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Draft Surface Water, Pore Water, and Crayfish Fall 2003 Sampling Event McCormick & Baxter Creosoting Company Site Portland, Oregon

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List of Abbreviations and Acronyms

Acronym	Definition
bgs	below ground surface
COCs	contaminants of concern
DEQ	Oregon Department of Environmental Quality
DGTs	diffusive gel thinfilms
dioxins	polychlorinated dibenzo-p-dioxins
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
furans	polychlorinated dibenzofurans
FWDA	former waste disposal area
GPS	global positioning system
ID	identification
LWG	Lower Willamette Group
McCormick & Baxter	McCormick & Baxter Creosoting Company
mg/kg	milligrams per kilogram
μg/L	micrograms per liter
mg/L	milligrams per liter
mL/hr	milliliters per hour
NAPL	nonaqueous phase liquid
ng/kg-wet	nanograms per kilogram-wet weight
OSU	Oregon State University
PAHs	polynuclear aromatic hydrocarbons
PCP	pentachlorophenol
PSDs	passive sampling devices
QA	quality assurance
QC	quality control

List of Abbreviations and Acronyms (Cont.)

Acronym	Definition
RAs	remedial actions
RI	remedial investigation
SIM	selective ion monitoring
SPMDs	semi-permeable membrane devices
STL	Severn Trent Laboratory
SVOCs	semivolatile organic compounds
TCDD	tetrachlorodibenzo-p-dioxin
TEQ	toxic equivalency quotient
TFA	tank farm area
WCM	West Coast Marine, Inc.

1 Introduction

Ecology and Environment, Inc. (E & E) under contract with the Oregon Department of Environmental Quality (DEQ), prepared this Draft Surface Water, Pore Water, and Crayfish Fall 2003 sampling event report and for the McCormick & Baxter Creosoting Company (McCormick & Baxter), Portland Plant, site located in Portland, Oregon (Figure 1). The site, a former wood-treating facility, is located along the Willamette River at 6900 North Edgewater Street. This document was prepared under Task Order Number 71-03-12.

This document describes the fall 2003 sampling event, which took place from September 26, 2003 to October 10, 2003. This document is intended to be a data report with limited interpretation of data. This data was presented at monthly meetings in December 2003 and early 2004. The data was also reviewed for consistency with the final sediment cap construction bid documents. The fall 2003 sampling event was a joint effort between E & E, DEQ, and Dr. Kim Anderson, Oregon State University (OSU), to collect surface water, pore water, and near-shore groundwater samples for analysis of polynuclear aromatic hydrocarbons (PAHs), pentachlorophenol (PCP), and metals (arsenic, chromium, copper, and zinc). E & E also collected crayfish samples for analysis of metals (arsenic, chromium, copper, and zinc), PAHs, and polychlorinated dibenzo-p-dioxins (dioxins)/polychlorinated dibenzofurans (furans) compounds.

The 2003 sampling event was conducted in general accordance with the *Surface Water, Pore Water and Groundwater Sampling and Analysis Plan* prepared by E & E and dated September 2003. Semiannual groundwater sampling was conducted as part of this sampling event. The results of the groundwater sampling were presented in the *Remedial Actions Semiannual Report (*E & E 2004a*)*, and therefore, are not discussed in this report.

1.1 Scope of Investigation

The purpose of the sampling was to provide data for the following [interpretive] objectives:

- To characterize the interface zone between the site groundwater and the Willamette River adjacent to the site;

quality assurance (QA) memoranda evaluating the laboratory data for the fall 2003 sampling event.

- **Appendix C.** This appendix contains a copy of the field notes from the 2003 sampling event. Notes from both E & E personnel and DEQ are included.

2 Sampling Methodologies

This section describes the methodologies used during the fall 2003 sampling event. The sampling event included the following principal activities:

- Task 1: Nonaqueous Phase Liquid (NAPL) Flux Measurement,
- Task 2: Visual Delineation of Seep Areas,
- Task 3: Groundwater Discharge Measurements,
- Task 4: Pore Water Sampling,
- Task 5: Surface Water Sampling,
- Task 6: Near-Shore Groundwater Sampling, and
- Task 7: Crayfish Tissue Sampling.

The following subsections describe the specific sampling objectives and methodologies for each of these tasks. Sampling tasks were completed by sampling teams from E & E and OSU, under the oversight of DEQ. Sampling included the following elements:

- E & E field teams conducted NAPL flux measurements at seep locations along the shore using absorbent pads, and groundwater discharge measurements using mini-piezometers and flux chambers. E & E collected near-shore groundwater, and pore water using the piezometers and flux chambers respectively. Crayfish tissue samples were also collected from four locations along the Willamette River.
- OSU field teams collected surface water samples from the Willamette River using both organic and inorganic PSDs. OSU field personnel also collected additional surface water grab samples that were analyzed by e & E's subcontract laboratory.

Sampling sites were selected based on the location of the proposed sediment cap, locations of previously identified seeps and/or visual sheen, and on results of the 2002 sampling event. (Figures 2a through 2e). Samples collected as part of the 2003 sampling event employed the following numbering scheme for sample identification (ID).

2.2 Visual Delineation of Seep Areas

The objective of this task was to further refine the delineation of seep boundaries from the September 2002 visual delineation of seeps. This task focused on areas identified during the September 2002 investigation as having active NAPL discharge (e.g., Willamette Cove) or areas with NAPL identified in near surface sediments (e.g., creosote dock) (E&E, 2004b).

West Coast Marine, Inc. (WCM) installed booms in the Willamette River adjacent to the site, prior to the initiation of the seep delineation. Booms were installed to prevent additional NAPL from entering the river as a result of sampling and investigative activities. In each of the four previously identified seep areas (Figure 2e), clam tubes were advanced to a depth of approximately 2 feet below ground surface (bgs) during the low-tide conditions. Sediment from the clam tubes was visually inspected for the presence of NAPL, in order to define the horizontal limits of the individual seeps. Seep limits were measured using a differential GPS. Seep widths could not be determined because seeps extended beyond the water's edge.

2.3 Groundwater Discharge Measurements

The methodologies presented in this document are adapted from techniques outlined by the Minnesota Pollution Control Agency, MHE products, and protocols developed at other DEQ sites. For this study, two common field techniques were used to evaluate the exchange of groundwater beneath the site and the Willamette River. Mini-piezometer probes were installed to help define the vertical hydraulic gradient and direction of water interchange, and flux chambers were installed to estimate the groundwater seepage rate and flux.

2.3.1 Groundwater Gradient Measurements

Three mini-piezometers at lengths of 14 inches, 36 inches and 72 inches were installed at eight locations on site (Figure 2a). Piezometer locations corresponded to the edges of NAPL seeps. Once in place the small diameter (0.125 inch) probes were then attached to a manometer board. A manometer board enables simultaneous measurements of the probes and surface water levels.

To calculate gradient, the head difference between the surface water level (stage) and the groundwater (inside probe level) was measured. The difference in water level between the probe and the stream indicates the direction of water flow. When the probe head exceeds (is higher than) the stream stage, groundwater discharge into the stream can be inferred. Similarly, when the stream stage exceeds the probe head, loss of water from the stream to groundwater can be inferred. The vertical hydraulic gradient between the stream and instream piezometers was calculated using the following equation:

$$iv = dh/dl$$

- PAHs and PCP, by EPA SW-846 Method 8270C-SIM; and
- Total metals (arsenic, chromium, copper, and zinc), by EPA SW-846 Method 6020.

2.5 Pore Water Sampling

The objective of this task was to collect pore water samples for chemical analysis. Pore water was collected from the same locations where groundwater flux was measured. These locations include near the FWDA, near the former creosote dock, and in Willamette Cove. Samples were collected during ebb-tide cycles using seepage meters. Seepage meters are described in subsection 2.3.2 of this report. A more detailed description is presented in the *Sampling and Analysis Plan* (E & E 2003, Appendix A). The Tevlar bags were collected and submitted for the following analysis.

- PAHs and PCP, by EPA SW-846 Method 8270C-SIM;
- Total and dissolved metals (arsenic, chromium, copper, and zinc), by EPA SW-846 Method 6020; and
- Semivolatile petroleum hydrocarbons, by Method NWTPH-Dx.

2.6 Surface Water Sampling

The objective of this task was to collect surface water samples for chemical analysis, and to assess surface water conditions upstream of the McCormick & Baxter site. Surface water sampling, conducted by OSU, included grab sampling (subsections 2.5.1 and 2.5.2) and PSDs (subsection 2.5.3). Surface water sampling by OSU for E & E was limited to grab sampling.

2.6.1 Surface Water Grab Sampling – E & E

On October 16, 2003, OSU personnel collected 21 surface water grab samples for E & E. OSU then submitted samples directly to E & E's contract laboratory. Sample locations were determined based on previous surface water sampling conducted in 2002. In general, sample locations were selected to roughly correlate to the same locations sampled in 2002. Samples were collected from the surface water column approximately 1 foot above the river bottom. A total of 0.49 inches of precipitation was recorded by the Oregon Climatic Center 72 hours prior to sampling. Surface water grab surface water grab samples submitted to STL were analyzed for:

- PAHs and PCP by EPA SW-847 Method 8270C-SIM;
- Total metals (arsenic, chromium, copper, and zinc), by EPA SW-846 Method 6020;
- Total suspended solids, by EPA Method 160.2; and
- Dissolved organic carbon, by EPA Method 415.1.

Deviations from the SAP included:

Upon collection, the length of each crayfish was recorded. Crayfish were placed in plastic bags on ice for submittal to the laboratory. Crayfish were submitted to STL for whole body tissue homogenization and analysis. Analyses included:

- Percent lipids, by EPA Method 8290;
- Metals (arsenic, chromium, copper, and zinc), by EPA Method 6020;
- PAHs and PCP, by EPA Method 8270C; and
- Dioxins/furans, by EPA Method 8290.

3 Sampling Results

This section presents the results of the 2003 sampling event. Sample results are presented by media type including near shore groundwater, pore water, surface water, and crayfish. This section also presents the results of the NAPL flux and vertical gradient measurements as well as the results of the seep delineation investigation.

The contaminants of concern (COCs), identified in the EPA Region 10, *Record of Decision* (1996) for McCormick & Baxter, are listed in Table 3. Tables within this report list only COCs. A copy of the complete laboratory report can be found in Appendix B.

3.1 NAPL Flux Measurement

A total of 10 absorbent pads were submitted to STL. E & E instructed STL to analyze only 3 of these 10 pads (MBNLGB03-01, MBNLGB03-09, and MBNLGB03-10) for NAPL mass determination by EPA Method 1664 because little to no product was observed on the pads. This deviation in sampling was communicated to DEQ. The pads submitted to STL contained the most visible NAPL. STL informed E & E that EPA Method 1664 was only valid for analysis of water samples and suggested that Method NWTPH-Dx be used to determine the content of semivolatile petroleum hydrocarbons in each pad. Subsequent to receipt of the NWTPH-Dx results, a blank absorbent pad was requested by STL to evaluate contaminants detected on the sample pads. The blank pad (MBNLGB03-BLANK) was submitted to STL for analysis by NWTPH-Dx.

In the data package submitted for MBNLGB03-01, MBNLGB03-09, and MBNLGB03-10, STL stated that:

> The contaminants present in the diesel range and heavy oil range for samples 116724-2, 116724-9, and 116724-10 does not appear to be "typical" product. The filter fabric may have organics which leached into the solvent during extraction. (STL, 2003)

Semivolatile petroleum hydrocarbons were detected in the No.2 diesel range at concentrations ranging from 604 milligrams per kilogram (mg/kg) to 922 mg/kg

PCP was detected in six [MBGWMH0302 (14 inches), MBGWMH0302 (36 inches), MBGWMH0303 (14 inches), MBGWMH0303 (36 inches), MBGWMH0305 (14 inches), and MBGWMH0308 (72 inches)] of the 24 groundwater samples. The highest concentration was detected in MBGWMH0303 (36 inches) at 0.0109 µg/L and the lowest concentration was detected in MBGWMH0308 (72 inches) at 0.052 µg/L.

Arsenic, chromium, copper, and zinc were detected in all of the near-shore groundwater samples. Arsenic and zinc exhibited the highest total metal concentration, with arsenic at 72.2 µg/L in MBGWMH0302 (14 inches) and zinc at 119 µg/L in MBGWMH0305 (36 inches). The highest concentrations of chromium and copper were also detected in MBGWMH0305 (36 inches) at 33 µg/L and 38.4 µg/L, respectively.

3.4 Pore Water Sampling

Thirteen pore water samples were collected for analysis during the 2003 sampling event and analyzed for PAHs, PCP, and total metals. PAHs were detected in all of the samples with pyrene generally exhibiting the highest concentrations of the COCs. At sample location 9, acenaphthene, naphthalene, and fluorene exhibited the highest concentrations of the COCs. Analytical results for pore water sampling are summarized in Table 8. Concentrations for acenaphthene, phenanthrene, and total PAHs are depicted in Figure 6 and a histogram of total PAHs is presented in Figure 7.

PCP was detected in 5 of the 13 samples collected for analysis, ranging in concentration from 0.0514 to 3.60 µg/L in MBPWSM0306 and MBPWSM0307, respectively. Chromium, copper, and zinc were detected in all 13 samples. Arsenic was detected in 11 of the 13 samples analyzed.

Motor oil range organics were not detected in any of the pore water samples. Diesel range organics were detected in 4 of the 13 samples with the highest concentrations occurring at location 5 (2,230 µg/L).

3.5 Surface Water Sampling

Surface water sampling, conducted by E & E and OSU, included grab sampling (subsections 2.5.1 and 2.5.2), and the use of PSDs by OSU (subsection 2.5.3).

3.5.1 Surface Water Grab Samples – E & E

Twenty-one grab samples were collected by OSU for E & E and analyzed for PAHs and PCP, total metals (arsenic, chromium, copper, and zinc), total suspended solids and dissolved organic carbon.

Nine of the 21 samples exhibited PAH concentrations above the detectable limits. The most commonly detected PAHs were fluoranthene and pyrene.

sets. Dr. Anderson intends to re-analyze several of the samples to confirm the results.

3.5.3 Surface Water PSD Samples

A total of 13 samples were submitted for total metal analysis. Chromium, cadmium, and lead were not detected in any of the samples. Zinc was detected in all 13 samples, while copper detections were determined semi-qualitatively in all 13 samples. A total of 14 samples were submitted for PAH and PCP analysis, and are shown in Figure 8b. Analytical results for the OSU PSD surface water samples are included in the OSU analytical report in Appendix A.

3.6 Crayfish Tissue Sampling

Arsenic was not detected in any of the composite crayfish samples. Chromium was detected in all four composites at concentrations ranging from 2.55 milligrams per kilogram-wet weight basis (mg/kg-wet; MBCFGB03-01) to 3.59 mg/kg-wet (MBCFGB03-04). Copper was detected in all four composites at concentrations ranging from 66.0 mg/kg-wet (MBCFGB03-03) to 96.9 mg/kg-wet (MBCFGB03-02). Zinc was detected in all four composites at concentrations ranging from 68.2 mg/kg (MBCFGB03-02) to 76.8 mg/kg (MBCFGB03-01).

The crayfish composite samples were analyzed for percent lipids and dioxin/furan congener concentrations by STL using EPA Method 8290. 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) toxic equivalency factors established by the World Health Organization (Van den Berg et al. 1998) were used to calculate a 2,3,7,8-TCDD toxic equivalency quotient (TEQ) for each sample based on the dioxin/furan congener concentrations.

As mentioned in the Sampling and Analysis Plan, a health advisory is in effect for the commercial harvesting of crayfish in the Willamette River due to elevated levels of dioxins/furans (E & E, 2003). In particular, the Oregon Department of Human Services has established a level of concern for dioxin/furans at 0.9 nanograms per kilogram – wet weight (ng/kg-wet). The 2,3,7,8-TCDD TEQs were compared to a value of 0.9 ng/kg-wet to evaluate the current human health risk advisory. Dioxins/furans were detected in all four composites with 2,3,7,8-TCDD TEQs ranging from 0.14 ng/kg-wet (MBCFGB03-03) to 1.9 ng/kg-wet (MBCFGB03-04). Two of the four composites (MBCFGB03-01, 1.7 ng/kg-wet and MBCFGB03-04, 1.9 ng/kg) exceeded the 2,3,7,8-TCDD TEQ of 0.9 ng/kg-wet. MBCFGB03-01 was collected at the upstream portion of the lagoon near a historic outfall and historic location of high detection of dioxins/furans in sediment. MBCFGB03-04 was collected in Willamette Cove.

PAHs were detected in all four of the composite samples. Total PAH concentrations ranged from 31.2 μg/kg (MBCFGB03-01) to 199 μg/kg (MBCFGB03-02). Carcinogenic PAHs were not detected in any of the four composite samples. Analytical results for crayfish tissue samples are summarized in Table 10, and are shown in Figure 9.

4 Summary

The fall 2003 sampling event was a joint effort between E & E, DEQ, and Dr. Kim Anderson at OSU, to collect surface water, pore water, and near-shore groundwater samples for analysis of PAHs, PCP, and metals (arsenic, chromium, copper, and zinc). Additional analysis included total suspended solids, dissolved organic carbon, and semivolatile petroleum hydrocarbons. E & E also collected crayfish samples for analysis of metals (arsenic, chromium, copper, and zinc), PAHs, and dioxins/furans compounds.

The most commonly detected PAHs (of the COCs) were acenaphthene, fluoranthene, fluorene, naphthalene, and phenanthrene. The highest overall concentrations were detected in near-shore groundwater samples. The lowest overall concentrations detected were in surface water grab samples. As discussed in the following subsections, groundwater flow measurements and some analytical results may indicate that the creosote dock seep area may act as a prime contaminant source area to the river, when compared to the other seep areas.

The following subsections summarize each of the field components of the September through October 2003 sampling event. Field Notes related to the 2003 sampling event are included in Appendix C.

4.1 NAPL Flux Measurement

The objective of the NAPL flux measurement was to provide information to further refine variables used in the permeation model for design of the sediment cap by evaluating the volume of NAPL entering the Willamette River through previously identified seeps.

On September 26, 2003, E & E placed adsorbent pads along the shoreline in the areas of previously identified NAPL seeps including the areas along the Willamette Cove, FWDA, creosote dock area, and the TFA. The initial effort was unsuccessful as the adsorbent pads were washed away by the rising tide. A second attempt was made on October 7, 2003, by placing a total of 10 adsorbent pads at the same seep locations. Upon retrieval, no NAPL was observed on the adsorbent pads.

During rising tide conditions, negative gradients were more common, and positive gradients measured were generally less than that observed during ebb tide. The largest negative gradient observed was –1.40 centimeters in the shallow probe located near the FWDA seep (MBGWMH03-03). Manometer readings from the 2002 sampling event showed a similar pattern of negative gradients during the rising tide, although to a lesser degree (-0.08 cm). Based on these results, near-shore groundwater vertical gradients appear to increase during ebb tide conditions, and decrease during rising tide conditions.

Groundwater flux was measured using seepage meters, which measure the volumetric change over a given area (area of the seepage meter). The results showed the greatest seepage or flux occurred in the area of the creosote dock seep, with a volumetric change of 322.73 milliliters per hour (mL/hr) to 430 mL/hr at sample locations MBPWSM03-06 and MBPWSM07, respectively. These rates were generally an order of magnitude greater than those observed at the remaining locations, possibly indicating an area of greater flux. Similar results were observed in the Creosote dock area during the 2002 sampling event. Information obtained from this investigation will be utilized to better refine the conceptual site model and for use in the site groundwater model.

4.4 Near-Shore Groundwater Sampling

In order to meet the objective of evaluating near-shore groundwater contamination, E & E collected groundwater samples from each of the mini-piezometers (subsection 4.3). Samples were analyzed for total metals (arsenic, chromium, copper, and zinc), PCP, and PAHs. In general, varying levels of contaminants were detected at each sampling locations. However, the sampling location exhibiting the highest levels of PAH and metals contamination was observed in the area of the creosote dock. Total PAH concentrations in this location exceeded 61,000 µg/L (MBGWMH0301 [36 inches]). The highest metals concentration was also detected in the area of the creosote dock at sample location MBGWMH0302 (36 inches). Total arsenic at this location was reported at 58.5 µg/L. The presence of higher levels of groundwater contamination near the creosote dock seep may reflect the higher seepage rates observed. In 2002, the highest concentrations of PAHs (97,797 ug/L) and metals (arsenic at 395 ug/L) observed in groundwater samples were also found in the area of the creosote dock.

4.5 Pore Water Sampling

Pore water samples were also collected to evaluate contaminant concentrations entering the river. Samples were collected from the Tevlar bag attached to each seepage meter. Seepage meters were located near existing seeps. Samples were analyzed for diesel and heavy oil range petroleum compound, PCP, total metals, and PAHs. In general, total metal and PAH contaminants were observed at most sampling locations. The highest concentrations of total metals, PAHs, and diesel range petroleum hydrocarbons were observed in samples collected from the FWDA and Willamette Cove areas. The highest arsenic concentration reported

According to the Oregon Department of Human Services, the level of concern for dioxin/furans in crayfish tissue is 0.9 ng/kg-wet. Total dioxin/furan in crayfish tissue ranged from 0.14 to 1.9 ng/kg-wet in samples MBCFGB03-03 and MBCFGB03-04, respectively. The two highest dioxin/furan concentrations were observed in the Willamette Cove area and upstream of the creosote dock, at 1.7 and 1.9 ng/kg-wet, which exceeds the 0.9 ng/kg-wet level of concern.

Total PAH concentrations ranged from 31.2 to 199 μg/kg-dry in samples MBCFGB03-01 and MBCFGB03-02, respectively. Arsenic was not detected above the laboratory reporting limit. The highest chromium concentration reported was 96.9 mg/kg-dry in sample MBCFGB03-02 collected from the creosote dock area.

5 References

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Table 1
Sample Location and Identification Key
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Digits	Description	Code	Code Description
1 and 2	Site Location	MB	McCormick & Baxter Site
3 and 4	Matrix	SW	Surface Water
		PW	Pore Water
		GW	Groundwater
		NL	NAPL
		CF	Crayfish
5 and 6	Sampling Method	GB	Grab Sample
		PS	Passive Sampling Device
		MH	MHE Push Point Sampler
		SM	Seepage Meter
		CS	Composite Sample
7 and 8	Year	03	2003
9, 10, and 11	Sample Number	01, 02, ...	--

Example: MBSWGB03-01 - Grab surface water sample collected at first location at the McCormick & Baxter site in 2003.

Table 2
Sampling Summary
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Sample Matrix	Sample ID	Date	Sampling Team	Sampling Location	Sampling Method	Sample Depth	GPS Latitude	GPS Longitude	Sample Analysis	EPA Analytical Method
NAPL	MBNLGB03-01	10/7/2003	E & E	Creosote Dock Area	Grab	Surface	45.577546452	-122.741375976	NA	NA
NAPL	MBNLGB03-02	10/7/2003	E & E	Creosote Dock Area	Grab	Surface	45.577680902	-122.741763437	Petroleum Hydrocarbons	NW-TPH-Dx
NAPL	MBNLGB03-03	10/7/2003	E & E	Former Waste Disposal Area	Grab	Surface	NM	NM	NA	NA
NAPL	MBNLGB03-04	10/7/2003	E & E	Former Waste Disposal Area	Grab	Surface	NM	NM	NA	NA
NAPL	MBNLGB03-05	10/7/2003	E & E	Former Waste Disposal Area	Grab	Surface	45.578063828	-122.743903738	NA	NA
NAPL	MBNLGB03-06	10/7/2003	E & E	Former Waste Disposal Area	Grab	Surface	45.578125390	-122.744216991	NA	NA
NAPL	MBNLGB03-07	10/7/2003	E & E	Former Waste Disposal Area	Grab	Surface	45.578094371	-122.744798057	NA	NA
NAPL	MBNLGB03-08	10/7/2003	E & E	Former Waste Disposal Area	Grab	Surface	45.578240103	-122.745036274	NA	NA
NAPL	MBNLGB03-09	10/7/2003	E & E	Willamette Cove Area	Grab	Surface	45.579146014	-122.745202341	Petroleum Hydrocarbons	NW-TPH-Dx
NAPL	MBNLGB03-10	10/7/2003	E & E	Willamette Cove Area	Grab	Surface	45.579263220	-122.745106007	Petroleum Hydrocarbons	NW-TPH-Dx
NAPL	MBNLGB03-Blank		E & E		Grab	Not Applicable	NM	NM	Petroleum Hydrocarbons	NW-TPH-Dx
Groundwater[1]	MBGWMH0301 (14")	10/1/2003	E & E	Creosote Dock Area	MHE Push Point Sampler	14 inches bgs[1]	45.5773	-122.74071	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0301 (36")	10/1/2003	E & E	Creosote Dock Area	MHE Push Point Sampler	36 inches bgs[1]	45.5773	-122.74071	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0301 (72")	10/1/2003	E & E	Creosote Dock Area	MHE Push Point Sampler	72 inches bgs[1]	45.5773	-122.74071	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0302 (14")	10/1/2003	E & E	Creosote Dock Area	MHE Push Point Sampler	14 inches bgs[1]	45.57774	-122.74197	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0302 (36")	10/1/2003	E & E	Creosote Dock Area	MHE Push Point Sampler	36 inches bgs[1]	45.57774	-122.74197	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0302 (72")	10/1/2003	E & E	Creosote Dock Area	MHE Push Point Sampler	72 inches bgs[1]	45.57774	-122.74197	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0303 (14")	10/1/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	14 inches bgs[1]	45.57802	-122.74377	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0303 (36")	10/1/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	36 inches bgs[1]	45.57802	-122.74377	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0303 (72")	10/1/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	72 inches bgs[1]	45.57802	-122.74377	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0304 (14")	10/1/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	14 inches bgs[1]	45.57813	-122.74442	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0304 (36")	10/1/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	36 inches bgs[1]	45.57813	-122.74442	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0304 (72")	10/1/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	72 inches bgs[1]	45.57813	-122.74442	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0305 (14")	10/1/2003	E & E	Willamette Cove Area	MHE Push Point Sampler	14 inches bgs[1]	45.5793	-122.7451	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0305 (36")	10/1/2003	E & E	Willamette Cove Area	MHE Push Point Sampler	36 inches bgs[1]	45.5793	-122.7451	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0305 (72")	10/1/2003	E & E	Willamette Cove Area	MHE Push Point Sampler	72 inches bgs[1]	45.5793	-122.7451	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0305 (72") Duplicate	10/1/2003	E & E	Willamette Cove Area	MHE Push Point Sampler	72 inches bgs[1]	45.5793	-122.7451	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0306 (14")	10/1/2003	E & E	Willamette Cove Area	MHE Push Point Sampler	14 inches bgs[1]	45.57904	-122.74529	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0306 (36")	10/1/2003	E & E	Willamette Cove Area	MHE Push Point Sampler	36 inches bgs[1]	45.57904	-122.74529	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0306 (72")	10/1/2003	E & E	Willamette Cove Area	MHE Push Point Sampler	72 inches bgs[1]	45.57904	-122.74529	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0307 (14")	10/2/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	14 inches bgs[1]	45.57833	-122.74491	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0307 (36")	10/2/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	36 inches bgs[1]	45.57833	-122.74491	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0307 (72")	10/2/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	72 inches bgs[1]	45.57833	-122.74491	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0308 (14")	10/2/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	14 inches bgs[1]	45.5782	-122.74521	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0308 (36")	10/2/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	36 inches bgs[1]	45.5782	-122.74521	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Groundwater[1]	MBGWMH0308 (72")	10/2/2003	E & E	Former Waste Disposal Area	MHE Push Point Sampler	72 inches bgs[1]	45.5782	-122.74521	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-01	9/30/2003	E & E	Between the Creosote Dock Area and Triangle Park LLC	Seepage Meter	Ground Surface	45.576260	-122.738830	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-02	9/30/2003	E & E	Between the Creosote Dock Area and Triangle Park LLC	Seepage Meter	Ground Surface	45.576750	-122.739830	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-03	9/30/2003	E & E	Creosote Dock Area	Seepage Meter	Ground Surface	45.577130	-122.740420	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-04	9/30/2003	E & E	Creosote Dock Area	Seepage Meter	Ground Surface	45.5774	-122.7411	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-05	9/30/2003	E & E	Creosote Dock Area	Seepage Meter	Ground Surface	45.577610	-122.741680	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-06	9/30/2003	E & E	Creosote Dock Area	Seepage Meter	Ground Surface	45.577720	-122.742020	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-07	9/30/2003	E & E	Creosote Dock Area	Seepage Meter	Ground Surface	45.577660	-122.742750	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-08	9/30/2003	E & E	Former Waste Disposal Area	Seepage Meter	Ground Surface	45.577840	-122.743470	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020

Table 2
Sampling Summary
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Sample Matrix	Sample ID	Date	Sampling Team	Sampling Location	Sampling Method	Sample Depth	GPS Latitude	GPS Longitude	Sample Analysis	EPA Analytical Method
Pore Water	MBPWSM03-09	9/30/2003	E & E	Former Waste Disposal Area	Seepage Meter	Ground Surface	45.578100	-122.744410	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-10	9/30/2003	E & E	Former Waste Disposal Area	Seepage Meter	Ground Surface	45.578070	-122.744620	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-11	9/30/2003	E & E	Willamette Cove Area	Seepage Meter	Ground Surface	45.578510	-122.745620	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-12	9/30/2003	E & E	Willamette Cove Area	Seepage Meter	Ground Surface	45.579270	-122.745180	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-13	9/30/2003	E & E	Near island in the Former Waste Disposal Area	Seepage Meter	Ground Surface	45.577590	-122.743590	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM03-14	9/30/2003	E & E	Near island in the Former Waste Disposal Area	Seepage Meter	Ground Surface	45.577250	-122.743060	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Pore Water	MBPWSM0315 (MBPWSM0313 DUP)	9/30/2003	E & E	Near island in the Former Waste Disposal Area	Seepage Meter	Ground Surface	NM	NM	PAHs, PCP, total metals	EPA Methods 8270C-SIM, 6020
Surface Water	MBSWGB0301	10/16/2003	E & E / OSU[2]	Between the Creosote Dock Area and Triangle Park LLC	Grab	1 foot above river bottom	45° 34' 34" N	122° 44' 29" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0305	10/16/2003	E & E / OSU[2]	Creosote Dock Area	Grab	1 foot above river bottom	45° 34' 30" N	122° 44' 31" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0306	10/16/2003	E & E / OSU[2]	Creosote Dock Area	Grab	1 foot above river bottom	45° 34' 38" N	122° 44' 30" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0307	10/16/2003	E & E / OSU[2]	Adjacent to Triangle Park LLC	Grab	1 foot above river bottom	NM	NM	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0309	10/16/2003	E & E / OSU[2]	Creosote Dock Area	Grab	1 foot above river bottom	45° 34' 39" N	122° 44' 32" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2. 415.1
Surface Water	MBSWGB0310	10/16/2003	E & E / OSU[2]	Creosote Dock area-South of Island	Grab	1 foot above river bottom	45° 34' 37" N	122° 44' 35" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160 2, 415.1
Surface Water	MBSWGB0311	10/16/2003	E & E / OSU[2]	Former Waste Disposal Area	Grab	1 foot above river bottom	NM	NM	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0312	10/16/2003	E & E / OSU[2]	Former Waste Disposal Area	Grab	1 foot above river bottom	45° 34' 41" N	122° 44' 41" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0314	10/16/2003	E & E / OSU[2]	Former Waste Disposal Area	Grab	1 foot above river bottom	45° 34' 40" N	122° 44' 44" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160 2, 415.1
Surface Water	MBSWGB0315	10/16/2003	E & E / OSU[2]	Willamette Cove Area	Grab	1 foot above river bottom	NM	NM	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0316	10/16/2003	E & E / OSU[2]	Willamette Cove Area	Grab	1 foot above river bottom	45° 34' 36" N	122° 44' 25" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0317	10/16/2003	E & E / OSU[2]	Downstream from FWDA	Grab	1 foot above river bottom	NM	NM	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0318	10/16/2003	E & E / OSU[2]	Willamette Cove Area	Grab	1 foot above river bottom	45° 34' 43" N	122° 44' " W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160 2, 415.1
Surface Water	MBSWGB0321	10/16/2003	E & E / OSU[2]	Creosote Dock area	Grab	1 foot above river bottom	45° 34' 37" N	122° 44' 21" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0322	10/16/2003	E & E / OSU[2]	Former Waste Disposal Area	Grab	1 foot above river bottom	NM	NM	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2. 415.1
Surface Water	MBSWGB0323	10/16/2003	E & E / OSU[2]		Grab	1 foot above river bottom	45° 34' 34" N	122° 44' 31" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2. 415.1
Surface Water	MBSWGB0324	10/16/2003	E & E / OSU[2]	Former Waste Disposal Area	Grab	1 foot above river bottom	45° 34' 41" N	122° 44' 43" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0325	10/16/2003	E & E / OSU[2]	Between the Creosote Dock Area and Triangle Park LLC	Grab	1 foot above river bottom	45° 34' 35" N	122° 44' 21" W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0326	10/16/2003	E & E / OSU[2]	Between the Creosote Dock Area and Triangle Park LLC	Grab	1 foot above river bottom	45° 34' 43" N	122° 44' " W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	MBSWGB0327	10/16/2003	E & E / OSU[2]	Former Waste Disposal Area-South of Island	Grab	1 foot above river bottom	NM	NM	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1

Table 2
Sampling Summary
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Sample Matrix	Sample ID	Date	Sampling Team	Sampling Location	Sampling Method	Sample Depth	GPS Latitude	GPS Longitude	Sample Analysis	EPA Analytical Method
Surface Water	MBSWGB0328	10/16/2003	E & E / OSU[2]	Willamette Cove Area	Grab	1 foot above river bottom	45° 34' 47" N	122° 44' " W	PAHs, PCP, total metals, TSS, DOC	EPA Methods 8270C-SIM, 6020,160.2, 415.1
Surface Water	1	10/2/04 & 10/16/04	OSU	Between the Creosote Dock Area and Triangle Park LLC	Grab[3], PSD, PSD-DGTs	17 feet[4]	45°34'32" N	122°44'21"W	PAHs, PCP, total metals	See note[5]
Surface Water	5	10/2/04 & 10/16/04	OSU	Creosote Dock Area	Grab[3], PSD, PSD-DGTs	6 feet[4]	45°34'32" N	122°44'30"W	PAHs, PCP, total metals	See note[5]
Surface Water	6	10/2/04 & 10/16/04	OSU	Creosote Dock Area	Grab[3], PSD, PSD-DGTs	6 feet[4]	45°34'32" N	122°44'30"W	PAHs, PCP, total metals	See note[5]
Surface Water	9	10/2/04 & 10/16/04	OSU	Creosote Dock Area	Grab[3], PSD, PSD-DGTs	7 feet[4]	45°34'32" N	122°44'32"W	PAHs, PCP, total metals	See note[5]
Surface Water	10	10/2/04 & 10/16/04	OSU	Creosote Dock area-South of Island	Grab[3], PSD, PSD-DGTs	5 feet[4]	45°34'32" N	122°44'35"W	PAHs, PCP, total metals	See note[5]
Surface Water	11	10/2/04 & 10/16/04	OSU	Former Waste Disposal Area	Grab[3], PSD, PSD-DGTs	5 feet[4]	45°34'32" N	122°44'49"W	PAHs, PCP, total metals	See note[5]
Surface Water	12	10/2/04 & 10/16/04	OSU	Former Waste Disposal Area	Grab[3], PSD, PSD-DGTs	13 feet[4]	45°34'32" N	122°44'41"W	PAHs, PCP, total metals	See note[5]
Surface Water	14	10/2/04 & 10/16/04	OSU	Former Waste Disposal Area	Grab[3], PSD, PSD-DGTs	37 feet[4]	45°34'32" N	122°44'44"W	PAHs, PCP, total metals	See note[5]
Surface Water	15	10/2/04 & 10/16/04	OSU	Willamette Cove Area	Grab[3], PSD, PSD-DGTs	4 feet[4]	45°34'32" N	122°44'43"W	PAHs, PCP, total metals	See note[5]
Surface Water	16	10/2/04 & 10/16/04	OSU	Willamette Cove Area	Grab[3], PSD, PSD-DGTs	13 feet[4]	45°34'32" N	122°44'46"W	PAHs, PCP, total metals	See note[5]
Surface Water	21	10/2/04 & 10/16/04	OSU	Creosote Dock area	Grab[3], PSD, PSD-DGTs	4 feet[4]	45°34'32" N	122°44'28"W	PAHs, PCP, total metals	See note[5]
Surface Water	22	10/2/04 & 10/16/04	OSU	Former Waste Disposal Area	Grab[3], PSD, PSD-DGTs	5 feet[4]	45°34'32" N	122°44'49"W	PAHs, PCP, total metals	See note[5]
Surface Water	23	10/2/04 & 10/16/04	OSU		Grab[3], PSD, PSD-DGTs	NM	NM	NM	PAHs, PCP, total metals	See note[5]
Surface Water	24	10/2/04 & 10/16/04	OSU	Former Waste Disposal Area	Grab[3], PSD, PSD-DGTs	24 feet[4]	45°34'41" N	122°44'43"W	PAHs, PCP, total metals	See note[5]
Crayfish	MBCFGB03-01	10/14/2003	E & E	Between Creosote Dock Area and Triangle Park LLC	Composite Sample	River Bottom	45° 34.60	122° 44.40	Percent Lipid, PAHs, PCP, total metals, dioxin/furans	EPA Methods 8290, 8270C-SIM, 6020
Crayfish	MBCFGB03-02	10/14/2003	E & E	Creosote Dock Area	Composite Sample	River Bottom	45° 34.64	122° 44.55	Percent Lipid, PAHs, PCP, total metals, dioxin/furans	EPA Methods 8290, 8270C-SIM, 6020
Crayfish	MBCFGB03-03	10/14/2003	E & E	Former Waste Disposal Area	Composite Sample	River Bottom	45° 34.67	122° 44.66	Percent Lipid, PAHs, PCP, total metals, dioxin/furans	EPA Methods 8290, 8270C-SIM, 6020
Crayfish	MBCFGB03-04	10/14/2003	E & E	Willamette Cove Area	Composite Sample	River Bottom	45° 34.76	122° 44.73	Percent Lipid, PAHs, PCP, total metals, dioxin/furans	EPA Methods 8290, 8270C-SIM, 6020

[1] Near-shore groundwater sampling
[2] Samples collected by Oregon State University for E & E. Samples subitted to Savren Trent Laboratories by E & E.
[3] Two sets of grab samples were collected by OSU. One grab sample was collected on 10/2/04 during PSD deployment, and a second grab sample was collected during PSD retrieval on 10/16/04. The PSD-DGT at site 23 was not recovered.
[4] Approximated water depth
[5] Samples analyzed by Food Safety and Environmental Stewardship Laboratory at OSU by the following methods: total metals (grab) - Labile/Bioavailability Elements by Anodic Stripping Voltammetry (ASV).

Note: PSD samples (metals) by dissolved/bioavailability Elements by ASV; dissolved/bioavailability PAHs and PCP by HPLC (DAD and Fluorescence.

Key:

bgs = Below ground surface.
DGT = Diffusive gel thinfilms.
DOC = Dissolved inorganic carbons.
NM = Not measured.
NA = Not analyzed.
OSU = Oregon State University.
PAH = Polynuclear aromatic hydrocarbon.
PCP = Pentochlorphenol.
PSD = Passive sampling device.
TSS = Total suspended solids.

Table 3 Contaminants of Concern Fall 2003 Sampling Event McCormick & Baxter Creosoting Company Site Portland, Oregon	
Contaminant of Concern	
Dioxins/Furan	
Pentachlorophenol	
Arsenic	
Chromium	
Copper	
Zinc	
Polynuclear Aromatic Hydrocarbons (PAHs)	
Acenaphthene	L
Acenaphthylene	L
Anthracene	L
Benzo[a]anthracene	H,C
Benzo[b]fluoranthene	H,C
Benzo[k]fluoranthene	H,C
Benzo[a]pyrene	H,C
Benzo[g,h,i]perylene	H
Chrysene	H,C
Dibenz[a,h]anthracene	H,C
Fluoranthene	H
Fluorene	L
Ideno[1,2,3-cd]pyrene	H,C
Naphthalene	L
Phenanthrene	L
Pyrene	H
Total LPAHs	
Total HPAHs	
Total Carcinogenic PAHs	
Total PAHs	

Key:

L = Low molecular weight PAH (LPAH)
H = High molecular weight PAH (HPAH)
C = Carcinogenic PAH

Table 4 NAPL Flux Sample Results Fall 2003 Sampling Event McCormick & Baxter Creosoting Company Site Portland, Oregon				
Contaminant of Concern	**MBNLGB03-Blank**	**MBNLGB03-02**	**MBNLGB03-09**	**MBNLGB03-10**
Date Sampled	--	**10/7/2003**	**10/7/2003**	**10/7/2003**
Semivolatile Petroleum Hydrocarbons (mg/kg)				
Diesel Range Organics	973	922	604	783
Motor Oil Range Organics	2,480	2,660	2,040	2,320

Key:

mg/kg = Milligrams per kilogram.

Table 5a
Manometer Readings During Ebb Tide
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Date	Location	Time	Probe Depth (feet below sediment surface)		(cm)	Groundwater Measurement (cm)	Surface Water Measurement (cm)	Head Difference (cm)	Vertical Gradient
10/1/2003	MBGWMH03-01 (TFA)	14:52	Shallow	0.85	25.91	52.5	48.0	5	0.17
			Intermediate	2.33	71.12	29.1	36.2	-7	-0.10
			Deep	5.25	160.02	54.6	57.7	-3	-0.02
10/1/2003	MBGWMH03-02 (TFA)	15:35	Shallow	0.79	24.13	65.7	59.1	7	0.27
			Intermediate	2.35	71.76	71.2	69.0	2	0.03
			Deep	5.13	156.21	69.6	37.5	32	0.21
10/1/2003	MBGWMH03-03 FWDA	16:39	Shallow	0.81	24.77	51.5	62.9	-11	-0.46
			Intermediate	2.43	73.99	59.3	56.8	3	0.03
			Deep	5.35	163.20	20.5	17.9	3	0.02
10/1/2003	MBGWMH03-04 FWDA	17:14	Shallow	0.84	25.73	58.2	41.8	16	0.64
			Intermediate	2.45	74.63	67.0	61.8	5	0.07
			Deep	5.33	162.56	42.5	43.3	-1	0.00
10/1/2003	MBGWMH03-05 Willamette Cove	19:00	Shallow	0.33	10.16	67.2	63.2	4	0.39
			Intermediate	2.44	74.30	unable to read	unable to read		
			Deep	5.38	163.83	unable to read	unable to read		
10/1/2003	MBGWMH03-06 Willamette Cove	18:25	Shallow	0.81	24.77	61.3	61.8	-1	-0.02
			Intermediate	2.73	83.19	77.0	68.6	8	0.10
			Deep	5.67	172.72	58.5	55.0	4	0.02

Table 5b
Manometer Readings During Rising Tide
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Date	Near Location	Time	Probe Depth (feet below sediment surface)		(cm)	Groundwater Measurement (cm)	Surface Water Measurement (cm)	Head Difference (cm)	Vertical Gradient
9/30/2003	MBGWMH03-01		Shallow	0.82	24.99	59.9	61.4	-2	-0.06
	(TFA)		Intermediate	2.47	75.29	52.2	60.8	-9	-0.11
	DEQ-Site #3		Deep	4.17	127.10	68.6	74.5	-6	-0.05
9/30/2003	MBGWMH03-02		Shallow	0.82	24.99	43.5	47.5	-4	-0.16
	(TFA)		Intermediate	2.16	65.84	61.9	59.6	2	0.03
	DEQ- Site #2		Deep	3.15	96.01	71.8	61.9	10	0.10
9/30/2003	MBGWMH03-03		Shallow	0.75	22.86	46.9	78.9	-32	-1.40
	FWDA		Intermediate	2.20	67.06	66.6	64.7	2	0.03
	DEQ-Site #5		Deep	5.22	159.11	78.6	67.5	11	0.07
9/30/2003	MBGWMH03-04		Shallow	1.00	30.48	74.4	71.3	3	0.10
	FWDA		Intermediate	2.53	77.11	50.2	44.3	6	0.08
	DEQ-Site #6		Deep	5.42	165.20	62.6	61.5	1	0.01
9/30/2003	MBGWMH03-05		Shallow	0.95	28.96	71.6	80.2	-9	-0.30
	Willamette Cove		Intermediate	2.64	80.47	57.2	72.0	-15	-0.18
	DEQ-Site #7		Deep	5.49	167.34	58.0	76.3	-18	-0.11
9/30/2003	MBGWMH03-06		Shallow	0.82	24.99	71.3	70.1	1	0.05
	Willamette Cove		Intermediate	2.65	80.77	69.0	74.8	-6	-0.07
	DEQ-Site #8		Deep	71.48	2178.71	60.8	58.5	2	0.00

Table 6
Seepage Meter (Groundwater Flux) Readings
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Sample ID/Tevlar bag Location	Date	Time Valve Was Opened	Time Valve Was Closed	Period	Time of Low Tide	Time of High Tide	Starting Volume (mL)	Ending Volume (mL)	Flux (mL)	Rate/Hour
MBPWSM03-01	10/1/2003	14:45	19:35	4.83	15:30	10:30	50	112	62	12.84
MBPWSM03-02	10/1/2003	14:49	19:55	5.1	15:30	10:30	50	78	28	5.49
MBPWSM03-03	10/1/2003	14:52	20:45	6.88	15:30	10:30	50	89	39	5.67
MBPWSM03-04	10/1/2003	14:44	20:44	6	15:30	10:30	50	125	75	12.50
MBPWSM03-05	10/1/2003	14:56	19:46	4.83	15:30	10:30	50	288	238	49.28
MBPWSM03-06	10/1/2003	14:57	20:33	5.6	15:30	10:30	50	2458	2408	430.00
MBPWSM03-07	10/1/2003	14:33	20:16	5.72	15:30	10:30	50	1896	1846	322.73
MBPWSM03-08	10/1/2003	14:59	20:09	5.17	15:30	10:30	50	192	142	27.47
MBPWSM03-09	10/1/2003	15:05	19:59	4.9	15:30	10:30	50	225	175	35.71
MBPWSM03-10	10/1/2003	15:07	20:10	5.05	15:30	10:30	50	295	245	48.51
MBPWSM03-11	10/1/2003	15:09	20:22	5.22	15:30	10:30	50	412	362	69.35
MBPWSM03-12	10/1/2003	15:04	20:25	5.35	15:30	10:30	50	496	446	83.36
MBPWSM03-13	10/1/2003	14:58	20:44	5.77	15:30	10:30	50	256	206	35.70
MBPWSM03-14	10/1/2003	15:10	20:43	5.55	15:30	10:30	50	244	194	34.95

Note: Samples collected in Tevlar bag.

Key:

ID = Identification.
mL = Millileter.

Table 7
Near-Shore Groundwater Results
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contaminant of Concern		MBGWMH0301 (14")	MBGWMH0301 (36")	MBGWMH0301 (72")	MBGWMH0302 (14")	MBGWMH0302 (36")	MBGWMH0302 (72")	MBGWMH0303 (14")
Date Sampled		10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003
Pentachlorophenol (µg/L)		5.22 U	265 U	5.15 U	0.0621 J	0.568 J	0.564 U	0.0546 J
Metals (µg/L)								
Arsenic		20.0	18.1	33.0	72.2	58.8	54.8	14.5
Chromium		2.22	3.40	2.16	1.83	3.46	2.33	5.72
Copper		1.94	4.97	2.67	1.38	4.26	3.72	11.5
Zinc		5.60	11.2	11.0	7.14	11.3	8.4	31.6
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)								
Acenaphthene	L	401	5,530	75.4	3.45	59.3	18.2	1
Acenaphthylene	L	1.31 U	66.1U	1.29 U	0.0134 U	0.139 U	0.141 U	0.01
Anthracene	L	11.8	1,380	5.89	0.171	0.697	0.586	0.039
Benzo[a]anthracene	H, C	1.77	1,040	0.515 U	0.050	0.0557 U	0.0975 J	0.00489 U
Benzo[b&k]fluoranthene	H, C	0.988 J	1,560	0.515 U	0.00534 U	0.116	0.106 J	0.00489 U
Benzo[a]pyrene	H, C	0.348 J	570	0.257 U	0.00267 U	0.0432 J	0.0282 U	0.00245 U
Benzo[g,h,i]perylene	H, C	1.31U	66.1 U	1.29 U	0.0134 U	0.139 U	0.141 U	0.012
Chrysene	H, C	2.00	514	0.582 J	0.053	0.0865 J	0.102 J	0.00489 U
Dibenzo[a,h]anthracene	H, C	0.261 U	13.2 U	0.257 U	0.00267 U	0.0278 U	0.0282 U	0.002
Fluoranthene	H	18.1	4,010	7.06	0.978	0.966	6.04	0.076
Fluorene	L	103	4,000	15.9	0.981	10.3	4.44	0.079
Indeno[1,2,3-cd]pyrene	H, C	0.261 U	13.2 U	0.257 U	0.00267 U	0.0284 J	0.0282 U	0.00245 U
Naphthalene	L	616	36,900	10.9	1.25	3.12	4.26	0.080
Phenanthrene	L	100	8,250	45.9	0.043	4.94	0.141 U	0.064
Pyrene	H	13.0	2,890	5.63	0.501	0.590	4.01	0.133
Total LPAHs		1,232	50,530	78.6	5.90	19.1	9.58	1.26
Total HPAHs		36.2	10,584	13.3	1.58	1.83	10.4	0.209
Total Carcinogenic PAHs		5.11	3,684	0.582	0.103	0.274	0.306	MRL
Total PAHs		1,268	61,114	91.9	7.48	20.9	19.9	0.48

Table 7
Near-Shore Groundwater Results
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contaminant of Concern		MBGWMH0303 (36")	MBGWMH0303 (72")	MBGWMH0304 (14")	MBGWMH0304 (36")	MBGWMH0304 (72")	MBGWMH0305 (14")	MBGWMH0305 (36")
Date Sampled		10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003
Pentachlorophenol (µg/L)		0.0547 U	0.0496 U	0.515 U	0.491 U	5.41 U	0.0611 J	5.29 U
Metals (µg/L)								
Arsenic		20.700	38.2	8.48	23.4	36.8	13.700	15.0
Chromium		4.420	4.85	8.25	2.26	3.57	4.000	33.0
Copper		5.120	6.06	11.2	1.76	4.28	5.900	38.4
Zinc		9.890	14.6	26.3	5.69	10.2	11.800	119
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)								
Acenaphthene	L	2.11	0.171	23.9	38.7	59.0	6.09	296
Acenaphthylene	L	0.0137 U	0.030	0.129 U	0.123 U	1.35	0.0128 U	1.32 U
Anthracene	L	0.041	0.400	0.357	1.09	1.35 U	0.490	1.32 U
Benzo[a]anthracene	H, C	0.00547 U	0.00496 U	0.127	0.131	0.541 U	0.016	0.529 U
Benzo[b&k]fluoranthene	H, C	0.00547 U	0.00496 U	0.387	0.0491 U	0.541 U	0.00513 U	0.529 U
Benzo[a]pyrene	H, C	0.00274 U	0.00248 U	0.219	0.0246 U	0.27 U	0.00257 U	0.265 U
Benzo[g,h,i]perylene	H, C	0.0137 U	0.0248 U	0.129 U	0.123 U	1.35 U	0.0128 U	1.32 U
Chrysene	H, C	0.00547 U	0.00	0.105	0.115	0.541U	0.014	0.529 U
Dibenzo[a,h]anthracene	H, C	0.00274 U	0.00248 U	0.0258 U	0.0246 U	0.541 U	0.00257 U	0.265 U
Fluoranthene	H	0.016	0.052	0.275	1.31	0.386 J	0.262	0.412 J
Fluorene	L	0.0142 J	0.025	10.2	8.35	32.5	3.96	119
Indeno[1,2,3-cd]pyrene	H, C	0.00274 U	0.00248 U	0.0258 U	0.0246 U	0.27 U	0.00257 U	0.529 U
Naphthalene	L	0.071	0.142	0.258 U	28.9	2.7 U	0.821	958
Phenanthrene	L	0.0244 J	0.049	1.42	6.28	8.12	0.069	6.38
Pyrene	H	0.117	0.115	0.334	1.09	0.554	0.161	0.265 J
Total LPAHs		2.26	0.817	35.9	83.3	99.6	11.4	1,380
Total HPAHs		0.133	0.167	1.45	2.65	0.940	0.453	0.84
Total Carcinogenic PAHs		MRL	MRL	0.838	0.246	MRL	0.030	MRL
Total PAHs		2.39	0.985	37.3	86.0	101	11.9	1,381

Table 7
Near-Shore Groundwater Results
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contaminant of Concern		MBGWMH0305 (72")	MBGWMH0305 (72") Duplicate	MBGWMH0306 (14")	MBGWMH0306 (36")	MBGWMH0306 (72")	MBGWMH0307 (14")	MBGWMH0307 (36")	MBGWMH0307 (72")
Date Sampled		10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/1/2003	10/2/2003	10/2/2003	10/2/2003
Pentachlorophenol (µg/L)		52.3 U	5.11 U	2.57 U	5.36 U	2.53 U	0.0483 U	0.0481 U	0.0484 U
Metals (µg/L)									
Arsenic		22.2	22.9	1.59	1.57	26.6	1.11	0.952	1.74
Chromium		1.83	1.95	2.19	2.33	7.94	2.51	4.13	5.15
Copper		1.71	2.89	1.34	1.77	11.6	2.03	2.46	1.73
Zinc		5.52	9.01	4.44	9.84	33.6	9.95	8.99	7.72
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)									
Acenaphthene	L	373	458	4.58	234	29.1	0.823	3.62	4.12
Acenaphthylene	L	13.1 U	1.28 U	0.644 U	1.34 U	0.633 U	0.0121 U	0.012 U	0.0121 U
Anthracene	L	13.1 U	1.62 J	0.644 U	12.1	0.633 U	0.362	0.437	0.443
Benzo[a]anthracene	H, C	5.23 U	0.511 U	0.257 U	0.536 U	0.253 U	0.018	0.018	0.017
Benzo[b&k]fluoranthene	H, C	5.23 U	0.511 U	0.257 U	0.536 U	0.253 U	0.014	0.015	0.013
Benzo[a]pyrene	H, C	2.62 U	0.256 U	0.129 U	0.268 U	0.127 U	0.007	0.008	0.006
Benzo[g,h,i]perylene	H, C	13.1 U	1.28 U	0.644 U	1.34 U	0.633 U	0.0121 U	0.012 U	0.0121 U
Chrysene	H, C	5.23 U	0.511 U	0.257 U	0.536 U	0.253 U	0.018	0.012	0.011
Dibenzo[a,h]anthracene	H, C	2.62 U	0.256 U	0.129 U	0.268 U	0.127 U	0.00241 U	0.00241 U	0.00242 U
Fluoranthene	H	2.62 U	1.12	0.189 J	11.1	0.409	0.660	0.651	0.628
Fluorene	L	101	110	0.644 U	129	1.58	0.902 J	2.31	2.77
Indeno[1,2,3-cd]pyrene	H, C	2.62 U	0.256 U	0.129 U	0.268 U	0.127 U	0.005	0.005	0.00242 U
Naphthalene	L	5,320	6,650	43.3	15.9	1.27 U	0.043 J	2.56	10.4
Phenanthrene	L	13.1 U	8.29	0.644 U	161	2.46	2.71	3.59	3.73
Pyrene	H	2.62 U	1.51	0.136 J	6.86	0.335	0.383	0.393	0.385
Total LPAHs		5,794	7,228	47.9	552	33.1	4.02	12.5	21.5
Total HPAHs		MRL	2.63	0.325	18.0	0.7	1.11	1.10	1.06
Total Carcinogenic PAHs		MRL	MRL	MRL	MRL	MRL	0.062	0.058	0.047
Total PAHs		5,794	7,231	48.2	570	33.9	5.13	13.6	22.5

Table 7
Near-Shore Groundwater Results
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contaminant of Concern		MBGWMH0308 (14")	MBGWMH0308 (36")	MBGWMH0308 (72")	MBGWMH03RN (Rinsate)
Date Sampled		**10/2/2003**	**10/2/2003**	**10/2/2003**	**10/2/2003**
Pentachlorophenol (µg/L)		0.0482 U	0.0482 U	0.052	0.05
Metals (µg/L)					
Arsenic		0.395 J	3.10	0.299 J	0.463 J
Chromium		5.78	7.50	6.24	1.84
Copper		2.20	6.55	2.99	0.396 J
Zinc		8.35	17.1	9.81	2.43
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)					
Acenaphthene	L	0.168	0.223	0.323	0.098
Acenaphthylene	L	0.012 U	0.0121 U	0.0125 U	0.013
Anthracene	L	0.302	0.287	0.261	0.013
Benzo[a]anthracene	H, C	0.034	0.022	0.014	0.005
Benzo[b&k]fluoranthene	H, C	0.00482 U	0.00482 U	0.004990 U	0.005
Benzo[a]pyrene	H, C	0.00241 U	0.00241 U	0.00249 U	0.003
Benzo[g,h,i]perylene	H, C	0.012 U	0.0121 U	0.0125 U	0.013
Chrysene	H, C	0.025	0.019	0.016	0.005
Dibenzo[a,h]anthracene	H, C	0.00241 U	0.00241 U	0.00249 U	0.003
Fluoranthene	H	0.857	0.710	0.573	0.003
Fluorene	L	0.368	0.407	0.525	0.013
Indeno[1,2,3-cd]pyrene	H, C	0.005 U	0.00241 U	0.00249 U	0.003
Naphthalene		0.616	0.471	1.07	0.131
Phenanthrene		2.39	2.48	2.11	0.0154 J
Pyrene		0.475	0.401	0.312	0.003
Total LPAHs		3.84	3.87	4.29	0.244
Total HPAHs		1.39	1.15	0.915	MRL
Total Carcinogenic PAHs		0.118	0.041	0.030	MRL
Total PAHs		5.23	5.02	5.20	0.244

Key:

-- Not Analyzed.
L low molecular weight PAH (LPAH).
H high molecular weight PAH (HPAH).
C Carcinogenic PAH.
MRL Method Reporting Limit.
J reported value is an estimate.

Table 8
Pore Water Grab Sample Results from Seepage Meters
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contaminant of Concern		MBPWSM0301	MBPWSM0302	MBPWSM0303	MBPWSM0304	MBPWSM0305	MBPWSM0306	MBPWSM0307
Date Sampled		9/30/2003	9/30/2003	9/30/2003	9/30/2003	9/30/2003	9/30/2003	9/30/2003
# Diesel Range Organics (µg/L)		130U	118 U	119 U	120U	2,230	123 U	124 U
Motor Oil Range Organics (µg/L)		260 U	237 U	237 U	239 U	241 U	246 U	248 U
Pentachlorophenol (µg/L)		0.048 U	0.0956 U	0.106	0.0642 J	0.581 J	0.0514 J	3.60
Metals (µg/L)								
Arsenic		0.25 U	0.48 J	0.486 J	0.786	2.10	1.61	0.25 U
Chromium		1.61	1.53	1.82	1.75	1.80	1.88	1.76
Copper		1.14	1.17	1.48	2.02	3.39	1.47	1.61
Zinc		20.6	2.65	3.75	4.26	9.52	3.66	3.30
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)								
Acenaphthene	L	0.012 U	0.012 U	0.0171 J	0.012 U	3.82	0.0121 U	0.0126 U
Acenaphthylene	L	0.012 U	0.012 U	0.0121 U	0.012 U	4.05	0.209	0.0126 U
Anthracene	L	0.024 U	0.012 U	0.0599	0.012 U	0.195 J	0.036	0.0148 J
Benzo[a]anthracene	H, C	0.0048 U	0.00478 U	0.00486 U	0.00479 U	0.139	0.00485 U	0.00502 U
Benzo[b,k]fluoranthene	H, C	0.0048 U	0.00478 U	0.0626	0.00479 U	0.0671 J	0.00485 U	0.00502 U
Benzo[a]pyrene	H, C	0.0024 U	0.00239 U	0.00243 U	0.00239 U	0.0241 U	0.00242 U	0.00251 U
Benzo[g,h,i]perylene	H, C	0.024 U	0.012 U	0.0121 U	0.012 U	0.12 U	0.0121 U	0.0126 U
Chrysene	H, C	0.00961 U	0.00478 U	0.00486 U	0.00479 U	0.101	0.00485 U	0.00502 U
Dibenzo[a,h]anthracene	H, C	0.048 U	0.00239 U	0.00243 U	0.00239 U	0.0241 U	0.00242 U	0.00251 U
Fluoranthene	H	0.048 U	0.00239 U	0.121	0.00239 U	6.47	0.014	0.00251 U
Fluorene	L	0.012 U	0.012 U	0.02 J	0.012 U	0.993	0.043	0.0126 U
Indeno[1,2,3-cd]pyrene	H, C	0.0024 U	0.00239 U	0.00243 U	0.00239 U	0.0241 U	0.00242 U	0.00251 U
Naphthalene	L	0.024 U	0.0239 U	0.0243 U	0.0239 U	0.241 U	0.0242 U	0.0251 U
Phenanthrene	L	0.012 U	0.0239 U	0.0334	0.012 U	0.454	0.0242 U	0.0126 U
Pyrene	H	0.0082	0.0123	0.128	0.0216	2.73	0.00242 U	0.00251 U
Total LPAHs		MRL	MRL	0.093	MRL	9.32	0.289	0.0000
Total HPAHs		0.0082	0.0123	0.312	0.0216	9.44	0.014	MRL
Total Carcinogenic PAHs		MRL	MRL	0.0626	MRL	0.240	MRL	MRL
Total PAHs		0.0082	0.0123	0.442	0.0216	18.8	0.303	0.0148

Table 8
Pore Water Grab Sample Results from Seepage Meters
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contmaninant of Concern		MBPWSM0308	MBPWSM0309	MBPWSM0310	MBPWSM0311	MBPWSM0312	MBPWSM0313	MBPWSM0314
Date Sampled		9/30/2003	9/30/2003	9/30/2003	9/30/2003	9/30/2003	9/30/2003	9/30/2003
# Diesel Range Organics (µg/L)		125 U	505	124 U	441	322	119 U	122 U
Motor Oil Range Organics (µg/L)		249 U	256 U	248 U	248 U	272 U	238 U	245 U
Pentachlorophenol (µg/L)		0.0491 U	0.478 U	0.0506 U	0.259 U	0.255 U	0.486 U	0.970 U
Metals (µg/L)								
Arsenic		0.25 U	0.972	0.873	0.991	0.847	0.808	0.477
Chromium		0.687	1.43	1.86	2.12	2.44	2.41	2.15
Copper		2.15	2.64	1.52	1.45	2.63	1.14	1.08
Zinc		4.52	7.71	3.77	4.21	6.36	8.29	3.10
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/L)								
Acenaphthene	L	0.0123 U	17.8	0.146	0.0648 U	0.0637 U	0.748	0.0123 U
Acenaphthylene	L	0.0123 U	0.0324	0.049	0.0959 J	0.0637 U	0.153	0.0123 U
Anthracene	L	0.0123 U	0.482	0.026	0.0648 U	0.0637 U	0.355	0.0123 U
Benzo[a]anthracene	H, C	0.00246 U	0.0478 U	0.00506 U	0.0259 U	0.0255 U	1.63	0.00492 U
Benzo[b,k]fluoranthene	H, C	0.00491 U	0.0478 U	0.028	0.0395	0.0255 U	1.37	0.00492 U
Benzo[a]pyrene	H, C	0.00246 U	0.0239 U	0.00253 U	0.013 U	0.0127 U	0.618	0.00246 U
Benzo[g,h,i]perylene	H, C	0.0123 U	0.119 U	0.0126 U	0.0648 U	0.0637 U	0.170	0.0123 U
Chrysene	H, C	0.00491 U	0.0478 U	0.00506 U	0.0259 U	0.0255 U	0.961	0.00492 U
Dibenzo[a,h]anthracene	H, C	0.00246 U	0.0239 U	0.00253 U	0.013 U	0.0127 U	0.085	0.0246 U
Fluoranthene	H	0.00246 U	0.394	0.202	0.085	0.0127 U	5.20	0.00659
Fluorene	L	0.0123 U	2.94	0.074	0.0648 U	0.0637 U	0.307	0.0123 U
Indeno[1,2,3-cd]pyrene	H, C	0.00246 U	0.0239 U	0.00253 U	0.013 U	0.0127 U	0.195	0.00246 U
Naphthalene	L	0.0246 U	36.9	0.062	0.13 U	0.127 U	0.243 U	0.0246 U
Phenanthrene	L	0.0123 U	0.655	0.0126 U	0.0648 U	0.0637 U	0.168	0.0123 U
Pyrene	H	0.00856	0.268	0.265	0.260	0.0127 U	4.53	0.0153
Total LPAHs		MRL	58.8	0.357	0	MRL	1.73	MRL
Total HPAHs		0.009	0.662	0.495	0.3845	MRL	14.8	0.0219
Total Carcinogenic PAHs		MRL	MRL	0.0281	MRL	MRL	5.03	MRL
Total PAHs		0.009	59.5	0.852	0.3845	MRL	16.5	0.0219

-- Not Analyzed.

L low molecular weight PAH (LPAH).

H high molecular weight PAH (HPAH).

C Carcinogenic PAH.

MRL Method Reporting Limit.

J reported value is an estimate.

Table 9
Surface Water Grab Sample Results
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contaminant of Concern		McCormick & Baxter #1	McCormick & Baxter #5	McCormick & Baxter #6	McCormick & Baxter #7	McCormick & Baxter #9	McCormick & Baxter #10	McCormick & Baxter #11	McCormick & Baxter #12	McCormick & Baxter #14	McCormick & Baxter #15
Sample Designation		MBSWGB0301	MBSWGB0305	MBSWGB0306	MBSWGB0307	MBSWGB0309	MBSWGB0310	MBSWGB0311	MBSWGB0312	MBSWGB0314	MBSWGB0315
Date Sampled		10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003
TSS (mg/L)		7.0	6.0	7.0	10.0	89	10.0	6.0	6.0	4.0	5.0
DOC (mg/L)		1.86	2.06	1.92	1.99	1.93	2.37	1.92	3.33	2.01	2.34
Pentachlorophenol (ug/L)		0.0479 U	0.0482 U	0.0477 U	0.0477 U	0.0475 U	0.0473 U	0.0474 U	0.0476 U	0.0477 U	0.475 U
Metals (ug/L)											
Arsenic		0.956 J	0.005 U	1.44	1.95	0.503 J	1.14	1.76	0.005 U	0.005 U	0.005 U
Chromium		1.93	2.11	2.37	1.90	2.90	2.60	2.22	2.28	2.37	2.13
Copper		1.21	1.36	1.24	1.74	3.78	1.82	1.16	1.14	1.23	21.1
Zinc		4.26	4.69	5.30	9.44	10.9	6.13	4.75	4.60	6.46	14.1
Polynuclear Aromatic Hydrocarbons (PAHs) (ug/L)											
Acenaphthene	L	0.012 U	0.0121 U	0.0119 U	0.0119 U	0.0119 U	0.0118 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U
Acenaphthylene	L	0.012 U	0.0121 U	0.0119 U	0.0119 U	0.0119 U	0.0118 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U
Anthracene	L	0.012 U	0.0121 U	0.0119 U	0.0119 U	0.0119 U	0.0118 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U
Benzo[a]anthracene	H, C	0.00479 U	0.00482 U	0.00477 U	0.00477 U	0.00475 U	0.00473 U	0.00474 U	0.00476 U	0.00477 U	0.00475 U
Benzo[b&k]fluoranthene	H, C	0.00479 U	0.00482 U	0.00477 U	0.00477 U	0.00806 J	0.00473 U	0.00474 U	0.00476 U	0.00477 U	0.00475 U
Benzo[a]pyrene	H, C	0.00239 U	0.00241 U	0.00238 U	0.00238 U	0.00239 J	0.00237 U	0.00237 U	0.00238 U	0.00239 U	0.00238 U
Benzo[g,h,i]perylene	H, C	0.012 U	0.0121U	0.0119 U	0.0119 U	0.0119 U	0.0118 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U
Chrysene	H, C	0.00479 U	0.00482 U	0.00477 U	0.00477 U	0.0121	0.00473 U	0.00474 U	0.00476 U	0.00477 U	0.00475 U
Dibenzo[a,h]anthracene	H, C	0.00239 U	0.00241 U	0.00238 U	0.00238 U	0.00237 U	0.00237 U	0.00237 U	0.00238 U	0.00238 U	0.00238 U
Fluoranthene	H	0.00239 U	0.00241 U	0.00238 U	0.00307 J	0.0783	0.006	0.00237 U	0.00238 U	0.00238 U	0.00238 U
Fluorene	L	0.012 U	0.0121 U	0.0119 U	0.0119 U	0.0125 J	0.0118 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U
Indeno[1,2,3-cd]pyrene	H, C	0.00239 U	0.00241 U	0.00238 U	0.00238 U	0.00237 U	0.00237 U	0.00237 U	0.00238 U	0.00238 U	0.00238 U
Naphthalene	L	0.0239 U	0.0241 U	0.0238 U	0.0238 U	0.0237 U	0.0237 U	0.00237 U	0.00238 U	0.0238 U	0.0238 U
Phenanthrene	L	0.012 U	0.0121 U	0.0119 U	0.0119 U	0.116	0.0118 U	0.0119 U	0.0119 U	0.0119 U	0.0119 U
Pyrene	H	0.00239 U	0.00241U	0.00238 U	0.00251 J	0.0529	0.00499 U	0.00237 U	0.00238 U	0.00238 U	0.00238 U
Total LPAHs		MRL	MRL	MRL	MRL	0.116	MRL	MRL	MRL	MRL	MRL
Total HPAHs		MRL	MRL	MRL	0.0056	0.166	0.011	MRL	MRL	MRL	MRL
Total CPAHs		MRL	MRL	MRL	MRL	0.101	MRL	MRL	MRL	MRL	MRL
Total PAHs		MRL	MRL	MRL	0.0056	0.282	0.011	MRL	MRL	MRL	MRL

Table 9
Surface Water Grab Sample Results
Fall 2003 Sampling Event
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contaminant of Concern		McCormick & Baxter #16	McCormick & Baxter #17	McCormick & Baxter #18	McCormick & Baxter #21	McCormick & Baxter #22	McCormick & Baxter #23	McCormick & Baxter #24	McCormick & Baxter #25	McCormick & Baxter #26	McCormick & Baxter #27	McCormick & Baxter #28
Sample Designation		MBSWGB0316	MBSWGB0317	MBSWGB0318	MBSWGB0321	MBSWGB0322		MBSWGB0324	MBSWGB0325	MBSWGB0326	MBSWGB0327	MBSWGB0328
Date Sampled		10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003	10/16/2003
TSS (mg/L)		5.0	5.0	5.0	9.0	10	14	6.0	56.0	180	24.0	5.0
DOC (mg/L)		2.27	2.02	2.82	2.21	2.15	1.99	2.13	2.44	2.16	2.22	2.47
Pentachlorophenol (ug/L)		0.0476 U	0.0478 U	0.0477 U	0.0475 U	0.048 U	0.048 U	0.0475 U	0.0479 U	0.0476 U	0.0475 U	0.0473 U
Metals (ug/L)												
Arsenic		0.968 J	0.869 J	0.702 J	0.543 J	1.12	1.07	0.793 J	1.15	2.06	1.16	1.81
Chromium		2.29	2.35	2.36	2.25	2.14	1.72	2.32	2.69	5.47	1.91	2.30
Copper		1.32	1.37	6.03	2.32	1.40	1.32	1.13	3.58	9.06	1.69	8.18
Zinc		4.58	6.54	7.37	4.82	4.79	4.32	5.76	10.2	19.9	5.75	7.41
Polynuclear Aromatic Hydrocarbons (PAHs) (ug/L)												
Acenaphthene	L	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.012 U	0.012 U	0.0119 U	0.012 U	0.0119 U	0.0119 U	0.0118 U
Acenaphthylene	L	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.012 U	0.012 U	0.0119 U	0.012 U	0.0119 U	0.0119 U	0.0118 U
Anthracene	L	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.012 U	0.012 U	0.0119 U	0.012 U	0.0119 U	0.0119 U	0.0118 U
Benzo[a]anthracene	H, C	0.00476 U	0.00478 U	0.00477 U	0.00475 U	0.0048 U	0.0048 U	0.00475 U	0.00479 U	0.00476 U	0.00476 U	0.00473 U
Benzo[b&k]fluoranthene	H, C	0.00476 U	0.00478 U	0.00477 U	0.00475 U	0.0048 U	0.0048 U	0.00475 U	0.00479 U	0.00476 U	0.00476 U	0.00473 U
Benzo[a]pyrene	H, C	0.00238 U	0.00239 U	0.00239 U	0.00237 U	0.0024 U	0.0024 U	0.00237 U	0.00239 U	0.00238 U	0.00238 U	0.00237 U
Benzo[g,h,i]perylene	H, C	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.012 U	0.012 U	0.0119 U	0.012 U	0.0119 U	0.0119 U	0.0118 U
Chrysene	H, C	0.00476 U	0.00478 U	0.00477 U	0.00475 U	0.0048 U	0.0048 U	0.00475 U	0.00479 U	0.00476 U	0.00476 U	0.00473 U
Dibenzo[a,h]anthracene	H, C	0.00238 U	0.00239 U	0.0239 U	0.0237 U	0.0024 U	0.0024 U	0.0237 U	0.00239 U	0.00238 U	0.00238 U	0.00237 U
Fluoranthene	H	0.00238 U	0.00239 U	0.0239 U	0.0237 U	0.0024 U	0.0024 U	0.0237 U	0.00239 U	0.00264 J	0.00238 U	0.0237 U
Fluorene	L	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.012 U	0.012 U	0.0119 U	0.012 U	0.0119 U	0.0119 U	0.0118 U
Indeno[1,2,3-cd]pyrene	H, C	0.0238 U	0.00239 U	0.00239 U	0.00237 U	0.0024 U	0.0024 U	0.00237 U	0.00239 U	0.0238 U	0.0238 U	0.00237 U
Naphthalene	L	0.00238 U	0.0239 U	0.00239 U	0.00237 U	0.024 U	0.024 U	0.00237 U	0.0239 U	0.00238 U	0.00238 U	0.00237 U
Phenanthrene	L	0.0119 U	0.0119 U	0.0119 U	0.0119 U	0.012 U	0.012 U	0.0119 U	0.012 U	0.0119 U	0.0119 U	0.0118 U
Pyrene	H	0.00238 U	0.00239 U	0.00239 U	0.00237 U	0.0024 U	0.00292 J	2.58 J	0.0024 J	0.00284 J	0.0025 J	0.00237 U
Total LPAHs		MRL	MRL	MRL	MRL	MRL	MRL	MRL	MRL	MRL	MRL	MRL
Total HPAHs		MRL	MRL	MRL	MRL	0.0025	0.00292	0.00258	0.0024	0.00548	0.0025	MRL
Total CPAHs		MRL	MRL	MRL	MRL	MRL	MRL	MRL	MRL	MRL	MRL	MRL
Total PAHs		MRL	MRL	MRL	MRL	0.0025	0.00292	0.00258	0.0024	0.00548	0.0025	MRL

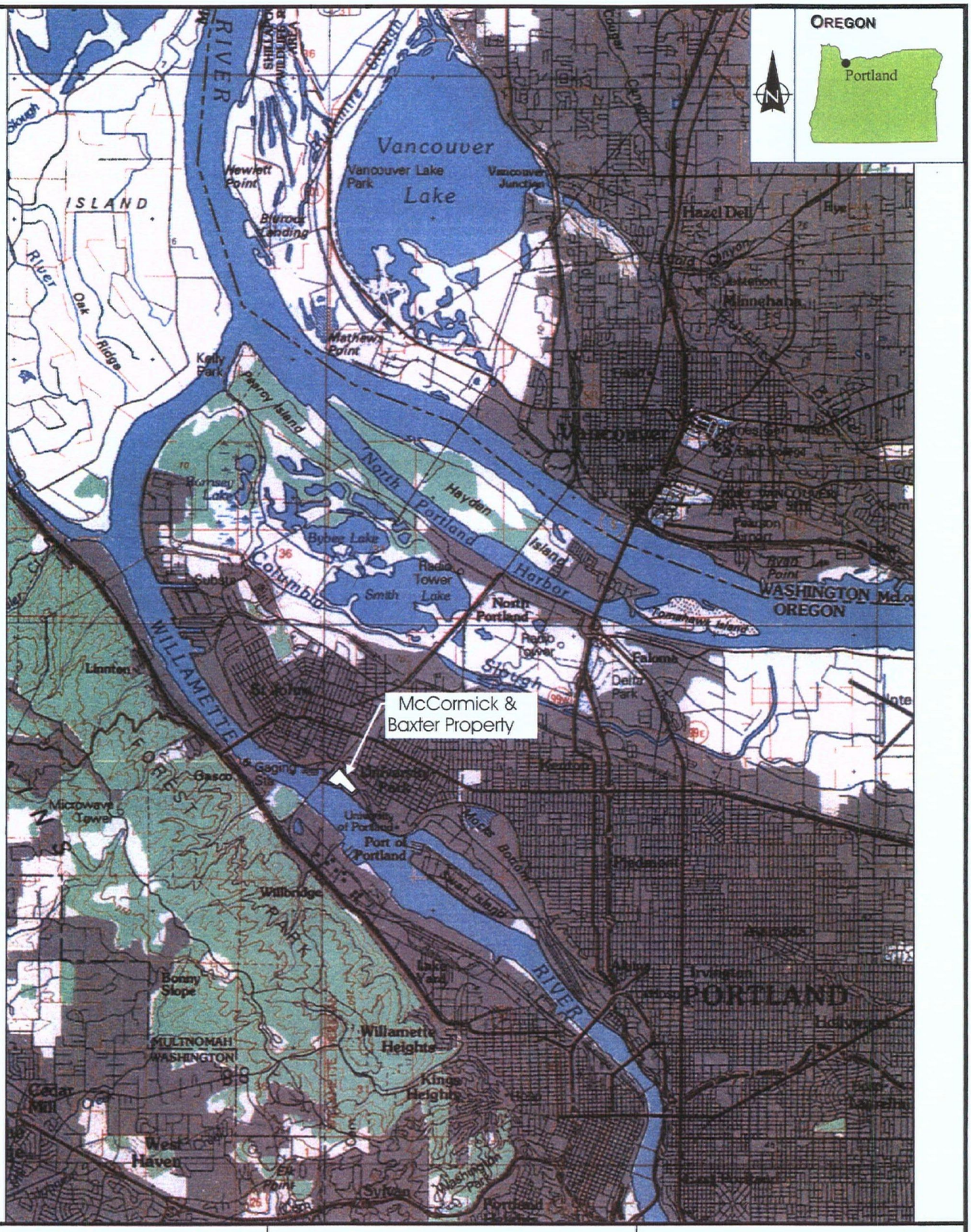
– Not Analyzed.
L low molecular weight PAH (LPAH).
H high molecular weight PAH (HPAH).
C Carcinogenic PAH.

Table 10
Crayfish Sample Results
McCormick & Baxter Creosoting Company Site
Portland, Oregon

Contaminant of Concern		MBCFGB03-01	MBCFGB03-02	MBCFGB03-03	MBCFGB03-04
Date Sampled		**10/14/2003**	**10/14/2003**	**10/14/2003**	**10/14/2003**
Percent Lipids (unitless)		6.1	6.5	5.6	7.0
Polychlorinated dibenzo-p-dioxins (PCDDs)/polychlorinated dibenzofurans (PCDFs) (ng/kg-wet)					
2,3,7,8-TCDD		0.42 U	0.40 U	0.11 U	0.30 U
1,2,3,7,8-PeCDD		1.1 U	0.62 U	0.23 U	0.53 U
1,2,3,4,7,8-HxCDD		0.43 U	0.29 U	0.15 U	0.15 U
1,2,3,6,7,8-HxCDD		3.2 J	1.4 U	0.67 U	1.2 U
1,2,3,7,8,9-HxCDD		1.0 U	0.44 U	0.26 U	0.36 U
1,2,3,4,6,7,8-HpCDD		73	24	13	30
OCDD		530	200	110	160
2,3,7,8-TCDF		5.7	1.5	0.46 U	8.4
1,2,3,7,8-PeCDF		2.9 J	1.1 U	0.40 U	3.3 J
2,3,4,7,8-PeCDF		2.0 U	1.4 U	0.57 U	2.6 J
1,2,3,4,7,8-HxCDF		1.5 U	1.4 U	0.69 U	1.1 U
1,2,3,6,7,8-HxCDF		0.52 U	0.54 U	0.19 U	0.38 U
2,3,4,6,7,8-HxCDF		0.29 U	0.21 U	0.10 U	0.16 U
1,2,3,7,8,9-HxCDF		0.12 U	0.12 U	0.095 U	0.092 U
1,2,3,4,6,7,8-HpCDF		2.6 J	1.2 U	0.68 U	1.0 U
1,2,3,4,7,8,9-HpCDF		0.17 U	0.23 U	0.14 U	0.13 U
OCDF		9.0 J	1.4 U	1.3 U	1.2 U
2,3,7,8-TCDD TEQ		1.7	0.41	0.14	1.9
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/kg-dry)					
Acenaphthene	L	36.7 U	47 J	37.7 U	43 U
Acenaphthylene	L	36.7 U	39.4 U	37.7 U	43 U
Anthracene	L	36.7 U	39.4 U	37.7 U	43 U
Benzo[a]anthracene	H, C	14.7 U	15.8 U	15.1 U	17.2 U
Benzo[b&k]fluoranthene	H, C	14.7 U	15.8 U	15.1 U	17.2 U
Benzo[a]pyrene	H, C	7.33 U	7.88 U	7.54 U	8.59 U
Benzo[g,h,i]perylene	H, C	36.7 U	39.4 U	37.7 U	43 U
Chrysene	H, C	14.7 U	15.8 U	15.1 U	17.2 U
Dibenzo[a,h]anthracene	H, C	7.33 U	7.88 U	7.54 U	8.59 U
Fluoranthene	H	11.1 J	48.5	25.2	24.9
Fluorene	L	36.7 U	39.4 U	37.7 U	43 U
Indeno[1,2,3-cd]pyrene	H, C	7.33 U	7.88 U	7.54 U	8.59 U
Naphthalene	L	73.3 U	78.8 U	75.4 U	85.9 U
Phenanthrene	L	36.7 U	61.3 J	97.8	46.7 J
Pyrene	H	20.1	42.7	69.0	22.8
Total LPAHs		MRL	108	97.8	46.7
Total HPAHs		31.2	91.2	94.2	47.7
Total Carcinogenic PAHs		MRL	MRL	MRL	MRL
Total PAHs		31.2	199	192	94.4
Metals (mg/kg-dry)					
Arsenic		2.26 U	1.75 U	2.12 U	2.11 U
Chromium		2.86 J	3.32 J	2.55 J	3.59 J
Copper		86.7	96.9	66.0	78.9
Zinc		76.8	68.2	71.9	74.0

Key:

= Not Analyzed.
C = Carcinogenic PAH.
L = Low molecular weight PAH (LPAH).
H = High molecular weight PAH (HPAH).
HPCDD = Heptachlorodibenzo-*p*-dioxin.
HpCDF = Heptachlorodibenzofuran.
HxCDD = Hexachlorodibenzo-p-dioxin.
HxCDF = Hexachlorodibenzofuran.
J = Reported value is an estimate.
MRL = Method Reporting Limit.
OCDD = Octachlorodibenzo-p-dioxin.
OCDF = Octachlorodibenzofuran.
PCDDs/PCDFs = Polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans.
PeCDD = Pentachlorodibenzo-p-dioxin.
PeCDF = Pentachlorodibenzofuran.
TCDD = Tetrachlorodibenzo-p-dioxin.
TCDF = Tetrachlorodibenzofuran.



