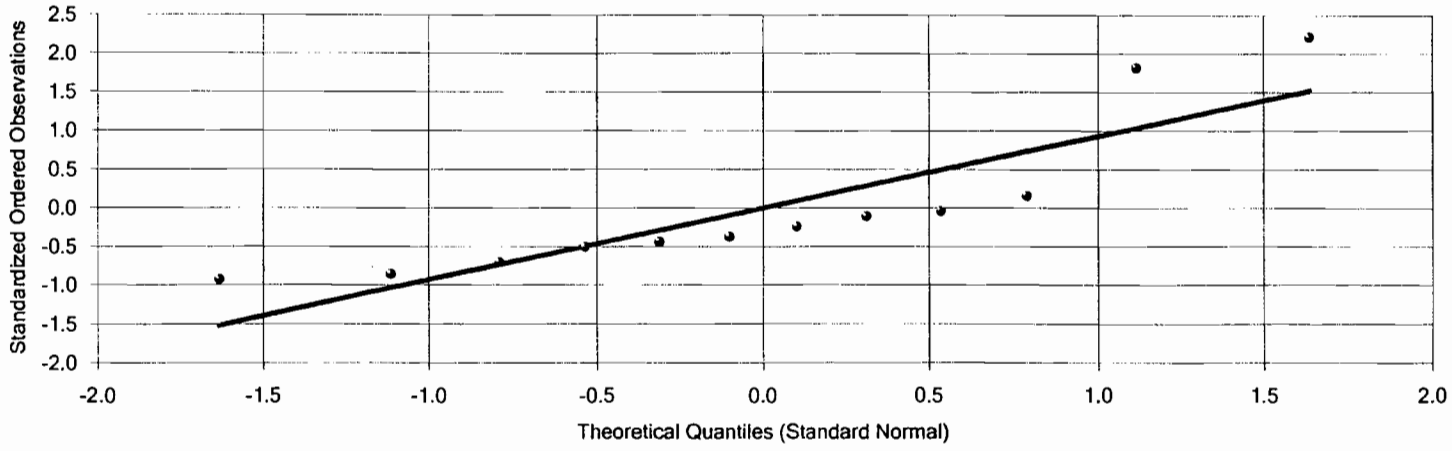
Calculation of 95 Percent Upper Confidence Limit (UCL) for the Log Normal Distribution
Middle River Complex, Middle River, Maryland

	ARSENIC (mg/kg)	ln
SB-1-05	5.5	1.704748
SB-1-10	1.8	0.587787
SB-2-05	2.1	0.741937
SB-2-10	0.87	-0.139262
SB-3-05	1.5	0.405465
SB-3-10	1.6	0.470004
SB-4-05	4.9	1.589235
SB-4-10	2.4	0.875469
SB-5-05	1.4	0.336472
SB-5-10	1.1	0.09531
SB-6-05	0.77	-0.261365
SB-6-10	2	0.693147
MEAN	2.161667	0.591579
STDEV	1.505329	0.600789
e =		2.718282
mean =		0.591579
H =		2.271
s =		0.600789
n =		12
95% UCL		3.265563



N = 12, Mean = 0.5916, Stdv = 0.6008
Slope = 1.0246, Intercept = 0.0000, Correlation, R = 0.97063212
Shapiro-Wilk Statistic = 0.937, Critical Value(0.05) = 0.859, Data are Lognormal

Normal Q-Q Plot for ARSENIC



N = 12, Mean = 2.1617, Stdv = 1.5053
Slope = 0.9289, Intercept = 0.0000, Correlation, R = 0.87995544
Shapiro-Wilk Statistic = 0.776, Critical Value(0.05) = 0.859, Data not Normal

General Statistics

From File	C:\ProUCL\Data\ARSENIC.xls			
Summary Statistics for	ARSENIC		Summary Statistics for	ln(ARSENI
Number of Samples	12		Minimum	-0.261365
Minimum	0.77		Maximum	1.704748
Maximum	5.5		Mean	0.591579
Mean	2.161667		Standard Deviation	0.600789
Median	1.7		Variance	0.360947
Standard Deviation	1.505329			
Variance	2.266015		Shapiro-Wilk Test Statisitic	0.936876
Coefficient of Variation	0.696374		Shapiro-Wilk 5% Critical Value	0.859
Skewness	1.622831		Data are Lognormal at 5% Significance Level	
95 % UCL (Assuming Normal Data)			Estimates Assuming Lognormal Distribution	
Student's-t	2.94207		MLE Mean	2.164204
			MLE Standard Deviation	1.426878
95 % UCL (Adjusted for Skewness)			MLE Coefficient of Variation	0.659308
Adjusted-CLT	3.093962		MLE Skewness	2.264518
Modified-t	2.975999		MLE Median	1.806839
			MLE 80% Quantile	3.0019
95 % Non-parametric UCL			MLE 90% Quantile	3.910215
CLT	2.87644		MLE 95% Quantile	4.854356
Jackknife	2.94207		MLE 99% Quantile	7.30832
Standard Bootstrap	2.862421			
Bootstrap-t	4.072037		MVU Estimate of Median	1.779837
Chebyshev (Mean, Std)	4.055831		MVU Estimate of Mean	2.127542
			MVU Estimate of Std. Dev.	1.325798
			MVU Estimate of SE of Mean	0.381021
			UCL Assuming Lognormal Distribution	
			95% H-UCL	3.266199
			95% Chebyshev (MVUE) UCL	3.788376
			99% Chebyshev (MVUE) UCL	5.918657
			Recommended UCL to use:	
			H-UCL	

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

GASOLINE RANGE ORGANICS
MATRIX SPIKE SUMMARY

LAB FILE ID's: 2\03111944.D
2\03111945.D

DATE ANALYZED: 11/20/03

MATRIX: Water

Sample ID: 03111913-23 MS

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/L	SAMPLE CONC ug/L	SPIKE CONC ug/L	SPIKE REC (%)	#	QC LIMITS (%)
Gasoline Range Organics	5000	ND	4531	91		50-150

Sample ID: 03111913-23 MSD

SAMPLE SPIKE COMPOUND/DISTILLATE	SPIKE ADDED ug/L	SAMPLE CONC ug/L	SPIKE CONC ug/L	SPIKE REC (%)	#	RPD (%)	QC RPD (%)	QC LIMITS (%)
Gasoline Range Organics	5000	ND	4482	90		1.1	40	50-150

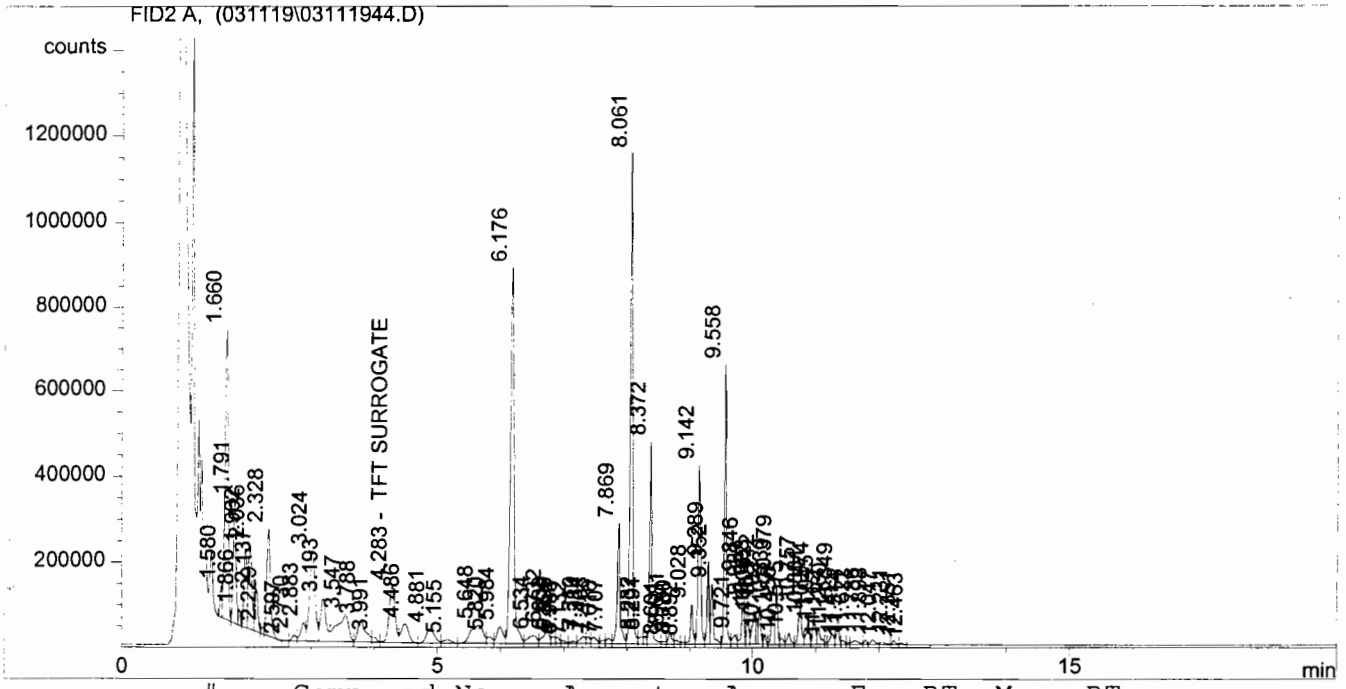
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*
ND = not detected

1 5916

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111944.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MS
Acquired On: 11/20/03 10:19:12 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.650e5	0.000	1.580
2		0.000	2.388e6	0.000	1.660
3		0.000	8.822e5	0.000	1.791
4		0.000	8.525e4	0.000	1.866
5		0.000	6.156e5	0.000	1.962
6		0.000	7.925e5	0.000	2.036
7		0.000	3.717e5	0.000	2.137
8		0.000	4.310e4	0.000	2.229
9		0.000	1.020e6	0.000	2.328
10		0.000	6.309e3	0.000	2.597
11		0.000	6.455e4	0.000	2.730
12		0.000	2.302e5	0.000	2.883
13		0.000	1.300e6	0.000	3.024
14		0.000	6.245e5	0.000	3.193
15		0.000	8.229e5	0.000	3.547
16		0.000	4.422e5	0.000	3.788
17		0.000	6.713e4	0.000	3.991
18	TFT SURROGATE	102.667	8.814e5	4.269	4.283
19		0.000	3.734e5	0.000	4.486
20		0.000	3.087e5	0.000	4.881
21		0.000	7.767e4	0.000	5.155
22		0.000	5.787e5	0.000	5.648
23		0.000	9.128e4	0.000	5.820
24		0.000	2.643e5	0.000	5.984

$\frac{2.958e7}{6528}$ = 4531.25 ug/L

$\frac{4531.25 - 4.63}{5000} \times 100$ = 90.53%

Recovery
AK 11/20/03

1 5017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111944.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MS
Acquired On: 11/20/03 10:19:12 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.802e6	0.000	6.176
26		0.000	1.889e5	0.000	6.534
27		0.000	2.258e5	0.000	6.732
28		0.000	7.079e4	0.000	6.833
29		0.000	5.949e4	0.000	6.896
30		0.000	3.544e4	0.000	6.986
31		0.000	3.482e4	0.000	7.132
32		0.000	1.045e5	0.000	7.310
33		0.000	6.298e4	0.000	7.384
34		0.000	8.698e4	0.000	7.468
35		0.000	3.945e4	0.000	7.616
36		0.000	6.404e4	0.000	7.707
37		0.000	9.456e5	0.000	7.869
38		0.000	3.119e6	0.000	8.061
39		0.000	8.481e4	0.000	8.232
40		0.000	5.099e4	0.000	8.291
41		0.000	1.225e6	0.000	8.372
42		0.000	3.251e4	0.000	8.601
43		0.000	1.104e5	0.000	8.681
44		0.000	4.575e4	0.000	8.780
45		0.000	2.125e4	0.000	8.892
46		0.000	2.682e5	0.000	9.028
47		0.000	1.292e6	0.000	9.142
48		0.000	4.539e5	0.000	9.289
49		0.000	3.856e5	0.000	9.352
50		0.000	1.501e6	0.000	9.558
51		0.000	1.003e5	0.000	9.721
52		0.000	3.817e5	0.000	9.846
53		0.000	2.306e5	0.000	9.921
54		0.000	2.670e5	0.000	10.023
55		0.000	1.239e5	0.000	10.062
56		0.000	2.234e5	0.000	10.112
57		0.000	6.314e4	0.000	10.192
58		0.000	2.865e5	0.000	10.330
59		0.000	3.266e5	0.000	10.379
60		0.000	5.570e4	0.000	10.458
61		0.000	1.008e5	0.000	10.575
62		0.000	3.299e5	0.000	10.757
63		0.000	1.921e5	0.000	10.881
64		0.000	2.120e5	0.000	10.974
65		0.000	1.501e5	0.000	11.045
66		0.000	1.198e4	0.000	11.162
67		0.000	1.113e5	0.000	11.260
68		0.000	1.855e5	0.000	11.349
69		0.000	3.688e4	0.000	11.425
70		0.000	1.394e4	0.000	11.514

1 5018

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

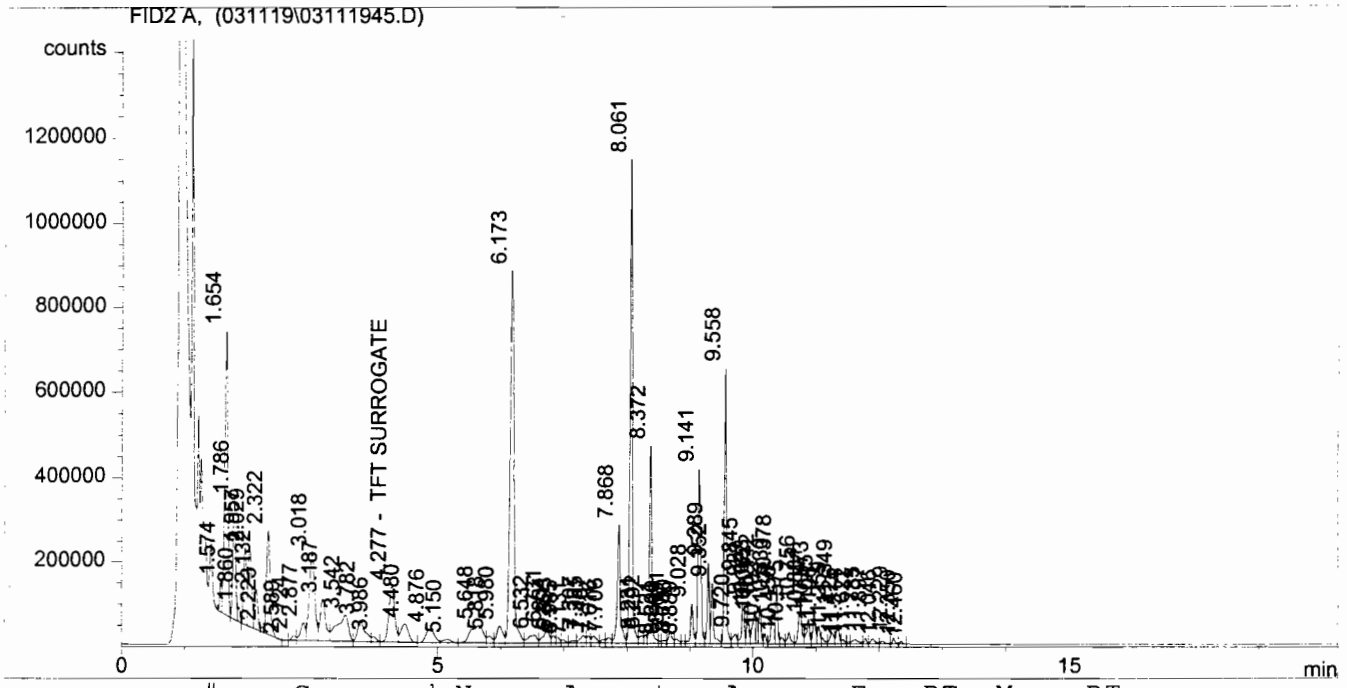
Data File Name: C:\HPCHEM\2\DATA\031119\03111944.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MS
Acquired On: 11/20/03 10:19:12 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MS:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	7.238e4	0.000	11.622
72		0.000	3.358e4	0.000	11.786
73		0.000	5.960e4	0.000	11.898
74		0.000	3.351e4	0.000	12.047
75		0.000	3.085e4	0.000	12.231
76		0.000	1.581e4	0.000	12.351
77		0.000	4.681e3	0.000	12.463
Total			3.046e7		

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111945.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MSD
Acquired On: 11/20/03 10:51:31 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.601e5	0.000	1.574
2		0.000	2.346e6	0.000	1.654
3		0.000	8.653e5	0.000	1.786
4		0.000	8.001e4	0.000	1.860
5		0.000	6.001e5	0.000	1.957
6		0.000	7.407e5	0.000	2.029
7		0.000	3.448e5	0.000	2.132
8		0.000	3.030e4	0.000	2.223
9		0.000	9.865e5	0.000	2.322
10		0.000	4.408e3	0.000	2.589
11		0.000	5.451e4	0.000	2.724
12		0.000	2.215e5	0.000	2.877
13		0.000	1.271e6	0.000	3.018
14		0.000	6.045e5	0.000	3.187
15		0.000	8.031e5	0.000	3.542
16		0.000	4.160e5	0.000	3.782
17		0.000	6.193e4	0.000	3.986
18	TFT SURROGATE	101.174	8.686e5 ✓	4.269	4.277
19		0.000	3.661e5	0.000	4.480
20		0.000	3.115e5	0.000	4.876
21		0.000	7.426e4	0.000	5.150
22		0.000	5.632e5	0.000	5.648
23		0.000	9.283e4	0.000	5.818
24		0.000	2.643e5	0.000	5.980