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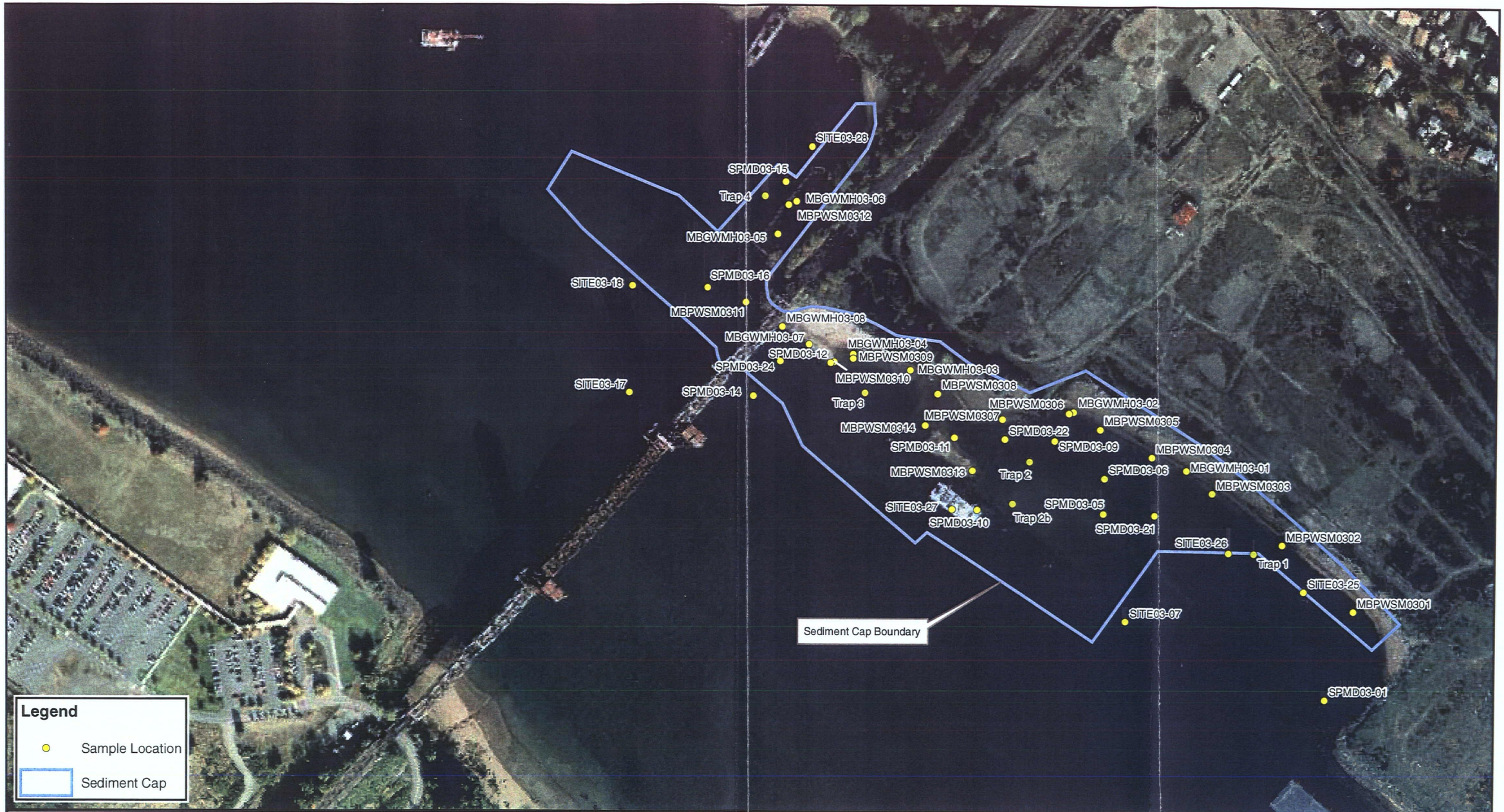
McCORMICK AND BAXTER
CREOSOTING COMPANY SITE
Portland, Oregon

Figure 1

SITE LOCATION MAP

Date:
2-4-04

10:001688OY122700\fig 1.cdr



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N W E S

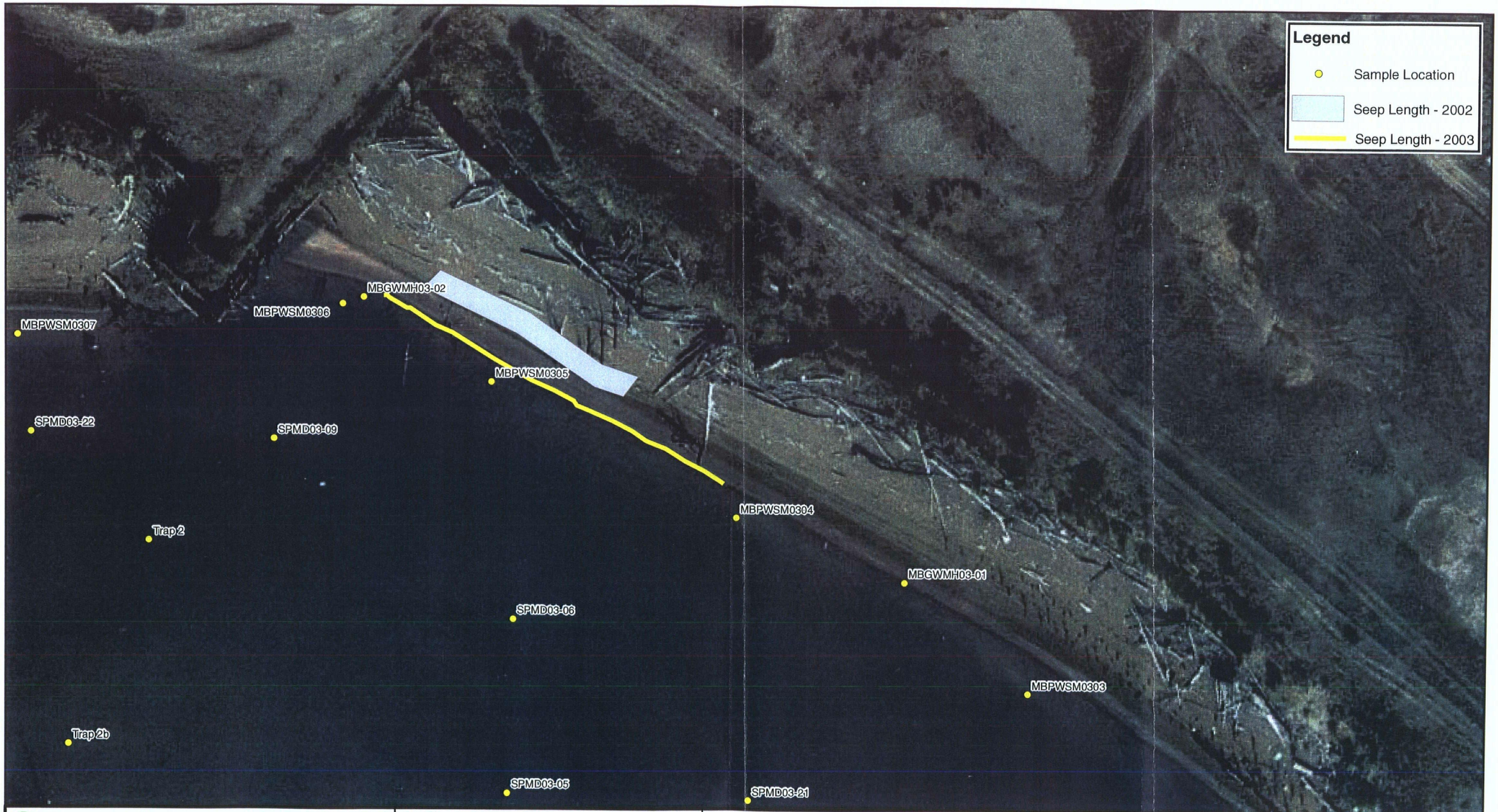
0 75 150 300 450 600
Feet

SPMD Sample Locations from OSU Report
Aerial Photo: EPA Region 10 - 2002

McCORMICK AND BAXTER
CREOSOTING COMPANY SITE
Portland, Oregon

Figure 2a
Sample Locations
September 2003 Sampling Event

Date:	Drawn by:	Job number:
03/17/2004	AVH	001688.OY02.27.01



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N W E S
0 15 30 60 90 120
Feet

SPMD Sample Locations from OSU Report
Aerial Photo: EPA Region 10 - 2002

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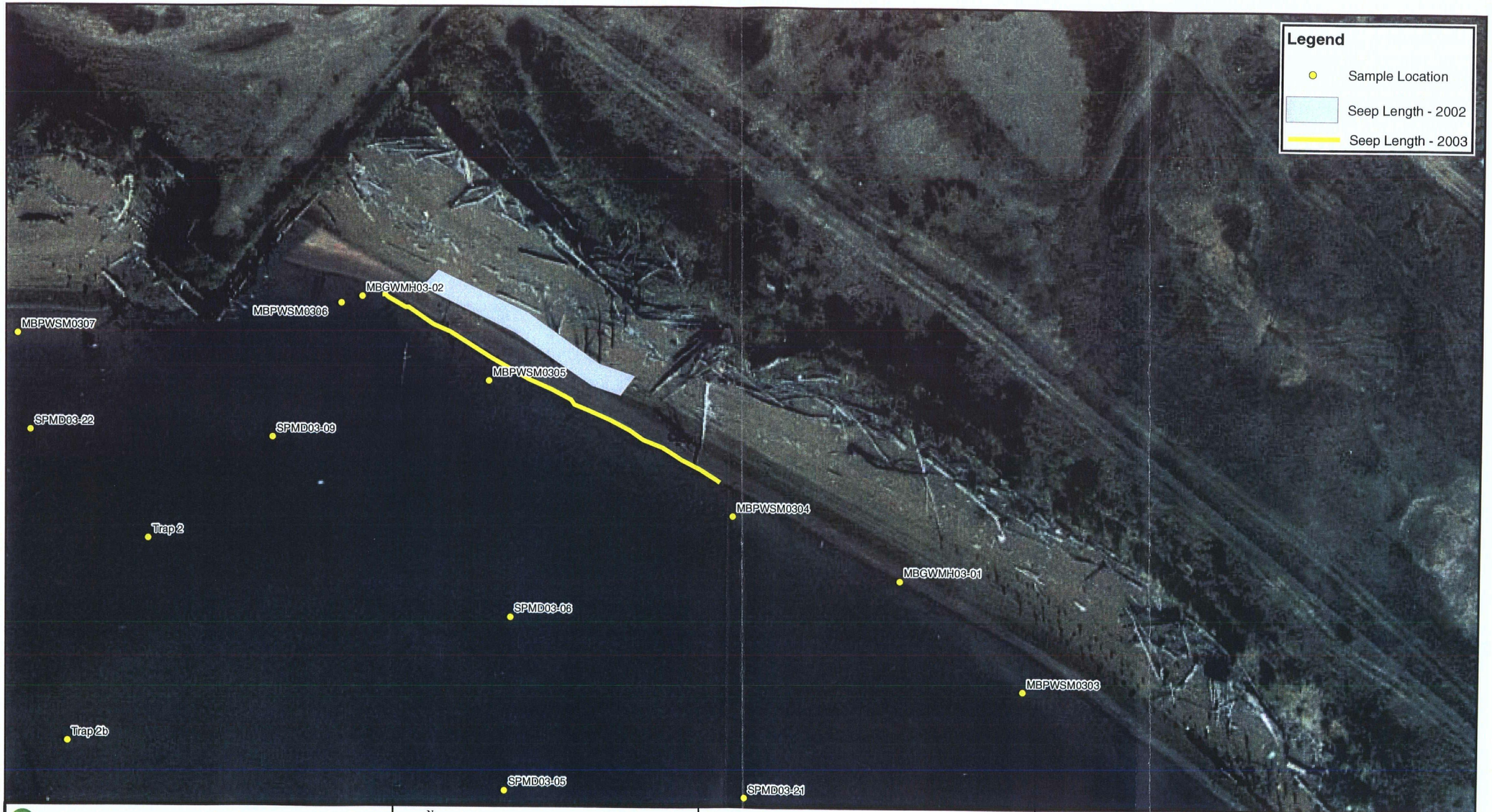
CREOSOTING COMPANY SITE
Portland, Oregon

Figure 2b
Creosote Dock Area

Date:	Drawn by:	Job number:
02/02/04	AVH	001688.OY02.27.01



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N W E S
0 15 30 60 90 120
Feet

SPMD Sample Locations from OSU Report
Aerial Photo: EPA Region 10 - 2002

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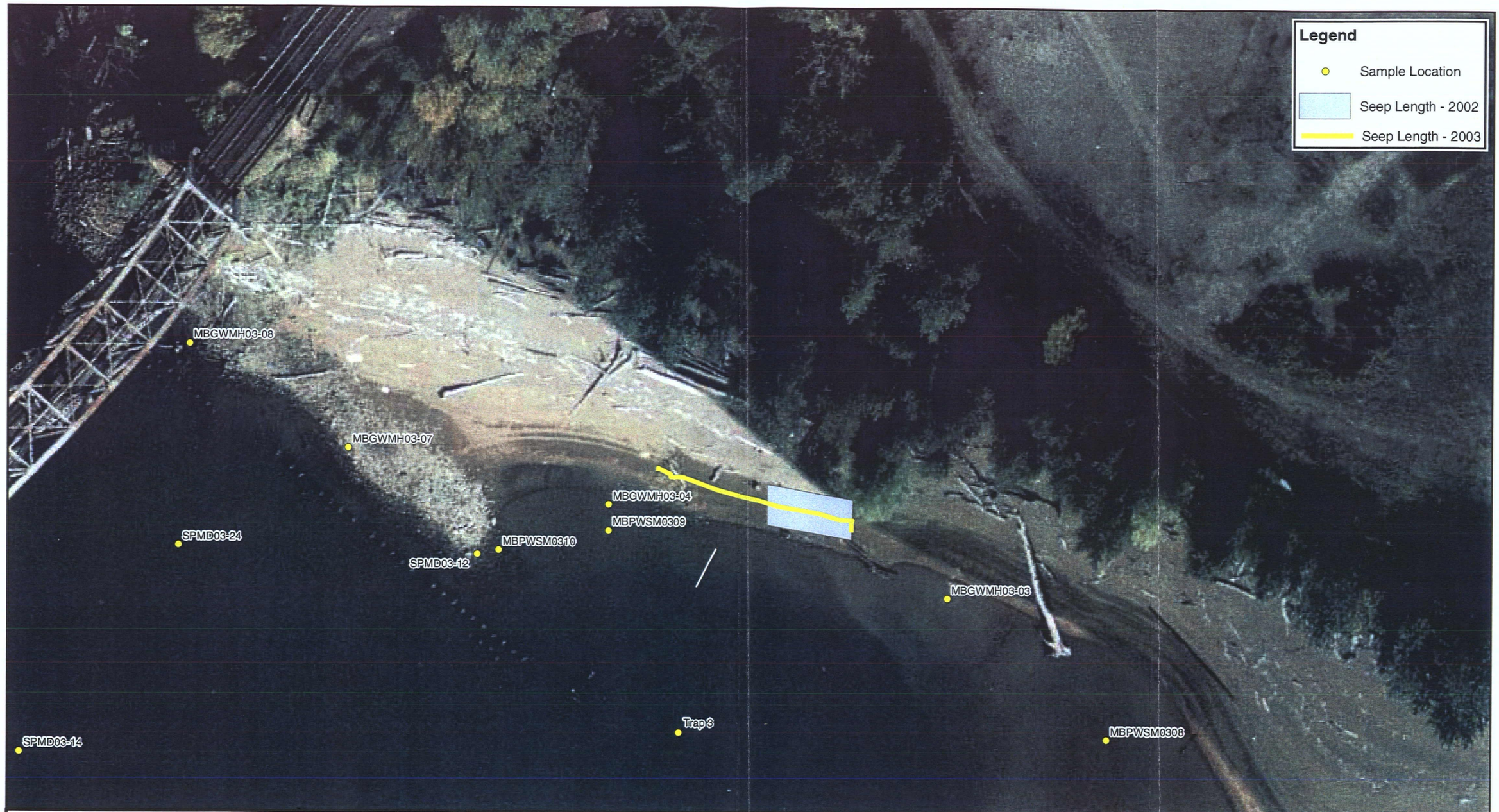
CREOSOTING COMPANY SITE
Portland, Oregon

Figure 2b
Creosote Dock Area

Date:	Drawn by:	Job number:
02/02/04	AVH	001688.OY02.27.01



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N W E S

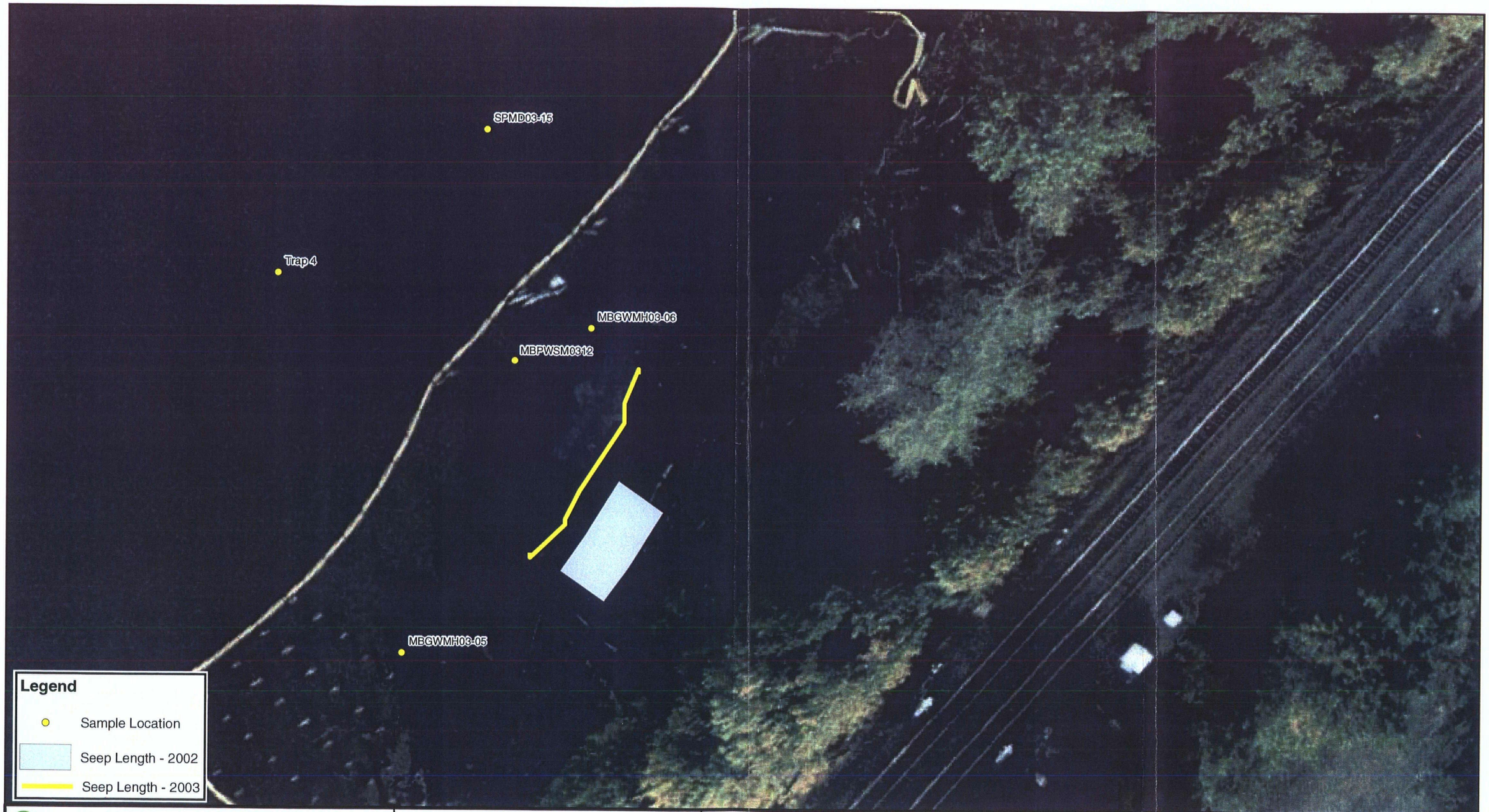
0 12.5 25 50 75 100
Feet

SPMD Sample Locations from OSU Report
Aerial Photo: EPA Region 10 - 2002

McCORMICK AND BAXTER
CREOSOTING COMPANY SITE
Portland, Oregon

Figure 2c
Former Waste Disposal Area

Date:	Drawn by:	Job number:
02/02/04	AVH	001688.OY02.27.01



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N W E S

0 5 10 20 30 40 50
Feet

SPMD Sample Locations from OSU Report
Aerial Photo: EPA Region 10 - 2002

McCORMICK AND BAXTER
CREOSOTING COMPANY SITE
Portland, Oregon

Figure 2d
Willamette Cove Area

Date:	Drawn by:	Job number:
02/02/04	AVH	001688.OY02.27.01

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N W E S

0 60 120 240 360 480 600
Feet

Aerial Reference: EPA Region 10, 2002

McCORMICK AND BAXTER
CREOSOTING COMPANY SITE
Portland, Oregon

Figure 2e
Visual NAPL Observed During Sampling
September 2003

Date:	Drawn by:	Job Number:
05/17/2004	avh	001688.OY02.27.01

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N W E S
0 75 150 300 450 600
Feet

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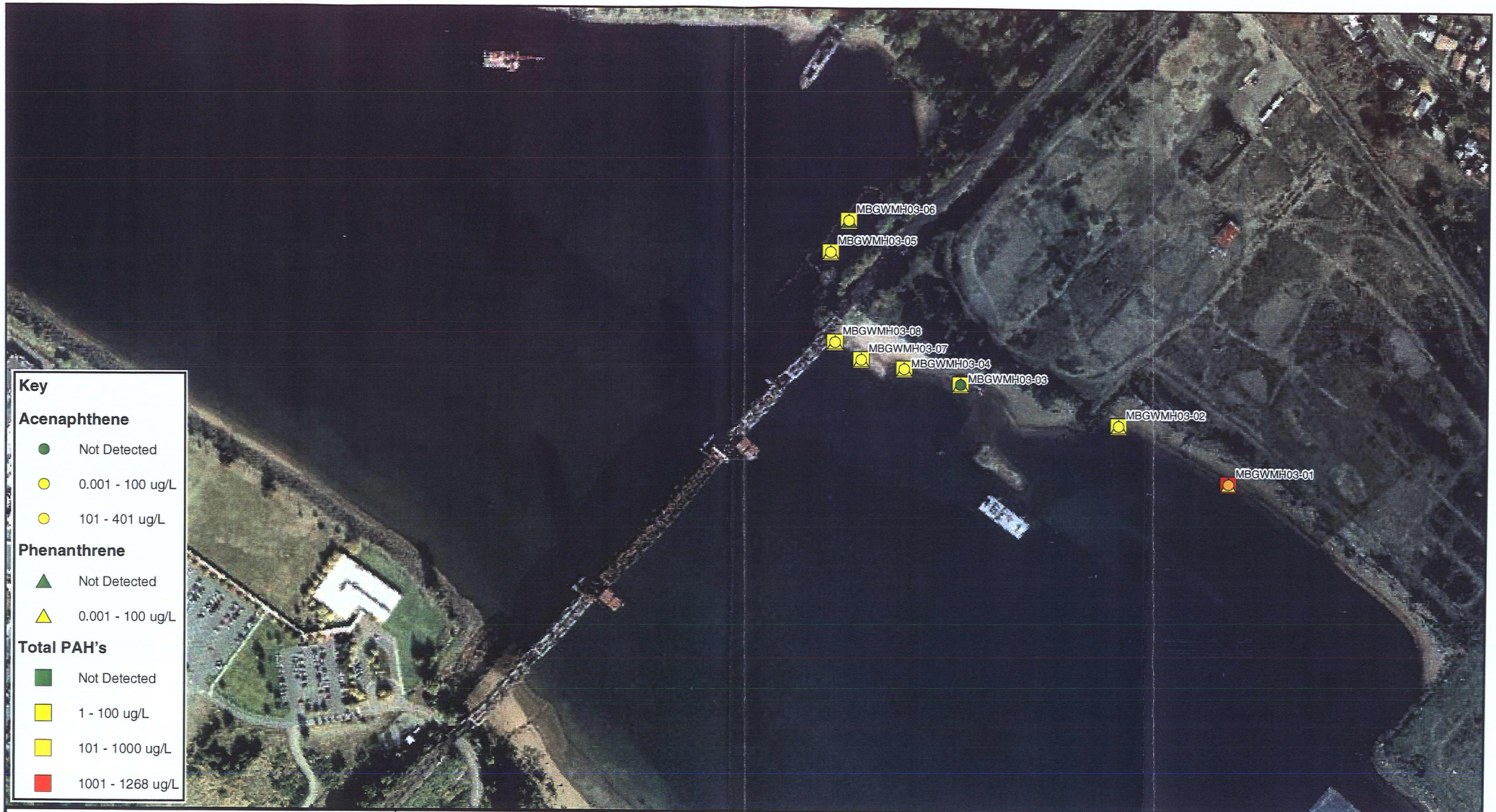
Figure 3
NAPL Pad Sample Locations

Date:	Drawn by:	Job Number:
05/17/2004	avh	001688.OY02.27.01



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N W E S
0 75 150 300 450 600
Feet

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Figure 4a
Near-Shore Groundwater Sampling Results
14" Depth Below Top of Sediment

Date:	Drawn by:	Job Number:
11/17/03	avh	001688.OY02.27.01

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N W E S
0 75 150 300 450 600
Feet

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Figure 4b
Near-Shore Groundwater Sample Results
36" Depth Below Top of Sediment

Date:	Drawn by:	Job Number:
11/17/03	avh	001688.OY02.27.01

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N W E S
0 75 150 300 450 600
Feet

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Figure 4c
Near-Shore Groundwater Sample Results
72 " Depth Below Top of Sediment

Date:	Drawn by:	Job Number:
05/17/2004	avh	001688.OY02.27.01

Figure 5a: Total PAH Concentrations in Groundwater

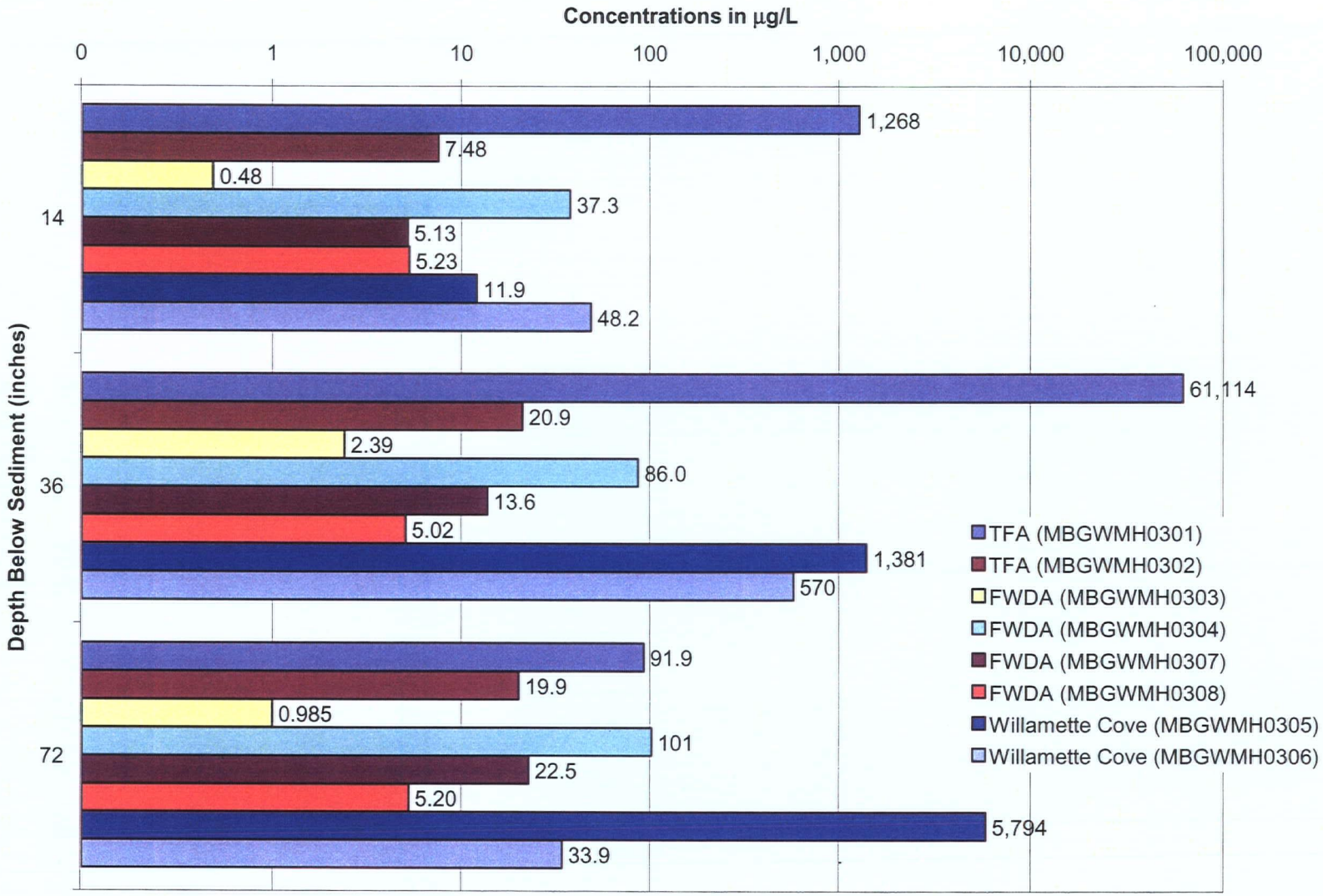


Figure 5b: Acenaphthene Concentrations in Groundwater with Depth at the TFA, FWDA, and Willamette Cove

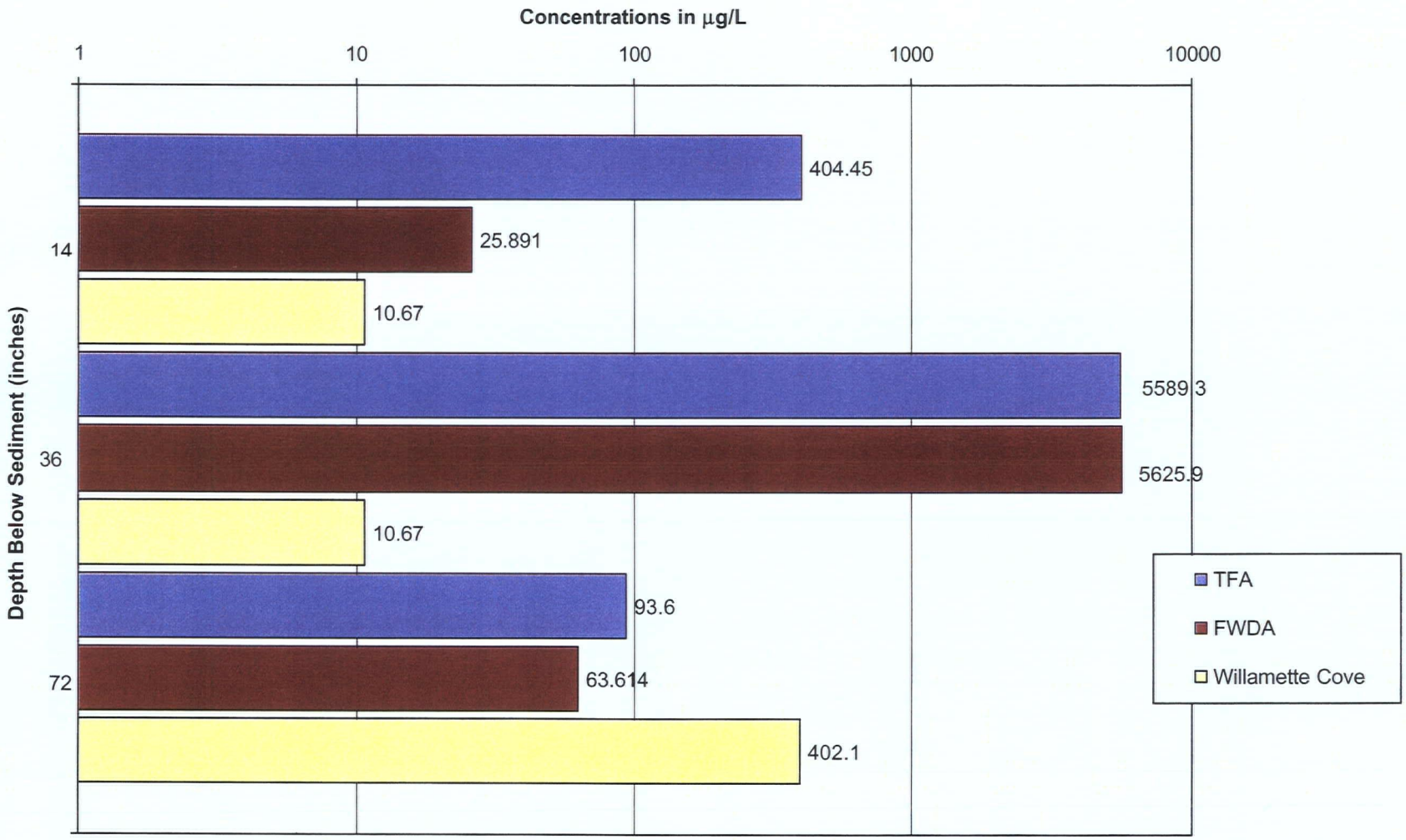


Figure 5c: Naphthalene Concentrations in Groundwater with Depth in the TFA, FWDA, and Willamette Cove

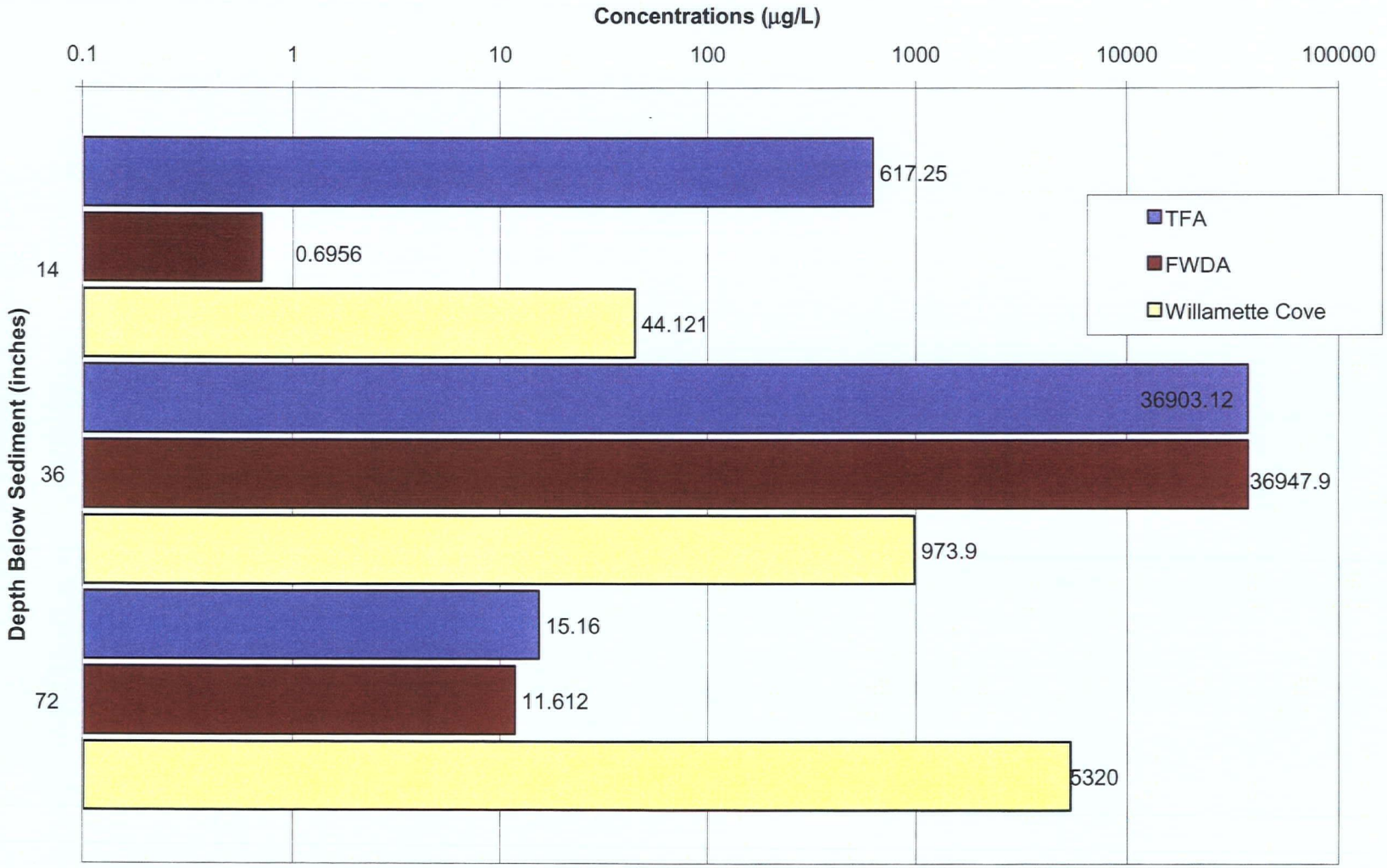
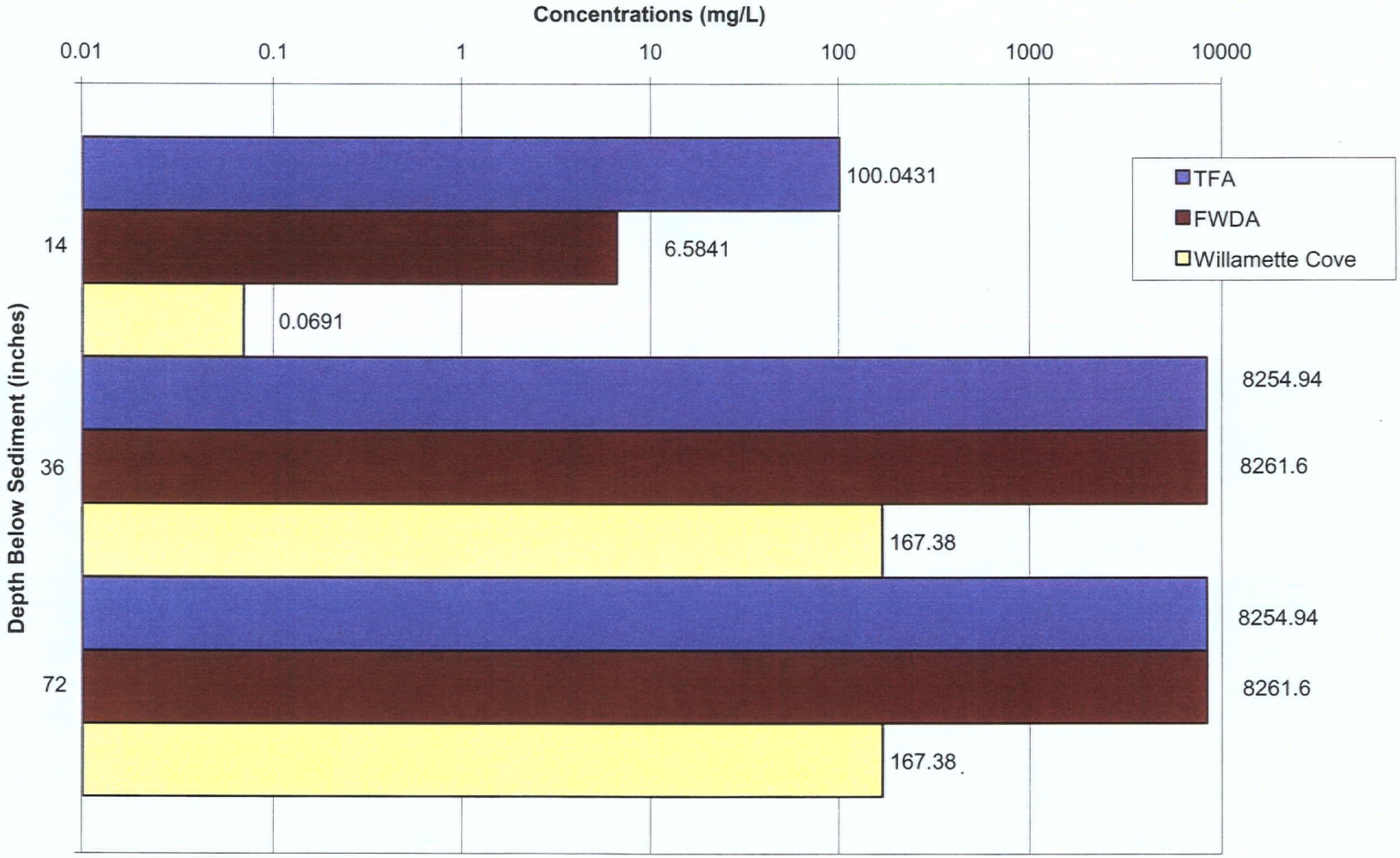
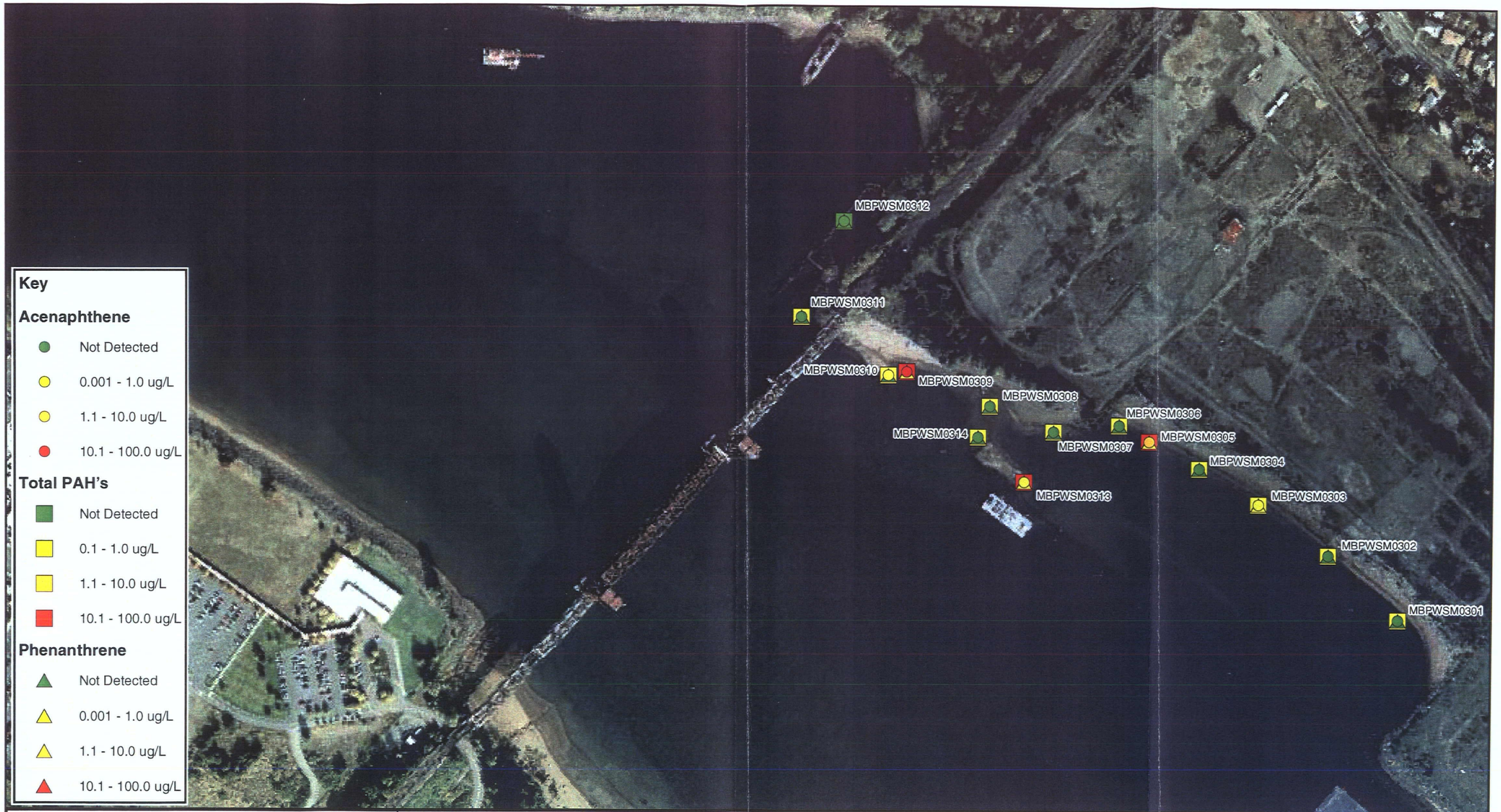


Figure 5d: Phenanthrene Concentrations in Groundwater with Depth at the TFA, FWDA and Willamette Cove





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N W E S
0 75 150 300 450 600
Feet

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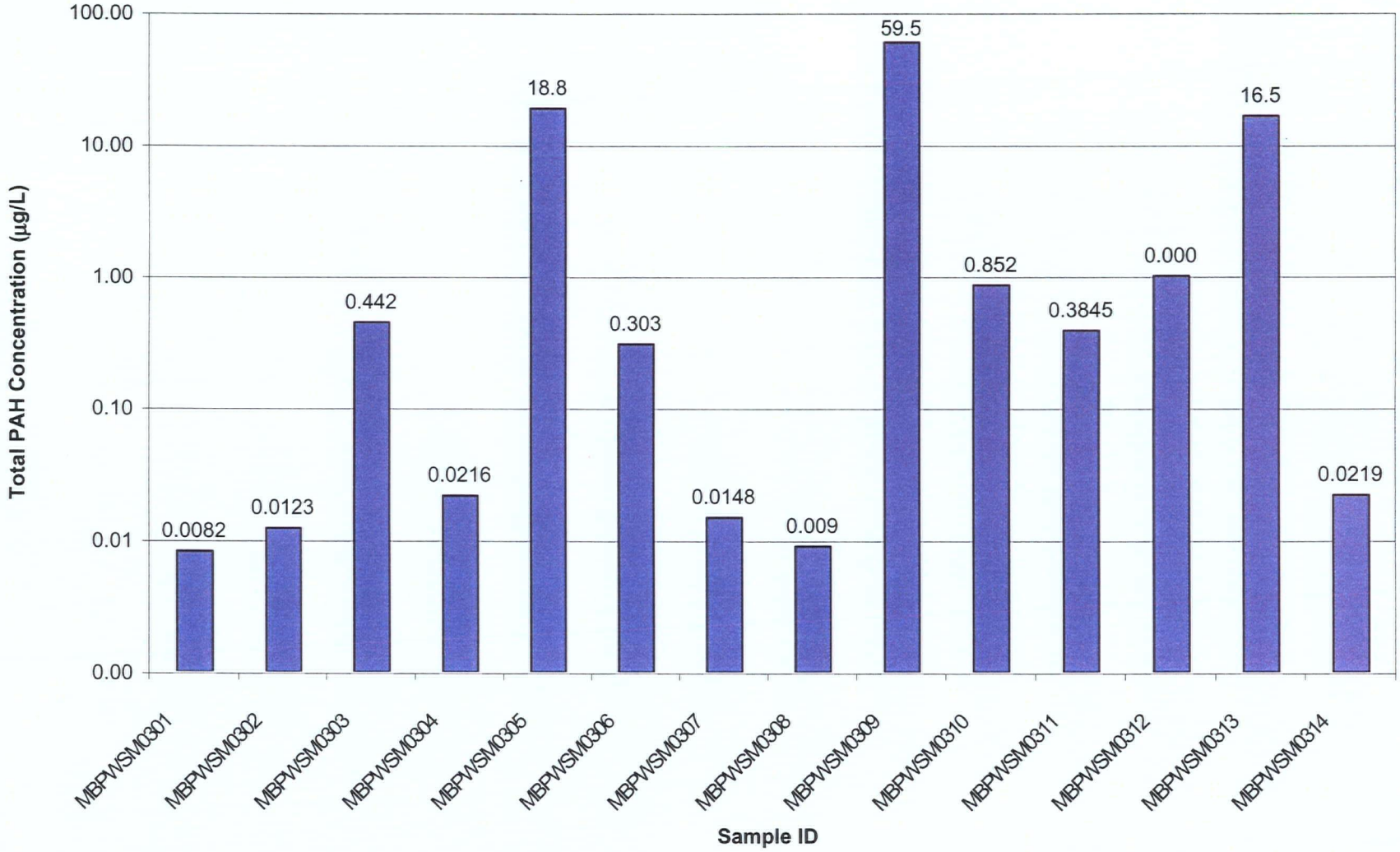
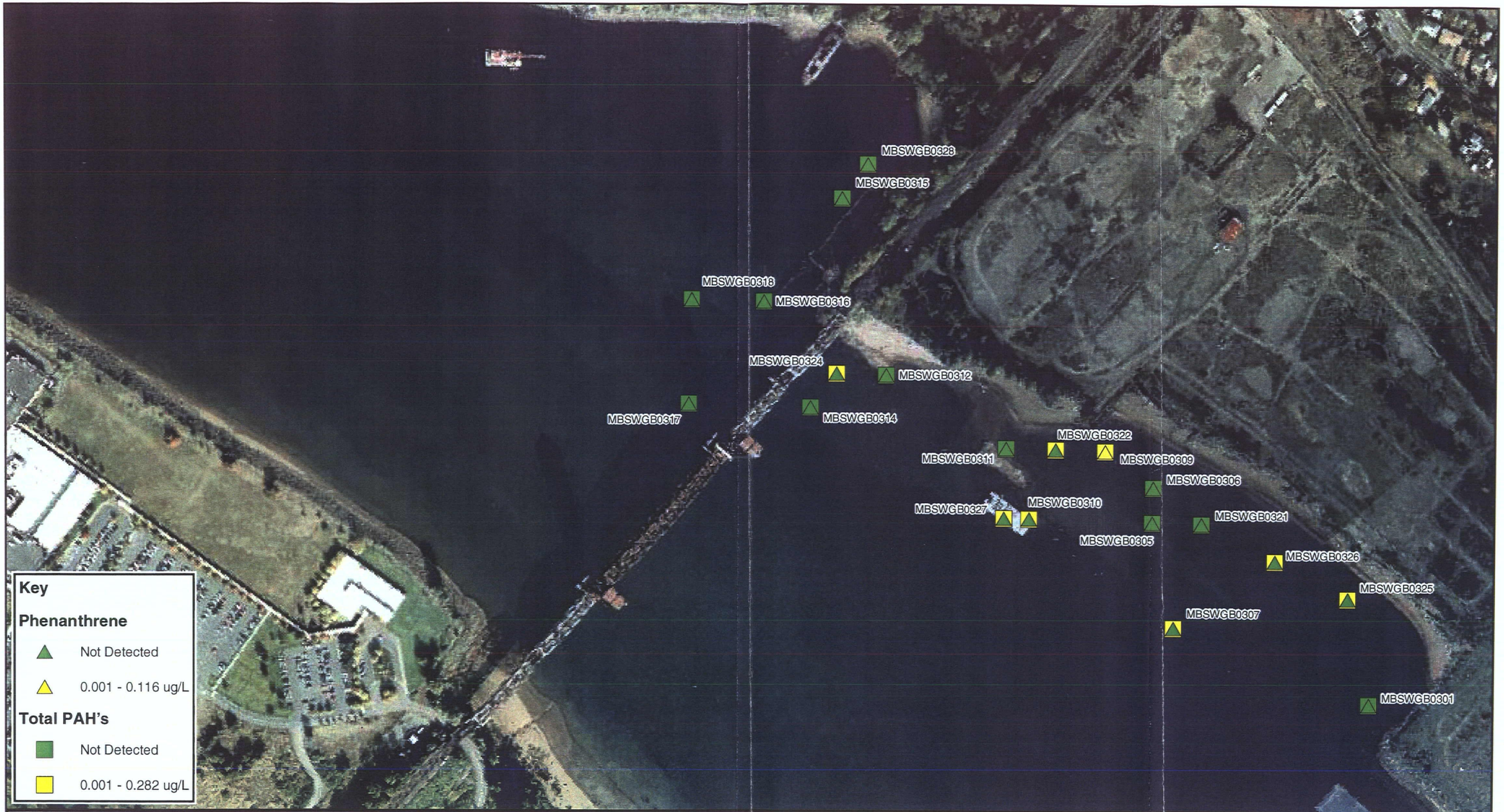
Figure 6
Pore Water Results

Date:	Drawn by:	Job Number:
05/17/2004	avh	001688.OY02.27.01

Figure 7: Histogram comparing Total PAH's for Pore Water





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N W E S
0 75 150 300 450 600
Feet

Aerial Reference: EPA Region 10, 2002

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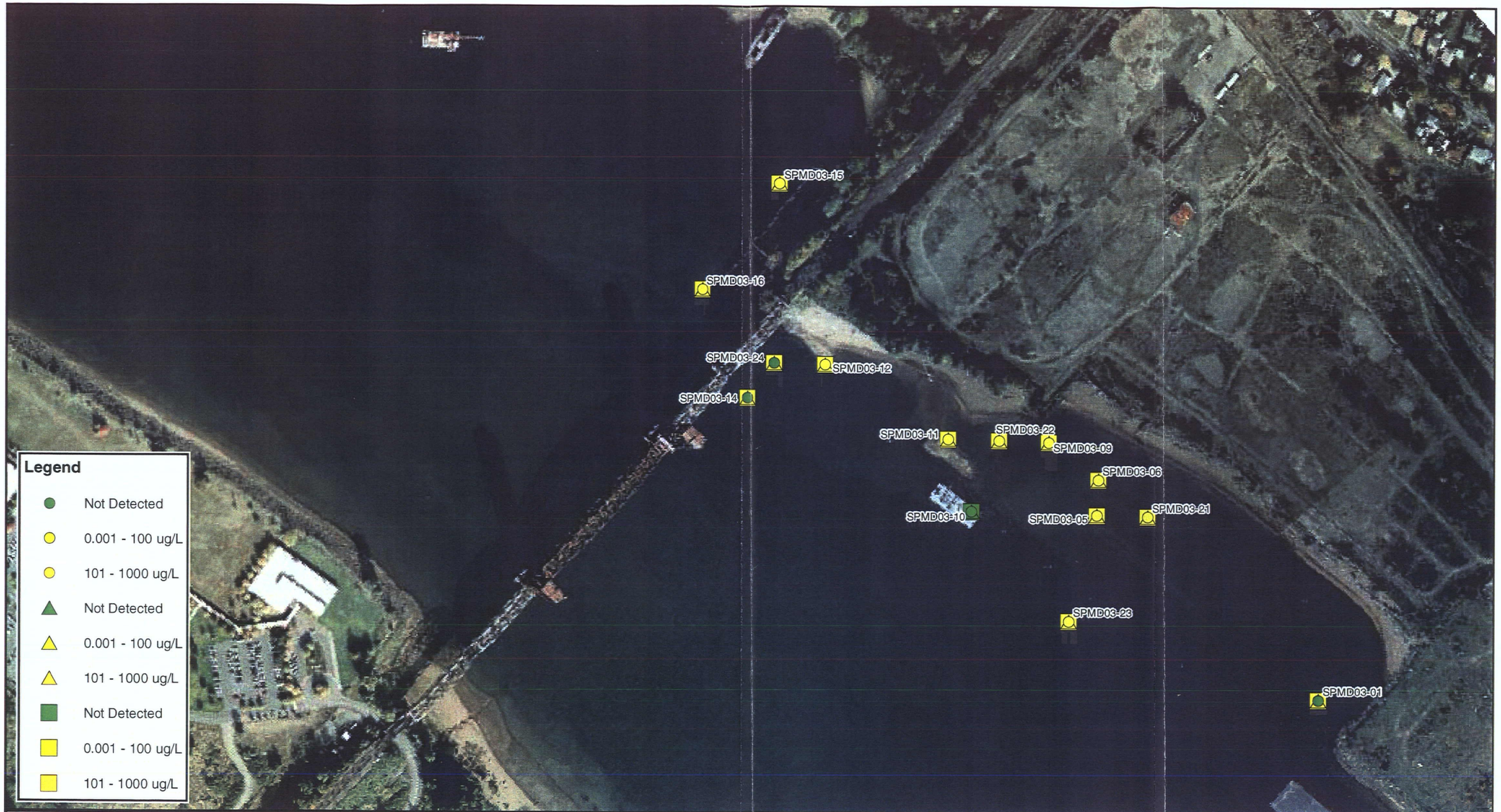
Figure 8a
Surface Water Grab Sample Results

Date:	Drawn by:	Job Number:
05/17/2004	avh	001688.OY02.27.01



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N W E S

0 75 150 300 450 600
Feet

Aerial Photo: EPA Region 10 - 2002

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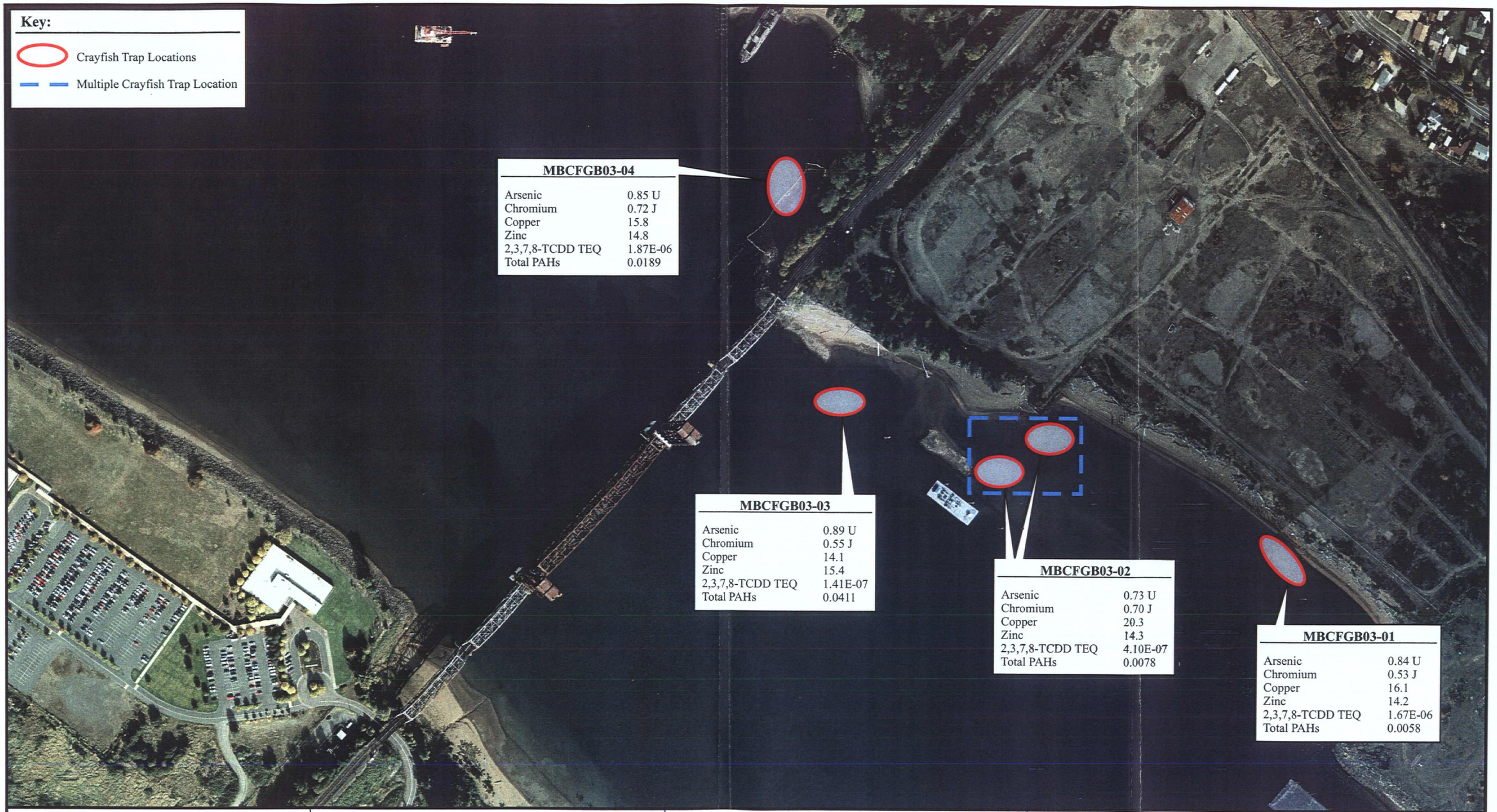
Figure 8b
Surface Water SPMD Sample Results

Date:	Drawn by:	Job number:
05/18/2004	AVH	001688.OY02.27.01



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N

0 360 720
Approximate Scale in Feet

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Aerial Reference: *EPA Region 10, 2002.* *Note:* *Features drawn on the base aerial photograph are only approximate.*

Figure 9
CRAYFISH TISSUE ANALYTICAL RESULTS (mg/kg-wet)

Date:	Drawn by:	
5/19/03	AES	10:001688OY022701\fig 9

A Oregon State University Analytical Report

OREGON STATE UNIVERSITY

FOOD SAFETY & ENVIRONMENTAL STEWARDSHIP
LABORATORY

ENVIRONMENTAL AND MOLECULAR TOXICOLOGY DEPT

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ANALYTICAL REPORT

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SUBMISSION INFORMATION

Client: **Oregon DEQ**
Address:

FSES Case #: E02-04
Client Case #: NA
Date Received: 10/02/03 and 10/16/03
Sample Type(s): Water, PSD
Report Status: Final
Samples Delivery By: Collected by FSES staff
Condition Sample(s) Received: cold
Submitter: FSES staff

Report Date: amended 3/3/04

Amendment:
This amendment contains the results of the performance reference compounds (PRC); the PRC data was omitted in the original 2/04 report. Benzo(a)pyrene concentration spike data was inadvertently reported as from the site, the benzo(a)pyrene concentrations were actually the PRC spikes. The benzo(a)pyrene concentrations from the PRC spikes has been removed from the PAH data table, and PAH graph. The average PRC recovery was 97.2%.

Background:

Developing an objective assessment of the hazard that contaminants pose to humans and the environment depends on an intimate understanding of its bioavailability. Bioavailability, defined as the extent to which the contaminant is taken up by an organism upon exposure, depends on the species/form of the contaminant or metal complex and/or how easily it can be transformed to a more or less bioavailable form.

Metals

Speciation in water

In natural waters, only a fraction of the metals are present as the "free" aquo ion (e.g. Cu^{2+}); rather, most metals are adsorbed to suspended particles or complexed with various ligands[1]. For example, binding of copper to fulvic and humic acids and to other organic compounds can be very strong, so that a large proportion of dissolved copper is often organically complexed[4,2,3]. Speciation, the identification and quantification of a metal in its various oxidation states, inorganic forms and organometallic complexes, is afforded through several techniques.

Detection and quantification

Electrochemical techniques, especially anodic stripping voltammetry (ASV), have been widely used to measure the "electrochemically labile" fraction of metals in water samples, with the assumption that the electrochemically labile fraction is a good approximation of the bioavailable fraction of metals[4,5,6,7,8,9]. Grab samples were collected 1 foot off the river bottom, and analyzed by anodic stripping voltammetry (ASV). We used the "labile" metals measured by ASV to quantify free metal ion (the main bioavailable form).

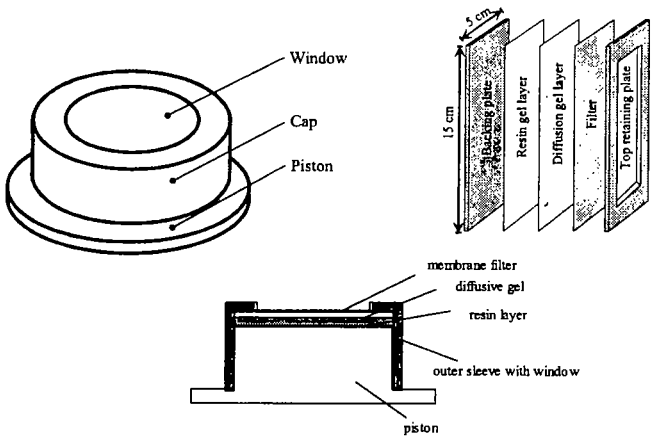
In-situ methods

Together with electrochemical methods, in-situ techniques are becoming more popular and are successfully used for speciation studies. In-situ methods avoid equilibrium

problems and emphasis on in-situ types of technique is likely to increase. DGT (diffusion gel thinfilms) were used for quantitative determination of bioavailable (labile) metals in-situ. The theory and sampling regime for DGT probes have been reported[10,11]. DGT were developed for the quantitative determination of labile metals in-situ[10,11]. The simple procedure uses a layer of Chelex resin impregnated in a hydrogel to bind the metals. A diffusive layer of hydrogel and filter overlies the resin-layer. Ions have to diffuse through the filter and diffusive layer to reach the resin layer. It is the establishment of a constant concentration gradient in the diffusive layer that forms the basis for measuring metal concentrations in solution quantitatively without the need for separate calibration. The DGT device is deployed for a known time and then the mass of metal on the resin layer is measured after elution with acid by, for example, AAS (atomic absorption spectrometry), ICPAES (ICP atomic emission spectrometry), ICP-MS or ASV. Providing the temperature is known, the concentration in solution can be calculated.

When deployed in water DGT measures labile species. Above a low threshold value, the measurement is independent of solution flow. DGT has been deployed in-situ in rivers, lakes, estuaries and the deep sea[10,11]. Its built-in pre-concentration gives it good sensitivity and avoids contamination problems. For these solution applications, a small plastic molding is used to house the gel layers and filter, see figures below[10].

Figures: DGT construction and deployment



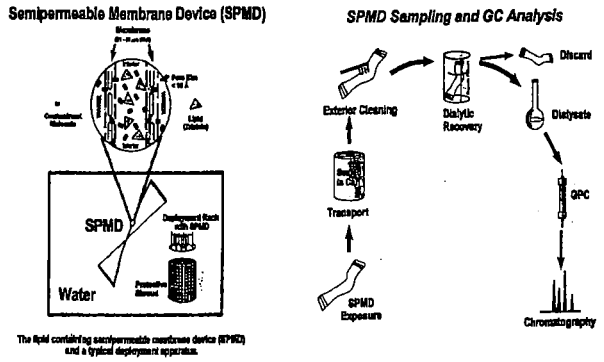
One set of DGT was deployed at each site, and the DGT were analyzed by ASV.

Organic Compounds

Bioavailable Organic speciation

Semi-permeable membrane devices (SPMD), also called passive sampling devices (**PSD**), were used for in-situ monitoring of aquatic bioavailable organic contaminants. PSD were selected since they sample only organic chemicals (lipophilic) in solution (dissolved)[12,13] while excluding those sorbed on organic matter or particles. Studies of PSD bioavailable organic compounds have been correlated directly with bivalves[14], mussels[15,16,17,18,19], catfish[20], clams[21], goldfish[22,23] and brown trout[24]. Furthermore, PSD sampling gives an integrated exposure over the entire sampling period that may better approximate actual exposure. The figure to the right[25] illustrates the construction, deployment configuration, extraction and analysis scheme. Final analysis for PAH (and PCP) utilized HPLC with DAD and FLU (diode array and fluorescence) detectors. Studies detailing the development and application of PSD (SPMD) for passive in-situ monitoring of aquatic bioavailable organic contaminants has been presented[13, 14] PSD have been used for **over a decade** and their use to determine bioavailable organic compounds is established. Studies detailing the development and application of PSD for passive in-situ monitoring of aquatic bioavailable organic contaminants has been presented[26,27]. PSD were selected since they sample only organic chemicals (lipophilic) in solution (dissolved) while excluding those sorbed on organic matter or particulates. The PSD[28] are used for contamination monitoring and toxicity assessment.

Figure: PSD construction, deployment, extraction & analysis scheme



Summary of Project Goals

Each speciation analysis (pesticides, metals and nutrients) typically requires a unique set of experimental extraction/digestions, equipment and instrumental conditions. Our approach utilized in-situ monitoring probes that ***by design measured*** bioavailable chemical species. We deployed PSD[28] for passive in-situ monitoring of aquatic bioavailable organic contaminants[29] and diffusion gradient thinfilms (DGT) for in-situ monitoring of bioavailable (labile)[30] elements[31] and collected grab samples and analyzed by ASV. These techniques allow us to better understand the fate, transport and levels of the bioavailable fraction of contaminants at compromised sites.

RESULTS:

Field data:

PAHs, PCP, and Metal/Element Sampling with Passive Sampling Devices

Deployment and Sampling

Passive sampling devices including (PSD and Diffusive Gel Thinfilms (DGTs)) were deployed at McCormick and Baxter superfund site for 2 weeks (from Oct 02-16, 2003). Individual site conditions dictated how the samplers were deployed and grabbed. DGTs were attached to the SPMDs' cages. All cages were deployed approximately 1 foot from the bottom of the river. Radio transmitters were used in the buoys for future retrieval. See appendix for a schematic of the deployment arrangement. All samplers were deployed using a weights and buoy system with a top buoy for retrieval location.

See the aerial photo in the appendix for site locations and Table 1 for GPS coordinates for the exact locations of each PSD sampling gear. A minimum of 3-4 feet of water is required for deployment. Site 15 was setup as a field duplicate site, two SPMD cages were deployed (side-by-side) at this site and only a single DGT was deployed at site 15. Upon deployment at site 23 sampling gear rapidly dropped to more than 20 ft into the water, apparently falling into a hole. Despite many attempts to retrieve the sampling gear at site 23, it is presumed lost and still remains in the water. Duplicate sampling gear was pulled from site 11 and successfully redeployed at site 23. No DGT was deployed at this site.

Fourteen water samples were grabbed on Oct 02, 2003 at the same sites of SPMD and DGT deployments. An additional fourteen water samples were grabbed on Oct 16, 2003 at the same sites as SPMD and DGT retrieval. Water samples were grabbed at a depth of 1 foot above the river bottom. Water samples were collected in 250-ml HDPE bottles and preserved on ice at 4°C.

PSD retrieval was performed on October 16, 2003. All samplers were successfully retrieved. Samples were pre-cleaned at the site as described in the SAM. All organic samples were placed in pre-labeled amber jars and stored in a cooler with ice packs. The DGT were collected in pre-labeled ziplock bags and stored in a cooler with ice packs. Once samples were returned to the laboratory they were stored at –20°C until analysis.

Table 1: Field conditions during deployment (10/02/03) and retrieval 10/16/03).

Site	Avg water temp on deployment/retrieval day	Approximated water depth (ft)	GPS Coordinate (lat/long)
1	17°C	17	45°34'32" N, 122°44'21"W
5	17°C	6	45°34'32" N 122°44'30"W
6	17°C	6	45°34'32" N 122°44'30"W
9	17°C	7	45°34'32" N 122°44'32"W
10	17°C	5	45°34'32" N 122°44'35"W
11	17°C	5	45°34'32" N 122°44'49"W
12	17°C	13	45°34'32" N 122°44'41"W
14	17°C	37	45°34'32" N 122°44'44"W
15	17°C	4	45°34'32" N 122°44'43"W
16	17°C	13	45°34'32" N 122°44'46"W
21	17°C	4	45°34'32" N 122°44'28"W
22	17°C	5	45°34'32" N 122°44'49"W
24	17°C	24	45°34'41" N 122°44'43"W

Analysis Results

DGTs and water grab samples were analyzed for 6 metals. DGTs were extracted with acid/buffer. The instrumental analysis was completed using anodic stripping voltammetry, which measures only the labile (the main bioavailable form) metals. Concentrations of metals analyzed from DGTs are the *average integrated* concentration in water over 2 weeks. Detection limits were determined routinely, depending on the metal and deployment times. Metal detection limits are listed in Tables 2 and 3. The standard analytical method used is given in appendix 1. The PAHs and PCP were extracted as described in the SAM (appendix). Method detection limits are determined routinely, they depend on analyte and deployment times. PAH and PCP method detection limits are given in Table 4. PAH abbreviations are given in the SAM, other abbreviations used are at the end of the report. The sample for site 10 was lost during analytical preparation.

Quality Control

Metals:

To insure project quality, appropriate numbers of field and laboratory QC samples were tested. Trip blanks, duplicates analysis, laboratory blanks and fortified samples were analyzed for both DGTs and water grab samples batches. For a sample set, the average QC spike recoveries were between 70 and 130%. The following is a QC summary including calibration curves with r^2 values as summarized below:

- The RPD between water grab samples at field duplicates sites 5 and 11 was ≤ 22%
- The RPD of field duplicates for DGTs at all sites was ≤ 30%
- Water grab samples and DGT samples- Spike percent recovery range was 70-130%.
- Calibration curves using 3 standards had r^2 values as follows:
  - Arsenic (III) r^2 ≥ 0.989
  - Zinc r^2 ≥ 0.999
  - Chromium r^2 ≥ 0.986
  - Copper r^2 ≥ 0.986
  - Cadmium r^2 ≥ 0.994
  - Lead r^2 ≥ 0.980

The metals passed the QC data quality objectives as defined in our SAM.

Organic:

To insure field and batch quality control, appropriate numbers of field and laboratory QC samples were tested. Site 15 was duplicated with two SPMD cages. In addition, field blanks and trip blanks were used. In the laboratory, reagent blanks and spikes were also included in the batches.

- The relative percent difference between field duplicates was ≤ 10%
- Spike percent recovery average = 73 %
- PAHs were not detected above the MDL in the trip SPMD blank
- PAHs were not detected above the MDL in the field SPMD blank
- PAHs were not detected above the MDL in the reagent blanks.
- Calibration curves using 4+ standard had r^2 values as follows:
  - PAHs r^2 ≥ 0.992
- Performance Reference Compound (PCR), Benzo a pyrene, average recovery was 97.2%, standard deviation was 33.

All positive PAH analytes were confirmed by both diode array detection and fluorescence emission. The analyte was compared with the full UV spectrum of known analytes (ca. 210 nm to 600 nm). Also the analytes were confirmed with fluorescence detection. Data were evaluated for all positive PAHs. The QC passed the data quality objectives as defined in our SAM.

Detection Limits

Detection limits for DGT are a function of deployment times, the detection limits reported here represent the detection limits for this study (14 days). Metal detection limits are listed in Tables 2 and 3.

Detection limits for SPMD (PSD for organic analytes) are a function of deployment times, the detection limits reported here represent the detection limits for this study (14 days). PAH detection limits are listed in Table 4.

Permeability/Performance Reference Compounds:

Before deployment, we added PRC to all half of the organic PSD deployments, we used a single PAH congeners that we have not typically found in the lower Willamette River. PRC can be used to ensure the in-situ conditions are the same including calibration and field exposure. They can also be used to recalibrate an "exposure adjustment factor". Our data indicate that biofouling has not been a problem in the Willamette River, probably due to the short deployment times we use and the low temperature of the river. However, the use of PRC are yet another QC method to ensure quality and consistence of the reported data. We will use PRC in all five tubes for organic PSD and use any adjustments as has been discussed above and by Huckins et al32. Ten of the sites had PRC added to the SPMD, site 10 was lost, the data reported are from the 9 remaining sites. The average recovery of PRC was 97.2%, with an SD of 33% (n=9). Because the recoveries are good, (97.2%), effects from biofouling etc are clearly small. Therefore within the reported accuracy of the data (2-3 significant figures), an EAF correction would not affect the reported data. Therefore, an EAF correction was not employed, given the good recoveries of the PRC.

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Table 2: Metals by ASV, Grab Water Unfiltered
Results for McCormick and Baxter Project
Labile/Bioavailable Elements by Anodic Stripping Voltammetry

Site	Arsenic (III) DL = 10 ppb		Zinc DL= 25 ppb		Chromium DL = 400 ppb		Copper DL = 10 ppb		Cadmium DL = 10 ppb		Lead DL = 15 ppb	
	10/02	10/16	10/02	10/16	10/02	10/16	10/02	10/16	10/02	10/16	10/02	10/16
1	BDL	BDL	BDL	BDL	BDL	BDL	98.3	14.4	BDL	BDL	67.9	27.1
5	BDL	BDL	BDL	BDL	BDL	BDL	27.9	15.3	BDL	BDL	32.7	26.0
6	BDL	BDL	BDL	BDL	BDL	BDL	63.3	12.9	BDL	BDL	47.2	22.4
9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	13.8	BDL	BDL	34.1	23.7
10	BDL	BDL	BDL	BDL	BDL	BDL	(7.6)	18.9	BDL	BDL	24.4	23.4
11	BDL	BDL	BDL	BDL	2333	3346	58.5	12.5	BDL	BDL	39.0	24.3
12	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
14	BDL	BDL	BDL	BDL	410	3314	13.5	14.9	BDL	BDL	BDL	24.7
15	BDL	BDL	BDL	BDL	BDL	BDL	BDL	(9.6)	BDL	BDL	BDL	BDL
16	BDL	BDL	BDL	BDL	650	2618	16.9	18.3	BDL	BDL	BDL	27.1
21	BDL	BDL	BDL	BDL	767	2158	29.2	13.7	BDL	BDL	31.4	BDL
22	BDL	BDL	BDL	BDL	1070	BDL	32.4	20.0	BDL	BDL	34.9	30.2
23	BDL	BDL	BDL	BDL	695	BDL	24.2	15.6	BDL	BDL	30.3	25.5
24	BDL	BDL	BDL	BDL	(318)	2294	15.6	11.6	BDL	BDL	26.8	BDL

Values reported in (parentheses) have been determined semi-qualitatively.

Table 3: Bioavailable Metals by ASV Using Passive Sampling Devices

Results for McCormick and Baxter Project
Dissolved/Bioavailable Elements by Anodic Stripping Voltammetry
in Diffusive Gel Thin Films (DGTs)
(concentration represents average integrated concentration over 2 weeks)

Site	Zinc DL = 3.3 ppb	Chromium DL = 78 ppb	Copper DL = 1.6 ppb	Cadmium DL= 1.7 ppb	Lead DL = 1.9 ppb
1	6.3	BDL	(0.2)	BDL	BDL
5	6.7	BDL	(0.3)	BDL	BDL
6	6.5	BDL	(0.2)	BDL	BDL
9	6.3	BDL	(0.3)	BDL	BDL
10	6.0	BDL	(0.2)	BDL	BDL
11	6.3	BDL	(0.2)	BDL	BDL
12	7.5	BDL	(0.3)	BDL	BDL
14	5.6	BDL	(0.2)	BDL	BDL
15	6.9	BDL	(0.3)	BDL	BDL
16	6.3	BDL	(0.2)	BDL	BDL
21	6.8	BDL	(0.3)	BDL	BDL
22	6.0	BDL	(0.3)	BDL	BDL
24	7.5	BDL	(0.3)	BDL	BDL

Values reported in (parentheses) have been determined semi-qualitatively

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Table 4: PAHs and PCP Using Passive Sampling Devices

Results for McCormick and Baxter Project
Dissolved/Bioavailable PAHs and PCP by HPLC (DAD and Fluorescence)
(concentration represents average integrated concentration over 2 weeks)
PAH abbreviations are in the SAM

Units: ng/L	1	5	6	9	10	11	14	12	15	15	16	21	22	23	24
Napth MDL=1.4ng/L	BDL	BDL	BDL	71.7	NQ	BDL	BDL	44.5	BDL	BDL	BDL	BDL	91.1	BDL	BDL
Athyl MDL=2.1ng/L	BDL	BDL	BDL	42.3	NQ	BDL	BDL	20.3	12.2	BDL	3.89	BDL	74.9	4.84	BDL
Athen MDL=0.14ng/L	BDL	21.7	5.83	260.5	NQ	62.3	BDL	127.7	25.6	8.27	40.5	17.8	336	62.1	BDL
Flo MDL=2.0ug/L	1310	3830	4440	7850	NQ	5550	2990	7810	3260	3800	5060	3550	10700	4800	3660
Phen MDL=1.1ng/L	23.9	112	80.1	187	NQ	114	42.3	122	92.7	83.5	79.9	106	262	118	59.9
Anth MDL=0.39ng/L	BDL	2.7	BDL	ND	NQ	1.91	BDL	3.77	BDL	BDL	BDL	BDL	35.1	5.05	BDL
Fran MDL=1.5ng/L	26.7	ND	80.2	246	NQ	141	45.2	147	87.9	81.1	96.0	129	487	164	71.8
Pyr MDL=0.6ng/L	24.2	119	61.9	ND	NQ	107	40.2	111	72.2	67.8	77.9	95.8	331	122	58.9
Chrys MDL=0.94ng/L	ND	ND	ND	ND	NQ	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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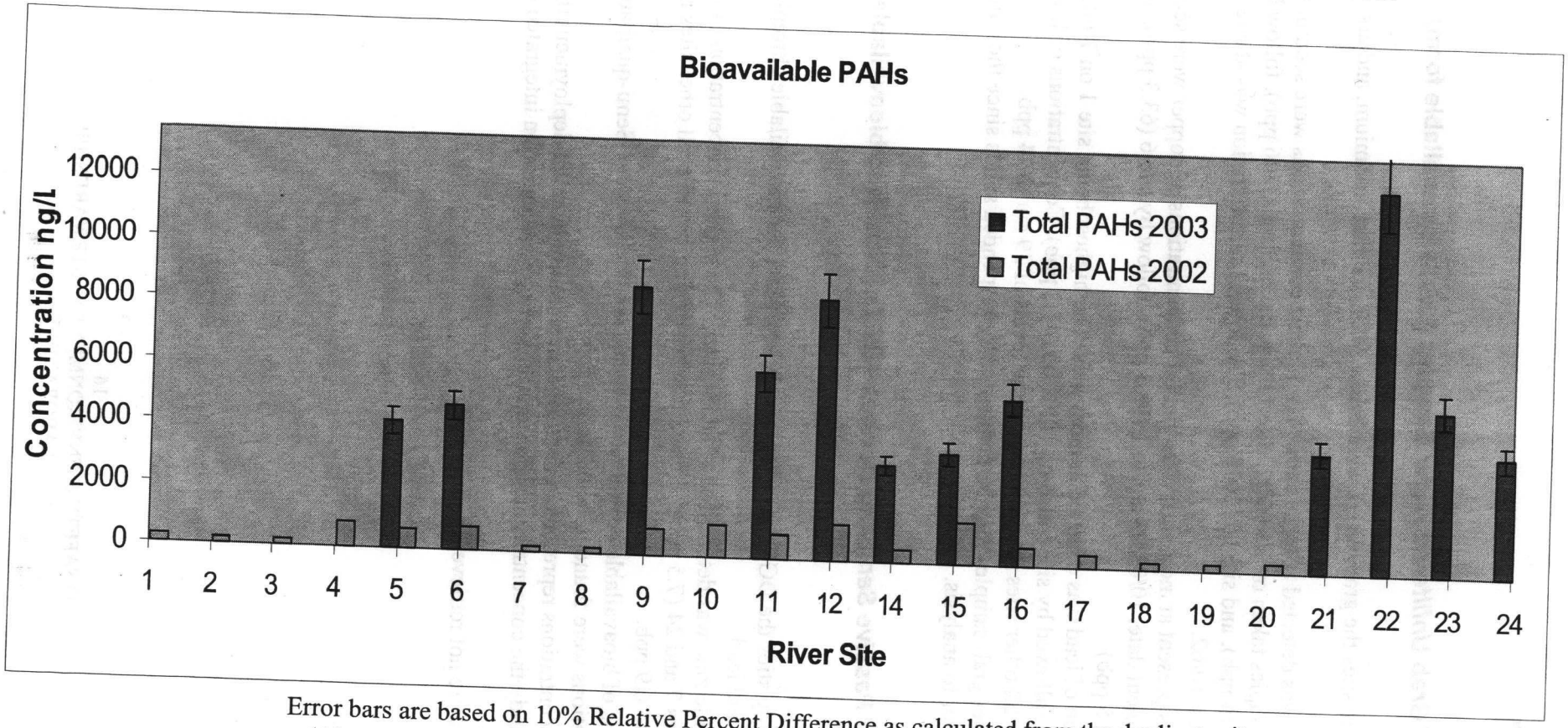
Units: ng/L	1	5	6	9	10	11	14	12	15	15	16	21	22	23	24
BaAnth MDL=0.36ng/L	ND	33.1	6.9	17.5	NQ	30.1	10.9	38.0	18.9	20.5	23.9	9.46	112	42.0	BDL
BbFluo MDL=0.83ng/L	BDL	BDL	BDL	BDL	NQ	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BkFluo MDL=0.15ng/L	BDL	8.28	BDL	BDL	NQ	2.28	0.24	9.29	0.24	6.68	6.21	5.67	25.4	9.98	BDL
DahA MDL=7.0ng/L	BDL	BDL	BDL	BDL	NQ	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
BghiP MDL=14.9ng/L	BDL	BDL	BDL	BDL	NQ	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
I123cdP MDL=15.2ng/L	BDL	BDL	BDL	BDL	NQ	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Total PAHs	1390	4130	4670	8680	NQ	6010	3130	8430	3570	4070	5390	3910	12450	5330	3860
PCP	BDL	BDL	BDL	BDL	NQ	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Site 10 data was lost during chemical analysis

Figure: Sum of Bioavailable PAHs tested from McCormick & Baxter Superfund Site October 2003.