$\frac{2.926e7}{6528}$ = 4482.23 ng/L

$\frac{4482.23 - 4.63}{5000}$ x100 = 89.55%

Recovery
AK 11/20/03

1 5020

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111945.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MSD
Acquired On: 11/20/03 10:51:31 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	3.769e6	0.000	6.173
26		0.000	1.870e5	0.000	6.532
27		0.000	2.218e5	0.000	6.731
28		0.000	6.978e4	0.000	6.831
29		0.000	5.331e4	0.000	6.893
30		0.000	3.623e4	0.000	6.985
31		0.000	3.579e4	0.000	7.131
32		0.000	1.062e5	0.000	7.307
33		0.000	6.700e4	0.000	7.385
34		0.000	9.008e4	0.000	7.467
35		0.000	3.934e4	0.000	7.616
36		0.000	6.650e4	0.000	7.706
37		0.000	9.614e5	0.000	7.868
38		0.000	3.081e6	0.000	8.061
39		0.000	8.627e4	0.000	8.231
40		0.000	5.749e4	0.000	8.292
41		0.000	1.202e6	0.000	8.372
42		0.000	1.452e4	0.000	8.521
43		0.000	3.448e4	0.000	8.609
44		0.000	1.165e5	0.000	8.681
45		0.000	5.024e4	0.000	8.780
46		0.000	2.299e4	0.000	8.889
47		0.000	2.764e5	0.000	9.028
48		0.000	1.286e6	0.000	9.141
49		0.000	4.480e5	0.000	9.289
50		0.000	3.925e5	0.000	9.352
51		0.000	1.479e6	0.000	9.558
52		0.000	1.054e5	0.000	9.720
53		0.000	3.814e5	0.000	9.845
54		0.000	2.298e5	0.000	9.921
55		0.000	2.683e5	0.000	10.023
56		0.000	1.262e5	0.000	10.062
57		0.000	2.225e5	0.000	10.112
58		0.000	6.411e4	0.000	10.192
59		0.000	2.898e5	0.000	10.330
60		0.000	3.276e5	0.000	10.378
61		0.000	5.652e4	0.000	10.458
62		0.000	1.043e5	0.000	10.575
63		0.000	3.333e5	0.000	10.756
64		0.000	1.959e5	0.000	10.881
65		0.000	2.151e5	0.000	10.973
66		0.000	1.205e5	0.000	11.045
67		0.000	4.592e4	0.000	11.106
68		0.000	1.168e5	0.000	11.259
69		0.000	2.017e5	0.000	11.349
70		0.000	3.973e4	0.000	11.425

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111945.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: 03111913-23 MSD
Acquired On: 11/20/03 10:51:31 AM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
GRO MSD:10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.567e4	0.000	11.514
72		0.000	7.831e4	0.000	11.622
73		0.000	3.589e4	0.000	11.785
74		0.000	6.424e4	0.000	11.897
75		0.000	3.701e4	0.000	12.046
76		0.000	4.134e4	0.000	12.229
77		0.000	2.093e4	0.000	12.350
78		0.000	5.842e3	0.000	12.460
Total			3.013e7		

1 5922

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PHASE SEPARATION SCIENCE, INC.

GASOLINE RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **11/20/03 12:28** **LAB FILE ID:** **2\03111948.D**

METHOD: **EPA 8015B**

MATRIX: **Water**

Sample ID: LCS 5000ppb

SPIKE DISTILLATE	SPIKE ADDED (ug/L)	SPIKE CONC (ug/L)	SPIKE REC (%)	#	QC LIMITS (%)
Gasoline	5000	4890	98		50-150

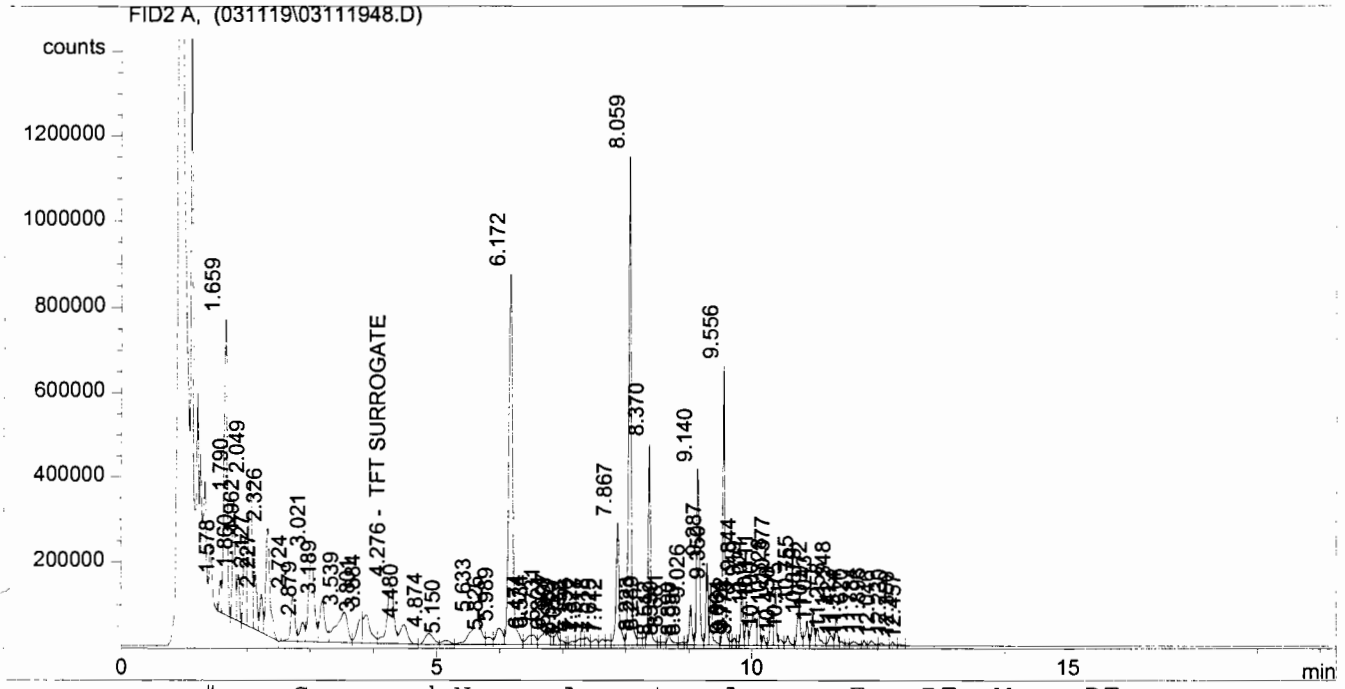
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

1 5623

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111948.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:28:26 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.646e5	0.000	1.578
2		0.000	2.402e6	0.000	1.659
3		0.000	8.625e5	0.000	1.790
4		0.000	2.957e5	0.000	1.860
5		0.000	6.643e5	0.000	1.962
6		0.000	1.421e6	0.000	2.049
7		0.000	4.578e5	0.000	2.127
8		0.000	2.915e5	0.000	2.227
9		0.000	1.121e6	0.000	2.326
10		0.000	4.738e5	0.000	2.724
11		0.000	2.296e5	0.000	2.879
12		0.000	1.252e6	0.000	3.021
13		0.000	5.718e5	0.000	3.189
14		0.000	8.996e5	0.000	3.539
15		0.000	3.271e5	0.000	3.801
16		0.000	5.385e5	0.000	3.884
17	TFT SURROGATE	124.257	1.067e6 ✓	4.269	4.276
18		0.000	3.791e5	0.000	4.480
19		0.000	2.455e5	0.000	4.874
20		0.000	9.189e4	0.000	5.150
21		0.000	7.015e5	0.000	5.633
22		0.000	1.127e5	0.000	5.826
23		0.000	2.961e5	0.000	5.989
24		0.000	3.785e6	0.000	6.172

$\frac{3.192e^7}{6528}$ = 4889.71 ug/L

$\frac{4889.71}{5000} \times 100$ = 97.79%

Recovery
AK 11/20/03

1 5024

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111948.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:28:26 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.224e5	0.000	6.474
26		0.000	1.103e5	0.000	6.534
27		0.000	3.015e5	0.000	6.731
28		0.000	5.619e4	0.000	6.824
29		0.000	1.214e5	0.000	6.897
30		0.000	3.943e4	0.000	6.983
31		0.000	1.034e4	0.000	7.059
32		0.000	4.952e4	0.000	7.158
33		0.000	5.320e4	0.000	7.256
34		0.000	5.671e4	0.000	7.322
35		0.000	7.449e4	0.000	7.377
36		0.000	7.164e4	0.000	7.518
37		0.000	6.501e4	0.000	7.625
38		0.000	5.975e4	0.000	7.712
39		0.000	9.717e5	0.000	7.867
40		0.000	3.150e6	0.000	8.059
41		0.000	7.597e4	0.000	8.223
42		0.000	5.585e4	0.000	8.289
43		0.000	1.215e6	0.000	8.370
44		0.000	2.004e4	0.000	8.512
45		0.000	3.283e4	0.000	8.599
46		0.000	1.245e5	0.000	8.681
47		0.000	3.161e4	0.000	8.890
48		0.000	1.812e4	0.000	8.957
49		0.000	2.605e5	0.000	9.026
50		0.000	1.292e6	0.000	9.140
51		0.000	4.453e5	0.000	9.287
52		0.000	3.698e5	0.000	9.350
53		0.000	1.496e6	0.000	9.556
54		0.000	2.161e4	0.000	9.664
55		0.000	4.987e4	0.000	9.722
56		0.000	2.024e4	0.000	9.776
57		0.000	3.487e5	0.000	9.844
58		0.000	2.305e5	0.000	9.919
59		0.000	3.936e5	0.000	10.021
60		0.000	2.242e5	0.000	10.111
61		0.000	6.199e4	0.000	10.190
62		0.000	2.812e5	0.000	10.328
63		0.000	3.200e5	0.000	10.377
64		0.000	5.493e4	0.000	10.458
65		0.000	8.677e4	0.000	10.575
66		0.000	3.210e5	0.000	10.755
67		0.000	1.916e5	0.000	10.879
68		0.000	2.112e5	0.000	10.972
69		0.000	1.635e5	0.000	11.043
70		0.000	1.085e5	0.000	11.258

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\2\DATA\031119\03111948.D
Method Name: C:\HPCHEM\2\METHODS\G2W9.M
Sample Name: GRO
Acquired On: 11/20/03 12:28:26 PM
Analyst: AK
Analysis Method: GC2.M
Sample Info: 1ul of 251
10ul 252/40ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	1.919e5	0.000	11.348
72		0.000	3.732e4	0.000	11.423
73		0.000	1.923e4	0.000	11.514
74		0.000	6.955e4	0.000	11.620
75		0.000	3.417e4	0.000	11.784
76		0.000	6.064e4	0.000	11.896
77		0.000	3.426e4	0.000	12.046
78		0.000	2.976e4	0.000	12.230
79		0.000	1.587e4	0.000	12.350
80		0.000	5.338e3	0.000	12.457
Total			3.299e7		

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GASOLINE RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **11/20/03 10:45** **LAB FILE ID:** **1\03111945.D**

METHOD: **EPA 8015B**

MATRIX: **Soil**

Sample ID: LCS 5000ppb

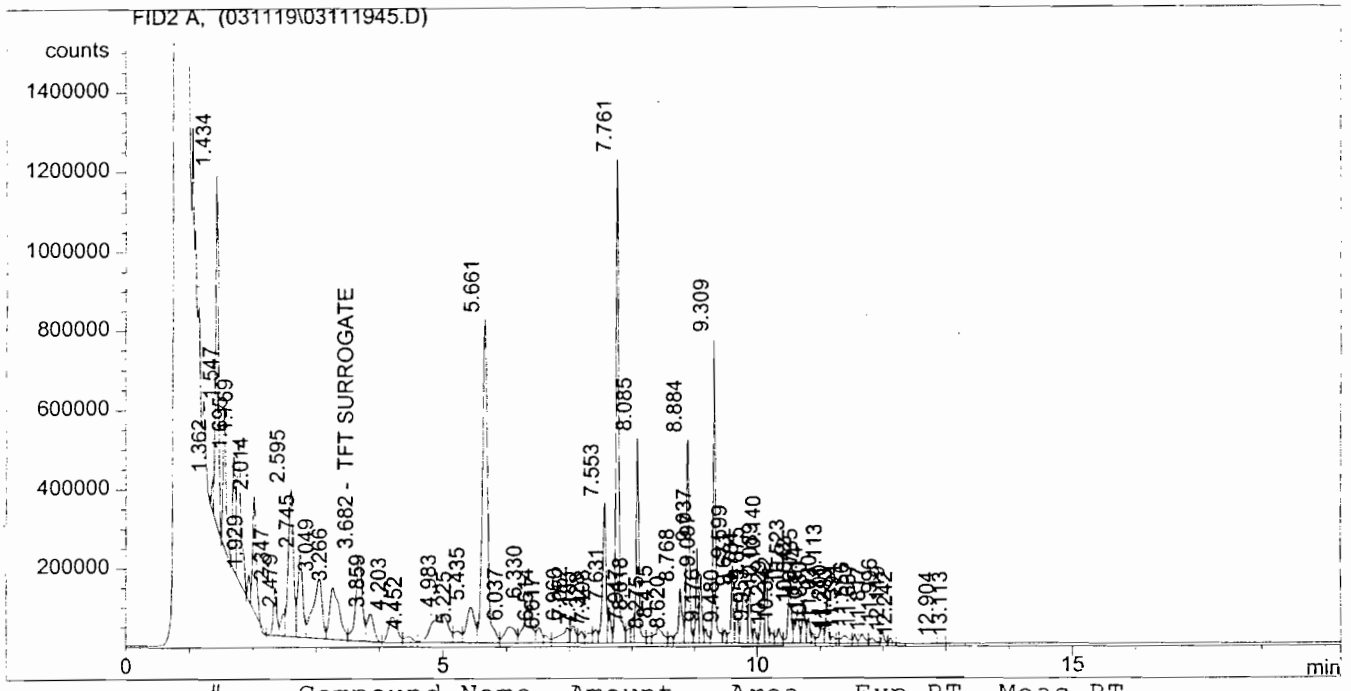
SPIKE DISTILLATE	SPIKE ADDED (ug/kg)	SPIKE CONC (ug/kg)	SPIKE REC (%)	#	QC LIMITS (%)
Gasoline	5000	4716	94		50-150

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111945.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/20/03 10:45:57 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1		0.000	1.475e5	0.000	1.362
2		0.000	2.855e6	0.000	1.434
3		0.000	1.226e6	0.000	1.547
4		0.000	8.833e5	0.000	1.695
5		0.000	1.613e6	0.000	1.769
6		0.000	1.674e5	0.000	1.929
7		0.000	1.100e6	0.000	2.014
8		0.000	5.050e5	0.000	2.347
9		0.000	2.355e5	0.000	2.479
10		0.000	2.153e6	0.000	2.595
11		0.000	1.168e6	0.000	2.745
12		0.000	1.574e6	0.000	3.049
13		0.000	1.401e6	0.000	3.266
14	TFT SURROGATE	123.249	1.537e6	3.699	3.682
15		0.000	5.266e5	0.000	3.859
16		0.000	6.140e5	0.000	4.203
17		0.000	1.401e5	0.000	4.452
18		0.000	1.296e6	0.000	4.983
19		0.000	2.369e5	0.000	5.225
20		0.000	7.951e5	0.000	5.435
21		0.000	4.780e6	0.000	5.661
22		0.000	4.714e5	0.000	6.037
23		0.000	7.959e5	0.000	6.330
24		0.000	2.239e5	0.000	6.514

$\frac{4.565e7}{9680}$

= 4715.91 ug/L

$\frac{4715.91}{5000} \times 100$

= 94.32% Recovery

AK 11/20/03

1 5028

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111945.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/20/03 10:45:57 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
25		0.000	1.008e5	0.000	6.617
26		0.000	3.761e5	0.000	6.960
27		0.000	2.241e5	0.000	7.052
28		0.000	1.557e5	0.000	7.185
29		0.000	1.652e5	0.000	7.328
30		0.000	1.612e5	0.000	7.408
31		0.000	1.374e6	0.000	7.553
32		0.000	2.946e5	0.000	7.631
33		0.000	3.802e6	0.000	7.761
34		0.000	1.568e5	0.000	7.947
35		0.000	1.849e5	0.000	8.018
36		0.000	1.532e6	0.000	8.085
37		0.000	8.404e4	0.000	8.275
38		0.000	3.801e5	0.000	8.415
39		0.000	8.396e4	0.000	8.620
40		0.000	5.902e5	0.000	8.768
41		0.000	1.717e6	0.000	8.884
42		0.000	6.131e5	0.000	9.037
43		0.000	4.744e5	0.000	9.097
44		0.000	1.408e5	0.000	9.176
45		0.000	1.959e6	0.000	9.309
46		0.000	1.108e5	0.000	9.480
47		0.000	5.487e5	0.000	9.599
48		0.000	3.173e5	0.000	9.671
49		0.000	7.110e5	0.000	9.784
50		0.000	3.751e5	0.000	9.875
51		0.000	1.170e5	0.000	9.953
52		0.000	4.470e5	0.000	10.089
53		0.000	5.049e5	0.000	10.140
54		0.000	1.131e5	0.000	10.229
55		0.000	1.698e5	0.000	10.342
56		0.000	5.164e5	0.000	10.523
57		0.000	3.770e5	0.000	10.642
58		0.000	3.453e5	0.000	10.735
59		0.000	1.906e5	0.000	10.814
60		0.000	6.863e4	0.000	10.880
61		0.000	2.356e5	0.000	11.030
62		0.000	3.273e5	0.000	11.113
63		0.000	7.883e4	0.000	11.200
64		0.000	3.336e4	0.000	11.283
65		0.000	1.602e5	0.000	11.394
66		0.000	7.332e4	0.000	11.556
67		0.000	1.229e5	0.000	11.667
68		0.000	7.897e4	0.000	11.817
69		0.000	9.082e4	0.000	11.996
70		0.000	4.140e4	0.000	12.119

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : GRO

Data File Name: C:\HPCHEM\1\DATA\031119\03111945.D
Method Name: C:\HPCHEM\1\METHODS\G1S2.M
Sample Name: GRO
Acquired On: 11/20/03 10:45:57 AM
Analyst: AK
Analysis Method: GC1.M
Sample Info: 1ul of 251
5ul 247/5ml=5000ppb ->

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
71		0.000	6.164e3	0.000	12.242
72		0.000	5.455e3	0.000	12.904
73		0.000	5.723e3	0.000	13.113
Total			4.719e7		

1 5030

PHASE SEPARATION SCIENCE, INC.

Analytical Chemistry Environmental Science

QA/QC SUMMARY DATA

Diesel Range Organics

- *Surrogate Summary*
- *Method Blank Summary*
- *Continuing Calibration Verification Summary*
- *MS/MSD Summary*
- *LCS Summary*

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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
SYSTEM MONITORING COMPOUND
(SURROGATE)

ANALYSIS: **DRO** **LAB CODE:** **SURR**

METHOD NO.: **8015B**

Date/Time Analyzed	Sample ID	SS1(OTP) #	Total Out
11/22/03 4:49	MB 11-21-03 1000C	101	
	Upper Limit	**150**	
	Lower Limit	**50**	
11/22/03 1:49	SB 22 Water	85	
11/22/03 1:49	SB 24 Water	90	
11/22/03 2:34	SB 25 Water	83	
11/22/03 2:34	SB 23 Water	79	
11/22/03 3:19	SB 30 Water	83	
11/22/03 3:19	SB 31 Water	81	
11/22/03 4:04	SB 9 Water	85	
11/22/03 4:04	SB 10 Water	75	

SS1 (TPH) = o-Terphenyl

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

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ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS SYSTEM MONITORING COMPOUND (SURROGATE)

ANALYSIS: **DRO** **LAB CODE:** **SURR**

METHOD NO.: **8015B**

Date/Time Analyzed	Sample ID	SS1(OTP) #	Total Out
12/4/03 5:33	MB 12-3-03 30C	97	
	Upper Limit	**150**	
	Lower Limit	**50**	
12/3/03 21:56	SB-22-05	102	
12/3/03 22:26	SB-22-10	61	
12/3/03 22:57	SB-24-05	88	
12/3/03 23:27	SB-24-10	92	
12/3/03 23:57	SB-25-05	100	
12/4/03 0:28	SB-25-10	79	
12/4/03 0:58	SB-23-05	96	
12/4/03 1:29	SB-23-10	95	
12/4/03 1:59	SB-30-05	76	
12/4/03 2:30	SB-31-05	89	
12/4/03 3:00	SB-9-05	89	
12/4/03 3:31	SB-10-05	114	

SS1 (TPH) = o-Terphenyl

Column used to flag recovery values
* = Values outside QC limits
D: Surrogate affected by dilution factor, diluted out, or matrix interference

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DIESEL RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**DRO**	**LAB CODE:**	**MBW**
METHOD NO.:	**8015B**	**LAB SAMPLE ID:**	**MB 11-21-03 1000C**
MATRIX:	**Water**		
LAB FILE ID:	**031121\B3112127.D**	**DATE/TIME ANALYZED:**	**11/22/03 04:49**

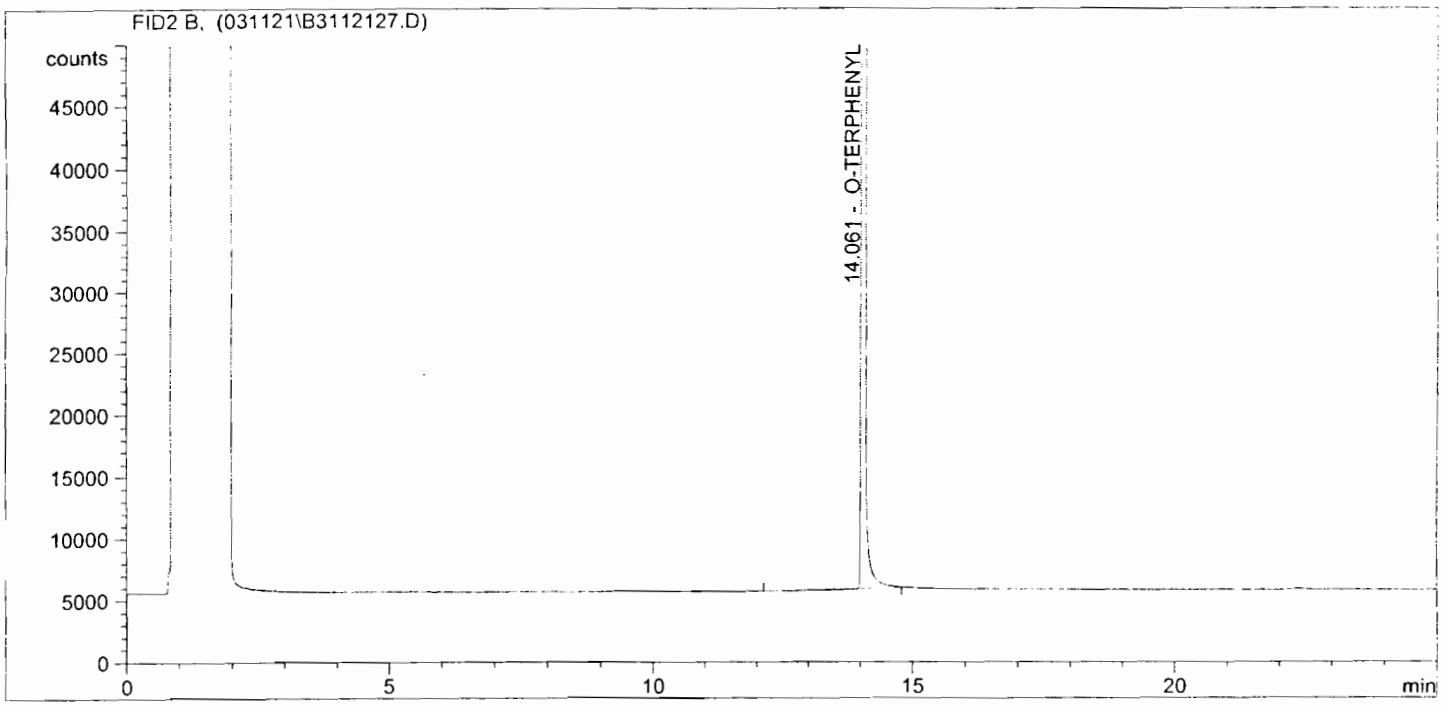
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB 22 Water	03111913-08	031121\F3112123.D	11/22/03 01:49
SB 24 Water	03111913-12	031121\B3112123.D	11/22/03 01:49
SB 25 Water	03111913-16	031121\F3112124.D	11/22/03 02:34
SB 23 Water	03111913-20	031121\B3112124.D	11/22/03 02:34
SB 30 Water	03111913-23	031121\F3112125.D	11/22/03 03:19
SB 31 Water	03111913-26	031121\B3112125.D	11/22/03 03:19
SB 9 Water	03111913-29	031121\F3112126.D	11/22/03 04:04
SB 10 Water	03111913-32	031121\B3112126.D	11/22/03 04:04

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112127.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: MB WATER 11/21
Acquired On: 11/22/03 4:49:51 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2	O-TERPHENYL	1.006e3	4.558e6	14.062	14.061
Total			4.558e6		

1 0005

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DIESEL RANGE ORGANICS
METHOD BLANK SUMMARY

ANALYSIS:	**DRO**	**LAB CODE:**	**MBS**
METHOD NO.:	**8015B**	**LAB SAMPLE ID:**	**MB 12-3-03 30C**
MATRIX:	**Soil**		
LAB FILE ID:	**031203\B3120334.D**	**DATE/TIME ANALYZED:**	**12/04/03 05:33**

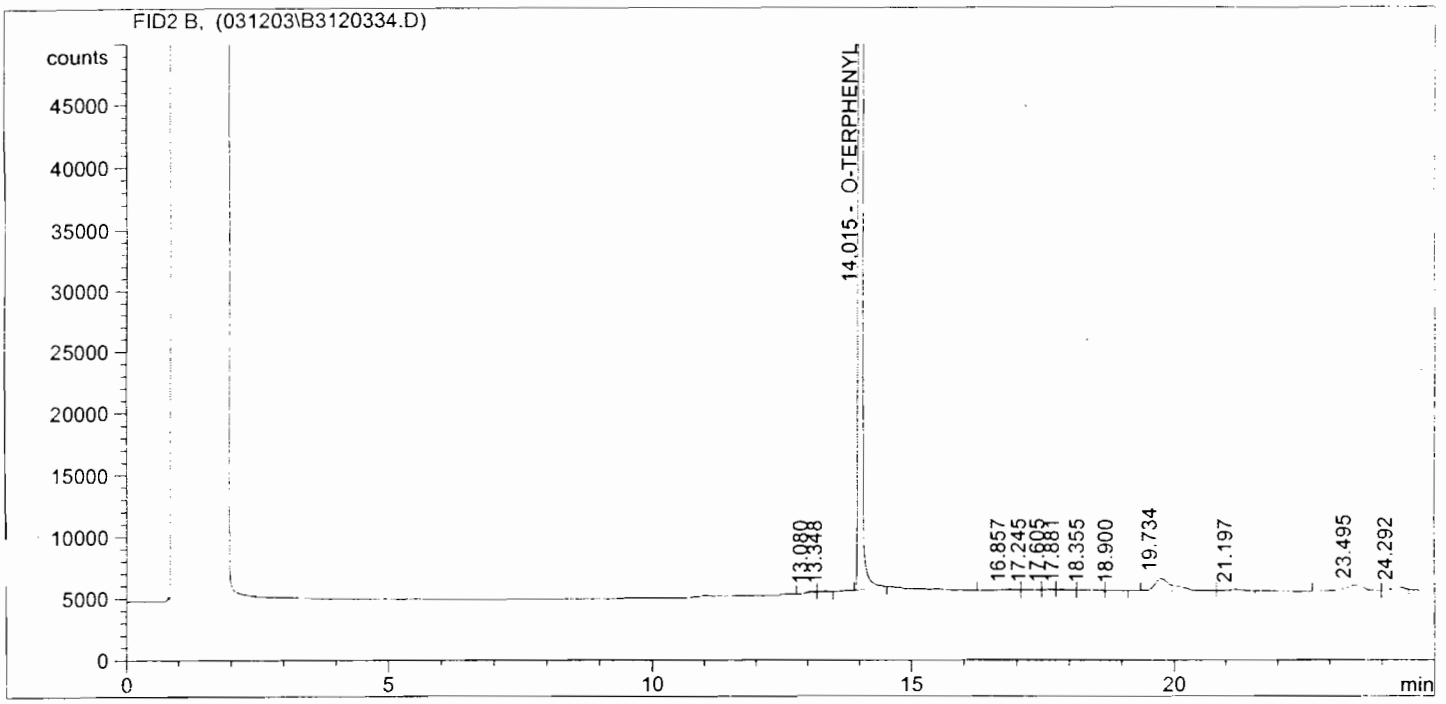
This Method Blank applies to the following samples:

Sample No.	Lab Sample ID	Lab File ID	Date/Time Analyzed
SB-22-05	03111913-06	031203\B3120319.D	12/03/03 21:56
SB-22-10	03111913-07	031203\B3120320.D	12/03/03 22:26
SB-24-05	03111913-10	031203\B3120321.D	12/03/03 22:57
SB-24-10	03111913-11	031203\B3120322.D	12/03/03 23:27
SB-25-05	03111913-14	031203\B3120323.D	12/03/03 23:57
SB-25-10	03111913-15	031203\B3120324.D	12/04/03 00:28
SB-23-05	03111913-18	031203\B3120325.D	12/04/03 00:58
SB-23-10	03111913-19	031203\B3120326.D	12/04/03 01:29
SB-30-05	03111913-22	031203\B3120327.D	12/04/03 01:59
SB-31-05	03111913-25	031203\B3120328.D	12/04/03 02:30
SB-9-05	03111913-28	031203\B3120329.D	12/04/03 03:00
SB-10-05	03111913-31	031203\B3120330.D	12/04/03 03:31

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\B3120334.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: MB SOIL 12/3
Acquired On: 12/4/03 5:33:10 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.732e3	0.000	13.080
3		0.000	1.709e3	0.000	13.348
4	O-TERPHENYL	965.852	4.986e6	14.062	14.015 - 97%
5		0.000	2.576e3	0.000	16.857
6		0.000	2.095e3	0.000	17.245
7		0.000	1.848e3	0.000	17.605
8		0.000	2.206e3	0.000	17.881
9		0.000	2.616e3	0.000	18.355
10		0.000	1.818e3	0.000	18.900
11		0.000	2.669e4	0.000	19.734
12		0.000	3.943e3	0.000	21.197
13		0.000	1.196e4	0.000	23.495
14		0.000	3.653e3	0.000	24.292
Total			5.049e6		

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DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031121\F3112118.D

Date/Time Analyzed: 11/21/03 23:15

FRONT

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	2404	2648	9.7	15

Lab File IDs 031121\B3112118.D

Date/Time Analyzed: 11/21/03 23:15

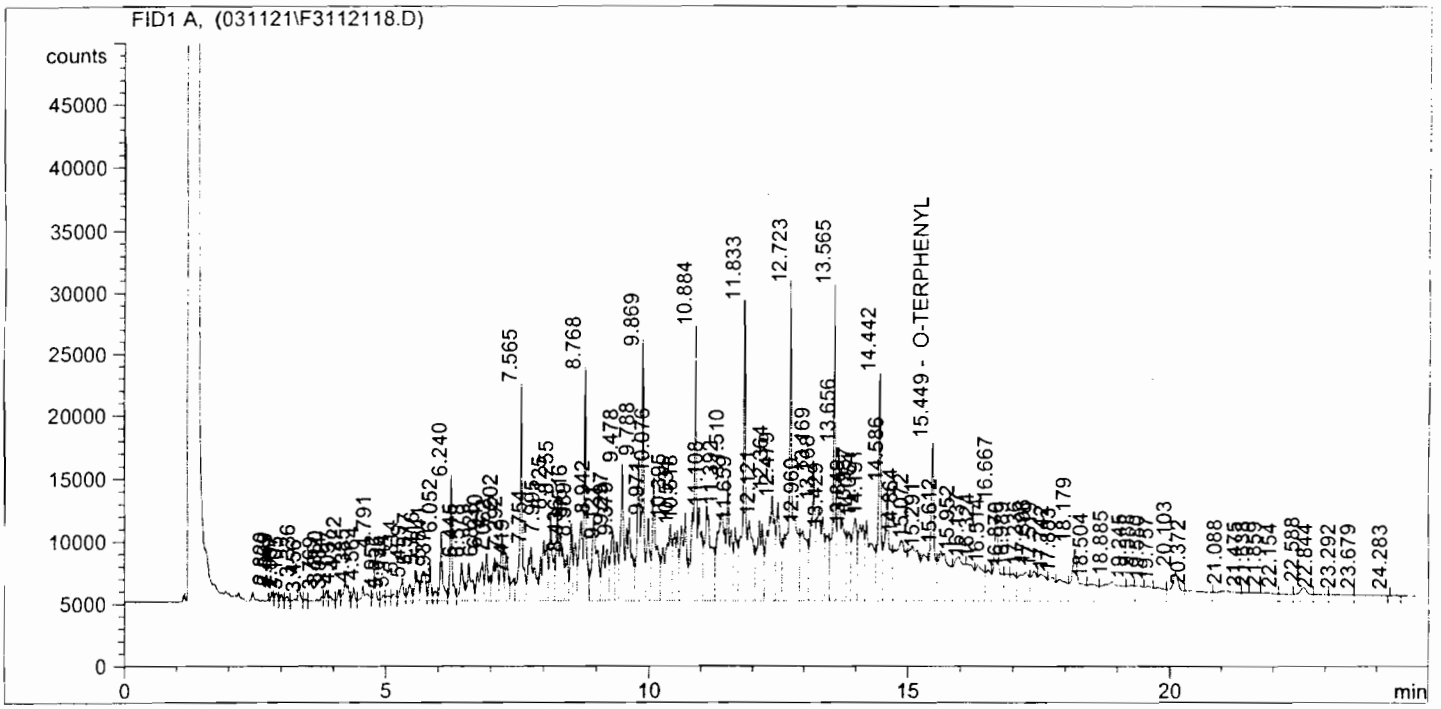
REAR

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4372	4232	3.3	15

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\F3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.942e3	0.000	2.820
3		0.000	2.227e3	0.000	2.899
4		0.000	1.606e3	0.000	2.997
5		0.000	1.270e3	0.000	3.105
6		0.000	4.730e3	0.000	3.336
7		0.000	431.919	0.000	3.456
8		0.000	1.477e3	0.000	3.769
9		0.000	2.719e3	0.000	3.860
10		0.000	1.600e3	0.000	3.934
11		0.000	2.330e3	0.000	4.097
12		0.000	1.014e4	0.000	4.222
13		0.000	3.109e3	0.000	4.385
14		0.000	7.089e3	0.000	4.564
15		0.000	9.698e3	0.000	4.791
16		0.000	1.780e3	0.000	4.952
17		0.000	2.150e3	0.000	5.035
18		0.000	2.936e3	0.000	5.144
19		0.000	8.297e3	0.000	5.314
20		0.000	6.170e3	0.000	5.459