Error bars are based on 10% Relative Percent Difference as calculated from the duplicate site.
(Also see appendix for a concentration overlay on the aerial photograph of McCormick & Baxter.)

*Summary of Grab Unfiltered Water Samples (*Labile bioavailable form*):*

- For all study sites the grab waters were below MDL for zinc, cadmium, and arsenic (III).
- Chromium was detected at some sites. The highest concentrations were seen in the retrieval samples taken on 10/16/02. Site 11 was the highest (3346 ppb), follow by site 14 (3314 ppb), and site 16 (2618 ppb). The lowest concentration was at site 21 (767 ppb) on 10/02.
- Copper was present at most sites. The highest concentrations of copper were seen on the deployment date, 10/02/03 at site 1 (98.3 ppb), follow by site 6 (63.3 ppb), and site 11 (58.5 ppb)
- The fraction of lead was detected at most sites. The highest being site 1 on 10/02/03 (67.9 ppb) followed by site 6 also on 10/02/03 (47.2 ppb). Concentrations of lead detected at all other sites ranged between the levels of 39 and 22.4 ppb.
- Whole water grab samples may be dominated by suspended solids since they are not filtered prior to analysis.

*Summary of Passive Sampling Devices –DGTs (*Dissolved bioavailable form*)*

- For all study sties the DGTs samples were below MDL for bioavailable chromium, cadmium and lead.
- Bioavailable zinc was detected at all study sites. The highest concentration of zinc was at sites 7 and 24 (7.5 ppb). Concentrations of zinc found at all other sites ranged from 5.6 to 6.9 ppb.
- Low levels of bioavailable copper was detected at all study sites. Semi-qualitative concentrations were found to be 0.2 to 0.3 ppb.
- DGT concentrations represent an average concentration over the deployment time. (In this study the concentration represents an average concentration integrated over 14 days).
- Samples were not retrieved from site 23.

*Organic Compounds: Summary of Passive Sampling Devices (*bioavailable forms*)*

- Bioavailable pentachlorophenol (PCP) was below method detection limit at all sites.
- The total bioavailable PAHs at each site ranged up to a factor of 10, with a high of approximately 12,500 ppt to a low of approximately 1,400 ppt.
- The highest bioavailable PAH concentrations where at sites 9, 12 and 22. High concentrations were also found at sites 11, 16, and 23.
- The lowest concentrations were found at sites 1, 5, 6, 14, 15, 15dup, 21, and 24.
- Among the bioavailable PAHs tested, fluorene had the highest concentration at all sites (10,000 to 1300 ppt).
- Other PAHs found in high concentrations were fluoranthene, pyrene, and phenanthene.
- The following PAHs were below method detection limits at all sites: benzo(b)fluoranthene, dibenzo(a,h)anthracene, benzo(g,h,i)perlene and indo(1,2,3,c,d,)pyrene.
- The highest bioavailable PAH concentrations were at sites within the proposed sediment cap boundary.
- There are low but detectable bioavailable PAHs outside the cap boundary.
- At the time of sampling there was about 1,300 ppt bioavailable PAHs upriver of the McCormick & Baxter superfund site.
- Sites that were west of McCormick & Baxter (in deeper water towards the center of the Willamette river) had detectable bioavailable PAH levels, the concentrations were ca. 3,000 ppt.
- Flourene was the dominant bioavailable PAH at all sites.
- Bioavailable PAHs are detected outside the cap boundry but are lower than near shore sites
- Bioavailable PAH at all sites in 2003 were higher than the same sites in 2002.
- Bioavailable flourene is largely responsible for the difference between 2002 and 2003 data.

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FSES Analytical Report: General Information

Units:

ppt = part per trillion

ppb= part per billion

ppm = part per million

ng/L = ppt

µg/Kg = ppb

µg/L = ppb

mg/L = ppm

Abbreviations:

NA= Not Applicable

MDL= Method Detection Limit

EDL= Estimated Detection Limit

BDL = Below Detection Limit

ND = None Detected

NQ = Not Quantitated (below DL)

Questions: If you have any additional questions, please call the Food Safety and Environmental Stewardship Laboratory Director at 541-737-8501.

DIRECTOR: _____ DATE _____

Kim A. Anderson, Ph.D.

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B Laboratory Analytical Data Packages for Fall 2003 Sampling Event

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: December 5, 2003

TO: Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

PROJECT: McCormick & Baxter, OR

REPORT NUMBER: 116895

TOTAL NUMBER OF PAGES: 41

Enclosed are the test results for four samples received at STL Seattle on October 14, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell

Darla Powell
Project Manager

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
116895-1	MBCFGB03-01	10-10-03 08:45	other
116895-2	MBCFGB03-02	10-13-03 09:11	other
116895-3	MBCFGB03-03	10-09-03 09:55	other
116895-4	MBCFGB03-04	10-09-03 10:05	other

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SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: December 5, 2003

Project: McCormick & Baxter, OR

Lab No.: 116895

Delivered By:

Condition of samples upon receipt: Samples were received in good condition. Cooler temperatures have been recorded on the cooler receipt form included in the chain of custody section of this report. Chain of custody was in order.

Sample Identification:

Lab. No.	Client ID	Date Sampled	Matrix
116895-1	MBCFGB03-01	10-10-03	other
116895-2	MBCFGB03-02	10-13-03	other
116895-3	MBCFGB03-03	10-09-03	other
116895-4	MBCFGB03-04	10-09-03	other

SAMPLE EXTRACTION AND ANALYSIS

SEMIVOLATILE ORGANICS

Samples 116895-1 through 116895-4 were analyzed for PAHs and PCP in accordance with EPA Method 8270C. The samples were extracted on 10-23-03 and analyzed on 10-30-03, which was within the required holding time.

The percent recoveries of 2,4,6-tribromophenol (surrogate compound) were outside of quality control acceptance limits for samples 116895-1 through 116895-4 and the method blank, blank spike and blank spike duplicate analyses. The phenol compounds were partially or all removed during the silica gel fractionation cleanup procedure. The PAH target analytes were all within established quality control acceptance limits.

Low level of naphthalene was detected in the method blank associated with sample batch ss0975x. Residual naphthalenes were entrained in the sample from the air during homogenization and fractionation. No additional sample was remaining for reextraction. The contamination was below the practical quantitation limit and above the method reporting limit. The sample data was flagged "B1" or "B2" as appropriate.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the semivolatile organic analyses.

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STL Seattle

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: December 5, 2003

Project: McCormick & Baxter, OR

Lab No.: 116895

TOTAL METALS

Samples 116895-1 through 116895-4 were analyzed for arsenic, chromium, copper and zinc in accordance with EPA Method 6020. The samples were digested and analyzed on 10-21-03, which was within the required holding time.

The relative percent difference value of arsenic for the duplicate analysis of sample 117005-1 was reported outside of quality control acceptance limits, due to the concentrations reported near the practical quantitation limit.

The relative percent difference values of arsenic and zinc for the duplicate analysis of sample 117005-19 were reported outside of quality control acceptance limits, due to the concentrations reported near the practical quantitation limit.

All quality control was within the acceptance limits.

No difficulties were encountered during the total metals analyses.

DIOXIN AND LIPIDS

Samples 116895-1 through 116895-4 were subcontracted to STL - Sacramento on 10-23-03. The final report in located at the back of this data package.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBCFGB03-01
Lab ID:	116895-01
Date Received:	10/14/2003
Date Prepared:	10/23/2003
Date Analyzed:	10/30/2003
% Solids	18.94
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4,6 - Tribromophenol	18.1	N	25	148
2 - Fluorobiphenyl	67.4		35	144
p - Terphenyl - d14	76.6		39	158

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MRL	Flags
Naphthalene	ND	147	73.3	
2-Methylnaphthalene	58.6	73.3	36.7	J B1
1-Methylnaphthalene	ND	73.3	36.7	
Acenaphthylene	ND	73.3	36.7	
Acenaphthene	ND	73.3	36.7	
Fluorene	ND	73.3	36.7	
Pentachlorophenol	ND	293	147	
Phenanthrene	ND	73.3	36.7	
Anthracene	ND	73.3	36.7	
Fluoranthene	11.1	14.7	7.33	J
Pyrene	20.1	14.7	7.33	
Benzo(a)anthracene	ND	29.3	14.7	
Chrysene	ND	29.3	14.7	
Benzofluoranthenes	ND	29.3	14.7	
Benzo(a)pyrene	ND	14.7	7.33	
Indeno(1,2,3-cd)pyrene	ND	14.7	7.33	
Dibenz(a,h)anthracene	ND	14.7	7.33	
Benzo(g,h,i)perylene	ND	73.3	36.7	

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STL Seattle

Client Name	Ecology & Environment
Client ID:	MBCFGB03-02
Lab ID:	116895-02
Date Received:	10/14/2003
Date Prepared:	10/23/2003
Date Analyzed:	10/30/2003
% Solids	21.12
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4,6 - Tribromophenol	16.2	N	25	148
2 - Fluorobiphenyl	75.4		35	144
p - Terphenyl - d14	94.9		39	158

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MRL	Flags
Naphthalene	ND	158	78.8	
2-Methylnaphthalene	79.6	78.8	39.4	B1
1-Methylnaphthalene	44.6	78.8	39.4	J
Acenaphthylene	ND	78.8	39.4	
Acenaphthene	47	78.8	39.4	J
Fluorene	ND	78.8	39.4	
Pentachlorophenol	ND	315	158	
Phenanthrene	61.3	78.8	39.4	J
Anthracene	ND	78.8	39.4	
Fluoranthene	48.5	15.8	7.88	
Pyrene	42.7	15.8	7.88	
Benzo(a)anthracene	ND	31.5	15.8	
Chrysene	ND	31.5	15.8	
Benzofluoranthenes	ND	31.5	15.8	
Benzo(a)pyrene	ND	15.8	7.88	
Indeno(1,2,3-cd)pyrene	ND	15.8	7.88	
Dibenz(a,h)anthracene	ND	15.8	7.88	
Benzo(g,h,i)perylene	ND	78.8	39.4	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBCFGB03-03
Lab ID:	116895-03
Date Received:	10/14/2003
Date Prepared:	10/23/2003
Date Analyzed:	10/30/2003
% Solids	21.42
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4,6 - Tribromophenol	16.4	N	25	148
2 - Fluorobiphenyl	73.7		35	144
p - Terphenyl - d14	82.7		39	158

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MRL	Flags
Naphthalene	ND	151	75.4	
2-Methylnaphthalene	94.7	75.4	37.7	B1
1-Methylnaphthalene	61.3	75.4	37.7	J
Acenaphthylene	ND	75.4	37.7	
Acenaphthene	ND	75.4	37.7	
Fluorene	ND	75.4	37.7	
Pentachlorophenol	ND	302	151	
Phenanthrene	97.8	75.4	37.7	
Anthracene	ND	75.4	37.7	
Fluoranthene	25.2	15.1	7.54	
Pyrene	69	15.1	7.54	
Benzo(a)anthracene	ND	30.2	15.1	
Chrysene	ND	30.2	15.1	
Benzofluoranthenes	ND	30.2	15.1	
Benzo(a)pyrene	ND	15.1	7.54	
Indeno(1,2,3-cd)pyrene	ND	15.1	7.54	
Dibenz(a,h)anthracene	ND	15.1	7.54	
Benzo(g,h,i)perylene	ND	75.4	37.7	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBCFGB03-04
Lab ID:	116895-04
Date Received:	10/14/2003
Date Prepared:	10/23/2003
Date Analyzed:	10/30/2003
% Solids	19.97
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2,4,6 - Tribromophenol	20.6	N	25	148
2 - Fluorobiphenyl	86.6		35	144
p - Terphenyl - d14	44.3		39	158

Sample results are on a dry weight basis.

Analyte	Result (ug/kg)	PQL	MRL	Flags
Naphthalene	ND	172	85.9	
2-Methylnaphthalene	74.9	85.9	43	J B1
1-Methylnaphthalene	ND	85.9	43	
Acenaphthylene	ND	85.9	43	
Acenaphthene	ND	85.9	43	
Fluorene	ND	85.9	43	
Pentachlorophenol	ND	344	172	
Phenanthrene	46.7	85.9	43	J
Anthracene	ND	85.9	43	
Fluoranthene	24.9	17.2	8.59	
Pyrene	22.8	17.2	8.59	
Benzo(a)anthracene	ND	34.4	17.2	
Chrysene	ND	34.4	17.2	
Benzofluoranthenes	ND	34.4	17.2	
Benzo(a)pyrene	ND	17.2	8.59	
Indeno(1,2,3-cd)pyrene	ND	17.2	8.59	
Dibenz(a,h)anthracene	ND	17.2	8.59	
Benzo(g,h,i)perylene	ND	85.9	43	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBCFGB03-01
Lab ID:	116895-01
Date Received:	10/14/03
Date Prepared:	10/22/03
Date Analyzed:	10/22/03
Dilution Factor	5
% Solids	18.94

Metals by ICP-MS - USEPA Method 6020

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
Arsenic	ND	4.52	2.26	
Chromium	2.86	4.52	2.26	J
Copper	86.7	4.52	2.26	
Zinc	76.8	13.5	6.77	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBCFGB03-02
Lab ID:	116895-02
Date Received:	10/14/03
Date Prepared:	10/22/03
Date Analyzed:	10/22/03
Dilution Factor	5
% Solids	21.12

Metals by ICP-MS - USEPA Method 6020

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
Arsenic	ND	3.49	1.75	
Chromium	3.32	3.49	1.75	J
Copper	96.9	3.49	1.75	
Zinc	68.2	10.5	5.24	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBCFGB03-03
Lab ID:	116895-03
Date Received:	10/14/03
Date Prepared:	10/22/03
Date Analyzed:	10/22/03
Dilution Factor	5
% Solids	21.42

Metals by ICP-MS - USEPA Method 6020

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
Arsenic	ND	4.25	2.12	
Chromium	2.55	4.25	2.12	J
Copper	66	4.25	2.12	
Zinc	71.9	12.7	6.37	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBCFGB03-04
Lab ID:	116895-04
Date Received:	10/14/03
Date Prepared:	10/22/03
Date Analyzed:	10/22/03
Dilution Factor	5
% Solids	19.97

Metals by ICP-MS - USEPA Method 6020

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
Arsenic	ND	4.23	2.11	
Chromium	3.59	4.23	2.11	J
Copper	78.9	4.23	2.11	
Zinc	74	12.7	6.34	

STL Seattle

Lab ID:	Method Blank - SS0975X
Date Received:	-
Date Prepared:	10/23/2003
Date Analyzed:	10/30/2003
% Solids	
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2,4,6 - Tribromophenol	13.7	N	25	148
2 - Fluorobiphenyl	73		35	144
p - Terphenyl - d14	86.4		39	158

Sample results are on an as received basis.

Analyte	Result (ug/kg)	PQL	MRL	Flags
Naphthalene	ND	33.3	16.7	
2-Methylnaphthalene	8.95	16.7	8.33	J
1-Methylnaphthalene	ND	16.7	8.33	
Acenaphthylene	ND	16.7	8.33	
Acenaphthene	ND	16.7	8.33	
Fluorene	ND	16.7	8.33	
Pentachlorophenol	ND	66.7	33.3	
Phenanthrene	ND	16.7	8.33	
Anthracene	ND	16.7	8.33	
Fluoranthene	ND	3.33	1.67	
Pyrene	ND	3.33	1.67	
Benzo(a)anthracene	ND	6.67	3.33	
Chrysene	ND	6.67	3.33	
Benzofluoranthenes	ND	6.67	3.33	
Benzo(a)pyrene	ND	3.33	1.67	
Indeno(1,2,3-cd)pyrene	ND	3.33	1.67	
Dibenz(a,h)anthracene	ND	3.33	1.67	
Benzo(g,h,i)perylene	ND	16.7	8.33	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	SS0975X
Date Prepared:	10/23/2003
Date Analyzed:	10/30/2003
QC Batch ID:	SS0975X

Semivolatile Organics by USEPA Method 8270

Compound Name	Blank Result (ug/kg)	Spike Amount (ug/kg)	BS Result (ug/kg)	BS % Rec.	BSD Result (ug/kg)	BSD % Rec.	RPD	Flag
Naphthalene	10	66.7	70.6	90.9	69.6	89.4	-1.7	
2-Methylnaphthalene	9	66.7	73.6	97	67.3	87.5	-10	
1-Methylnaphthalene	4.1	66.7	69.2	97.7	66.8	94.1	-3.8	
Acenaphthylene	0	66.7	58.5	87.7	64.2	96.2	9.2	
Acenaphthene	2.2	66.7	54.6	78.6	66.8	96.8	21	
Fluorene	0	66.7	62.8	94.3	68.6	103	8.8	
Pentachlorophenol	0	133	2.92	2.19	2.95	2.21	0.91	N
Phenanthrene	0	66.7	67.5	101	69.7	104	2.9	
Anthracene	0	66.7	68.9	103	69	104	0.97	
Fluoranthene	0	66.7	67.8	102	66.7	100	-2	
Pyrene	0	66.7	68.9	103	70.1	105	1.9	
Benzo(a)anthracene	0	66.7	57.7	86.6	58.5	87.7	1.3	
Chrysene	0	66.7	60.1	90.2	67.6	101	11	
Benzofluoranthenes	0	133	130	97.2	142	106	8.7	
Benzo(a)pyrene	0	66.7	56.4	84.7	62.4	93.5	9.9	
Indeno(1,2,3-cd)pyrene	0	66.7	66.8	100	69.2	104	3.9	
Dibenz(a,h)anthracene	0	66.7	63.9	95.9	70.2	105	9.1	
Benzo(g,h,i)perylene	0	66.7	62	92.9	69	104	11	

STL Seattle

Lab ID:	Method Blank - SP155
Date Received:	-
Date Prepared:	10/22/03
Date Analyzed:	10/22/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
Arsenic	ND	0.2	0.1	
Chromium	ND	0.2	0.1	
Copper	ND	0.2	0.1	
Zinc	ND	0.6	0.3	

STL Seattle

Matrix Spike Report

Client Sample ID:	MBCFGB03-01
Lab ID:	116895-01
Date Prepared:	10/22/03
Date Analyzed:	10/22/03
QC Batch ID:	SP155

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Arsenic	0	3540	3150	89	
Chromium	2.9	354	324	91	
Copper	87	442	478	89	
Zinc	77	884	834	86	

STL Seattle

Duplicate Report

Client Sample ID:	MBCFGB03-01
Lab ID:	116895-01
Date Prepared:	10/22/03
Date Analyzed:	10/22/03
QC Batch ID:	SP155

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Arsenic	0	0	NC	
Chromium	2.9	2.8	3.5	
Copper	87	92	-5.6	
Zinc	77	79	-2.6	

STL Seattle

Laboratory Control Sample

Lab ID:	RSP155
Date Prepared:	10/22/03
Date Analyzed:	10/22/03
QC Batch ID:	SP155

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/kg)	True Value (mg/kg)	Lower Limit (mg/kg)	Upper Limit (mg/kg)	Flag
Arsenic	110	114	81.5	145	Pass
Chromium	170	171	135	206	Pass
Copper	110	112	90.4	134	Pass
Zinc	190	194	155	233	Pass

SEVERN TRENT STL

STL Sacramento
880 Riverside Parkway
West Sacramento, CA 95605

Tel: 916 373 5600 Fax: 916 372 1059
www.stl-inc.com

November 26, 2003

STL SACRAMENTO PROJECT NUMBER: G3J240330
PO/CONTRACT: 116895

Darla Powell
STL Seattle
5755 8th Street East
Tacoma, WA 98424

Dear Ms. Powell,

This report contains the analytical results for the samples received under chain of custody by STL Sacramento on October 24, 2003. These samples are associated with your Crawfish project.

The test results in this report meet all NELAC requirements for parameters that accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916) 374-4402.

Sincerely,

Jill Kellmann
Project Manager

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CASE NARRATIVE

STL SACRAMENTO PROJECT NUMBER G3J240330

There were no anomalies associated with this project.

SEVERN TRENT STL

ACCREDITED IN ACCORDANCE WITH

STL Sacramento Certifications/Accreditations

Certifying State	Certificate #	Certifying State	Certificate #
Alaska	UST-055	Oregon	CA 200005
[illegible]	[illegible]	[illegible]	[illegible]
Arkansas	NA	South Carolina	87014001
[illegible]	[illegible]	[illegible]	[illegible]
Connecticut	PH-0691	Virginia	00178
[illegible]	[illegible]	[illegible]	[illegible]
Georgia	960	West Virginia	9930C, 334
[illegible]	[illegible]	[illegible]	[illegible]
Louisiana*	01944	NFESC	NA
[illegible]	[illegible]	[illegible]	[illegible]
New Jersey*	CA005	USDA Foreign Plant	37-82605
[illegible]	[illegible]	[illegible]	[illegible]

*NELAP accredited. A more detailed parameter list is available upon request.

QC Parameter Definitions

QC Batch: The QC batch consists of a set of up to 20 field samples that behave similarly (i.e., same matrix) and are processed using the same procedures, reagents, and standards at the same time.

Method Blank: An analytical control consisting of all reagents, which may include internal standards and surrogates, and is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background contamination.

Laboratory Control Sample and Laboratory Control Sample Duplicate (LCS/LCSD): An aliquot of blank matrix spiked with known amounts of representative target analytes. The LCS (and LCSD as required) is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects. If an LCSD is performed, it may also used to evaluate the precision of the process.

Duplicate Sample (DU): Different aliquots of the same sample are analyzed to evaluate the precision of an analysis.

Surrogates: Organic compounds not expected to be detected in field samples, which behave similarly to target analytes. These are added to every sample within a batch at a known concentration to determine the efficiency of the sample preparation and analytical process.

Matrix Spike and Matrix Spike Duplicate (MS/MSD): An MS is an aliquot of a matrix fortified with known quantities of specific compounds and subjected to an entire analytical procedure in order to indicate the appropriateness of the method for a particular matrix. The percent recovery for the respective compound(s) is then calculated. The MSD is a second aliquot of the same matrix as the matrix spike, also spiked, in order to determine the precision of the method.

Isotope Dilution: For isotope dilution methods, isotopically labeled analogs (internal standards) of the native target analytes are spiked into the sample at time of extraction. These internal standards are used for quantitation, and monitor and correct for matrix effects. Since matrix effects on method performance can be judged by the recovery of these analogs, there is little added benefit of performing MS/MSD for these methods. MS/MSD are only performed for client or QAPP requirements.

Control Limits: The reported control limits are either based on laboratory historical data, method requirements, or project data quality objectives. The control limits represent the estimated uncertainty of the test results.

SAMPLE SUMMARY

G3J240330

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SA TI
F3D7E	001	116895-1	10/10/03	08
F3D7F	002	116895-2	10/13/03	09
F3D7G	003	116895-3	10/09/03	09
F3D7H	004	116895-4	10/09/03	10

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Chain of Custody Record

5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

SEVERN TRENT STL

Client	Project Manager	Date	Chain of Custody Number
STL SEATTLE	Darla Powell	10/23/03	04430
Address: 5755 8th ST.	Telephone Number (Area Code)/Fax Number	Lab Number	Page 1 of 1

City | State | Zip Code | Site Contact | Lab Contact

Project Name and Location (State): E+E

Carrier/Waybill Number

Contract/Purchase Order/Quote No.

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Air	Aqueous	Sed.	Soil	Crayfish	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Dioxins	Special Instructions/ Conditions of Receipt
116895-1	10/10/03	8:45					X							X	Please see attached. DL's
116895-2	10/13/03	9:11					X							X	
116895-3	10/9/03	955					X							X	
116895-4	10/9/03	1005					X							X	

RECEIVED IN GOOD CONDITION UNDER 300
OCT 24 2003

Cooler: ☒ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other See ISA

QC Requirements (Specify)

Relinquished By	Date	Time	Received By	Date	Time
1. [signature]	10/23/03	1:00p	1. [signature]	10/24/03	1140
2.			2.		
3.			3.		

Comments

DISTRIBUTION: WHITE – Stays with the Samples; CANARY – Returned to Client with Report; PINK – Field Copy

STL8274-580 (12/02)

2000

STL SEATTLE

Client Sample ID: 116895-1

Trace Level Organic Compounds

Lot-Sample #...: G3J240330-001 Work Order #...: F3D7E1AC Matrix.....: BIOLOGIC
Date Sampled...: 10/10/03 Date Received..: 10/24/03
Prep Date.....: 10/28/03 Analysis Date..: 11/26/03
Prep Batch #...: 3301458
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
Percent Lipids	6.1	0.10	%	SW846 8290

STL SEATTLE

Client Sample ID: 116895-1

Trace Level Organic Compounds

Lot-Sample #...: G3J240330-001 Work Order #...: F3D7E2AA Matrix.....: BIOLOGIC
Date Sampled...: 10/10/03 Date Received..: 10/24/03
Prep Date.....: 11/06/03 Analysis Date..: 11/12/03
Prep Batch #...: 3310642
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.42	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	1.1	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.43	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	3.2 J		pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	1.0	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	73		pg/g	SW846 8290
OCDD	530		pg/g	SW846 8290
2,3,7,8-TCDF	5.7 CON		pg/g	SW846 8290
1,2,3,7,8-PeCDF	2.9 J		pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	2.0	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.5	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.52	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.29	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.12	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	2.6 J		pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.17	pg/g	SW846 8290
OCDF	9.0 J		pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	62	(40 - 135)
13C-1,2,3,7,8-PeCDD	60	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	63	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	58	(40 - 135)
13C-OCDD	53	(40 - 135)
13C-2,3,7,8-TCDF	63	(40 - 135)
13C-1,2,3,7,8-PeCDF	63	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	67	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	55	(40 - 135)

NOTE(S):

J Estimated result. Result is less than the reporting limit.

CON Confirmation analysis.

STL SEATTLE

Client Sample ID: 116895-2

Trace Level Organic Compounds

Lot-Sample #...: G3J240330-002 Work Order #...: F3D7F1AC Matrix.....: BIOLOGIC
Date Sampled...: 10/13/03 Date Received..: 10/24/03
Prep Date.....: 10/28/03 Analysis Date..: 11/26/03
Prep Batch #...: 3301458
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
Percent Lipids	6.5	0.10	%	SW846 8290

STL SEATTLE

Client Sample ID: 116895-2

Trace Level Organic Compounds

Lot-Sample #...: G3J240330-002 Work Order #...: F3D7F2AA Matrix.....: BIOLOGIC
Date Sampled...: 10/13/03 Date Received..: 10/24/03
Prep Date.....: 11/06/03 Analysis Date..: 11/12/03
Prep Batch #...: 3310642
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.40	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.62	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.29	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	1.4	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.44	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	24		pg/g	SW846 8290
OCDD	200		pg/g	SW846 8290
2,3,7,8-TCDF	1.5 CON		pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	1.1	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	1.4	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.4	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.54	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.21	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.12	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	1.2	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.23	pg/g	SW846 8290
OCDF	ND	1.4	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	61	(40 - 135)
13C-1,2,3,7,8-PeCDD	56	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	66	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	60	(40 - 135)
13C-OCDD	48	(40 - 135)
13C-2,3,7,8-TCDF	62	(40 - 135)
13C-1,2,3,7,8-PeCDF	59	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	74	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	60	(40 - 135)

NOTE(S):

CON Confirmation analysis.

STL SEATTLE

Client Sample ID: 116895-3

Trace Level Organic Compounds

Lot-Sample #...: G3J240330-003 Work Order #...: F3D7G1AC Matrix.....: BIOLOGIC
Date Sampled...: 10/09/03 Date Received..: 10/24/03
Prep Date.....: 10/28/03 Analysis Date..: 11/26/03
Prep Batch #...: 3301458
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
Percent Lipids	5.6	0.10	%	SW846 8290

STL SEATTLE

Client Sample ID: 116895-3

Trace Level Organic Compounds

Lot-Sample #...: G3J240330-003
Date Sampled...: 10/09/03
Prep Date.....: 11/06/03
Prep Batch #...: 3310642
Dilution Factor: 1

Work Order #...: F3D7G2AA
Date Received..: 10/24/03
Analysis Date..: 11/12/03

Matrix.....: BIOLOGIC

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.11	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.23	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.15	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.67	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.26	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	13		pg/g	SW846 8290
OCDD	110		pg/g	SW846 8290
2,3,7,8-TCDF	ND CON	0.46	pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.40	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.57	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.69	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.19	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.10	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.095	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.68	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.14	pg/g	SW846 8290
OCDF	ND	1.3	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	69	(40 - 135)
13C-1,2,3,7,8-PeCDD	63	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	70	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	65	(40 - 135)
13C-OCDD	56	(40 - 135)
13C-2,3,7,8-TCDF	69	(40 - 135)
13C-1,2,3,7,8-PeCDF	66	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	80	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	64	(40 - 135)

NOTE(S):

CON Confirmation analysis.

STL SEATTLE

Client Sample ID: 116895-4

Trace Level Organic Compounds

Lot-Sample #...: G3J240330-004 Work Order #...: F3D7H1AC Matrix.....: BIOLOGIC
Date Sampled...: 10/09/03 Date Received..: 10/24/03
Prep Date.....: 10/28/03 Analysis Date..: 11/26/03
Prep Batch #...: 3301458
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
Percent Lipids	7.0	0.10	%	SW846 8290

STL SEATTLE

Client Sample ID: 116895-4

Trace Level Organic Compounds

Lot-Sample #...: G3J240330-004 Work Order #...: F3D7H2AA Matrix.....: BIOLOGIC
Date Sampled...: 10/09/03 Date Received..: 10/24/03
Prep Date.....: 11/06/03 Analysis Date..: 11/12/03
Prep Batch #...: 3310642
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.30	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.53	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.15	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	1.2	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.36	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	30		pg/g	SW846 8290
OCDD	160		pg/g	SW846 8290
2,3,7,8-TCDF	8.4 CON		pg/g	SW846 8290
1,2,3,7,8-PeCDF	3.3 J		pg/g	SW846 8290
2,3,4,7,8-PeCDF	2.6 J		pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	1.1	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.38	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.16	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.092	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	1.0	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.13	pg/g	SW846 8290
OCDF	ND	1.2	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	73	(40 - 135)
13C-1,2,3,7,8-PeCDD	68	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	75	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	69	(40 - 135)
13C-OCDD	59	(40 - 135)
13C-2,3,7,8-TCDF	73	(40 - 135)
13C-1,2,3,7,8-PeCDF	73	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	83	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	67	(40 - 135)

NOTE(S):

CON Confirmation analysis.

J Estimated result. Result is less than the reporting limit.

QC DATA ASSOCIATION SUMMARY

G3J240330

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	BIOLOGIC	SW846 8290		3310642	
	BIOLOGIC	SW846 8290		3301458	
002	BIOLOGIC	SW846 8290		3310642	
	BIOLOGIC	SW846 8290		3301458	
003	BIOLOGIC	SW846 8290		3310642	
	BIOLOGIC	SW846 8290		3301458	
004	BIOLOGIC	SW846 8290		3310642	
	BIOLOGIC	SW846 8290		3301458	

METHOD BLANK REPORT

Trace Level Organic Compounds

Client Lot #...: G3J240330
MB Lot-Sample #: G3K060000-642

Work Order #...: F4A581AA

Matrix.....: BIOLOGIC

Prep Date.....: 11/06/03
Prep Batch #...: 3310642

Analysis Date..: 11/12/03
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	0.081	pg/g	SW846 8290
1,2,3,7,8-PeCDD	ND	0.18	pg/g	SW846 8290
1,2,3,4,7,8-HxCDD	ND	0.11	pg/g	SW846 8290
1,2,3,6,7,8-HxCDD	ND	0.10	pg/g	SW846 8290
1,2,3,7,8,9-HxCDD	ND	0.10	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDD	ND	0.13	pg/g	SW846 8290
OCDD	ND	0.26	pg/g	SW846 8290
2,3,7,8-TCDF	ND	0.074	pg/g	SW846 8290
1,2,3,7,8-PeCDF	ND	0.10	pg/g	SW846 8290
2,3,4,7,8-PeCDF	ND	0.10	pg/g	SW846 8290
1,2,3,4,7,8-HxCDF	ND	0.085	pg/g	SW846 8290
1,2,3,6,7,8-HxCDF	ND	0.084	pg/g	SW846 8290
2,3,4,6,7,8-HxCDF	ND	0.071	pg/g	SW846 8290
1,2,3,7,8,9-HxCDF	ND	0.074	pg/g	SW846 8290
1,2,3,4,6,7,8-HpCDF	ND	0.10	pg/g	SW846 8290
1,2,3,4,7,8,9-HpCDF	ND	0.11	pg/g	SW846 8290
OCDF	ND	0.19	pg/g	SW846 8290

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	68	(40 - 135)
13C-1,2,3,7,8-PeCDD	65	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	70	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	66	(40 - 135)
13C-OCDD	59	(40 - 135)
13C-2,3,7,8-TCDF	68	(40 - 135)
13C-1,2,3,7,8-PeCDF	69	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	78	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	65	(40 - 135)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #...: G3J240330 Work Order #...: F4A581AC-LCS Matrix.....: BIOLOGIC
LCS Lot-Sample#: G3K060000-642 F4A581AD-LCSD
Prep Date.....: 11/06/03 Analysis Date..: 11/12/03
Prep Batch #...: 3310642
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,3,7,8-TCDD	104	(50 - 150)			SW846 8290
	80	(50 - 150)	25	(0-50)	SW846 8290
1,2,3,7,8-PeCDD	105	(50 - 150)			SW846 8290
	80	(50 - 150)	27	(0-50)	SW846 8290
1,2,3,4,7,8-HxCDD	102	(50 - 150)			SW846 8290
	72	(50 - 150)	34	(0-50)	SW846 8290
1,2,3,6,7,8-HxCDD	102	(50 - 150)			SW846 8290
	76	(50 - 150)	29	(0-50)	SW846 8290
1,2,3,7,8,9-HxCDD	101	(50 - 150)			SW846 8290
	76	(50 - 150)	28	(0-50)	SW846 8290
1,2,3,4,6,7,8-HpCDD	96	(50 - 150)			SW846 8290
	71	(50 - 150)	30	(0-50)	SW846 8290
OCDD	96	(50 - 150)			SW846 8290
	72	(50 - 150)	28	(0-50)	SW846 8290
2,3,7,8-TCDF	99	(50 - 150)			SW846 8290
	78	(50 - 150)	24	(0-50)	SW846 8290
1,2,3,7,8-PeCDF	100	(50 - 150)			SW846 8290
	77	(50 - 150)	25	(0-50)	SW846 8290
2,3,4,7,8-PeCDF	103	(50 - 150)			SW846 8290
	74	(50 - 150)	33	(0-50)	SW846 8290
1,2,3,4,7,8-HxCDF	99	(50 - 150)			SW846 8290
	76	(50 - 150)	26	(0-50)	SW846 8290
1,2,3,6,7,8-HxCDF	91	(50 - 150)			SW846 8290
	68	(50 - 150)	28	(0-50)	SW846 8290
2,3,4,6,7,8-HxCDF	91	(50 - 150)			SW846 8290
	69	(50 - 150)	28	(0-50)	SW846 8290
1,2,3,7,8,9-HxCDF	77	(50 - 150)			SW846 8290
	64	(50 - 150)	18	(0-50)	SW846 8290
1,2,3,4,6,7,8-HpCDF	92	(50 - 150)			SW846 8290
	68	(50 - 150)	30	(0-50)	SW846 8290
1,2,3,4,7,8,9-HpCDF	83	(50 - 150)			SW846 8290
	62	(50 - 150)	29	(0-50)	SW846 8290
OCDF	91	(50 - 150)			SW846 8290
	70	(50 - 150)	27	(0-50)	SW846 8290

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

Trace Level Organic Compounds

Client Lot #...: G3J240330 Work Order #...: F4A581AC-LCS Matrix.....: BIOLOGIC
LCS Lot-Sample#: G3K060000-642 F4A581AD-LCSD

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	68	(40 - 135)
	48	(40 - 135)
13C-1,2,3,7,8-PeCDD	65	(40 - 135)
	43	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	73	(40 - 135)
	50	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	67	(40 - 135)
	46	(40 - 135)
13C-OCDD	59	(40 - 135)
	40	(40 - 135)
13C-2,3,7,8-TCDF	71	(40 - 135)
	47	(40 - 135)
13C-1,2,3,7,8-PeCDF	68	(40 - 135)
	46	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	80	(40 - 135)
	53	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	64	(40 - 135)
	45	(40 - 135)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G3J240330 Work Order #...: F4A581AC-LCS Matrix.....: BIOLOGIC
LCS Lot-Sample#: G3K060000-642 F4A581AD-LCSD
Prep Date.....: 11/06/03 Analysis Date..: 11/12/03
Prep Batch #...: 3310642
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
2,3,7,8-TCDD	20.0	20.7	pg/g	104		SW846 8290
	20.0	16.0	pg/g	80	25	SW846 8290
1,2,3,7,8-PeCDD	100	105	pg/g	105		SW846 8290
	100	80.0	pg/g	80	27	SW846 8290
1,2,3,4,7,8-HxCDD	100	102	pg/g	102		SW846 8290
	100	72.5	pg/g	72	34	SW846 8290
1,2,3,6,7,8-HxCDD	100	102	pg/g	102		SW846 8290
	100	76.4	pg/g	76	29	SW846 8290
1,2,3,7,8,9-HxCDD	100	101	pg/g	101		SW846 8290
	100	76.1	pg/g	76	28	SW846 8290
1,2,3,4,6,7,8-HpCDD	100	95.6	pg/g	96		SW846 8290
	100	70.6	pg/g	71	30	SW846 8290
OCDD	200	192	pg/g	96		SW846 8290
	200	145	pg/g	72	28	SW846 8290
2,3,7,8-TCDF	20.0	19.9	pg/g	99		SW846 8290
	20.0	15.7	pg/g	78	24	SW846 8290
1,2,3,7,8-PeCDF	100	99.6	pg/g	100		SW846 8290
	100	77.1	pg/g	77	25	SW846 8290
2,3,4,7,8-PeCDF	100	103	pg/g	103		SW846 8290
	100	74.0	pg/g	74	33	SW846 8290
1,2,3,4,7,8-HxCDF	100	98.7	pg/g	99		SW846 8290
	100	75.7	pg/g	76	26	SW846 8290
1,2,3,6,7,8-HxCDF	100	90.9	pg/g	91		SW846 8290
	100	68.2	pg/g	68	28	SW846 8290
2,3,4,6,7,8-HxCDF	100	91.3	pg/g	91		SW846 8290
	100	68.9	pg/g	69	28	SW846 8290
1,2,3,7,8,9-HxCDF	100	76.9	pg/g	77		SW846 8290
	100	64.4	pg/g	64	18	SW846 8290
1,2,3,4,6,7,8-HpCDF	100	92.0	pg/g	92		SW846 8290
	100	68.2	pg/g	68	30	SW846 8290
1,2,3,4,7,8,9-HpCDF	100	82.9	pg/g	83		SW846 8290
	100	61.6	pg/g	62	29	SW846 8290
OCDF	200	183	pg/g	91		SW846 8290
	200	139	pg/g	70	27	SW846 8290

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

Client Lot #...: G3J240330 Work Order #...: F4A581AC-LCS Matrix.....: BIOLOGIC
LCS Lot-Sample#: G3K060000-642 F4A581AD-LCSD

INTERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	68	(40 - 135)
	48	(40 - 135)
13C-1,2,3,7,8-PeCDD	65	(40 - 135)
	43	(40 - 135)
13C-1,2,3,6,7,8-HxCDD	73	(40 - 135)
	50	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDD	67	(40 - 135)
	46	(40 - 135)
13C-OCDD	59	(40 - 135)
	40	(40 - 135)
13C-2,3,7,8-TCDF	71	(40 - 135)
	47	(40 - 135)
13C-1,2,3,7,8-PeCDF	68	(40 - 135)
	46	(40 - 135)
13C-1,2,3,4,7,8-HxCDF	80	(40 - 135)
	53	(40 - 135)
13C-1,2,3,4,6,7,8-HpCDF	64	(40 - 135)
	45	(40 - 135)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The presence of this analyte was not verified per WAC 246-290-010. The original analysis was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

MRL: Method Reporting Limit

N: See analytical narrative

ND: Not Detected

PQL: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

Cooler ID No. _____ STL WORK ORDER NO. 110015

COOLER RECEIPT FORM

PROJECT McCormick & Baxter OR.

COOLER RECEIVED ON 10/5 AND OPENED ON 10/15 BY KC

(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 3.0 oC
TEMP. BLANK NA oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 left / 1 Right
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? foam, ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? ~~YES NO~~
10. Were all bottle labels complete (no., date, signed, pres, etc)? ~~YES NO~~
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? ~~YES NO~~
13. If present, were VOA vials checked for absence of air bubbles and noted if found? ~~YES NO~~
14. Adequate volume of VOA vials received per sample? ~~YES NO~~
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? ~~YES NO~~
17. Were extra labels added to pre-tared containers? ~~YES NO~~
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

000

Custody Seal

DATE 10/13/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375707

Custody Seal

DATE 10/13/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375717

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5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

TRENT SERVICES **Severn Trent Laboratories, Inc.**

274 (0102)

nt: Ecology & Environment	Project Manager: MARIL OCHSNER	Date: 10-13-03	Chain of Custody Number: 003378
ess: 333 SW 5th AVE STE 608	Telephone Number (Area Code)/Fax Number: 503-248-5000 / 503-248-5577	Lab Number: 116895	Page 1 of ___
Portland, State: OR, Zip Code: 97204	Site Contact:	Lab Contact:	
ect Name and Location (State): McCormick & Baxter OR	Carrier/Waybill Number:		
tract/Purchase Order/Quote No.:			

Sample I.D. and Location/Description (ntainers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Tissue Fish	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PCP/Cl2 PHENOLS EPA Method 8270	EPA Method 8270 PAHs-PCP	EPA Method 8270 SIM	TOTAL METALS by EPA Method 6010	EPA METHOD 8270 PCDDs/PCDFs by	Special Instructions/ Conditions of Receipt
BCFGB03-01	10-10-03	0845					X	X						X	X	X	X		4CF ≈ 1666.3g
1BCFGB03-02	10-13-03	0911					X	X						X	X	X	X		2CF ≈ 84.2g
BCFGB03-03	10-9-03	0955					X	X						X	X	X	X		4CF ≈ 172.8g
1BCFGB03-04	10-9-03	1005					X	X						X	X	X	X		3CF ≈ 114.9g

oler: Yes ☐ No Cooler Temp: ___

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ___ Months (A fee may be assessed if samples are retained longer than 1 month)

m Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other Per Contract

QC Requirements (Specify):

Relinquished By: Ann E Murphy	Date: 10-13-03	Time: 1313	1. Received By: L. Hicks	Date: 10/13/03	Time: 1310
Relinquished By: L. Hicks	Date: 10/13/03	Time: 1640	2. Received By: K Healey	Date: 10/14/03	Time: 930A
Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

omments

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DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

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TRANSMITTAL MEMORANDUM

DATE: November 17, 2003

TO: Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

PROJECT: McCormick & Baxter, Oregon

REPORT NUMBER: 116609

TOTAL NUMBER OF PAGES: 67

Enclosed are the test results for twenty samples received at STL Seattle on October 3, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell
Project Manager

STL Seattle is a part of Severn Trent Laboratories, Inc.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
116609-1	MBGWMH0303(14")	10-01-03 16:27	Liquid
116609-2	MBGWMH0303(36")	10-01-03 16:36	Liquid
116609-3	MBGWMH0303(72")	10-01-03 16:39	Liquid
116609-4	MBGWMH0302(14")	10-01-03 15:14	Liquid
116609-5	MBGWMH0302(36")	10-01-03 15:26	Liquid
116609-6	MBGWMH0302(72")	10-01-03 15:35	Liquid
116609-7	MBGWMH0301(14")	10-01-03 14:32	Liquid
116609-8	MBGWMH0301(36")	10-01-03 14:43	Liquid
116609-9	MBGWMH0301(72")	10-01-03 14:49	Liquid
116609-10	MBGWMH0305(14")	10-01-03 18:42	Liquid
116609-11	MBGWMH0305(36")	10-01-03 18:50	Liquid
116609-12	MBGWMH0305(72")	10-01-03 19:00	Liquid
116609-13	MBGWMH0305(84")	10-01-03 19:08	Liquid
116609-14	MBGWMH0306(14")	10-01-03 18:10	Liquid
116609-15	MBGWMH0306(36")	10-01-03 18:18	Liquid
116609-16	MBGWMH0306(72")	10-01-03 18:20	Liquid
116609-17	MBGWMH0304(14")	10-01-03 17:02	Liquid
116609-18	MBGWMH0304(36")	10-01-03 17:08	Liquid
116609-19	MBGWMH0304(72")	10-01-03 17:14	Liquid
116609-20	MBGWMH03RN	10-02-03 09:00	Liquid

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STL Seattle
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Tel: 253 922 2310
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ANALYTICAL NARRATIVE

Client: Ecology & Environment

Project: McCormick & Baxter, Oregon

Delivered By: Federal Express

Date: November 17, 2003

Lab No.: 116609

Condition of samples upon receipt: Samples were received in good condition. Cooler temperatures have been recorded on the cooler receipt form included in the chain of custody section of this report. Chain of custody was in order.

Sample Identification:

Lab. No.	Client ID	Date Sampled	Matrix
116609-1	MBGWMH0303(14")	10-01-03	Liquid
116609-2	MBGWMH0303(36")	10-01-03	Liquid
116609-3	MBGWMH0303(72")	10-01-03	Liquid
116609-4	MBGWMH0302(14")	10-01-03	Liquid
116609-5	MBGWMH0302(36")	10-01-03	Liquid
116609-6	MBGWMH0302(72")	10-01-03	Liquid
116609-7	MBGWMH0301(14")	10-01-03	Liquid
116609-8	MBGWMH0301(36")	10-01-03	Liquid
116609-9	MBGWMH0301(72")	10-01-03	Liquid
116609-10	MBGWMH0305(14")	10-01-03	Liquid
116609-11	MBGWMH0305(36")	10-01-03	Liquid
116609-12	MBGWMH0305(72")	10-01-03	Liquid
116609-13	MBGWMH0305(84")	10-01-03	Liquid
116609-14	MBGWMH0306(14")	10-01-03	Liquid
116609-15	MBGWMH0306(36")	10-01-03	Liquid
116609-16	MBGWMH0306(72")	10-01-03	Liquid
116609-17	MBGWMH0304(14")	10-01-03	Liquid
116609-18	MBGWMH0304(36")	10-01-03	Liquid
116609-19	MBGWMH0304(72")	10-01-03	Liquid
116609-20	MBGWMH03RN	10-02-03	Liquid

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STL Seattle

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: November 17, 2003

Project: McCormick & Baxter, Oregon

Lab No.: 116609

SAMPLE EXTRACTION AND ANALYSIS

SEMIVOLATILE ORGANICS

Samples 116609-1 through 116609-20 were analyzed for PAHs and PCP in accordance with EPA Method 8270C. The samples were extracted on 10-7-03 and analyzed on 10-11-03, 10-12-03,10-15-03 through 10-16-03, which was within the required holding time.

Several samples required a sample dilution prior analysis or a secondary dilution for analytes that were initially outside of calibration range.

The percent recovery of 2,4,6-tribromophenol (surrogate compound) was reported outside of quality control acceptance limits for sample 116609-3 due to matrix interference.

The percent recoveries of all surrogate compounds for samples 116609-7 116609-8, 116609-9, 116609-11 through 116609-16 and 116609-19 were not recovered due to the required dilution.

The percent recoveries of 2-fluorobiphenyl (surrogate compound) were reported outside of quality control acceptance limits for samples 116609-17 and 116609-20 due to matrix interference.

The percent recovery of p-terphenyl – d14 (surrogate compound) for sample 116609-18 was not recovered due to the required dilution.

The concentration of acenaphthene was reported outside of calibration range for sample 116609-17 and should be considered an estimated quantity. This sample was analyzed at several different dilutions; therefore, there was insufficient sample volume available to reextract and reanalyze again.

The Internal Standard areas for the CCV's for some samples fell slightly outside the limits of 50-200 %D stated in Method 8270C. This was caused by the need to balance injection port flows after replacement of the packed liner in the large volume injector used to achieve the low detection limits required for this project. While the IS areas fell outside the method limits in some cases, all internal standards within a given CCV changed similarly, showing no particular chromatographic discrimination. Target compound areas scaled equally with the IS areas, so response factors and analyte recoveries were unaffected.

The low detection limits specified for this project required the use of a GC equipped with an LVI (large volume injector) with a packed liner. The calculation of benzidine and pentachlorophenol tailing factors and Endrin/DDT breakdown calculations typically performed with standard DFTPP analysis are not applicable to this chromatography technique due to the large surface area of the packing material, and were not performed. Pentachlorophenol was present and measurable in all standards, and passed all initial and continuing calibration criteria.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the semivolatile organic analyses.

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Client Name	Ecology & Environment
Client ID:	MBGWMH0303(14")
Lab ID:	116609-01
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/11/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	71.9		34	148
2,4,6 - Tribromophenol	56.2		29	159
p - Terphenyl - d14	85.1		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.0796	0.0489	0.0245	
2-Methylnaphthalene	0.108	0.0245	0.0122	
1-Methylnaphthalene	0.037	0.0245	0.0122	
Acenaphthylene	ND	0.0245	0.0122	
Acenaphthene	1	0.0245	0.0122	D10
Fluorene	0.0793	0.0245	0.0122	
Pentachlorophenol	0.0546	0.0978	0.0489	J
Phenanthrene	0.0641	0.0245	0.0122	
Anthracene	0.0389	0.0245	0.0122	
Fluoranthene	0.0763	0.00489	0.00245	
Pyrene	0.133	0.00489	0.00245	
Benzo(a)anthracene	ND	0.00978	0.00489	
Chrysene	ND	0.00978	0.00489	
Benzofluoranthenes	ND	0.00978	0.00489	
Benzo(a)pyrene	ND	0.00489	0.00245	
Indeno(1,2,3-cd)pyrene	ND	0.00489	0.00245	
Dibenz(a,h)anthracene	ND	0.00489	0.00245	
Benzo(g,h,i)perylene	ND	0.0245	0.0122	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0303(36")
Lab ID:	116609-02
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/11/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	40.6		34	148
2,4,6 - Tribromophenol	71.9		29	159
p - Terphenyl - d14	134		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.0714	0.0547	0.0274	
2-Methylnaphthalene	0.0139	0.0274	0.0137	J
1-Methylnaphthalene	0.0148	0.0274	0.0137	J
Acenaphthylene	ND	0.0274	0.0137	
Acenaphthene	2.11	0.0274	0.0137	D10
Fluorene	0.0142	0.0274	0.0137	J
Pentachlorophenol	ND	0.109	0.0547	
Phenanthrene	0.0244	0.0274	0.0137	J
Anthracene	0.0412	0.0274	0.0137	
Fluoranthene	0.0155	0.00547	0.00274	
Pyrene	0.117	0.00547	0.00274	
Benzo(a)anthracene	ND	0.0109	0.00547	
Chrysene	ND	0.0109	0.00547	
Benzofluoranthenes	ND	0.0109	0.00547	
Benzo(a)pyrene	ND	0.00547	0.00274	
Indeno(1,2,3-cd)pyrene	ND	0.00547	0.00274	
Dibenz(a,h)anthracene	ND	0.00547	0.00274	
Benzo(g,h,i)perylene	ND	0.0274	0.0137	

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Client Name	Ecology & Environment
Client ID:	MBGWMH0303(72")
Lab ID:	116609-03
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/11/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	79.8		34	148
2,4,6 - Tribromophenol	16.5	X9	29	159
p - Terphenyl - d14	70.2		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.142	0.0496	0.0248	D5
2-Methylnaphthalene	0.0247	0.0248	0.0124	J
1-Methylnaphthalene	0.0314	0.0248	0.0124	
Acenaphthylene	0.0297	0.0248	0.0124	
Acenaphthene	0.171	0.0248	0.0124	D5
Fluorene	0.0253	0.0248	0.0124	
Pentachlorophenol	ND	0.0992	0.0496	
Phenanthrene	0.0485	0.0248	0.0124	
Anthracene	0.4	0.0248	0.0124	D5
Fluoranthene	0.0521	0.00496	0.00248	
Pyrene	0.115	0.00496	0.00248	
Benzo(a)anthracene	ND	0.00992	0.00496	
Chrysene	ND	0.00992	0.00496	
Benzofluoranthenes	ND	0.00992	0.00496	
Benzo(a)pyrene	ND	0.00496	0.00248	
Indeno(1,2,3-cd)pyrene	ND	0.00496	0.00248	
Dibenz(a,h)anthracene	ND	0.00496	0.00248	
Benzo(g,h,i)perylene	ND	0.0248	0.0124	

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Client Name	Ecology & Environment
Client ID:	MBGWMH0302(14")
Lab ID:	116609-04
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/11/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	39.1		34	148
2,4,6 - Tribromophenol	52		29	159
p - Terphenyl - d14	96.3		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	1.25	0.0534	0.0267	D20
2-Methylnaphthalene	0.43	0.0267	0.0134	D20
1-Methylnaphthalene	0.21	0.0267	0.0134	
Acenaphthylene	ND	0.0267	0.0134	
Acenaphthene	3.45	0.0267	0.0134	D20
Fluorene	0.981	0.0267	0.0134	D20
Pentachlorophenol	0.0621	0.107	0.0534	J
Phenanthrene	0.0431	0.0267	0.0134	
Anthracene	0.171	0.0267	0.0134	
Fluoranthene	0.978	0.00534	0.00267	D20
Pyrene	0.501	0.00534	0.00267	D20
Benzo(a)anthracene	0.0495	0.0107	0.00534	
Chrysene	0.0526	0.0107	0.00534	
Benzofluoranthenes	ND	0.0107	0.00534	
Benzo(a)pyrene	ND	0.00534	0.00267	
Indeno(1,2,3-cd)pyrene	ND	0.00534	0.00267	
Dibenz(a,h)anthracene	ND	0.00534	0.00267	
Benzo(g,h,i)perylene	ND	0.0267	0.0134	

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Client Name	Ecology & Environment
Client ID:	MBGWMH0302(36")
Lab ID:	116609-05
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	67		34	148
2,4,6 - Tribromophenol	77		29	159
p - Terphenyl - d14	68.6		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	3.12	0.557	0.278	D10
2-Methylnaphthalene	22.2	0.278	0.139	D10
1-Methylnaphthalene	1.35	0.278	0.139	
Acenaphthylene	ND	0.278	0.139	
Acenaphthene	59.3	0.278	0.139	D100
Fluorene	10.3	0.278	0.139	D10
Pentachlorophenol	0.568	1.11	0.557	J
Phenanthrene	4.94	0.278	0.139	D10
Anthracene	0.697	0.278	0.139	
Fluoranthene	0.966	0.0557	0.0278	
Pyrene	0.59	0.0557	0.0278	
Benzo(a)anthracene	ND	0.111	0.0557	
Chrysene	0.0865	0.111	0.0557	J
Benzofluoranthenes	0.116	0.111	0.0557	
Benzo(a)pyrene	0.0432	0.0557	0.0278	J
Indeno(1,2,3-cd)pyrene	0.0284	0.0557	0.0278	J
Dibenz(a,h)anthracene	ND	0.0557	0.0278	
Benzo(g,h,i)perylene	ND	0.278	0.139	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0302(72")
Lab ID:	116609-06
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	51		34	148
2,4,6 - Tribromophenol	80.6		29	159
p - Terphenyl - d14	74.5		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	4.26	0.564	0.282	D10
2-Methylnaphthalene	1.24	0.282	0.141	
1-Methylnaphthalene	ND	0.282	0.141	
Acenaphthylene	ND	0.282	0.141	
Acenaphthene	18.2	0.282	0.141	D10
Fluorene	4.44	0.282	0.141	D10
Pentachlorophenol	ND	1.13	0.564	
Phenanthrene	ND	0.282	0.141	
Anthracene	0.586	0.282	0.141	
Fluoranthene	6.04	0.0564	0.0282	D10
Pyrene	4.01	0.0564	0.0282	D10
Benzo(a)anthracene	0.0975	0.113	0.0564	J
Chrysene	0.102	0.113	0.0564	J
Benzofluoranthenes	0.106	0.113	0.0564	J
Benzo(a)pyrene	ND	0.0564	0.0282	
Indeno(1,2,3-cd)pyrene	ND	0.0564	0.0282	
Dibenz(a,h)anthracene	ND	0.0564	0.0282	
Benzo(g,h,i)perylene	ND	0.282	0.141	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0301(14")
Lab ID:	116609-07
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/16/2003
% Solids	-
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	0	X8	34	148
2,4,6 - Tribromophenol	236	X8	29	159
p - Terphenyl - d14	0	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	616	5.22	2.61	D50
2-Methylnaphthalene	571	2.61	1.31	D50
1-Methylnaphthalene	509	2.61	1.31	D50
Acenaphthylene	ND	2.61	1.31	
Acenaphthene	401	2.61	1.31	D50
Fluorene	103	2.61	1.31	D10
Pentachlorophenol	ND	10.4	5.22	
Phenanthrene	100	2.61	1.31	D10
Anthracene	11.8	2.61	1.31	
Fluoranthene	18.1	0.522	0.261	
Pyrene	13	0.522	0.261	
Benzo(a)anthracene	1.77	1.04	0.522	
Chrysene	2	1.04	0.522	
Benzofluoranthenes	0.988	1.04	0.522	J
Benzo(a)pyrene	0.348	0.522	0.261	J
Indeno(1,2,3-cd)pyrene	ND	0.522	0.261	
Dibenz(a,h)anthracene	ND	0.522	0.261	
Benzo(g,h,i)perylene	ND	2.61	1.31	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0301(36")
Lab ID:	116609-08
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/16/2003
% Solids	-
Dilution Factor	500

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	36900	265	132	D40
2-Methylnaphthalene	6180	132	66.1	D40
1-Methylnaphthalene	3550	132	66.1	D40
Acenaphthylene	ND	132	66.1	
Acenaphthene	5530	132	66.1	D40
Fluorene	4000	132	66.1	D40
Pentachlorophenol	ND	529	265	
Phenanthrene	8250	132	66.1	D40
Anthracene	1380	132	66.1	D40
Fluoranthene	4010	26.5	13.2	D40
Pyrene	2890	26.5	13.2	D40
Benzo(a)anthracene	1040	52.9	26.5	
Chrysene	514	52.9	26.5	
Benzofluoranthenes	1560	52.9	26.5	
Benzo(a)pyrene	570	26.5	13.2	
Indeno(1,2,3-cd)pyrene	ND	26.5	13.2	
Dibenz(a,h)anthracene	ND	26.5	13.2	
Benzo(g,h,i)perylene	ND	132	66.1	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0301(72")
Lab ID:	116609-09
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/16/2003
% Solids	-
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	10.9	5.15	2.57	
2-Methylnaphthalene	114	2.57	1.29	D10
1-Methylnaphthalene	ND	2.57	1.29	
Acenaphthylene	ND	2.57	1.29	
Acenaphthene	75.4	2.57	1.29	D10
Fluorene	15.9	2.57	1.29	
Pentachlorophenol	ND	10.3	5.15	
Phenanthrene	45.9	2.57	1.29	D10
Anthracene	5.89	2.57	1.29	
Fluoranthene	7.06	0.515	0.257	
Pyrene	5.63	0.515	0.257	
Benzo(a)anthracene	ND	1.03	0.515	
Chrysene	0.582	1.03	0.515	J
Benzofluoranthenes	ND	1.03	0.515	
Benzo(a)pyrene	ND	0.515	0.257	
Indeno(1,2,3-cd)pyrene	ND	0.515	0.257	
Dibenz(a,h)anthracene	ND	0.515	0.257	
Benzo(g,h,i)perylene	ND	2.57	1.29	

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Client Name	Ecology & Environment
Client ID:	MBGWMH0305(14")
Lab ID:	116609-10
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/11/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	63.5		34	148
2,4,6 - Tribromophenol	30.9		29	159
p - Terphenyl - d14	78.6		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.821	0.0513	0.0257	D10
2-Methylnaphthalene	0.957	0.0257	0.0128	D10
1-Methylnaphthalene	0.174	0.0257	0.0128	
Acenaphthylene	ND	0.0257	0.0128	
Acenaphthene	6.09	0.0257	0.0128	D50
Fluorene	3.96	0.0257	0.0128	D50
Pentachlorophenol	0.0611	0.103	0.0513	J
Phenanthrene	0.0691	0.0257	0.0128	
Anthracene	0.49	0.0257	0.0128	D10
Fluoranthene	0.262	0.00513	0.00257	D10
Pyrene	0.161	0.00513	0.00257	
Benzo(a)anthracene	0.0155	0.0103	0.00513	
Chrysene	0.0135	0.0103	0.00513	
Benzofluoranthenes	ND	0.0103	0.00513	
Benzo(a)pyrene	ND	0.00513	0.00257	
Indeno(1,2,3-cd)pyrene	ND	0.00513	0.00257	
Dibenz(a,h)anthracene	ND	0.00513	0.00257	
Benzo(g,h,i)perylene	ND	0.0257	0.0128	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0305(36")
Lab ID:	116609-11
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/16/2003
% Solids	-
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	958	5.29	2.65	D50
2-Methylnaphthalene	221	2.65	1.32	D50
1-Methylnaphthalene	375	2.65	1.32	D50
Acenaphthylene	ND	2.65	1.32	
Acenaphthene	296	2.65	1.32	D50
Fluorene	119	2.65	1.32	D50
Pentachlorophenol	ND	10.6	5.29	
Phenanthrene	6.38	2.65	1.32	
Anthracene	ND	2.65	1.32	
Fluoranthene	0.412	0.529	0.265	J
Pyrene	0.43	0.529	0.265	J
Benzo(a)anthracene	ND	1.06	0.529	
Chrysene	ND	1.06	0.529	
Benzofluoranthenes	ND	1.06	0.529	
Benzo(a)pyrene	ND	0.529	0.265	
Indeno(1,2,3-cd)pyrene	ND	0.529	0.265	
Dibenz(a,h)anthracene	ND	0.529	0.265	
Benzo(g,h,i)perylene	ND	2.65	1.32	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0305(72")
Lab ID:	116609-12
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/16/2003
% Solids	-
Dilution Factor	100

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	5320	52.3	26.2	D50
2-Methylnaphthalene	800	26.2	13.1	D50
1-Methylnaphthalene	461	26.2	13.1	D50
Acenaphthylene	ND	26.2	13.1	
Acenaphthene	373	26.2	13.1	D50
Fluorene	101	26.2	13.1	
Pentachlorophenol	ND	105	52.3	
Phenanthrene	ND	26.2	13.1	
Anthracene	ND	26.2	13.1	
Fluoranthene	ND	5.23	2.62	
Pyrene	ND	5.23	2.62	
Benzo(a)anthracene	ND	10.5	5.23	
Chrysene	ND	10.5	5.23	
Benzofluoranthenes	ND	10.5	5.23	
Benzo(a)pyrene	ND	5.23	2.62	
Indeno(1,2,3-cd)pyrene	ND	5.23	2.62	
Dibenz(a,h)anthracene	ND	5.23	2.62	
Benzo(g,h,i)perylene	ND	26.2	13.1	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0305(84")
Lab ID:	116609-13
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/16/2003
% Solids	-
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	6650	5.11	2.56	D500
2-Methylnaphthalene	587	2.56	1.28	D500
1-Methylnaphthalene	1080	2.56	1.28	D500
Acenaphthylene	ND	2.56	1.28	
Acenaphthene	458	2.56	1.28	D500
Fluorene	110	2.56	1.28	D10
Pentachlorophenol	ND	10.2	5.11	
Phenanthrene	8.29	2.56	1.28	
Anthracene	1.62	2.56	1.28	J
Fluoranthene	1.12	0.511	0.256	
Pyrene	1.51	0.511	0.256	
Benzo(a)anthracene	ND	1.02	0.511	
Chrysene	ND	1.02	0.511	
Benzofluoranthenes	ND	1.02	0.511	
Benzo(a)pyrene	ND	0.511	0.256	
Indeno(1,2,3-cd)pyrene	ND	0.511	0.256	
Dibenz(a,h)anthracene	ND	0.511	0.256	
Benzo(g,h,i)perylene	ND	2.56	1.28	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0306(14")
Lab ID:	116609-14
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/12/2003
% Solids	-
Dilution Factor	5

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	43.3	2.57	1.29	D10
2-Methylnaphthalene	9.26	1.29	0.644	
1-Methylnaphthalene	1.32	1.29	0.644	
Acenaphthylene	ND	1.29	0.644	
Acenaphthene	4.58	1.29	0.644	
Fluorene	ND	1.29	0.644	
Pentachlorophenol	ND	5.15	2.57	
Phenanthrene	ND	1.29	0.644	
Anthracene	ND	1.29	0.644	
Fluoranthene	0.189	0.257	0.129	J
Pyrene	0.136	0.257	0.129	J
Benzo(a)anthracene	ND	0.515	0.257	
Chrysene	ND	0.515	0.257	
Benzofluoranthenes	ND	0.515	0.257	
Benzo(a)pyrene	ND	0.257	0.129	
Indeno(1,2,3-cd)pyrene	ND	0.257	0.129	
Dibenz(a,h)anthracene	ND	0.257	0.129	
Benzo(g,h,i)perylene	ND	1.29	0.644	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0306(36")
Lab ID:	116609-15
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/16/2003
% Solids	-
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	15.9	5.36	2.68	
2-Methylnaphthalene	235	2.68	1.34	D10
1-Methylnaphthalene	128	2.68	1.34	D10
Acenaphthylene	ND	2.68	1.34	
Acenaphthene	234	2.68	1.34	D10
Fluorene	129	2.68	1.34	D10
Pentachlorophenol	ND	10.7	5.36	
Phenanthrene	161	2.68	1.34	D10
Anthracene	12.1	2.68	1.34	
Fluoranthene	11.1	0.536	0.268	
Pyrene	6.86	0.536	0.268	
Benzo(a)anthracene	ND	1.07	0.536	
Chrysene	ND	1.07	0.536	
Benzofluoranthenes	ND	1.07	0.536	
Benzo(a)pyrene	ND	0.536	0.268	
Indeno(1,2,3-cd)pyrene	ND	0.536	0.268	
Dibenz(a,h)anthracene	ND	0.536	0.268	
Benzo(g,h,i)perylene	ND	2.68	1.34	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0306(72")
Lab ID:	116609-16
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/16/2003
% Solids	-
Dilution Factor	5

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	2.53	1.27	
2-Methylnaphthalene	21.5	1.27	0.633	D4
1-Methylnaphthalene	1.35	1.27	0.633	
Acenaphthylene	ND	1.27	0.633	
Acenaphthene	29.1	1.27	0.633	D4
Fluorene	1.58	1.27	0.633	
Pentachlorophenol	ND	5.06	2.53	
Phenanthrene	2.46	1.27	0.633	
Anthracene	ND	1.27	0.633	
Fluoranthene	0.409	0.253	0.127	
Pyrene	0.335	0.253	0.127	
Benzo(a)anthracene	ND	0.506	0.253	
Chrysene	ND	0.506	0.253	
Benzofluoranthenes	ND	0.506	0.253	
Benzo(a)pyrene	ND	0.253	0.127	
Indeno(1,2,3-cd)pyrene	ND	0.253	0.127	
Dibenz(a,h)anthracene	ND	0.253	0.127	
Benzo(g,h,i)perylene	ND	1.27	0.633	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0304(14")
Lab ID:	116609-17
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/17/2003
% Solids	-
Dilution Factor	1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	20.2	X9	34	148
2,4,6 - Tribromophenol	97.1		29	159
p - Terphenyl - d14	62.9		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.515	0.258	
2-Methylnaphthalene	3.26	0.258	0.129	D5
1-Methylnaphthalene	ND	0.258	0.129	
Acenaphthylene	ND	0.258	0.129	
Acenaphthene	23.9	0.258	0.129	D5,E
Fluorene	10.2	0.258	0.129	D5
Pentachlorophenol	ND	1.03	0.515	
Phenanthrene	1.42	0.258	0.129	
Anthracene	0.357	0.258	0.129	
Fluoranthene	0.275	0.0515	0.0258	
Pyrene	0.334	0.0515	0.0258	
Benzo(a)anthracene	0.127	0.103	0.0515	
Chrysene	0.105	0.103	0.0515	
Benzofluoranthenes	0.387	0.103	0.0515	
Benzo(a)pyrene	0.219	0.0515	0.0258	
Indeno(1,2,3-cd)pyrene	ND	0.0515	0.0258	
Dibenz(a,h)anthracene	ND	0.0515	0.0258	
Benzo(g,h,i)perylene	ND	0.258	0.129	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0304(36")
Lab ID:	116609-18
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/17/2003
% Solids	-
Dilution Factor	1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	38.7		34	148
2,4,6 - Tribromophenol	101		29	159
p - Terphenyl - d14	0	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	28.9	0.491	0.246	D100
2-Methylnaphthalene	4.49	0.246	0.123	D10
1-Methylnaphthalene	4.37	0.246	0.123	D10
Acenaphthylene	ND	0.246	0.123	
Acenaphthene	38.7	0.246	0.123	D100
Fluorene	8.35	0.246	0.123	D10
Pentachlorophenol	ND	0.982	0.491	
Phenanthrene	6.28	0.246	0.123	D10
Anthracene	1.09	0.246	0.123	
Fluoranthene	1.31	0.0491	0.0246	
Pyrene	1.09	0.0491	0.0246	
Benzo(a)anthracene	0.131	0.0982	0.0491	
Chrysene	0.115	0.0982	0.0491	
Benzofluoranthenes	ND	0.0982	0.0491	
Benzo(a)pyrene	ND	0.0491	0.0246	
Indeno(1,2,3-cd)pyrene	ND	0.0491	0.0246	
Dibenz(a,h)anthracene	ND	0.0491	0.0246	
Benzo(g,h,i)perylene	ND	0.246	0.123	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0304(72")
Lab ID:	116609-19
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/17/2003
% Solids	-
Dilution Factor	10

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	-	X8	34	148
2,4,6 - Tribromophenol	-	X8	29	159
p - Terphenyl - d14	-	X8	33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	5.41	2.7	
2-Methylnaphthalene	21.8	2.7	1.35	
1-Methylnaphthalene	ND	2.7	1.35	
Acenaphthylene	ND	2.7	1.35	
Acenaphthene	59	2.7	1.35	D10
Fluorene	32.5	2.7	1.35	D10
Pentachlorophenol	ND	10.8	5.41	
Phenanthrene	8.12	2.7	1.35	
Anthracene	ND	2.7	1.35	
Fluoranthene	0.386	0.541	0.27	J
Pyrene	0.554	0.541	0.27	
Benzo(a)anthracene	ND	1.08	0.541	
Chrysene	ND	1.08	0.541	
Benzofluoranthenes	ND	1.08	0.541	
Benzo(a)pyrene	ND	0.541	0.27	
Indeno(1,2,3-cd)pyrene	ND	0.541	0.27	
Dibenz(a,h)anthracene	ND	0.541	0.27	
Benzo(g,h,i)perylene	ND	2.7	1.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH03RN
Lab ID:	116609-20
Date Received:	10/3/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/12/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	31.6	X9	34	148
2,4,6 - Tribromophenol	69.2		29	159
p - Terphenyl - d14	90.3		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.131	0.05	0.025	
2-Methylnaphthalene	0.0515	0.025	0.0125	
1-Methylnaphthalene	0.0389	0.025	0.0125	
Acenaphthylene	ND	0.025	0.0125	
Acenaphthene	0.0979	0.025	0.0125	
Fluorene	ND	0.025	0.0125	
Pentachlorophenol	ND	0.1	0.05	
Phenanthrene	0.0154	0.025	0.0125	J
Anthracene	ND	0.025	0.0125	
Fluoranthene	ND	0.005	0.0025	
Pyrene	ND	0.005	0.0025	
Benzo(a)anthracene	ND	0.01	0.005	
Chrysene	ND	0.01	0.005	
Benzofluoranthenes	ND	0.01	0.005	
Benzo(a)pyrene	ND	0.005	0.0025	
Indeno(1,2,3-cd)pyrene	ND	0.005	0.0025	
Dibenz(a,h)anthracene	ND	0.005	0.0025	
Benzo(g,h,i)perylene	ND	0.025	0.0125	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0303(14")
Lab ID:	116609-01
Date Received:	10/3/03
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.0145	0.0005	0.00025	
Chromium	0.00572	0.0005	0.00025	
Copper	0.0115	0.0005	0.00025	
Zinc	0.0316	0.002	0.001	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0303(36")
Lab ID:	116609-02
Date Received:	10/3/03
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.0207	0.0005	0.00025	
Chromium	0.00442	0.0005	0.00025	
Copper	0.00512	0.0005	0.00025	
Zinc	0.00989	0.002	0.001	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0303(72")
Lab ID:	116609-03
Date Received:	10/3/03
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.0382	0.0005	0.00025	
Chromium	0.00485	0.0005	0.00025	
Copper	0.00606	0.0005	0.00025	
Zinc	0.0146	0.002	0.001	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0302(14")
Lab ID:	116609-04
Date Received:	10/3/03
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.0722	0.0005	0.00025	
Chromium	0.00183	0.0005	0.00025	
Copper	0.00138	0.0005	0.00025	
Zinc	0.00714	0.002	0.001	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0302(36")
Lab ID:	116609-05
Date Received:	10/3/03
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.0588	0.0005	0.00025	
Chromium	0.00346	0.0005	0.00025	
Copper	0.00426	0.0005	0.00025	
Zinc	0.0113	0.002	0.001	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0302(72")
Lab ID:	116609-06
Date Received:	10/3/03
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.0548	0.0005	0.00025	
Chromium	0.00233	0.0005	0.00025	
Copper	0.00372	0.0005	0.00025	
Zinc	0.00843	0.002	0.001	

STL Seattle

Client Name	0
Client ID:	DSW0727
Lab ID:	-
Date Received:	10/7/2003
Date Prepared:	10/11/2003
Date Analyzed:	-
% Solids	0.1
Dilution Factor	

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2 - Fluorobiphenyl	83.2		34	148
2,4,6 - Tribromophenol	79.6		29	159
p - Terphenyl - d14	84.8		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.0841	0.05	0.025	
2-Methylnaphthalene	0.0945	0.025	0.0125	
1-Methylnaphthalene	0.101	0.025	0.0125	
Acenaphthylene	0.0865	0.025	0.0125	
Acenaphthene	0.102	0.025	0.0125	
Fluorene	0.108	0.025	0.0125	
Pentachlorophenol	0.128	0.1	0.05	
Phenanthrene	0.0746	0.025	0.0125	
Anthracene	0.0875	0.025	0.0125	
Fluoranthene	0.0873	0.005	0.0025	
Pyrene	0.0886	0.005	0.0025	
Benzo(a)anthracene	0.108	0.01	0.005	
Chrysene	0.104	0.01	0.005	
Benzofluoranthenes	0.155	0.01	0.005	
Benzo(a)pyrene	0.0751	0.005	0.0025	
Indeno(1,2,3-cd)pyrene	0.0668	0.005	0.0025	
Dibenz(a,h)anthracene	0.0954	0.005	0.0025	
Benzo(g,h,i)perylene	0.0688	0.025	0.0125	

STL Seattle

Lab ID:	Method Blank - TP122
Date Received:	-
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.0005	0.00025	
Chromium	ND	0.0005	0.00025	
Copper	ND	0.0005	0.00025	
Zinc	ND	0.002	0.001	

STL Seattle

Matrix Spike Report

Client Sample ID:	MBGWMH0303(14")
Lab ID:	116609-01
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
QC Batch ID:	TP122

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Arsenic	0.0145	4	4.06	101	
Chromium	0.0057	0.4	0.366	90	
Copper	0.011	0.5	0.504	99	
Zinc	0.032	1	1.03	100	

STL Seattle

Duplicate Report

Client Sample ID:	MBGWMH0303(14")
Lab ID:	116609-01
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
QC Batch ID:	TP122

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Arsenic	0.015	0.015	0.0	
Chromium	0.0057	0.0066	-15.0	
Copper	0.011	0.012	-8.7	
Zinc	0.032	0.033	-3.1	

STL Seattle

Laboratory Control Sample

Lab ID:	RTP122
Date Prepared:	10/13/03
Date Analyzed:	10/13/03
QC Batch ID:	TP122

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	True Value (mg/L)	Lower Limit (mg/L)	Upper Limit (mg/L)	Flag
Arsenic	4.2	4	3.2	4.8	Pass
Chromium	0.37	0.4	0.32	0.48	Pass
Copper	0.51	0.5	0.4	0.6	Pass
Zinc	1.1	1	0.8	1.2	Pass

CHAIN OF CUSTODY

Chain of Custody Record

Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

TRENT SERVICES **Severn Trent Laboratories, Inc.**

STL-8274 (0102)

Client: Ecology & Environment	Project Manager: MARK OCHSNER	Date: 10-2-03	Chain of Custody Number: 003375
Address: 333 SW 5th Ave Suite #608	Telephone Number (Area Code)/Fax Number: 503-248-5600	Lab Number: 116609	Page 1 of 2
City: Portland; State: OR; Zip Code: 97204	Site Contact: 5039578847; Lab Contact:		
Project Name and Location (State): McCormick & Baxter, Oregon	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 001688.0402.27.01			

Analysis (Attach list if more space is needed)

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PAH's HCP 8270C	As, Cr, Cu, Zn, 6020	Special Instructions/ Conditions of Receipt
	MBGWMH0303 (14")	10-1-03	1627		X			2		2				X	X	
2	MBGWMH0303 (36")	10-1-03	1636		X			2		2				X	X	
3	MBGWMH0303 (72")	10-1-03	1639		X			2		2				X	X	
1	MBGWMH0302 (14")	10-1-03	1514		X			2		2				X	X	
	MBGWMH0302 (36")	10-1-03	1526		X			2		2				X	X	
	MBGWMH0302 (72")	10-1-03	1535		X			2		2				X	X	
	MBGWMH0301 (14")	10-1-03	1432		X			2		2				X	X	
	MBGWMH0301 (36")	10-1-03	1443		X			2		2				X	X	
	MBGWMH0301 (72")	10-1-03	1449		X			2		2				X	X	
0	MBGWMH0305 (14")	10-1-03	1842		X			1		2				X	X	
1	MBGWMH0305 (36")	10-1-03	1850		X			1		1				X	X	
2	MBGWMH0305 (72")	10-1-03	1900		X			1		1				X	X	

Cooler: ☐ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other _____

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	10-2-03	0939	1. Received By: [signature] G. Hicks	10/02/03	0939
2. Relinquished By: [signature] G. Hicks	10/02/03	1455	2. Received By: K Reed	10/3/03	10A
3. Relinquished By			3. Received By		

Comments

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

STL-8274 (0102)

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

Client: ECOLOGY & ENVIRONMENT	Project Manager: MARK OCHSNER	Date:	Chain of Custody Number: 003372
Address: 333 SW 5th AVE Suite 608	Telephone Number (Area Code)/Fax Number: 503-248-5400 / 848-5577	Lab Number: 116609	Page ____ of ____
City: PORTLAND; State: OR; Zip Code: 97204	Site Contact: 5039578847; Lab Contact:		
Project Name and Location (State): McCormick & Baxter. OR	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 001688.0402.27.01			

Analysis (Attach list if more space is needed)

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PAHs + PCP 8270	Ag, Cu, Cr, Zn 6020	Special Instructions/ Conditions of Receipt
3	MBGWMH0305 (84")	10-1-03	1908		X			1		1				X	X	
4	MBGWMH0306 (14")	10-1-03	1810		X			1		1				X	X	
5	MBGWMH0306 (36")	10-1-03	1818		X			2		2				X	X	
6	MBGWMH0306 (72")	10-1-03	1820		X			1		1				X	X	
7	MBGWMH0304 (14")	10-1-03	1702		X			1		2				X	X	
8	MBGWMH0304 (36")	10-1-03	1708		X			1		2				X	X	
9	MBGWMH0304 (72")	10-1-03	1714		X			2		2				X	X	
20	MBGWMH03RN	10-2-03	0900		X			2		1				X	X	

Cooler: ☐ Yes ☐ No Cooler Temp: ____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other ____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	10-2-03	0939	1. Received By: [signature] G. Ellis	10/02/03	0939
2. Relinquished By: [signature] G. Ellis	10/02/03	1455	2. Received By: [signature]	10/3/03	10A
3. Relinquished By:			3. Received By:		

Comments

95000

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

COOLER ID NO. _____

COOLER RECEIPT FORM

PROJECT McCormick + Baxter Oregon

COOLER RECEIVED ON 10/3 AND OPENED ON 10/3 BY KG

(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 3.3 oC
TEMP. BLANK N/A oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 front / ~~[illegible]~~
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble Wrap / Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

000057

COOLER ID NO. _____

COOLER RECEIPT FORM

PROJECT McCormick & Baxter, Oregon

COOLER RECEIVED ON 10/3 AND OPENED ON 10/3 BY KG

(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 4.0 oC
TEMP. BLANK N/A oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 Front / 1 Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble Wrap / Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

000058

00059

FedEx Express. USA Airbill

840745791770

0200 Form I.D. No.

FedEx Copy

1 From

Date 10/02/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2. Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

We cannot deliver to P.O. boxes or P.O. ZIP codes.