1 S009

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\F3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.082e4	0.000	5.577
22		0.000	1.403e4	0.000	5.716
23		0.000	8.409e3	0.000	5.841
24		0.000	3.643e3	0.000	5.937
25		0.000	1.916e4	0.000	6.052
26		0.000	2.848e4	0.000	6.240
27		0.000	1.362e4	0.000	6.445
28		0.000	1.650e4	0.000	6.578
29		0.000	2.095e4	0.000	6.828
30		0.000	1.770e4	0.000	6.910
31		0.000	2.275e4	0.000	7.062
32		0.000	1.936e4	0.000	7.202
33		0.000	1.599e4	0.000	7.292
34		0.000	8.856e3	0.000	7.419
35		0.000	5.861e4	0.000	7.565
36		0.000	3.391e4	0.000	7.754
37		0.000	3.814e4	0.000	7.995
38		0.000	2.973e4	0.000	8.125
39		0.000	5.053e4	0.000	8.255
40		0.000	1.251e4	0.000	8.436
41		0.000	1.936e4	0.000	8.516
42		0.000	1.785e4	0.000	8.589
43		0.000	8.111e4	0.000	8.768
44		0.000	4.831e4	0.000	8.942
45		0.000	3.333e4	0.000	9.121
46		0.000	2.675e4	0.000	9.297
47		0.000	1.683e4	0.000	9.379
48		0.000	9.210e4	0.000	9.478
49		0.000	4.143e4	0.000	9.788
50		0.000	5.911e4	0.000	9.869
51		0.000	2.609e4	0.000	9.971
52		0.000	5.687e4	0.000	10.076
53		0.000	5.797e4	0.000	10.395
54		0.000	3.775e4	0.000	10.534
55		0.000	5.155e4	0.000	10.618
56		0.000	1.233e5	0.000	10.884
57		0.000	6.877e4	0.000	11.108
58		0.000	6.922e4	0.000	11.392
59		0.000	5.260e4	0.000	11.510
60		0.000	2.905e4	0.000	11.659
61		0.000	1.382e5	0.000	11.833
62		0.000	5.176e4	0.000	12.121

1 S010

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\F3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	7.817e4	0.000	12.364
64		0.000	4.527e4	0.000	12.479
65		0.000	1.560e5	0.000	12.723
66		0.000	5.008e4	0.000	12.960
67		0.000	5.475e4	0.000	13.169
68		0.000	6.661e4	0.000	13.268
69		0.000	2.628e4	0.000	13.429
70		0.000	8.540e4	0.000	13.565
71		0.000	8.013e4	0.000	13.656
72		0.000	2.788e4	0.000	13.849
73		0.000	4.227e4	0.000	13.967
74		0.000	4.667e4	0.000	14.064
75		0.000	6.111e4	0.000	14.191
76		0.000	6.761e4	0.000	14.442
77		0.000	6.289e4	0.000	14.586
78		0.000	7.133e4	0.000	14.864
79		0.000	5.918e4	0.000	15.072
80		0.000	3.015e4	0.000	15.291
81	O-TERPHENYL	24.839	6.165e4	15.346	15.449
82		0.000	5.784e4	0.000	15.612
83		0.000	4.929e4	0.000	15.952
84		0.000	2.741e4	0.000	16.137
85		0.000	3.077e4	0.000	16.324
86		0.000	1.623e4	0.000	16.514
87		0.000	5.121e4	0.000	16.667
88		0.000	1.528e4	0.000	16.870
89		0.000	1.600e4	0.000	16.989
90		0.000	3.161e4	0.000	17.236
91		0.000	1.856e4	0.000	17.396
92		0.000	2.337e4	0.000	17.519
93		0.000	1.741e4	0.000	17.742
94		0.000	2.309e4	0.000	17.883
95		0.000	4.272e4	0.000	18.179
96		0.000	1.828e4	0.000	18.504
97		0.000	4.002e4	0.000	18.885
98		0.000	1.220e4	0.000	19.245
99		0.000	1.347e4	0.000	19.388
100		0.000	1.236e4	0.000	19.580
101		0.000	1.608e4	0.000	19.757
102		0.000	2.730e4	0.000	20.103
103		0.000	2.658e4	0.000	20.372
104		0.000	2.620e4	0.000	21.088

1 S011

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\F3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	6.227e3	0.000	21.475
106		0.000	9.489e3	0.000	21.638
107		0.000	1.369e4	0.000	21.859
108		0.000	9.782e3	0.000	22.154
109		0.000	1.719e4	0.000	22.588
110		0.000	9.892e3	0.000	22.844
111		0.000	1.530e4	0.000	23.292
112		0.000	1.862e4	0.000	23.679
113		0.000	5.774e3	0.000	24.283
Total			3.607e6 / 1500 = 2404		

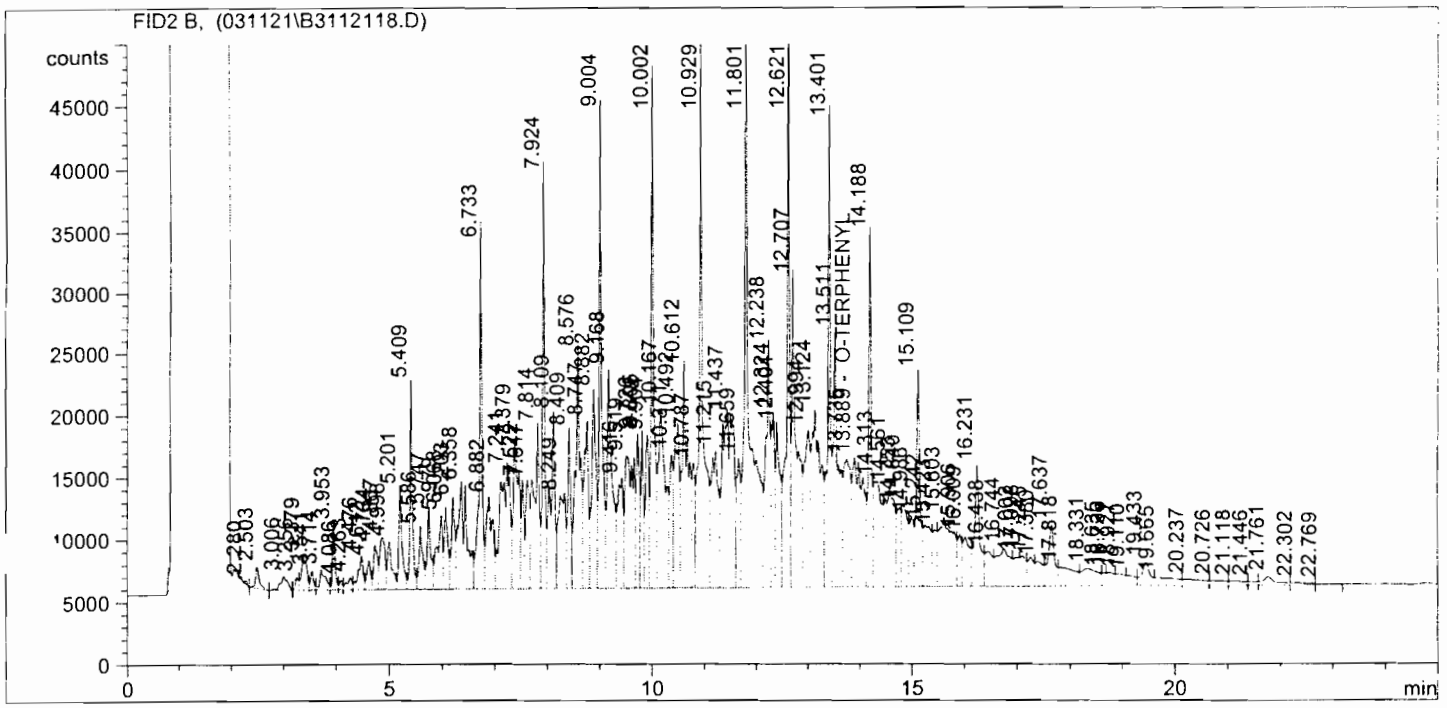
$$\frac{2648 - 2404}{(2648 + 2404) \div 2} = \frac{244}{\cancel{1440}\ 2526} \times 100 = 9.7\%$$

1 6012

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.129e3	0.000	2.280
3		0.000	9.031e3	0.000	2.503
4		0.000	1.072e4	0.000	3.006
5		0.000	4.303e3	0.000	3.256
6		0.000	1.888e4	0.000	3.379
7		0.000	6.117e3	0.000	3.541
8		0.000	1.274e4	0.000	3.714
9		0.000	1.823e4	0.000	3.953
10		0.000	3.108e3	0.000	4.086
11		0.000	6.404e3	0.000	4.263
12		0.000	1.755e4	0.000	4.476
13		0.000	1.149e4	0.000	4.612
14		0.000	1.875e4	0.000	4.734
15		0.000	2.816e4	0.000	4.867
16		0.000	2.327e4	0.000	4.998
17		0.000	3.631e4	0.000	5.201
18		0.000	5.662e4	0.000	5.409
19		0.000	2.542e4	0.000	5.586
20		0.000	3.136e4	0.000	5.747

1 6013

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	4.107e4	0.000	5.979
22		0.000	3.251e4	0.000	6.068
23		0.000	3.298e4	0.000	6.203
24		0.000	9.852e4	0.000	6.358
25		0.000	1.151e5	0.000	6.733
26		0.000	6.268e4	0.000	6.882
27		0.000	1.268e5	0.000	7.241
28		0.000	8.698e4	0.000	7.379
29		0.000	2.999e4	0.000	7.522
30		0.000	4.375e4	0.000	7.617
31		0.000	9.894e4	0.000	7.814
32		0.000	1.026e5	0.000	7.924
33		0.000	8.752e4	0.000	8.109
34		0.000	7.412e4	0.000	8.249
35		0.000	5.008e4	0.000	8.409
36		0.000	1.249e5	0.000	8.576
37		0.000	7.992e4	0.000	8.747
38		0.000	9.167e4	0.000	8.882
39		0.000	1.492e5	0.000	9.004
40		0.000	1.214e5	0.000	9.168
41		0.000	6.556e4	0.000	9.416
42		0.000	1.243e5	0.000	9.519
43		0.000	5.104e4	0.000	9.726
44		0.000	4.245e4	0.000	9.805
45		0.000	5.705e4	0.000	9.904
46		0.000	1.619e5	0.000	10.002
47		0.000	1.395e5	0.000	10.167
48		0.000	4.767e4	0.000	10.371
49		0.000	9.196e4	0.000	10.492
50		0.000	1.413e5	0.000	10.612
51		0.000	3.828e4	0.000	10.787
52		0.000	2.421e5	0.000	10.929
53		0.000	1.038e5	0.000	11.215
54		0.000	2.204e5	0.000	11.437
55		0.000	5.194e4	0.000	11.659
56		0.000	3.488e5	0.000	11.801
57		0.000	1.185e5	0.000	12.238
58		0.000	5.965e4	0.000	12.324
59		0.000	7.789e4	0.000	12.401
60		0.000	1.864e5	0.000	12.621
61		0.000	1.793e5	0.000	12.707
62		0.000	9.809e4	0.000	12.994

1 S014

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112118.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 11/21/03 11:15:59 PM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	1.720e5	0.000	13.124
64		0.000	1.515e5	0.000	13.401
65		0.000	1.402e5	0.000	13.511
66		0.000	9.908e4	0.000	13.735
67	O-TERPHENYL	33.187	1.504e5	14.062	13.889
68		0.000	1.151e5	0.000	14.188
69		0.000	8.772e4	0.000	14.313
70		0.000	1.038e5	0.000	14.561
71		0.000	3.672e4	0.000	14.753
72		0.000	5.079e4	0.000	14.840
73		0.000	3.152e4	0.000	14.986
74		0.000	8.774e4	0.000	15.109
75		0.000	4.924e4	0.000	15.242
76		0.000	2.729e4	0.000	15.423
77		0.000	1.037e5	0.000	15.603
78		0.000	2.243e4	0.000	15.906
79		0.000	3.651e4	0.000	16.009
80		0.000	6.645e4	0.000	16.231
81		0.000	2.835e4	0.000	16.438
82		0.000	5.333e4	0.000	16.744
83		0.000	1.879e4	0.000	17.002
84		0.000	1.831e4	0.000	17.098
85		0.000	1.846e4	0.000	17.245
86		0.000	2.037e4	0.000	17.380
87		0.000	4.106e4	0.000	17.637
88		0.000	3.224e4	0.000	17.818
89		0.000	3.035e4	0.000	18.331
90		0.000	5.181e3	0.000	18.635
91		0.000	1.095e4	0.000	18.736
92		0.000	1.130e4	0.000	18.927
93		0.000	9.397e3	0.000	19.110
94		0.000	2.077e4	0.000	19.433
95		0.000	1.808e4	0.000	19.665
96		0.000	1.321e4	0.000	20.237
97		0.000	7.820e3	0.000	20.726
98		0.000	7.003e3	0.000	21.118
99		0.000	3.170e3	0.000	21.446
100		0.000	1.172e4	0.000	21.761
101		0.000	4.305e3	0.000	22.302
102		0.000	2.885e3	0.000	22.769
Total			6.558e6/1500 = 4372		

$\frac{4232-4372}{(4232+4372)\div 2}$

$\frac{-140}{4302} \times 100$

$= -3.25\%$

1 8015

OFFICES:
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PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
CONTINUING CALIBRATION SUMMARY

Lab File IDs 031203\F3120317.D

Date/Time Analyzed: 12/3/03 20:55

FRONT

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	2599	2648	1.9	15

Lab File IDs 031203\F3120317.D

Date/Time Analyzed: 12/3/03 20:55

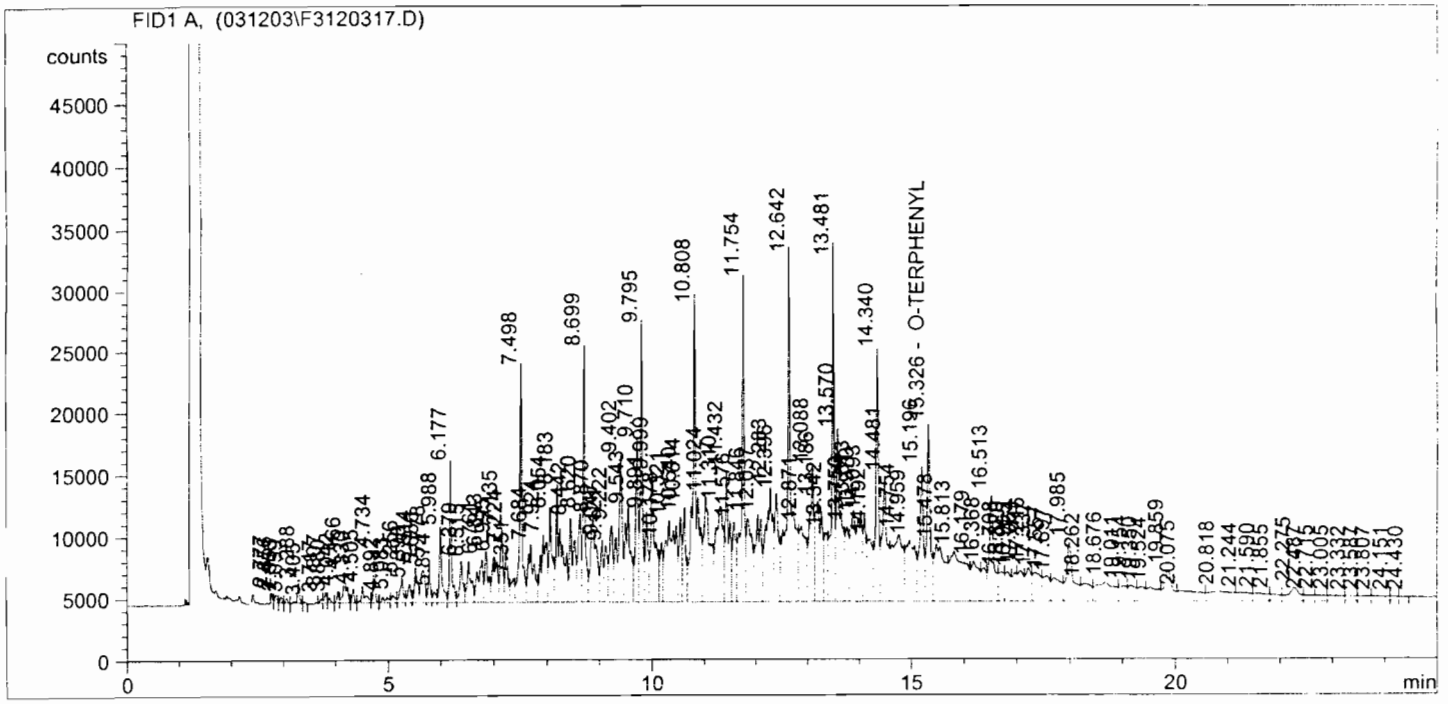
REAR

COMPOUND/DISTILLATE	CCV Calc CF	ICAL AVG CF	% D	MAX % D
Diesel/#2 Fuel	4614	4232	8.6	15