To "HOLD" at FedEx location, print FedEx address.

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1770

4a Express Package Service — Packages up to 150 lbs. Delivery commitment may be later in some areas.

1 [X] FedEx Priority Overnight Next business morning

5 [ ] FedEx Standard Overnight Next business afternoon

6 [ ] FedEx First Overnight Earliest next business morning delivery to select locations

3 [ ] FedEx 2Day Second business day

20 [ ] FedEx Express Saver Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — Packages over 150 lbs. Delivery commitment may be later in some areas.

7 [ ] FedEx 1Day Freight* Next business day

8 [ ] FedEx 2Day Freight Second business day

83 [ ] FedEx 3Day Freight Third business day

* Call for Confirmation

* Declared value limit $500

5 Packaging

6 [ ] FedEx Envelope*

2 [ ] FedEx Pak* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak

1 [X] Other

6 Special Handling

3 [ ] SATURDAY Delivery Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes

Include FedEx address in Section 2.

1 [ ] HOLD Weekday at FedEx Location Not available for FedEx First Overnight

31 [ ] HOLD Saturday at FedEx Location Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

[X] No

4 [ ] Yes As per attached Shipper's Declaration

[ ] Yes Shipper's Declaration not required

6 [ ] Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

[ ] Cargo Aircraft Only

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below.

1 [ ] Sender Acct. No. in Section 1 will be billed.

2 [X] Recipient

3 [ ] Third Party

4 [ ] Credit Card

5 [ ] Cash/Check

[ ] Obtain Recip. Acct. No.

FedEx Acct. No. Credit Card No. 1247-7198-6 Exp. Date

Total Packages 4

Total Weight

Total Declared Value† $ .00

Total Charges

Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the FedEx Service Guide for details.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

Rev. Date 10/01 • Part #157612 • ©1994-2001 FedEx • PRINTED IN U.S.A. WCSL 03

446

Custody Seal

DATE 10/02/03

SIGNATURE [signature]

SEVERN TRENT SERVICES

375547

SEVERN TRENT SERVICES

375547

010

Custody Seal

DATE 10/02/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375527

Custody Seal

DATE 10/02/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375517

SEVERN TRENT SERVICES

375527

SEVERN TRENT SERVICES

375517

#26

09000

FedEx. Express USA Airbill

840745791770

0200 Form 10 No.

FedEx Copy

1 From

Date 10/03/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1770

L

4a Express Package Service — *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

1 [X] FedEx Priority Overnight Next business morning

5 [ ] FedEx Standard Overnight Next business afternoon

6 [ ] FedEx First Overnight Earliest next business morning delivery to select locations

3 [ ] FedEx 2Day Second business day

20 [ ] FedEx Express Saver Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* Delivery commitment may be later in some areas.

7 [ ] FedEx 1Day Freight* Next business day

8 [ ] FedEx 2Day Freight Second business day

83 [ ] FedEx 3Day Freight Third business day

*Call for Confirmation.

5 Packaging — *Declared value limit $500

6 [ ] FedEx Envelope*

2 [ ] FedEx Pak* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak

1 [X] Other

6 Special Handling — Include FedEx address in Section 3.

3 [ ] SATURDAY Delivery Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes

1 [ ] HOLD Weekday at FedEx Location Not available for FedEx First Overnight

31 [ ] HOLD Saturday at FedEx Location Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

[X] No

4 [ ] Yes As per attached Shipper's Declaration

[ ] Yes Shipper's Declaration not required

6 [ ] Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

[ ] Cargo Aircraft Only

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below.

[ ] Obtain Recip. Acct. No.

1 [ ] Sender Acct. No. in Section 1 will be billed.

2 [X] Recipient

3 [ ] Third Party

4 [ ] Credit Card

5 [ ] Cash/Check

FedEx Acct. No. Credit Card No. 1247-7198-6 Exp. Date

Total Packages	Total Weight	Total Declared Value†	Total Charges
4		$ .00	

†Our liability is limited to $100 unless you declare a higher value. See the FedEx Service Guide for details.

Credit Card Auth.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

446

Rev. Date 10/01 • Part #157812 • ©1994-2001 FedEx • PRINTED IN U.S.A. WESL 03

19000

Cooler ID No. 4/13 STL WORK ORDER NO. _____

COOLER RECEIPT FORM

PROJECT _____

COOLER RECEIVED ON 10/3 AND OPENED ON 10/3 BY KG

(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 4.0 oC
TEMP. BLANK N/A oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 Front / 1 Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble Wrap / Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

00062

#13

SEVERN TRENT SERVICES

375497

Custody Seal

DATE 10/02/03

SIGNATURE

SEVERN TRENT SERVICES

375497

SEVERN TRENT SERVICES

375507

Custody Seal

DATE 10/02/03

SIGNATURE

SEVERN TRENT SERVICES

375507

FedEx Express USA Airbill

840745791770

0200

FedEx Retrieval Copy

Date 10/02/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing References

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

Address

City Tacoma State WA ZIP 98424

8407 4579 1770

4a Express Package Service — Packages up to 150 lbs.

X FedEx Standard Overnight — FedEx First Overnight

FedEx Express Saver

4b Express Freight Service — Packages over 150 lbs.

FedEx 1Day Freight — FedEx 2Day Freight — FedEx 3Day Freight

5 Packaging

FedEx Envelope — FedEx Pak — X Other

6 Special Handling

SATURDAY Delivery — HOLD Weekday at FedEx Location — HOLD Saturday at FedEx Location

Does this shipment contain dangerous goods?

X No — Yes — Dry Ice

Cargo Aircraft Only

7 Payment Bill to:

Sender — X Recipient — Third Party — Credit Card

Credit Card No. 1247-7198-6

Total Packages 4 — Total Weight 192 — Total Charges

8 Release Signature

446

00064

Cooler ID No. CA 5 STL WORK ORDER NO. _____

COOLER RECEIPT FORM

PROJECT McCormick + Barter, Oregon

COOLER RECEIVED ON 10/3 AND OPENED ON 10/3 BY KA

(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 4/6 oC
TEMP. BLANK N/A oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 Front / 1 Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Ice / Bubble Wrap
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

00065

Custody Seal

DATE 10/02/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375427

SEVERN TRENT SERVICES

375427

CAS

Custody Seal

DATE 10/02/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375537

SEVERN TRENT SERVICES

375537

99000

FedEx Express USA Airbill

840745791770

0200 Form I.D. No.

FedEx Copy

1 From

Date 10/02/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4518

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd

Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1770

L

4a Express Package Service — *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

1 [X] FedEx Priority Overnight — Next business morning

5 [ ] FedEx Standard Overnight — Next business afternoon

6 [ ] FedEx First Overnight — Earliest next business morning delivery to select locations

3 [ ] FedEx 2Day — Second business day

20 [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* Delivery commitment may be later in some areas.

7 [ ] FedEx 1Day Freight* — Next business day

8 [ ] FedEx 2Day Freight — Second business day

83 [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging — * Declared value limit $500

6 [ ] FedEx Envelope*

2 [ ] FedEx Pak* — Including FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak

1 [X] Other

6 Special Handling — Include FedEx address in Section 3.

3 [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes.

1 [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight

31 [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

[X] No

4 [ ] Yes — As per attached Shipper's Declaration

[ ] Yes — Shipper's Declaration not required

6 [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

[ ] Cargo Aircraft Only

7 Payment *Bill to:* — Enter FedEx Acct. No. or Credit Card No. below.

[ ] Obtain Recip. Acct. No.

1 [ ] Sender — Acct. No. in Section 1 will be billed.

2 [X] Recipient

3 [ ] Third Party

4 [ ] Credit Card

5 [ ] Cash/Check

FedEx Acct. No. / Credit Card No. 1247-7198-6 Exp. Date

Total Packages	Total Weight	Total Declared Value†	Total Charges
4		$ .00	Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the *FedEx Service Guide* for details.

8 Release Signature — Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

Rev. Date 10/01 • Part #152782 • ©1994-2001 FedEx • PRINTED IN U.S.A. WCSL 03

446

29000

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: November 17, 2003

TO: Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

PROJECT: McCormick & Baxter

REPORT NUMBER: 116657

TOTAL NUMBER OF PAGES: 29

Enclosed are the test results for six samples received at STL Seattle on October 4, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell

Darla Powell
Project Manager

STL Seattle is a part of Severn Trent Laboratories, Inc.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
116657-1	MBGWMH0307 (14")	10-01-03 16:00	Liquid
116657-2	MBGWMH0307 (36")	10-01-03 16:10	Liquid
116657-3	MBGWMH0307 (72")	10-01-03 16:20	Liquid
116657-4	MBGWMH0308 (14")	10-01-03 16:33	Liquid
116657-5	MBGWMH0308 (36")	10-01-03 16:42	Liquid
116657-6	MBGWMH0308 (72")	10-01-03 16:55	Liquid

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ANALYTICAL NARRATIVE

Date: November 17, 2003

Client: Ecology & Environment

Lab No.: 116657

Project: McCormick & Baxter

Delivered By: Federal Express

Condition of samples upon receipt: Samples were received in good condition. Cooler temperatures have been recorded on the cooler receipt form included in the chain of custody section of this report. Chain of custody was in order.

Sample Identification:

Lab. No.	Client ID	Date Sampled	Matrix
116657-1	MBGWMH0307 (14")	10-01-03	Liquid
116657-2	MBGWMH0307 (36")	10-01-03	Liquid
116657-3	MBGWMH0307 (72")	10-01-03	Liquid
116657-4	MBGWMH0308 (14")	10-01-03	Liquid
116657-5	MBGWMH0308 (36")	10-01-03	Liquid
116657-6	MBGWMH0308 (72")	10-01-03	Liquid

SAMPLE EXTRACTION AND ANALYSIS

SEMIVOLATILE ORGANICS

Samples 116657-1 through 116657-6 were analyzed for PAHs and PCP in accordance with EPA Method 8270C. The samples were extracted on 10-7-03 and analyzed on 10-13-03 through 10-15-03, which was within the required holding time.

The Internal Standard areas for the CCV's for some samples fell slightly outside the limits of 50-200 %D stated in Method 8270C. This was caused by the need to balance injection port flows after replacement of the packed liner in the large volume injector used to achieve the low detection limits required for this project. While the IS areas fell outside the method limits in some cases, all internal standards within a given CCV changed similarly, showing no particular chromatographic discrimination. Target compound areas scaled equally with the IS areas, so response factors and analyte recoveries were unaffected.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: November 17, 2003

Project: McCormick & Baxter

Lab No.: 116657

SEMIVOLATILE ORGANICS Continued

The low detection limits specified for this project required the use of a GC equipped with an LVI (large volume injector) with a packed liner. The calculation of benzidine and pentachlorophenol tailing factors and Endrin/DDT breakdown calculations typically performed with standard DFTPP analysis are not applicable to this chromatography technique due to the large surface area of the packing material, and were not performed. Pentachlorophenol was present and measurable in all standards, and passed all initial and continuing calibration criteria.

The percent recovery of 2-fluorobiphenyl (surrogate compound) was outside of quality control acceptance limits for sample 116657-1, due to matrix interference.

All of the samples required secondary dilutions for several analytes.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the semivolatile organic analyses.

TOTAL METALS

Samples 116657-1 through 116657-6 were analyzed for arsenic, chromium, copper and zinc in accordance with EPA Method 6020. The samples were digested and analyzed on 10-15-03, which was within the required holding time.

The relative percent difference values of arsenic and chromium for the duplicate analysis of sample 116657-1 were reported outside of quality control acceptance limits, due to the concentrations reported near the practical quantitation limit.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the total metals analyses.

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STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0307 (14")
Lab ID:	116657-01
Date Received:	10/4/2003
Date Prepared:	10/8/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	14.3	X9	34	148
2,4,6 - Tribromophenol	54.1		29	159
p - Terphenyl - d14	76.4		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.043	0.0483	0.0241	J
2-Methylnaphthalene	0.0395	0.0241	0.0121	
1-Methylnaphthalene	0.0332	0.0241	0.0121	
Acenaphthylene	ND	0.0241	0.0121	
Acenaphthene	0.823	0.0241	0.0121	D20
Fluorene	0.902	0.0241	0.0121	D20
Pentachlorophenol	ND	0.0965	0.0483	
Phenanthrene	2.71	0.0241	0.0121	D20
Anthracene	0.362	0.0241	0.0121	D20
Fluoranthene	0.66	0.00483	0.00241	D20
Pyrene	0.383	0.00483	0.00241	D20
Benzo(a)anthracene	0.0182	0.00965	0.00483	
Chrysene	0.0177	0.00965	0.00483	
Benzofluoranthenes	0.0141	0.00965	0.00483	
Benzo(a)pyrene	0.0068	0.00483	0.00241	
Indeno(1,2,3-cd)pyrene	0.00506	0.00483	0.00241	
Dibenz(a,h)anthracene	ND	0.00483	0.00241	
Benzo(g,h,i)perylene	ND	0.0241	0.0121	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0307 (36")
Lab ID:	116657-02
Date Received:	10/4/2003
Date Prepared:	10/8/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	70		34	148
2,4,6 - Tribromophenol	49.4		29	159
p - Terphenyl - d14	74.3		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	2.56	0.0481	0.0241	D50
2-Methylnaphthalene	0.922	0.0241	0.012	D50
1-Methylnaphthalene	1.14	0.0241	0.012	D50
Acenaphthylene	ND	0.0241	0.012	
Acenaphthene	3.62	0.0241	0.012	D50
Fluorene	2.31	0.0241	0.012	D50
Pentachlorophenol	ND	0.0962	0.0481	
Phenanthrene	3.59	0.0241	0.012	D50
Anthracene	0.437	0.0241	0.012	D50
Fluoranthene	0.651	0.00481	0.00241	D50
Pyrene	0.393	0.00481	0.00241	D50
Benzo(a)anthracene	0.0177	0.00962	0.00481	
Chrysene	0.0117	0.00962	0.00481	
Benzofluoranthenes	0.0153	0.00962	0.00481	
Benzo(a)pyrene	0.00771	0.00481	0.00241	
Indeno(1,2,3-cd)pyrene	0.00499	0.00481	0.00241	
Dibenz(a,h)anthracene	ND	0.00481	0.00241	
Benzo(g,h,i)perylene	ND	0.0241	0.012	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0307 (72")
Lab ID:	116657-03
Date Received:	10/4/2003
Date Prepared:	10/8/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	72		34	148
2,4,6 - Tribromophenol	52.5		29	159
p - Terphenyl - d14	76.8		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	10.4	0.0484	0.0242	D100
2-Methylnaphthalene	1.64	0.0242	0.0121	D100
1-Methylnaphthalene	1.98	0.0242	0.0121	D100
Acenaphthylene	ND	0.0242	0.0121	
Acenaphthene	4.12	0.0242	0.0121	D100
Fluorene	2.77	0.0242	0.0121	D100
Pentachlorophenol	ND	0.0968	0.0484	
Phenanthrene	3.73	0.0242	0.0121	D100
Anthracene	0.443	0.0242	0.0121	D100
Fluoranthene	0.628	0.00484	0.00242	D100
Pyrene	0.385	0.00484	0.00242	D100
Benzo(a)anthracene	0.0174	0.00968	0.00484	
Chrysene	0.0114	0.00968	0.00484	
Benzofluoranthenes	0.0127	0.00968	0.00484	
Benzo(a)pyrene	0.00615	0.00484	0.00242	
Indeno(1,2,3-cd)pyrene	ND	0.00484	0.00242	
Dibenz(a,h)anthracene	ND	0.00484	0.00242	
Benzo(g,h,i)perylene	ND	0.0242	0.0121	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0308 (14")
Lab ID:	116657-04
Date Received:	10/4/2003
Date Prepared:	10/8/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	82.6		34	148
2,4,6 - Tribromophenol	72.7		29	159
p - Terphenyl - d14	95.2		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.616	0.0482	0.0241	D20
2-Methylnaphthalene	0.0359	0.0241	0.012	
1-Methylnaphthalene	0.054	0.0241	0.012	
Acenaphthylene	ND	0.0241	0.012	
Acenaphthene	0.168	0.0241	0.012	D20
Fluorene	0.368	0.0241	0.012	D20
Pentachlorophenol	ND	0.0963	0.0482	
Phenanthrene	2.39	0.0241	0.012	D20
Anthracene	0.302	0.0241	0.012	D20
Fluoranthene	0.857	0.00482	0.00241	D20
Pyrene	0.475	0.00482	0.00241	D20
Benzo(a)anthracene	0.0338	0.00963	0.00482	
Chrysene	0.0249	0.00963	0.00482	
Benzofluoranthenes	ND	0.00963	0.00482	
Benzo(a)pyrene	ND	0.00482	0.00241	
Indeno(1,2,3-cd)pyrene	ND	0.00482	0.00241	
Dibenz(a,h)anthracene	ND	0.00482	0.00241	
Benzo(g,h,i)perylene	ND	0.0241	0.012	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0308 (36")
Lab ID:	116657-05
Date Received:	10/4/2003
Date Prepared:	10/8/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	76.6		34	148
2,4,6 - Tribromophenol	70.6		29	159
p - Terphenyl - d14	82.1		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.471	0.0482	0.0241	D20
2-Methylnaphthalene	0.0273	0.0241	0.0121	
1-Methylnaphthalene	0.0315	0.0241	0.0121	
Acenaphthylene	ND	0.0241	0.0121	
Acenaphthene	0.223	0.0241	0.0121	D20
Fluorene	0.407	0.0241	0.0121	D20
Pentachlorophenol	ND	0.0964	0.0482	
Phenanthrene	2.48	0.0241	0.0121	D20
Anthracene	0.287	0.0241	0.0121	D20
Fluoranthene	0.71	0.00482	0.00241	D20
Pyrene	0.401	0.00482	0.00241	D20
Benzo(a)anthracene	0.0218	0.00964	0.00482	
Chrysene	0.0188	0.00964	0.00482	
Benzofluoranthenes	ND	0.00964	0.00482	
Benzo(a)pyrene	ND	0.00482	0.00241	
Indeno(1,2,3-cd)pyrene	ND	0.00482	0.00241	
Dibenz(a,h)anthracene	ND	0.00482	0.00241	
Benzo(g,h,i)perylene	ND	0.0241	0.0121	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0308 (72")
Lab ID:	116657-06
Date Received:	10/4/2003
Date Prepared:	10/8/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	70.9		34	148
2,4,6 - Tribromophenol	61.4		29	159
p - Terphenyl - d14	78.8		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	1.07	0.0499	0.0249	D10
2-Methylnaphthalene	0.053	0.0249	0.0125	
1-Methylnaphthalene	0.0545	0.0249	0.0125	
Acenaphthylene	ND	0.0249	0.0125	
Acenaphthene	0.323	0.0249	0.0125	D10
Fluorene	0.525	0.0249	0.0125	D10
Pentachlorophenol	0.0521	0.0997	0.0499	J
Phenanthrene	2.11	0.0249	0.0125	D10
Anthracene	0.261	0.0249	0.0125	D10
Fluoranthene	0.573	0.00499	0.00249	D10
Pyrene	0.312	0.00499	0.00249	D10
Benzo(a)anthracene	0.0143	0.00997	0.00499	
Chrysene	0.016	0.00997	0.00499	
Benzofluoranthenes	ND	0.00997	0.00499	
Benzo(a)pyrene	ND	0.00499	0.00249	
Indeno(1,2,3-cd)pyrene	ND	0.00499	0.00249	
Dibenz(a,h)anthracene	ND	0.00499	0.00249	
Benzo(g,h,i)perylene	ND	0.0249	0.0125	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0307 (14")
Lab ID:	116657-01
Date Received:	10/4/03
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00111	0.0005	0.00025	
Chromium	0.00251	0.001	0.0005	
Copper	0.00203	0.0005	0.00025	
Zinc	0.00995	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0307 (36")
Lab ID:	116657-02
Date Received:	10/4/03
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000952	0.0005	0.00025	
Chromium	0.00413	0.001	0.0005	
Copper	0.00246	0.0005	0.00025	
Zinc	0.00899	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0307 (72")
Lab ID:	116657-03
Date Received:	10/4/03
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00174	0.0005	0.00025	
Chromium	0.00515	0.001	0.0005	
Copper	0.00173	0.0005	0.00025	
Zinc	0.00772	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0308 (14")
Lab ID:	116657-04
Date Received:	10/4/03
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000395	0.0005	0.00025	J
Chromium	0.00578	0.001	0.0005	
Copper	0.0022	0.0005	0.00025	
Zinc	0.00835	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0308 (36")
Lab ID:	116657-05
Date Received:	10/4/03
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.0031	0.0005	0.00025	
Chromium	0.0075	0.001	0.0005	
Copper	0.00655	0.0005	0.00025	
Zinc	0.0171	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBGWMH0308 (72")
Lab ID:	116857-06
Date Received:	10/4/03
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000299	0.0005	0.00025	J
Chromium	0.00624	0.001	0.0005	
Copper	0.00299	0.0005	0.00025	
Zinc	0.00981	0.0005	0.00025	

STL Seattle

Lab ID:	Method Blank - SW0731
Date Received:	-
Date Prepared:	10/8/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	83.8		34	148
2,4,6 - Tribromophenol	87.5		29	159
p - Terphenyl - d14	96.7		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.05	0.025	
2-Methylnaphthalene	ND	0.025	0.0125	
1-Methylnaphthalene	ND	0.025	0.0125	
Acenaphthylene	ND	0.025	0.0125	
Acenaphthene	ND	0.025	0.0125	
Fluorene	ND	0.025	0.0125	
Pentachlorophenol	ND	0.1	0.05	
Phenanthrene	ND	0.025	0.0125	
Anthracene	ND	0.025	0.0125	
Fluoranthene	ND	0.005	0.0025	
Pyrene	ND	0.005	0.0025	
Benzo(a)anthracene	ND	0.01	0.005	
Chrysene	ND	0.01	0.005	
Benzofluoranthenes	ND	0.01	0.005	
Benzo(a)pyrene	ND	0.005	0.0025	
Indeno(1,2,3-cd)pyrene	ND	0.005	0.0025	
Dibenz(a,h)anthracene	ND	0.005	0.0025	
Benzo(g,h,i)perylene	ND	0.025	0.0125	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	SW0731
Date Prepared:	10/8/2003
Date Analyzed:	10/15/2003
QC Batch ID:	SW0731

Semivolatile Organics by USEPA Method 8270

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Naphthalene	0	0.1	0.083	83	0.0788	78.8	-5.2	
2-Methylnaphthalene	0	0.1	0.0938	93.8	0.0926	92.6	-1.3	
1-Methylnaphthalene	0	0.1	0.0899	89.9	0.0873	87.3	-2.9	
Acenaphthylene	0	0.1	0.0797	79.7	0.0751	75.1	-5.9	
Acenaphthene	0	0.1	0.0984	98.4	0.099	99	0.61	
Fluorene	0	0.1	0.103	103	0.103	103	0	
Pentachlorophenol	0	0.2	0.181	90.3	0.177	88.5	-2	
Phenanthrene	0	0.1	0.0849	84.9	0.0831	83.1	-2.1	
Anthracene	0	0.1	0.0893	89.3	0.0874	87.4	-2.2	
Fluoranthene	0	0.1	0.103	103	0.0986	98.6	-4.4	
Pyrene	0	0.1	0.101	101	0.109	109	7.6	
Benzo(a)anthracene	0	0.1	0.0906	90.6	0.107	107	17	
Chrysene	0	0.1	0.107	107	0.0772	77.2	-32	
Benzofluoranthenes	0	0.2	0.234	117	0.241	121	3.4	
Benzo(a)pyrene	0	0.1	0.118	118	0.114	114	-3.4	
Indeno(1,2,3-cd)pyrene	0	0.1	0.116	116	0.109	109	-6.2	
Dibenz(a,h)anthracene	0	0.1	0.121	121	0.124	124	2.4	
Benzo(g,h,i)perylene	0	0.1	0.118	118	0.118	118	0	

STL Seattle

Lab ID:	Method Blank - TP129
Date Received:	-
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.0005	0.00025	
Chromium	ND	0.001	0.0005	
Copper	ND	0.0005	0.00025	
Zinc	ND	0.0005	0.00025	

STL Seattle

Matrix Spike Report

Client Sample ID:	MBGWMH0307 (14")
Lab ID:	116657-01
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
QC Batch ID:	TP129

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Arsenic	0.00111	4	3.92	98	
Chromium	0.0025	0.4	0.367	91	
Copper	0.002	0.5	0.476	95	
Zinc	0.0099	1	1	99	

STL Seattle

Duplicate Report

Client Sample ID:	MBGWMH0307 (14")
Lab ID:	116657-01
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
QC Batch ID:	TP129

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Arsenic	0.0011	0.0018	-48.0	X4a
Chromium	0.0025	0.0036	-36.0	X4a
Copper	0.002	0.0018	11.0	
Zinc	0.0099	0.011	-11.0	

STL Seattle

Laboratory Control Sample

Lab ID:	RTP129
Date Prepared:	10/15/03
Date Analyzed:	10/15/03
QC Batch ID:	TP129

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	True Value (mg/L)	Lower Limit (mg/L)	Upper Limit (mg/L)	Flag
Arsenic	4	4	3.2	4.8	Pass
Chromium	0.37	0.4	0.32	0.48	Pass
Copper	0.48	0.5	0.4	0.6	Pass
Zinc	1	1	0.8	1.2	Pass

CHAIN OF CUSTODY

Chain of Custody Record

STL-8274 (0102)

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

5.2°C

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

Client: Ecology & Environment	Project Manager: Mark Ochsner	Date: 10/2/03	Chain of Custody Number: 003376
Address: 333 SW Fifth	Telephone Number (Area Code)/Fax Number: 503 248-5600	Lab Number: 116657	Page 1 of 1
City: Portland; State: OR; Zip Code: 97201	Site Contact: Heather Brunal	Lab Contact: Darla	
Project Name and Location (State): MAB	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Analysis (Attach list if more space is needed): PAHs + PCP 8270C; As, Cr, Cu, Zn 6020

Special Instructions/ Conditions of Receipt

	Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/ NaOH	PAHs + PCP 8270C	As, Cr, Cu, Zn 6020
1	MBGWMH0307 (14")	10/1/03	1600		X			2		2				X	X
2	MB GW MH 0307 (36")		1610		X			2		2				X	X
3	MB GW MH 0307 (72")		1620		X			2		2				X	X
4	MB GW MH0308 (14")		1633		X			2		2				X	X
5	MB GW MH0308 (36")		1642		X			2		2				X	X
6	MB GW MH 0308 (72")		1655		X			2		2				X	X

Cooler: ☒ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other _____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Mark Ochsner	10/3/01	8:30	1. Received By: G. Hicks	10/03/03	0940
2. Relinquished By: G. Hicks	10/03/03	1505	2. Received By: [illegible]	10-4-03	11:15
3. Relinquished By:			3. Received By:		

Comments

00024

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

Cooler ID No. [illegible]

COOLER RECEIPT FORM

PROJECT McCormick & Baxter

COOLER RECEIVED ON 10-4-03 AND OPENED ON 10-4-03 BY [illegible]

(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 5.2 oC
TEMP. BLANK ____oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 2 Front & Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? bubble wrap
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

00025

FedEx Express *USA Airbill* FedEx Tracking Number 840745793769

1 From

Date 10/03/03 [redacted]

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL Portland S.C.

Address 15810 SW Upper Boones Ferry Rd Dept/Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Mike Newby Phone 253 376 7800

Company STL - Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address 2503 Frank Albert Rd Dept/Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1769

[redacted]

4a Express Package Service *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- [x] FedEx Priority Overnight — Next business morning
- [ ] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

*Call for Confirmation.

5 Packaging *Declared value limit $500

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [x] Other

6 Special Handling

- [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight
- [x] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ___ x ___ kg

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:*

- [ ] Sender — Acct. No. in Section 1 will be billed
- [x] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

[redacted] 124 [redacted]

Total Packages	Total Weight	Total Declared Value†	Total Charges
1	64	$ .00	Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See back for details.

Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

Questions? Visit our Web site at fedex.com or call 1.800.Go.FedEx® 800.463.3339.

Rev Date 10/01 • Part #157812 • ©1994-2001 FedEx • PRINTED IN U.S.A. WCSL 03

446

00026

SEVERN TRENT SERVICES
375567

5.2°C

SEVERN TRENT SERVICES
375577

Custody Seal

DATE 10/03/03

SIGNATURE

SEVERN TRENT SERVICES
375577

DATA QUALIFIER DEFINITIONS

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

EVERN RENT STL

A QUALIFIERS AND ABBREVIATIONS

This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.

GC/MS confirmation was performed. The result derived from the original analysis was reported.

The reported result for this analyte was calculated based on a secondary dilution factor.

The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

CL: Maximum Contaminant Level

DL: Method Detection Limit

RL: Method Reporting Limit

See analytical narrative

D: Not Detected

QL: Practical Quantitation Limit

1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

2: Contaminant does not appear to be "typical" product.

3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

5: Matrix spike recovery was not determined due to the required dilution.

6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: November 17, 2003

TO: Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

PROJECT: McCormick & Baxter - Portland , OR

REPORT NUMBER: 116932

TOTAL NUMBER OF PAGES: 20

Enclosed are the test results for one sample received at STL Seattle on October 15, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell

Darla Powell
Project Manager

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STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
116932-1	MBNLGB03-MW-1	10-13-03 13:30	solid

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ANALYTICAL NARRATIVE

Date: November 11, 2003

Client: Ecology & Environment

Lab No.: 116932

Project: McCormick & Baxter - Portland, OR

Delivered By: Federal Express

Condition of samples upon receipt: Samples were received in good condition. Cooler temperatures have been recorded on the cooler receipt form included in the chain of custody section of this report. Chain of custody was in order.

Sample Identification:

Lab. No.	Client ID	Date Sampled	Matrix
116932-1	MBNLGB03-MW-1	10-13-03	solid

SAMPLE EXTRACTION AND ANALYSIS

GASOLINE RANGE ORGANICS

Sample 116932-1 was analyzed for gasoline range organics in accordance with WSDOE NWTPH-Gx Modified. The sample was extracted on 10-24-03 and analyzed on 10-25-03, which was within the required holding time.

The percent recoveries of trifluorotoluene (surrogate compound) were outside of quality control acceptance limits for samples 116932-1 and 116932R01, due to matrix interference.

Sample 116932-1 required a dilution prior to sample analysis.

The contaminants present in the gasoline range for samples 116932-1 and 116932R01 does not appear to be "typical" product. The chromatogram suggests this may be overlap from the diesel range.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the gasoline range organics analyses.

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STL Seattle

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: November 11, 2003

Project: McCormick & Baxter - Portland, OR

Lab No.: 116932

DIESEL AND HEAVY OIL RANGE ORGANICS

Sample 116932-1 was analyzed for diesel and heavy oil range organics in accordance with WSDOE NWTPH-Dx Modified. The sample was extracted on 10-20-03 and analyzed on 10-21-03, which was within the required holding time.

Sample 116932-1 required a dilution prior to sample analysis.

The percent recoveries of o-terphenyl (surrogate compound) were outside of quality control acceptance limits for samples 116932-1 and 116932R01, due to the required sample dilution.

The contaminants present in the diesel range and heavy oil range for samples 116932-1 and 116932R01 does not appear to be "typical" product. The chromatogram suggests that it may be fuel oil.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the diesel range organics analyses.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBNLGB03-MW-1
Lab ID:	116932-01
Date Received:	10/15/2003
Date Prepared:	10/24/2003
Date Analyzed:	10/25/2003
% Solids	
Dilution Factor	200

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Trifluorotoluene	-	X9	50	150
Bromofluorobenzene	93.4		50	150
Pentafluorobenzene	72.9		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
Gasoline by NWTPH-G	30500	7980	X1

X1 - Chromatogram suggests this might be overlap from diesel range

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBNLGB03-MW-1
Lab ID:	116932-01
Date Received:	10/15/2003
Date Prepared:	10/20/2003
Date Analyzed:	10/21/2003
% Solids	
Dilution Factor	10

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	-	X8	50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	360000	22000	11000	X1
Motor Oil	486000	43900	22000	X1

X1 - Chromatogram suggests this might be Fuel oil

STL Seattle

	Method Blank - GB3619
Lab ID:	-
Date Received:	10/24/2003
Date Prepared:	10/25/2003
Date Analyzed:	
% Solids	1
Dilution Factor	

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

			Recovery Limits	
	% Recovery	Flags	Low	High
Surrogate				
Trifluorotoluene	92.7		50	150
Bromofluorobenzene	94.4		50	150
Pentafluorobenzene	81.2		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
Gasoline by NWTPH-G	ND	4	

00007

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	GB3619
Date Prepared:	10/24/2003
Date Analyzed:	10/25/2003
QC Batch ID:	GB3619

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
Gasoline by NWTPH-G	0	50	51.3	103	50.7	101	-2	

STL Seattle

Duplicate Report

Client Sample ID:	MBNLGB03-MW-1
Lab ID:	116932-01
Date Prepared:	10/24/2003
Date Analyzed:	10/25/2003
QC Batch ID:	GB3619

Volatile Petroleum Products by WSDOE Method NWTPH-Gx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Gasoline by NWTPH-G	30500	26000	16.0	

STL Seattle

Lab ID:	Method Blank - DS1036
Date Received:	-
Date Prepared:	10/20/2003
Date Analyzed:	10/21/2003
% Solids	
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	83.9		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	ND	2500	1250	
Motor Oil	ND	5000	2500	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	DS1036
Date Prepared:	10/20/2003
Date Analyzed:	10/21/2003
QC Batch ID:	DS1036

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
#2 Diesel	0	50000	45300	90.6	45900	91.7	1.2	
Motor Oil	0	50000	47700	95.5	49700	99.3	3.9	

STL Seattle

Duplicate Report

Client Sample ID:	MBNLGB03-MW-1
Lab ID:	116932-01
Date Prepared:	10/20/2003
Date Analyzed:	10/21/2003
QC Batch ID:	DS1036

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	360000	355000	1.4	
Motor Oil	486000	483000	0.6	

DATA QUALIFIER DEFINITIONS

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ATA QUALIFIERS AND ABBREVIATIONS

1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

MRL: Method Reporting Limit

N: See analytical narrative

ND: Not Detected

PQL: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

CHAIN OF CUSTODY

Chain of Custody Record

STL-6274 (0102)

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

Client: Ecology & Environment, Inc.	Project Manager: John Montgomery 503-248-5600	Date: 10-14-03	Chain of Custody Number: 003324
Address: 333 SW Fifth Ave Suite 608	Telephone Number (Area Code)/Fax Number: 503-248-5600 / -5577	Lab Number: 116932	Page 1 of 1
City: Portland; State: OR; Zip Code: 97204	Site Contact: R. Whitehurch 503-709-0630	Lab Contact: Darla	
Project Name and Location (State): McCormick & Baxter – Portland OR	Carrier/Waybill Number: Courier		
Contract/Purchase Order/Quote No.: 001688-0402.27.01			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	NAPL	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	NWTPH-Dx	NWTPH-HCID	Cyan Bzz	BTEX	Naphthalene	Benzo(a)Pyrene	10-Hexane	PAH	Special Instructions/ Conditions of Receipt
MBNLGB03-MW-1	10-13-03	1330					2	X						X	X							Freephase NAPL (L)
							1	~~X~~	~~X~~													

Cooler: ☒ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal: ☐ Return To Client ☒ Disposal By Lab ☒ Archive For 1 Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other per contract

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	10-14-03	1518	1. Received By: [signature]	10/14/03	1518
2. Relinquished By: [signature]	10/14/03	1630	2. Received By: K. Hartley	10/15/03	9:20a
3. Relinquished By:			3. Received By:		

Comments:

77000
91000

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

Work Order 116932

Date 10/22/2003 3:36:20 PM

Contact, Company, and Address

Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

SAS Contact

Darla Powell

Work Phone (503) 248-5600 x

Fax Number (503) 248-5577

Items Discussed

Cancel the HCID and add NWTPHGx.

Resolution

Cooler ID No. _____

COOLER RECEIPT FORM

PROJECT McCormick & Baxter Portland OR

COOLER RECEIVED ON 10/5 AND OPENED ON 10/6 BY KR

(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 2.4 oC
TEMP. BLANK NA oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 front / 1 rear
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubblewrap/Ice/foa
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers?
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

000248

SEVERN TRENT SERVICES

375837

Custody Seal

DATE 10/14/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375837

SEVERN TRENT SERVICES

375807

Custody Seal

DATE 10/14/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375807

00020
00026

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: November 24, 2003

TO: Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

PROJECT: McCormick - Portland, Oregon

REPORT NUMBER: 117624

TOTAL NUMBER OF PAGES: 13

Enclosed are the test results for one sample received at STL Seattle on November 14, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell

Darla Powell
Project Manager

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STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
117624-1	EW23SLN-111103	11-11-03 17:10	oil

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SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ANALYTICAL NARRATIVE

Date: November 26, 2003

Client: Ecology & Environment

Lab No.: 117624

Project: McCormick - Portland, Oregon

Delivered By: Federal Express

Condition of samples upon receipt: Samples were received in good condition. Cooler temperatures have been recorded on the cooler receipt form included in the chain of custody section of this report. Chain of custody was in order.

Sample Identification:

Lab. No.	Client ID	Date Sampled	Matrix
117624-1	EW23SLN-111103	11-11-03	oil

SAMPLE EXTRACTION AND ANALYSIS

DIESEL AND HEAVY OIL RANGE ORGANICS

Sample 117624-1 was analyzed for diesel and heavy oil range organics in accordance with WSDOE NWTPH-Dx Modified. The sample was extracted and analyzed on 11-17-03, which was within the required holding time.

Sample 117624-1 required a dilution prior to sample analysis.

The percent recoveries of o-terphenyl (surrogate compound) were outside of quality control acceptance limits for samples 117624-1 and 117624R01, due to the required sample dilution.

The contaminants present in the diesel range and heavy oil range for samples 117624-1 and 117624R01 does not appear to be "typical" product. The chromatogram suggests that it may be fuel oil or similar product.

Please note - sample 116932-1 does not compare to the chromatogram of sample 117624-1.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the diesel range organics analyses.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Client Name	Ecology & Environment
Client ID:	EW23SLN-111103
Lab ID:	117624-01
Date Received:	11/14/2003
Date Prepared:	11/17/2003
Date Analyzed:	11/17/2003
% Solids	
Dilution Factor	10

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	-	X8	50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	809000	23700	11900	X1
Motor Oil	122000	47500	23700	X1

X1 - Chromatogram suggests this might be fuel oil or similar product

STL Seattle

Lab ID:	Method Blank - DS1062
Date Received:	-
Date Prepared:	11/17/2003
Date Analyzed:	11/17/2003
% Solids	
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	103		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	ND	2500	1250	
Motor Oil	ND	5000	2500	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	DS1062
Date Prepared:	11/17/2003
Date Analyzed:	11/19/2003
QC Batch ID:	DS1062

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
#2 Diesel	0	500	468	93.6	48100	96.2	2.7	
Motor Oil	0	500	464	92.8	45200	90.3	-2.7	

STL Seattle

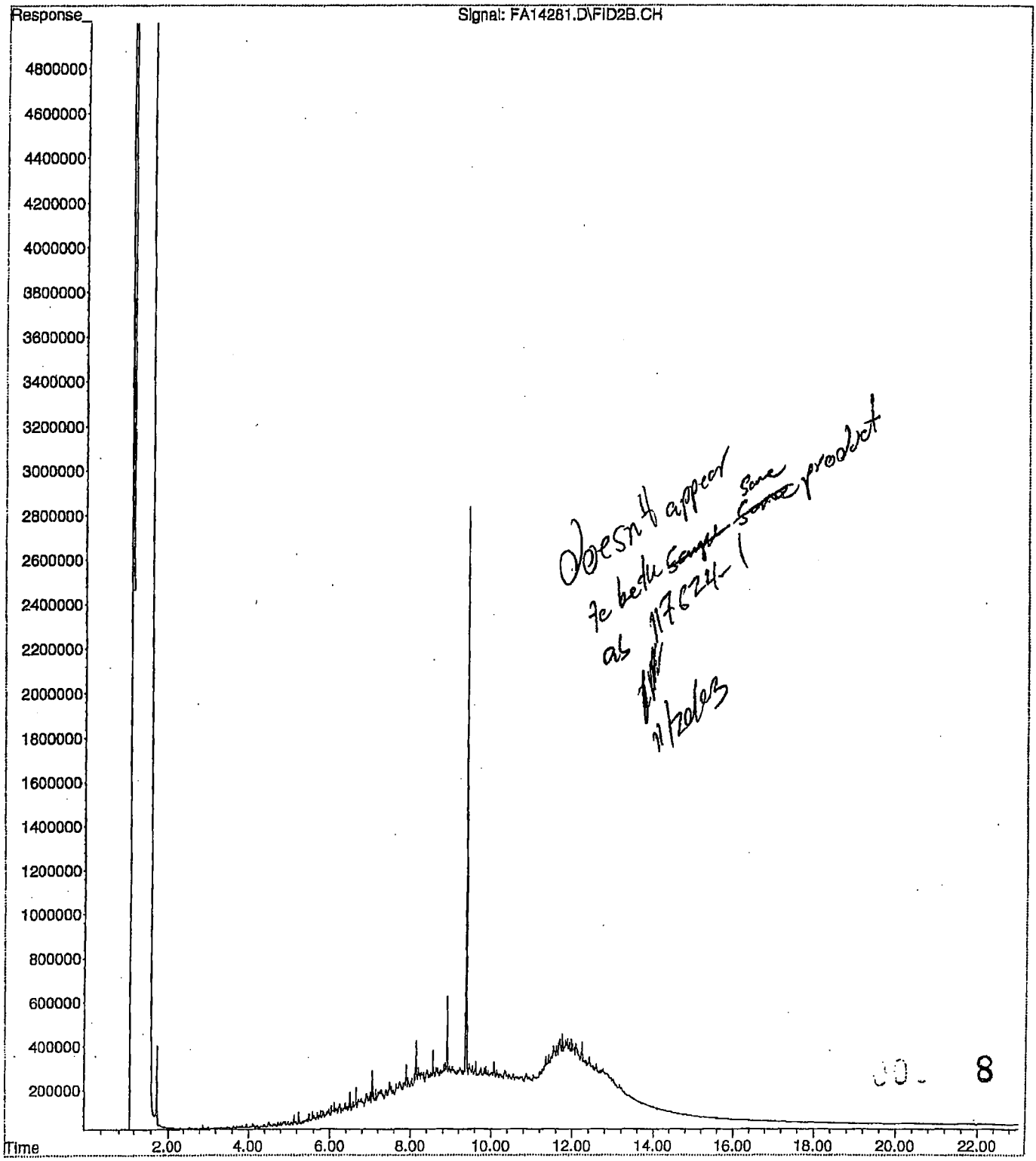
Duplicate Report

Client Sample ID:	EW23SLN-111103
Lab ID:	117624-01
Date Prepared:	11/17/2003
Date Analyzed:	11/17/2003
QC Batch ID:	DS1062

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	809000	809000	0.0	
Motor Oil	122000	124000	-1.6	

File : E:\DATA\102003_A\FA14281.D
Operator : RBF/CRF
Acquired : 10-21-2003 02:33:45 AM using AcqMethod EXTRACQ.M
Instrument : 6890-1
Sample Name: 116932-1 1:10 ds1036
Misc Info : Soil &10
Vial Number: 18



SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

DATA QUALIFIERS AND ABBREVIATIONS

B1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

B2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The presence of this analyte was not verified per WAC 246-290-010. The original analysis was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

MRL: Method Reporting Limit

N: See analytical narrative

ND: Not Detected

PQL: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

[redacted]

Chain of Custody Record

STL-8274 (0102)

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

2.2

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

Client: Ecology & Environment, Inc.	Project Manager: John Montgomery / Mark Ochsner	Date: Nov 13, 2003	Chain of Custody Number: 003374
Address: 333 SW Fifth Ave, Suite 608	Telephone Number (Area Code)/Fax Number: 503-248-5600 / 503-248-5577	Lab Number: 117624	Page 1 of 1
City: Portland; State: OR; Zip Code: 97204	Site Contact: Ryan Whitchurch	Lab Contact:	
Project Name and Location (State): McCormick – Portland, Oregon	Carrier/Waybill Number: Courier – STL Drop		
Contract/Purchase Order/Quote No.			

Analysis (Attach list if more space is needed): TPH-Dx

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Product	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	TPH-Dx	Special Instructions/ Conditions of Receipt
EW2351N-111103	11-11-03	1710					X	X						X	LNAPL Sample

Cooler: ☒ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☐ Non-Hazard ☒ Flammable ☒ Skin Irritant ☒ Poison B ☐ Unknown ?

Sample Disposal: ☒ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other Standard contract

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	11-13-03	1059	1. Received By: [signature]	11/13/03	1059
2. Relinquished By: [signature]	11/13/03	1625	2. Received By: [signature]	11-14-03	12:05
3. Relinquished By:			3. Received By:		

Comments: Compare Dx Chromatogram to Work Order 116932 – Call Heather Burnette (503-248-5600) for further info

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

Cooler ID No. E&E portland STL WORK ORDER NO. _____

COOLER RECEIPT FORM

PROJECT McCormick - Portland Oregon

COOLER RECEIVED ON 11-14-03 AND OPENED ON 11-14-03 BY [illegible]

(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 2.2 oC
TEMP. BLANK NONE oC

1.	Were custody seals on outside of cooler and intact?	YES NO
	a. If YES, how many and where: 2 1 REAR RT FRONT	
	b. Were signature and date correct?	YES NO
2.	Were custody papers taped to lid inside cooler?	YES NO
3.	Were custody papers properly filled out (ink, signed, etc)?	YES NO
4.	Did you sign custody papers in the appropriate place?	YES NO
5.	Did you attach shipper's packing slip to this form?	YES NO
6.	What kind of packing material was used? bubbleWRAP	
7.	Was sufficient ice used (if appropriate)?	YES NO
8.	Were all bottles sealed in separate plastic bags?	YES NO
9.	Did all bottles arrive in good condition (unbroken)?	YES NO
10.	Were all bottle labels complete (no., date, signed, pres, etc)?	YES NO
11.	Did all bottle labels and tags agree with custody papers?	YES NO
12.	Were correct bottles used for the test indicated?	YES NO
13.	If present, were VOA vials checked for absence of air bubbles and noted if found?	YES NO
14.	Adequate volume of VOA vials received per sample?	YES NO
15.	Was sufficient amount of sample sent in each bottle?	YES NO
16.	Were correct preservatives used?	YES NO
17.	Were extra labels added to pre-tared containers?	YES NO
18.	Corrective action taken, if necessary:	
	a. Name of person contacted: _____	
	b. Date: _____	

From: DOUG MCKENZIE (503)522-4548
STL - PORTLAND SERVICE CENTER
15816 SW Upper Boones Ferry Road

Lake Oswego, OR, 97035

REVENUE BARCODE

FedEx.

To: Sample Receiving (253)922-2310
STL - Seattle
5755 8th Street East

Tacoma, WA, 98424

SHIP DATE: 13NOV03
WEIGHT: 26 LBS

DIMMED: 21 X 11 X 14

Ref:

DELIVERY ADDRESS BARCODE(FEDEX-SDK)

TRK # 7910 6270 5919 FORM 0201

FedEx PRIORITY OVERNIGHT

SEA

98424-WA-US 85 TCMA

FRI
A2
Deliver by:
14NOV03

13

SEVERN TRENT SERVICES

376277

Custody Seal

DATE 11/13/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

376277

SEVERN TRENT SERVICES

376367

Custody Seal

DATE 11/13/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

376367

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

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Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: November 6, 2003

TO: Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

PROJECT: McCormick & Baxter, OR

REPORT NUMBER: 116724

TOTAL NUMBER OF PAGES: 116

Enclosed are the test results for ten samples received at STL Seattle on October 8, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell
Project Manager

STL Seattle is a part of Severn Trent Laboratories, Inc.

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STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
116724-1	MBNLGB03-01	10-07-03 12:10	solid
116724-2	MBNLGB03-02	10-07-03 12:12	solid
116724-3	MBNLGB03-03	10-07-03 12:25	solid
116724-4	MBNLGB03-04	10-07-03 12:26	solid
116724-5	MBNLGB03-05	10-07-03 12:30	solid
116724-6	MBNLGB03-06	10-07-03 12:32	solid
116724-7	MBNLGB03-07	10-07-03 12:34	solid
116724-8	MBNLGB03-08	10-07-03 12:36	solid
116724-9	MBNLGB03-09	10-07-03 12:42	solid
116724-10	MBNLGB03-10	10-07-03 12:45	solid

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SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ANALYTICAL NARRATIVE

Date: November 6, 2003

Client: Ecology & Environment

Lab No.: 116724

Project: McCormick & Baxter, OR

Delivered By: Federal Express

Condition of samples upon receipt: : Samples were received in good condition. Cooler temperatures have been recorded on the cooler receipt form included in the chain of custody section of this package. Chain of custody was in order.

Sample Identification:

Lab. No.	Client ID	Date Sampled	Matrix
116724-1	MBNLGB03-01	10-07-03	solid
116724-2	MBNLGB03-02	10-07-03	solid
116724-3	MBNLGB03-03	10-07-03	solid
116724-4	MBNLGB03-04	10-07-03	solid
116724-5	MBNLGB03-05	10-07-03	solid
116724-6	MBNLGB03-06	10-07-03	solid
116724-7	MBNLGB03-07	10-07-03	solid
116724-8	MBNLGB03-08	10-07-03	solid
116724-9	MBNLGB03-09	10-07-03	solid
116724-10	MBNLGB03-10	10-07-03	solid

SAMPLE EXTRACTION AND ANALYSIS

DIESEL AND HEAVY OIL RANGE ORGANICS

Samples 116724-2, 116724-9 and 116724-10 were analyzed for diesel and heavy oil range organics in accordance with WSDOE NWTPH-Dx Modified. The samples were extracted on 10-17-03 and analyzed on 10-24-03, which was within the required holding time.

The contaminants present in the diesel range and heavy oil range for samples 116724-2, 116724-9 and 116724-10 does not appear to be "typical" product. The filter fabric may have contained organics which leached into the solvent during extraction.

All quality control was within the acceptance limits.

No difficulties were encountered during the diesel range organics analyses.

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBNLGB03-02
Lab ID:	116724-02
Date Received:	10/8/2003
Date Prepared:	10/17/2003
Date Analyzed:	10/24/2003
% Solids	
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	75.7		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	922	234	117	X2
Motor Oil	2660	468	234	X2

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBNLGB03-09
Lab ID:	116724-09
Date Received:	10/8/2003
Date Prepared:	10/17/2003
Date Analyzed:	10/24/2003
% Solids	
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	75.2		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	604	216	108	X2
Motor Oil	2040	432	216	X2

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBNLGB03-10
Lab ID:	116724-10
Date Received:	10/8/2003
Date Prepared:	10/17/2003
Date Analyzed:	10/24/2003
% Solids	
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	75.7		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	783	175	87.3	X2
Motor Oil	2320	349	175	X2

STL Seattle

Lab ID:	Method Blank - DS1034
Date Received:	-
Date Prepared:	10/17/2003
Date Analyzed:	10/24/2003
% Solids	
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	75.8		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	ND	250	125	
Motor Oil	ND	500	250	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	DS1034
Date Prepared:	10/17/2003
Date Analyzed:	10/24/2003
QC Batch ID:	DS1034

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
#2 Diesel	0	5000	4740	94.8	5060	101	6.3	
Motor Oil	0	5000	5070	101	5420	108	6.7	

STL Seattle

Client Name	0
Client ID:	SDS1034
Lab ID:	-
Date Received:	10/17/2003
Date Prepared:	10/24/2003
Date Analyzed:	
% Solids	1
Dilution Factor	

Diesel and Motor Oil by NWTPH-Dx Modified

	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
Surrogate				
o-terphenyl	99.8		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	4740	250	125	
Motor Oil	5070	500	250	

STL Seattle

Client Name	0
Client ID:	
Lab ID:	DDS1034
Date Received:	-
Date Prepared:	10/17/2003
Date Analyzed:	10/24/2003
% Solids	
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	92.2		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	5060	250	125	
Motor Oil	5420	500	250	

STL Seattle

Duplicate Report

Client Sample ID:	MBNLGB03-02
Lab ID:	116724-02
Date Prepared:	10/17/2003
Date Analyzed:	10/24/2003
QC Batch ID:	DS1034

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	922	896	2.9	
Motor Oil	2660	3090	-15.0	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MBNLGB03-02 - dup
Lab ID:	116724R02
Date Received:	-
Date Prepared:	10/17/2003
Date Analyzed:	10/24/2003
% Solids	
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	75.1		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MRL	Flags
#2 Diesel	896	252	126	X2
Motor Oil	3090	503	252	X2

DATA QUALIFIER DEFINITIONS

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ATA QUALIFIERS AND ABBREVIATIONS

.1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

32: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

C1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

C2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

C3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

C4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.

M: GC/MS confirmation was performed. The result derived from the original analysis was reported.

D: The reported result for this analyte was calculated based on a secondary dilution factor.

E: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

MCL: Maximum Contaminant Level

MDL: Method Detection Limit

MRL: Method Reporting Limit

N: See analytical narrative

ND: Not Detected

PQL: Practical Quantitation Limit

X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

X2: Contaminant does not appear to be "typical" product.

X3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

X4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

X4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

X5: Matrix spike recovery was not determined due to the required dilution.

X6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

X7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

X7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

X8: Surrogate recovery was not determined due to the required dilution.

X9: Surrogate recovery outside advisory QC limits due to matrix interference.

CHAIN OF CUSTODY

Chain of Custody Record

STL-8274 (0102) 001688.0402.27.01

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

3.2°C

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

Client: Ecology & Environment Inc.	Project Manager: MARK OLHSER	Date: 10-7-03	Chain of Custody Number: 003377
Address: 333 SW 5th AVE STE 608	Telephone Number (Area Code)/Fax Number: 503-248-5600	Lab Number: ~~116274~~ 116724	Page 1 of 1
City: Portland; State: OR; Zip Code: 97204	Site Contact:	Lab Contact:	
Project Name and Location (State): McCormick & Baxter, OR	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Other	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	Zn/Ac/NaOH	Other	Analysis (Attach list if more space is needed): 10 PCB Aroclors by EPA 8082 (Wipes)	Special Instructions/ Conditions of Receipt
✓ MBNLGB03-01	10-7-03	1210					X	X							X	Contact E&E for further instructions on TIC analysis by EPA 8270CSM
✓ MBNLGB03-02	10-7-03	1212					X	X							X	
✓ MBNLGB03-03	10-7-03	1225					X	X							X	
✓ MBNLGB03-04	10-7-03	1226					X	X							X	
✓ MBNLGB03-05	10-7-03	1230					X	X							X	
✓ MBNLGB03-06	10-7-03	1232					X	X							X	
✓ MBNLGB03-07	10-7-03	1234					X	X							X	
✓ MBNLGB03-08	10-7-03	1236					X	X							X	
✓ MBNLGB03-09	10-7-03	1242					X	X							X	
✓ MBNLGB03-10	10-7-03	1245					X	X							X	

Cooler: ☒ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other As Per Contract

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Erin E Murphy	10-7-03	1600	1. Received By: G. Ellis	10/07/03	1600
2. Relinquished By:			2. Received By: K. Rhea	10/8/03	104
3. Relinquished By:			3. Received By:		

Comments:

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

Work Order 0

Date 10/8/2003 12:32:58 PM

SAS Contact

Darla Powell

Contact, Company, and Address

Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

Work Phone (503) 248-5600 x

Fax Number (503) 248-5577

Items Discussed

I called Heather regarding the NAPL samples we just received and analyzing them for 1664. I explained that the method isn't applicable for solid samples. I mentioned we could analyze via NWTPHDx.

Resolution

Heather called back and would like us to analyze their #'s -02,-09 & -10 for NWTPHDx.

Cooler ID No. _____ STL WORK ORDER NO. 116724

COOLER RECEIPT FORM

PROJECT McCormick + Baxter, OR

COOLER RECEIVED ON 10/8 AND OPENED ON 10/8 BY KR

K Fresler
(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 3.2 oC
TEMP. BLANK NA oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 Front / 1 Rear
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

SEVERN TRENT SERVICES

375617

Custody Seal

DATE 10/07/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375617

SEVERN TRENT SERVICES

375607

Custody Seal

DATE 10/07/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375607

DATA DELIVERABLES PACKAGE

DIESEL AND MOTOR OIL RANGE ORGANICS DATA PACKAGE

SAMPLE DATA

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08166.D
Acq On : 24 Oct 2003 15:03
Sample : 116724-2 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

Vial: 12
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.79	433521	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	432710	15.356 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	2564781	98.556 ng/ul
4) H Motor Oil	12.00	4406670	284.645 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

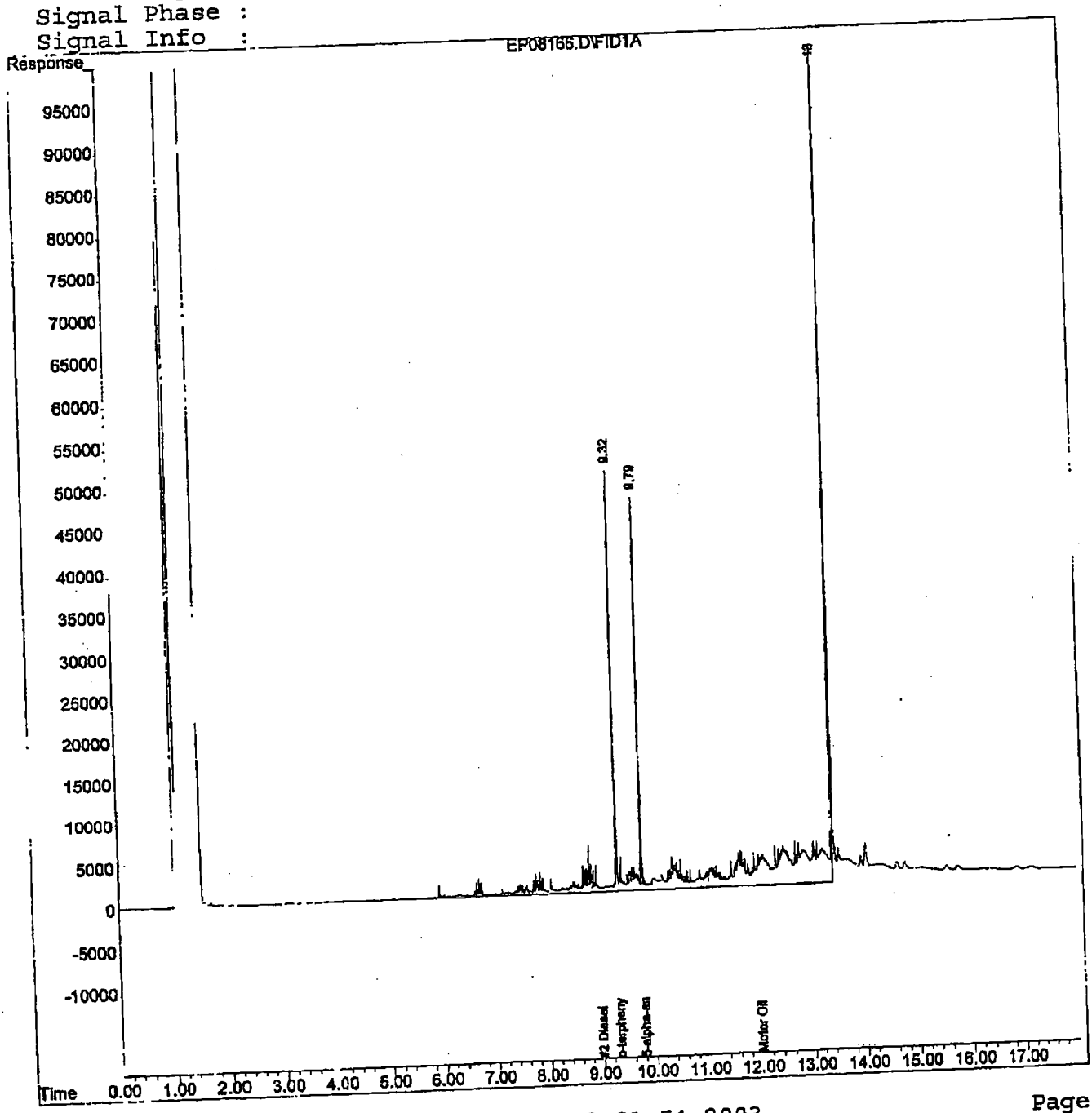
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08166.D
Acq On : 24 Oct 2003 15:03
Sample : 116724-2 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

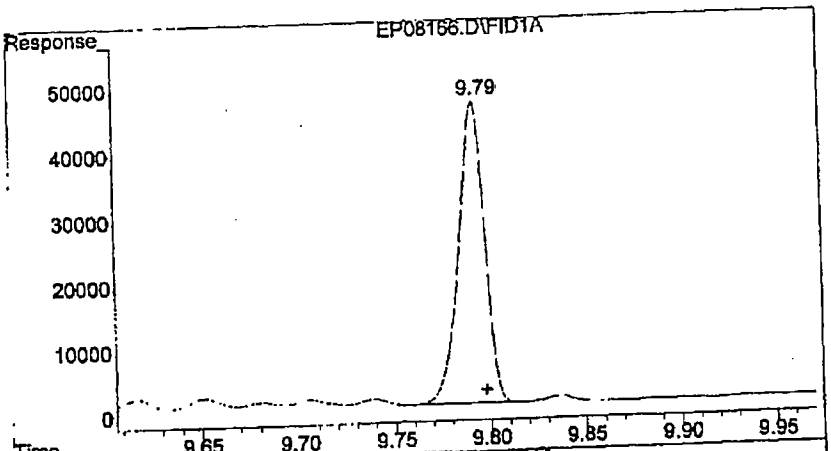
Vial: 12
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

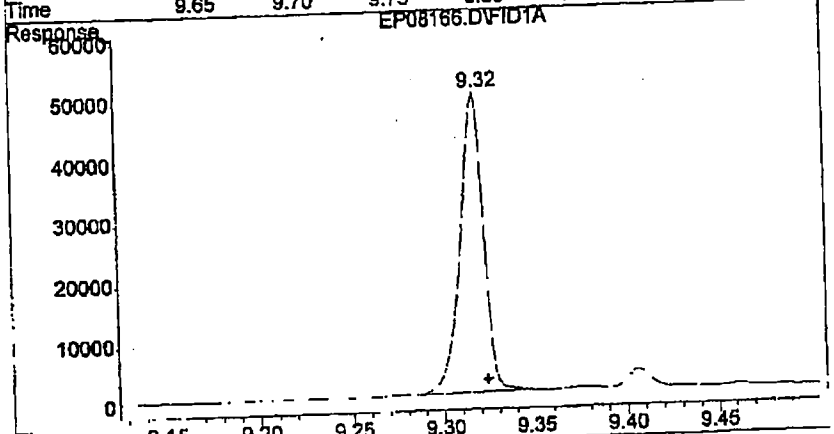


EP08166.D NWDF1020.M Mon Oct 27 13:01:54 2003



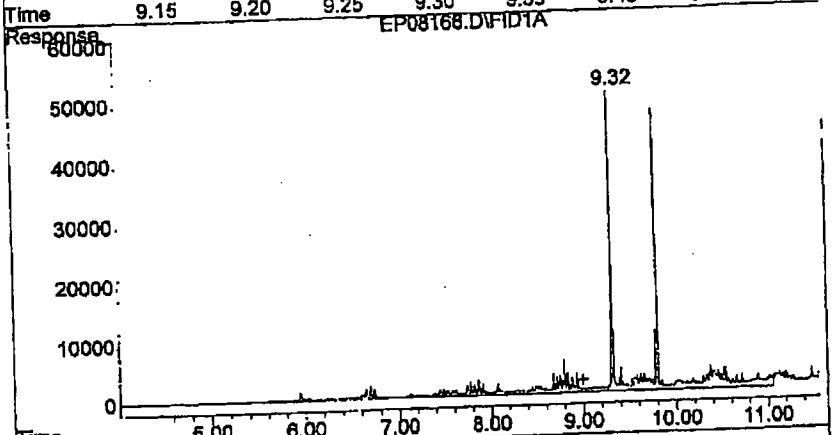
#1 5-alpha-androstane (I)

R.T.: 9.794 min
Delta R.T.: -0.004 min
Response: 433521
Conc: 20.00 ng/ul



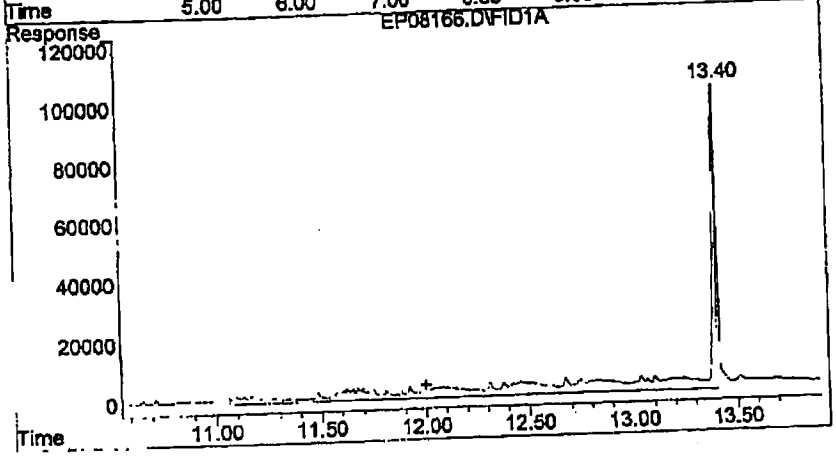
#2 o-terphenyl (S)

R.T.: 9.319 min
Delta R.T.: -0.005 min
Response: 432710
Conc: 15.36 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 2564781
Conc: 98.56 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 4406670
Conc: 284.64 ng/ul m

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08168.D
Acq On : 24 Oct 2003 15:55
Sample : 116724-9 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

Vial: 14
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.79	482051	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	478072	15.258 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	2102673	69.820 ng/ul
4) H Motor Oil	12.00	4084744	235.814 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

00026

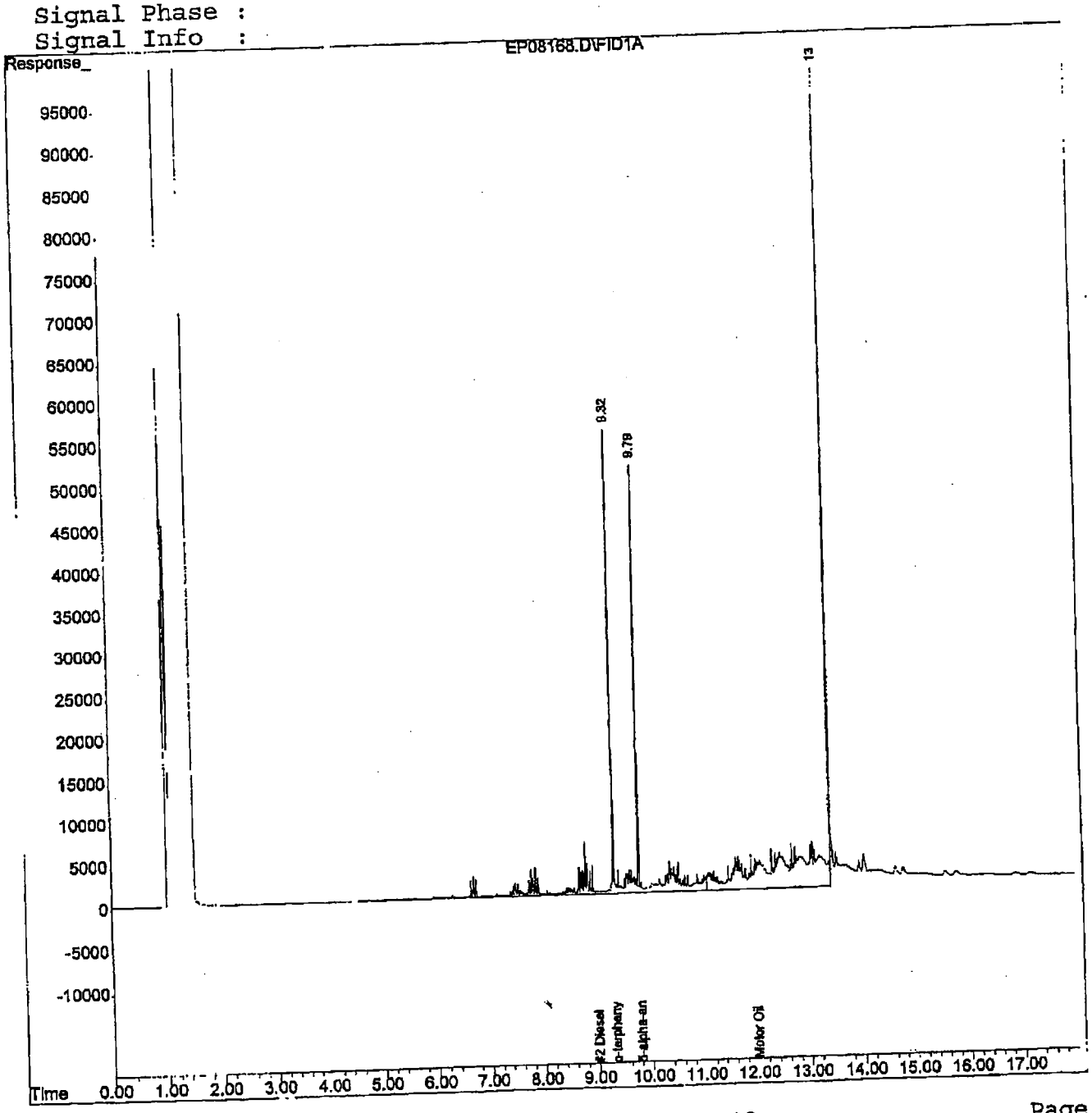
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08168.D
Acq On : 24 Oct 2003 15:55
Sample : 116724-9 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

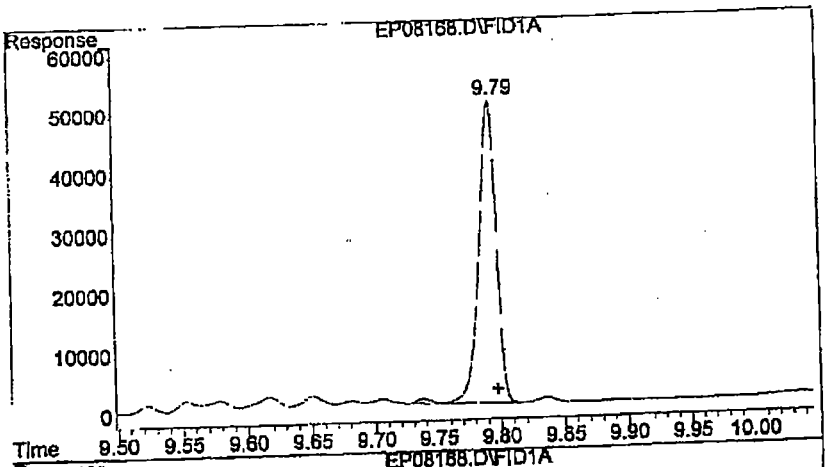
Vial: 14
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

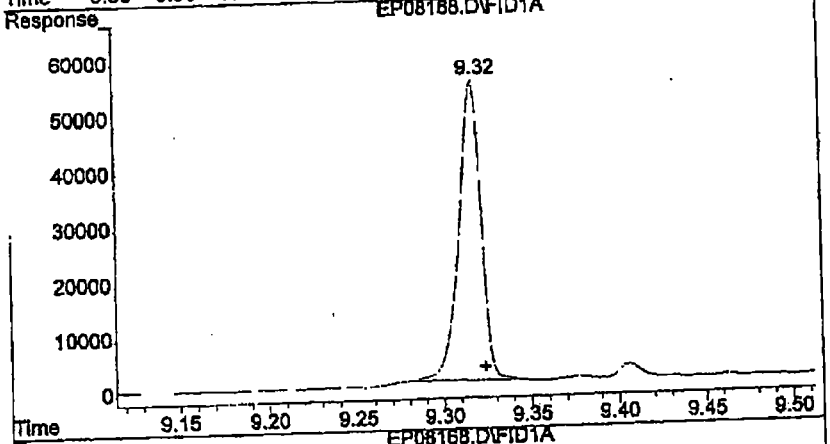


000027



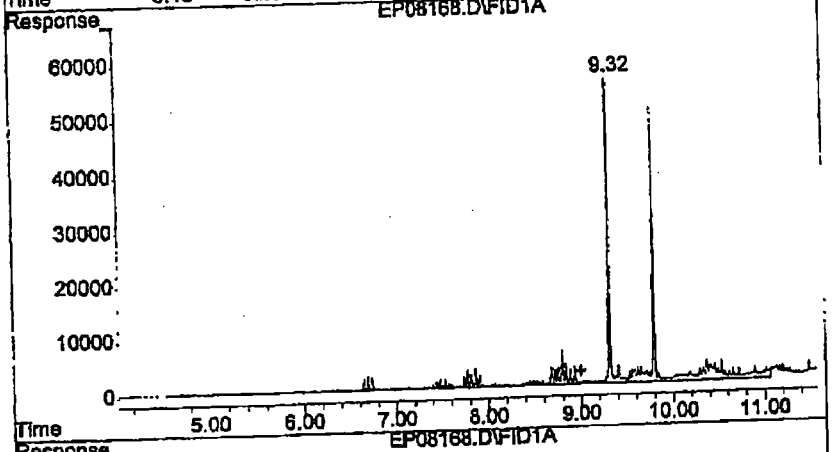
#1 5-alpha-androstane (I)

R.T.: 9.794 min
Delta R.T.: -0.004 min
Response: 482051
Conc: 20.00 ng/ul



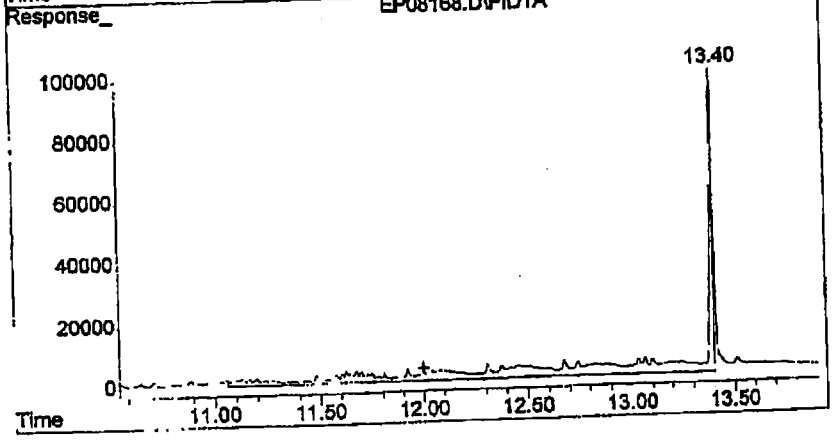
#2 o-terphenyl (S)

R.T.: 9.319 min
Delta R.T.: -0.005 min
Response: 478072
Conc: 15.26 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 2102673
Conc: 69.82 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 4084744
Conc: 235.81 ng/ul m

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08169.D
Acq On : 24 Oct 2003 16:21
Sample : 116724-10 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:01 2003 Quant Results File: NWDF1020.RES

Vial: 15
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	475470	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	474701	15.360 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	3159198	112.020 ng/ul
4) H Motor Oil	12.00	5601427	331.303 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.
EP08169.D NWDF1020.M Mon Oct 27 13:02:17 2003 Page 1

000029

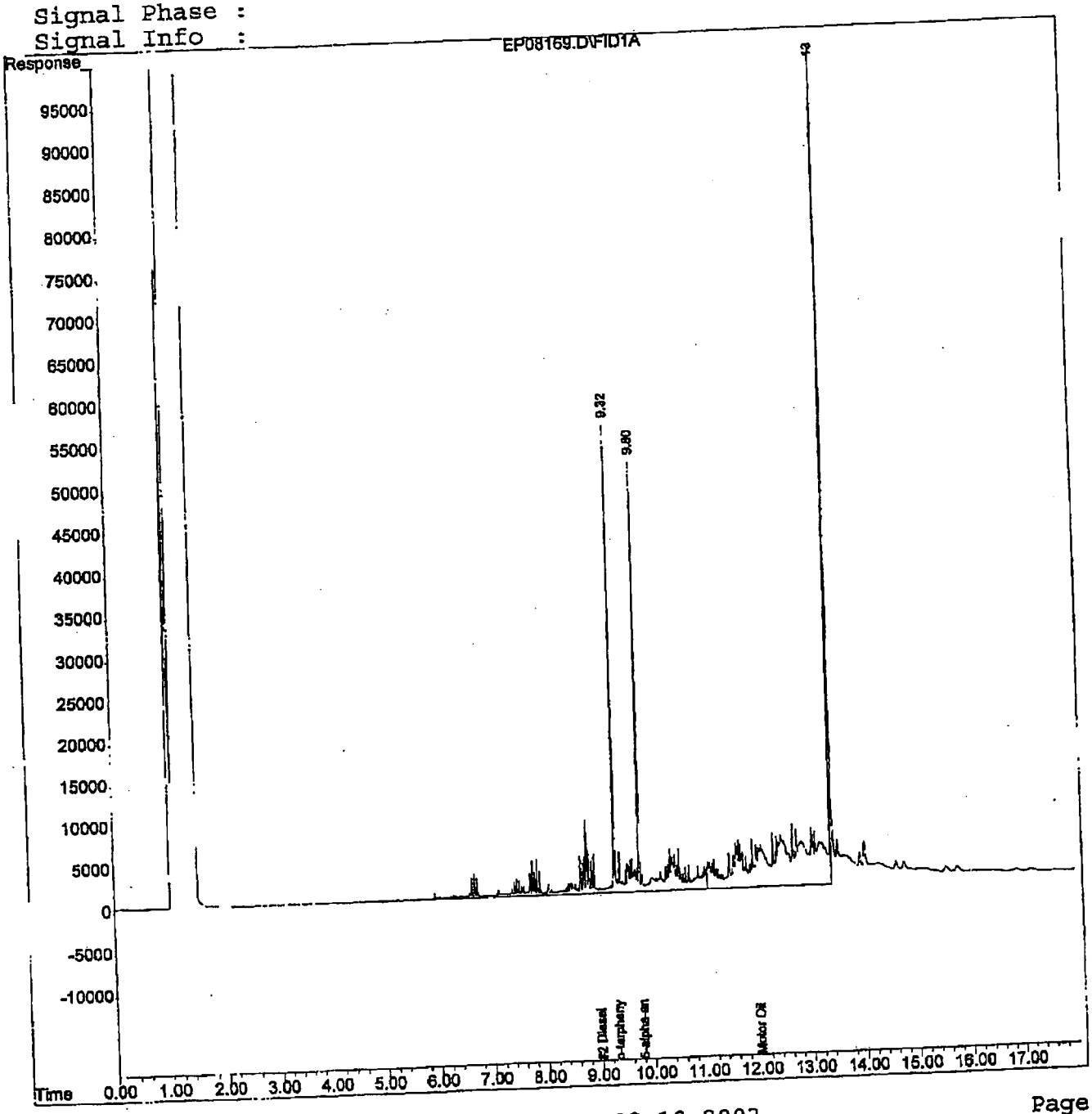
Quantitation Report (Not Reviewed)

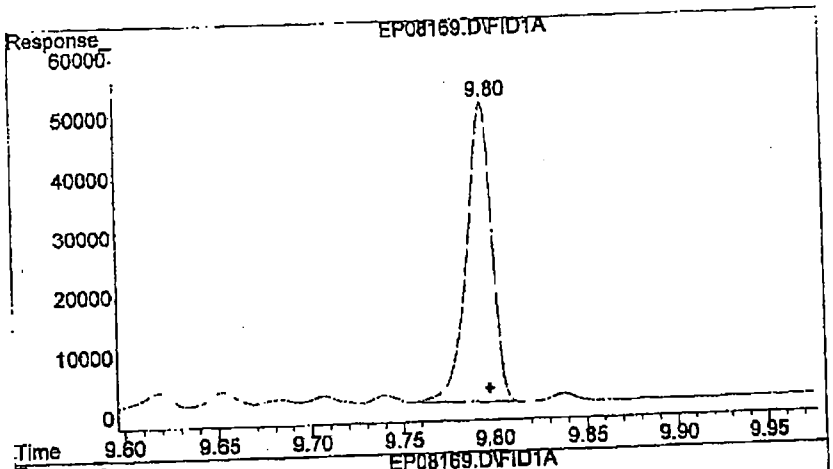
Data File : G:\DATA\102403_A\EP08169.D
Acq On : 24 Oct 2003 16:21
Sample : 116724-10 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:01 2003 Quant Results File: NWDF1020.RES

Vial: 15
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : FACQ.M

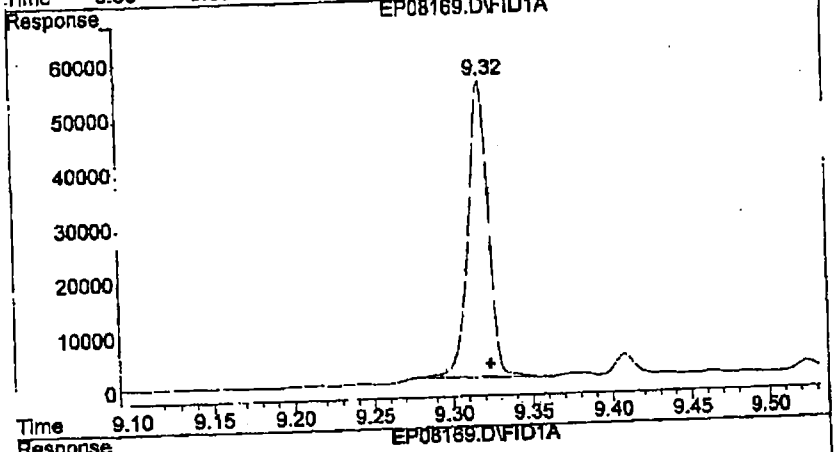
Volume Inj. :
Signal Phase :
Signal Info :





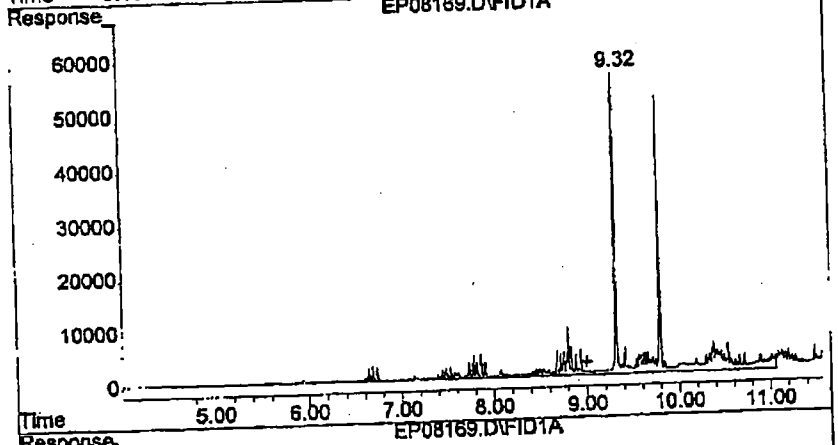
#1 5-alpha-androstane (I)

R.T.: 9.796 min
Delta R.T.: -0.002 min
Response: 475470
Conc: 20.00 ng/ul



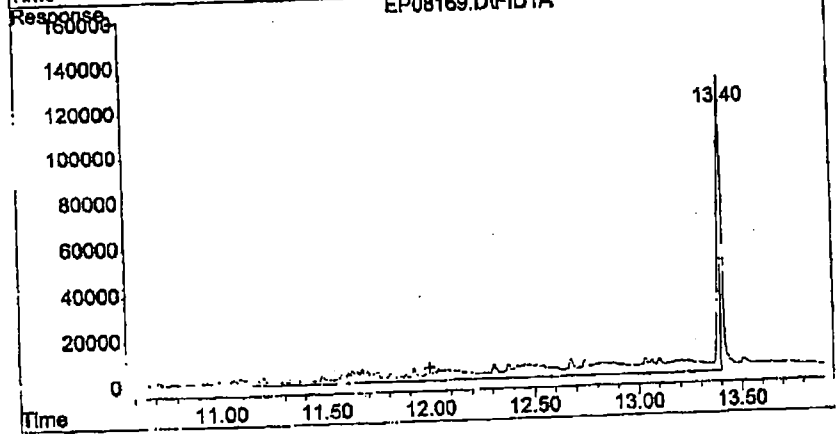
#2 o-terphenyl (S)

R.T.: 9.320 min
Delta R.T.: -0.004 min
Response: 474701
Conc: 15.36 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 3159198
Conc: 112.02 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 5601427
Conc: 331.30 ng/ul m

00031

INITIAL CALIBRATION

Calibration Status Report 5890-1

Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration

	ID	Conc	ISTD Conc	Path\File
1	25d	1.00	20.00	G:\DATA\102103_A\EP08045.D
2	50d	2.00	20.00	G:\DATA\102103_A\EP08046.D
3	100d	4.00	20.00	G:\DATA\102103_A\EP08047.D
4	250d	10.00	20.00	G:\DATA\102103_A\EP08048.D
5	500d	20.00	20.00	G:\DATA\102103_A\EP08049.D
6	1kd	40.00	20.00	G:\DATA\102103_A\EP08050.D
7	2.5k	100.00	20.00	G:\DATA\102103_A\EP08051.D
8	5kd	-1.00	20.00	G:\DATA\102103_A\EP08052.D

	ID	Update Time	Quant Time	Acquisition Time
1	25d	Oct 22 09:32 2003	Oct 22 09:32 2003	21 Oct 2003 11:02
2	50d	Oct 22 09:32 2003	Oct 22 09:32 2003	21 Oct 2003 11:33
3	100d	Oct 22 09:33 2003	Oct 22 09:33 2003	21 Oct 2003 12:05
4	250d	Oct 22 09:33 2003	Oct 22 09:33 2003	21 Oct 2003 12:37
5	500d	Oct 22 09:33 2003	Oct 22 09:33 2003	21 Oct 2003 13:09
6	1kd	Oct 22 09:34 2003	Oct 22 09:33 2003	21 Oct 2003 13:40
7	2.5k	Oct 22 09:34 2003	Oct 22 09:34 2003	21 Oct 2003 14:12
8	5kd	Oct 22 09:35 2003	Oct 22 09:35 2003	21 Oct 2003 14:44

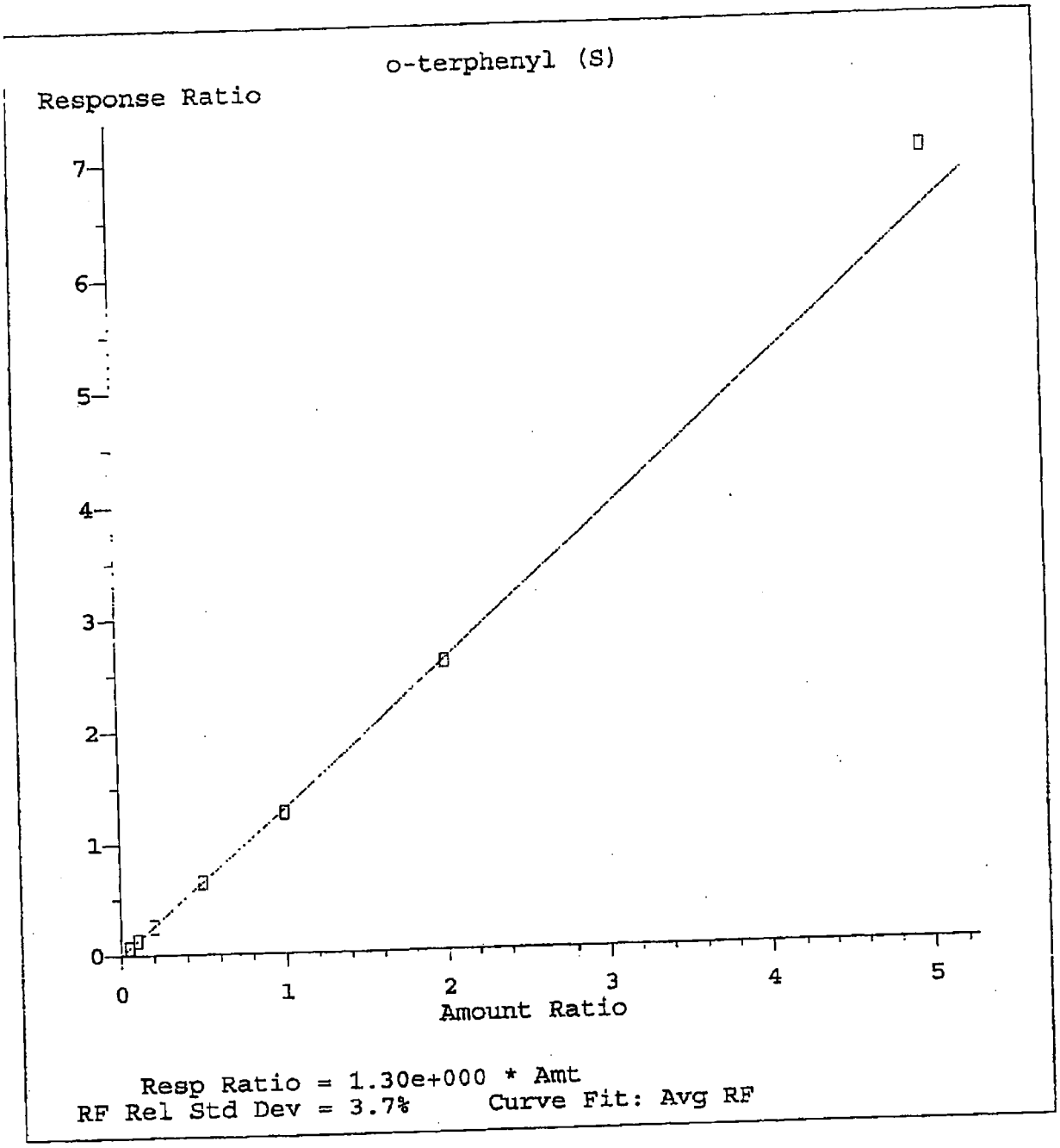
NWDF1020.M Mon Oct 27 08:56:27 2003

Injection Log

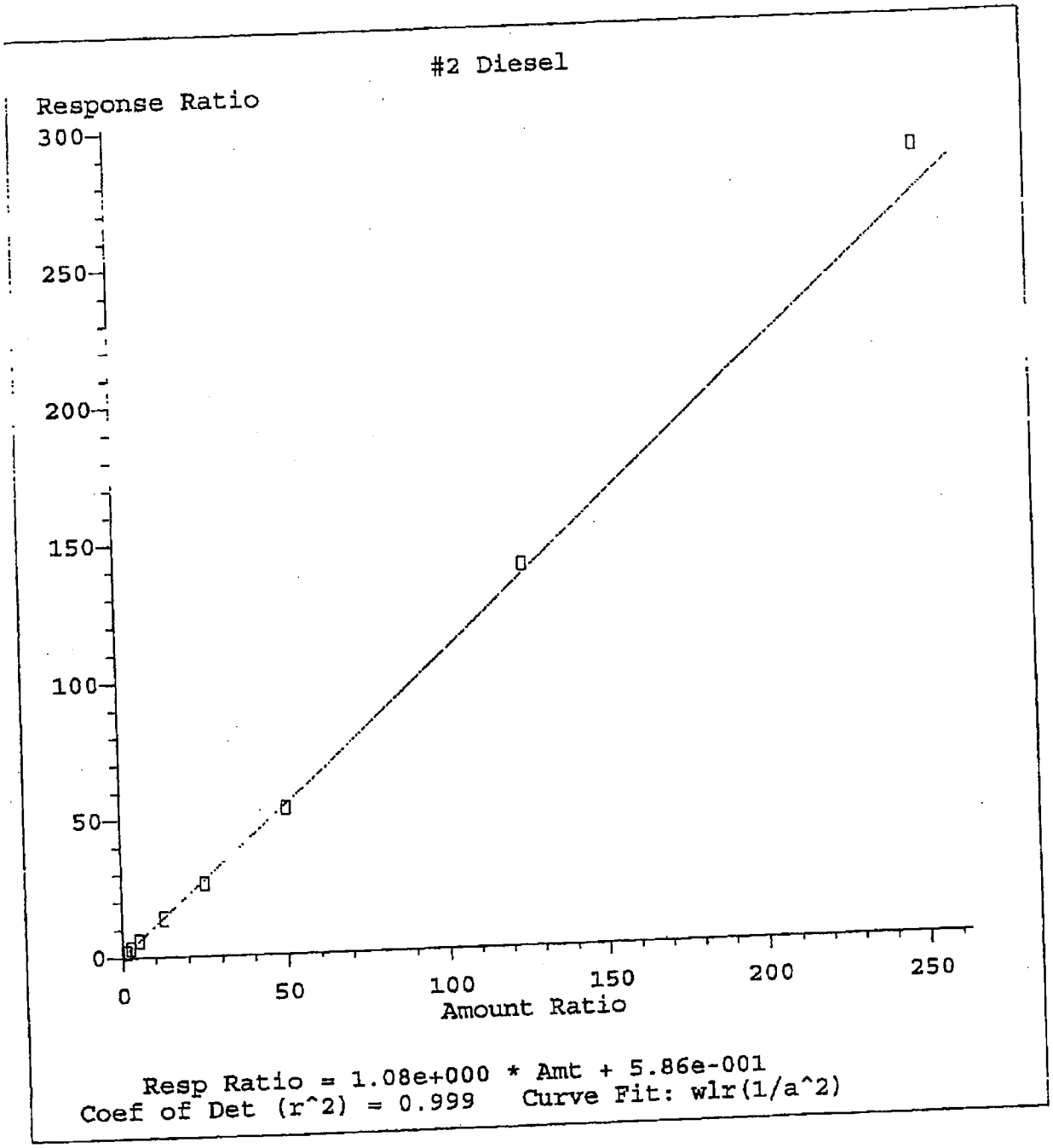
Directory: G:\DATA\102103_A

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	Ep08041.d	1.	rinse		21 Oct 2003 09:17
2	1	Ep08042.d	1.	rinse		21 Oct 2003 09:43
3	2	Ep08043.d	1.	1166-26-03 n-alkane rt std		21 Oct 2003 10:10
4	3	Ep08044.d	1.	1166-9-6 8015b n-alkane rt std		21 Oct 2003 10:36
5	4	Ep08045.d	1.	1166-29-3 25 ical		21 Oct 2003 11:02
6	5	Ep08046.d	1.	1166-29-4 50 ical		21 Oct 2003 11:33
7	6	Ep08047.d	1.	1166-29-5 100 ical		21 Oct 2003 12:05
8	7	Ep08048.d	1.	1166-29-6 250 ical		21 Oct 2003 12:37
9	8	Ep08049.d	1.	1166-29-7 500 ical		21 Oct 2003 13:09
10	9	Ep08050.d	1.	1166-29-8 1000 ical		21 Oct 2003 13:40
11	10	Ep08051.d	1.	1166-29-9 2500 ical		21 Oct 2003 14:12
12	11	Ep08052.d	1.	1166-29-10 5000 ical		21 Oct 2003 14:44
13	1	Ep08053.d	1.	rinse		21 Oct 2003 15:16
14	1	Ep08054.d	1.	rinse		21 Oct 2003 15:47
15	12	Ep08055.d	1.	1166-31-1 50 mineral oil ical		21 Oct 2003 16:19
16	13	Ep08056.d	1.	1166-31-2 100 mineral oil ical		21 Oct 2003 16:50
17	14	Ep08057.d	1.	1166-31-3 250 mineral oil ical		21 Oct 2003 17:22
18	15	Ep08058.d	1.	1166-31-4 500 mineral oil ical		21 Oct 2003 17:53
19	16	Ep08059.d	1.	1166-31-5 1000 mineral oil ...		21 Oct 2003 18:25
20	17	Ep08060.d	1.	1166-31-6 2500 mineral oil ...		21 Oct 2003 18:56
21	18	Ep08061.d	1.	1166-31-7 5000 mineral oil ...		21 Oct 2003 19:28
22	19	Ep08062.d	1.	1166-28-2 1000 icv diesel m...		21 Oct 2003 20:00
23	20	Ep08063.d	1.	1166-31-8 1000 icv mineral oil		21 Oct 2003 20:32
24	1	Ep08064.d	1.	rinse		21 Oct 2003 21:04
25	21	Ep08065.d	1.	116638-6 &10		21 Oct 2003 21:37
26	22	Ep08066.d	1.	116638-5 &10		21 Oct 2003 22:09
27	23	Ep08067.d	1.	116638-1 &10 1:10		21 Oct 2003 22:41
28	24	Ep08068.d	1.	116638-1 &10 1:10 dup		21 Oct 2003 23:13
29	25	Ep08069.d	1.	116638-21 &10 1:10		21 Oct 2003 23:46
30	26	Ep08070.d	1.	116638-16 &10 1:5		22 Oct 2003 00:18
31	27	Ep08071.d	1.	116638-7 &10 1:10		22 Oct 2003 00:50
32	28	Ep08072.d	1.	116638-4 &10 1:5		22 Oct 2003 01:23
33	29	Ep08073.d	1.	1166-31-12 1000/40s ccal		22 Oct 2003 01:55
34	30	Ep08074.d	1.	1166-31-9 1000 mineral oil ...		22 Oct 2003 02:27

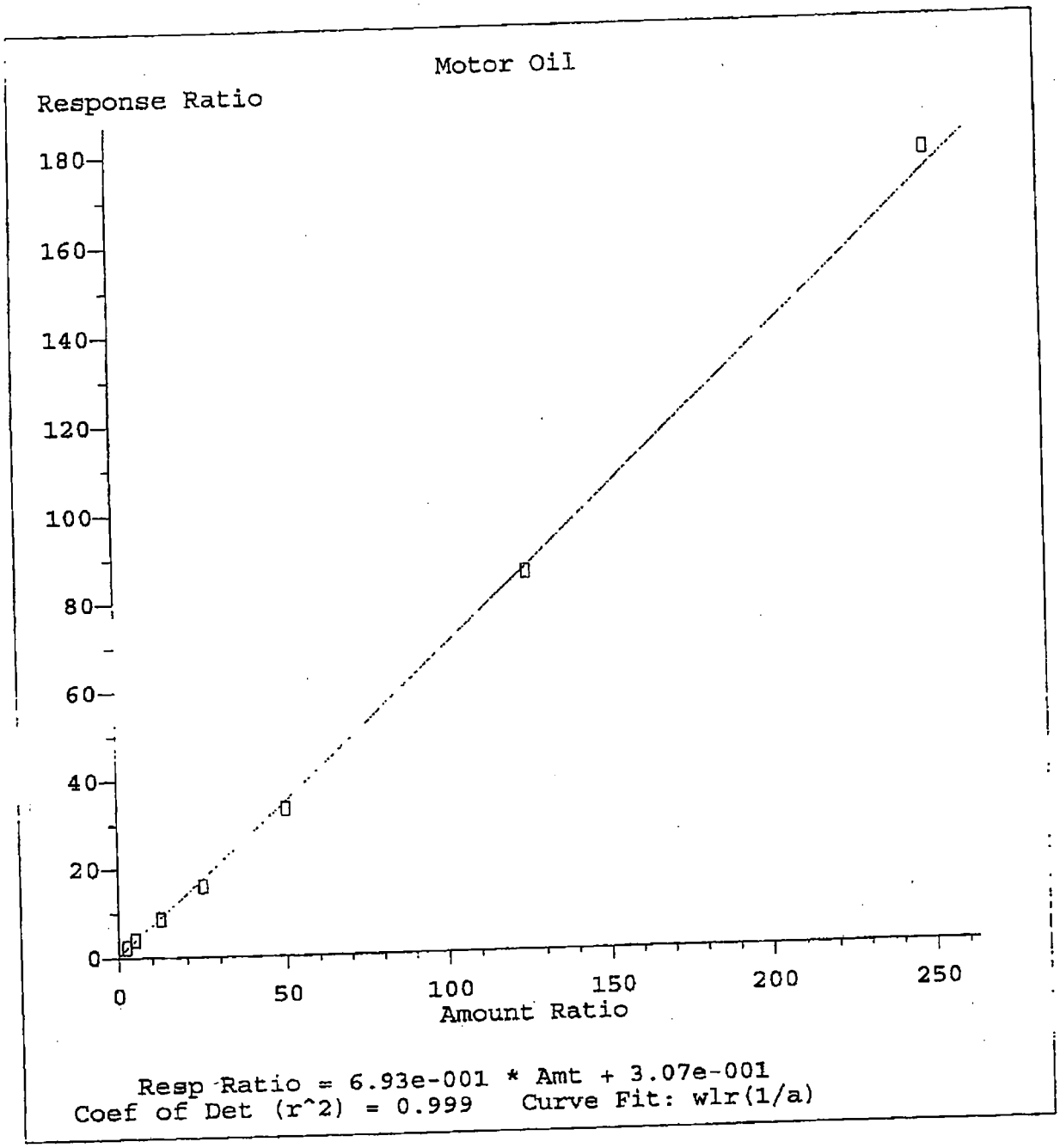
27 Oct 2003 08:56



Method Name: G:\METHODS\NWDF1020.M
Calibration Table Last Updated: Wed Oct 22 09:37:35 2003



Method Name: G:\METHODS\NWDF1020.M
Calibration Table Last Updated: Wed Oct 22 09:37:35 2003



Method Name: G:\METHODS\NWDF1020.M
Calibration Table Last Updated: Wed Oct 22 09:37:35 2003

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08043.D
Acq On : 21 Oct 2003 10:10
Sample : 1166-26-03 n-alkane rt std
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:32 2003 Quant Results File: NWDF1020.RES

Vial: 2
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:31:54 2003
Response via : Initial Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	479266	20.000 ng/ul
System Monitoring Compounds			
Target Compounds			

(f)=RT Delta > 1/2 Window (m)=manual int.

00038

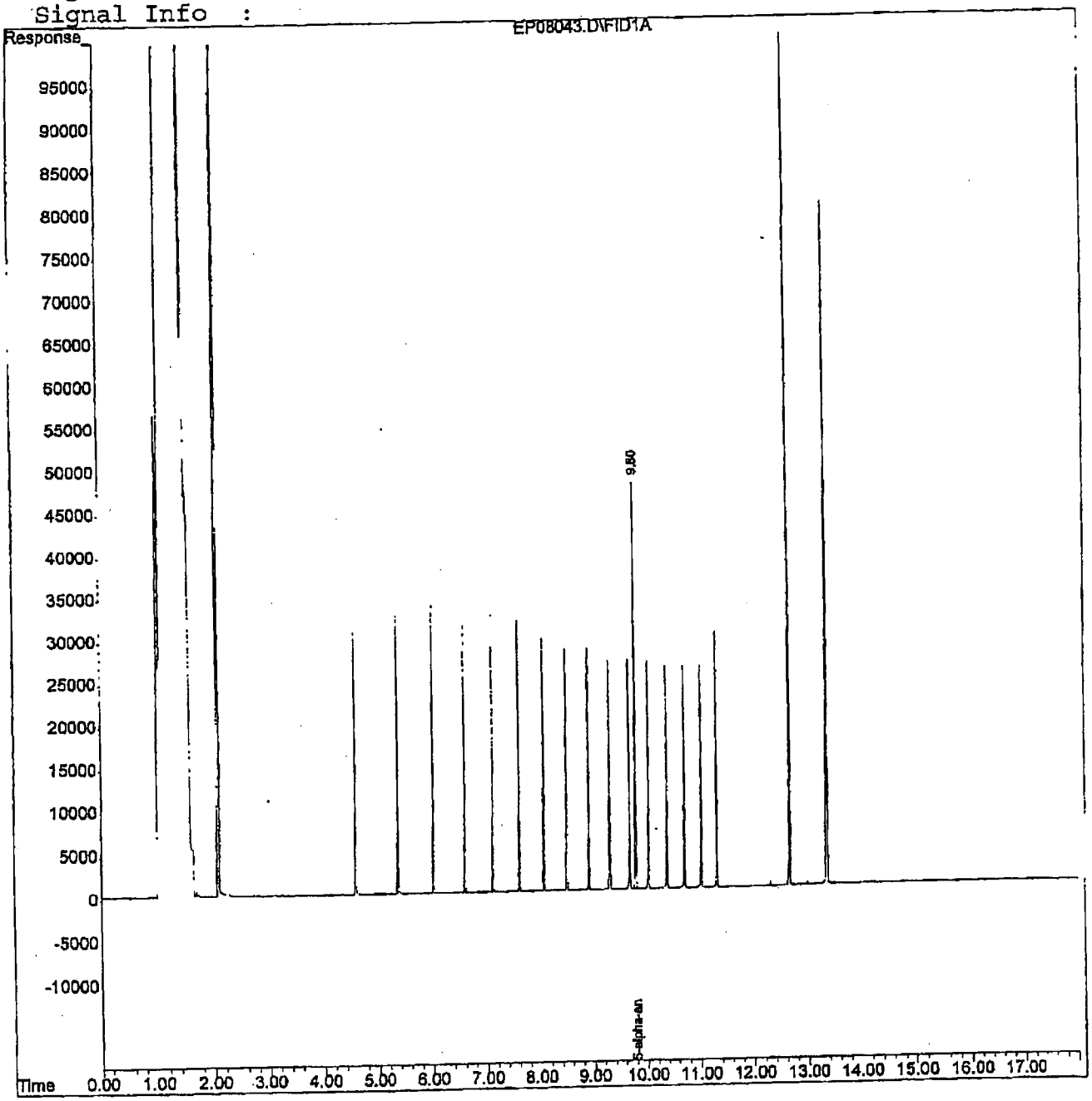
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08043.D
Acq On : 21 Oct 2003 10:10
Sample : 1166-26-03 n-alkane rt std
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:32 2003 Quant Results File: NWDF1020.RES

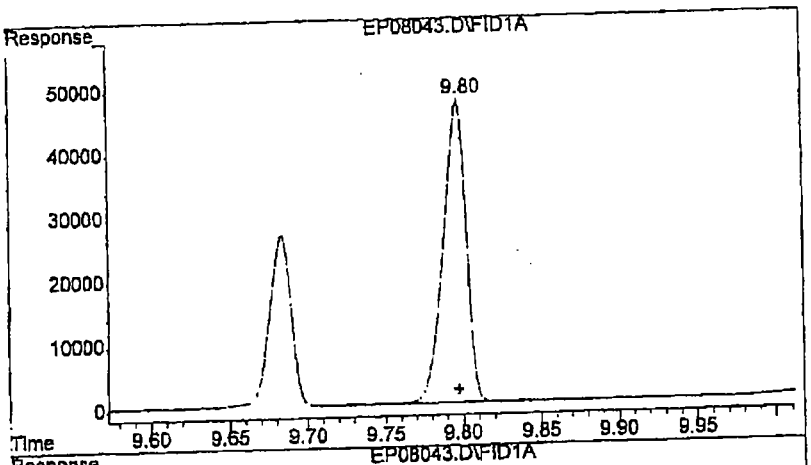
Vial: 2
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:31:54 2003
Response via : Multiple Level Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

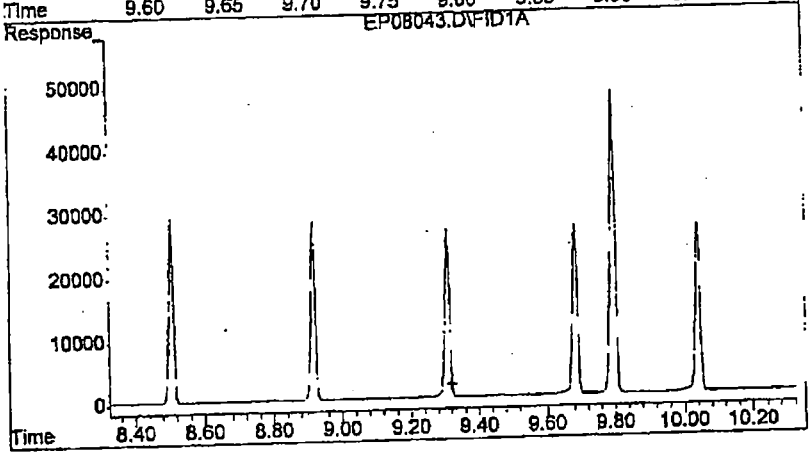


000039



#1 5-alpha-androstane (I)

R.T.: 9.799 min
Delta R.T.: 0.000 min
Response: 479266
Conc: 20.00 ng/ul



#2 o-terphenyl (S)

R.T.: 9.311 min
Delta R.T.: -0.014 min
Response: 255928
Conc: N.D.

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08045.D
Acq On : 21 Oct 2003 11:02
Sample : 1166-29-3 25 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:36 2003 Quant Results File: NWDF1020.RES

Vial: 4
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:36:31 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	470101	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	29401	0.964 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	919145	25.321 ng/ul
4) H Motor Oil	12.00	686833	40.271 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

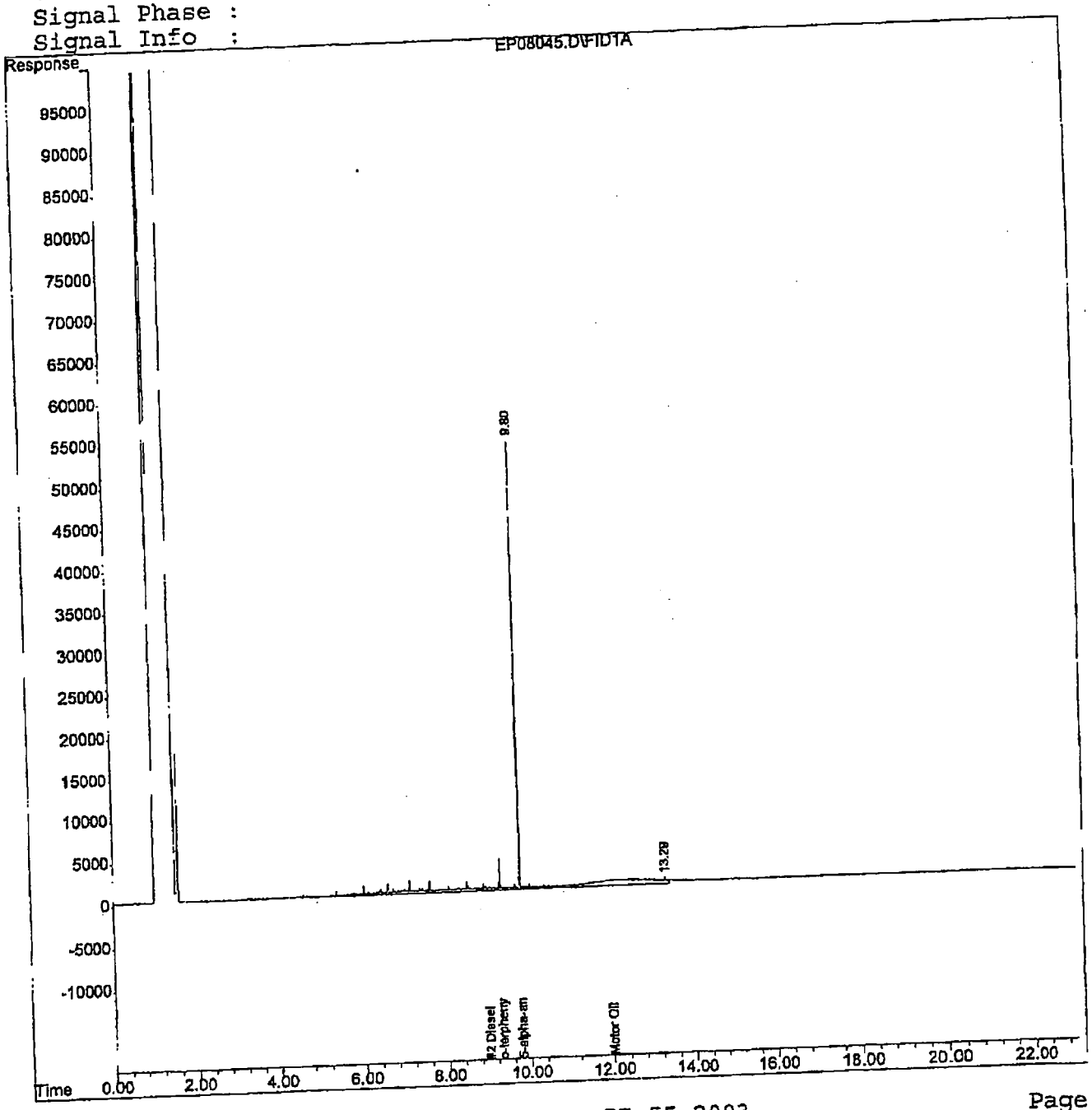
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08045.D
Acq On : 21 Oct 2003 11:02
Sample : 1166-29-3 25 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:36 2003 Quant Results File: NWDF1020.RES

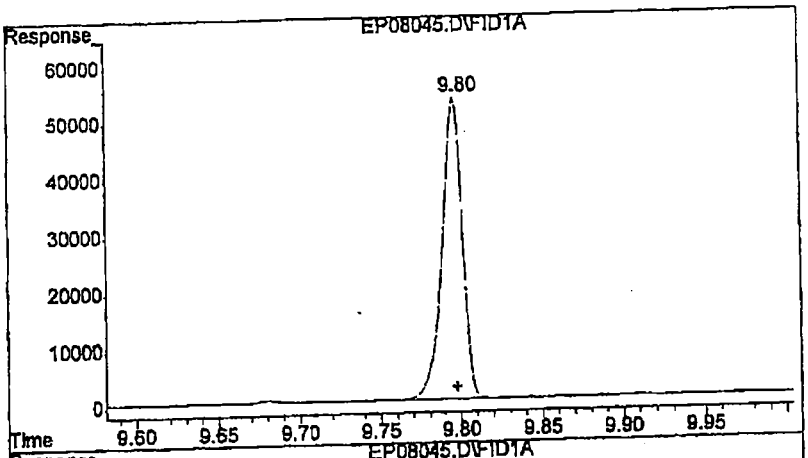
Vial: 4
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:36:31 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

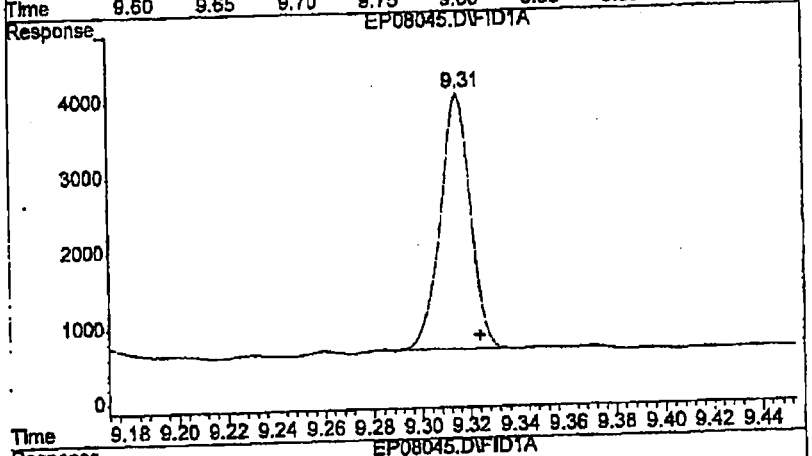


00042



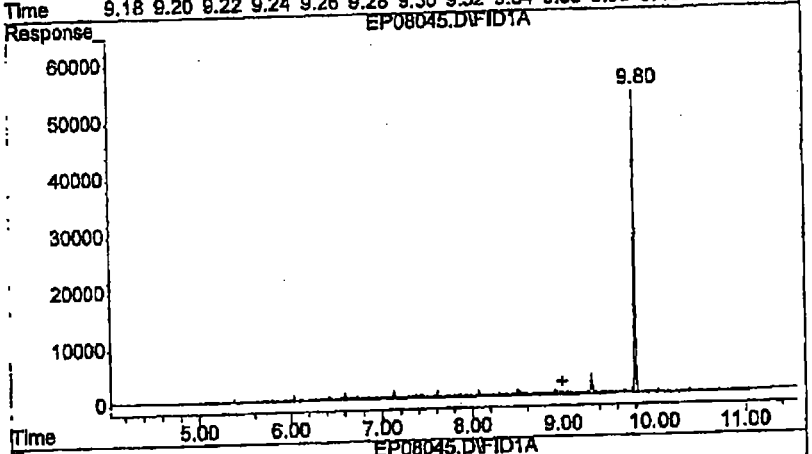
#1 5-alpha-androstane (I)

R.T.: 9.797 min
Delta R.T.: 0.000 min
Response: 470101
Conc: 20.00 ng/ul



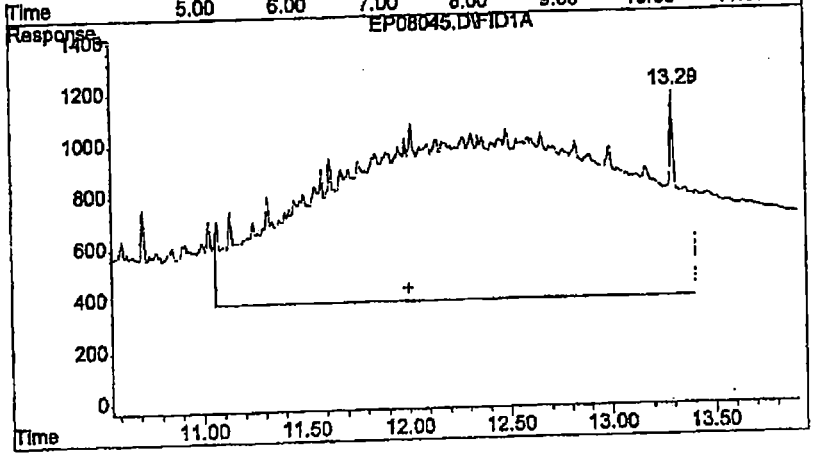
#2 o-terphenyl (S)

R.T.: 9.316 min
Delta R.T.: -0.008 min
Response: 29401
Conc: 0.96 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 919145
Conc: 25.32 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 686833
Conc: 40.27 ng/ul m

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08046.D
Acq On : 21 Oct 2003 11:33
Sample : 1166-29-4 50 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:37 2003 Quant Results File: NWDF1020.RES

Vial: 5
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:12 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	490882	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	63919	2.008 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	1586970	48.945 ng/ul
4) H Motor Oil	12.00	1097515	55.704 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

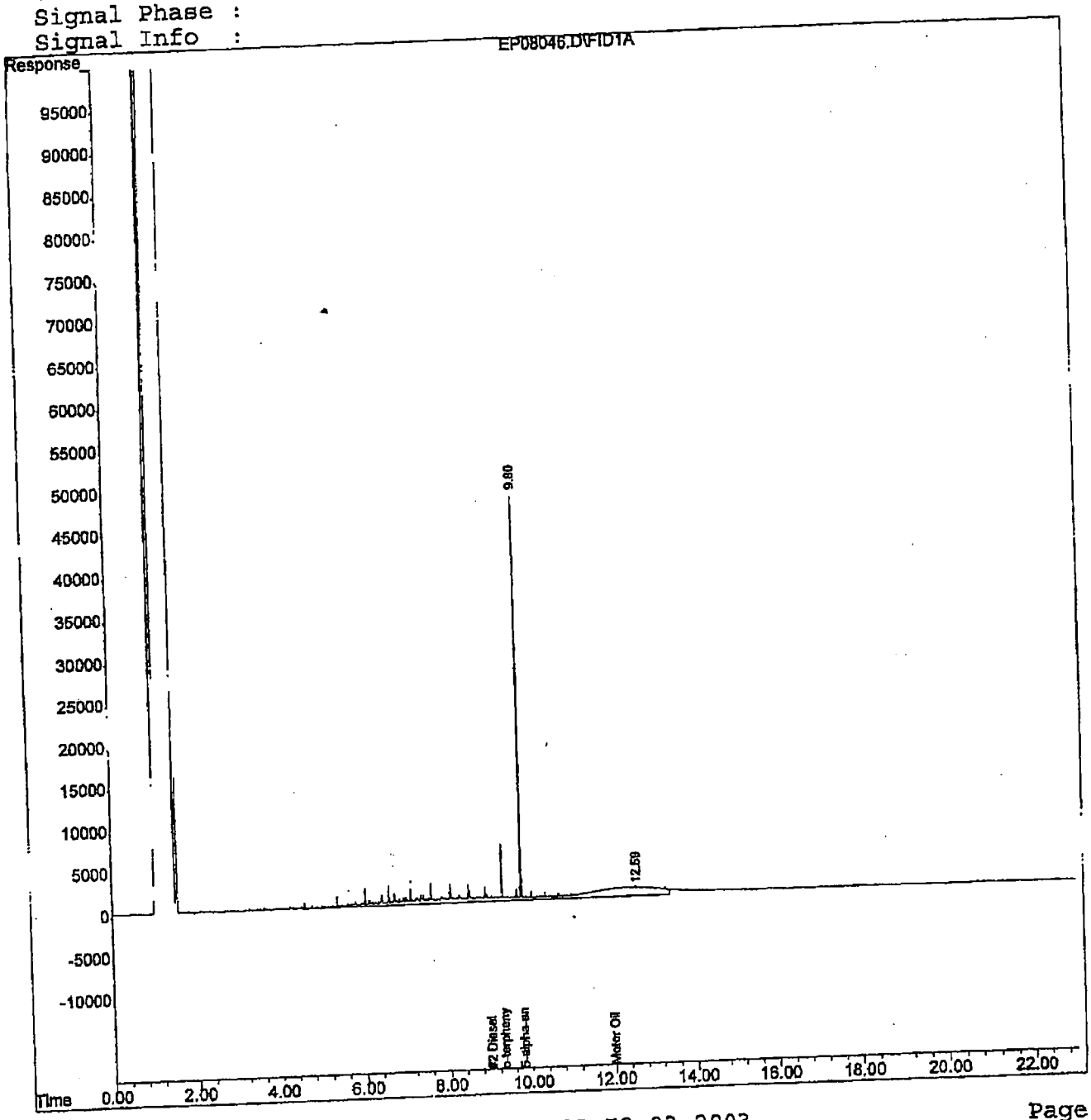
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08046.D
Acq On : 21 Oct 2003 11:33
Sample : 1166-29-4 50 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:37 2003 Quant Results File: NWDF1020.RES

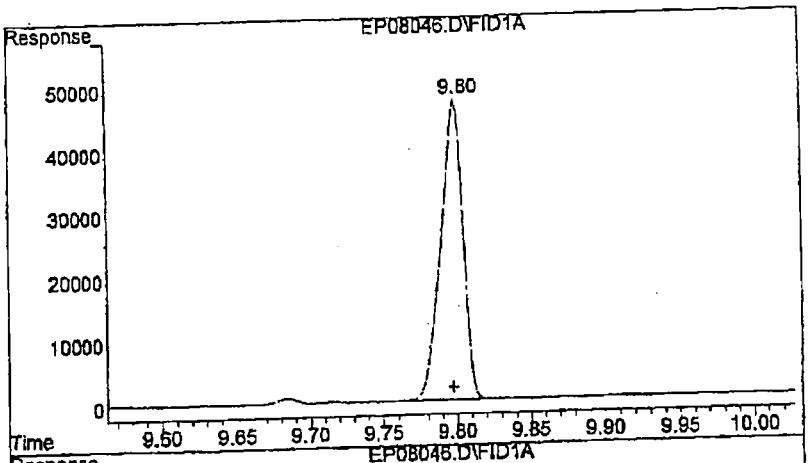
Vial: 5
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:12 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

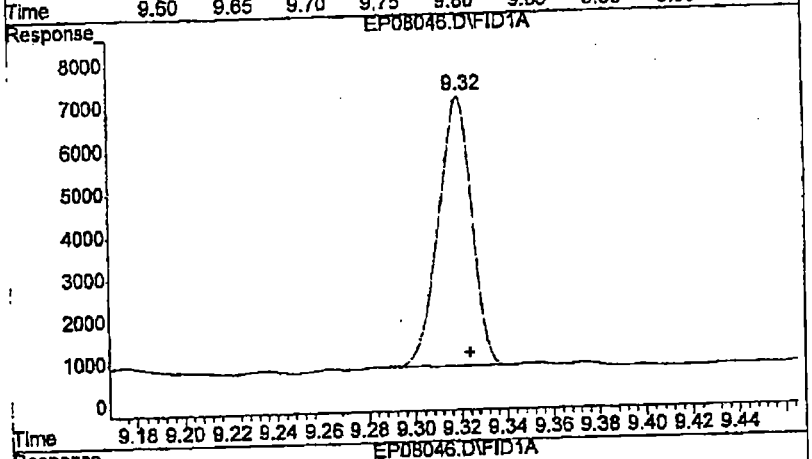


000045



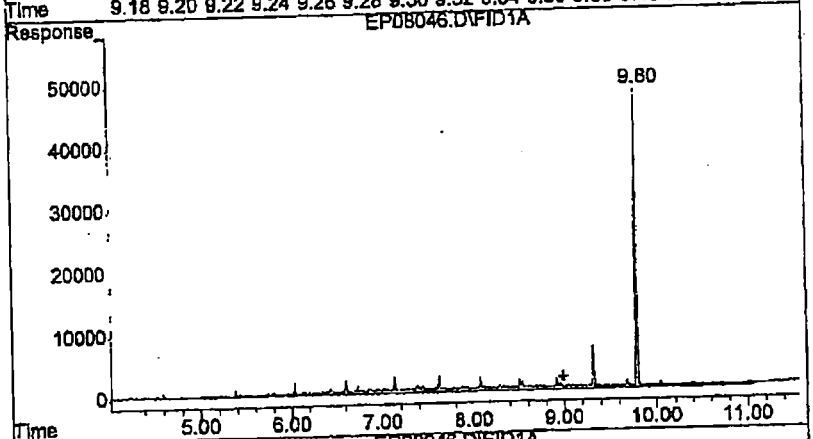
#1 5-alpha-androstane (I)

R.T.: 9.801 min
Delta R.T.: 0.003 min
Response: 490882
Conc: 20.00 ng/ul



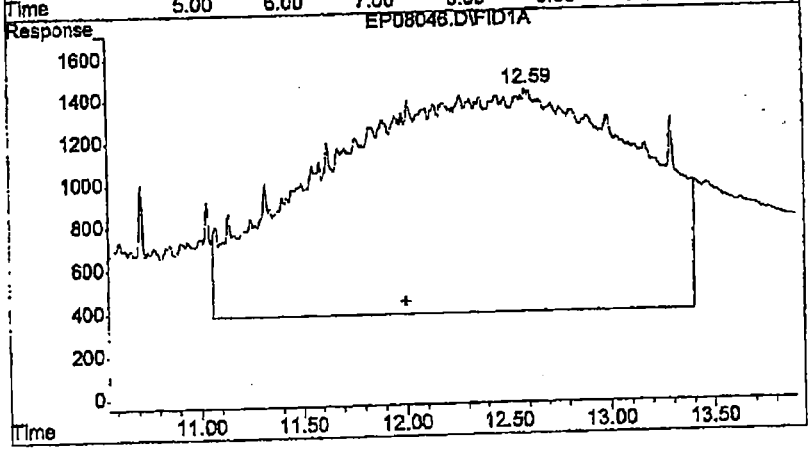
#2 o-terphenyl (S)

R.T.: 9.320 min
Delta R.T.: -0.004 min
Response: 63919
Conc: 2.01 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 1586970
Conc: 48.94 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 1097515
Conc: 55.70 ng/ul m

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08047.D
Acq On : 21 Oct 2003 12:05
Sample : 1166-29-5 100 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:33 2003 Quant Results File: NWDF1020.RES

Vial: 6
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:32:59 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	502771	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	129536	4.037 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	3025308	104.481 ng/ul
4) H Motor Oil	12.00	1998129	88.877 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

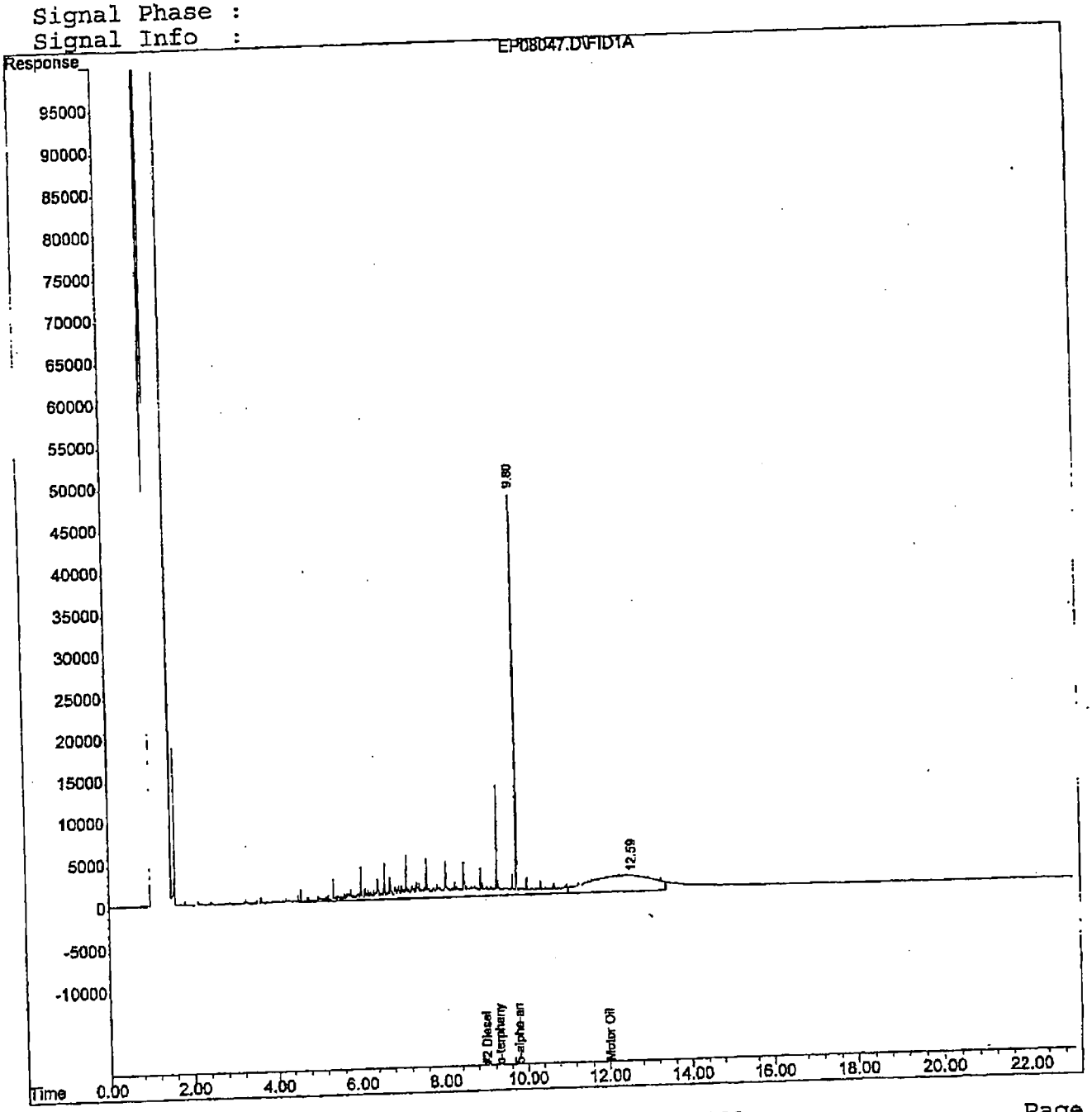
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08047.D
Acq On : 21 Oct 2003 12:05
Sample : 1166-29-5 100 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:33 2003 Quant Results File: NWDF1020.RES

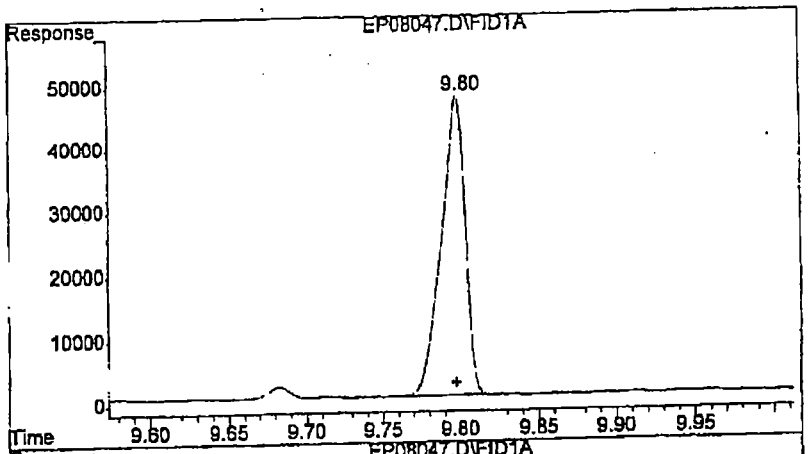
Vial: 6
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:32:59 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

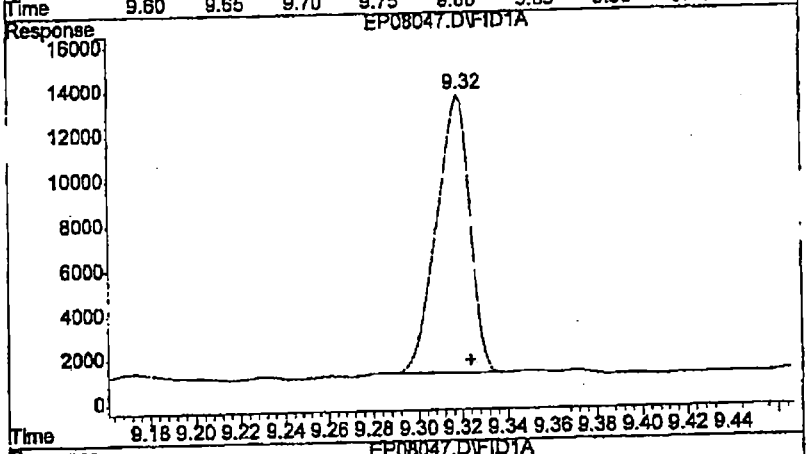


00048



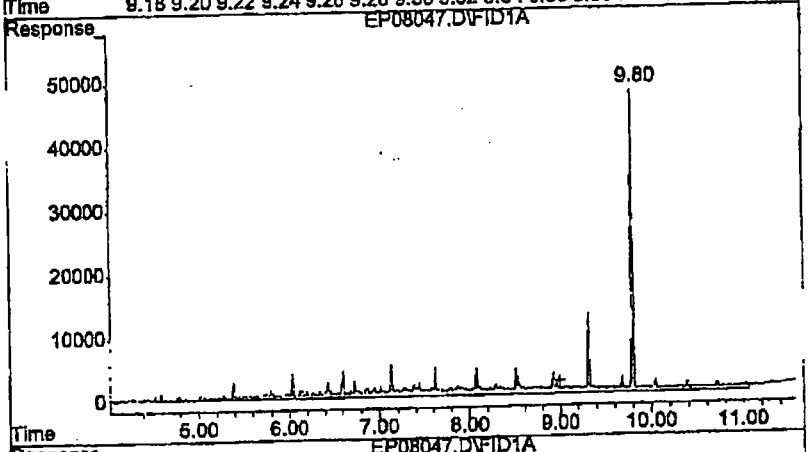
#1 5-alpha-androstane (I)

R.T.: 9.800 min
Delta R.T.: 0.002 min
Response: 502771
Conc: 20.00 ng/ul



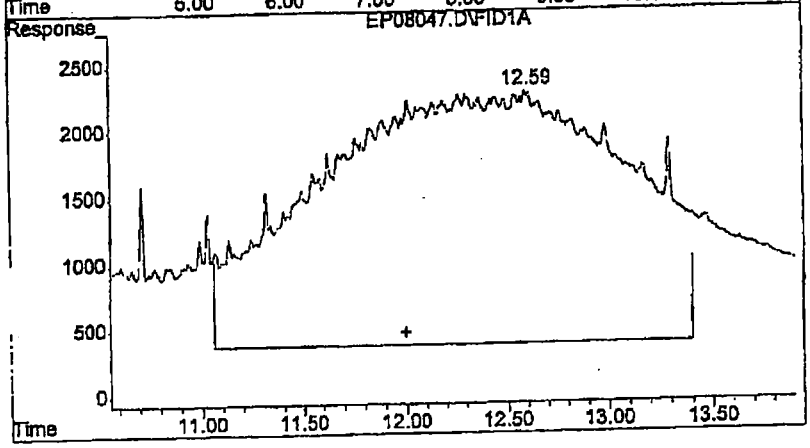
#2 o-terphenyl (S)

R.T.: 9.319 min
Delta R.T.: -0.005 min
Response: 129536
Conc: 4.04 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 3025308
Conc: 104.48 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 1998129
Conc: 88.88 ng/ul m

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08048.D
Acq On : 21 Oct 2003 12:37
Sample : 1166-29-6 250 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:33 2003 Quant Results File: NWDF1020.RES

Vial: 7
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:33:12 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	475257	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	307542	10.108 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	6639735	250.176 ng/ul
4) H Motor Oil	12.00	4084801	232.899 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

00050

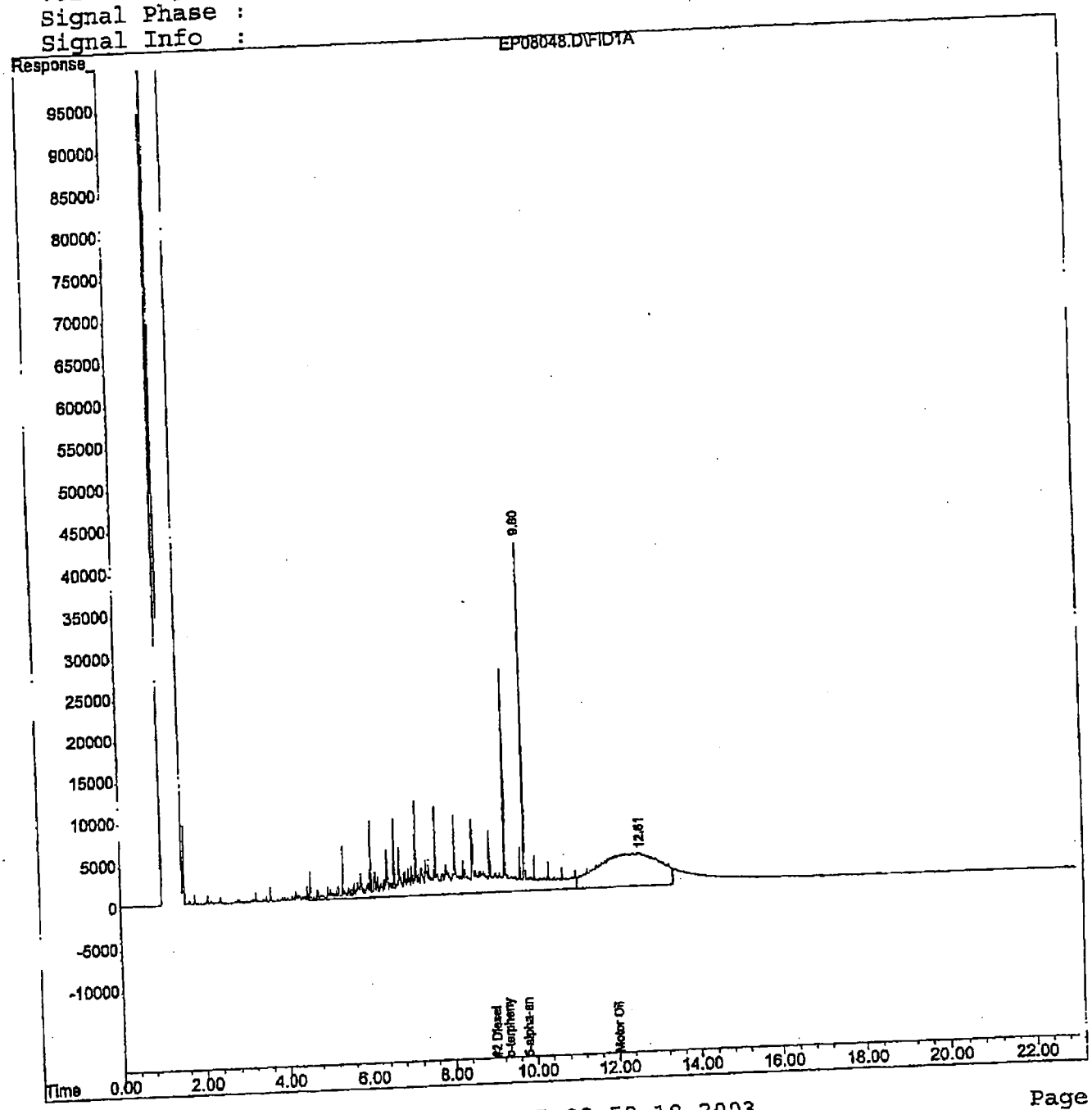
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08048.D
Acq On : 21 Oct 2003 12:37
Sample : 1166-29-6 250 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:33 2003 Quant Results File: NWDF1020.RES

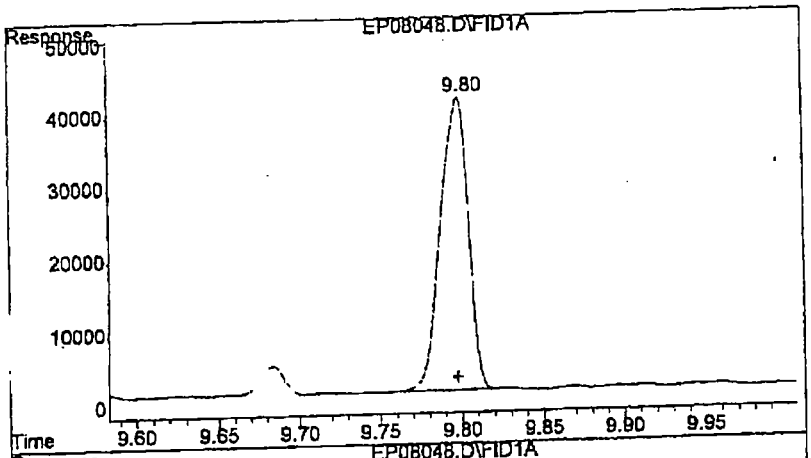
Vial: 7
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:33:12 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

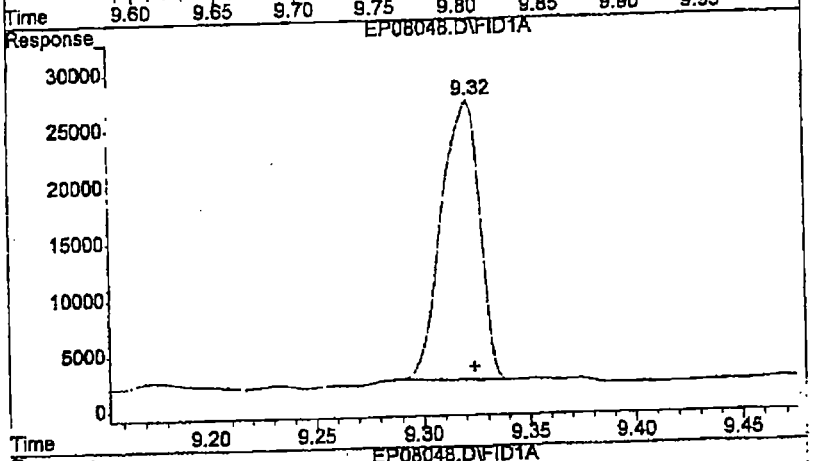


00051



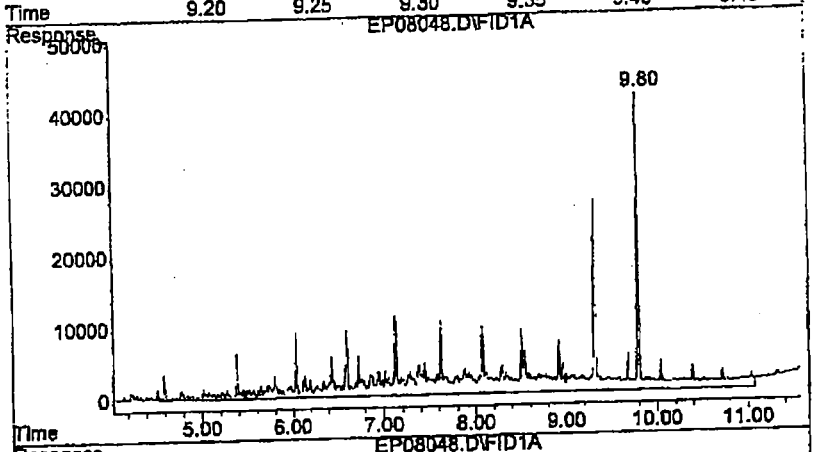
#1 5-alpha-androstane (I)

R.T.: 9.800 min
Delta R.T.: 0.002 min
Response: 475257
Conc: 20.00 ng/ul



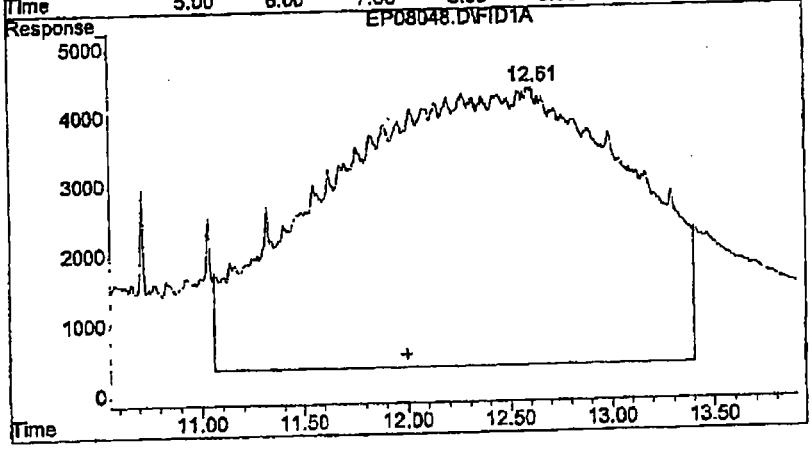
#2 o-terphenyl (S)

R.T.: 9.322 min
Delta R.T.: -0.002 min
Response: 307542
Conc: 10.11 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 6639735
Conc: 250.18 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 4084801
Conc: 232.90 ng/ul m

Quantitation Report (QT Reviewed)

Data File : G:\DATA\102103_A\EP08049.D
Acq On : 21 Oct 2003 13:09
Sample : 1166-29-7 500 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:33 2003 Quant Results File: NWDF1020.RES

Vial: 8
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:33:25 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	522260	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	663722	19.798 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	13778937	482.436 ng/ul
4) H Motor Oil	12.00	8353672	479.779 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.
EP08049.D NWDF1020.M Mon Oct 27 08:58:25 2003

00053

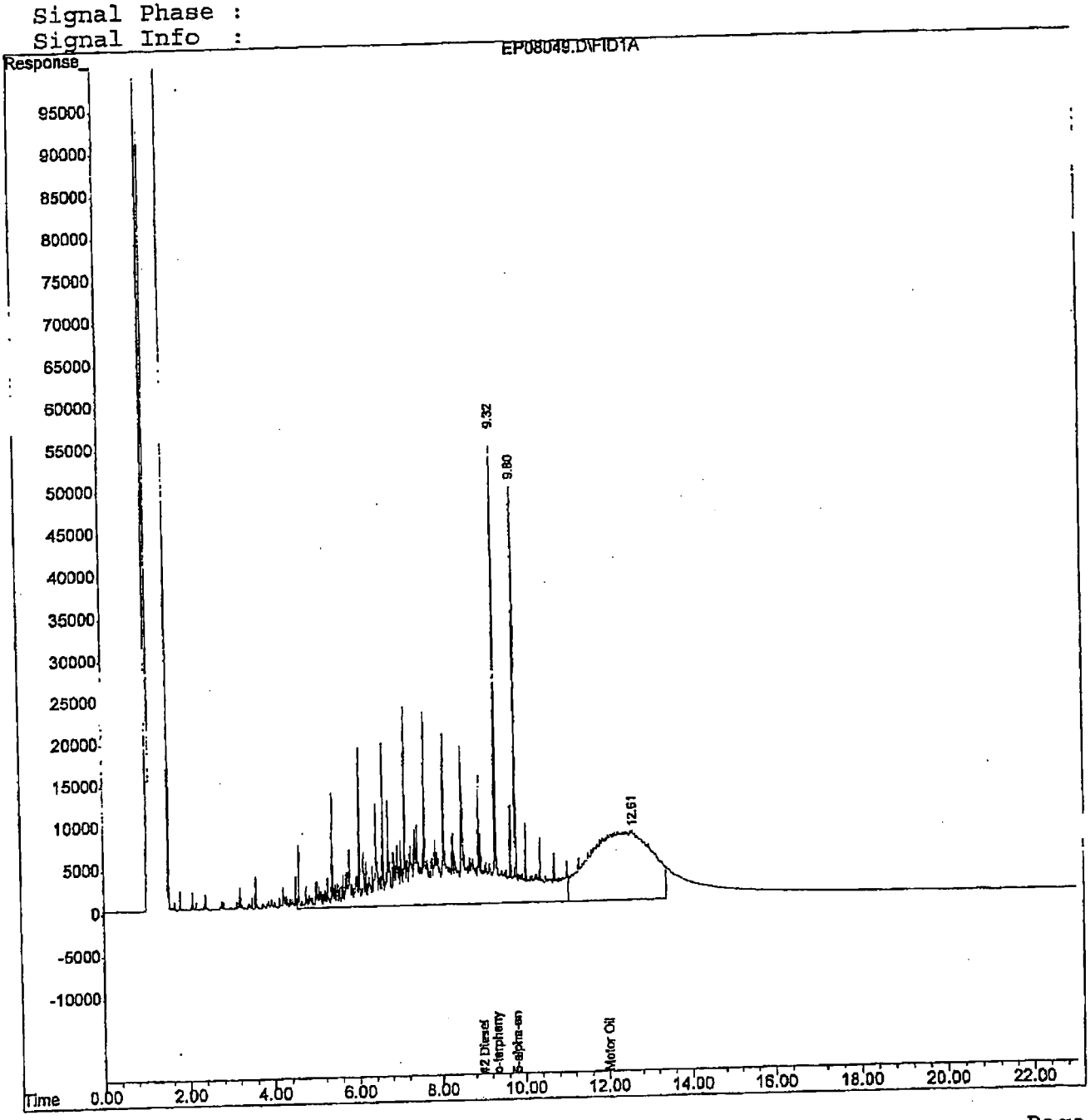
Quantitation Report (QT Reviewed)

Data File : G:\DATA\102103_A\EP08049.D
Acq On : 21 Oct 2003 13:09
Sample : 1166-29-7 500 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:33 2003 Quant Results File: NWDF1020.RES

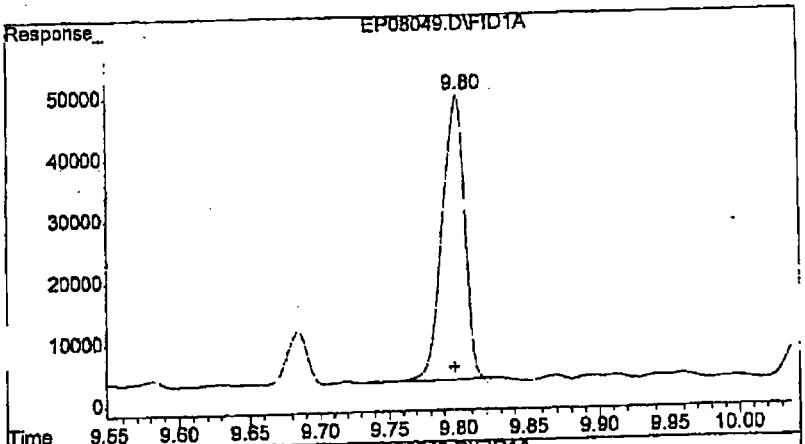
Vial: 8
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:33:25 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

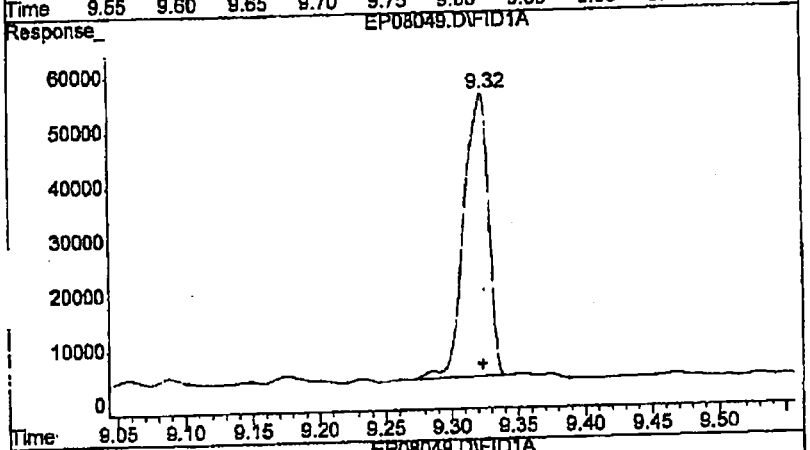


000054



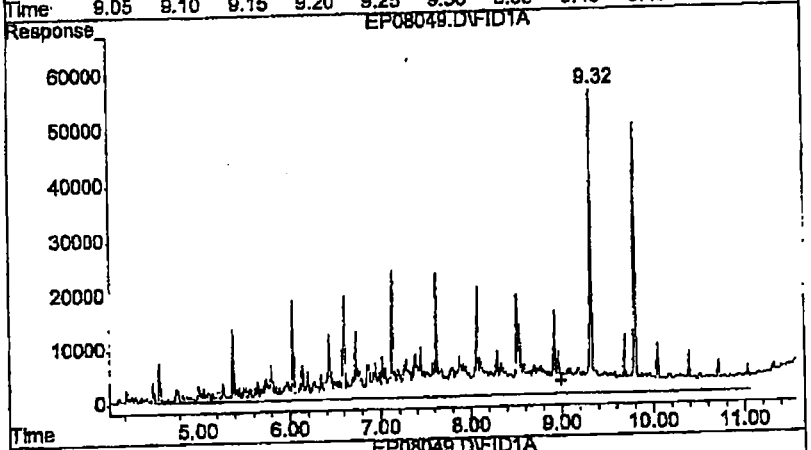
#1 5-alpha-androstane (I)

R.T.: 9.801 min
Delta R.T.: 0.003 min
Response: 522260
Conc: 20.00 ng/ul



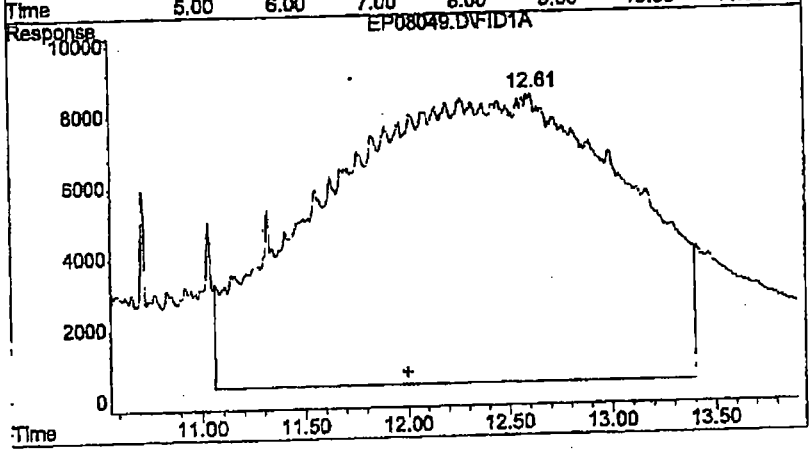
#2 o-terphenyl (S)

R.T.: 9.325 min
Delta R.T.: 0.000 min
Response: 663722
Conc: 19.80 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 13778937
Conc: 482.44 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 8353672
Conc: 479.78 ng/ul m

00055

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08050.D
Acq On : 21 Oct 2003 13:40
Sample : 1166-29-8 1000 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:33 2003 Quant Results File: NWDF1020.RES

Vial: 9
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:33:38 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	451484	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.33	1165481	40.296 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	24105195	1001.883 ng/ul
4) H Motor Oil	12.00	15015330	1054.181 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.
EP08050.D NWDF1020.M Mon Oct 27 08:58:33 2003

00056

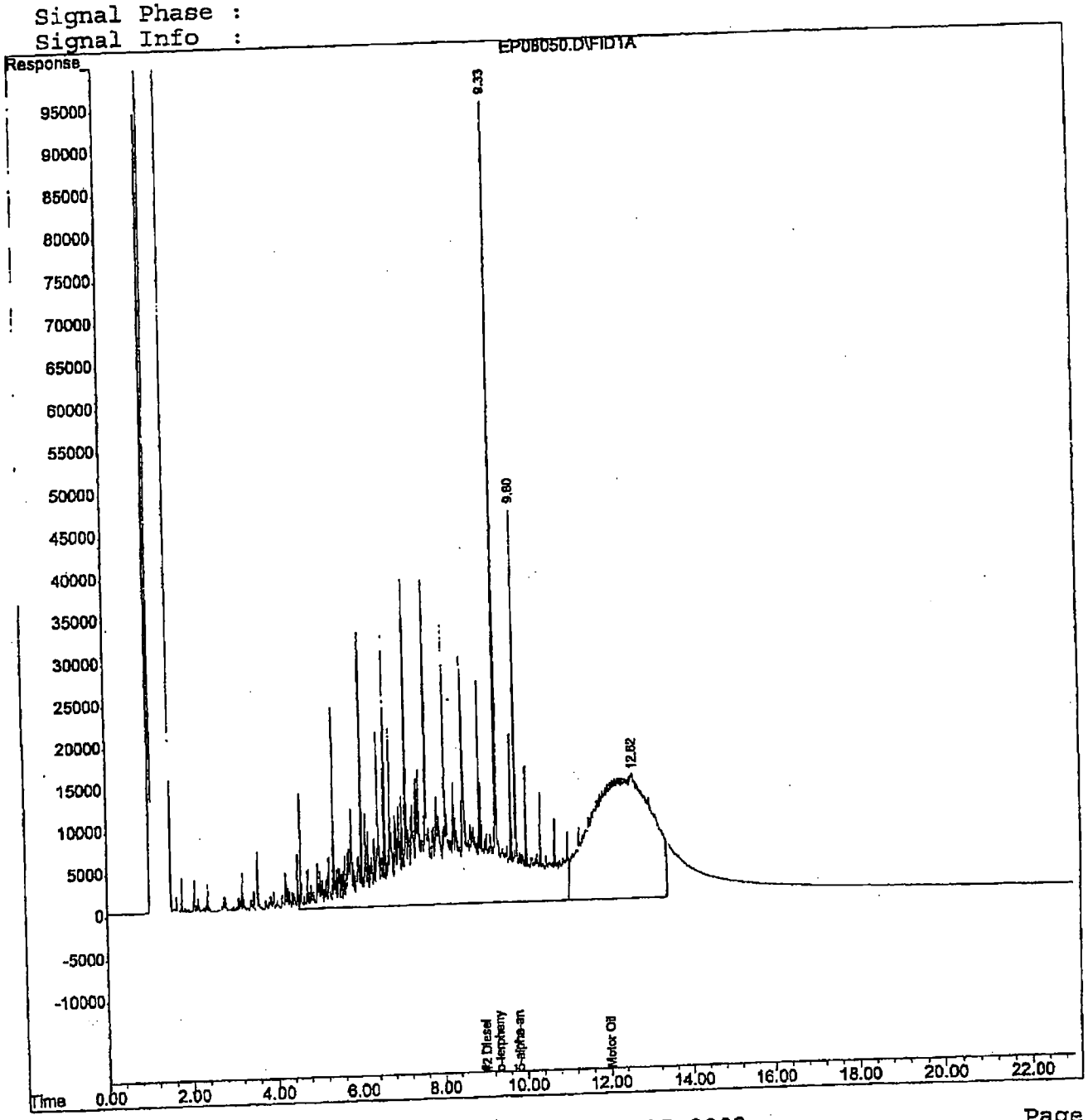
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08050.D
Acq On : 21 Oct 2003 13:40
Sample : 1166-29-8 1000 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:33 2003 Quant Results File: NWDF1020.RES

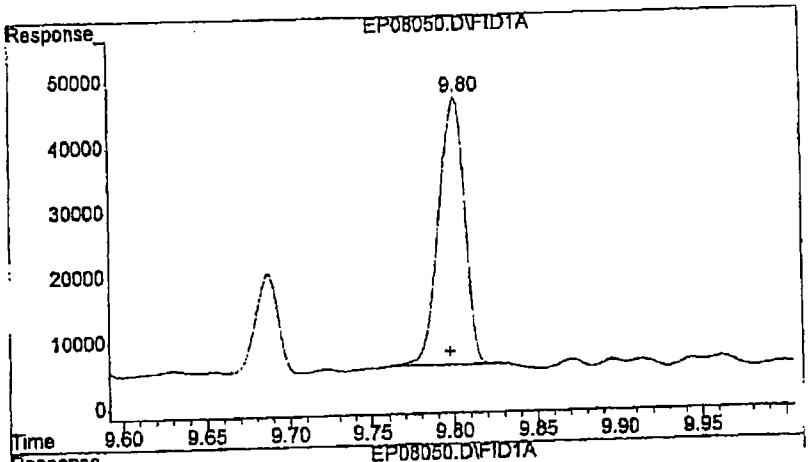
Vial: 9
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:33:38 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

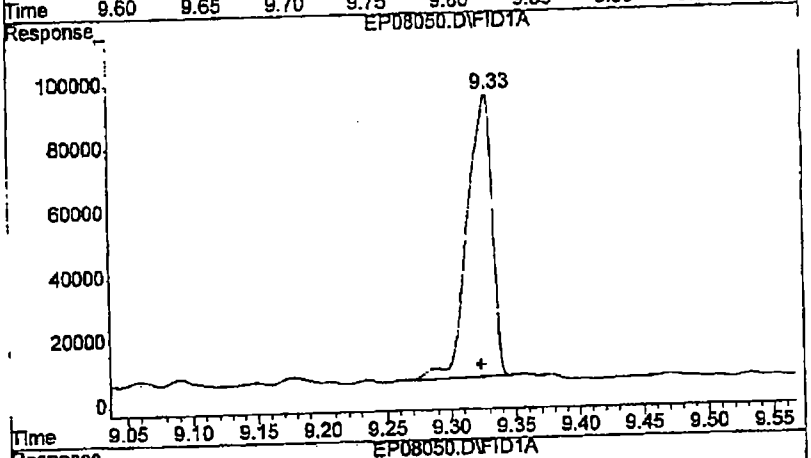


00057



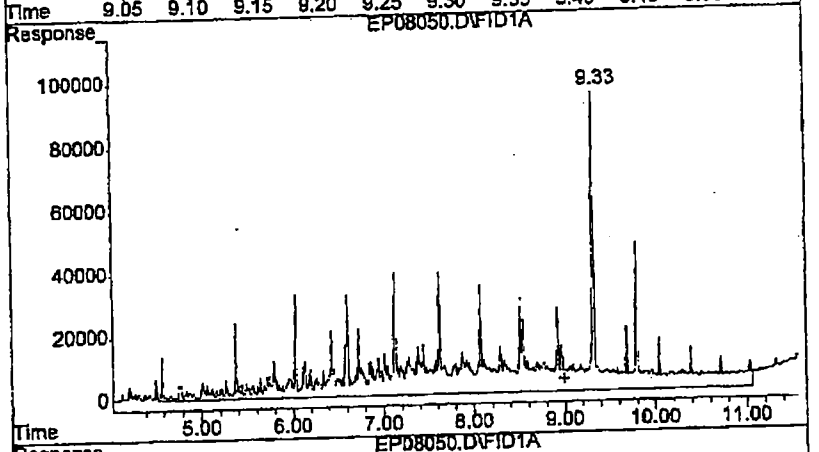
#1 5-alpha-androstane (I)

R.T.: 9.803 min
Delta R.T.: 0.005 min
Response: 451484
Conc: 20.00 ng/ul



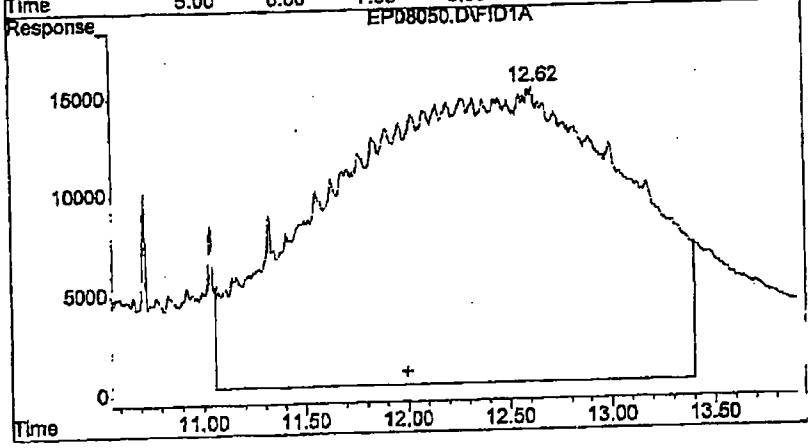
#2 o-terphenyl (S)

R.T.: 9.330 min
Delta R.T.: 0.006 min
Response: 1165481
Conc: 40.30 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 24105195
Conc: 1001.88 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 15015330
Conc: 1054.18 ng/ul m

Quantitation Report (QT Reviewed)

Data File : G:\DATA\102103_A\EP08051.D
Acq On : 21 Oct 2003 14:12
Sample : 1166-29-9 2500 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:34 2003 Quant Results File: NWDF1020.RES

Vial: 10
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:34:08 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc	Units
Internal Standards				
1) I 5-alpha-androstane (I)	9.81	452956	20.000	ng/ulm
System Monitoring Compounds				
2) S o-terphenyl (S)	9.34f	3177118	109.355	ng/ul
Target Compounds				
3) H #2 Diesel	9.00	62961647	2626.300	ng/ul
4) H Motor Oil	12.00	38834965	2658.735	ng/ul

10/27/03

(f)=RT Delta > 1/2 Window (m)=manual int.