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.855e3	0.000	2.777
3		0.000	2.101e3	0.000	2.856
4		0.000	1.387e3	0.000	2.953
5		0.000	979.312	0.000	3.059
6		0.000	4.368e3	0.000	3.288
7		0.000	124.590	0.000	3.405
8		0.000	914.351	0.000	3.717
9		0.000	2.630e3	0.000	3.807
10		0.000	1.319e3	0.000	3.880
11		0.000	2.146e3	0.000	4.042
12		0.000	1.072e4	0.000	4.166
13		0.000	2.974e3	0.000	4.330
14		0.000	6.863e3	0.000	4.505
15		0.000	1.026e4	0.000	4.734
16		0.000	3.504e3	0.000	4.892
17		0.000	2.867e3	0.000	5.083
18		0.000	8.662e3	0.000	5.256
19		0.000	6.391e3	0.000	5.398
20		0.000	1.175e4	0.000	5.514

1 S017

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.515e4	0.000	5.656
22		0.000	9.094e3	0.000	5.778
23		0.000	3.748e3	0.000	5.874
24		0.000	2.084e4	0.000	5.988
25		0.000	3.129e4	0.000	6.177
26		0.000	1.459e4	0.000	6.379
27		0.000	1.802e4	0.000	6.515
28		0.000	2.294e4	0.000	6.761
29		0.000	1.942e4	0.000	6.843
30		0.000	2.498e4	0.000	6.995
31		0.000	2.134e4	0.000	7.135
32		0.000	1.725e4	0.000	7.224
33		0.000	9.692e3	0.000	7.351
34		0.000	6.449e4	0.000	7.498
35		0.000	3.665e4	0.000	7.684
36		0.000	4.184e4	0.000	7.924
37		0.000	3.266e4	0.000	8.054
38		0.000	6.929e4	0.000	8.183
39		0.000	4.101e4	0.000	8.442
40		0.000	2.968e4	0.000	8.620
41		0.000	5.977e4	0.000	8.699
42		0.000	5.310e4	0.000	8.870
43		0.000	1.814e4	0.000	9.047
44		0.000	1.845e4	0.000	9.121
45		0.000	2.944e4	0.000	9.222
46		0.000	6.677e4	0.000	9.402
47		0.000	5.327e4	0.000	9.543
48		0.000	4.668e4	0.000	9.710
49		0.000	6.532e4	0.000	9.795
50		0.000	2.847e4	0.000	9.891
51		0.000	6.289e4	0.000	9.999
52		0.000	1.868e4	0.000	10.178
53		0.000	8.707e4	0.000	10.321
54		0.000	2.551e4	0.000	10.540
55		0.000	3.039e4	0.000	10.614
56		0.000	1.367e5	0.000	10.808
57		0.000	7.515e4	0.000	11.024
58		0.000	7.713e4	0.000	11.310
59		0.000	5.728e4	0.000	11.432
60		0.000	3.109e4	0.000	11.576
61		0.000	1.022e5	0.000	11.754
62		0.000	5.040e4	0.000	11.846

1 0018

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	5.666e4	0.000	12.037
64		0.000	8.492e4	0.000	12.283
65		0.000	4.817e4	0.000	12.396
66		0.000	1.731e5	0.000	12.642
67		0.000	5.409e4	0.000	12.871
68		0.000	6.089e4	0.000	13.088
69		0.000	7.027e4	0.000	13.186
70		0.000	2.772e4	0.000	13.342
71		0.000	9.556e4	0.000	13.481
72		0.000	8.509e4	0.000	13.570
73		0.000	3.050e4	0.000	13.750
74		0.000	4.618e4	0.000	13.873
75		0.000	5.097e4	0.000	13.970
76		0.000	2.888e4	0.000	14.093
77		0.000	3.593e4	0.000	14.192
78		0.000	7.618e4	0.000	14.340
79		0.000	6.721e4	0.000	14.481
80		0.000	7.799e4	0.000	14.754
81		0.000	6.332e4	0.000	14.959
82		0.000	5.418e4	0.000	15.196
83	O-TERPHENYL	24.095	6.547e4	15.346	15.326
84		0.000	6.389e4	0.000	15.478
85		0.000	8.236e4	0.000	15.813
86		0.000	3.315e4	0.000	16.179
87		0.000	1.782e4	0.000	16.368
88		0.000	5.363e4	0.000	16.513
89		0.000	1.674e4	0.000	16.708
90		0.000	1.739e4	0.000	16.820
91		0.000	1.349e4	0.000	16.965
92		0.000	1.964e4	0.000	17.064
93		0.000	2.032e4	0.000	17.216
94		0.000	2.514e4	0.000	17.337
95		0.000	1.850e4	0.000	17.557
96		0.000	2.445e4	0.000	17.697
97		0.000	4.407e4	0.000	17.985
98		0.000	1.846e4	0.000	18.262
99		0.000	3.731e4	0.000	18.676
100		0.000	1.247e4	0.000	19.011
101		0.000	1.240e4	0.000	19.154
102		0.000	1.154e4	0.000	19.350
103		0.000	1.668e4	0.000	19.524
104		0.000	2.576e4	0.000	19.859

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	2.427e4	0.000	20.075
106		0.000	2.516e4	0.000	20.818
107		0.000	1.256e4	0.000	21.244
108		0.000	1.107e4	0.000	21.590
109		0.000	6.773e3	0.000	21.855
110		0.000	1.616e4	0.000	22.275
111		0.000	5.830e3	0.000	22.487
112		0.000	6.091e3	0.000	22.715
113		0.000	8.119e3	0.000	23.005
114		0.000	5.433e3	0.000	23.332
115		0.000	5.885e3	0.000	23.587
116		0.000	7.557e3	0.000	23.807
117		0.000	3.383e3	0.000	24.151
118		0.000	2.158e3	0.000	24.430
Total			3.899e6 / 1500 = 2599		

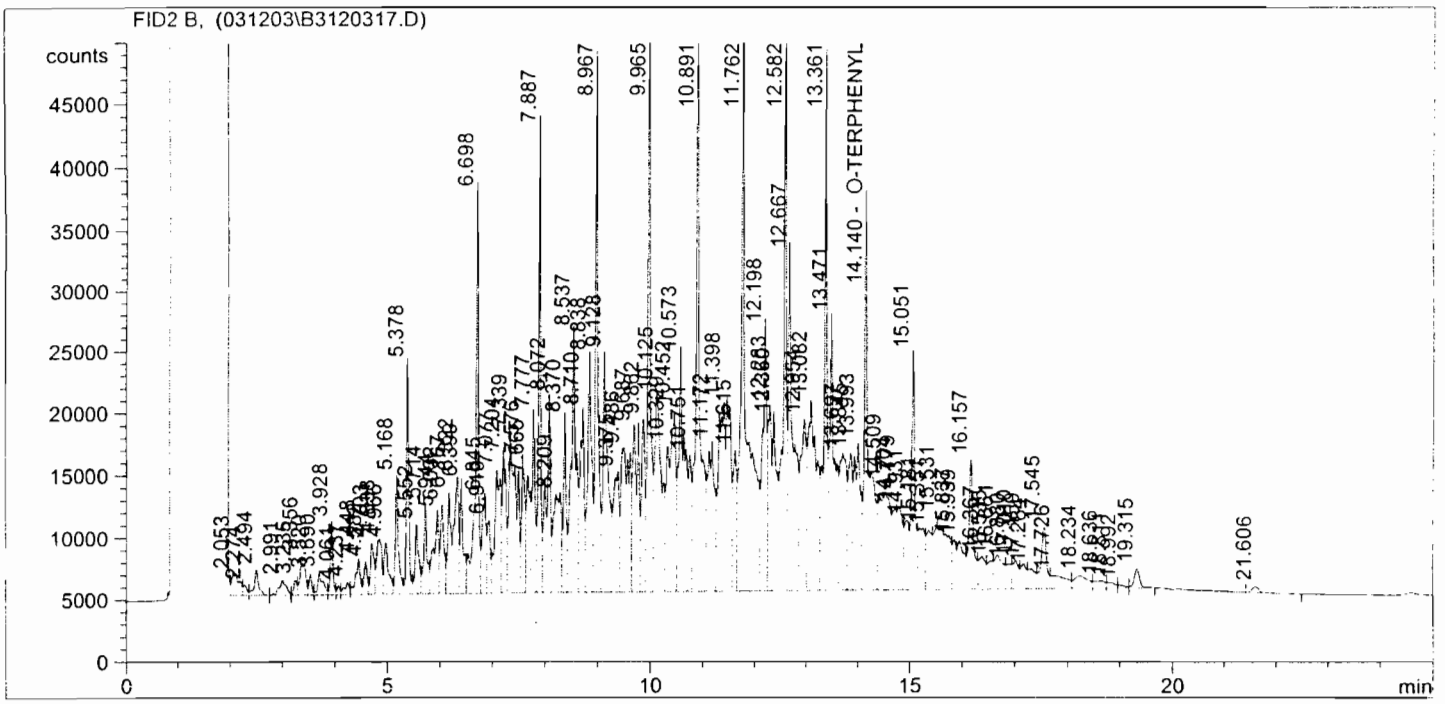
$$\frac{2648 - 2599}{(2648 + 2599) \div 2} = \frac{49}{2624} \times 100 = 1.87\%$$

1 S020

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\B3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.805e4	0.000	2.053
3		0.000	4.323e3	0.000	2.274
4		0.000	1.296e4	0.000	2.494
5		0.000	1.176e4	0.000	2.991
6		0.000	4.959e3	0.000	3.235
7		0.000	2.130e4	0.000	3.356
8		0.000	6.548e3	0.000	3.520
9		0.000	1.294e4	0.000	3.690
10		0.000	1.978e4	0.000	3.928
11		0.000	2.853e3	0.000	4.061
12		0.000	6.290e3	0.000	4.237
13		0.000	1.835e4	0.000	4.448
14		0.000	1.211e4	0.000	4.582
15		0.000	2.079e4	0.000	4.703
16		0.000	3.043e4	0.000	4.838
17		0.000	2.504e4	0.000	4.966
18		0.000	3.976e4	0.000	5.168
19		0.000	6.187e4	0.000	5.378
20		0.000	2.748e4	0.000	5.552

1 3021

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\B3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	3.343e4	0.000	5.714
22		0.000	4.433e4	0.000	5.944
23		0.000	3.469e4	0.000	6.032
24		0.000	3.582e4	0.000	6.167
25		0.000	5.541e4	0.000	6.322
26		0.000	3.950e4	0.000	6.399
27		0.000	1.368e5	0.000	6.698
28		0.000	4.235e4	0.000	6.845
29		0.000	2.523e4	0.000	6.919
30		0.000	7.704e4	0.000	7.077
31		0.000	5.982e4	0.000	7.204
32		0.000	1.276e5	0.000	7.339
33		0.000	4.880e4	0.000	7.576
34		0.000	4.726e4	0.000	7.665
35		0.000	5.926e4	0.000	7.777
36		0.000	1.123e5	0.000	7.887
37		0.000	9.382e4	0.000	8.072
38		0.000	7.982e4	0.000	8.209
39		0.000	5.413e4	0.000	8.370
40		0.000	1.367e5	0.000	8.537
41		0.000	8.554e4	0.000	8.710
42		0.000	1.028e5	0.000	8.838
43		0.000	1.625e5	0.000	8.967
44		0.000	1.303e5	0.000	9.128
45		0.000	7.282e4	0.000	9.375
46		0.000	1.337e5	0.000	9.486
47		0.000	1.023e5	0.000	9.687
48		0.000	6.255e4	0.000	9.862
49		0.000	1.785e5	0.000	9.965
50		0.000	1.508e5	0.000	10.125
51		0.000	5.197e4	0.000	10.329
52		0.000	9.970e4	0.000	10.452
53		0.000	1.542e5	0.000	10.573
54		0.000	4.454e4	0.000	10.751
55		0.000	2.617e5	0.000	10.891
56		0.000	1.117e5	0.000	11.172
57		0.000	2.379e5	0.000	11.398
58		0.000	5.506e4	0.000	11.615
59		0.000	3.803e5	0.000	11.762
60		0.000	1.284e5	0.000	12.198
61		0.000	6.279e4	0.000	12.283
62		0.000	8.168e4	0.000	12.360

1 S022

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\B3120317.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: DF #2 1500mg/L
Acquired On: 12/3/03 8:55:21 PM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info:

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	2.060e5	0.000	12.582
64		0.000	1.920e5	0.000	12.667
65		0.000	1.048e5	0.000	12.954
66		0.000	1.799e5	0.000	13.082
67		0.000	1.696e5	0.000	13.361
68		0.000	1.496e5	0.000	13.471
69		0.000	1.043e5	0.000	13.697
70		0.000	6.193e4	0.000	13.845
71		0.000	1.021e5	0.000	13.993
72	O-TERPHENYL	41.400	2.137e5	14.062	14.140
73		0.000	1.155e5	0.000	14.509
74		0.000	3.775e4	0.000	14.704
75		0.000	5.101e4	0.000	14.779
76		0.000	3.275e4	0.000	14.931
77		0.000	9.300e4	0.000	15.051
78		0.000	4.443e4	0.000	15.181
79		0.000	3.517e4	0.000	15.351
80		0.000	1.040e5	0.000	15.531
81		0.000	2.086e4	0.000	15.837
82		0.000	3.513e4	0.000	15.939
83		0.000	6.567e4	0.000	16.157
84		0.000	2.447e4	0.000	16.367
85		0.000	1.585e4	0.000	16.535
86		0.000	3.351e4	0.000	16.661
87		0.000	1.395e4	0.000	16.880
88		0.000	1.863e4	0.000	17.010
89		0.000	1.543e4	0.000	17.159
90		0.000	1.568e4	0.000	17.284
91		0.000	3.764e4	0.000	17.545
92		0.000	2.151e4	0.000	17.726
93		0.000	1.945e4	0.000	18.234
94		0.000	8.787e3	0.000	18.636
95		0.000	5.047e3	0.000	18.811
96		0.000	2.523e3	0.000	18.992
97		0.000	1.162e4	0.000	19.315
98		0.000	4.921e3	0.000	21.606
Total			6.922e6 / 1500 = 4614		

$$\frac{4232 - 4614}{(4232 + 4614) \div 2} = \frac{-382}{4423} \times 100 = -8.63\%$$

1 6023

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6630 BALTIMORE NATIONAL PIKE
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PHASE SEPARATION SCIENCE, INC.

ANALYTICAL CHEMISTRY • ENVIRONMENTAL SCIENCE

DIESEL RANGE ORGANICS
MATRIX SPIKE & MATRIX SPIKE DUPLICATE SUMMARY

Lab File IDs 031203\F3120337.D
031203\F3120338.D

Date Analyzed: 12/04/03

Matrix: Soil

Sample ID: 03112617-01 MS

SAMPLE SPIKE DISTILLATE	SPIKE ADDED (mg/kg)	SAMPLE CONC (mg/kg)	SPIKE CONC (mg/kg)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	ND	821	82	50-150

Sample ID: 03112617-01 MSD

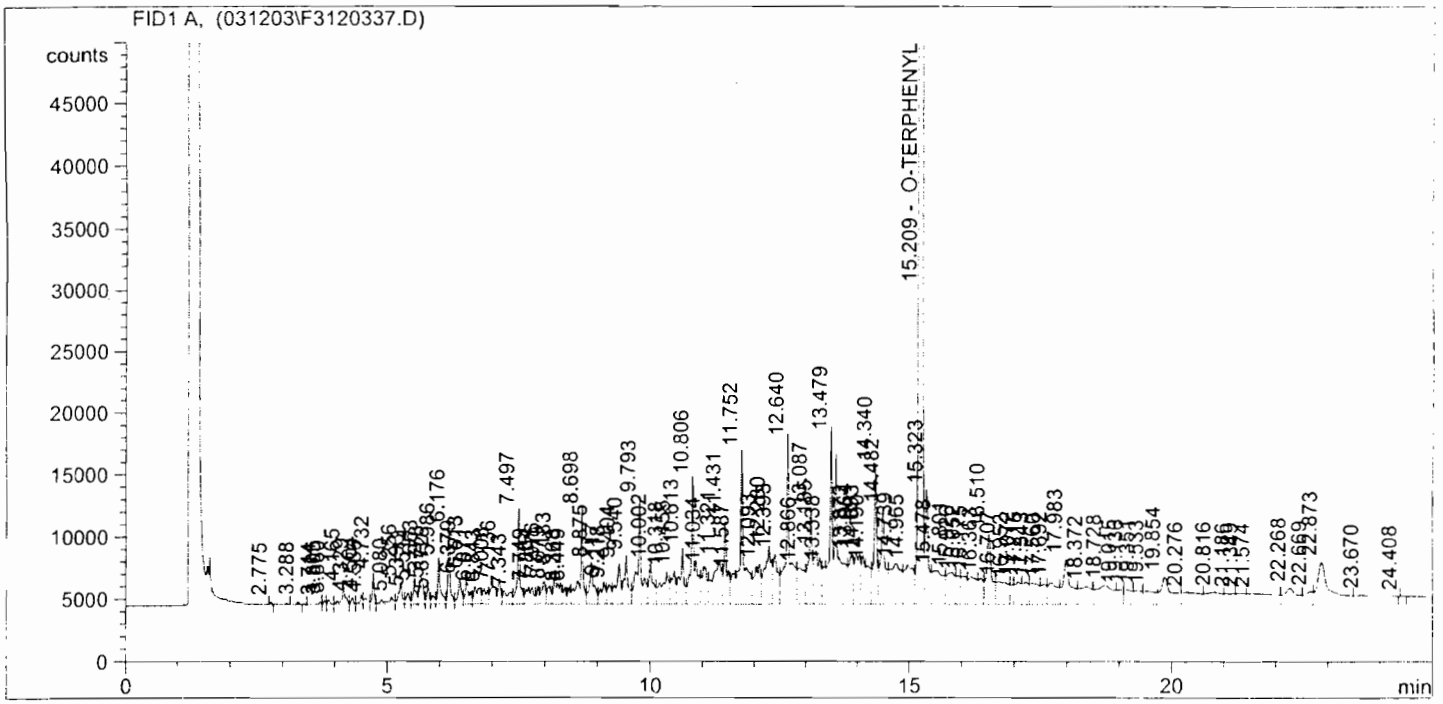
SAMPLE SPIKE DUP DISTILLATE	SPIKE ADDED (mg/kg)	SAMPLE CONC (mg/kg)	SPK DUP CONC (mg/kg)	SPIKE DUP REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Diesel Fuel	1000	ND	864	86	5	20	50-150

- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120337.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MS
Acquired On: 12/4/03 7:04:34 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	494.995	0.000	2.775
3		0.000	674.750	0.000	3.288
4		0.000	350.844	0.000	3.714
5		0.000	889.107	0.000	3.805
6		0.000	1.187e3	0.000	3.880
7		0.000	6.585e3	0.000	4.165
8		0.000	1.542e3	0.000	4.329
9		0.000	2.257e3	0.000	4.504
10		0.000	2.479e3	0.000	4.586
11		0.000	6.109e3	0.000	4.732
12		0.000	5.128e3	0.000	5.080
13		0.000	7.636e3	0.000	5.256
14		0.000	4.081e3	0.000	5.393
15		0.000	6.348e3	0.000	5.514
16		0.000	1.096e4	0.000	5.653
17		0.000	4.828e3	0.000	5.778
18		0.000	3.111e3	0.000	5.872
19		0.000	1.328e4	0.000	5.986
20		0.000	1.774e4	0.000	6.176

1 3025

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120337.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MS
Acquired On: 12/4/03 7:04:34 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	9.082e3	0.000	6.379
22		0.000	1.069e4	0.000	6.513
23		0.000	1.088e4	0.000	6.671
24		0.000	7.589e3	0.000	6.843
25		0.000	1.047e4	0.000	7.008
26		0.000	7.298e3	0.000	7.136
27		0.000	1.003e4	0.000	7.343
28		0.000	2.634e4	0.000	7.497
29		0.000	1.279e4	0.000	7.749
30		0.000	4.563e3	0.000	7.864
31		0.000	9.387e3	0.000	7.976
32		0.000	7.398e3	0.000	8.079
33		0.000	1.761e4	0.000	8.183
34		0.000	4.652e3	0.000	8.368
35		0.000	4.733e3	0.000	8.449
36		0.000	3.542e4	0.000	8.698
37		0.000	2.031e4	0.000	8.875
38		0.000	1.134e4	0.000	9.117
39		0.000	8.257e3	0.000	9.218
40		0.000	1.991e4	0.000	9.404
41		0.000	2.076e4	0.000	9.540
42		0.000	4.784e4	0.000	9.793
43		0.000	1.903e4	0.000	10.002
44		0.000	2.639e4	0.000	10.318
45		0.000	1.514e4	0.000	10.455
46		0.000	2.569e4	0.000	10.613
47		0.000	5.422e4	0.000	10.806
48		0.000	2.122e4	0.000	11.034
49		0.000	4.094e4	0.000	11.321
50		0.000	3.043e4	0.000	11.431
51		0.000	1.404e4	0.000	11.587
52		0.000	7.084e4	0.000	11.752
53		0.000	2.754e4	0.000	12.093
54		0.000	4.172e4	0.000	12.280
55		0.000	2.557e4	0.000	12.393
56		0.000	8.104e4	0.000	12.640
57		0.000	2.751e4	0.000	12.866
58		0.000	3.740e4	0.000	13.087
59		0.000	3.499e4	0.000	13.185
60		0.000	1.270e4	0.000	13.338
61		0.000	1.276e5	0.000	13.479
62		0.000	2.434e4	0.000	13.873

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120337.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MS
Acquired On: 12/4/03 7:04:34 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	3.119e4	0.000	13.964
64		0.000	1.906e4	0.000	14.093
65		0.000	2.054e4	0.000	14.190
66		0.000	4.386e4	0.000	14.340
67		0.000	4.635e4	0.000	14.482
68		0.000	4.784e4	0.000	14.739
69		0.000	3.935e4	0.000	14.965
70	O-TERPHENYL	745.475	2.025e6	15.346	15.209 -75%
71		0.000	4.188e4	0.000	15.323
72		0.000	3.998e4	0.000	15.478
73		0.000	2.811e4	0.000	15.801
74		0.000	1.249e4	0.000	15.926
75		0.000	1.690e4	0.000	16.052
76		0.000	2.406e4	0.000	16.175
77		0.000	1.386e4	0.000	16.363
78		0.000	3.820e4	0.000	16.510
79		0.000	2.773e4	0.000	16.707
80		0.000	6.800e3	0.000	16.952
81		0.000	1.527e4	0.000	17.072
82		0.000	1.449e4	0.000	17.215
83		0.000	1.981e4	0.000	17.343
84		0.000	1.203e4	0.000	17.560
85		0.000	2.219e4	0.000	17.692
86		0.000	3.717e4	0.000	17.983
87		0.000	2.337e4	0.000	18.372
88		0.000	3.374e4	0.000	18.728
89		0.000	9.388e3	0.000	19.015
90		0.000	1.243e4	0.000	19.136
91		0.000	1.230e4	0.000	19.351
92		0.000	1.678e4	0.000	19.533
93		0.000	3.357e4	0.000	19.854
94		0.000	2.337e4	0.000	20.276
95		0.000	2.189e4	0.000	20.816
96		0.000	1.162e4	0.000	21.186
97		0.000	1.159e4	0.000	21.349
98		0.000	3.356e4	0.000	21.574
99		0.000	2.396e4	0.000	22.268
100		0.000	1.193e4	0.000	22.669
101		0.000	6.106e4	0.000	22.873
102		0.000	3.740e4	0.000	23.670
103		0.000	4.928e3	0.000	24.408

1 6027

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120337.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MS
Acquired On: 12/4/03 7:04:34 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
Total			4.199e6 - 2.025e6		

$= \frac{2174000}{2648} = 820.997$

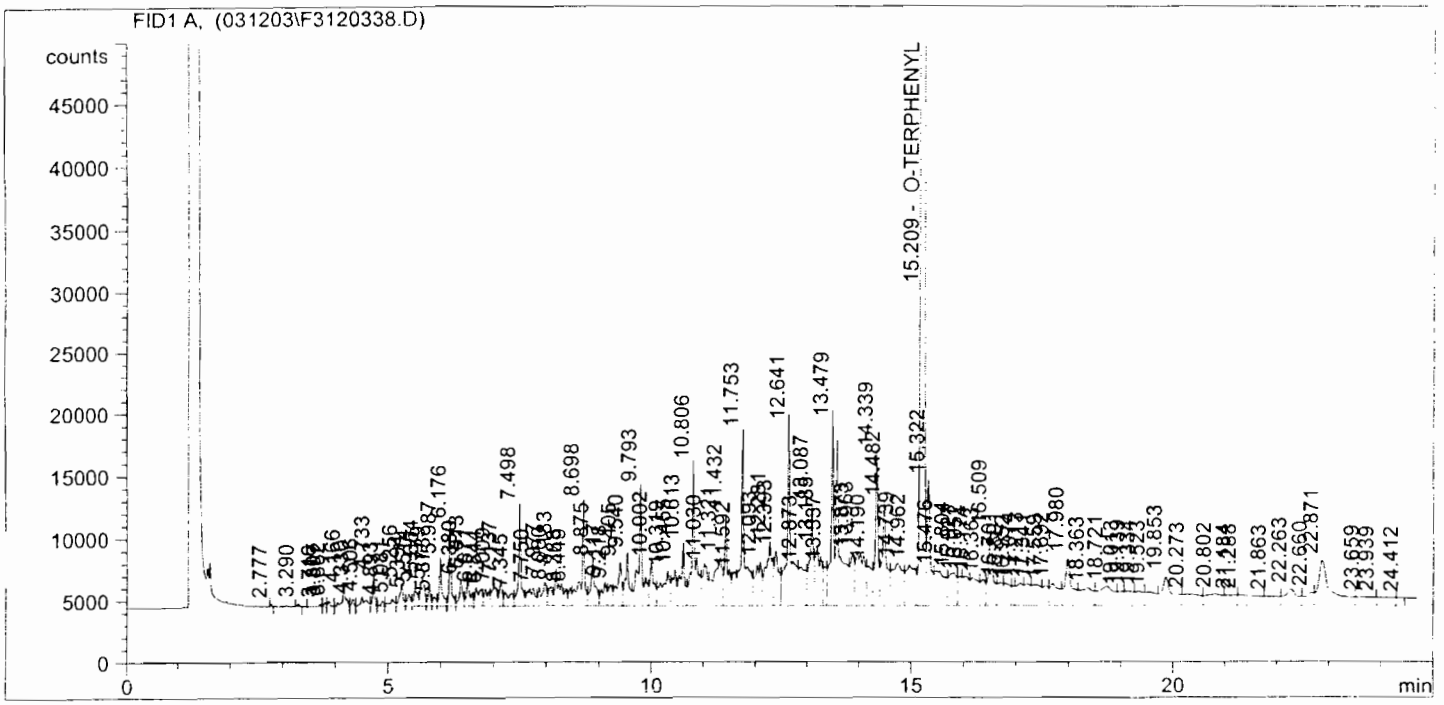
$\frac{820.997}{1000} \times 100 = 82.099\%$

1 6028

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120338.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MSD
Acquired On: 12/4/03 7:35:00 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	492.407	0.000	2.777
3		0.000	758.020	0.000	3.290
4		0.000	462.054	0.000	3.716
5		0.000	973.641	0.000	3.807
6		0.000	1.325e3	0.000	3.882
7		0.000	7.122e3	0.000	4.166
8		0.000	1.708e3	0.000	4.330
9		0.000	5.256e3	0.000	4.506
10		0.000	6.582e3	0.000	4.733
11		0.000	1.762e3	0.000	4.893
12		0.000	3.946e3	0.000	5.081
13		0.000	8.209e3	0.000	5.256
14		0.000	4.410e3	0.000	5.394
15		0.000	6.833e3	0.000	5.514
16		0.000	1.171e4	0.000	5.654
17		0.000	5.198e3	0.000	5.779
18		0.000	3.383e3	0.000	5.873
19		0.000	1.419e4	0.000	5.987
20		0.000	1.885e4	0.000	6.176

1 3029

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120338.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MSD
Acquired On: 12/4/03 7:35:00 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	9.742e3	0.000	6.380
22		0.000	1.145e4	0.000	6.513
23		0.000	1.164e4	0.000	6.671
24		0.000	8.117e3	0.000	6.844
25		0.000	1.123e4	0.000	7.009
26		0.000	7.813e3	0.000	7.137
27		0.000	1.075e4	0.000	7.345
28		0.000	2.818e4	0.000	7.498
29		0.000	1.370e4	0.000	7.750
30		0.000	1.501e4	0.000	7.977
31		0.000	7.992e3	0.000	8.080
32		0.000	1.911e4	0.000	8.183
33		0.000	5.028e3	0.000	8.368
34		0.000	5.141e3	0.000	8.449
35		0.000	3.851e4	0.000	8.698
36		0.000	2.218e4	0.000	8.875
37		0.000	1.238e4	0.000	9.117
38		0.000	9.075e3	0.000	9.218
39		0.000	2.185e4	0.000	9.405
40		0.000	2.271e4	0.000	9.540
41		0.000	5.279e4	0.000	9.793
42		0.000	2.076e4	0.000	10.002
43		0.000	2.898e4	0.000	10.319
44		0.000	1.661e4	0.000	10.455
45		0.000	2.832e4	0.000	10.613
46		0.000	6.017e4	0.000	10.806
47		0.000	2.382e4	0.000	11.030
48		0.000	4.537e4	0.000	11.321
49		0.000	3.347e4	0.000	11.432
50		0.000	1.537e4	0.000	11.592
51		0.000	7.806e4	0.000	11.753
52		0.000	2.976e4	0.000	12.093
53		0.000	4.530e4	0.000	12.281
54		0.000	2.777e4	0.000	12.393
55		0.000	8.819e4	0.000	12.641
56		0.000	2.945e4	0.000	12.873
57		0.000	4.058e4	0.000	13.087
58		0.000	3.661e4	0.000	13.185
59		0.000	1.370e4	0.000	13.337
60		0.000	1.362e5	0.000	13.479
61		0.000	2.554e4	0.000	13.873
62		0.000	5.206e4	0.000	13.963

1 S030

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120338.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MSD
Acquired On: 12/4/03 7:35:00 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	2.161e4	0.000	14.190
64		0.000	4.756e4	0.000	14.339
65		0.000	5.092e4	0.000	14.482
66		0.000	4.922e4	0.000	14.739
67		0.000	4.092e4	0.000	14.962
68	O-TERPHENYL	808.087	2.196e6	15.346	15.209 - 85%
69		0.000	4.510e4	0.000	15.322
70		0.000	4.075e4	0.000	15.476
71		0.000	2.856e4	0.000	15.804
72		0.000	1.178e4	0.000	15.927
73		0.000	1.996e4	0.000	16.052
74		0.000	2.451e4	0.000	16.174
75		0.000	1.369e4	0.000	16.363
76		0.000	3.886e4	0.000	16.509
77		0.000	1.431e4	0.000	16.701
78		0.000	1.589e4	0.000	16.801
79		0.000	6.031e3	0.000	16.952
80		0.000	1.657e4	0.000	17.074
81		0.000	1.510e4	0.000	17.213
82		0.000	2.025e4	0.000	17.341
83		0.000	1.191e4	0.000	17.559
84		0.000	2.261e4	0.000	17.692
85		0.000	3.630e4	0.000	17.980
86		0.000	2.441e4	0.000	18.363
87		0.000	3.343e4	0.000	18.721
88		0.000	9.196e3	0.000	19.013
89		0.000	1.363e4	0.000	19.139
90		0.000	1.244e4	0.000	19.334
91		0.000	1.684e4	0.000	19.523
92		0.000	3.366e4	0.000	19.853
93		0.000	2.164e4	0.000	20.273
94		0.000	2.191e4	0.000	20.802
95		0.000	1.292e4	0.000	21.184
96		0.000	2.458e4	0.000	21.288
97		0.000	1.451e4	0.000	21.863
98		0.000	2.238e4	0.000	22.263
99		0.000	1.261e4	0.000	22.660
100		0.000	6.321e4	0.000	22.871
101		0.000	1.675e4	0.000	23.659
102		0.000	1.545e4	0.000	23.939
103		0.000	3.937e3	0.000	24.412

1 8031

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120338.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: 03112617-01 MSD
Acquired On: 12/4/03 7:35:00 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
Total			4.485e6 - 2.196 e6		

$= \frac{2289000}{2648} = 864.426\%$

$= \frac{864.426}{1000} \times 100 = 86.443\%$

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
LCS & LCS DUPLICATE SUMMARY

Lab File IDs 031121\B3112128.D
031121\B3112129.D

Date Analyzed: 11/22/03

Matrix: Water

Sample ID: LCS Water 11-21

SAMPLE SPIKE DISTILLATE	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	SPIKE CONC (mg/L)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	ND	883	88	50-150

Sample ID: LCSD Water 11-21

SAMPLE SPIKE DUP DISTILLATE	SPIKE ADDED (mg/L)	SAMPLE CONC (mg/L)	SPK DUP CONC (mg/L)	SPIKE DUP REC (%) #	RPD (%)	QC RPD (%)	QC LIMITS (%)
Diesel Fuel	1000	ND	958	96	8	20	50-150

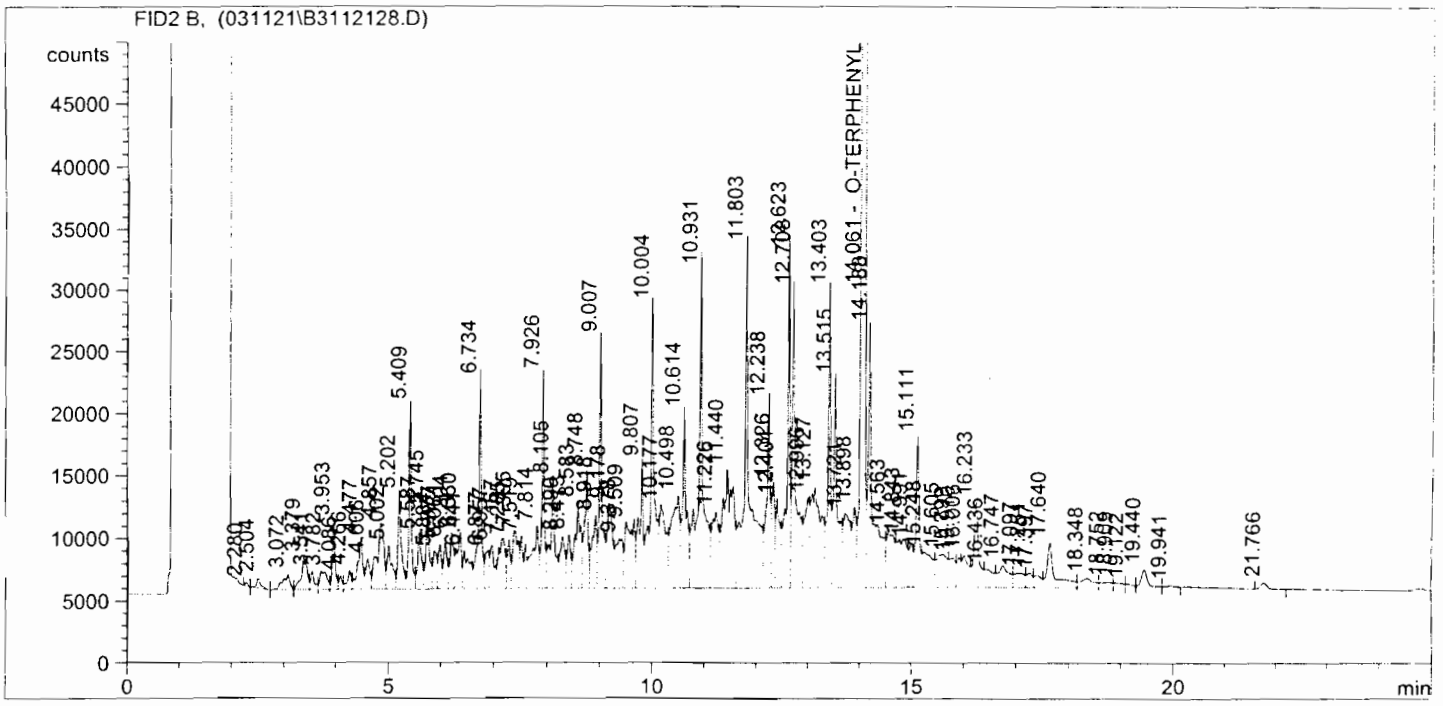
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: spike or spike dup %Recovery
*=[(spike conc - original sample conc)/(spike added)]*100*
Calculation: spike/spike dup Relative Percent Difference
*=absolute value [(spike dup conc - spike conc)/((spike dup conc + spike conc)/2))]*100*