00059

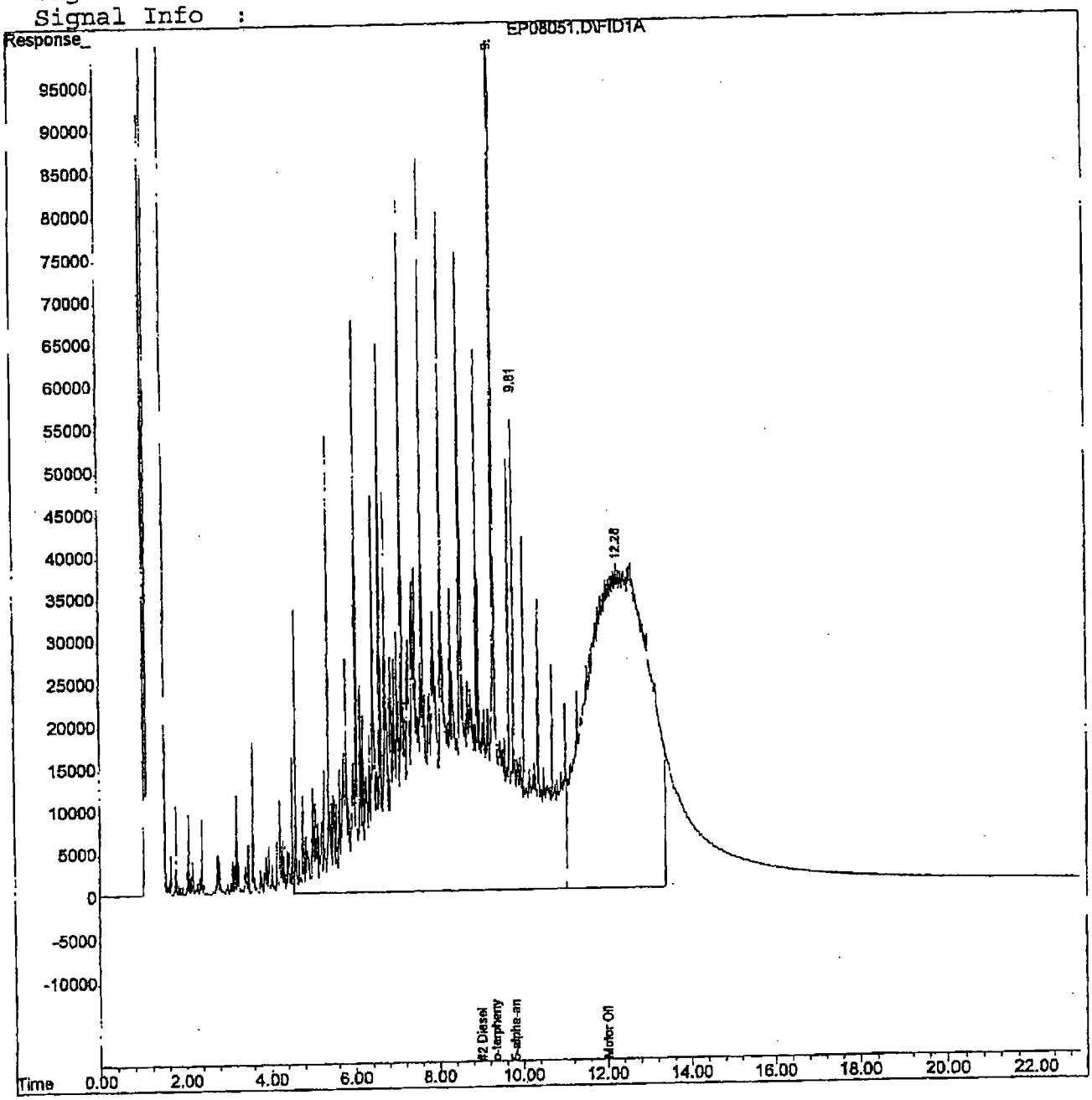
Quantitation Report (QT Reviewed)

Data File : G:\DATA\102103_A\EP08051.D
Acq On : 21 Oct 2003 14:12
Sample : 1166-29-9 2500 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:34 2003 Quant Results File: NWDF1020.RES

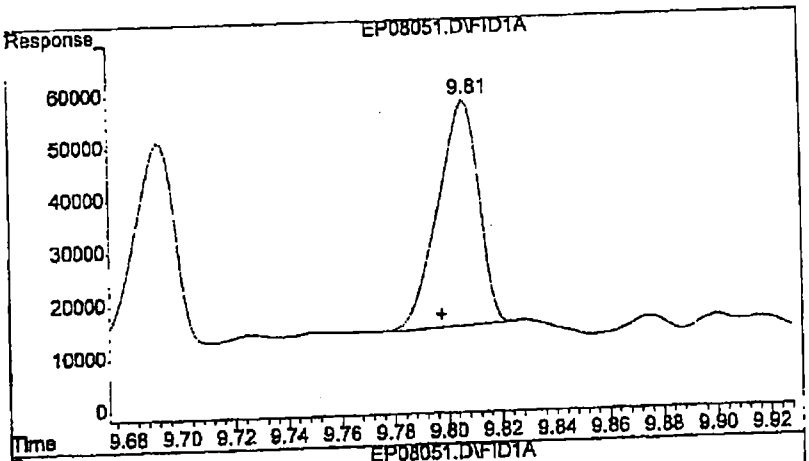
Vial: 10
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:34:08 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

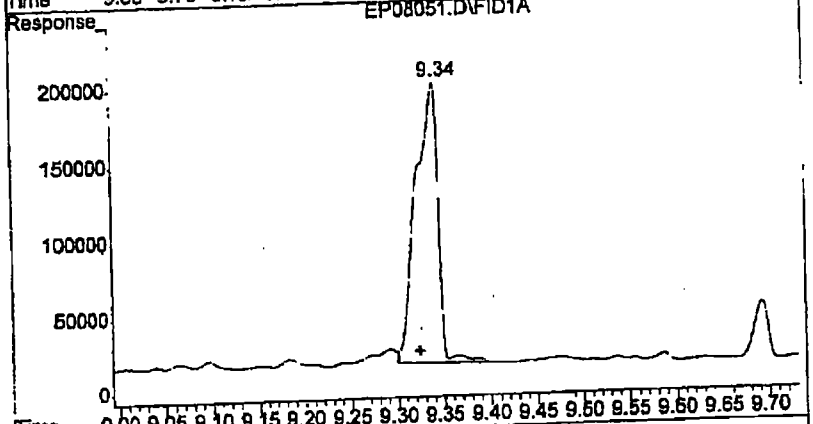


00060



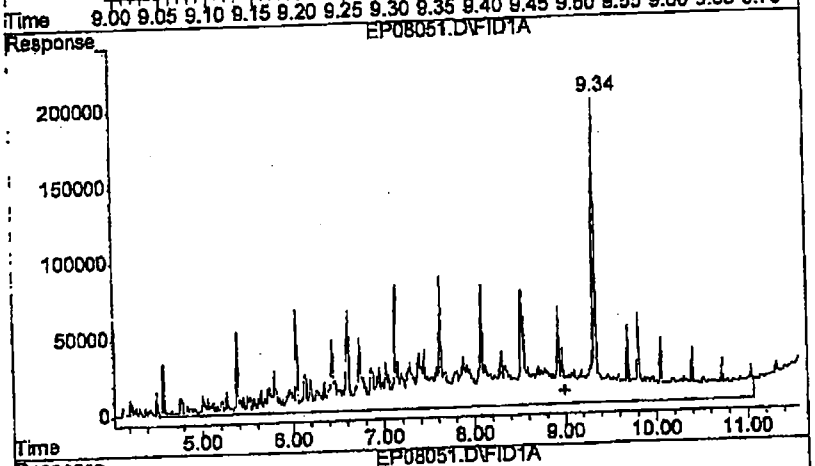
#1 5-alpha-androstane (I)

R.T.: 9.807 min
Delta R.T.: 0.009 min
Response: 452956
Conc: 20.00 ng/ul m



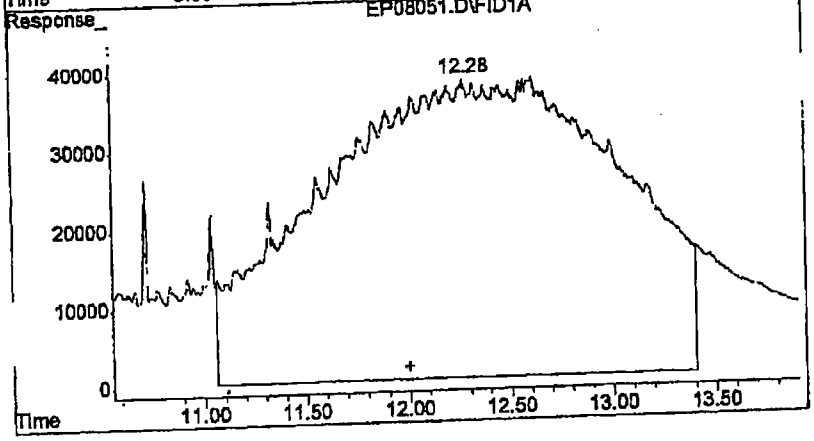
#2 o-terphenyl (S)

R.T.: 9.342 min
Delta R.T.: 0.018 min
Response: 3177118
Conc: 109.35 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 62961647
Conc: 2626.30 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 38834965
Conc: 2658.74 ng/ul m

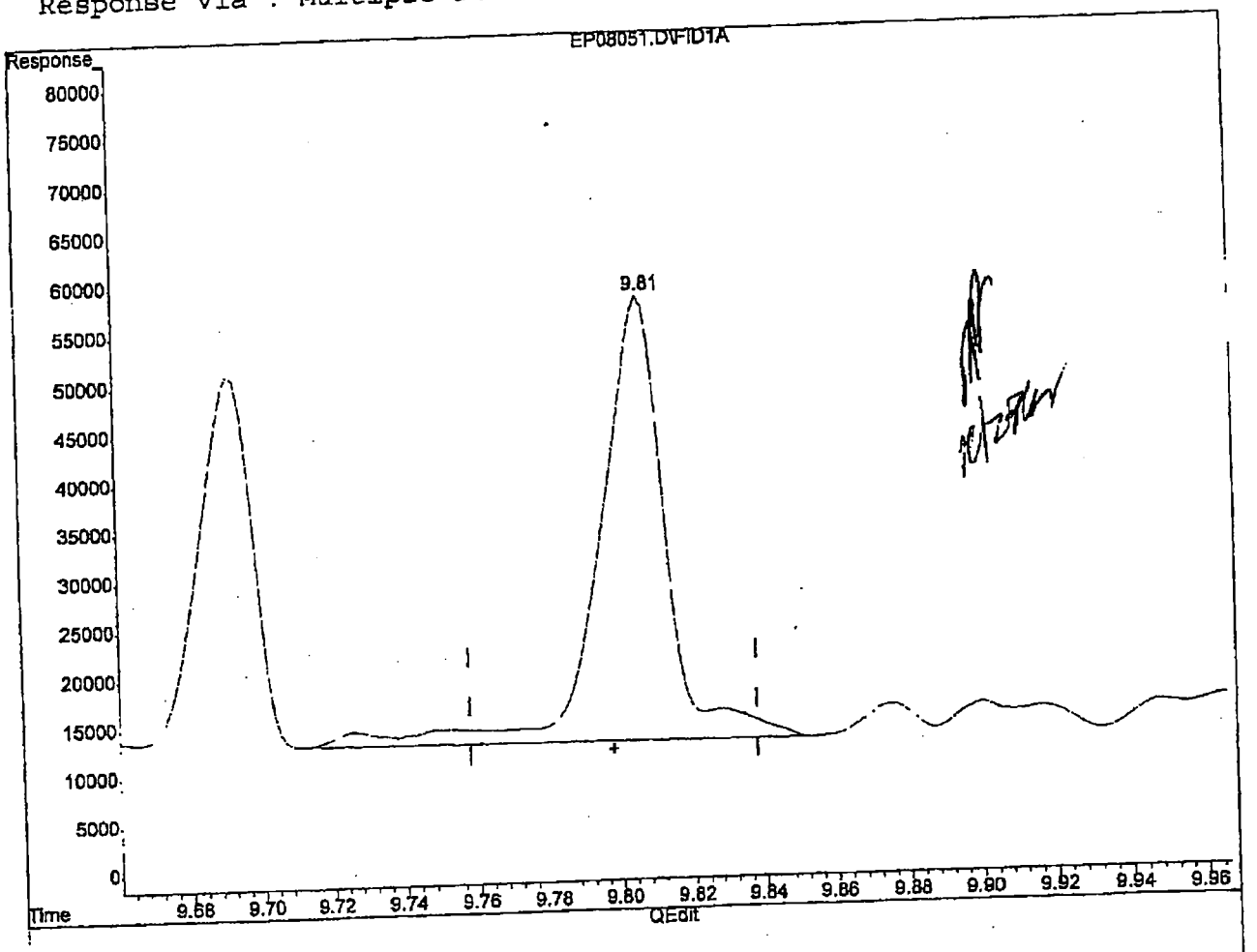
00061

Quantitation Report (Qedit)

Data File : G:\DATA\102103_A\EP08051.D
Acq On : 21 Oct 2003 14:12
Sample : 1166-29-9 2500 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 9:34 2003 Quant Results File: NWDF1020.RES

Vial: 10
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:34:08 2003
Response via : Multiple Level Calibration



(1) 5-alpha-androstane (I) (I)

9.81min 20.000ng/ul

response 583508

(+) = Expected Retention Time

EP08051.D NWDF1020.M Wed Oct 22 09:34:22 2003

00062

Quantitation Report (QT Reviewed)

Data File : G:\DATA\102103_A\EP08052.D
Acq On : 21 Oct 2003 14:44
Sample : 1166-29-10 5000 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:35 2003 Quant Results File: NWDF1020.RES

Vial: 11
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:35:00 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.82	374921	20.000 ng/ulm
System Monitoring Compounds			
2) S o-terphenyl (S)	9.36f	4780682	196.176 ng/ulm
Target Compounds			
3) H #2 Diesel	9.00	107705636	5376.992 ng/ul
4) H Motor Oil	12.00	66701295	5314.430 ng/ul

AF 10/27/03

(f)=RT Delta > 1/2 Window (m)=manual int.

00063

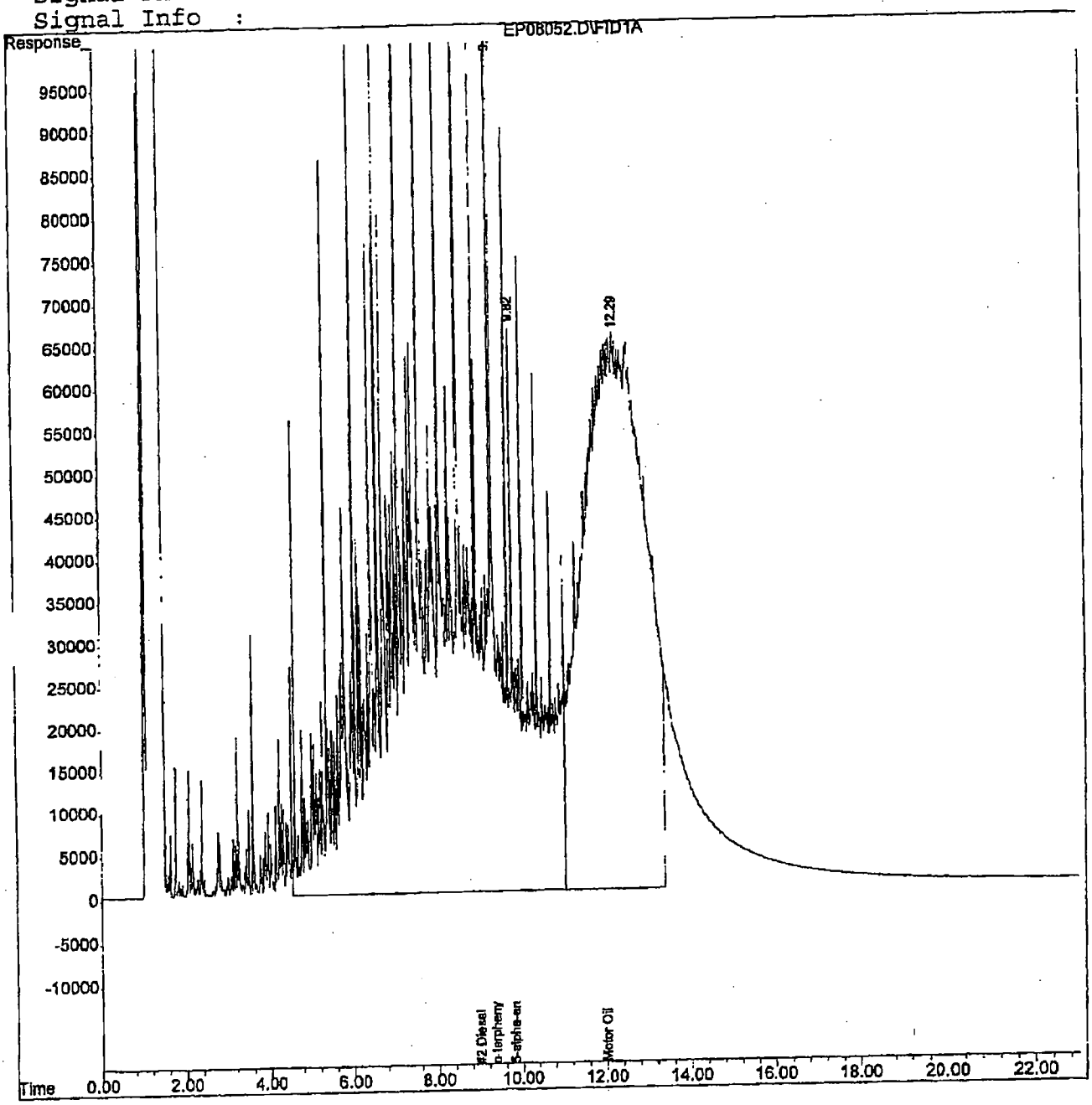
Quantitation Report (QT Reviewed)

Data File : G:\DATA\102103_A\EP08052.D
Acq On : 21 Oct 2003 14:44
Sample : 1166-29-10 5000 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:35 2003 Quant Results File: NWDF1020.RES

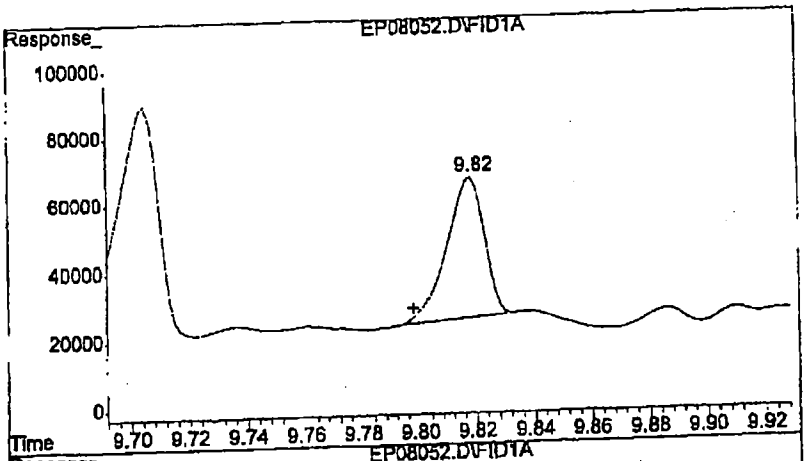
Vial: 11
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:35:00 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

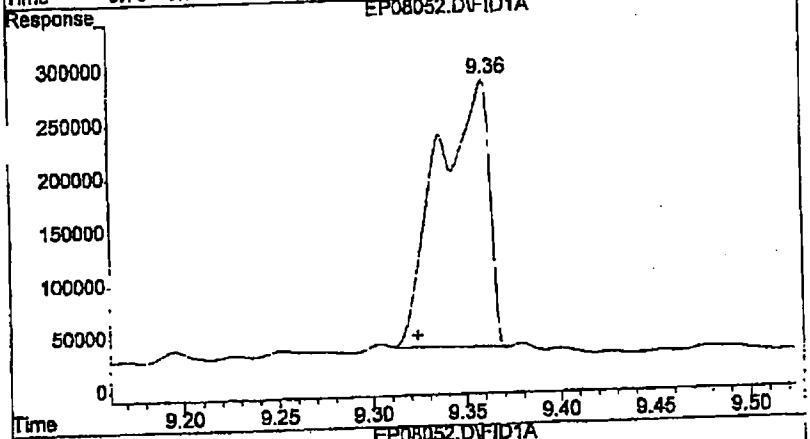


00064



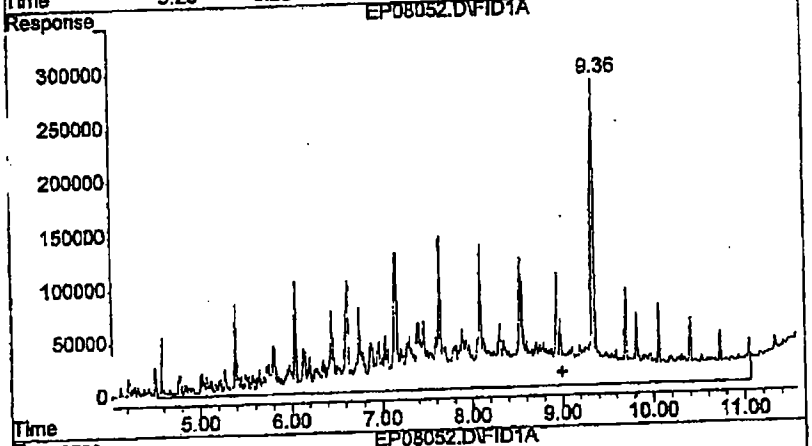
#1 5-alpha-androstane (I)

R.T.: 9.818 min
Delta R.T.: 0.020 min
Response: 374921
Conc: 20.00 ng/ul m



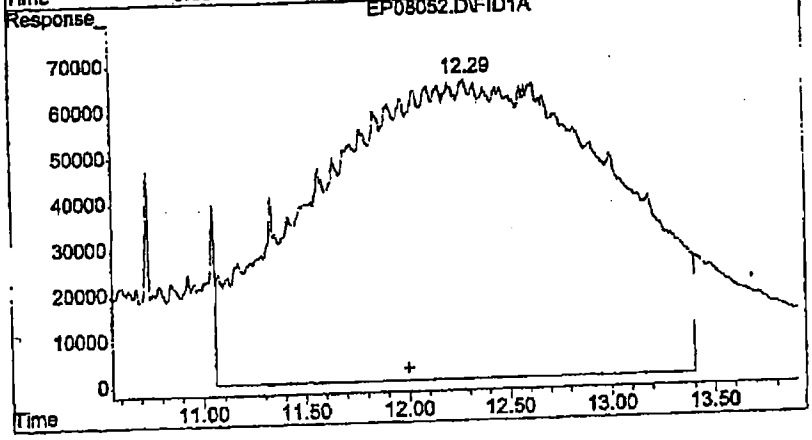
#2 o-terphenyl (S)

R.T.: 9.360 min
Delta R.T.: 0.036 min
Response: 4780682
Conc: 196.18 ng/ul m



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 107705636
Conc: 5376.99 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 66701295
Conc: 5314.43 ng/ul m

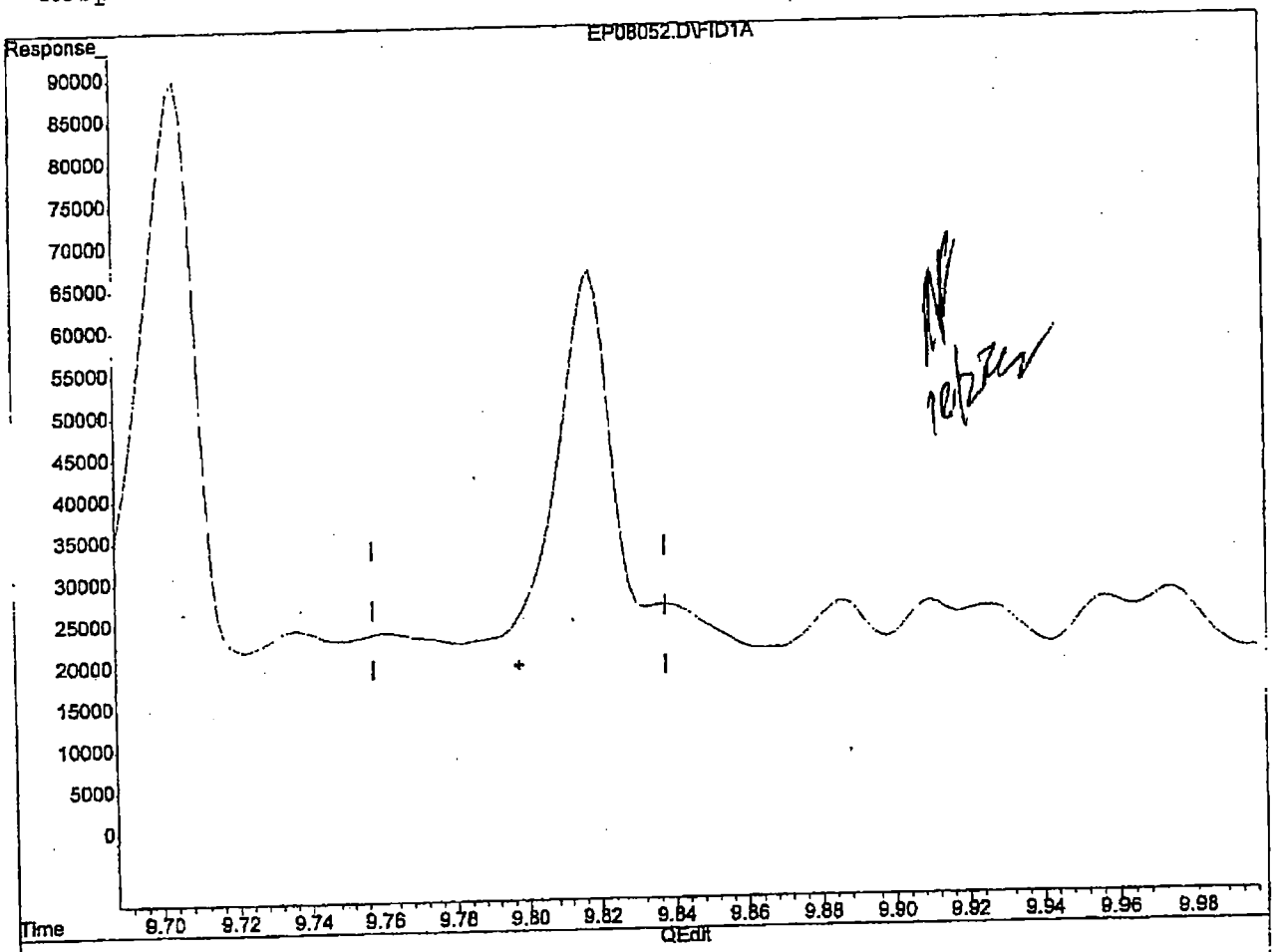
00065

Quantitation Report (Qedit)

Data File : G:\DATA\102103_A\EP08052.D
Acq On : 21 Oct 2003 14:44
Sample : 1166-29-10 5000 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 9:35 2003 Quant Results File: NWDF1020.RES

Vial: 11
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:35:00 2003
Response via : Multiple Level Calibration



(1) 5-alpha-androstane (I) (I)

9.82min 20.000ng/ul

response 703020

(+) = Expected Retention Time

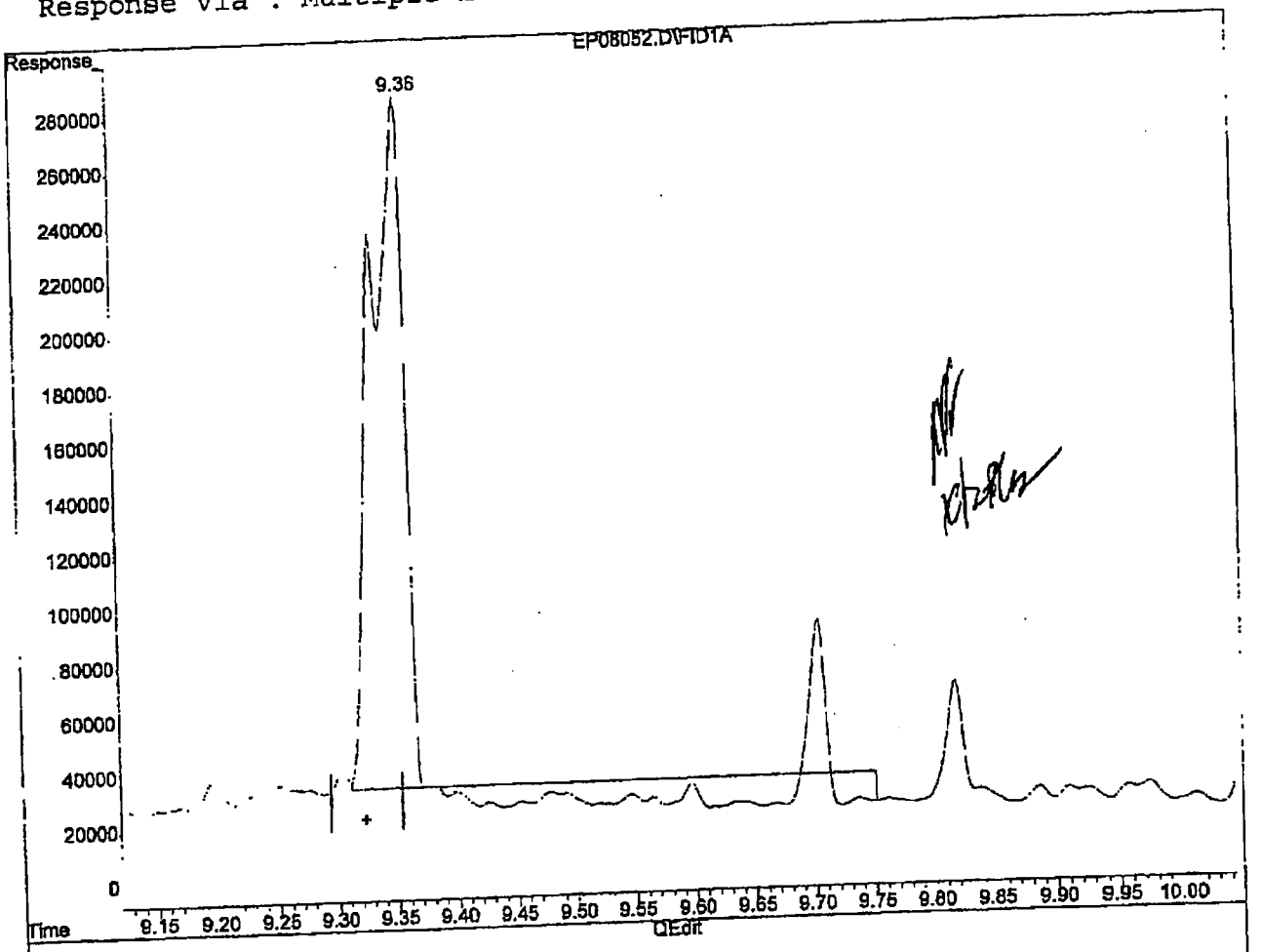
EP08052.D NWDF1020.M Wed Oct 22 09:35:16 2003

Quantitation Report (Qedit)

Data File : G:\DATA\102103_A\EP08052.D
Acq On : 21 Oct 2003 14:44
Sample : 1166-29-10 5000 ical
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 9:35 2003 Quant Results File: NWDF1020.RES

Vial: 11
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:35:00 2003
Response via : Multiple Level Calibration



(2) o-terphenyl (S) (S)

9.34min 62.629ng/ul

response 1526219

(+) = Expected Retention Time

EP08052.D NWDF1020.M Wed Oct 22 09:35:28 2003

00067

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08062.D
Acq On : 21 Oct 2003 20:00
Sample : 1166-28-2 1000 icv diesel motor oil
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:37 2003 Quant Results File: NWDF1020.RES

Vial: 19
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	404291	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	276537	10.523 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	24457849	1107.683 ng/ul
4) H Motor Oil	12.00	14432863	1021.915 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

00068

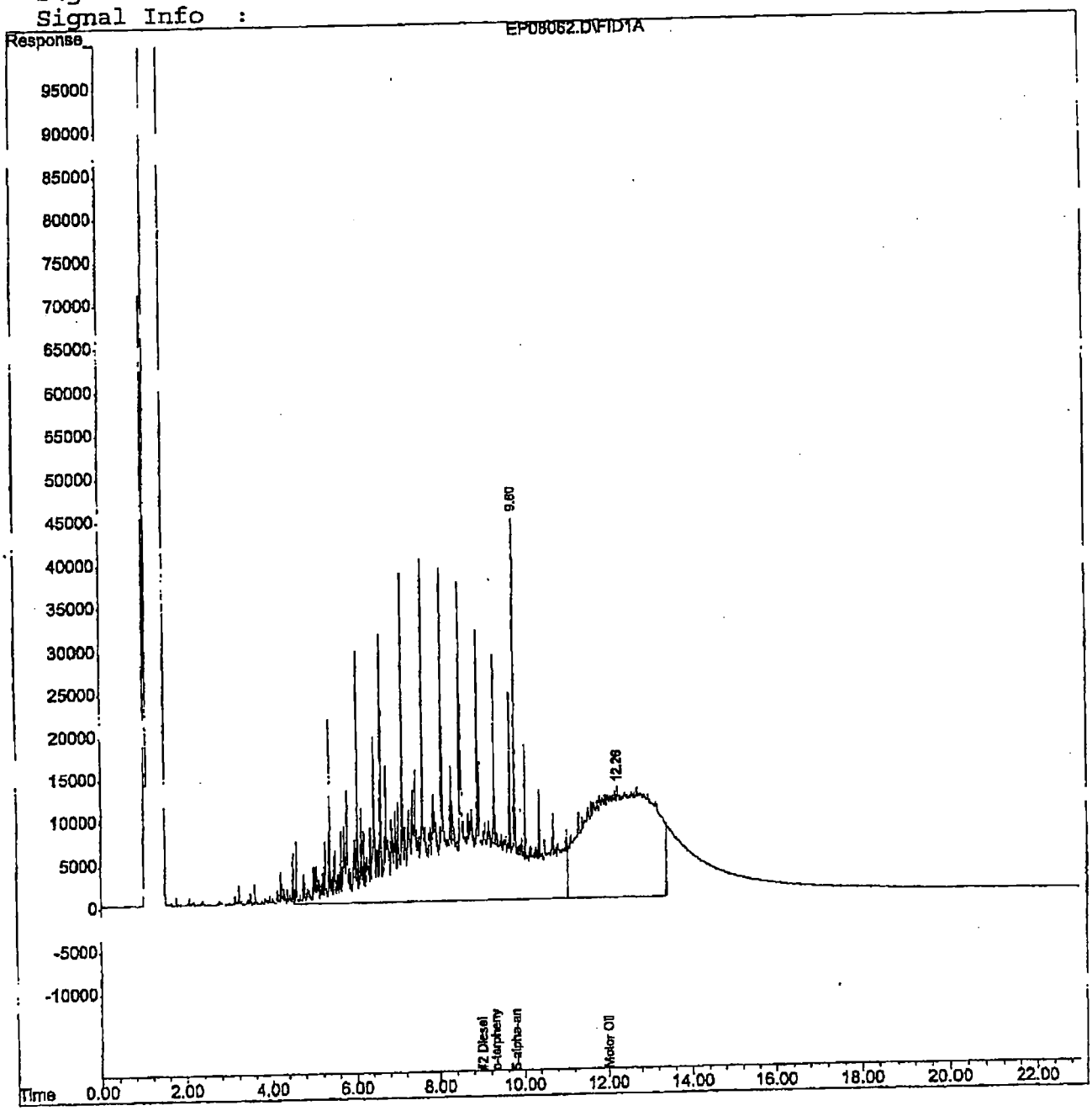
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102103_A\EP08062.D
Acq On : 21 Oct 2003 20:00
Sample : 1166-28-2 1000 icv diesel motor oil
Misc :
IntFile : EVENTS.E
Quant Time: Oct 22 8:37 2003 Quant Results File: NWDF1020.RES

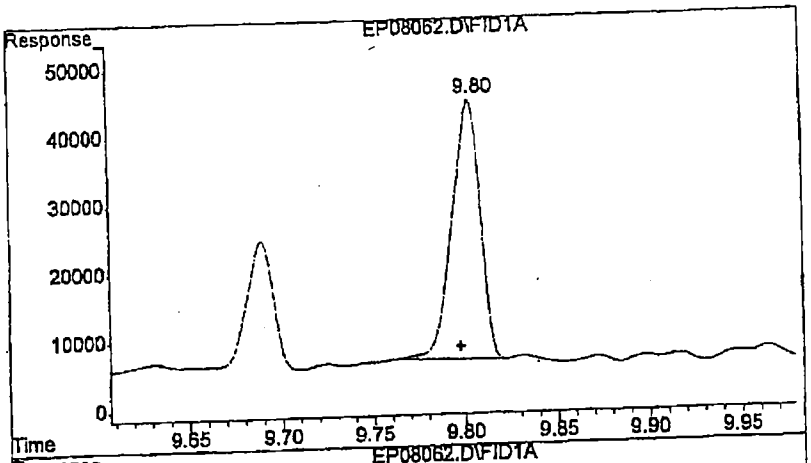
Vial: 19
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

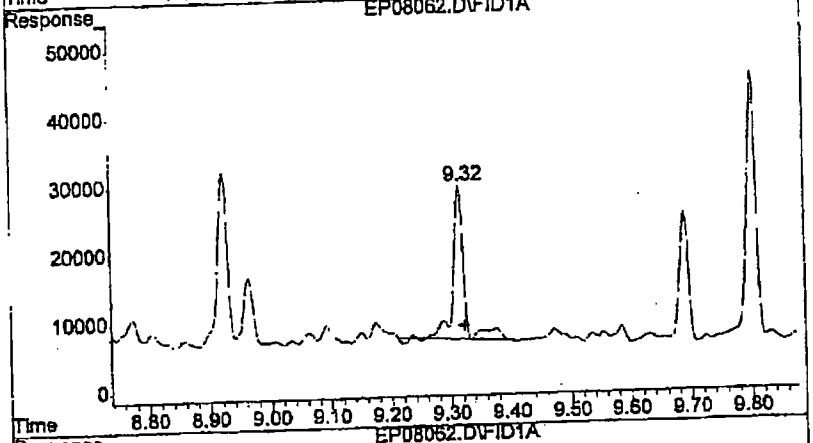


00069



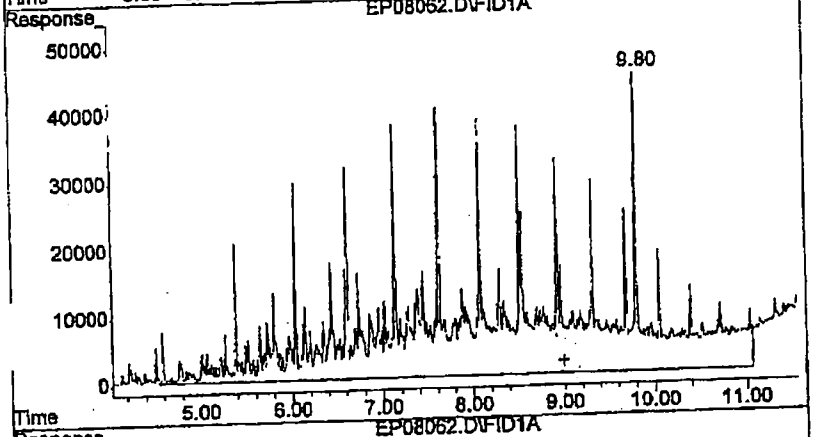
#1 5-alpha-androstane (I)

R.T.: 9.804 min
Delta R.T.: 0.006 min
Response: 404291
Conc: 20.00 ng/ul



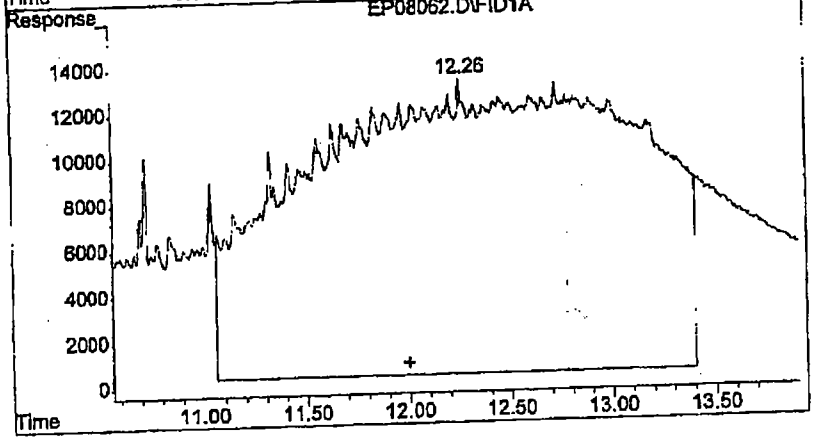
#2 o-terphenyl (S)

R.T.: 9.316 min
Delta R.T.: -0.008 min
Response: 276537
Conc: 10.52 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 24457849
Conc: 1107.68 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 14432863
Conc: 1021.91 ng/ul m

00070

CONTINUING CALIBRATION

Injection Log

Directory: G:\DATA\102403_A

Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	Ep08155.d	1.	rinse		24 Oct 2003 08:57
2	Ep08156.d	1.	1166-26-03 n-alkane rt std		24 Oct 2003 09:23
3	Ep08157.d	1.	1166-31-12 1000/40s ccal		24 Oct 2003 09:49
4	Ep08158.d	1.	116703-20 &10 1:10		24 Oct 2003 10:21
5	Ep08159.d	1.	116703-13 &10 1:10		24 Oct 2003 10:47
6	Ep08160.d	1.	116703-22 &10 1:5		24 Oct 2003 11:14
7	Ep08161.d	1.	116703-22 &10 1:5 dup		24 Oct 2003 11:40
8	Ep08162.d	1.	1166-31-12 1000/40s ccal		24 Oct 2003 12:06
9	Ep08163.d	1.	ds1034 mb #1 &10		24 Oct 2003 13:34
10	Ep08164.d	1.	ds1034 bs #1 &10		24 Oct 2003 14:00
11	Ep08165.d	1.	ds1034 bsd #1 &10		24 Oct 2003 14:31
12	Ep08166.d	1.	116724-2 &10		24 Oct 2003 15:03
13	Ep08167.d	1.	116724-2 &10 dup		24 Oct 2003 15:29
14	Ep08168.d	1.	116724-9 &10		24 Oct 2003 15:55
15	Ep08169.d	1.	116724-10 &10		24 Oct 2003 16:21
16	Ep08170.d	1.	1166-31-12 1000/40s ccal		24 Oct 2003 16:48
17	Ep08171.d	1.	dw0519 mb #1000 &5 liquid	~~uis~~	24 Oct 2003 17:19
18	Ep08172.d	1.	dw0519 bs #1000 &5 liquid		24 Oct 2003 17:46
19	Ep08173.d	1.	dw0519 bsd #1000 &5 liquid		24 Oct 2003 18:18
20	Ep08174.d	1.	117043-4 liquid &5		24 Oct 2003 18:50
21	Ep08175.d	1.	117043-7 liquid &5		24 Oct 2003 19:16
22	Ep08176.d	1.	117043-11 liquid &5		24 Oct 2003 19:43
23	Ep08177.d	1.	117043-15 liquid &5		24 Oct 2003 20:09
24	Ep08178.d	1.	117043-18 liquid &5		24 Oct 2003 20:35
25	Ep08179.d	1.	117092-1 liquid &5		24 Oct 2003 21:02
26	Ep08180.d	1.	117092-4 liquid &5		24 Oct 2003 21:28
27	Ep08181.d	1.	1166-31-12 1000/40s ccal		24 Oct 2003 21:54

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08156.D
Acq On : 24 Oct 2003 9:23
Sample : 1166-26-03 n-alkane rt std
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:19 2003 Quant Results File: NWDF1020.RES

Vial: 2
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	594599	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.31	293468	7.593 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	4686651	134.903 ng/ul
4) H Motor Oil	12.00	3343607	153.514 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

00073

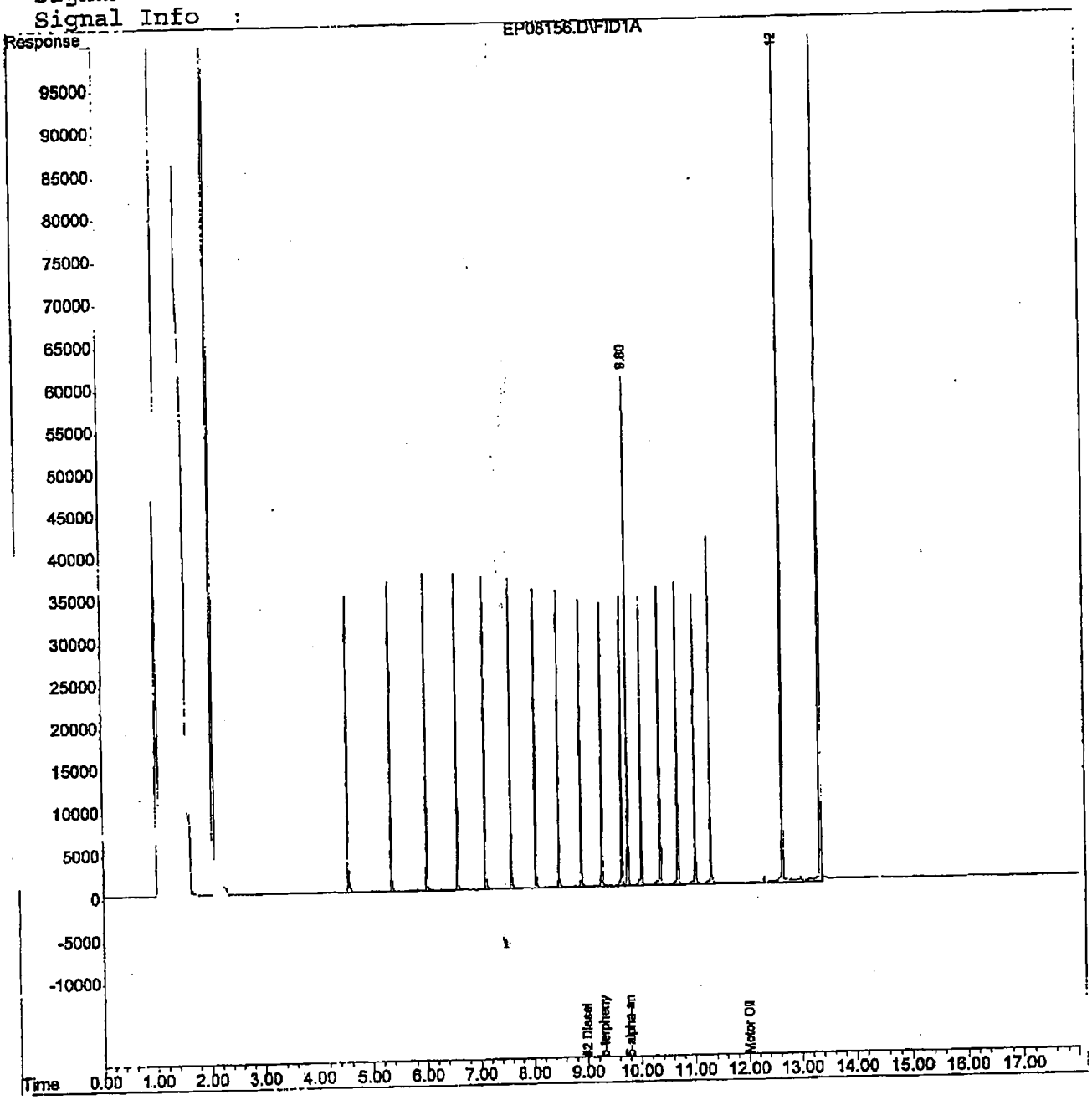
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08156.D
Acq On : 24 Oct 2003 9:23
Sample : 1166-26-03 n-alkane rt std
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:19 2003 Quant Results File: NWDF1020.RES

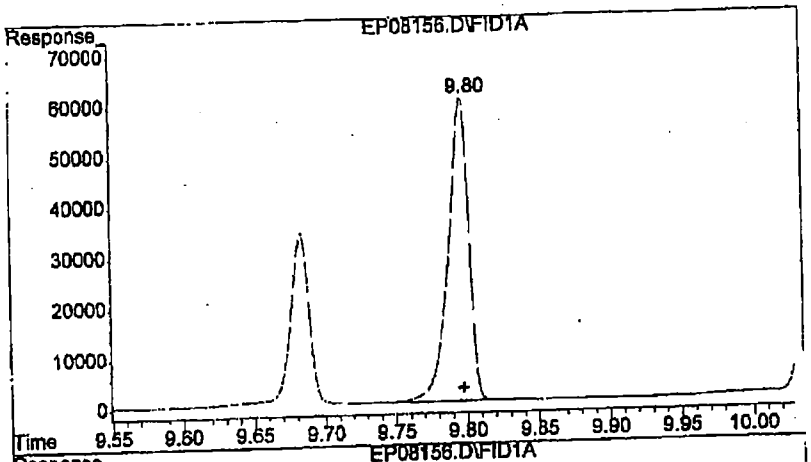
Vial: 2
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

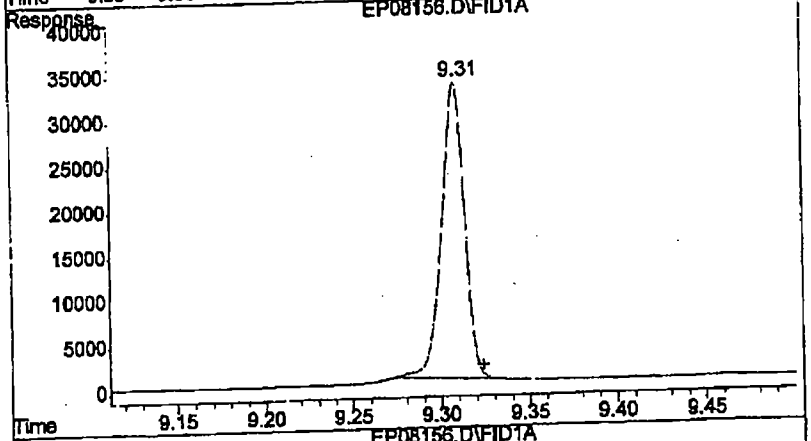


00074



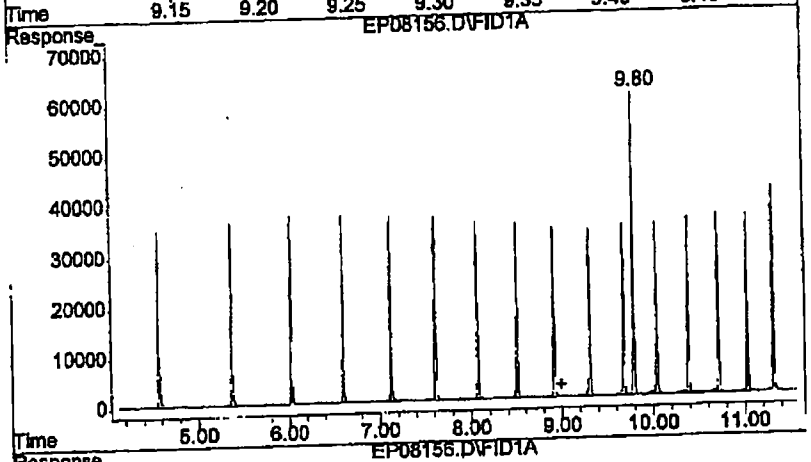
#1 5-alpha-androstane (I)

R.T.: 9.798 min
Delta R.T.: 0.000 min
Response: 594599
Conc: 20.00 ng/ul



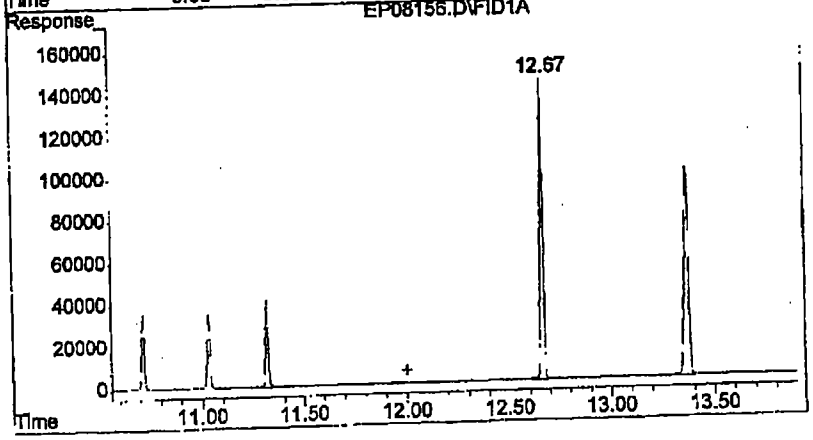
#2 o-terphenyl (S)

R.T.: 9.310 min
Delta R.T.: -0.014 min
Response: 293468
Conc: 7.59 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 4686651
Conc: 134.90 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 3343607
Conc: 153.51 ng/ul m

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08157.D
Acq On : 24 Oct 2003 9:49
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E
Quant Time: Oct 24 9:17 2003 Quant Results File: NWDF1020.RES

Vial: 3
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	437633	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.33	1134195	39.873 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	24428056	1021.208 ng/ul
4) H Motor Oil	12.00	15335810	1002.957 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

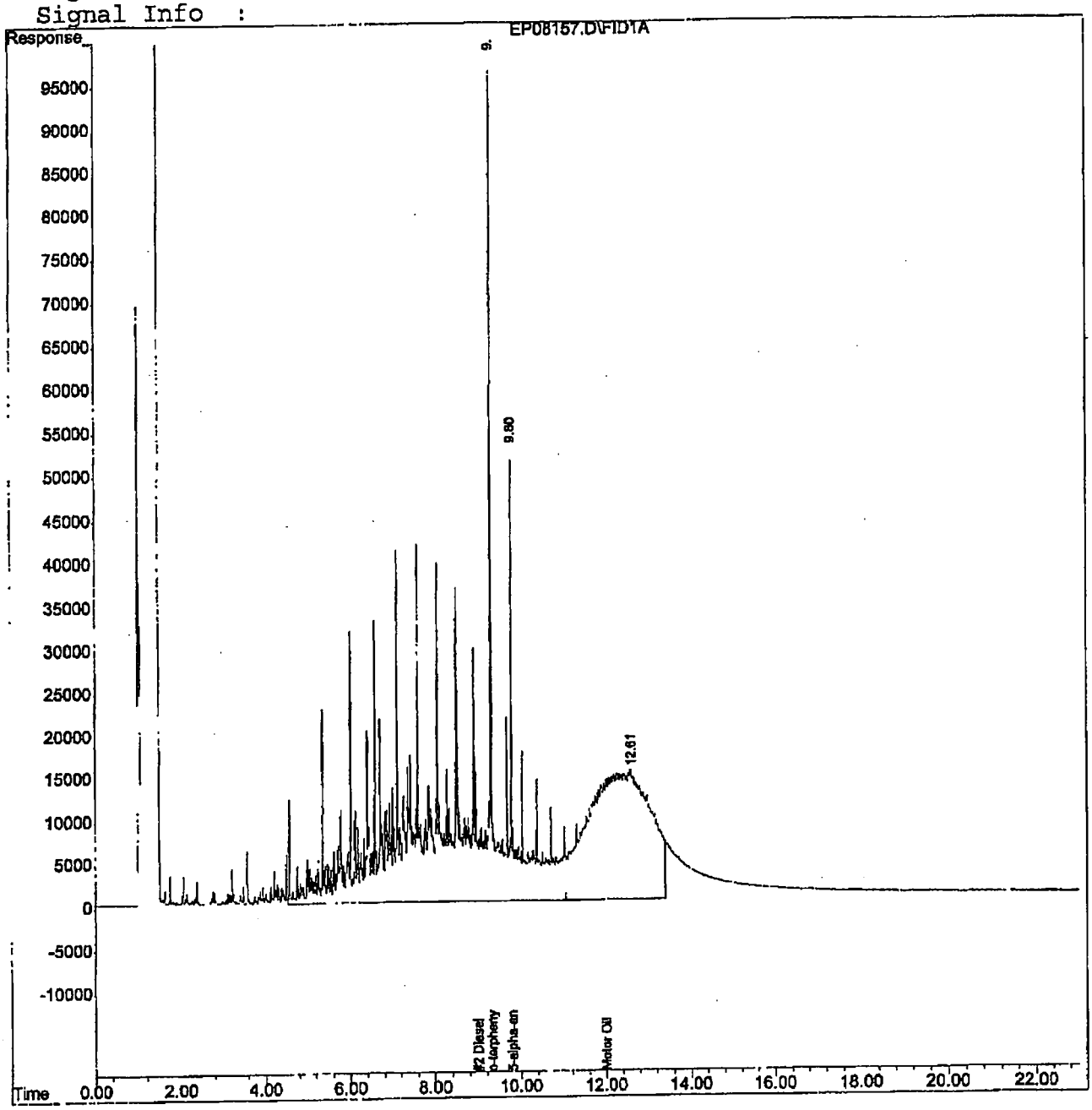
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08157.D
Acq On : 24 Oct 2003 9:49
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E
Quant Time: Oct 24 9:17 2003 Quant Results File: NWDF1020.RES

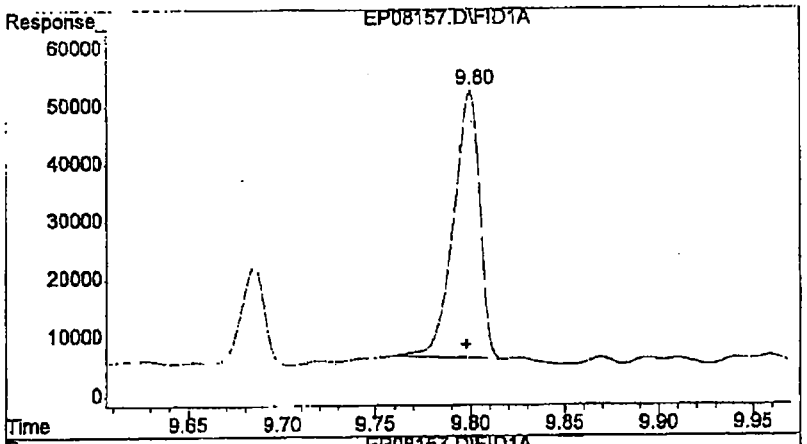
Vial: 3
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

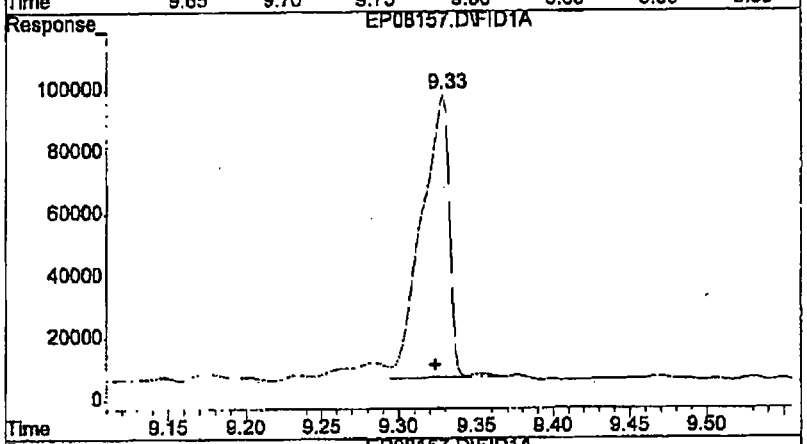


00077



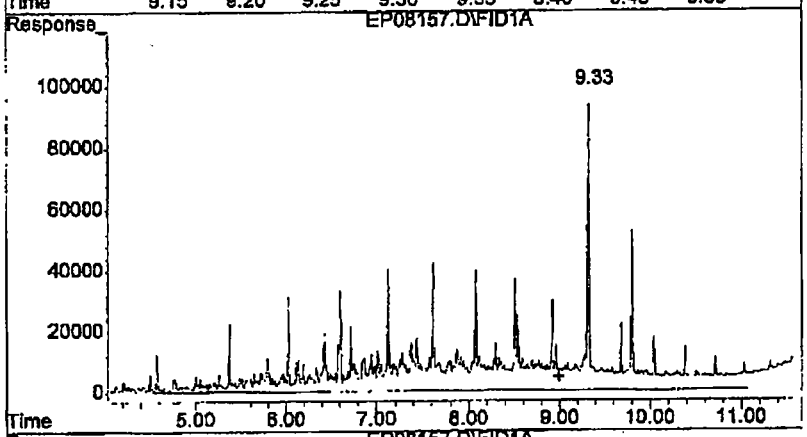
#1 5-alpha-androstane (I)

R.T.: 9.800 min
Delta R.T.: 0.002 min
Response: 437633
Conc: 20.00 ng/ul



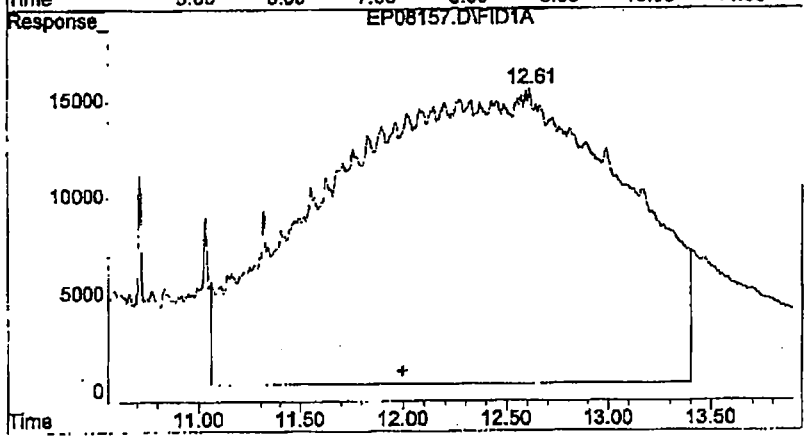
#2 o-terphenyl (S)

R.T.: 9.329 min
Delta R.T.: 0.005 min
Response: 1134195
Conc: 39.87 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 24428056
Conc: 1021.21 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 15335810
Conc: 1002.96 ng/ul m

Evaluate Continuing Calibration Report

Data File : G:\DATA\102403_A\EP08157.D
Acq On : 24 Oct 2003 9:49
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E

Vial: 3
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	5-alpha-androstane (I)	20.000	20.000	0.0	97	0.00
2	S	o-terphenyl (S)	40.000	39.873	0.3	97	0.00
3	H	#2 Diesel	1000.000	1021.208	-2.1	101	0.00
4	H	Motor Oil	1000.000	1002.957	-0.3	102	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
EP08157.D NWDF1020.M Mon Oct 27 08:16:58 2003

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08162.D
Acq On : 24 Oct 2003 12:06
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E
Quant Time: Oct 24 12:23 2003 Quant Results File: NWDF1020.RES

Vial: 8
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	442910	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.33	1144044	39.740 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	24294766	1003.347 ng/ul
4) H Motor Oil	12.00	16441731	1062.997 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

080001

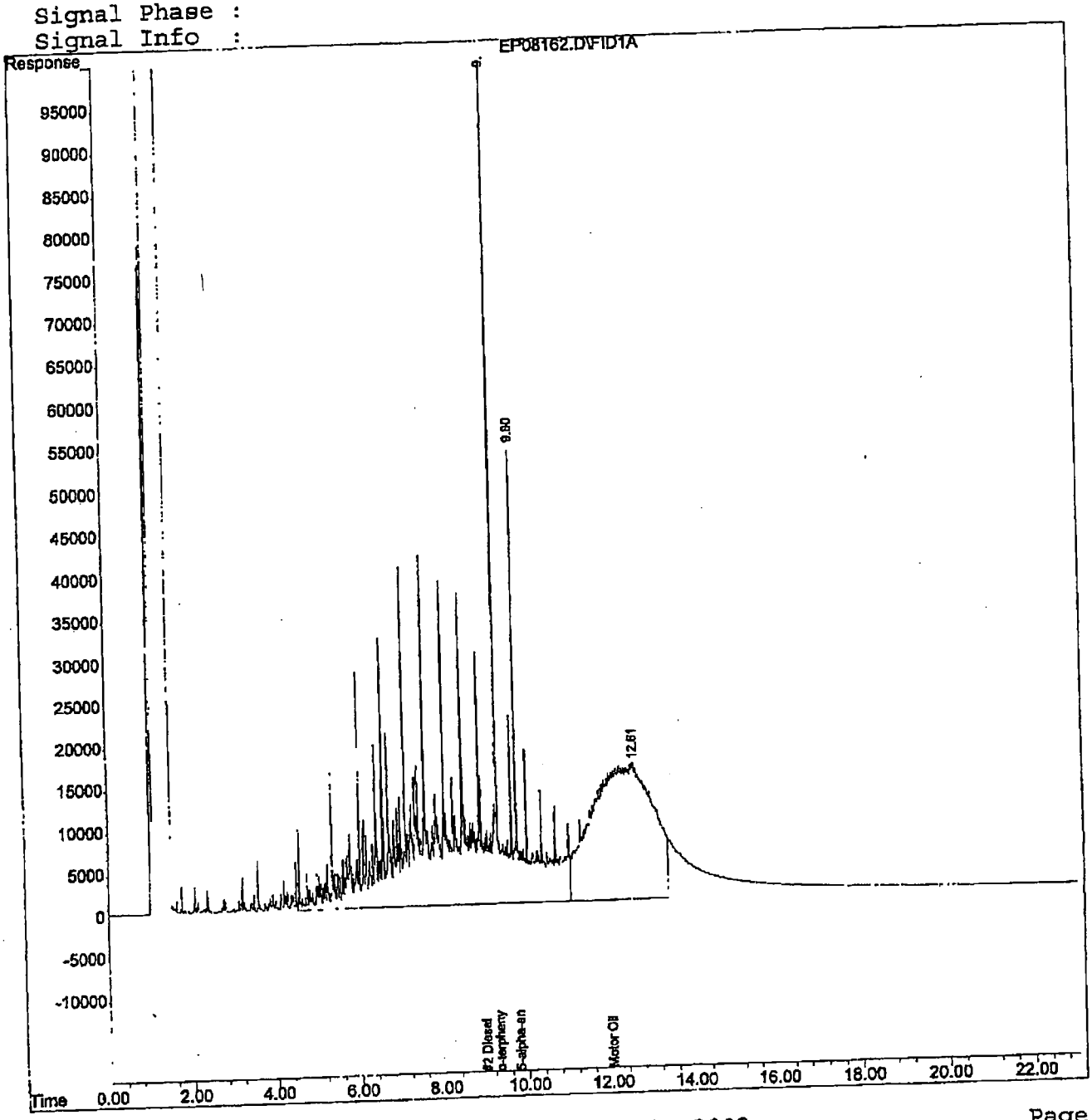
Quantitation Report (Not Reviewed)

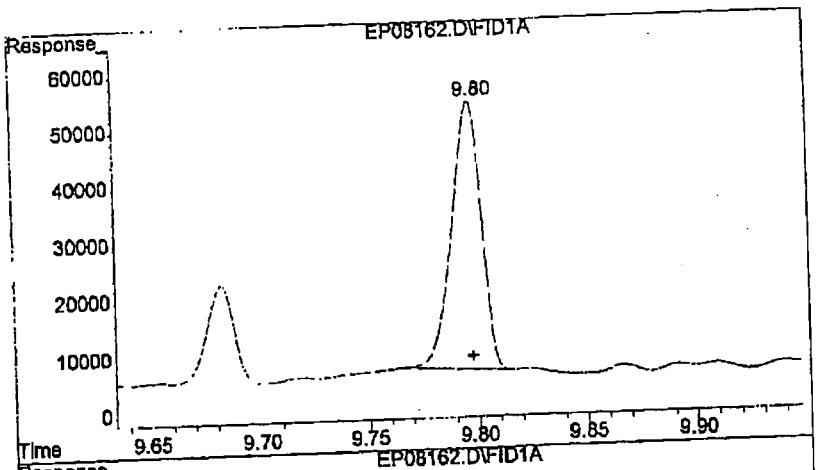
Data File : G:\DATA\102403_A\EP08162.D
Acq On : 24 Oct 2003 12:06
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E
Quant Time: Oct 24 12:23 2003 Quant Results File: NWDF1020.RES

Vial: 8
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

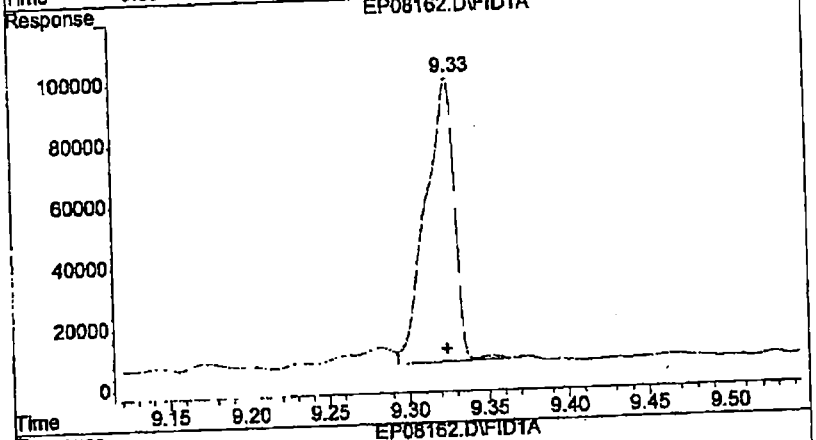
Volume Inj. :
Signal Phase :
Signal Info :





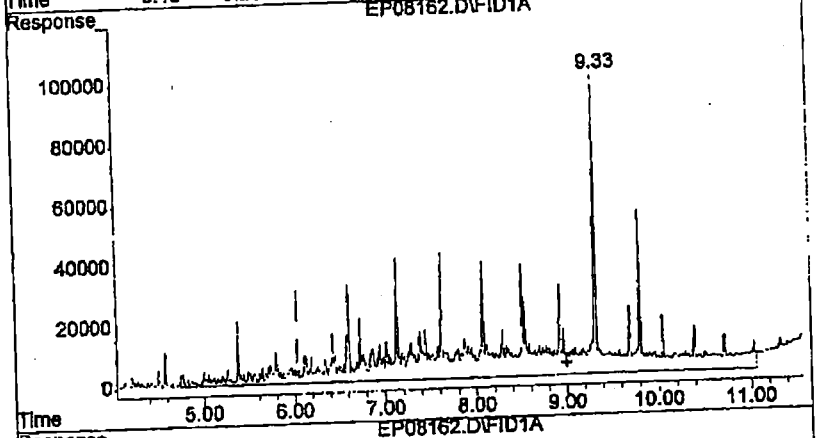
#1 5-alpha-androstane (I)

R.T.: 9.798 min
Delta R.T.: 0.000 min
Response: 442910
Conc: 20.00 ng/ul



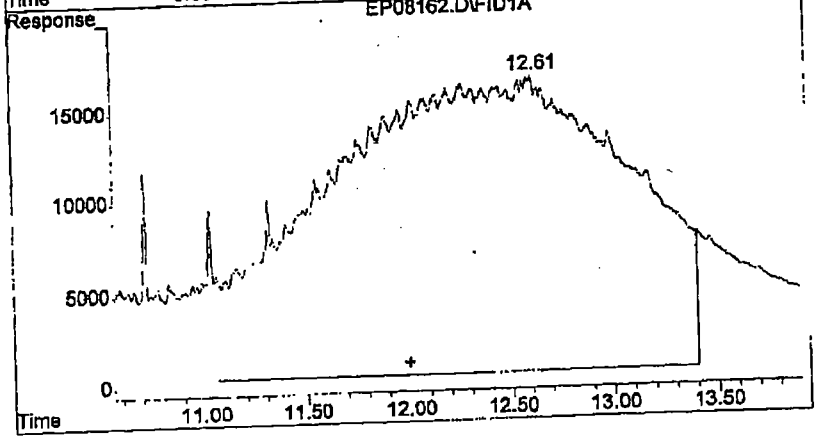
#2 o-terphenyl (S)

R.T.: 9.326 min
Delta R.T.: 0.002 min
Response: 1144044
Conc: 39.74 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 24294766
Conc: 1003.35 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 16441731
Conc: 1063.00 ng/ul m

00082

Evaluate Continuing Calibration Report

Data File : G:\DATA\102403_A\EP08162.D
Acq On : 24 Oct 2003 12:06
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E

Vial: 8
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	5-alpha-androstane (I)	20.000	20.000	0.0	98	0.00
2	S	o-terphenyl (S)	40.000	39.740	0.6	98	0.00
3	H	#2 Diesel	1000.000	1003.347	-0.3	101	0.00
4	H	Motor Oil	1000.000	1062.997	-6.3	109	0.00

SPCC's out = 0 CCC's out = 0

(#) = Out of Range
EP08162.D NWDF1020.M Mon Oct 27 08:17:08 2003

00083

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08170.D
Acq On : 24 Oct 2003 16:48
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E
Quant Time: Oct 24 17:27 2003 Quant Results File: NWDF1020.RES

Vial: 16
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	478586	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.33	1200403	38.589 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	25394621	970.237 ng/ul
4) H Motor Oil	12.00	16412252	981.319 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.
EP08170.D NWDF1020.M Fri Oct 24 17:27:20 2003 Page 1

00084

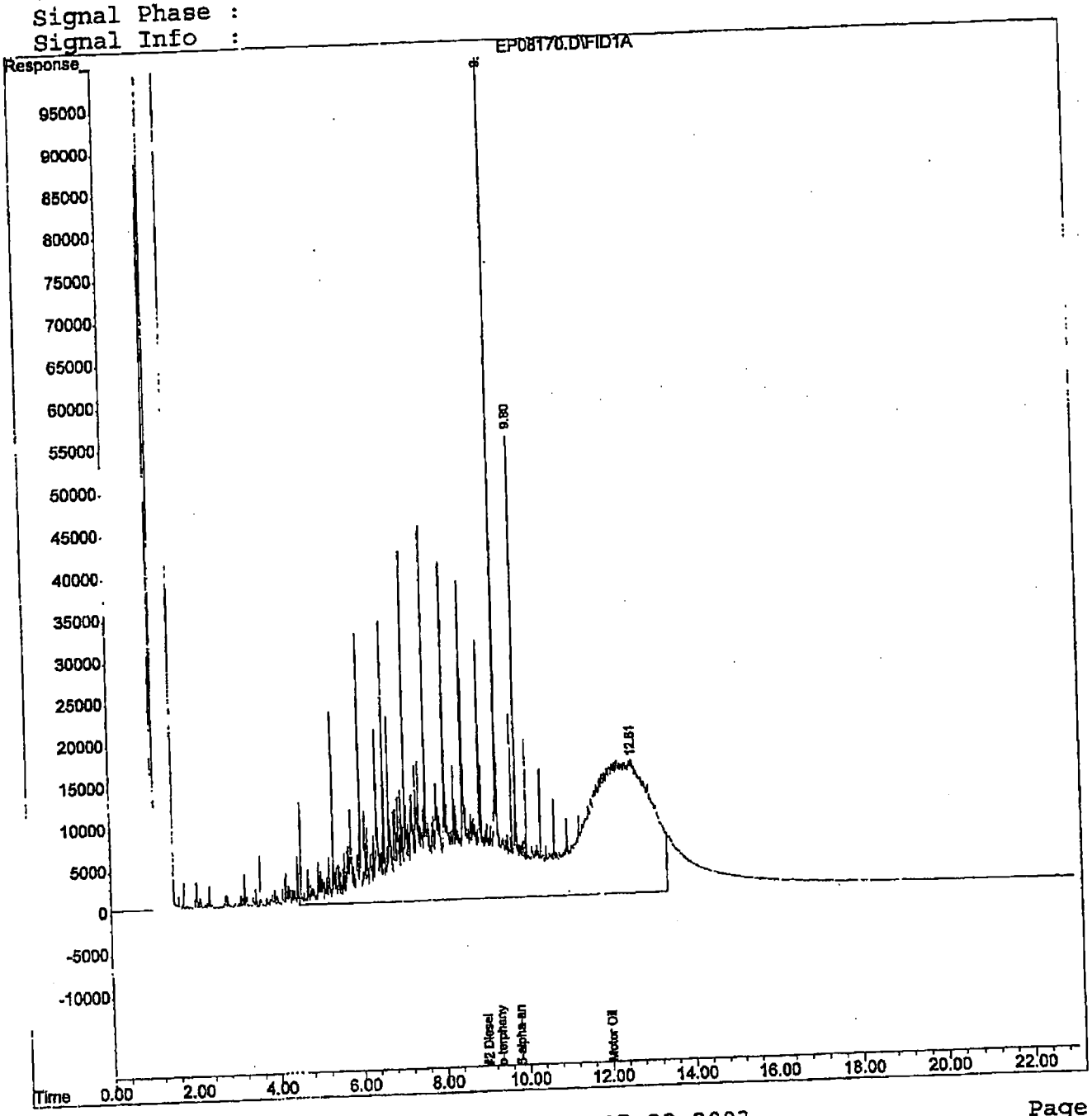
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08170.D
Acq On : 24 Oct 2003 16:48
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E
Quant Time: Oct 24 17:27 2003 Quant Results File: NWDF1020.RES

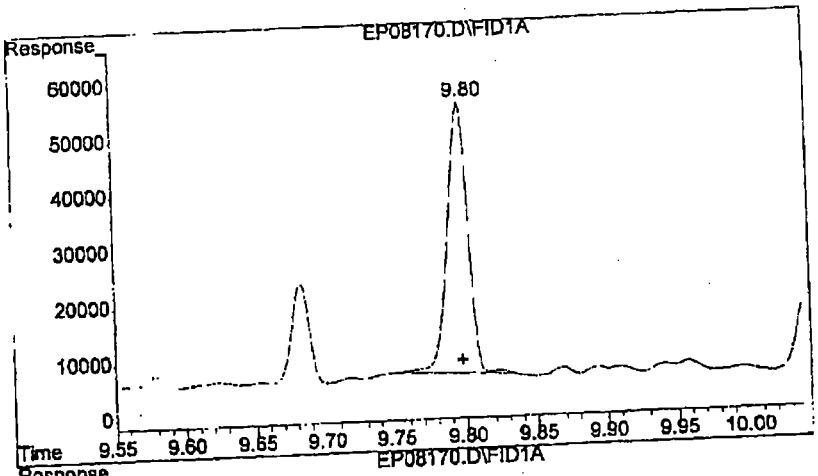
Vial: 16
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

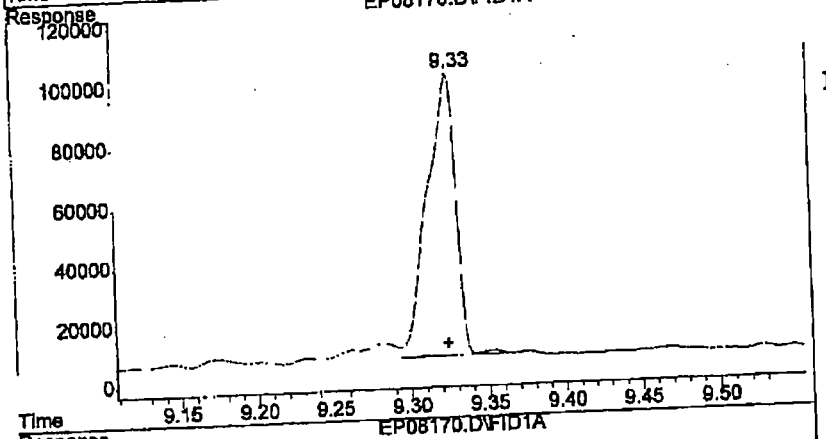


00085



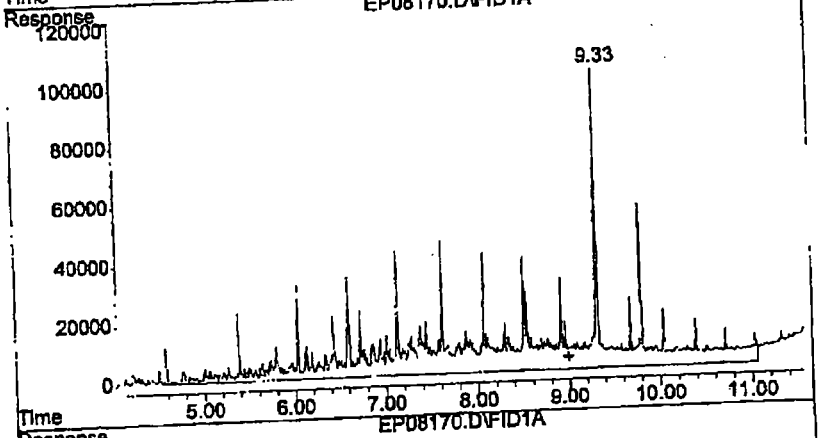
#1 5-alpha-androstane (I)

R.T.: 9.799 min
Delta R.T.: 0.001 min
Response: 478586
Conc: 20.00 ng/ul



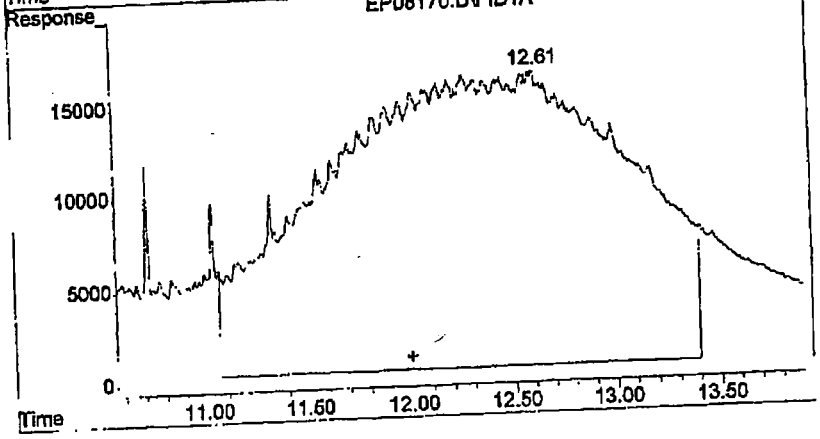
#2 o-terphenyl (S)

R.T.: 9.327 min
Delta R.T.: 0.003 min
Response: 1200403
Conc: 38.59 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 25394621
Conc: 970.24 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 16412252
Conc: 981.32 ng/ul m

Evaluate Continuing Calibration Report

Data File : G:\DATA\102403_A\EP08170.D
Acq On : 24 Oct 2003 16:48
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E

Vial: 16
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	5-alpha-androstane (I)	20.000	20.000	0.0	106	0.00
2	S	o-terphenyl (S)	40.000	38.589	3.5	103	0.00
3	H	#2 Diesel	1000.000	970.237	3.0	105	0.00
4	H	Motor Oil	1000.000	981.319	1.9	109	0.00

(#) = Out of Range
EP08170.D NWDF1020.M

SPCC's out = 0 CCC's out = 0
Mon Oct 27 08:17:17 2003

00087

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08181.D
Acq On : 24 Oct 2003 21:54
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 8:14 2003 Quant Results File: NWDF1020.RES

Vial: 27
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	413967	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.33	1134413	42.160 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	24773414	1095.634 ng/ul
4) H Motor Oil	12.00	15358758	1062.402 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.
EP08181.D NWDF1020.M Mon Oct 27 08:14:10 2003 Page 1

00088

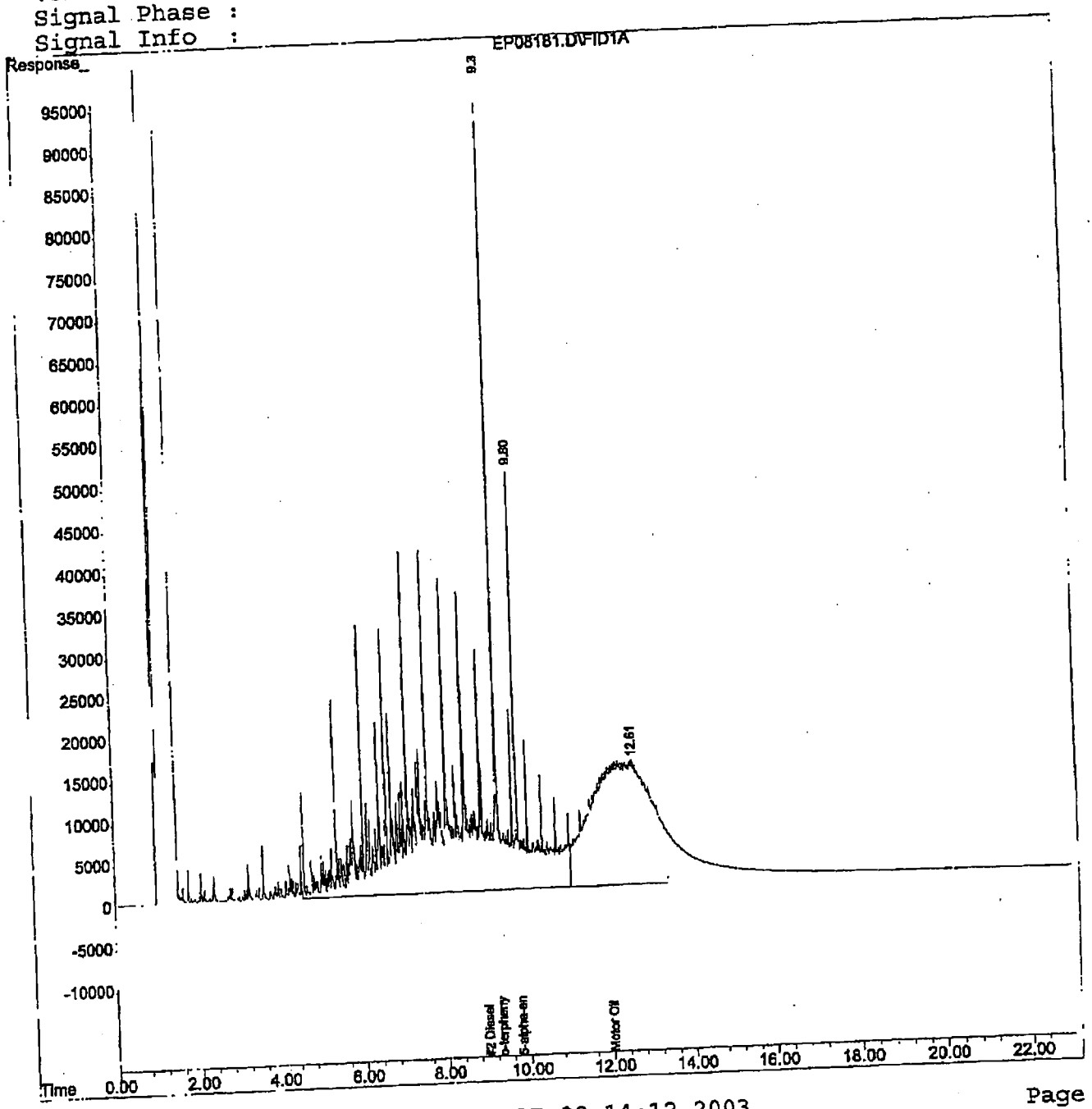
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08181.D
Acq On : 24 Oct 2003 21:54
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 8:14 2003 Quant Results File: NWDF1020.RES

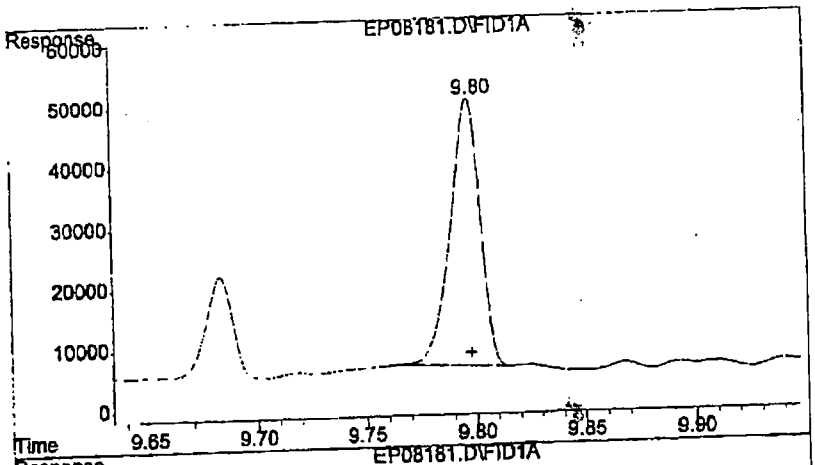
Vial: 27
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

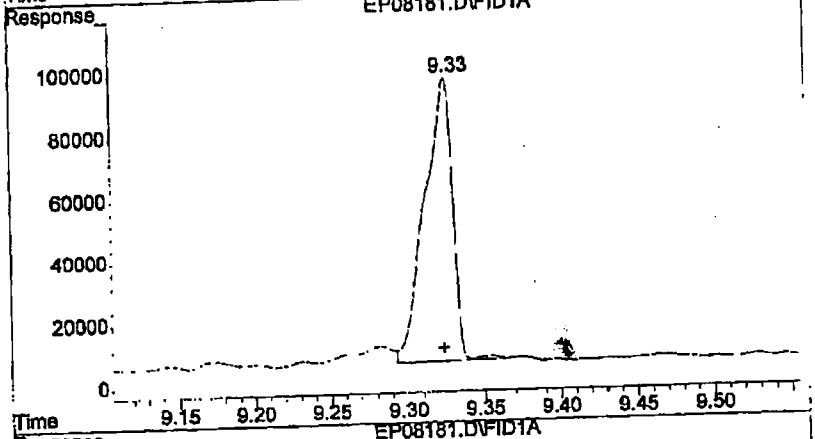


00089



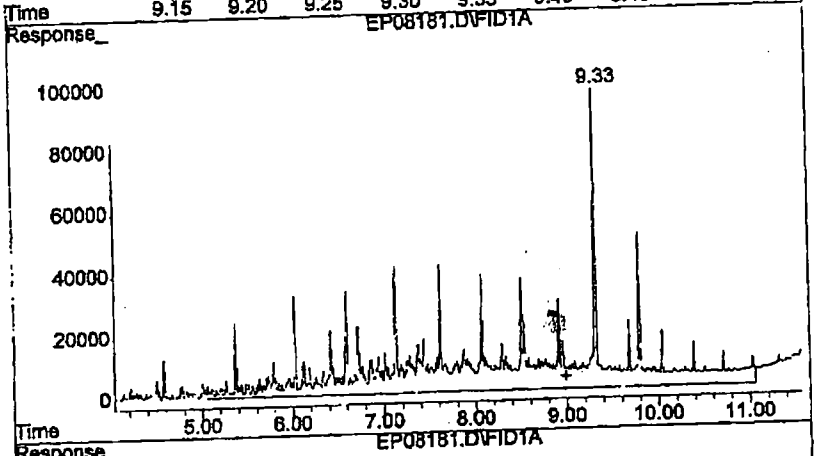
#1 5-alpha-androstane (I)

R.T.: 9.798 min
Delta R.T.: 0.000 min
Response: 413967
Conc: 20.00 ng/ul



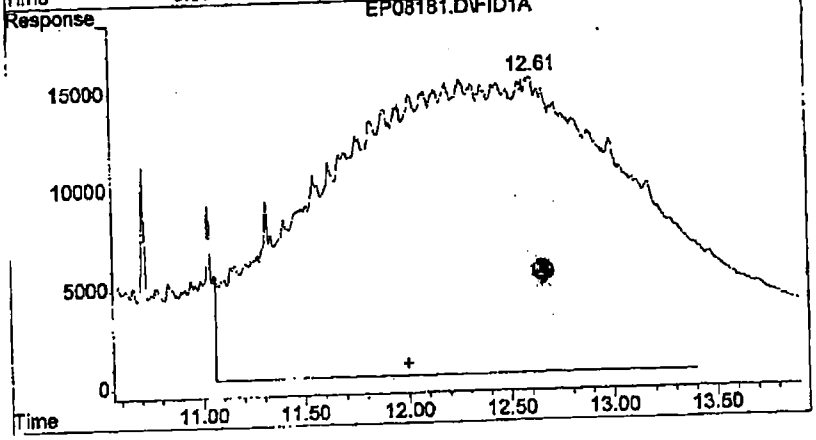
#2 o-terphenyl (S)

R.T.: 9.327 min
Delta R.T.: 0.003 min
Response: 1134413
Conc: 42.16 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 24773414
Conc: 1095.63 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 15358758
Conc: 1062.40 ng/ul m

06000

Evaluate Continuing Calibration Report

Data File : G:\DATA\102403_A\EP08181.D
Acq On : 24 Oct 2003 21:54
Sample : 1166-31-12 1000/40s ccal
Misc :
IntFile : EVENTS.E

Vial: 27
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	I	5-alpha-androstane (I)	20.000	20.000	0.0	92	0.00
2	S	o-terphenyl (S)	40.000	42.160	-5.4	97	0.00
3	H	#2 Diesel	1000.000	1095.634	-9.6	103	0.00
4	H	Motor Oil	1000.000	1062.402	-6.2	102	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
EP08181.D NWDF1020.M Mon Oct 27 08:17:26 2003

METHOD BLANK

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08163.D
Acq On : 24 Oct 2003 13:34
Sample : ds1034 mb #1 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

Vial: 9
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	449513	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	448991	15.367 ng/ul
Target Compounds			
4) H Motor Oil	12.00	293620	10.008 ng/ul

10/27/03

(f)=RT Delta > 1/2 Window
(m)=manual int.