1 6033

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112128.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS WATER 11/21
Acquired On: 11/22/03 5:20:07 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.009e3	0.000	2.280
3		0.000	4.298e3	0.000	2.504
4		0.000	1.160e4	0.000	3.072
5		0.000	2.055e4	0.000	3.379
6		0.000	7.192e3	0.000	3.541
7		0.000	1.420e4	0.000	3.782
8		0.000	2.027e4	0.000	3.953
9		0.000	4.807e3	0.000	4.086
10		0.000	8.333e3	0.000	4.266
11		0.000	2.569e4	0.000	4.477
12		0.000	1.320e4	0.000	4.606
13		0.000	4.888e4	0.000	4.857
14		0.000	2.351e4	0.000	5.002
15		0.000	3.657e4	0.000	5.202
16		0.000	5.181e4	0.000	5.409
17		0.000	2.347e4	0.000	5.587
18		0.000	2.942e4	0.000	5.745
19		0.000	1.552e4	0.000	5.884
20		0.000	1.574e4	0.000	5.977

1 S034

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112128.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS WATER 11/21
Acquired On: 11/22/03 5:20:07 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.850e4	0.000	6.081
22		0.000	2.100e4	0.000	6.204
23		0.000	2.834e4	0.000	6.360
24		0.000	2.630e4	0.000	6.441
25		0.000	7.115e4	0.000	6.734
26		0.000	1.544e4	0.000	6.877
27		0.000	2.047e4	0.000	6.957
28		0.000	3.505e4	0.000	7.167
29		0.000	1.595e4	0.000	7.285
30		0.000	3.468e4	0.000	7.395
31		0.000	1.520e4	0.000	7.519
32		0.000	5.589e4	0.000	7.814
33		0.000	5.654e4	0.000	7.926
34		0.000	5.306e4	0.000	8.105
35		0.000	2.763e4	0.000	8.290
36		0.000	2.084e4	0.000	8.413
37		0.000	5.225e4	0.000	8.583
38		0.000	4.619e4	0.000	8.748
39		0.000	3.639e4	0.000	8.918
40		0.000	7.743e4	0.000	9.007
41		0.000	4.988e4	0.000	9.178
42		0.000	3.781e4	0.000	9.378
43		0.000	6.419e4	0.000	9.509
44		0.000	5.640e4	0.000	9.807
45		0.000	1.248e5	0.000	10.004
46		0.000	6.009e4	0.000	10.177
47		0.000	8.103e4	0.000	10.498
48		0.000	7.645e4	0.000	10.614
49		0.000	1.801e5	0.000	10.931
50		0.000	5.475e4	0.000	11.226
51		0.000	1.300e5	0.000	11.440
52		0.000	2.226e5	0.000	11.803
53		0.000	7.628e4	0.000	12.238
54		0.000	3.488e4	0.000	12.326
55		0.000	4.029e4	0.000	12.401
56		0.000	1.102e5	0.000	12.623
57		0.000	1.259e5	0.000	12.708
58		0.000	5.230e4	0.000	12.996
59		0.000	1.110e5	0.000	13.127
60		0.000	8.797e4	0.000	13.403
61		0.000	9.400e4	0.000	13.515
62		0.000	5.683e4	0.000	13.721

1 0035

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112128.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCS WATER 11/21
Acquired On: 11/22/03 5:20:07 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	3.578e4	0.000	13.898
64	O-TERPHENYL	1.038e3	4.703e6	14.062	14.061 —104%
65		0.000	1.527e5	0.000	14.188
66		0.000	4.600e4	0.000	14.563
67		0.000	5.266e4	0.000	14.843
68		0.000	1.981e4	0.000	14.991
69		0.000	5.887e4	0.000	15.111
70		0.000	3.655e4	0.000	15.248
71		0.000	3.850e4	0.000	15.605
72		0.000	2.006e4	0.000	15.799
73		0.000	1.272e4	0.000	15.910
74		0.000	2.250e4	0.000	16.006
75		0.000	4.579e4	0.000	16.233
76		0.000	1.748e4	0.000	16.436
77		0.000	2.615e4	0.000	16.747
78		0.000	1.590e4	0.000	17.097
79		0.000	9.259e3	0.000	17.251
80		0.000	9.711e3	0.000	17.397
81		0.000	3.844e4	0.000	17.640
82		0.000	1.272e4	0.000	18.348
83		0.000	6.373e3	0.000	18.752
84		0.000	4.324e3	0.000	18.909
85		0.000	2.438e3	0.000	19.122
86		0.000	1.242e4	0.000	19.440
87		0.000	1.898e3	0.000	19.941
88		0.000	4.699e3	0.000	21.766
Total			8.439e6 - 4.703 e6		

$$= \frac{3736000}{4232} = 882.798$$

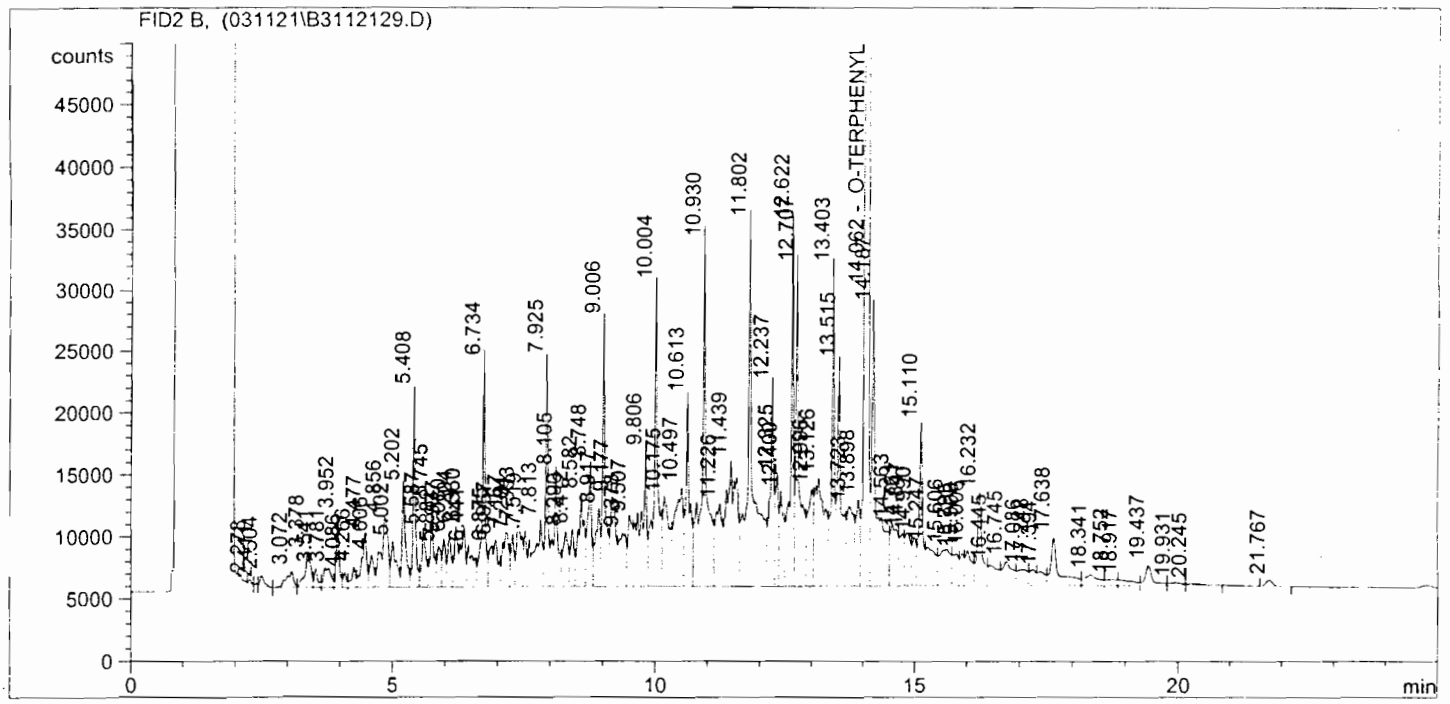
$$= \frac{882.798}{1000} \times 100 = 88.28\%$$

1 6036

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112129.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCSD WATER 11/21
Acquired On: 11/22/03 5:50:46 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	1.046e3	0.000	2.278
3		0.000	396.980	0.000	2.411
4		0.000	4.647e3	0.000	2.504
5		0.000	1.290e4	0.000	3.072
6		0.000	2.214e4	0.000	3.378
7		0.000	7.654e3	0.000	3.541
8		0.000	1.545e4	0.000	3.781
9		0.000	2.169e4	0.000	3.952
10		0.000	5.390e3	0.000	4.086
11		0.000	9.105e3	0.000	4.266
12		0.000	2.794e4	0.000	4.477
13		0.000	1.439e4	0.000	4.606
14		0.000	5.305e4	0.000	4.856
15		0.000	2.544e4	0.000	5.002
16		0.000	3.957e4	0.000	5.202
17		0.000	5.602e4	0.000	5.408
18		0.000	2.521e4	0.000	5.587
19		0.000	3.166e4	0.000	5.745
20		0.000	1.709e4	0.000	5.882

1 0037

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112129.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCSD WATER 11/21
Acquired On: 11/22/03 5:50:46 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	1.708e4	0.000	5.977
22		0.000	2.019e4	0.000	6.080
23		0.000	2.270e4	0.000	6.204
24		0.000	3.061e4	0.000	6.360
25		0.000	2.859e4	0.000	6.441
26		0.000	7.651e4	0.000	6.734
27		0.000	1.675e4	0.000	6.875
28		0.000	2.206e4	0.000	6.957
29		0.000	3.817e4	0.000	7.167
30		0.000	1.714e4	0.000	7.284
31		0.000	3.746e4	0.000	7.393
32		0.000	1.633e4	0.000	7.519
33		0.000	6.036e4	0.000	7.813
34		0.000	6.078e4	0.000	7.925
35		0.000	5.723e4	0.000	8.105
36		0.000	2.974e4	0.000	8.290
37		0.000	2.266e4	0.000	8.412
38		0.000	5.639e4	0.000	8.582
39		0.000	4.971e4	0.000	8.748
40		0.000	3.943e4	0.000	8.917
41		0.000	8.362e4	0.000	9.006
42		0.000	5.335e4	0.000	9.177
43		0.000	4.109e4	0.000	9.378
44		0.000	3.600e4	0.000	9.507
45		0.000	9.386e4	0.000	9.806
46		0.000	1.341e5	0.000	10.004
47		0.000	6.495e4	0.000	10.175
48		0.000	8.746e4	0.000	10.497
49		0.000	8.222e4	0.000	10.613
50		0.000	1.937e5	0.000	10.930
51		0.000	5.937e4	0.000	11.226
52		0.000	1.399e5	0.000	11.439
53		0.000	2.414e5	0.000	11.802
54		0.000	8.256e4	0.000	12.237
55		0.000	3.747e4	0.000	12.325
56		0.000	4.363e4	0.000	12.400
57		0.000	1.187e5	0.000	12.622
58		0.000	1.357e5	0.000	12.707
59		0.000	5.705e4	0.000	12.996
60		0.000	1.197e5	0.000	13.126
61		0.000	9.458e4	0.000	13.403
62		0.000	1.018e5	0.000	13.515

1 6038

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031121\B3112129.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_BAC.M
Sample Name: LCSD WATER 11/21
Acquired On: 11/22/03 5:50:46 AM
Analyst: XW
Analysis Method: DRO1_ACQ.M
Sample Info: 1000C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
63		0.000	6.101e4	0.000	13.723
64		0.000	3.897e4	0.000	13.898
65	O-TERPHENYL	1.099e3	4.983e6	14.062	14.062 -110%
66		0.000	1.637e5	0.000	14.187
67		0.000	4.929e4	0.000	14.563
68		0.000	2.583e4	0.000	14.761
69		0.000	3.248e4	0.000	14.847
70		0.000	2.219e4	0.000	14.990
71		0.000	6.306e4	0.000	15.110
72		0.000	3.911e4	0.000	15.247
73		0.000	4.432e4	0.000	15.606
74		0.000	2.121e4	0.000	15.795
75		0.000	1.415e4	0.000	15.908
76		0.000	2.494e4	0.000	16.006
77		0.000	5.011e4	0.000	16.232
78		0.000	2.148e4	0.000	16.445
79		0.000	2.682e4	0.000	16.745
80		0.000	1.810e4	0.000	17.086
81		0.000	1.093e4	0.000	17.248
82		0.000	1.158e4	0.000	17.394
83		0.000	4.437e4	0.000	17.638
84		0.000	1.637e4	0.000	18.341
85		0.000	7.403e3	0.000	18.752
86		0.000	8.827e3	0.000	18.917
87		0.000	1.580e4	0.000	19.437
88		0.000	3.758e3	0.000	19.931
89		0.000	3.179e3	0.000	20.245
90		0.000	5.001e3	0.000	21.767
Total			9.039e6 — 4.983e6		

$$= \frac{4056000}{4232} = 958.41$$

$$= \frac{958.41}{1000} \times 100 = 95.84\%$$

1 6039

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6630 BALTIMORE NATIONAL PIKE
ROUTE 40 WEST
BALTIMORE, MARYLAND 21228
410-747-8770
800-932-9047
410-788-8723 Fax
www.phaseonline.com

PHASE SEPARATION SCIENCE, INC.

DIESEL RANGE ORGANICS
LABORATORY CONTROL SAMPLE SUMMARY

DATE/TIME ANALYZED: **12/4/03 6:34** **LAB FILE ID:** **031203\F3120336.D**

METHOD: **EPA 8015B**

MATRIX: **Soil**

Sample ID: LCS 12-3-03 30C

SPIKE DISTILLATE	SPIKE ADDED (mg/kg)	SPIKE CONC (mg/kg)	SPIKE REC (%) #	QC LIMITS (%)
Diesel Fuel	1000	1076	108	50-150

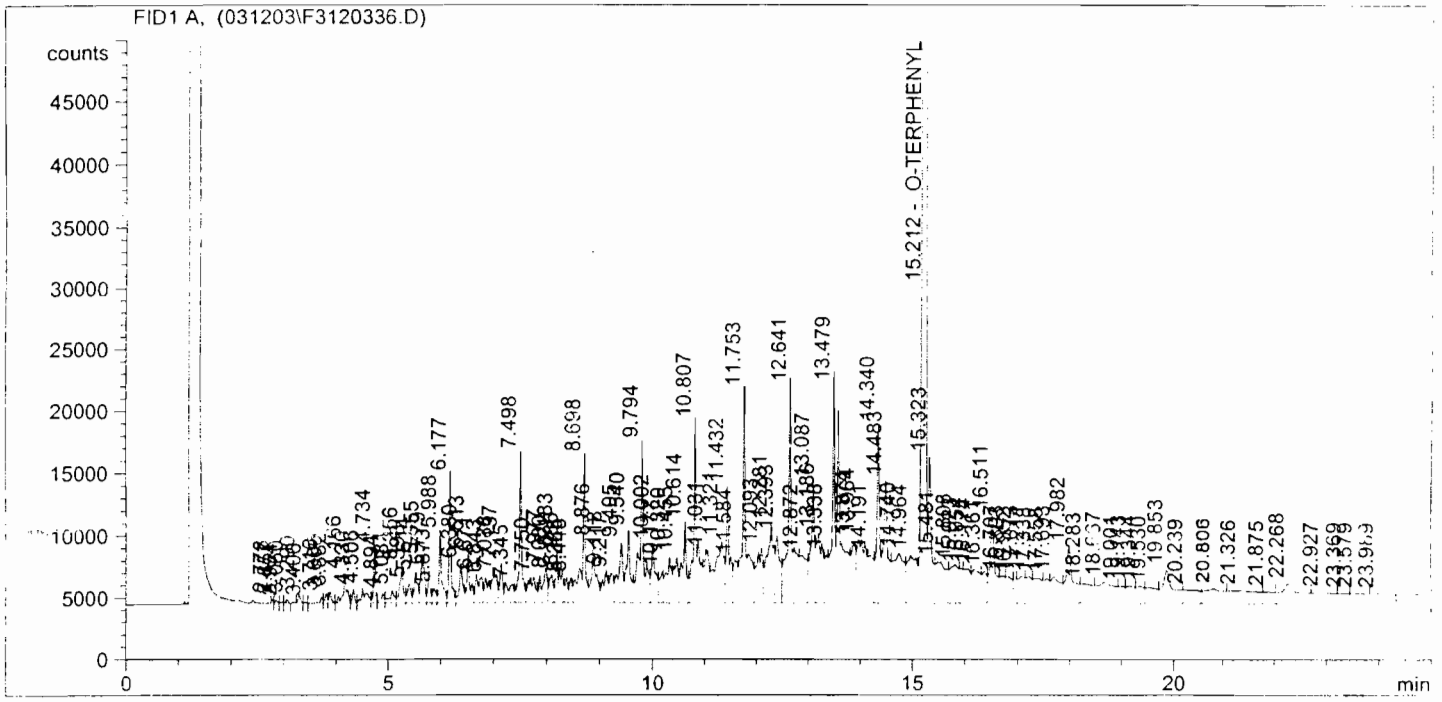
- Column used to flag out of control recoveries
* - Values outside of QC Limits
Calculation: LCS %Recovery
*=(spike conc/spike added)*100*

1 8040

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120336.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/4/03 6:34:08 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C



#	Compound Name	Amount	Area	Exp.RT	Meas.RT
1	DRO	0.000	0.000	0.001	0.000
2		0.000	667.572	0.000	2.778
3		0.000	637.935	0.000	2.857
4		0.000	175.200	0.000	2.954
5		0.000	689.361	0.000	3.060
6		0.000	2.043e3	0.000	3.290
7		0.000	117.166	0.000	3.406
8		0.000	1.102e3	0.000	3.716
9		0.000	2.153e3	0.000	3.806
10		0.000	2.812e3	0.000	3.882
11		0.000	1.197e4	0.000	4.166
12		0.000	3.128e3	0.000	4.330
13		0.000	8.538e3	0.000	4.506
14		0.000	1.121e4	0.000	4.734
15		0.000	2.980e3	0.000	4.894
16		0.000	6.297e3	0.000	5.081
17		0.000	1.332e4	0.000	5.256
18		0.000	6.974e3	0.000	5.393
19		0.000	1.031e4	0.000	5.514
20		0.000	1.817e4	0.000	5.655

1 3041

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120336.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/4/03 6:34:08 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
21		0.000	7.907e3	0.000	5.779
22		0.000	5.175e3	0.000	5.873
23		0.000	2.125e4	0.000	5.988
24		0.000	2.866e4	0.000	6.177
25		0.000	1.422e4	0.000	6.380
26		0.000	1.698e4	0.000	6.513
27		0.000	1.728e4	0.000	6.671
28		0.000	1.187e4	0.000	6.843
29		0.000	1.649e4	0.000	7.038
30		0.000	1.141e4	0.000	7.137
31		0.000	1.553e4	0.000	7.345
32		0.000	4.103e4	0.000	7.498
33		0.000	1.961e4	0.000	7.750
34		0.000	2.136e4	0.000	7.977
35		0.000	1.122e4	0.000	8.080
36		0.000	1.312e4	0.000	8.183
37		0.000	1.341e4	0.000	8.286
38		0.000	7.021e3	0.000	8.368
39		0.000	7.168e3	0.000	8.448
40		0.000	5.375e4	0.000	8.698
41		0.000	3.052e4	0.000	8.876
42		0.000	1.709e4	0.000	9.118
43		0.000	1.242e4	0.000	9.217
44		0.000	2.986e4	0.000	9.405
45		0.000	3.087e4	0.000	9.540
46		0.000	7.110e4	0.000	9.794
47		0.000	2.778e4	0.000	10.002
48		0.000	1.174e4	0.000	10.177
49		0.000	2.633e4	0.000	10.320
50		0.000	2.146e4	0.000	10.455
51		0.000	3.694e4	0.000	10.614
52		0.000	7.686e4	0.000	10.807
53		0.000	2.917e4	0.000	11.031
54		0.000	5.894e4	0.000	11.321
55		0.000	4.189e4	0.000	11.432
56		0.000	1.936e4	0.000	11.584
57		0.000	9.716e4	0.000	11.753
58		0.000	3.707e4	0.000	12.093
59		0.000	5.574e4	0.000	12.281
60		0.000	3.429e4	0.000	12.393
61		0.000	1.069e5	0.000	12.641
62		0.000	3.663e4	0.000	12.872

1 6042

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120336.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/4/03 6:34:08 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT	
63		0.000	4.931e4	0.000	13.087	
64		0.000	4.501e4	0.000	13.186	
65		0.000	1.597e4	0.000	13.338	
66		0.000	1.632e5	0.000	13.479	
67		0.000	3.096e4	0.000	13.874	
68		0.000	6.153e4	0.000	13.964	
69		0.000	2.680e4	0.000	14.191	
70		0.000	5.675e4	0.000	14.340	
71		0.000	5.826e4	0.000	14.483	
72		0.000	5.941e4	0.000	14.740	
73		0.000	4.883e4	0.000	14.964	
74	O-TERPHENYL	916.269	2.490e6	15.346	15.212	-92%
75		0.000	5.233e4	0.000	15.323	
76		0.000	4.785e4	0.000	15.481	
77		0.000	3.436e4	0.000	15.808	
78		0.000	1.386e4	0.000	15.923	
79		0.000	2.322e4	0.000	16.054	
80		0.000	2.967e4	0.000	16.174	
81		0.000	1.659e4	0.000	16.361	
82		0.000	4.789e4	0.000	16.511	
83		0.000	1.475e4	0.000	16.707	
84		0.000	1.825e4	0.000	16.803	
85		0.000	8.514e3	0.000	16.952	
86		0.000	2.017e4	0.000	17.073	
87		0.000	1.775e4	0.000	17.211	
88		0.000	2.380e4	0.000	17.338	
89		0.000	1.462e4	0.000	17.558	
90		0.000	2.768e4	0.000	17.693	
91		0.000	4.522e4	0.000	17.982	
92		0.000	2.493e4	0.000	18.283	
93		0.000	4.056e4	0.000	18.667	
94		0.000	1.116e4	0.000	19.001	
95		0.000	1.577e4	0.000	19.143	
96		0.000	1.446e4	0.000	19.344	
97		0.000	1.998e4	0.000	19.530	
98		0.000	4.089e4	0.000	19.853	
99		0.000	2.559e4	0.000	20.239	
100		0.000	3.379e4	0.000	20.806	
101		0.000	4.252e4	0.000	21.326	
102		0.000	1.403e4	0.000	21.875	
103		0.000	4.306e4	0.000	22.268	
104		0.000	2.700e4	0.000	22.927	

1 6043

PHASE SEPARATION SCIENCE INC.

EPA METHOD 8015B : DRO

Data File Name: C:\HPCHEM\1\DATA\031203\F3120336.D
Method Name: C:\HPCHEM\1\METHODS\DRO1_FRO.M
Sample Name: LCS SOIL 12/3
Acquired On: 12/4/03 6:34:08 AM
Analyst: MI
Analysis Method: DRO1_ACQ.M
Sample Info: 30C

#	Compound Name	Amount	Area	Exp.RT	Meas.RT
105		0.000	1.207e4	0.000	23.369
106		0.000	1.899e4	0.000	23.579
107		0.000	2.423e4	0.000	23.989
Total			5.339e6 – 2.49026		

$= \frac{2849000}{2648} = 1075.91$

$\frac{1075.91}{1000} \times 100 = 107.591\%$

1 6044

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	2	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
3	3	03111910-01 TEC	DRO1_ACQ	1	Sample		
4	4	03111910-~~02~~ 03 TEC	DRO1_ACQ	1	Sample		
5	5	03111912-01 TEC	DRO1_ACQ	1	Sample		
6	6	03111921-01 APX	DRO1_ACQ	1	Sample		
7	7	03111910-02 TEC	DRO1_ACQ	1	Sample		
8	8	03111910-03 TEC	DRO1_ACQ	1	Sample		
9	9	03111911-01 TEC	DRO1_ACQ	1	Sample		
10	10	03111911-02 TEC	DRO1_ACQ	1	Sample		
11	11	03111911-03 TEC	DRO1_ACQ	1	Sample		
12	12	03111912-01 TEC	DRO1_ACQ	1	Sample		
13	13	03111912-02 TEC	DRO1_ACQ	1	Sample		
14	14	03111921-01 APX	DRO1_ACQ	1	Sample		
15	15	MB SOIL 11/21	DRO1_ACQ	1	Sample		
16	16	LCS SOIL 11/21	DRO1_ACQ	1	Sample		
17	17	LCS D SOIL 11/21	DRO1_ACQ	1	Sample		
18	18	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
19	19	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
20	20	03111919-01 TEC	DRO1_ACQ	1	Sample		
21	21	03111919-03 TEC	DRO1_ACQ	1	Sample		
22	22	03111919-06 TEC	DRO1_ACQ	1	Sample		
23	23	03111913-08 TTI	DRO3_ACQ	1	Sample		
24	24	03111913-16 TTI	DRO3_ACQ	1	Sample		
25	25	03111913-23 TTI	DRO3_ACQ	1	Sample		
26	26	03111913-29 TTI	DRO3_ACQ	1	Sample		
27	27	MB WATER 11/21	DRO1_ACQ	1	Sample		
28	28	DCM BLANK	DRO1_ACQ	1	Sample		
29	29	DCM BLANK	DRO1_ACQ	1	Sample		
30	30	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
31	31	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
32	32	DCM BLANK	DRO1_ACQ	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
3	53	03111803-01 RBC	DRO1_ACQ	1	Sample		
4	54	03111803-02 RBC	DRO1_ACQ	1	Sample		
5	55	03111803-03 RBC	DRO1_ACQ	1	Sample		

1 6045

Sequence: C:\HPCHEM\1\SEQUENCE\031121.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
6	56	03111803-04 RBC	DRO1_ACQ	1	Sample		
7	57	03111803-05 RBC	DRO1_ACQ	1	Sample		
8	58	03111803-06 RBC	DRO1_ACQ	1	Sample		
9	59	03111803-07 RBC	DRO1_ACQ	1	Sample		
10	60	03111803-08 RBC	DRO1_ACQ	1	Sample		
11	61	03111803-09 RBC	DRO1_ACQ	1	Sample		
12	62	03111803-10 RBC	DRO1_ACQ	1	Sample		
13	63	03111923-01 A&A	DRO1_ACQ	1	Sample		
14	64	MB SOIL 11/21	DRO1_ACQ	1	Sample		
15	65	03111803-01MS	DRO1_ACQ	1	Sample		
16	66	03111803-01MSD	DRO1_ACQ	1	Sample		
17	67	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
18	68	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
19	69	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
20	70	03111919-02 TEC	DRO1_ACQ	1	Sample		
21	71	03111919-05 TEC	DRO1_ACQ	1	Sample		
22	72	03111817-01 SSI	DRO1_ACQ	1	Sample		
23	73	03111913-12 TTI	DRO3_ACQ	1	Sample		
24	74	03111913-20 TTI	DRO3_ACQ	1	Sample		
25	75	03111913-26 TTI	DRO3_ACQ	1	Sample		
26	76	03111913-32 TTI	DRO3_ACQ	1	Sample		
27	77	MB WATER 11/21	DRO1_ACQ	1	Sample		
28	78	LCS WATER 11/21	DRO1_ACQ	1	Sample		
29	79	LCSD WATER 11/21	DRO1_ACQ	1	Sample		
30	80	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
31	81	BLANK 1000 mg/L	DRO1_ACQ	1	Sample		
32	82	DCM BLANK	DRO1_ACQ	1	Sample		

Sequence Table (Front Injector):

Method and Injection Info Part:

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	1	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	2	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	3	03112109-08 GTA	DRO1_ACQ	1	Sample		
4	4	03112109-06 GTA	DRO1_ACQ	1	Sample		
5	5	MB WATER 12/2	DRO1_ACQ	1	Sample		
6	6	03120302-01 GTA	DRO1_ACQ	1	Sample		
7	7	03112621-01 HECA	DRO1_ACQ	1	Sample		
8	8	03112621-02 HECA	DRO1_ACQ	1	Sample		
9	9	03112621-03 HECA	DRO1_ACQ	1	Sample		
10	10	03112512-01 CEM	DRO1_ACQ	1	Sample		
11	11	03112514-01 CEM	DRO1_ACQ	1	Sample		
12	12	03112515-01 CEM	DRO1_ACQ	1	Sample		
13	13	03112606-01 CEM	DRO1_ACQ	1	Sample		
14	14	03112609-01 HYN	DRO1_ACQ	1	Sample		
15	15	03112617-01 TEC	DRO1_ACQ	1	Sample		
16	16	03112109-06 GTA	DRO1_ACQ	1	Sample		
17	17	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
18	18	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
19	19	03112019-01 SSI	DRO1_ACQ	1	Sample		
20	20	03112101-01 MDE	DRO1_ACQ	1	Sample		
21	21	03112101-02 MDE	DRO1_ACQ	1	Sample		
22	22	03112101-03 MDE	DRO1_ACQ	1	Sample		
23	23	03112101-04 MDE	DRO1_ACQ	1	Sample		
24	24	03112113-01 ED	DRO1_ACQ	1	Sample		
25	25	03112113-02 ED	DRO1_ACQ	1	Sample		
26	26	03112418-01 MDE	DRO1_ACQ	1	Sample		
27	27	03112506-01 HBI	DRO1_ACQ	1	Sample		
28	28	03112530-01 ED	DRO1_ACQ	1	Sample		
29	29	03112516-07 A&A	DRO1_ACQ	1	Sample		
30	30	DCM BLANK	DRO1_ACQ	1	Sample		
31	31	03112609-01 HYN	DRO1_ACQ	1	Sample		
32	32	03112606-01 CEM	DRO1_ACQ	1	Sample		
33	33	03112512-01 CEM	DRO1_ACQ	1	Sample		
34	34	LCS WATER 12/2	DRO1_ACQ	1	Sample		
35	35	LCSD WATER 12/2	DRO1_ACQ	1	Sample		
36	36	LCS SOIL 12/3	DRO1_ACQ	1	Sample		
37	37	03112617-01 MS	DRO1_ACQ	1	Sample		
38	38	03112617-01 MSD	DRO1_ACQ	1	Sample		
39	39	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
40	40	BLANK 1000mG/L	DRO1_ACQ	1	Sample		

Sequence Table (Back Injector):

Method and Injection Info Part:

1 6947

Sequence: C:\HPCHEM\1\SEQUENCE\031203.S

Line	Vial	SampleName	Method	Inj	SampleType	InjVolume	DataFile
1	51	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
2	52	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
3	53	03112510-03 CEM	DRO1_ACQ	1	Sample		
4	54	03112110-02 CWO	DRO1_ACQ	1	Sample		
5	55	03112110-05 CWO	DRO1_ACQ	1	Sample		
6	56	03120302-02 GTA	DRO1_ACQ	1	Sample		
7	57	03112621-04 HECA	DRO1_ACQ	1	Sample		
8	58	03112621-06 HECA	DRO1_ACQ	1	Sample		
9	59	03112621-05 HECA	DRO1_ACQ	1	Sample		
10	60	03112118-01 ERI	DRO1_ACQ	1	Sample		
11	61	03112516-05 A&A	DRO1_ACQ	1	Sample		
12	62	03112516-06 A&A	DRO1_ACQ	1	Sample		
13	63	03112529-01 EDI	DRO1_ACQ	1	Sample		
14	64	03111427-02 URS	DRO1_ACQ	1	Sample		
15	65	03111427-05 URS	DRO1_ACQ	1	Sample		
16	66	03111427-06 URS	DRO1_ACQ	1	Sample		
17	67	DF #2 1500mg/L	DRO1_ACQ	1	Sample		
18	68	BLANK 1000mg/L	DRO1_ACQ	1	Sample		
19	69	03111913-06 TTI	DRO1_ACQ	1	Sample		
20	70	03111913-07 TTI	DRO1_ACQ	1	Sample		
21	71	03111913-10 TTI	DRO1_ACQ	1	Sample		
22	72	03111913-11 TTI	DRO1_ACQ	1	Sample		
23	73	03111913-14 TTI	DRO1_ACQ	1	Sample		
24	74	03111913-15 TTI	DRO1_ACQ	1	Sample		
25	75	03111913-18 TTI	DRO1_ACQ	1	Sample		
26	76	03111913-19 TTI	DRO1_ACQ	1	Sample		
27	77	03111913-22 TTI	DRO1_ACQ	1	Sample		
28	78	03111913-25 TTI	DRO1_ACQ	1	Sample		
29	79	03111913-28 TTI	DRO1_ACQ	1	Sample		
30	80	03111913-31 TTI	DRO1_ACQ	1	Sample		
31	81	03112118-01 ERI	DRO1_ACQ	1	Sample		
32	82	03112516-05 A&A	DRO1_ACQ	1	Sample		
33	83	03111427-05 URS	DRO1_ACQ	1	Sample		
34	84	MB SOIL 12/3	DRO1_ACQ	1	Sample		
35	85	03112516-06 MS	DRO1_ACQ	1	Sample		
36	86	03112516-06 MSD	DRO1_ACQ	1	Sample		
37	87	03112118-01 MS	DRO1_ACQ	1	Sample		
38	88	03112118-01 MSD	DRO1_ACQ	1	Sample		
39	89	DF #2 1500mG/L	DRO1_ACQ	1	Sample		
40	90	BLANK 1000mg/L	DRO1_ACQ	1	Sample		