00093

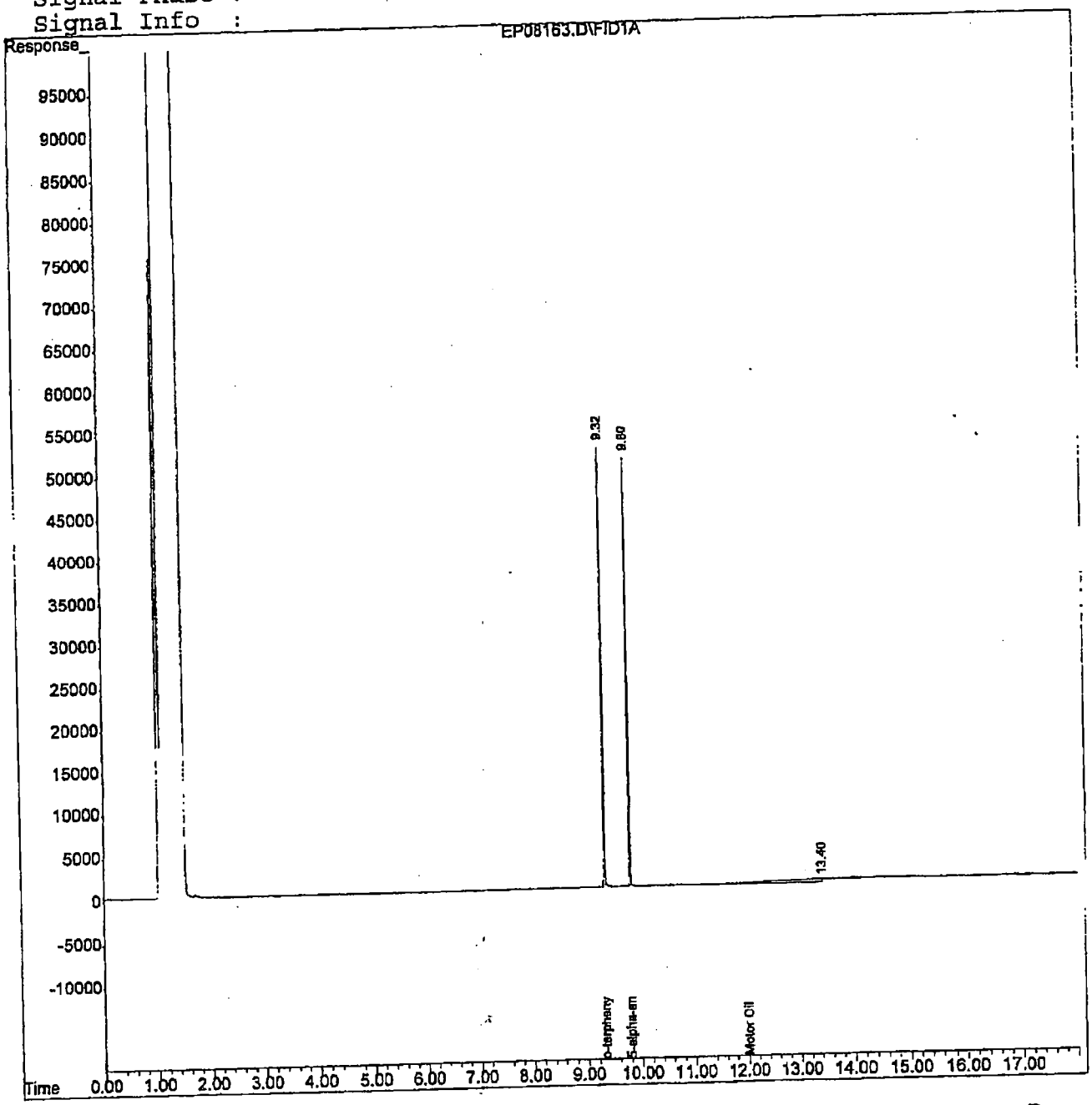
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08163.D
Acq On : 24 Oct 2003 13:34
Sample : ds1034 mb #1 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

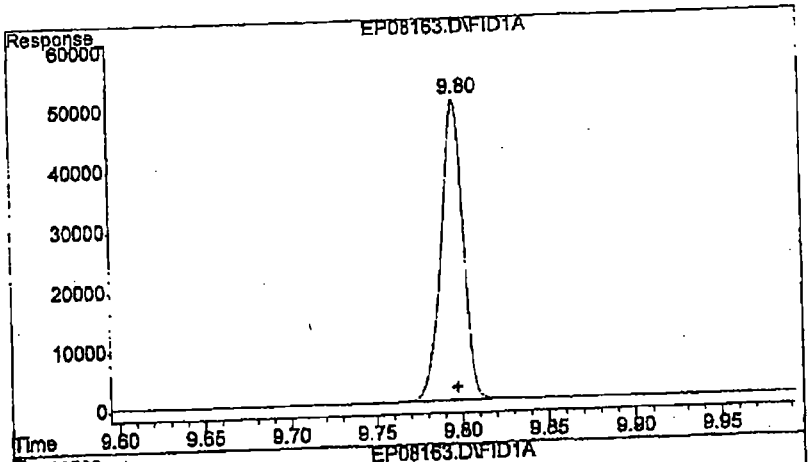
Vial: 9
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

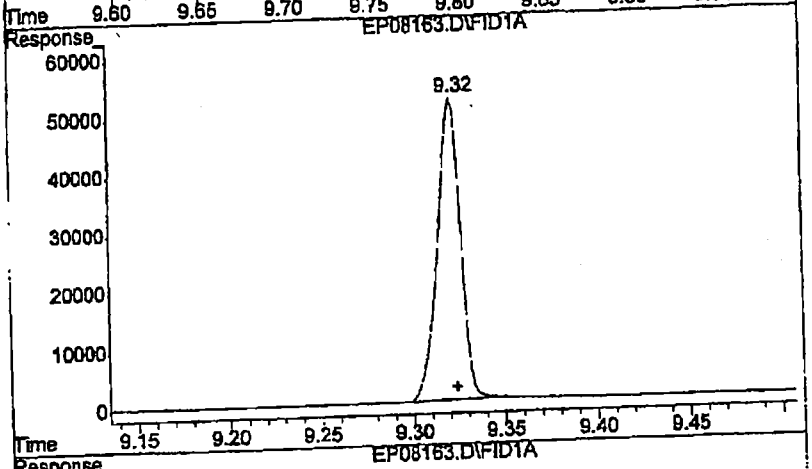


000094



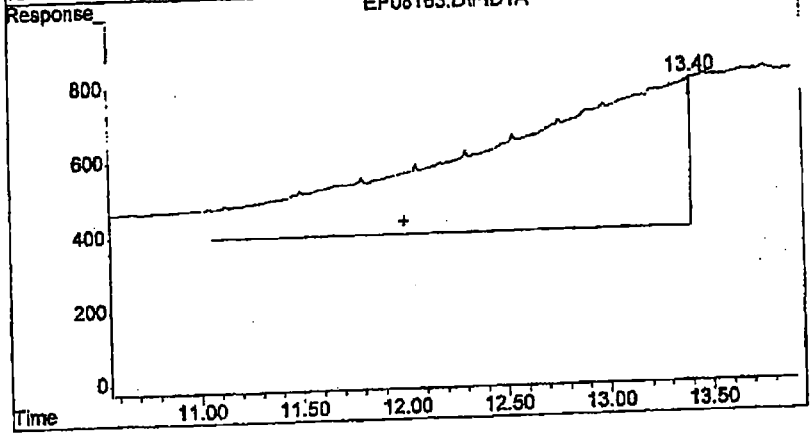
#1 5-alpha-androstane (I)

R.T.: 9.798 min
Delta R.T.: 0.000 min
Response: 449513
Conc: 20.00 ng/ul



#2 o-terphenyl (S)

R.T.: 9.322 min
Delta R.T.: -0.002 min
Response: 448991
Conc: 15.37 ng/ul



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 293620
Conc: 10.01 ng/ul m

00095

BLANK SPIKE

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08164.D
Acq On : 24 Oct 2003 14:00
Sample : ds1034 bs #1 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

Vial: 10
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	374288	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	492222	20.233 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	9816497	474.088 ng/ul
4) H Motor Oil	12.00	6684537	506.813 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

00097

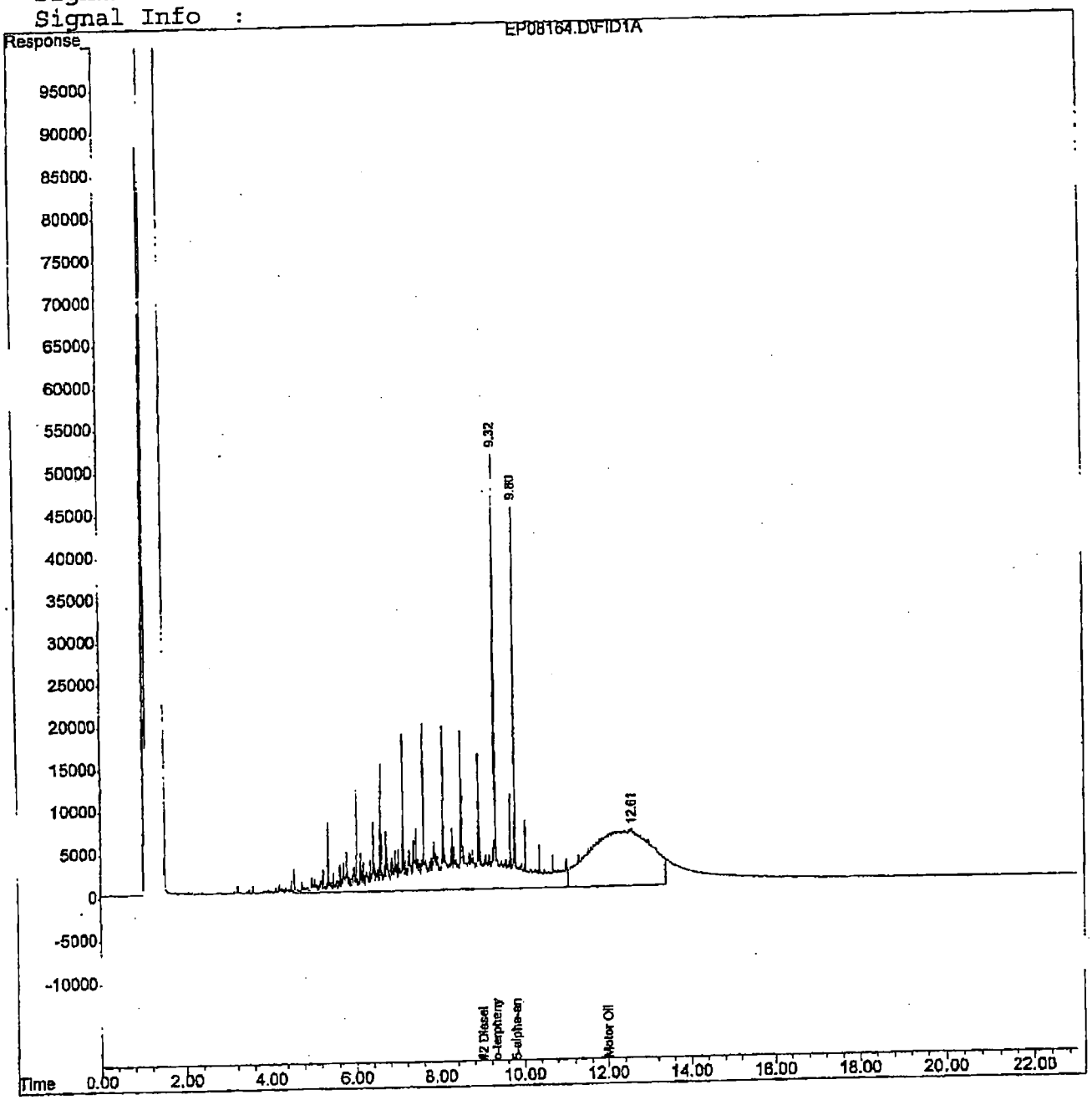
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08164.D
Acq On : 24 Oct 2003 14:00
Sample : ds1034 bs #1 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

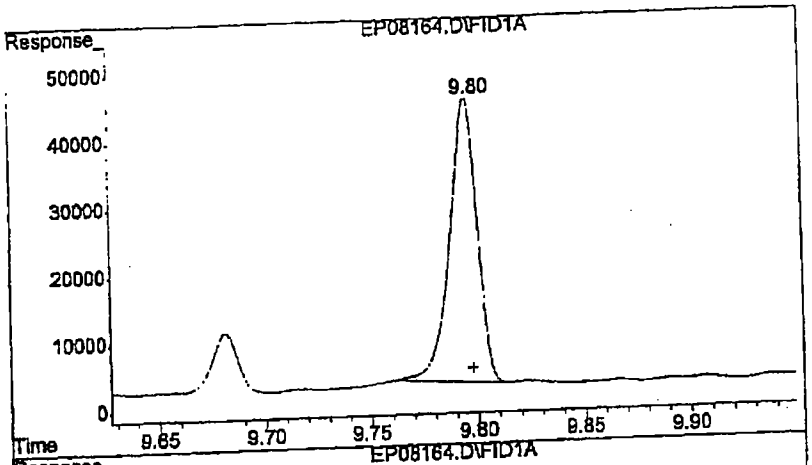
Vial: 10
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

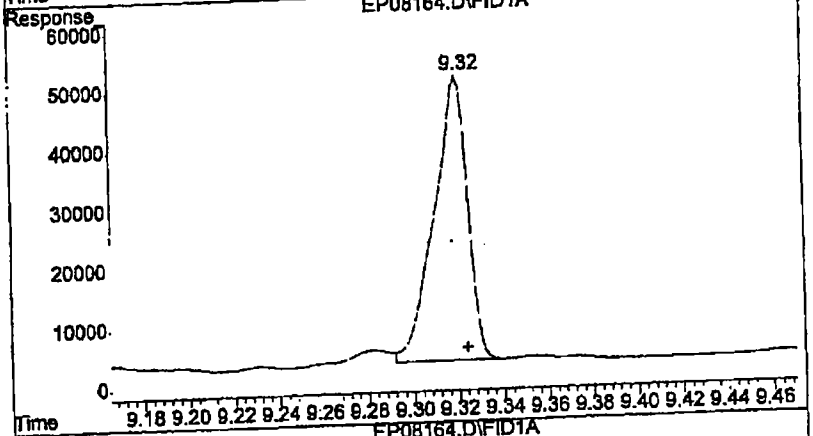


86000



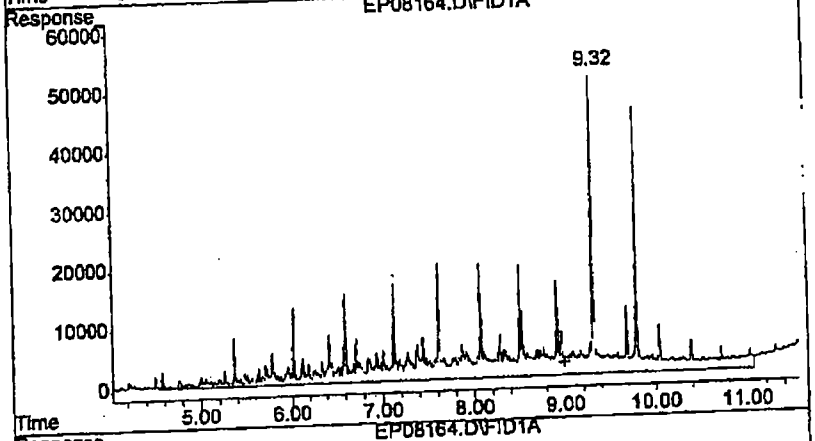
#1 5-alpha-androstane (I)

R.T.: 9.796 min
Delta R.T.: -0.002 min
Response: 374288
Conc: 20.00 ng/ul



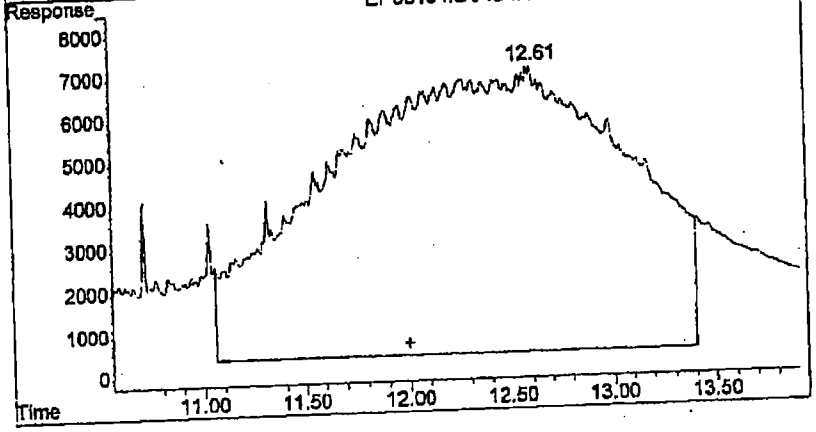
#2 o-terphenyl (S)

R.T.: 9.321 min
Delta R.T.: -0.003 min
Response: 492222
Conc: 20.23 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 9816497
Conc: 474.09 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 6684537
Conc: 506.81 ng/ul m

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08165.D
Acq On : 24 Oct 2003 14:31
Sample : ds1034 bsd #1 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

Vial: 11
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.80	397284	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	482655	18.691 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	11099671	505.737 ng/ul
4) H Motor Oil	12.00	7580689	542.095 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

00100

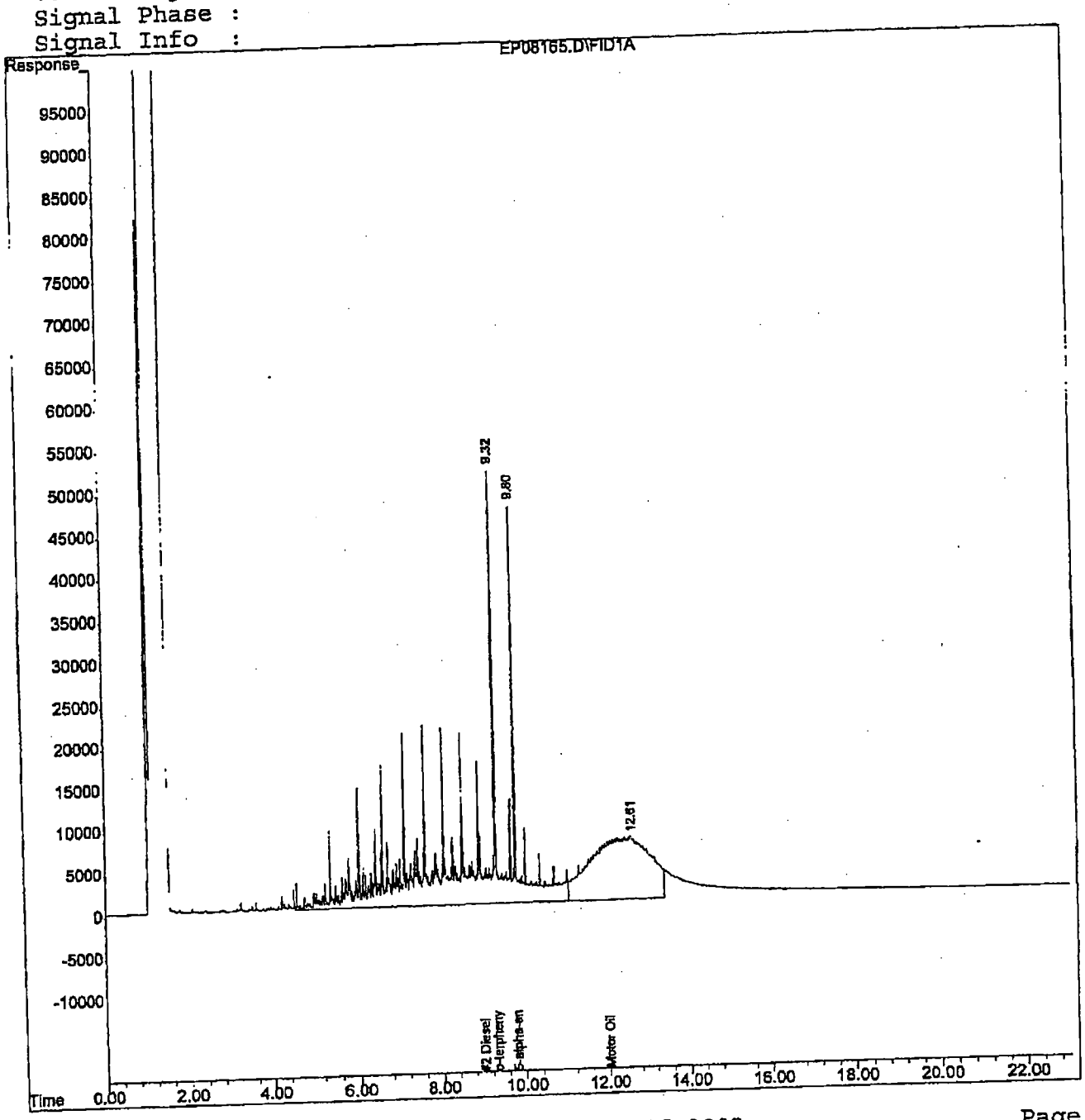
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08165.D
Acq On : 24 Oct 2003 14:31
Sample : ds1034 bsd #1 &10
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

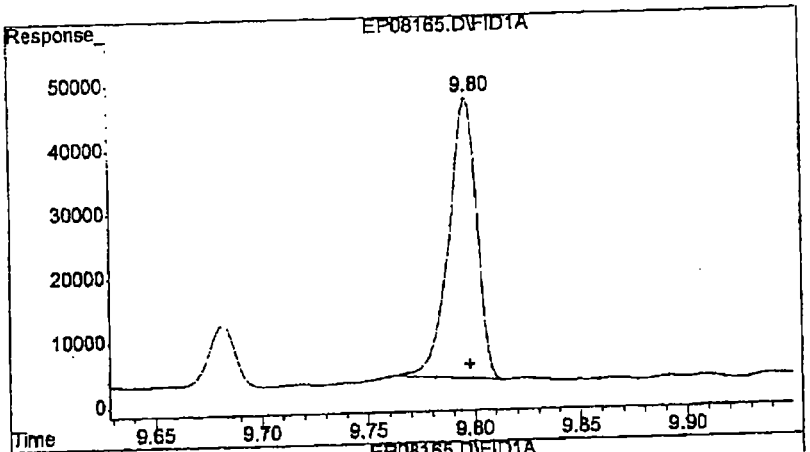
Vial: 11
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : EXTFACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

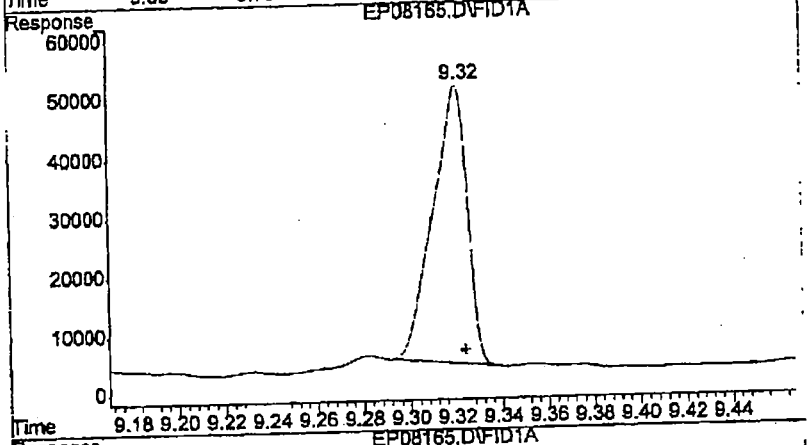


00101



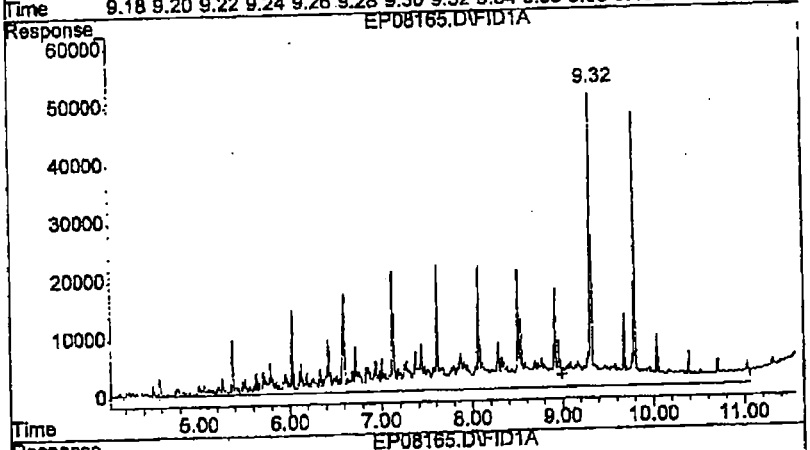
#1 5-alpha-androstane (I)

R.T.: 9.797 min
Delta R.T.: 0.000 min
Response: 397284
Conc: 20.00 ng/ul



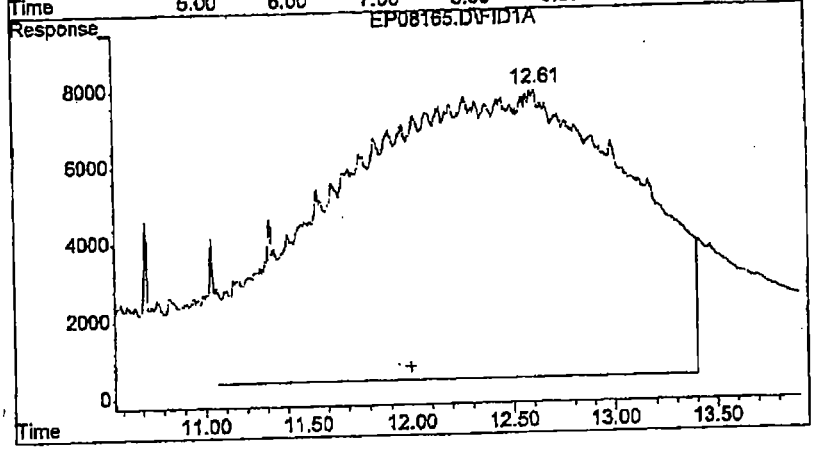
#2 o-terphenyl (S)

R.T.: 9.321 min
Delta R.T.: -0.003 min
Response: 482655
Conc: 18.69 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 11099671
Conc: 505.74 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 7580689
Conc: 542.10 ng/ul m

DUPLICATE SAMPLE DATA PACKAGE

Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08167.D
Acq On : 24 Oct 2003 15:29
Sample : 116724-2 &10 dup
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

Vial: 13
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Initial Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

Compound	R.T.	Response	Conc Units
Internal Standards			
1) I 5-alpha-androstane (I)	9.79	423870	20.000 ng/ul
System Monitoring Compounds			
2) S o-terphenyl (S)	9.32	419809	15.238 ng/ul
Target Compounds			
3) H #2 Diesel	9.00	2289668	89.046 ng/ul
4) H Motor Oil	12.00	4638137	307.094 ng/ul

(f)=RT Delta > 1/2 Window (m)=manual int.

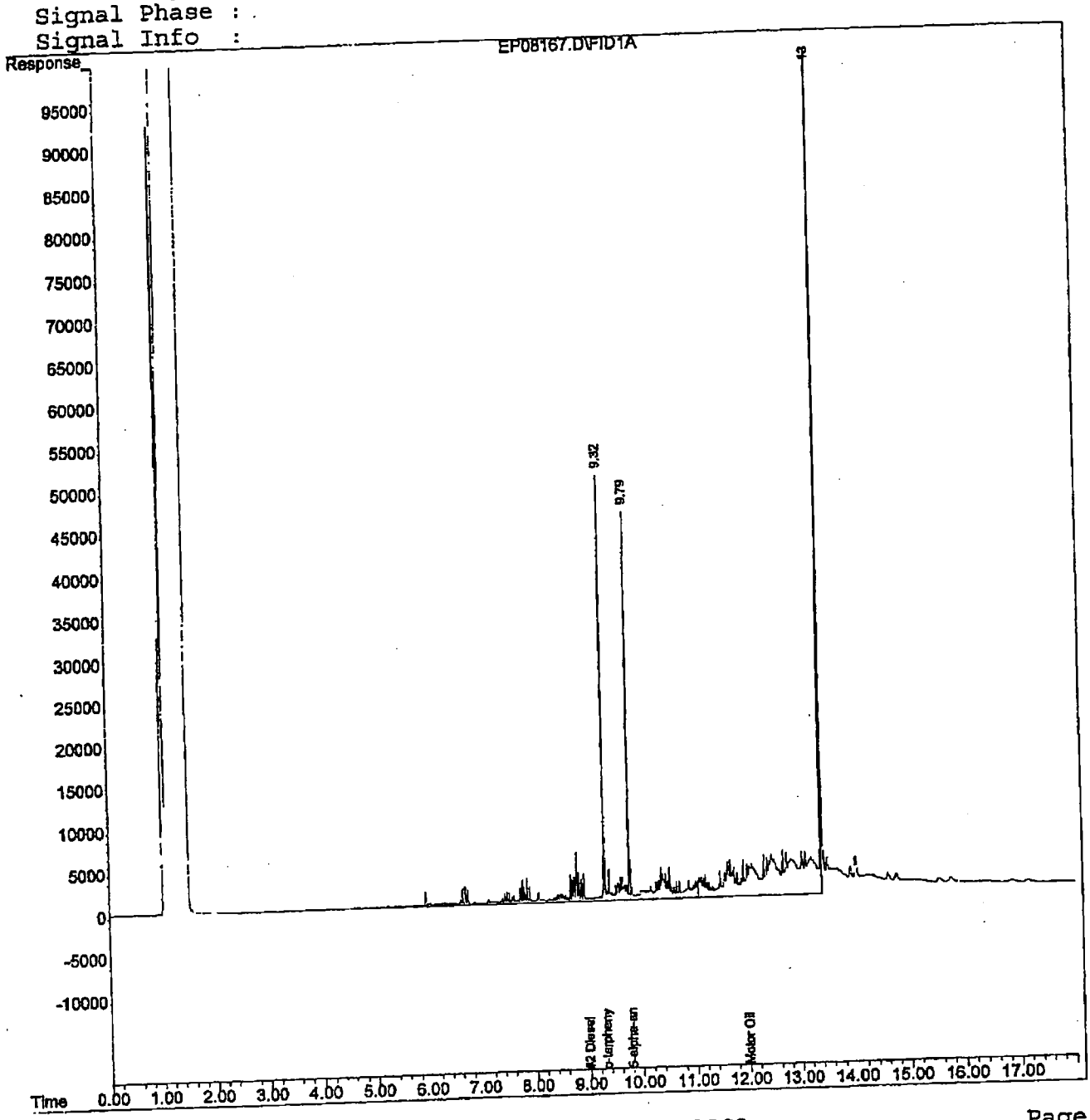
Quantitation Report (Not Reviewed)

Data File : G:\DATA\102403_A\EP08167.D
Acq On : 24 Oct 2003 15:29
Sample : 116724-2 &10 dup
Misc :
IntFile : EVENTS.E
Quant Time: Oct 27 13:00 2003 Quant Results File: NWDF1020.RES

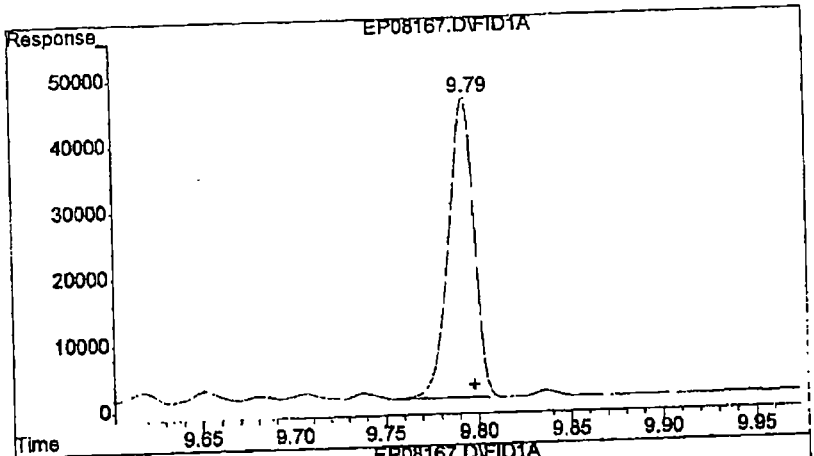
Vial: 13
Operator: RBF/CRF
Inst : 5890-1
Multiplr: 1.00

Quant Method : G:\METHODS\NWDF1020.M (Chemstation Integrator)
Title : NWTPH-Dx front column
Last Update : Wed Oct 22 09:37:35 2003
Response via : Multiple Level Calibration
DataAcq Meth : FACQ.M

Volume Inj. :
Signal Phase :
Signal Info :

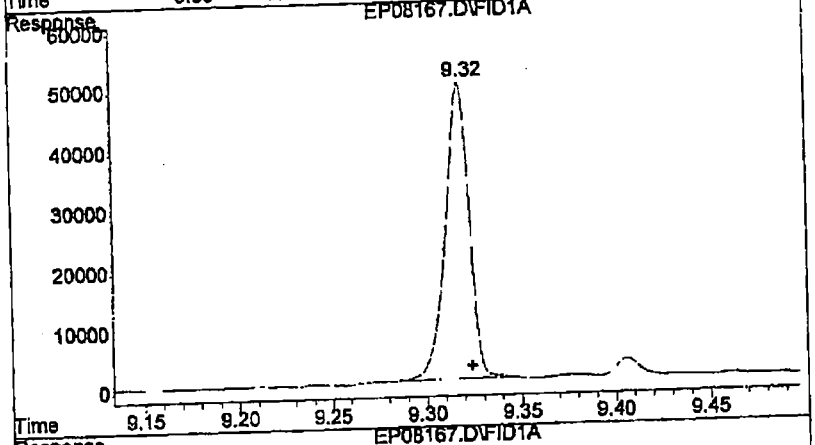


00105



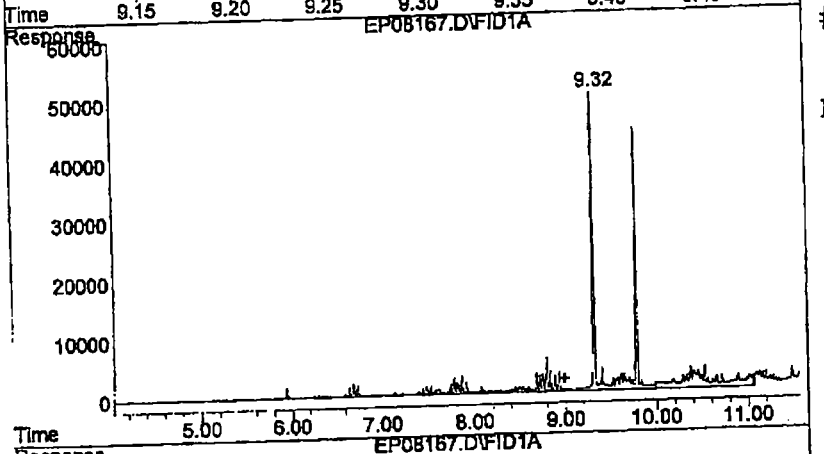
#1 5-alpha-androstane (I)

R.T.: 9.795 min
Delta R.T.: -0.003 min
Response: 423870
Conc: 20.00 ng/ul



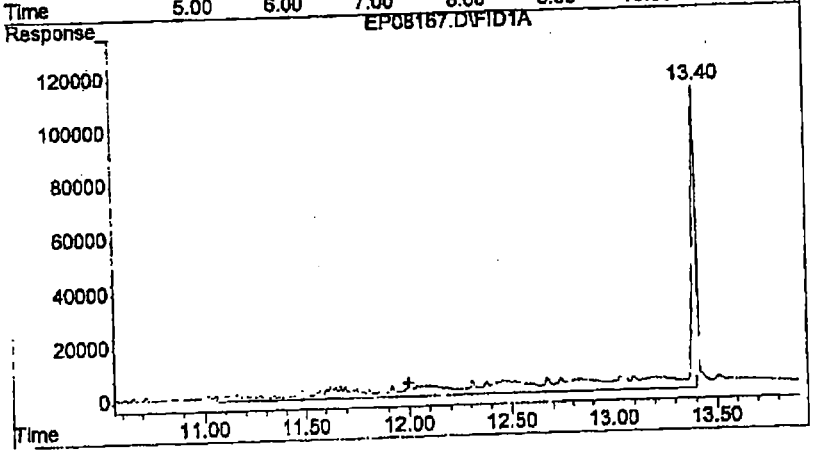
#2 o-terphenyl (S)

R.T.: 9.319 min
Delta R.T.: -0.005 min
Response: 419809
Conc: 15.24 ng/ul



#3 #2 Diesel

R.T.: 9.000 min
Delta R.T.: 0.000 min
Response: 2289668
Conc: 89.05 ng/ul m



#4 Motor Oil

R.T.: 12.000 min
Delta R.T.: 0.000 min
Response: 4638137
Conc: 307.09 ng/ul m

00106

LABORATORY WORKSHEETS

diesel Worksheet - total

QC Level:Tier IV	Due: 10/17/03	Work Order - 116724
Matrix:solid		
Ecology & Environment	Proj. Manager:Darla Powell	

pecial istructions

McCormick & Baxter Project: Tier IV with CLP forms for Metals and Detection limit sheets.
PAH/PCP..Large Volume Injection Extraction by Brent

Sed 7/21/03

[redacted]
Sample Weight/Volume

Client Sample ID	MBNLGB03-02
Date Received	10/8/2003
Date Sampled	**10/7/2003 12:12:00 PM**

Diesel Ext - NWTPH-Dx

[redacted]
Sample Weight/Volume

Client Sample ID	MBNLGB03-09
Date Received	10/8/2003
Date Sampled	**10/7/2003 12:42:00 PM**

Diesel Ext - NWTPH-Dx

[redacted]
Sample Weight/Volume

Client Sample ID	MBNLGB03-10
Date Received	10/8/2003
Date Sampled	**10/7/2003 12:45:00 PM**

Diesel Ext - NWTPH-Dx

Samples are: Low Level ☐ Small Volume ☐ Normal ☐

Analyst ____ Date 10/27/03

Reviewed by ____ Date ____

Organics worksheet v4.0
If you have suggestions for changes please bring them to me - Dennis

00108

Printed - 10/17/03

Diesel Analysis

QCBatch ID	ds1034				
Sample Matrix	solid				
Surrogate Standard No.	1166-25-1				
Expiration Date	02/25/04	Volume Measured By/Date	[illegible] 10/17/03		
Fuels Combo Spike No.	1166-28-5	Extracted By/Date			
Expiration Date	3/30/03	NWTPH-DX 8015b-DRO/RRO AK102/103			
MgCl2 Lot Number	Y11E32				
Na2SO4 Lot Number	10291				
		Spike Witness Signature/Date	[illegible] 10-17-03		
Extraction Method	3550				

QC Sample Type	QC Identifier	Sample Volume (ml)	Final Volume (ml)	Surr Spike (ul)	MS/BS Spike amt (ul)
Method Blank	ds1034	1.0000	10	100	N/A
Duplicate	116724/2	0.9933	10	100	N/A
Duplicate-2	116793r22				N/A
Blank Spike	sds1034	1.0000	10	100	100
Blank Spike Duplicate	dds1034	1.0000	10	100	100
Matrix Spike					
Matrix Spike Duplicate					
Matrix Spike-2					
Matrix Spike Duplicate-2					

Sample	Client Sample ID	Sample Volume (ml)	Final Volume (ml)	Surr Spike (ul)	Comments
116724-2	MBNLGB03-02	1.0693	10	100	
116724-9	MBNLGB03-09	1.1569	10	100	
116724-10	MBNLGB03-10	1.4311	10	100	

00109

STL Seattle

6a Sample Information

Client Name				Related Blank: noblank	
Work Order Number	ds1034				
Sample Number					
QC Batch Number					
Client Sample ID					
Date Received	10-17-03				
Date Prepared	10-24-03				
Date Analyzed	solid				
Sample matrix type	blank				
QC sample type					
Sample weight (g)	1	=	0.001 /kg	Calc. Fact.	10
Extract volume (ml)	10	=	10 ml	Dry Weight	1 g
Dilution Factor		=	1	Sample Units	mg/kg
% Solids		=	1	Spike Factor	1
GPC (Enter 2 if GPC'd)		=	1	Rept. Dil. Fact.	1
Report in PPM	1	=	0.001		
mg/kg Carbon		=	1		

	Surrogate	Quan Value	User Flags	% Rec.	Warning	Water Low	Water High
x	o-terphenyl	15.3671		75.8	OK	50	150
				-	-		
				-	-		
				-	-		
				-	-		
				-	-		

FALSE <-- do not overwrite this cell

Hydrocarbon name for X1flag: jet fuel, kerosene or similar produ

	Target Analytes	Quan Value	User Flag	Blank	Calculated Amount	Total Flags	PQL
x							

00110

STL Seattle

6a Sample Information

Client Name	
Work Order Number	
Sample Number	ds1034
QC Batch Number	
Client Sample ID	
Date Received	10-17-03
Date Prepared	10-24-03
Date Analyzed	solid
Sample matrix type	bs
QC sample type	

Related Blank: ds1034

Sample weight (g)	1	=	0.001 /kg	Calc. Fact.	10
Extract volume (ml)	10	=	10 ml	Dry Weight	1 g
Dilution Factor		=	1	Sample Units	mg/kg
% Solids		=	1	Spike Factor	1
GPC (Enter 2 if GPC'd)		=	1	Rept. Dil. Fact.	1
Report in PPM	1	=	0.001		
mg/kg Carbon		=	1		

	Surrogate	Quan Value	User Flags	% Rec.	Warning OK	Water Low	Water High
x	o-terphenyl	20.2326		99.8	-	50	150
				-	-		
				-	-		
				-	-		
				-	-		

jet fuel, kerosene or similar produ

Hydrocarbon Flame for X flag

FALSE <-- do not overwrite this cell

	Target Analytes	Quan Value	User Flag	Blank	Calculated Amount	Total Flags	PQL
x	#2 Diesel	474.088			4740		250
x	Motor Oil	506.813			5070		500

STL Seattle

6a Sample Information

Client Name	
Work Order Number	
Sample Number	ds1034
QC Batch Number	
Client Sample ID	
Date Received	10-17-03
Date Prepared	10-24-03
Date Analyzed	solid
Sample matrix type	bsd
QC sample type	

Related Blank: ds1034

Sample weight (g)	1	=	0.001 /kg	Calc. Fact.	10
Extract volume (ml)	10	=	10 ml	Dry Weight	1 g
Dilution Factor		=	1	Sample Units	mg/kg
% Solids		=	1	Spike Factor	1
GPC (Enter 2 if GPC'd)		=	1	Rept. Dil. Fact.	1
Report in PPM	1	=	0.001		
mg/kg Carbon		=	1		

	Surrogate	Quan Value	User Flags	% Rec.	Warning	Water Low	Water High
x	o-terphenyl	18.691		92.2	OK	50	150
				-	-		
				-	-		
				-	-		
				-	-		
				-	-		

jet fuel, kerosene or similar produ

Hydrocarbon name for X flag

FALSE <-- do not overwrite this cell

	Target Analytes	Quan Value	User Flag	Blank	Calculated Amount	Total Flags	PQL
x	#2 Diesel	505.7374			5060		250
x	Motor Oil	542.0954			5420		500

STL Seattle

6a Sample Information

Client Name	Ecology & Environment
Work Order Number	116724
Sample Number	2
QC Batch Number	ds1034
Client Sample ID	MBNLGB03-02
Date Received	10-08-03
Date Prepared	10-17-03
Date Analyzed	10-24-03
Sample matrix type	solid
QC sample type	sample

Related Blank: ds1034

Sample weight (g)	1.0693	=	0.00107 /kg	Calc. Fact.	9.351912466
Extract volume (ml)	10	=	10 ml	Dry Weight	1.0693 g
Dilution Factor		=	1	Sample Units	mg/kg
% Solids		=	1	Spike Factor	0.935191247
GPC (Enter 2 if GPC'd)		=	1	Rept. Dil. Fact.	1
Report in PPM	1	=	0.001		
mg/kg Carbon		=	1		

	Surrogate	Quan Value	User Flags	% Rec.	Warning	Water Low	Water High
x	o-terphenyl	15.3562		75.7	OK	50	150
				-	-		
				-	-		
				-	-		
				-	-		
				-	-		

Jet fuel, kerosene or similar produ

Hydrocarbon name for X flag

FALSE <-- do not overwrite this cell

	Target Analytes	Quan Value	User Flag	Blank	Calculated Amount	Total Flags	PQL
x	#2 Diesel	98.5561	X2		922	X2	234
x	Motor Oil	284.6445	X2		2660	X2	468

$$\frac{98.5561\ ng/ul \times 10000\ ul}{0.0010693\ Kg} \times \frac{1\ mg}{1000000\ ng} = 922\ mg/Kg$$

JJ 10/28/03

00113

STL Seattle

6a **Sample Information**

Client Name	Ecology & Environment
Work Order Number	116724
Sample Number	2
QC Batch Number	ds1034
Client Sample ID	MBNLGB03-02
Date Received	10-08-03
Date Prepared	10-17-03
Date Analyzed	10-24-03
Sample matrix type	solid
QC sample type	dup

Related Blank: ds1034

Sample weight (g)	0.9933	=	0.00099 /kg	Calc. Fact.	10.06745193
Extract volume (ml)	10	=	10 ml	Dry Weight	0.9933 g
Dilution Factor		=	1	Sample Units	mg/kg
% Solids		=	1	Spike Factor	1.006745193
GPC (Enter 2 if GPC'd)		=	1	Rept. Dil. Fact.	1
Report in PPM	1	=	0.001		
mg/kg Carbon		=	1		

	Surrogate	Quan Value	User Flags	% Rec.	Warning	Water Low	Water High
x	o-terphenyl	15.2375		75.1	OK	50	150
				-	-		
				-	-		
				-	-		
				-	-		
				-	-		

jet fuel, kerosene or similar produ

Hydrocarbon name for X flag

FALSE <-- do not overwrite this cell

	Target Analytes	Quan Value	User Flag	Blank	Calculated Amount	Total Flags	PQL
x	#2 Diesel	89.046	X2		896	X2	252
x	Motor Oil	307.0938	X2		3090	X2	503

STL Seattle

6a Sample Information

Client Name	Ecology & Environment
Work Order Number	116724
Sample Number	9
QC Batch Number	ds1034
Client Sample ID	MBNLGB03-09
Date Received	10-08-03
Date Prepared	10-17-03
Date Analyzed	10-24-03
Sample matrix type	solid
QC sample type	sample

Related Blank: ds1034

Sample weight (g)	1.1569	=	0.00116 /kg	Calc. Fact.	8.643789437
Extract volume (ml)	10	=	10 ml	Dry Weight	1.1569 g
Dilution Factor		=	1	Sample Units	mg/kg
% Solids		=	1	Spike Factor	0.864378944
GPC (Enter 2 if GPC'd)		=	1	Rept. Dil. Fact.	1
Report in PPM	1	=	0.001		
mg/kg Carbon		=	1		

	Surrogate	Quan Value	User Flags	% Rec.	Warning	Water Low	Water High
x	o-terphenyl	15.258		75.2	OK	50	150
				-	-		
				-	-		
				-	-		
				-	-		
				-	-		

jet fuel, kerosene or similar produ

Hydrocarbon name for X flag

FALSE <-- do not overwrite this cell

	Target Analytes	Quan Value	User Flag	Blank	Calculated Amount	Total Flags	PQL
x	#2 Diesel	69.8196	X2		604	X2	216
x	Motor Oil	235.8144	X2		2040	X2	432

00115

STL Seattle

6a Sample Information

Client Name	Ecology & Environment
Work Order Number	116724
Sample Number	10
QC Batch Number	ds1034
Client Sample ID	MBNLGB03-10
Date Received	10-08-03
Date Prepared	10-17-03
Date Analyzed	10-24-03
Sample matrix type	solid
QC sample type	sample

Related Blank: ds1034

Sample weight (g)	1.4311	=	0.00143 /kg	Calc. Fact.	6.987631892
Extract volume (ml)	10	=	10 ml	Dry Weight	1.4311 g
Dilution Factor		=	1	Sample Units	mg/kg
% Solids		=	1	Spike Factor	0.698763189
GPC (Enter 2 if GPC'd)		=	1	Rept. Dil. Fact.	1
Report in PPM	1	=	0.001		
mg/kg Carbon		=	1		

	Surrogate	Quan Value	User Flags	% Rec.	Warning	Water Low	Water High
x	o-terphenyl	15.3601		75.7	OK	50	150
				-	-		
				-	-		
				-	-		
				-	-		
				-	-		

jet fuel, kerosene or similar produ

Hydrocarbon name for X flag

FALSE <-- do not overwrite this cell

	Target Analytes	Quan Value	User Flag	Blank	Calculated Amount	Total Flags	PQL
x	#2 Diesel	112.0197	X2		783	X2	175
x	Motor Oil	331.3034	X2		2320	X2	349

00116

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: November 17, 2003

TO: Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

PROJECT: McCormick & Baxter, Portland Oregon

REPORT NUMBER: 116589

TOTAL NUMBER OF PAGES: 81

Enclosed are the test results for fifteen samples received at STL Seattle on October 2, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell

Darla Powell
Project Manager

STL Seattle is a part of Severn Trent Laboratories, Inc.

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STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
116589-1	MB PW SM0301	09-30-03 14:38	Liquid
116589-2	MB PW SM0302	09-30-03 14:28	Liquid
116589-3	MB PW SM0303	09-30-03 14:42	Liquid
116589-4	MB PW SM0304	09-30-03 14:16	Liquid
116589-5	MB PW SM0305	09-30-03 14:48	Liquid
116589-6	MB PW SM0306	09-30-03 14:53	Liquid
116589-7	MB PW SM0307	09-30-03 16:35	Liquid
116589-8	MB PW SM0308	09-30-03 15:52	Liquid
116589-9	MB PW SM0309	09-30-03 16:00	Liquid
116589-10	MB PW SM0310	09-30-03 16:20	Liquid
116589-11	MB PW SM0311	09-30-03 15:20	Liquid
116589-12	MB PW SM0312	09-30-03 14:50	Liquid
116589-13	MB PW SM0313	09-30-03 15:25	Liquid
116589-14	MB PW SM0314	09-30-03 15:15	Liquid
116589-15	MB PW SM0315	09-30-03 15:26	Liquid

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SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: November 17, 2003

Project: McCormick & Baxter, Portland Oregon

Lab No.: 116589

Delivered By: Federal Express

Condition of samples upon receipt: Samples were received in good condition. Cooler temperatures have been recorded on the cooler receipt form included in the chain of custody section of this report. Chain of custody was in order.

Sample Identification:

Lab. No.	Client ID	Date Sampled	Matrix
116589-1	MB PW SM0301	09-30-03	Liquid
116589-2	MB PW SM0302	09-30-03	Liquid
116589-3	MB PW SM0303	09-30-03	Liquid
116589-4	MB PW SM0304	09-30-03	Liquid
116589-5	MB PW SM0305	09-30-03	Liquid
116589-6	MB PW SM0306	09-30-03	Liquid
116589-7	MB PW SM0307	09-30-03	Liquid
116589-8	MB PW SM0308	09-30-03	Liquid
116589-9	MB PW SM0309	09-30-03	Liquid
116589-10	MB PW SM0310	09-30-03	Liquid
116589-11	MB PW SM0311	09-30-03	Liquid
116589-12	MB PW SM0312	09-30-03	Liquid
116589-13	MB PW SM0313	09-30-03	Liquid
116589-14	MB PW SM0314	09-30-03	Liquid
116589-15	MB PW SM0315	09-30-03	Liquid

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STL Seattle

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: November 17, 2003

Project: McCormick & Baxter, Portland Oregon

Lab No.: 116589

SAMPLE EXTRACTION AND ANALYSIS

SEMIVOLATILE ORGANICS

Samples 116589-1 through 116589-15 were analyzed for PAHs and PCP in accordance with EPA Method 8270C. The samples were extracted on 10-7-03 and analyzed on 10-13-03 through 10-15-03, which was within the required holding time.

The Internal Standard areas for the CCV's for some samples fell slightly outside the limits of 50-200 %D stated in Method 8270C. This was caused by the need to balance injection port flows after replacement of the packed liner in the large volume injector used to achieve the low detection limits required for this project. While the IS areas fell outside the method limits in some cases, all internal standards within a given CCV changed similarly, showing no particular chromatographic discrimination. Target compound areas scaled equally with the IS areas, so response factors and analyte recoveries were unaffected.

The low detection limits specified for this project required the use of a GC equipped with an LVI (large volume injector) with a packed liner. The calculation of benzidine and pentachlorophenol tailing factors and Endrin/DDT breakdown calculations typically performed with standard DFTPP analysis are not applicable to this chromatography technique due to the large surface area of the packing material, and were not performed. Pentachlorophenol was present and measurable in all standards, and passed all initial and continuing calibration criteria.

The percent recovery of 2,4,6 – tribromophenol (surrogate compound) was outside of quality control acceptance limits for sample 116589-5, due to matrix interference.

Samples 116589-5 and 116589-9 required secondary dilutions for several analytes.

Sample 116589-7 required a secondary dilution for pentachlorophenol.

Sample 116589-10 required a secondary dilution for acenaphthylene and pyrene.

Samples 116589-5, 116589-9, 116589-13 and 116589-15 required a dilution prior to analysis.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the semivolatile organic analyses.

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STL Seattle

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: November 17, 2003

Project: McCormick & Baxter, Portland Oregon

Lab No.: 116589

DIESEL AND HEAVY OIL RANGE ORGANICS

Samples 116589-1 through 116589-15 were analyzed for diesel and heavy oil range organics in accordance with WSDOE NWTPH-Dx Modified. The samples were extracted on 10-3-03 and analyzed on 10-7-03, which was within the required holding time.

The contaminants present in the diesel range and heavy oil range for samples 116589-9, 116589-11 and 116589-12 does not appear to be "typical" product.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the diesel range organics analyses.

TOTAL METALS

Samples 116589-1 through 116589-15 were analyzed for arsenic, chromium, copper and zinc in accordance with EPA Method 6020. The samples were digested and analyzed on 10-10-03, which was within the required holding time.

The relative percent difference value of chromium for the duplicate analysis of sample 116589-8 was reported outside of quality control acceptance limits, due to the concentrations reported near the practical quantitation limit.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the total metals analyses.

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STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0301
Lab ID:	116589-01
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	87.2		34	148
2,4,6 - Tribromophenol	86.6		29	159
p - Terphenyl - d14	94		33	172

Analyte	Result (ug/L)		PQL	MRL	Flags
Naphthalene	ND		0.048	0.024	
2-Methylnaphthalene	ND		0.024	0.012	
1-Methylnaphthalene	ND		0.024	0.012	
Acenaphthylene	ND		0.024	0.012	
Acenaphthene	ND		0.024	0.012	
Fluorene	ND		0.024	0.012	
Pentachlorophenol	ND		0.0961	0.048	
Phenanthrene	ND		0.024	0.012	
Anthracene	ND		0.024	0.012	
Fluoranthene	ND		0.0048	0.0024	
Pyrene		0.0082	0.0048	0.0024	
Benzo(a)anthracene	ND		0.00961	0.0048	
Chrysene	ND		0.00961	0.0048	
Benzofluoranthenes	ND		0.00961	0.0048	
Benzo(a)pyrene	ND		0.0048	0.0024	
Indeno(1,2,3-cd)pyrene	ND		0.0048	0.0024	
Dibenz(a,h)anthracene	ND		0.0048	0.0024	
Benzo(g,h,i)perylene	ND		0.024	0.012	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0302
Lab ID:	116589-02
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	90.1		34	148
2,4,6 - Tribromophenol	78.2		29	159
p - Terphenyl - d14	90.3		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0478	0.0239	
2-Methylnaphthalene	ND	0.0239	0.012	
1-Methylnaphthalene	ND	0.0239	0.012	
Acenaphthylene	ND	0.0239	0.012	
Acenaphthene	ND	0.0239	0.012	
Fluorene	ND	0.0239	0.012	
Pentachlorophenol	ND	0.0956	0.0478	
Phenanthrene	ND	0.0239	0.012	
Anthracene	ND	0.0239	0.012	
Fluoranthene	ND	0.00478	0.00239	
Pyrene	0.0123	0.00478	0.00239	
Benzo(a)anthracene	ND	0.00956	0.00478	
Chrysene	ND	0.00956	0.00478	
Benzofluoranthenes	ND	0.00956	0.00478	
Benzo(a)pyrene	ND	0.00478	0.00239	
Indeno(1,2,3-cd)pyrene	ND	0.00478	0.00239	
Dibenz(a,h)anthracene	ND	0.00478	0.00239	
Benzo(g,h,i)perylene	ND	0.0239	0.012	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0303
Lab ID:	116589-03
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	77.3		34	148
2,4,6 - Tribromophenol	72.4		29	159
p - Terphenyl - d14	70.2		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0486	0.0243	
2-Methylnaphthalene	ND	0.0243	0.0121	
1-Methylnaphthalene	ND	0.0243	0.0121	
Acenaphthylene	ND	0.0243	0.0121	
Acenaphthene	0.0171	0.0243	0.0121	J
Fluorene	0.02	0.0243	0.0121	J
Pentachlorophenol	0.106	0.0972	0.0486	
Phenanthrene	0.0334	0.0243	0.0121	
Anthracene	0.0599	0.0243	0.0121	
Fluoranthene	0.121	0.00486	0.00243	
Pyrene	0.128	0.00486	0.00243	
Benzo(a)anthracene	ND	0.00972	0.00486	
Chrysene	ND	0.00972	0.00486	
Benzofluoranthenes	0.0626	0.00972	0.00486	
Benzo(a)pyrene	ND	0.00486	0.00243	
Indeno(1,2,3-cd)pyrene	ND	0.00486	0.00243	
Dibenz(a,h)anthracene	ND	0.00486	0.00243	
Benzo(g,h,i)perylene	ND	0.0243	0.0121	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0304
Lab ID:	116589-04
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	85.6		34	148
2,4,6 - Tribromophenol	88.5		29	159
p - Terphenyl - d14	111		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0479	0.0239	
2-Methylnaphthalene	ND	0.0239	0.012	
1-Methylnaphthalene	ND	0.0239	0.012	
Acenaphthylene	ND	0.0239	0.012	
Acenaphthene	ND	0.0239	0.012	
Fluorene	ND	0.0239	0.012	
Pentachlorophenol	0.0642	0.0958	0.0479	J
Phenanthrene	ND	0.0239	0.012	
Anthracene	ND	0.0239	0.012	
Fluoranthene	ND	0.00479	0.00239	
Pyrene	0.0216	0.00479	0.00239	
Benzo(a)anthracene	ND	0.00958	0.00479	
Chrysene	ND	0.00958	0.00479	
Benzofluoranthenes	ND	0.00958	0.00479	
Benzo(a)pyrene	ND	0.00479	0.00239	
Indeno(1,2,3-cd)pyrene	ND	0.00479	0.00239	
Dibenz(a,h)anthracene	ND	0.00479	0.00239	
Benzo(g,h,i)perylene	ND	0.0239	0.012	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0305
Lab ID:	116589-05
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/14/2003
% Solids	-
Dilution Factor	1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	86.5		34	148
2,4,6 - Tribromophenol	174	X9	29	159
p - Terphenyl - d14	113		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.482	0.241	
2-Methylnaphthalene	ND	0.241	0.12	
1-Methylnaphthalene	ND	0.241	0.12	
Acenaphthylene	4.05	0.241	0.12	D5
Acenaphthene	3.82	0.241	0.12	D5
Fluorene	0.993	0.241	0.12	
Pentachlorophenol	0.581	0.963	0.482	J
Phenanthrene	0.454	0.241	0.12	
Anthracene	0.195	0.241	0.12	J
Fluoranthene	6.47	0.0482	0.0241	D5
Pyrene	2.73	0.0482	0.0241	D5
Benzo(a)anthracene	0.139	0.0963	0.0482	
Chrysene	0.101	0.0963	0.0482	
Benzofluoranthenes	0.0671	0.0963	0.0482	J
Benzo(a)pyrene	ND	0.0482	0.0241	
Indeno(1,2,3-cd)pyrene	ND	0.0482	0.0241	
Dibenz(a,h)anthracene	ND	0.0482	0.0241	
Benzo(g,h,i)perylene	ND	0.241	0.12	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0306
Lab ID:	116589-06
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	79.2		34	148
2,4,6 - Tribromophenol	69.3		29	159
p - Terphenyl - d14	99.6		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0485	0.0242	
2-Methylnaphthalene	ND	0.0242	0.0121	
1-Methylnaphthalene	ND	0.0242	0.0121	
Acenaphthylene	0.209	0.0242	0.0121	
Acenaphthene	ND	0.0242	0.0121	
Fluorene	0.0434	0.0242	0.0121	
Pentachlorophenol	0.0514	0.097	0.0485	J
Phenanthrene	ND	0.0242	0.0121	
Anthracene	0.0362	0.0242	0.0121	
Fluoranthene	0.0143	0.00485	0.00242	
Pyrene	ND	0.00485	0.00242	
Benzo(a)anthracene	ND	0.0097	0.00485	
Chrysene	ND	0.0097	0.00485	
Benzofluoranthenes	ND	0.0097	0.00485	
Benzo(a)pyrene	ND	0.00485	0.00242	
Indeno(1,2,3-cd)pyrene	ND	0.00485	0.00242	
Dibenz(a,h)anthracene	ND	0.00485	0.00242	
Benzo(g,h,i)perylene	ND	0.0242	0.0121	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0307
Lab ID:	116589-07
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	86.5		34	148
2,4,6 - Tribromophenol	83.2		29	159
p - Terphenyl - d14	102		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0502	0.0251	
2-Methylnaphthalene	ND	0.0251	0.0126	
1-Methylnaphthalene	ND	0.0251	0.0126	
Acenaphthylene	ND	0.0251	0.0126	
Acenaphthene	ND	0.0251	0.0126	
Fluorene	ND	0.0251	0.0126	
Pentachlorophenol	3.6	0.1	0.0502	D50
Phenanthrene	ND	0.0251	0.0126	
Anthracene	0.0148	0.0251	0.0126	J
Fluoranthene	ND	0.00502	0.00251	
Pyrene	ND	0.00502	0.00251	
Benzo(a)anthracene	ND	0.01	0.00502	
Chrysene	ND	0.01	0.00502	
Benzofluoranthenes	ND	0.01	0.00502	
Benzo(a)pyrene	ND	0.00502	0.00251	
Indeno(1,2,3-cd)pyrene	ND	0.00502	0.00251	
Dibenz(a,h)anthracene	ND	0.00502	0.00251	
Benzo(g,h,i)perylene	ND	0.0251	0.0126	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0308
Lab ID:	116589-08
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	80.9		34	148
2,4,6 - Tribromophenol	78.4		29	159
p - Terphenyl - d14	94.3		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0491	0.0246	
2-Methylnaphthalene	ND	0.0246	0.0123	
1-Methylnaphthalene	ND	0.0246	0.0123	
Acenaphthylene	ND	0.0246	0.0123	
Acenaphthene	ND	0.0246	0.0123	
Fluorene	ND	0.0246	0.0123	
Pentachlorophenol	ND	0.0982	0.0491	
Phenanthrene	ND	0.0246	0.0123	
Anthracene	ND	0.0246	0.0123	
Fluoranthene	ND	0.00491	0.00246	
Pyrene	0.00856	0.00491	0.00246	
Benzo(a)anthracene	ND	0.00982	0.00491	
Chrysene	ND	0.00982	0.00491	
Benzofluoranthenes	ND	0.00982	0.00491	
Benzo(a)pyrene	ND	0.00491	0.00246	
Indeno(1,2,3-cd)pyrene	ND	0.00491	0.00246	
Dibenz(a,h)anthracene	ND	0.00491	0.00246	
Benzo(g,h,i)perylene	ND	0.0246	0.0123	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0309
Lab ID:	116589-09
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	101		34	148
2,4,6 - Tribromophenol	147		29	159
p - Terphenyl - d14	98.9		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	36.9	0.478	0.239	D20
2-Methylnaphthalene	7.69	0.239	0.119	D10
1-Methylnaphthalene	1.1	0.239	0.119	
Acenaphthylene	0.324	0.239	0.119	
Acenaphthene	17.8	0.239	0.119	D10
Fluorene	2.94	0.239	0.119	D5
Pentachlorophenol	ND	0.955	0.478	
Phenanthrene	0.655	0.239	0.119	
Anthracene	0.482	0.239	0.119	
Fluoranthene	0.394	0.0478	0.0239	
Pyrene	0.268	0.0478	0.0239	
Benzo(a)anthracene	ND	0.0955	0.0478	
Chrysene	ND	0.0955	0.0478	
Benzofluoranthenes	ND	0.0955	0.0478	
Benzo(a)pyrene	ND	0.0478	0.0239	
Indeno(1,2,3-cd)pyrene	ND	0.0478	0.0239	
Dibenz(a,h)anthracene	ND	0.0478	0.0239	
Benzo(g,h,i)perylene	ND	0.239	0.119	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0310
Lab ID:	116589-10
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	46.9		34	148
2,4,6 - Tribromophenol	65		29	159
p - Terphenyl - d14	101		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	0.0617	0.0506	0.0253	
2-Methylnaphthalene	0.0188	0.0253	0.0126	J
1-Methylnaphthalene	ND	0.0253	0.0126	
Acenaphthylene	0.0493	0.0253	0.0126	D5
Acenaphthene	0.146	0.0253	0.0126	
Fluorene	0.0743	0.0253	0.0126	
Pentachlorophenol	ND	0.101	0.0506	
Phenanthrene	ND	0.0253	0.0126	
Anthracene	0.0258	0.0253	0.0126	
Fluoranthene	0.202	0.00506	0.00253	
Pyrene	0.265	0.00506	0.00253	D5
Benzo(a)anthracene	ND	0.0101	0.00506	
Chrysene	ND	0.0101	0.00506	
Benzofluoranthenes	0.0281	0.0101	0.00506	
Benzo(a)pyrene	ND	0.00506	0.00253	
Indeno(1,2,3-cd)pyrene	ND	0.00506	0.00253	
Dibenz(a,h)anthracene	ND	0.00506	0.00253	
Benzo(g,h,i)perylene	ND	0.0253	0.0126	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0311
Lab ID:	116589-11
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.5

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	115		34	148
2,4,6 - Tribromophenol	101		29	159
p - Terphenyl - d14	114		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.259	0.13	
2-Methylnaphthalene	ND	0.13	0.0648	
1-Methylnaphthalene	ND	0.13	0.0648	
Acenaphthylene	0.0959	0.13	0.0648	J
Acenaphthene	ND	0.13	0.0648	
Fluorene	ND	0.13	0.0648	
Pentachlorophenol	ND	0.518	0.259	
Phenanthrene	ND	0.13	0.0648	
Anthracene	ND	0.13	0.0648	
Fluoranthene	0.085	0.0259	0.013	
Pyrene	0.26	0.0259	0.013	
Benzo(a)anthracene	ND	0.0518	0.0259	
Chrysene	ND	0.0518	0.0259	
Benzofluoranthenes	0.0395	0.0518	0.0259	J
Benzo(a)pyrene	ND	0.0259	0.013	
Indeno(1,2,3-cd)pyrene	ND	0.0259	0.013	
Dibenz(a,h)anthracene	ND	0.0259	0.013	
Benzo(g,h,i)perylene	ND	0.13	0.0648	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0312
Lab ID:	116589-12
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	0.5

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	88.7		34	148
2,4,6 - Tribromophenol	110		29	159
p - Terphenyl - d14	131		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.255	0.127	
2-Methylnaphthalene	ND	0.127	0.0637	
1-Methylnaphthalene	ND	0.127	0.0637	
Acenaphthylene	ND	0.127	0.0637	
Acenaphthene	ND	0.127	0.0637	
Fluorene	ND	0.127	0.0637	
Pentachlorophenol	ND	0.51	0.255	
Phenanthrene	ND	0.127	0.0637	
Anthracene	ND	0.127	0.0637	
Fluoranthene	ND	0.0255	0.0127	
Pyrene	ND	0.0255	0.0127	
Benzo(a)anthracene	ND	0.051	0.0255	
Chrysene	ND	0.051	0.0255	
Benzofluoranthenes	ND	0.051	0.0255	
Benzo(a)pyrene	ND	0.0255	0.0127	
Indeno(1,2,3-cd)pyrene	ND	0.0255	0.0127	
Dibenz(a,h)anthracene	ND	0.0255	0.0127	
Benzo(g,h,i)perylene	ND	0.127	0.0637	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0313
Lab ID:	116589-13
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	85.3		34	148
2,4,6 - Tribromophenol	106		29	159
p - Terphenyl - d14	127		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.486	0.243	
2-Methylnaphthalene	ND	0.243	0.122	
1-Methylnaphthalene	ND	0.243	0.122	
Acenaphthylene	0.153	0.243	0.122	J
Acenaphthene	0.748	0.243	0.122	
Fluorene	0.307	0.243	0.122	
Pentachlorophenol	ND	0.973	0.486	
Phenanthrene	0.168	0.243	0.122	J
Anthracene	0.355	0.243	0.122	
Fluoranthene	5.2	0.0486	0.0243	D5
Pyrene	4.53	0.0486	0.0243	D5
Benzo(a)anthracene	1.63	0.0973	0.0486	
Chrysene	0.961	0.0973	0.0486	
Benzofluoranthenes	1.37	0.0973	0.0486	
Benzo(a)pyrene	0.618	0.0486	0.0243	
Indeno(1,2,3-cd)pyrene	0.195	0.0486	0.0243	
Dibenz(a,h)anthracene	0.0847	0.0486	0.0243	
Benzo(g,h,i)perylene	0.17	0.243	0.122	J

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0314
Lab ID:	116589-14
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	83.7		34	148
2,4,6 - Tribromophenol	81.6		29	159
p - Terphenyl - d14	90.8		33	172

Analyte		Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND		0.0492	0.0246	
2-Methylnaphthalene	ND		0.0246	0.0123	
1-Methylnaphthalene	ND		0.0246	0.0123	
Acenaphthylene	ND		0.0246	0.0123	
Acenaphthene	ND		0.0246	0.0123	
Fluorene	ND		0.0246	0.0123	
Pentachlorophenol	ND		0.0983	0.0492	
Phenanthrene	ND		0.0246	0.0123	
Anthracene	ND		0.0246	0.0123	
Fluoranthene		0.00659	0.00492	0.00246	
Pyrene		0.0153	0.00492	0.00246	
Benzo(a)anthracene	ND		0.00983	0.00492	
Chrysene	ND		0.00983	0.00492	
Benzofluoranthenes	ND		0.00983	0.00492	
Benzo(a)pyrene	ND		0.00492	0.00246	
Indeno(1,2,3-cd)pyrene	ND		0.00492	0.00246	
Dibenz(a,h)anthracene	ND		0.00492	0.00246	
Benzo(g,h,i)perylene	ND		0.0246	0.0123	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0315
Lab ID:	116589-15
Date Received:	10/2/2003
Date Prepared:	10/7/2003
Date Analyzed:	10/15/2003
% Solids	-
Dilution Factor	1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	58		34	148
2,4,6 - Tribromophenol	111		29	159
p - Terphenyl - d14	112		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.485	0.242	
2-Methylnaphthalene	ND	0.242	0.121	
1-Methylnaphthalene	ND	0.242	0.121	
Acenaphthylene	0.221	0.242	0.121	J
Acenaphthene	0.372	0.242	0.121	
Fluorene	ND	0.242	0.121	
Pentachlorophenol	ND	0.97	0.485	
Phenanthrene	ND	0.242	0.121	
Anthracene	ND	0.242	0.121	
Fluoranthene	0.68	0.0485	0.0242	
Pyrene	0.83	0.0485	0.0242	
Benzo(a)anthracene	0.105	0.097	0.0485	
Chrysene	0.114	0.097	0.0485	
Benzofluoranthenes	0.142	0.097	0.0485	
Benzo(a)pyrene	0.0481	0.0485	0.0242	J
Indeno(1,2,3-cd)pyrene	ND	0.0485	0.0242	
Dibenz(a,h)anthracene	ND	0.0485	0.0242	
Benzo(g,h,i)perylene	ND	0.242	0.121	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0301
Lab ID:	116589-01
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	137		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.26	0.13	
Motor Oil	ND	0.52	0.26	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0302
Lab ID:	116589-02
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	129		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.237	0.118	
Motor Oil	ND	0.474	0.237	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0303
Lab ID:	116589-03
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	128		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.237	0.119	
Motor Oil	ND	0.474	0.237	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0304
Lab ID:	116589-04
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	121		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.239	0.12	
Motor Oil	ND	0.478	0.239	

00024

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0305
Lab ID:	116589-05
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	127		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	2.23	0.241	0.12	X2
Motor Oil	ND	0.481	0.241	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0306
Lab ID:	116589-06
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	133		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.246	0.123	
Motor Oil	ND	0.492	0.246	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0307
Lab ID:	116589-07
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	128		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.248	0.124	
Motor Oil	ND	0.496	0.248	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0308
Lab ID:	116589-08
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	129		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.249	0.125	
Motor Oil	ND	0.499	0.249	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0309
Lab ID:	116589-09
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	126		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	0.505	0.256	0.128	X2
Motor Oil	ND	0.513	0.256	

00029

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0310
Lab ID:	116589-10
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0311
Lab ID:	116589-11
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	128		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	0.441	0.248	0.124	X2
Motor Oil	ND	0.496	0.248	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0312
Lab ID:	116589-12
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	128		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	0.322	0.272	0.136	X2
Motor Oil	ND	0.545	0.272	

00032

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0313
Lab ID:	116589-13
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	126		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.238	0.119	
Motor Oil	ND	0.477	0.238	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0314
Lab ID:	116589-14
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	119		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.245	0.122	
Motor Oil	ND	0.49	0.245	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0315
Lab ID:	116589-15
Date Received:	10/2/2003
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	117		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.242	0.121	
Motor Oil	ND	0.484	0.242	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0301
Lab ID:	116589-01
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.0005	0.00025	
Chromium	0.00161	0.0005	0.00025	
Copper	0.00114	0.0005	0.00025	
Zinc	0.0206	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0302
Lab ID:	116589-02
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00048	0.0005	0.00025	J
Chromium	0.00153	0.0005	0.00025	
Copper	0.00117	0.0005	0.00025	
Zinc	0.00265	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0303
Lab ID:	116589-03
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000486	0.0005	0.00025	J
Chromium	0.00182	0.0005	0.00025	
Copper	0.00148	0.0005	0.00025	
Zinc	0.00375	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0304
Lab ID:	116589-04
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000768	0.0005	0.00025	
Chromium	0.00175	0.0005	0.00025	
Copper	0.00202	0.0005	0.00025	
Zinc	0.00426	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0305
Lab ID:	116589-05
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.0021	0.0005	0.00025	
Chromium	0.0018	0.0005	0.00025	
Copper	0.00339	0.0005	0.00025	
Zinc	0.00952	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0306
Lab ID:	116589-06
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00161	0.0005	0.00025	
Chromium	0.00188	0.0005	0.00025	
Copper	0.00147	0.0005	0.00025	
Zinc	0.00366	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0307
Lab ID:	116589-07
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.0005	0.00025	
Chromium	0.00178	0.0005	0.00025	
Copper	0.00161	0.0005	0.00025	
Zinc	0.0033	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0308
Lab ID:	116589-08
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.0005	0.00025	
Chromium	0.000687	0.0005	0.00025	
Copper	0.00215	0.0005	0.00025	
Zinc	0.00452	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0309
Lab ID:	116589-09
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000972	0.0005	0.00025	
Chromium	0.00143	0.0005	0.00025	
Copper	0.00264	0.0005	0.00025	
Zinc	0.00771	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0310
Lab ID:	116589-10
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000873	0.0005	0.00025	
Chromium	0.00186	0.0005	0.00025	
Copper	0.00152	0.0005	0.00025	
Zinc	0.00377	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0311
Lab ID:	116589-11
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000991	0.0005	0.00025	
Chromium	0.00212	0.0005	0.00025	
Copper	0.00145	0.0005	0.00025	
Zinc	0.00421	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0312
Lab ID:	116589-12
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000847	0.0005	0.00025	
Chromium	0.00244	0.0005	0.00025	
Copper	0.00263	0.0005	0.00025	
Zinc	0.00636	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0313
Lab ID:	116589-13
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000808	0.0005	0.00025	
Chromium	0.00241	0.0005	0.00025	
Copper	0.00114	0.0005	0.00025	
Zinc	0.00829	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0314
Lab ID:	116589-14
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000477	0.0005	0.00025	J
Chromium	0.00215	0.0005	0.00025	
Copper	0.00108	0.0005	0.00025	
Zinc	0.0031	0.0005	0.00025	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MB PW SM0315
Lab ID:	116589-15
Date Received:	10/2/03
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000856	0.0005	0.00025	
Chromium	0.00229	0.0005	0.00025	
Copper	0.0014	0.0005	0.00025	
Zinc	0.0118	0.0005	0.00025	

STL Seattle

Lab ID:	Method Blank - SW0726X
Date Received:	-
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	62.6		34	148
2,4,6 - Tribromophenol	89.3		29	159
p - Terphenyl - d14	81.1		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.05	0.025	
2-Methylnaphthalene	ND	0.025	0.0125	
1-Methylnaphthalene	ND	0.025	0.0125	
Acenaphthylene	ND	0.025	0.0125	
Acenaphthene	ND	0.025	0.0125	
Fluorene	ND	0.025	0.0125	
Pentachlorophenol	ND	0.1	0.05	
Phenanthrene	ND	0.025	0.0125	
Anthracene	ND	0.025	0.0125	
Fluoranthene	ND	0.005	0.0025	
Pyrene	ND	0.005	0.0025	
Benzo(a)anthracene	ND	0.01	0.005	
Chrysene	ND	0.01	0.005	
Benzofluoranthenes	ND	0.01	0.005	
Benzo(a)pyrene	ND	0.005	0.0025	
Indeno(1,2,3-cd)pyrene	ND	0.005	0.0025	
Dibenz(a,h)anthracene	ND	0.005	0.0025	
Benzo(g,h,i)perylene	ND	0.025	0.0125	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	SW0726
Date Prepared:	10/7/2003
Date Analyzed:	10/13/2003
QC Batch ID:	SW0726

Semivolatile Organics by USEPA Method 8270

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Naphthalene	0	0.1	0.0649	64.9	0.0703	70.3	8	
2-Methylnaphthalene	0	0.1	0.106	106	0.123	123	15	
1-Methylnaphthalene	0	0.1	0.114	114	0.117	117	2.6	
Acenaphthylene	0	0.1	0.0888	88.8	0.0908	90.8	2.2	
Acenaphthene	0	0.1	0.0901	90.1	0.0954	95.4	5.7	
Fluorene	0	0.1	0.118	118	0.115	115	-2.6	
Pentachlorophenol	0	0.2	0.175	87.4	0.16	79.9	-9	
Phenanthrene	0	0.1	0.0863	86.3	0.0733	73.3	-16	
Anthracene	0	0.1	0.0932	93.2	0.0832	83.2	-11	
Fluoranthene	0	0.1	0.0997	99.7	0.0909	90.9	-9.2	
Pyrene	0	0.1	0.101	101	0.0926	92.6	-8.7	
Benzo(a)anthracene	0	0.1	0.112	112	0.112	112	0	
Chrysene	0	0.1	0.111	111	0.0922	92.2	-19	
Benzofluoranthenes	0	0.2	0.152	76	0.136	67.8	-11	
Benzo(a)pyrene	0	0.1	0.0746	74.6	0.0764	76.4	2.4	
Indeno(1,2,3-cd)pyrene	0	0.1	0.112	112	0.101	101	-10	
Dibenz(a,h)anthracene	0	0.1	0.124	124	0.105	105	-17	
Benzo(g,h,i)perylene	0	0.1	0.105	105	0.101	101	-3.9	

STL Seattle

Lab ID:	Method Blank - DW0505
Date Received:	-
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
% Solids	-
Dilution Factor	1

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
o-terphenyl	131		50	150

Analyte	Result (mg/L)	PQL	MRL	Flags
#2 Diesel	ND	0.25	0.125	
Motor Oil	ND	0.5	0.25	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	DW0505
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
QC Batch ID:	DW0505

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Blank Result (mg/L)	Spike Amount (mg/L)	BS Result (mg/L)	BS % Rec.	BSD Result (mg/L)	BSD % Rec.	RPD	Flag
#2 Diesel	0	5	5.03	101	5.28	106	4.8	
Motor Oil	0	5	5.07	101	4.94	98.7	-2.3	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	MB PW SM0308
Lab ID:	116589-08
Date Prepared:	10/3/2003
Date Analyzed:	10/7/2003
QC Batch ID:	DW0505

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	MSD Result (mg/L)	MSD % Rec.	RPD	Flag
#2 Diesel	0	5.03	5.16	103	3.87	77.9	-28	
Motor Oil	0	5.03	5.74	114	3.89	78.3	-37	

STL Seattle

Lab ID:	Method Blank - TP116
Date Received:	-
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.0005	0.00025	
Chromium	ND	0.0005	0.00025	
Copper	ND	0.0005	0.00025	
Zinc	ND	0.0005	0.00025	

STL Seattle

Matrix Spike Report

Client Sample ID:	MB PW SM0308
Lab ID:	116589-08
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
QC Batch ID:	TP116

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Arsenic	0	4	4.03	101	
Chromium	0.00069	0.4	0.392	98	
Copper	0.0022	0.5	0.486	97	
Zinc	0.0045	1	1.02	101	

STL Seattle

Duplicate Report

Client Sample ID:	MB PW SM0308
Lab ID:	116589-08
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
QC Batch ID:	TP116

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Arsenic	0	0	NC	
Chromium	0.00069	0.00095	-32.0	X4a
Copper	0.0022	0.0023	-4.4	
Zinc	0.0045	0.0048	-6.5	

STL Seattle

Laboratory Control Sample

Lab ID:	RTP116
Date Prepared:	10/10/03
Date Analyzed:	10/10/03
QC Batch ID:	TP116

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	True Value (mg/L)	Lower Limit (mg/L)	Upper Limit (mg/L)	Flag
Arsenic	3.8	4	3.2	4.8	Pass
Chromium	0.38	0.4	0.32	0.48	Pass
Copper	0.45	0.5	0.4	0.6	Pass
Zinc	1	1	0.8	1.2	Pass

DATA QUALIFIER DEFINITIONS

00060

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ATA QUALIFIERS AND ABBREVIATIONS

1: This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).

2: This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).

1: Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.

2: Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.

3: Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.

4: Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.

I: GC/MS confirmation was performed. The result derived from the original analysis was reported.

: The reported result for this analyte was calculated based on a secondary dilution factor.

: The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.

. The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.

1CL: Maximum Contaminant Level

1DL: Method Detection Limit

1RL: Method Reporting Limit

I: See analytical narrative

ID: Not Detected

'QL: Practical Quantitation Limit

:1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.

:2: Contaminant does not appear to be "typical" product.

:3: Identification and quantitation of the analyte or surrogate was complicated by matrix interference.

:4: RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.

:4a: RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.

:5: Matrix spike recovery was not determined due to the required dilution.

:6: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.

:7: Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.

:7a: Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.

:8: Surrogate recovery was not determined due to the required dilution.

:9: Surrogate recovery outside advisory QC limits due to matrix interference.

CHAIN OF CUSTODY

Chain of Custody Record

Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

Tier 1 CLP limits

TRENT SERVICES **Severn Trent Laboratories, Inc.**

STL-8274 (0102)

Client: Ecology & Environmental, Inc.	Project Manager: John Montgomery	Date: 10-1-03	Chain of Custody Number: 003370
Address: 333 SW Fifth Ave, Suite 608	Telephone Number (Area Code)/Fax Number: 503 248 5600 / 503 248 5577	Lab Number: 116589	Page 1 of 2
City: Portland; State: OR; Zip Code: 97204	Site Contact: 503 957 8847 Mark Ochsner; Lab Contact:		
Project Name and Location (State): McCormick + Baxter, Portland, Oregon	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 001685.0Y02.27.01			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PAHs+PCP, 8270C	Dx, NWTPH-Dx	As Cr Zn, 6020	Special Instructions/ Conditions of Receipt
MB PW SM0301	09-30-03	1438		X			2		1	1			X	X	X	
MB PW SM0302	09-30-03	1428		X			2		1	1			X	X	X	
MB PW SM0303	09-30-03	1422		X			2		1	1			X	X	X	
MB PW SM0304	09-30-03	1416		X			2		1	1			X	X	X	
MB PW SM0305	09-30-03	1448		X			2		1	1			X	X	X	
MB PW SM0306	09-30-03	1453		X			2		1	1			X	X	X	
MB PW SM0307	09-30-03	1635		X			2		1	1			X	X	X	
MB PW SM0308	09-30-03	1552		X			6		2	3			X	X	X	MS/MSD
MB PW SM0309	09-30-03	1600		X			2		1	1			X	X	X	
MB PW SM0310	09-30-03	1620		X			2		1	1			X	X	X	
MB PW SM0311	09-30-03	1520		X			2		1	1			X	X	X	
MB PW SM0312	09-30-03	1450		X			2		1	1			X	X	X	

Cooler: ☐ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other 14

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature]	10-1-03	1010	1. Received By: [signature] G. Hicks	10/01/03	1010
2. Relinquished By: [signature] G. Hicks	10/01/03	1440	2. Received By: [signature]	10/2/03	10A
3. Relinquished By:			3. Received By:		

Comments

05000
29000

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-8274 (0102)

Client: Ecology & Environment, Inc.	Project Manager: John Montgomery	Date: 10-1-03	Chain of Custody Number: 003371
Address: 333 SW Fifth Ave, Suite 608	Telephone Number (Area Code)/Fax Number: 503 248 5600 / 503 248 5577	Lab Number: 116589	Page 2 of 2
City: Portland; State: OR; Zip Code: 97204	Site Contact: 503 957 8847 Mark Ochsner; Lab Contact:		
Project Name and Location (State): McCormick + Baxter, Portland, Oregon	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.: 001688.0Y02.27.01			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	Analysis (Attach list if more space is needed): PAHs + PCP, 6020	DX, WTPH-Ox	As, Cr, Cu, Zn, 6020	Special Instructions/ Conditions of Receipt
3 MB PW SM0313	09-30-03	1525		X			2		1	1			X	X	X	
4 MB PW SM0314	09-30-03	1515		X			2		1	1			X	X	X	
5 MB PW SM0315	09-30-03	1526		X			2		1	1			X	X	X	

Cooler: ☐ Yes ☐ No Cooler Temp: _____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☒ Other 14

QC Requirements (Specify)

	Date	Time		Date	Time
1. Relinquished By: [signature]	10-1-03	1010	1. Received By: [signature] G. Hicks	10/01/03	1010
2. Relinquished By: [signature] G. Hicks	10/01/03	1440	2. Received By: K Hesler	10/2/03	10A
3. Relinquished By:			3. Received By:		

Comments

DISTRIBUTION: WHITE - Stays with the Samples; CANARY - Returned to Client with Report; PINK - Field Copy

00064

Cooler ID No. 20 STL WORK ORDER NO. 110 201

COOLER RECEIPT FORM

PROJECT McCormick + Baxter Portland Oregon

COOLER RECEIVED ON 10/2 AND OPENED ON 10/2 BY [illegible]

K Presley
(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 5.9 oC
TEMP. BLANK NA oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 front / 1 Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble Wrap/Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

00065

#28

Custody Seal

DATE 10/01/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375387

SEVERN TRENT SERVICES

375387

Custody Seal

DATE 10/01/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375467

SEVERN TRENT SERVICES

375467

FedEx Express USA Airbill 840745791780

0200 Form I.D. No.

FedEx Retrieval Copy

1 From

Date 10/01/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1780

4a Express Package Service — Packages up to 150 lbs.

1 [X] FedEx Priority Overnight — Next business morning
5 [ ] FedEx Standard Overnight — Next business afternoon
6 [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
3 [ ] FedEx 2Day — Second business day
20 [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge. One-pound rate

4b Express Freight Service — Packages over 150 lbs.

7 [ ] FedEx 1Day Freight* — Next business day
8 [ ] FedEx 2Day Freight — Second business day
83 [ ] FedEx 3Day Freight — Third business day

*Call for Confirmation

5 Packaging

6 [ ] FedEx Envelope*
2 [ ] FedEx Pak* — Included FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
1 [X] Other

*Declared value limit $500

6 Special Handling — Include FedEx address in Section 2

3 [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
1 [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight
31 [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? Own box must be checked.

[X] No
4 [ ] Yes — As per attached Shipper's Declaration
[ ] Yes — Shipper's Declaration not required
6 [ ] Dry Ice — Dry Ice, 9, UN 1845 ___ kg
[ ] Cargo Aircraft Only

Dangerous Goods including Dry Ice cannot be shipped in FedEx packaging

7 Payment Bill to: — Enter FedEx Acct. No. or Credit Card No. below. [ ] Obtain Recip. Acct. No.

1 [ ] Sender — Acct. No. in Section 1 will be billed
2 [X] Recipient
3 [ ] Third Party
4 [ ] Credit Card
5 [ ] Cash/Check

FedEx Acct. No. Credit Card No. 1247-7198-6 Exp. Date

Total Packages 7 Total Weight 325 Total Charges

Credit Card Auth.

Our liability is limited to $100 unless you declare a higher value. See the FedEx Service Guide for details.

8 Release Signature — Sign to authorize delivery without obtaining signature

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claim.

446

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29000

Cooler ID No. 11 STL WORK ORDER NO. 1110-101

COOLER RECEIPT FORM

PROJECT McCormick & Baxter, Portland Oregon

COOLER RECEIVED ON 10/2 AND OPENED ON 10/2 BY

K Presley
(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 3.7 oC
TEMP. BLANK N/A oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 Front / 1 Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble wrap/Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

00068

#113.7-c

Custody Seal

DATE 10/01/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375417

Custody Seal

DATE 10/01/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375397

SEVERN TRENT SERVICES 375417

SEVERN TRENT SERVICES 375397

FedEx. USA Airbill Express

840745791780

0200 Form ID No.

FedEx Retrieval Copy

1 From

Date 10/01/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1780

4a Express Package Service — Packages up to 150 lbs.

Delivery commitment may be later in some areas.

1 [X] FedEx Priority Overnight — Next business morning

5 [ ] FedEx Standard Overnight — Next business afternoon

6 [ ] FedEx First Overnight — Earliest next business morning delivery to select locations

3 [ ] FedEx 2Day — Second business day

20 [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge. One-pound rate

4b Express Freight Service — Packages over 150 lbs.

Delivery commitment may be later in some areas.

7 [ ] FedEx 1Day Freight* — Next business day

8 [ ] FedEx 2Day Freight — Second business day

03 [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation

* Declared value limit $500

5 Packaging

6 [ ] FedEx Envelope*

2 [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak

1 [X] Other

6 Special Handling — Include FedEx address in Section 3.

3 [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes

1 [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight

31 [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

[X] No

4 [ ] Yes — As per attached Shipper's Declaration

[ ] Yes — Shipper's Declaration not required

6 [ ] Dry Ice — Dry Ice, 9, UN 1845

[ ] Cargo Aircraft Only

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below.

[ ] Obtain Recip. Acct. No.

1 [ ] Sender — Acct. No. in Section 1 will be billed

2 [X] Recipient

3 [ ] Third Party

4 [ ] Credit Card

5 [ ] Cash/Check

FedEx Acct. No. / Credit Card No. 1247-7198-6 Exp. Date

Total Packages 7

Total Weight 325

Total Charges

Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the FedEx Service Guide for details.

8 Release Signature — Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

446

Rev. Date 10/01 • Part #[illegible] • FedEx • PRINTED IN U.S.A. WCSL 03

02000

Cooler ID No. 02 STL Work Order No. [illegible]

COOLER RECEIPT FORM

PROJECT McCormick & Baxter Portland Oregon

COOLER RECEIVED ON 10/2 AND OPENED ON 10/2 BY [illegible]

K Presley
(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 2.2 oC
TEMP. BLANK NA oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 front / ~~back~~
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble Wrap/Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

00071

00072

2.2°C

II 25

375447

SEVERN TRENT SERVICES

Custody Seal

DATE 10/01/03

SIGNATURE [signature]

SEVERN TRENT SERVICES

375447

FedEx. USA Airbill Express

840745791780

0200 Form I.D. No.

FedEx Retrieval Copy

1 From

Date 10/01/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East We cannot deliver to P.O. boxes or P.O. ZIP codes.

To "HOLD" at FedEx location, print FedEx address.

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1780

4a Express Package Service — Packages up to 150 lbs.

1 [X] FedEx Priority Overnight — Next business morning

5 [ ] FedEx Standard Overnight — Next business afternoon

6 [ ] FedEx First Overnight — Earliest next business morning delivery to select locations

3 [ ] FedEx 2Day — Second business day

20 [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — Packages over 150 lbs.

7 [ ] FedEx 1Day Freight* — Next business day

8 [ ] FedEx 2Day Freight — Second business day

83 [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation.

* Declared value limit $500

5 Packaging

6 [ ] FedEx Envelope*

2 [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak

1 [X] Other

6 Special Handling — Include FedEx address in Section 3.

3 [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes

1 [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight

31 [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked

[X] No

4 [ ] Yes — As per attached Shipper's Declaration

[ ] Yes — Shipper's Declaration not required

6 [ ] Dry Ice — Dry Ice, 9, UN 1845 ___ x ___ kg

[ ] Cargo Aircraft Only

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging

7 Payment Bill to: — Enter FedEx Acct. No. or Credit Card No. below

[ ] Dream Recip. Acct. No.

1 [ ] Sender — Acct. No. in Section 1 will be billed

2 [X] Recipient

3 [ ] Third Party

4 [ ] Credit Card

5 [ ] Cash/Check

FedEx Acct. No. / Credit Card No. 1247-7198-6 Exp. Date

Total Packages 7

Total Weight 325

Total Charges

Credit Card Auth.

*One hundred is limited to $100 unless you declare a higher value. See the FedEx Service Guide for details.

8 Release Signature — Sign to authorize delivery without obtaining signature

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claim.

446

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Cooler ID No. ____ 27 ____ STL WORK ORDER NO. ____

COOLER RECEIPT FORM

PROJECT McCormick + Baxter Portland Oregon

COOLER RECEIVED ON 10/2 AND OPENED ON 10/2 BY [illegible]

K Presley
(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 4.7 oC
TEMP. BLANK NA oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 front / 1 Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble Wrap/Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: ____
    b. Date: ____

00073

Custody Seal

DATE 10/01/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375457

SEVERN TRENT SERVICES

375457

Custody Seal

DATE 10/01/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375407

SEVERN TRENT SERVICES

375407

#27

4.7

00074

FedEx. Express *USA Airbill*

840745791780

0200 Form I.D. No.

FedEx Retrieval Copy

1 From

Date 10/01/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S. C.

Address 15816 SW Upper Boones Ferry Rd

Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1780

L

4a Express Package Service — *Packages up to 150 lbs.*

Delivery commitment may be later in some areas.

1 [X] FedEx Priority Overnight — Next business morning

[ ] FedEx Standard Overnight — Next business afternoon

6 [ ] FedEx First Overnight — Earliest next business morning delivery to select locations

3 [ ] FedEx 2Day — Second business day

20 [ ] FedEx Express Saver — Third business day

FedEx Envelope rates not available. Minimum charge: One pound rate.

4b Express Freight Service — *Packages over 150 lbs.*

Delivery commitments may be later in some areas.

7 [ ] FedEx 1Day Freight* — Next business day

8 [ ] FedEx 2Day Freight — Second business day

03 [ ] FedEx 3Day Freight — Third business day

*Call for Confirmation.

5 Packaging *Declared value limit $500

6 [ ] FedEx Envelope*

2 [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.

1 [X] Other

6 Special Handling — Include FedEx address in Section 3.

3 [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes

1 [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight

31 [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

[X] No

4 [ ] Yes — As per attached Shipper's Declaration

[ ] Yes — Shipper's Declaration not required

6 [ ] Dry Ice — Dry Ice - UN 1845 ____ x ____ kg

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

[ ] Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below

[ ] Obtain Recip. Acct. No.

1 [ ] Sender — Acct. No. in Section 1 will be billed

2 [X] Recipient

3 [ ] Third Party

4 [ ] Credit Card

5 [ ] Cash/Check

FedEx Acct. No. / Credit Card No. 1247-7198-6 Exp. Date

Total Packages 7 Total Weight 325 Total Charges

Credit Card Auth.

*Our liability is limited to $100 unless you declare a higher value. See the FedEx Service Guide for details.

8 Release Signature

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless in such delivery circumstances.

446

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Cooler ID No. New

COOLER RECEIPT FORM

PROJECT McCormick + Baxter Portland Oregon

COOLER RECEIVED ON 10/2 AND OPENED ON 10/2 BY [illegible]

K Presley
(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 5.8 oC
TEMP. BLANK NA oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 front / 1 Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble Wrap/Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

00076

Custody Seal

DATE 10/01/03

SIGNATURE

SEVERN TRENT SERVICES

375347

375347

SEVERN TRENT SERVICES

Custody Seal

DATE 10/01/03

SIGNATURE

SEVERN TRENT SERVICES

375357

375357

SEVERN TRENT SERVICES

FedEx Express USA Airbill

840745791780

0200 Form I.D. No.

FedEx Retrieval Copy

1 From

Date 10/01/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1780

4a Express Package Service — Packages up to 150 lbs. Delivery commitment may be later in some areas.

1 [X] FedEx Priority Overnight — Next business morning
5 [ ] FedEx Standard Overnight — Next business afternoon
6 [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
3 [ ] FedEx 2Day — Second business day
20 [ ] FedEx Express Saver — Third business day

FedEx Envelopes and not available. Minimum charge. One-pound rate.

4b Express Freight Service — Packages over 150 lbs. Delivery commitment may be later in some areas.

7 [ ] FedEx 1Day Freight* — Next business day
8 [ ] FedEx 2Day Freight — Second business day
33 [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation

* Declared value limit $500

5 Packaging

6 [ ] FedEx Envelope*
2 [ ] FedEx Pak* — Includes FedEx Small Pak, Pak Large Pak, and FedEx Sturdy Pak
1 [X] Other

6 Special Handling — Include FedEx address in Section 3.

3 [ ] SATURDAY Delivery — Available only from FedEx Priority Overnight and FedEx 2Day to select ZIP codes
1 [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight
31 [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

[X] No
4 [ ] Yes — As per attached Shipper's Declaration
[ ] Yes — Shipper's Declaration not required
6 [ ] Dry Ice — Dry Ice, 9, UN 1845
[ ] Cargo Aircraft Only

Dangerous Goods including Dry Ice cannot be shipped in FedEx packaging.

7 Payment Bill to: — Enter FedEx Acct. No. or Credit Card No. below. [ ] Obtain Recip. Acct. No.

1 [ ] Sender — Acct. No. in Section 1 will be billed
2 [X] Recipient
3 [ ] Third Party
4 [ ] Credit Card
5 [ ] Cash/Check

FedEx Acct. No. / Credit Card No. 1247-7198-6 Exp. Date

Total Packages 7 Total Weight 325 Total Charges

Credit Card Auth.

This facility is limited to $100 unless you declare a higher value. See the FedEx Service Guide for details.

8 Release Signature — Sign to authorize delivery without obtaining signature

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claim.

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446

00078

Cooler ID No. [illegible] STL WORK ORDER NO. [illegible]

COOLER RECEIPT FORM

PROJECT McCormick & Baxter Portland Oregon

COOLER RECEIVED ON 10/2 AND OPENED ON 10/2 BY [illegible]

K Presley
(SIGNATURE)

TEMPERATURE UPON RECEIPT: COOLER 5.9 oC
TEMP. BLANK NA oC

1. Were custody seals on outside of cooler and intact? YES NO
   a. If YES, how many and where: 1 front / 1 Back
   b. Were signature and date correct? YES NO
2. Were custody papers taped to lid inside cooler? YES NO
3. Were custody papers properly filled out (ink, signed, etc)? YES NO
4. Did you sign custody papers in the appropriate place? YES NO
5. Did you attach shipper's packing slip to this form? YES NO
6. What kind of packing material was used? Bubble Wrap/Ice
7. Was sufficient ice used (if appropriate)? YES NO
8. Were all bottles sealed in separate plastic bags? YES NO
9. Did all bottles arrive in good condition (unbroken)? YES NO
10. Were all bottle labels complete (no., date, signed, pres, etc)? YES NO
11. Did all bottle labels and tags agree with custody papers? YES NO
12. Were correct bottles used for the test indicated? YES NO
13. If present, were VOA vials checked for absence of air bubbles and noted if found? YES NO
14. Adequate volume of VOA vials received per sample? YES NO
15. Was sufficient amount of sample sent in each bottle? YES NO
16. Were correct preservatives used? YES NO
17. Were extra labels added to pre-tared containers? YES NO
18. Corrective action taken, if necessary:
    a. Name of person contacted: _____
    b. Date: _____

00079

010 5-2

SEVERN TRENT SERVICES 375487

Custody Seal

DATE 10/01/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES 375487

SEVERN TRENT SERVICES 375477

Custody Seal

DATE 10/01/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES 375477

FedEx Express USA Airbill

FedEx Tracking Number 840745791780

0200 Recipient's Copy

1 From

Date 10/01/03

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland S.C.

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL - Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8407 4579 1780

4a Express Package Service *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- [x] FedEx Priority Overnight — Next business morning
- [ ] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging * Declared value limit $500

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [x] Other

6 Special Handling Include FedEx address in Section 3.

- [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight
- [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [ ] Sender — Acct. No. in Section 1 will be billed.
- [x] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check
- [ ] Obtain Recip. Acct. No.

124

Total Packages	Total Weight	Total Declared Value*	Total Charges
7	[illegible]	[illegible]	Credit Card Auth.

Our liability is limited [illegible] a higher value. See back for details.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

Questions? Visit our Web site at fedex.com or call 1.800.Go.FedEx® 800.463.3339.

446

18000

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

TRANSMITTAL MEMORANDUM

DATE: December 2, 2003

TO: Heather Brunelle
Ecology & Environment
333 SW 5th Ave
Portland, OR 97204

PROJECT: McCormick & Baxter

REPORT NUMBER: 117005

TOTAL NUMBER OF PAGES: 104

Enclosed are the test results for twenty-one samples received at STL Seattle on October 17, 2003.

The report consists of this transmittal memo, analytical results, quality control reports, a copy of the chain-of-custody, a list of data qualifiers and analytical narrative when applicable, and a copy of any requested raw data.

Should there be any questions regarding this report, please contact me at (253) 922-2310.

Sincerely,

Darla Powell
Project Manager

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

Sample Identification:

Lab. No.	Client ID	Date/Time Sampled	Matrix
117005-1	McCormick & Baxter #15	10-16-03 09:01	Liquid
117005-2	McCormick & Baxter #28	10-16-03 09:24	Liquid
117005-3	McCormick & Baxter #18	10-16-03 09:33	Liquid
117005-4	McCormick & Baxter #16	10-16-03 09:45	Liquid
117005-5	McCormick & Baxter #17	10-16-03 10:05	Liquid
117005-6	McCormick & Baxter #14	10-16-03 10:25	Liquid
117005-7	McCormick & Baxter #24	10-16-03 10:40	Liquid
117005-8	McCormick & Baxter #12	10-16-03 11:15	Liquid
117005-9	McCormick & Baxter #11	10-16-03 11:32	Liquid
117005-10	McCormick & Baxter #10	10-16-03 11:55	Liquid
117005-11	McCormick & Baxter #6	10-16-03 12:11	Liquid
117005-12	McCormick & Baxter #5	10-16-03 12:22	Liquid
117005-13	McCormick & Baxter #21	10-16-03 12:37	Liquid
117005-14	McCormick & Baxter #9	10-16-03 12:50	Liquid
117005-15	McCormick & Baxter #22	10-16-03 12:58	Liquid
117005-16	McCormick & Baxter #26	10-16-03 13:15	Liquid
117005-17	McCormick & Baxter #25	10-16-03 13:30	Liquid
117005-18	McCormick & Baxter #7	10-16-03 13:35	Liquid
117005-19	McCormick & Baxter #1	10-16-03 13:45	Liquid
117005-20	McCormick & Baxter #27	10-16-03 14:00	Liquid
117005-21	McCormick & Baxter #23	10-16-03 14:05	Liquid

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SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: December 1, 2003

Project: McCormick & Baxter

Lab No.: 117005

Delivered By: Federal Express

Condition of samples upon receipt: Samples were received in good condition. Cooler temperatures have been recorded on the cooler receipt form included in the chain of custody section of this report. Chain of custody was in order.

Sample Identification:

Lab. No.	Client ID	Date Sampled	Matrix
117005-1	McCormick & Baxter #15	10-16-03	Liquid
117005-2	McCormick & Baxter #28	10-16-03	Liquid
117005-3	McCormick & Baxter #18	10-16-03	Liquid
117005-4	McCormick & Baxter #16	10-16-03	Liquid
117005-5	McCormick & Baxter #17	10-16-03	Liquid
117005-6	McCormick & Baxter #14	10-16-03	Liquid
117005-7	McCormick & Baxter #24	10-16-03	Liquid
117005-8	McCormick & Baxter #12	10-16-03	Liquid
117005-9	McCormick & Baxter #11	10-16-03	Liquid
117005-10	McCormick & Baxter #10	10-16-03	Liquid
117005-11	McCormick & Baxter #6	10-16-03	Liquid
117005-12	McCormick & Baxter #5	10-16-03	Liquid
117005-13	McCormick & Baxter #21	10-16-03	Liquid
117005-14	McCormick & Baxter #9	10-16-03	Liquid
117005-15	McCormick & Baxter #22	10-16-03	Liquid
117005-16	McCormick & Baxter #26	10-16-03	Liquid
117005-17	McCormick & Baxter #25	10-16-03	Liquid
117005-18	McCormick & Baxter #7	10-16-03	Liquid
117005-19	McCormick & Baxter #1	10-16-03	Liquid
117005-20	McCormick & Baxter #27	10-16-03	Liquid
117005-21	McCormick & Baxter #23	10-16-03	Liquid

This report is issued solely for the use of the person or company to whom it is addressed. Any use, copying or disclosure other than by the intended recipient is unauthorized. If you have received this report in error, please notify the sender immediately at 253-922-2310 and destroy this report immediately.

STL Seattle

ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: December 1, 2003

Project: McCormick & Baxter

Lab No.: 117005

SAMPLE EXTRACTION AND ANALYSIS

SEMIVOLATILE ORGANICS

Samples 117005-1 through 117005-21 were analyzed for PAHs and PCP in accordance with EPA Method 8270C. The samples were extracted on 10-21-03 and analyzed on 10-29-03 and 10-30-03, which was within the required holding time.

All quality control was within the acceptance limits.

No difficulties were encountered during the semivolatile organic analyses.

TOTAL METALS

Samples 117005-1 through 117005-21 were analyzed for arsenic, chromium, copper and zinc in accordance with EPA Method 6020. The samples were digested and analyzed on 10-21-03, which was within the required holding time.

The relative percent difference value of arsenic for the duplicate analysis of sample 117005-1 was reported outside of quality control acceptance limits, due to the concentrations reported near the practical quantitation limit.

The relative percent difference values of arsenic and zinc for the duplicate analysis of sample 117005-19 were reported outside of quality control acceptance limits, due to the concentrations reported near the practical quantitation limit.

All quality control was within the acceptance limits.

No difficulties were encountered during the total metals analyses.

DISSOLVED ORGANIC CARBON

Samples 117005-1 through 117005-21 were analyzed for dissolved organic carbon in accordance with EPA Method 9060. The samples were prepared and analyzed on 11-17-03 and 11-18-03, which was outside of the required holding time.

All other quality control was within the acceptance limits.

No other difficulties were encountered during the total organic carbon analyses.

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ANALYTICAL NARRATIVE

Client: Ecology & Environment

Date: December 1, 2003

Project: McCormick & Baxter

Lab No.: 117005

TOTAL SUSPENDED SOLIDS

Samples 117005-1 through 117005-21 were analyzed for total dissolved solids in accordance with EPA Method 160.2. The samples were analyzed on 10-20-03, which was within the required holding time.

All quality control was within the acceptance limits.

No difficulties were encountered during the total suspended solids analyses.

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #1
Lab ID:	117005-19
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	95.9		34	148
2,4,6 - Tribromophenol	99.5		29	159
p - Terphenyl - d14	48.7		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0479	0.0239	
2-Methylnaphthalene	ND	0.0239	0.012	
1-Methylnaphthalene	ND	0.0239	0.012	
Acenaphthylene	ND	0.0239	0.012	
Acenaphthene	ND	0.0239	0.012	
Fluorene	ND	0.0239	0.012	
Pentachlorophenol	ND	0.0958	0.0479	
Phenanthrene	ND	0.0239	0.012	
Anthracene	ND	0.0239	0.012	
Fluoranthene	ND	0.00479	0.00239	
Pyrene	ND	0.00479	0.00239	
Benzo(a)anthracene	ND	0.00958	0.00479	
Chrysene	ND	0.00958	0.00479	
Benzofluoranthenes	ND	0.00958	0.00479	
Benzo(a)pyrene	ND	0.00479	0.00239	
Indeno(1,2,3-cd)pyrene	ND	0.00479	0.00239	
Dibenz(a,h)anthracene	ND	0.00479	0.00239	
Benzo(g,h,i)perylene	ND	0.0239	0.012	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #5
Lab ID:	117005-12
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	98.4		34	148
2,4,6 - Tribromophenol	93.9		29	159
p - Terphenyl - d14	94.7		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0482	0.0241	
2-Methylnaphthalene	ND	0.0241	0.0121	
1-Methylnaphthalene	ND	0.0241	0.0121	
Acenaphthylene	ND	0.0241	0.0121	
Acenaphthene	ND	0.0241	0.0121	
Fluorene	ND	0.0241	0.0121	
Pentachlorophenol	ND	0.0964	0.0482	
Phenanthrene	ND	0.0241	0.0121	
Anthracene	ND	0.0241	0.0121	
Fluoranthene	ND	0.00482	0.00241	
Pyrene	ND	0.00482	0.00241	
Benzo(a)anthracene	ND	0.00964	0.00482	
Chrysene	ND	0.00964	0.00482	
Benzofluoranthenes	ND	0.00964	0.00482	
Benzo(a)pyrene	ND	0.00482	0.00241	
Indeno(1,2,3-cd)pyrene	ND	0.00482	0.00241	
Dibenz(a,h)anthracene	ND	0.00482	0.00241	
Benzo(g,h,i)perylene	ND	0.0241	0.0121	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #6
Lab ID:	117005-11
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	85.4		34	148
2,4,6 - Tribromophenol	93.3		29	159
p - Terphenyl - d14	91.1		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0477	0.0238	
2-Methylnaphthalene	ND	0.0238	0.0119	
1-Methylnaphthalene	ND	0.0238	0.0119	
Acenaphthylene	ND	0.0238	0.0119	
Acenaphthene	ND	0.0238	0.0119	
Fluorene	ND	0.0238	0.0119	
Pentachlorophenol	ND	0.0953	0.0477	
Phenanthrene	ND	0.0238	0.0119	
Anthracene	ND	0.0238	0.0119	
Fluoranthene	ND	0.00477	0.00238	
Pyrene	ND	0.00477	0.00238	
Benzo(a)anthracene	ND	0.00953	0.00477	
Chrysene	ND	0.00953	0.00477	
Benzofluoranthenes	ND	0.00953	0.00477	
Benzo(a)pyrene	ND	0.00477	0.00238	
Indeno(1,2,3-cd)pyrene	ND	0.00477	0.00238	
Dibenz(a,h)anthracene	ND	0.00477	0.00238	
Benzo(g,h,i)perylene	ND	0.0238	0.0119	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #7
Lab ID:	117005-18
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	95.3		34	148
2,4,6 - Tribromophenol	95.6		29	159
p - Terphenyl - d14	90.2		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0477	0.0238	
2-Methylnaphthalene	ND	0.0238	0.0119	
1-Methylnaphthalene	ND	0.0238	0.0119	
Acenaphthylene	ND	0.0238	0.0119	
Acenaphthene	ND	0.0238	0.0119	
Fluorene	ND	0.0238	0.0119	
Pentachlorophenol	ND	0.0953	0.0477	
Phenanthrene	ND	0.0238	0.0119	
Anthracene	ND	0.0238	0.0119	
Fluoranthene	0.00307	0.00477	0.00238	J
Pyrene	0.00251	0.00477	0.00238	J
Benzo(a)anthracene	ND	0.00953	0.00477	
Chrysene	ND	0.00953	0.00477	
Benzofluoranthenes	ND	0.00953	0.00477	
Benzo(a)pyrene	ND	0.00477	0.00238	
Indeno(1,2,3-cd)pyrene	ND	0.00477	0.00238	
Dibenz(a,h)anthracene	ND	0.00477	0.00238	
Benzo(g,h,i)perylene	ND	0.0238	0.0119	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #9
Lab ID:	117005-14
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	91.8		34	148
2,4,6 - Tribromophenol	95.8		29	159
p - Terphenyl - d14	78.5		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0475	0.0237	
2-Methylnaphthalene	ND	0.0237	0.0119	
1-Methylnaphthalene	ND	0.0237	0.0119	
Acenaphthylene	ND	0.0237	0.0119	
Acenaphthene	ND	0.0237	0.0119	
Fluorene	0.0125	0.0237	0.0119	J
Pentachlorophenol	ND	0.095	0.0475	
Phenanthrene	0.116	0.0237	0.0119	
Anthracene	ND	0.0237	0.0119	
Fluoranthene	0.0783	0.00475	0.00237	
Pyrene	0.0529	0.00475	0.00237	
Benzo(a)anthracene	ND	0.0095	0.00475	
Chrysene	0.0121	0.0095	0.00475	
Benzofluoranthenes	0.00806	0.0095	0.00475	J
Benzo(a)pyrene	0.00239	0.00475	0.00237	J
Indeno(1,2,3-cd)pyrene	ND	0.00475	0.00237	
Dibenz(a,h)anthracene	ND	0.00475	0.00237	
Benzo(g,h,i)perylene	ND	0.0237	0.0119	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #10
Lab ID:	117005-10
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	96		34	148
2,4,6 - Tribromophenol	99.3		29	159
p - Terphenyl - d14	99.1		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0473	0.0237	
2-Methylnaphthalene	ND	0.0237	0.0118	
1-Methylnaphthalene	ND	0.0237	0.0118	
Acenaphthylene	ND	0.0237	0.0118	
Acenaphthene	ND	0.0237	0.0118	
Fluorene	ND	0.0237	0.0118	
Pentachlorophenol	ND	0.0946	0.0473	
Phenanthrene	ND	0.0237	0.0118	
Anthracene	ND	0.0237	0.0118	
Fluoranthene	0.00567	0.00473	0.00237	
Pyrene	0.00499	0.00473	0.00237	
Benzo(a)anthracene	ND	0.00946	0.00473	
Chrysene	ND	0.00946	0.00473	
Benzofluoranthenes	ND	0.00946	0.00473	
Benzo(a)pyrene	ND	0.00473	0.00237	
Indeno(1,2,3-cd)pyrene	ND	0.00473	0.00237	
Dibenz(a,h)anthracene	ND	0.00473	0.00237	
Benzo(g,h,i)perylene	ND	0.0237	0.0118	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #11
Lab ID:	117005-09
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	107		34	148
2,4,6 - Tribromophenol	106		29	159
p - Terphenyl - d14	104		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0474	0.0237	
2-Methylnaphthalene	ND	0.0237	0.0119	
1-Methylnaphthalene	ND	0.0237	0.0119	
Acenaphthylene	ND	0.0237	0.0119	
Acenaphthene	ND	0.0237	0.0119	
Fluorene	ND	0.0237	0.0119	
Pentachlorophenol	ND	0.0949	0.0474	
Phenanthrene	ND	0.0237	0.0119	
Anthracene	ND	0.0237	0.0119	
Fluoranthene	ND	0.00474	0.00237	
Pyrene	ND	0.00474	0.00237	
Benzo(a)anthracene	ND	0.00949	0.00474	
Chrysene	ND	0.00949	0.00474	
Benzofluoranthenes	ND	0.00949	0.00474	
Benzo(a)pyrene	ND	0.00474	0.00237	
Indeno(1,2,3-cd)pyrene	ND	0.00474	0.00237	
Dibenz(a,h)anthracene	ND	0.00474	0.00237	
Benzo(g,h,i)perylene	ND	0.0237	0.0119	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #12
Lab ID:	117005-08
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	93.2		34	148
2,4,6 - Tribromophenol	93.3		29	159
p - Terphenyl - d14	96		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0476	0.0238	
2-Methylnaphthalene	ND	0.0238	0.0119	
1-Methylnaphthalene	ND	0.0238	0.0119	
Acenaphthylene	ND	0.0238	0.0119	
Acenaphthene	ND	0.0238	0.0119	
Fluorene	ND	0.0238	0.0119	
Pentachlorophenol	ND	0.0952	0.0476	
Phenanthrene	ND	0.0238	0.0119	
Anthracene	ND	0.0238	0.0119	
Fluoranthene	ND	0.00476	0.00238	
Pyrene	ND	0.00476	0.00238	
Benzo(a)anthracene	ND	0.00952	0.00476	
Chrysene	ND	0.00952	0.00476	
Benzofluoranthenes	ND	0.00952	0.00476	
Benzo(a)pyrene	ND	0.00476	0.00238	
Indeno(1,2,3-cd)pyrene	ND	0.00476	0.00238	
Dibenz(a,h)anthracene	ND	0.00476	0.00238	
Benzo(g,h,i)perylene	ND	0.0238	0.0119	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #14
Lab ID:	117005-06
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	96.3		34	148
2,4,6 - Tribromophenol	107		29	159
p - Terphenyl - d14	98.1		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0477	0.0238	
2-Methylnaphthalene	ND	0.0238	0.0119	
1-Methylnaphthalene	ND	0.0238	0.0119	
Acenaphthylene	ND	0.0238	0.0119	
Acenaphthene	ND	0.0238	0.0119	
Fluorene	ND	0.0238	0.0119	
Pentachlorophenol	ND	0.0953	0.0477	
Phenanthrene	ND	0.0238	0.0119	
Anthracene	ND	0.0238	0.0119	
Fluoranthene	ND	0.00477	0.00238	
Pyrene	ND	0.00477	0.00238	
Benzo(a)anthracene	ND	0.00953	0.00477	
Chrysene	ND	0.00953	0.00477	
Benzofluoranthenes	ND	0.00953	0.00477	
Benzo(a)pyrene	ND	0.00477	0.00238	
Indeno(1,2,3-cd)pyrene	ND	0.00477	0.00238	
Dibenz(a,h)anthracene	ND	0.00477	0.00238	
Benzo(g,h,i)perylene	ND	0.0238	0.0119	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #15
Lab ID:	117005-01
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	93.6		34	148
2,4,6 - Tribromophenol	122		29	159
p - Terphenyl - d14	94.1		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0475	0.0238	
2-Methylnaphthalene	ND	0.0238	0.0119	
1-Methylnaphthalene	ND	0.0238	0.0119	
Acenaphthylene	ND	0.0238	0.0119	
Acenaphthene	ND	0.0238	0.0119	
Fluorene	ND	0.0238	0.0119	
Pentachlorophenol	ND	0.0951	0.0475	
Phenanthrene	ND	0.0238	0.0119	
Anthracene	ND	0.0238	0.0119	
Fluoranthene	ND	0.00475	0.00238	
Pyrene	ND	0.00475	0.00238	
Benzo(a)anthracene	ND	0.00951	0.00475	
Chrysene	ND	0.00951	0.00475	
Benzofluoranthenes	ND	0.00951	0.00475	
Benzo(a)pyrene	ND	0.00475	0.00238	
Indeno(1,2,3-cd)pyrene	ND	0.00475	0.00238	
Dibenz(a,h)anthracene	ND	0.00475	0.00238	
Benzo(g,h,i)perylene	ND	0.0238	0.0119	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #16
Lab ID:	117005-04
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	88.5		34	148
2,4,6 - Tribromophenol	100		29	159
p - Terphenyl - d14	94.4		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0476	0.0238	
2-Methylnaphthalene	ND	0.0238	0.0119	
1-Methylnaphthalene	ND	0.0238	0.0119	
Acenaphthylene	ND	0.0238	0.0119	
Acenaphthene	ND	0.0238	0.0119	
Fluorene	ND	0.0238	0.0119	
Pentachlorophenol	ND	0.0951	0.0476	
Phenanthrene	ND	0.0238	0.0119	
Anthracene	ND	0.0238	0.0119	
Fluoranthene	ND	0.00476	0.00238	
Pyrene	ND	0.00476	0.00238	
Benzo(a)anthracene	ND	0.00951	0.00476	
Chrysene	ND	0.00951	0.00476	
Benzofluoranthenes	ND	0.00951	0.00476	
Benzo(a)pyrene	ND	0.00476	0.00238	
Indeno(1,2,3-cd)pyrene	ND	0.00476	0.00238	
Dibenz(a,h)anthracene	ND	0.00476	0.00238	
Benzo(g,h,i)perylene	ND	0.0238	0.0119	

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Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #17
Lab ID:	117005-05
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	86.9		34	148
2,4,6 - Tribromophenol	103		29	159
p - Terphenyl - d14	101		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0478	0.0239	
2-Methylnaphthalene	ND	0.0239	0.0119	
1-Methylnaphthalene	ND	0.0239	0.0119	
Acenaphthylene	ND	0.0239	0.0119	
Acenaphthene	ND	0.0239	0.0119	
Fluorene	ND	0.0239	0.0119	
Pentachlorophenol	ND	0.0955	0.0478	
Phenanthrene	ND	0.0239	0.0119	
Anthracene	ND	0.0239	0.0119	
Fluoranthene	ND	0.00478	0.00239	
Pyrene	ND	0.00478	0.00239	
Benzo(a)anthracene	ND	0.00955	0.00478	
Chrysene	ND	0.00955	0.00478	
Benzofluoranthenes	ND	0.00955	0.00478	
Benzo(a)pyrene	ND	0.00478	0.00239	
Indeno(1,2,3-cd)pyrene	ND	0.00478	0.00239	
Dibenz(a,h)anthracene	ND	0.00478	0.00239	
Benzo(g,h,i)perylene	ND	0.0239	0.0119	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #18
Lab ID:	117005-03
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	90.8		34	148
2,4,6 - Tribromophenol	108		29	159
p - Terphenyl - d14	92.5		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0477	0.0239	
2-Methylnaphthalene	ND	0.0239	0.0119	
1-Methylnaphthalene	ND	0.0239	0.0119	
Acenaphthylene	ND	0.0239	0.0119	
Acenaphthene	ND	0.0239	0.0119	
Fluorene	ND	0.0239	0.0119	
Pentachlorophenol	ND	0.0954	0.0477	
Phenanthrene	ND	0.0239	0.0119	
Anthracene	ND	0.0239	0.0119	
Fluoranthene	ND	0.00477	0.00239	
Pyrene	ND	0.00477	0.00239	
Benzo(a)anthracene	ND	0.00954	0.00477	
Chrysene	ND	0.00954	0.00477	
Benzofluoranthenes	ND	0.00954	0.00477	
Benzo(a)pyrene	ND	0.00477	0.00239	
Indeno(1,2,3-cd)pyrene	ND	0.00477	0.00239	
Dibenz(a,h)anthracene	ND	0.00477	0.00239	
Benzo(g,h,i)perylene	ND	0.0239	0.0119	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #21
Lab ID:	117005-13
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	High
2 - Fluorobiphenyl	87.5		34	148
2,4,6 - Tribromophenol	88		29	159
p - Terphenyl - d14	94.9		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0475	0.0237	
2-Methylnaphthalene	ND	0.0237	0.0119	
1-Methylnaphthalene	ND	0.0237	0.0119	
Acenaphthylene	ND	0.0237	0.0119	
Acenaphthene	ND	0.0237	0.0119	
Fluorene	ND	0.0237	0.0119	
Pentachlorophenol	ND	0.095	0.0475	
Phenanthrene	ND	0.0237	0.0119	
Anthracene	ND	0.0237	0.0119	
Fluoranthene	ND	0.00475	0.00237	
Pyrene	ND	0.00475	0.00237	
Benzo(a)anthracene	ND	0.0095	0.00475	
Chrysene	ND	0.0095	0.00475	
Benzofluoranthenes	ND	0.0095	0.00475	
Benzo(a)pyrene	ND	0.00475	0.00237	
Indeno(1,2,3-cd)pyrene	ND	0.00475	0.00237	
Dibenz(a,h)anthracene	ND	0.00475	0.00237	
Benzo(g,h,i)perylene	ND	0.0237	0.0119	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #22
Lab ID:	117005-15
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	100		34	148
2,4,6 - Tribromophenol	94.9		29	159
p - Terphenyl - d14	103		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.048	0.024	
2-Methylnaphthalene	ND	0.024	0.012	
1-Methylnaphthalene	ND	0.024	0.012	
Acenaphthylene	ND	0.024	0.012	
Acenaphthene	ND	0.024	0.012	
Fluorene	ND	0.024	0.012	
Pentachlorophenol	ND	0.0961	0.048	
Phenanthrene	ND	0.024	0.012	
Anthracene	ND	0.024	0.012	
Fluoranthene	ND	0.0048	0.0024	
Pyrene	ND	0.0048	0.0024	
Benzo(a)anthracene	ND	0.00961	0.0048	
Chrysene	ND	0.00961	0.0048	
Benzofluoranthenes	ND	0.00961	0.0048	
Benzo(a)pyrene	ND	0.0048	0.0024	
Indeno(1,2,3-cd)pyrene	ND	0.0048	0.0024	
Dibenz(a,h)anthracene	ND	0.0048	0.0024	
Benzo(g,h,i)perylene	ND	0.024	0.012	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #23
Lab ID:	117005-21
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	97		34	148
2,4,6 - Tribromophenol	85.2		29	159
p - Terphenyl - d14	83.3		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.048	0.024	
2-Methylnaphthalene	ND	0.024	0.012	
1-Methylnaphthalene	ND	0.024	0.012	
Acenaphthylene	ND	0.024	0.012	
Acenaphthene	ND	0.024	0.012	
Fluorene	ND	0.024	0.012	
Pentachlorophenol	ND	0.096	0.048	
Phenanthrene	ND	0.024	0.012	
Anthracene	ND	0.024	0.012	
Fluoranthene	ND	0.0048	0.0024	
Pyrene	0.00292	0.0048	0.0024	J
Benzo(a)anthracene	ND	0.0096	0.0048	
Chrysene	ND	0.0096	0.0048	
Benzofluoranthenes	ND	0.0096	0.0048	
Benzo(a)pyrene	ND	0.0048	0.0024	
Indeno(1,2,3-cd)pyrene	ND	0.0048	0.0024	
Dibenz(a,h)anthracene	ND	0.0048	0.0024	
Benzo(g,h,i)perylene	ND	0.024	0.012	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #24
Lab ID:	117005-07
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	99		34	148
2,4,6 - Tribromophenol	111		29	159
p - Terphenyl - d14	112		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0475	0.0237	
2-Methylnaphthalene	ND	0.0237	0.0119	
1-Methylnaphthalene	ND	0.0237	0.0119	
Acenaphthylene	ND	0.0237	0.0119	
Acenaphthene	ND	0.0237	0.0119	
Fluorene	ND	0.0237	0.0119	
Pentachlorophenol	ND	0.095	0.0475	
Phenanthrene	ND	0.0237	0.0119	
Anthracene	ND	0.0237	0.0119	
Fluoranthene	ND	0.00475	0.00237	
Pyrene	0.00258	0.00475	0.00237	J
Benzo(a)anthracene	ND	0.0095	0.00475	
Chrysene	ND	0.0095	0.00475	
Benzofluoranthenes	ND	0.0095	0.00475	
Benzo(a)pyrene	ND	0.00475	0.00237	
Indeno(1,2,3-cd)pyrene	ND	0.00475	0.00237	
Dibenz(a,h)anthracene	ND	0.00475	0.00237	
Benzo(g,h,i)perylene	ND	0.0237	0.0119	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #25
Lab ID:	117005-17
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	88.1		34	148
2,4,6 - Tribromophenol	97.6		29	159
p - Terphenyl - d14	95.4		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0479	0.0239	
2-Methylnaphthalene	ND	0.0239	0.012	
1-Methylnaphthalene	ND	0.0239	0.012	
Acenaphthylene	ND	0.0239	0.012	
Acenaphthene	ND	0.0239	0.012	
Fluorene	ND	0.0239	0.012	
Pentachlorophenol	ND	0.0958	0.0479	
Phenanthrene	ND	0.0239	0.012	
Anthracene	ND	0.0239	0.012	
Fluoranthene	0.0024	0.00479	0.00239	J
Pyrene	ND	0.00479	0.00239	
Benzo(a)anthracene	ND	0.00958	0.00479	
Chrysene	ND	0.00958	0.00479	
Benzofluoranthenes	ND	0.00958	0.00479	
Benzo(a)pyrene	ND	0.00479	0.00239	
Indeno(1,2,3-cd)pyrene	ND	0.00479	0.00239	
Dibenz(a,h)anthracene	ND	0.00479	0.00239	
Benzo(g,h,i)perylene	ND	0.0239	0.012	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #26
Lab ID:	117005-16
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	103		34	148
2,4,6 - Tribromophenol	97.8		29	159
p - Terphenyl - d14	69.9		33	172

Analyte		Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND		0.0476	0.0238	
2-Methylnaphthalene	ND		0.0238	0.0119	
1-Methylnaphthalene	ND		0.0238	0.0119	
Acenaphthylene	ND		0.0238	0.0119	
Acenaphthene	ND		0.0238	0.0119	
Fluorene	ND		0.0238	0.0119	
Pentachlorophenol	ND		0.0952	0.0476	
Phenanthrene	ND		0.0238	0.0119	
Anthracene	ND		0.0238	0.0119	
Fluoranthene		0.00264	0.00476	0.00238	J
Pyrene		0.00284	0.00476	0.00238	J
Benzo(a)anthracene	ND		0.00952	0.00476	
Chrysene	ND		0.00952	0.00476	
Benzofluoranthenes	ND		0.00952	0.00476	
Benzo(a)pyrene	ND		0.00476	0.00238	
Indeno(1,2,3-cd)pyrene	ND		0.00476	0.00238	
Dibenz(a,h)anthracene	ND		0.00476	0.00238	
Benzo(g,h,i)perylene	ND		0.0238	0.0119	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #27
Lab ID:	117005-20
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	94.2		34	148
2,4,6 - Tribromophenol	89.4		29	159
p - Terphenyl - d14	80		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0475	0.0238	
2-Methylnaphthalene	ND	0.0238	0.0119	
1-Methylnaphthalene	ND	0.0238	0.0119	
Acenaphthylene	ND	0.0238	0.0119	
Acenaphthene	ND	0.0238	0.0119	
Fluorene	ND	0.0238	0.0119	
Pentachlorophenol	ND	0.0951	0.0475	
Phenanthrene	ND	0.0238	0.0119	
Anthracene	ND	0.0238	0.0119	
Fluoranthene	ND	0.00475	0.00238	
Pyrene	0.0025	0.00475	0.00238	J
Benzo(a)anthracene	ND	0.00951	0.00475	
Chrysene	ND	0.00951	0.00475	
Benzofluoranthenes	ND	0.00951	0.00475	
Benzo(a)pyrene	ND	0.00475	0.00238	
Indeno(1,2,3-cd)pyrene	ND	0.00475	0.00238	
Dibenz(a,h)anthracene	ND	0.00475	0.00238	
Benzo(g,h,i)perylene	ND	0.0238	0.0119	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #28
Lab ID:	117005-02
Date Received:	10/17/2003
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	95		34	148
2,4,6 - Tribromophenol	114		29	159
p - Terphenyl - d14	96.1		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.0473	0.0237	
2-Methylnaphthalene	ND	0.0237	0.0118	
1-Methylnaphthalene	ND	0.0237	0.0118	
Acenaphthylene	ND	0.0237	0.0118	
Acenaphthene	ND	0.0237	0.0118	
Fluorene	ND	0.0237	0.0118	
Pentachlorophenol	ND	0.0946	0.0473	
Phenanthrene	ND	0.0237	0.0118	
Anthracene	ND	0.0237	0.0118	
Fluoranthene	ND	0.00473	0.00237	
Pyrene	ND	0.00473	0.00237	
Benzo(a)anthracene	ND	0.00946	0.00473	
Chrysene	ND	0.00946	0.00473	
Benzofluoranthenes	ND	0.00946	0.00473	
Benzo(a)pyrene	ND	0.00473	0.00237	
Indeno(1,2,3-cd)pyrene	ND	0.00473	0.00237	
Dibenz(a,h)anthracene	ND	0.00473	0.00237	
Benzo(g,h,i)perylene	ND	0.0237	0.0118	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #1
Lab ID:	117005-19
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000956	0.001	0.0005	J
Chromium	0.00193	0.001	0.0005	
Copper	0.00121	0.001	0.0005	
Zinc	0.00426	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #5
Lab ID:	117005-12
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.001	0.0005	
Chromium	0.00211	0.001	0.0005	
Copper	0.00136	0.001	0.0005	
Zinc	0.00469	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #6
Lab ID:	117005-11
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00144	0.001	0.0005	
Chromium	0.00237	0.001	0.0005	
Copper	0.00124	0.001	0.0005	
Zinc	0.0053	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #7
Lab ID:	117005-18
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00195	0.001	0.0005	
Chromium	0.0019	0.001	0.0005	
Copper	0.00174	0.001	0.0005	
Zinc	0.00944	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #9
Lab ID:	117005-14
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000503	0.001	0.0005	J
Chromium	0.0029	0.001	0.0005	
Copper	0.00378	0.001	0.0005	
Zinc	0.0109	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #10
Lab ID:	117005-10
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00114	0.001	0.0005	
Chromium	0.0026	0.001	0.0005	
Copper	0.00182	0.001	0.0005	
Zinc	0.00613	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #11
Lab ID:	117005-09
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00176	0.001	0.0005	
Chromium	0.00222	0.001	0.0005	
Copper	0.00116	0.001	0.0005	
Zinc	0.00475	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #12
Lab ID:	117005-08
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.001	0.0005	
Chromium	0.00228	0.001	0.0005	
Copper	0.00114	0.001	0.0005	
Zinc	0.0046	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #14
Lab ID:	117005-06
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.001	0.0005	
Chromium	0.00237	0.001	0.0005	
Copper	0.00123	0.001	0.0005	
Zinc	0.00646	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #15
Lab ID:	117005-01
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.001	0.0005	
Chromium	0.00213	0.001	0.0005	
Copper	0.0211	0.001	0.0005	
Zinc	0.0141	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #16
Lab ID:	117005-04
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000968	0.001	0.0005	J
Chromium	0.00229	0.001	0.0005	
Copper	0.00132	0.001	0.0005	
Zinc	0.00458	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #17
Lab ID:	117005-05
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000869	0.001	0.0005	J
Chromium	0.00235	0.001	0.0005	
Copper	0.00137	0.001	0.0005	
Zinc	0.00654	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #18
Lab ID:	117005-03
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000702	0.001	0.0005	J
Chromium	0.00236	0.001	0.0005	
Copper	0.00603	0.001	0.0005	
Zinc	0.00737	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #21
Lab ID:	117005-13
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.000543	0.001	0.0005	J
Chromium	0.00225	0.001	0.0005	
Copper	0.00232	0.001	0.0005	
Zinc	0.00482	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #22
Lab ID:	117005-15
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00112	0.001	0.0005	
Chromium	0.00214	0.001	0.0005	
Copper	0.0014	0.001	0.0005	
Zinc	0.00479	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #23
Lab ID:	117005-21
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00107	0.001	0.0005	
Chromium	0.00172	0.001	0.0005	
Copper	0.00132	0.001	0.0005	
Zinc	0.00432	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #24
Lab ID:	117005-07
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #25
Lab ID:	117005-17
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00115	0.001	0.0005	
Chromium	0.00269	0.001	0.0005	
Copper	0.00358	0.001	0.0005	
Zinc	0.0102	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #26
Lab ID:	117005-16
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00206	0.001	0.0005	
Chromium	0.00547	0.001	0.0005	
Copper	0.00906	0.001	0.0005	
Zinc	0.0199	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #27
Lab ID:	117005-20
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00116	0.001	0.0005	
Chromium	0.00191	0.001	0.0005	
Copper	0.00169	0.001	0.0005	
Zinc	0.00575	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #28
Lab ID:	117005-02
Date Received:	10/17/03
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	0.00181	0.001	0.0005	
Chromium	0.0023	0.001	0.0005	
Copper	0.00818	0.001	0.0005	
Zinc	0.00741	0.003	0.0015	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #1
Lab ID:	117005-19
Date Received:	10/17/03
Date Prepared:	11/18/03
Date Analyzed:	11/18/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	1.86	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #5
Lab ID:	117005-12
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.06	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #6
Lab ID:	117005-11
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	1.92	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #7
Lab ID:	117005-18
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	1.99	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #9
Lab ID:	117005-14
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	1.93	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #10
Lab ID:	117005-10
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.37	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #11
Lab ID:	117005-09
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	1.92	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #12
Lab ID:	117005-08
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	3.33	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #14
Lab ID:	117005-06
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.01	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #15
Lab ID:	117005-01
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.34	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #16
Lab ID:	117005-04
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.27	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #17
Lab ID:	117005-05
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.02	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #18
Lab ID:	117005-03
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.82	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #21
Lab ID:	117005-13
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.21	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #22
Lab ID:	117005-15
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.15	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #23
Lab ID:	117005-21
Date Received:	10/17/03
Date Prepared:	11/18/03
Date Analyzed:	11/18/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	1.99	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #24
Lab ID:	117005-07
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.13	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #25
Lab ID:	117005-17
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.44	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #26
Lab ID:	117005-16
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.16	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #27
Lab ID:	117005-20
Date Received:	10/17/03
Date Prepared:	11/18/03
Date Analyzed:	11/18/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.22	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #28
Lab ID:	117005-02
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	2.47	0.5	0.35	

STL Seattle

Client Sample ID	McCormick & Baxter #14
Lab ID	117005-06

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	4	2

Client Sample ID	McCormick & Baxter #24
Lab ID	117005-07

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	6	2

Client Sample ID	McCormick & Baxter #12
Lab ID	117005-08

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	6	2

Client Sample ID	McCormick & Baxter #11
Lab ID	117005-09

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	6	2

Client Sample ID	McCormick & Baxter #10
Lab ID	117005-10

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	10	2

Client Sample ID	McCormick & Baxter #6
Lab ID	117005-11

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	7	2

STL Seattle

Client Name	Ecology & Environment
Project Name	McCormick & Baxter
Date Received	10-17-03

General Chemistry Parameters

Client Sample ID	McCormick & Baxter #15
Lab ID	117005-01

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	5	2

Client Sample ID	McCormick & Baxter #28
Lab ID	117005-02

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	5	2

Client Sample ID	McCormick & Baxter #18
Lab ID	117005-03

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	5	2

Client Sample ID	McCormick & Baxter #16
Lab ID	117005-04

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	5	2

Client Sample ID	McCormick & Baxter #17
Lab ID	117005-05

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	5	2

STL Seattle

Client Sample ID	McCormick & Baxter #5
Lab ID	117005-12

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	6	2

Client Sample ID	McCormick & Baxter #21
Lab ID	117005-13

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	9	2

Client Sample ID	McCormick & Baxter #9
Lab ID	117005-14

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	89	2

Client Sample ID	McCormick & Baxter #22
Lab ID	117005-15

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	10	2

Client Sample ID	McCormick & Baxter #26
Lab ID	117005-16

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	180	2

Client Sample ID	McCormick & Baxter #25
Lab ID	117005-17

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	56	2

STL Seattle

Client Sample ID	McCormick & Baxter #7
Lab ID	117005-18

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	10	2

Client Sample ID	McCormick & Baxter #1
Lab ID	117005-19

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	7	2

Client Sample ID	McCormick & Baxter #27
Lab ID	117005-20

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	24	2

Client Sample ID	McCormick & Baxter #23
Lab ID	117005-21

Parameter	Method	Date Analyzed	Units	Result	PQL
Total Suspended Solids	EPA 160.2	10-20-03	mg/L	14	2

STL Seattle

Lab ID:	Method Blank - SW0745X
Date Received:	-
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	98.7		34	148
2,4,6 - Tribromophenol	126		29	159
p - Terphenyl - d14	110		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.05	0.025	
2-Methylnaphthalene	ND	0.025	0.0125	
1-Methylnaphthalene	ND	0.025	0.0125	
Acenaphthylene	ND	0.025	0.0125	
Acenaphthene	ND	0.025	0.0125	
Fluorene	ND	0.025	0.0125	
Pentachlorophenol	ND	0.1	0.05	
Phenanthrene	ND	0.025	0.0125	
Anthracene	ND	0.025	0.0125	
Fluoranthene	ND	0.005	0.0025	
Pyrene	ND	0.005	0.0025	
Benzo(a)anthracene	ND	0.01	0.005	
Chrysene	ND	0.01	0.005	
Benzofluoranthenes	ND	0.01	0.005	
Benzo(a)pyrene	ND	0.005	0.0025	
Indeno(1,2,3-cd)pyrene	ND	0.005	0.0025	
Dibenz(a,h)anthracene	ND	0.005	0.0025	
Benzo(g,h,i)perylene	ND	0.025	0.0125	

STL Seattle

Lab ID:	Method Blank - SW0746
Date Received:	-
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
% Solids	-
Dilution Factor	0.1

Semivolatile Organics by USEPA Method 8270

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
2 - Fluorobiphenyl	82.8		34	148
2,4,6 - Tribromophenol	82.6		29	159
p - Terphenyl - d14	102		33	172

Analyte	Result (ug/L)	PQL	MRL	Flags
Naphthalene	ND	0.05	0.025	
2-Methylnaphthalene	ND	0.025	0.0125	
1-Methylnaphthalene	ND	0.025	0.0125	
Acenaphthylene	ND	0.025	0.0125	
Acenaphthene	ND	0.025	0.0125	
Fluorene	ND	0.025	0.0125	
Pentachlorophenol	ND	0.1	0.05	
Phenanthrene	ND	0.025	0.0125	
Anthracene	ND	0.025	0.0125	
Fluoranthene	ND	0.005	0.0025	
Pyrene	ND	0.005	0.0025	
Benzo(a)anthracene	ND	0.01	0.005	
Chrysene	ND	0.01	0.005	
Benzofluoranthenes	ND	0.01	0.005	
Benzo(a)pyrene	ND	0.005	0.0025	
Indeno(1,2,3-cd)pyrene	ND	0.005	0.0025	
Dibenz(a,h)anthracene	ND	0.005	0.0025	
Benzo(g,h,i)perylene	ND	0.025	0.0125	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	SW0745X
Date Prepared:	10/21/2003
Date Analyzed:	10/29/2003
QC Batch ID:	SW0745X

Semivolatile Organics by USEPA Method 8270

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Naphthalene	0.0027	0.1	0.0992	96.5	0.101	97.9	1.4	
2-Methylnaphthalene	0	0.1	0.096	96	0.0864	86.4	-11	
1-Methylnaphthalene	0	0.1	0.102	102	0.101	101	-0.99	
Acenaphthylene	0	0.1	0.0932	93.2	0.105	105	12	
Acenaphthene	0	0.1	0.097	97	0.113	113	15	
Fluorene	0	0.1	0.109	109	0.118	118	7.9	
Pentachlorophenol	0	0.2	0.154	77.2	0.151	75.7	-2	
Phenanthrene	0.0016	0.1	0.109	108	0.115	114	5.4	
Anthracene	0	0.1	0.118	118	0.122	122	3.3	
Fluoranthene	0	0.1	0.104	104	0.109	109	4.7	
Pyrene	0	0.1	0.107	107	0.111	111	3.7	
Benzo(a)anthracene	0	0.1	0.106	106	0.106	106	0	
Chrysene	0	0.1	0.0961	96.1	0.0997	99.7	3.7	
Benzofluoranthenes	0	0.2	0.216	108	0.221	111	2.7	
Benzo(a)pyrene	0	0.1	0.105	105	0.105	105	0	
Indeno(1,2,3-cd)pyrene	0	0.1	0.119	119	0.129	129	8.1	
Dibenz(a,h)anthracene	0	0.1	0.119	119	0.118	118	-0.84	
Benzo(g,h,i)perylene	0	0.1	0.111	111	0.11	110	-0.9	

STL Seattle

Blank Spike/Blank Spike Duplicate Report

Lab ID:	SW0746
Date Prepared:	10/21/2003
Date Analyzed:	10/30/2003
QC Batch ID:	SW0746

Semivolatile Organics by USEPA Method 8270

Compound Name	Blank Result (ug/L)	Spike Amount (ug/L)	BS Result (ug/L)	BS % Rec.	BSD Result (ug/L)	BSD % Rec.	RPD	Flag
Naphthalene	0	0.1	0.0947	94.7	0.0997	99.7	5.1	
2-Methylnaphthalene	0	0.1	0.0923	92.3	0.0951	95.1	3	
1-Methylnaphthalene	0	0.1	0.0928	92.8	0.0936	93.6	0.86	
Acenaphthylene	0	0.1	0.0981	98.1	0.0972	97.2	-0.92	
Acenaphthene	0	0.1	0.0995	99.5	0.101	101	1.5	
Fluorene	0	0.1	0.106	106	0.108	108	1.9	
Pentachlorophenol	0.0018	0.2	0.117	57.5	0.118	58.1	1	
Phenanthrene	0	0.1	0.104	104	0.115	115	10	
Anthracene	0	0.1	0.103	103	0.105	105	1.9	
Fluoranthene	0	0.1	0.0998	99.8	0.104	104	4.1	
Pyrene	0	0.1	0.102	102	0.109	109	6.6	
Benzo(a)anthracene	0	0.1	0.0897	89.7	0.0967	96.7	7.5	
Chrysene	0	0.1	0.105	105	0.0919	91.9	-13	
Benzofluoranthenes	0	0.2	0.194	96.8	0.203	102	5.2	
Benzo(a)pyrene	0	0.1	0.0912	91.2	0.0954	95.4	4.5	
Indeno(1,2,3-cd)pyrene	0	0.1	0.0988	98.8	0.105	105	6.1	
Dibenz(a,h)anthracene	0	0.1	0.0992	99.2	0.101	101	1.8	
Benzo(g,h,i)perylene	0	0.1	0.0924	92.4	0.0927	92.7	0.32	

STL Seattle

Lab ID:	Method Blank - TP151
Date Received:	-
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.001	0.0005	
Chromium	ND	0.001	0.0005	
Copper	ND	0.001	0.0005	
Zinc	ND	0.003	0.0015	

STL Seattle

Lab ID:	Method Blank - TP152
Date Received:	-
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
Dilution Factor	1

Metals by ICP-MS - USEPA Method 6020

Analyte	Result (mg/L)	PQL	MRL	Flags
Arsenic	ND	0.001	0.0005	
Chromium	ND	0.001	0.0005	
Copper	ND	0.001	0.0005	
Zinc	ND	0.003	0.0015	

STL Seattle

Matrix Spike Report

Client Sample ID:	MCCORMICK & BAXTER #15
Lab ID:	117005-01
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
QC Batch ID:	TP151

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Arsenic	0	4	3.88	97	
Chromium	0.0021	0.4	0.375	93	
Copper	0.021	0.5	0.49	94	
Zinc	0.014	1	0.961	95	

STL Seattle

Matrix Spike Report

Client Sample ID:	MCCORMICK & BAXTER #1
Lab ID:	117005-19
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
QC Batch ID:	TP152

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	Flag
Arsenic	0.000956	4	4	100	
Chromium	0.0019	0.4	0.364	91	
Copper	0.0012	0.5	0.475	95	
Zinc	0.0043	1	0.988	98	

STL Seattle

Duplicate Report

Client Sample ID:	MCCORMICK & BAXTER #15
Lab ID:	117005-01
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
QC Batch ID:	TP151

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Arsenic	0	0.0016	-200.0	X4a
Chromium	0.0021	0.002	4.9	
Copper	0.021	0.021	0.0	
Zinc	0.014	0.015	-6.9	

STL Seattle

Duplicate Report

Client Sample ID:	MCCORMICK & BAXTER #1
Lab ID:	117005-19
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
QC Batch ID:	TP152

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD %	Flag
Arsenic	0.00096	0.0013	-30.0	X4a
Chromium	0.0019	0.0018	5.4	
Copper	0.0012	0.0013	-8.0	
Zinc	0.0043	0.0083	-63.0	X4a

STL Seattle

Laboratory Control Sample

Lab ID:	RTP151
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
QC Batch ID:	TP151

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	True Value (mg/L)	Lower Limit (mg/L)	Upper Limit (mg/L)	Flag
Arsenic	4	4	3.2	4.8	Pass
Chromium	0.39	0.4	0.32	0.48	Pass
Copper	0.49	0.5	0.4	0.6	Pass
Zinc	1	1	0.8	1.2	Pass

STL Seattle

Laboratory Control Sample

Lab ID:	RTP152
Date Prepared:	10/21/03
Date Analyzed:	10/21/03
QC Batch ID:	TP152

Metals by ICP-MS - USEPA Method 6020

Parameter Name	Sample Result (mg/L)	True Value (mg/L)	Lower Limit (mg/L)	Upper Limit (mg/L)	Flag
Arsenic	4	4	3.2	4.8	Pass
Chromium	0.37	0.4	0.32	0.48	Pass
Copper	0.48	0.5	0.4	0.6	Pass
Zinc	1	1	0.8	1.2	Pass

STL Seattle

Lab ID:	Method Blank - DOC1105
Date Received:	-
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	ND	0.5	0.35	

STL Seattle

Lab ID:	Method Blank - DOC1106
Date Received:	-
Date Prepared:	11/18/03
Date Analyzed:	11/18/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	ND	0.5	0.35	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	MCCORMICK & BAXTER #15
Lab ID:	117005-01
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
QC Batch ID:	DOC1105

Dissolved Organic Carbon by USEPA Method 9060

Compound Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	MSD Result (mg/L)	MSD % Rec.	RPD	Flag
DOC	2.3	20	22.4	100	22.3	100	0	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #15 - ms
Lab ID:	117005S01
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	22.4	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #15 - msd
Lab ID:	117005D01
Date Received:	10/17/03
Date Prepared:	11/17/03
Date Analyzed:	11/17/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	22.3	0.5	0.35	

STL Seattle

Matrix Spike/Matrix Spike Duplicate Report

Client Sample ID:	MCCORMICK & BAXTER #1
Lab ID:	117005-19
Date Prepared:	11/18/03
Date Analyzed:	11/18/03
QC Batch ID:	DOC1106

Dissolved Organic Carbon by USEPA Method 9060

Compound Name	Sample Result (mg/L)	Spike Amount (mg/L)	MS Result (mg/L)	MS % Rec.	MSD Result (mg/L)	MSD % Rec.	RPD	Flag
DOC	1.9	15	16.8	99.5	17.3	103	3.5	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #1 - ms
Lab ID:	117005S19
Date Received:	10/17/03
Date Prepared:	11/18/03
Date Analyzed:	11/18/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	16.8	0.5	0.35	

STL Seattle

Client Name	Ecology & Environment
Client ID:	MCCORMICK & BAXTER #1 - msd
Lab ID:	117005D19
Date Received:	10/17/03
Date Prepared:	11/18/03
Date Analyzed:	11/18/03
% Solids	-
Dilution Factor	1

Dissolved Organic Carbon by USEPA Method 9060

Analyte	Result (mg/L)	PQL	MDL	Flags
DOC	17.3	0.5	0.35	

STL Seattle

QUALITY CONTROL REPORT

Client Sample ID: McCormick & Baxter #27
Lab ID: 117005-20
QC Batch Number: 1187-58

Method Blank

Parameter	Result (mg/L)	PQL
Total Suspended Solids	ND	2

Duplicate

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD (%)	Flag
Total Suspended Solids	24.4	23.2	5.0	

STL Seattle

QUALITY CONTROL REPORT

Client Sample ID: Batch QC
Lab ID: 117003-2
QC Batch Number: 1187-59

Method Blank

Parameter	Result (mg/L)	PQL
Total Suspended Solids	ND	2

Duplicate

Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	RPD (%)	Flag
Total Suspended Solids	2,210	2,220	0.45	

SEVERN TRENT STL

STL Seattle
5755 8th Street East
Tacoma, WA 98424

Tel: 253 922 2310
Fax: 253 922 5047
www.stl-inc.com

ATA QUALIFIERS AND ABBREVIATIONS

:	This analyte was detected in the associated method blank. The analyte concentration was determined not to be significantly higher than the associated method blank (less than ten times the concentration reported in the blank).
2:	This analyte was detected in the associated method blank. The analyte concentration in the sample was determined to be significantly higher than the method blank (greater than ten times the concentration reported in the blank).
1:	Second column confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be < 40%.
2:	Second column confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 40%. The higher result was reported unless anomalies were noted.
3:	Second analysis confirmation was performed. The relative percent difference value (RPD) between the results on the two columns was evaluated and determined to be ≤ 30%.
4:	Second analysis confirmation was performed. The RPD between the results on the two columns was evaluated and determined to be > 30%. The original analysis was reported unless anomalies were noted.
:	GC/MS confirmation was performed. The result derived from the original analysis was reported.
:	The reported result for this analyte was calculated based on a secondary dilution factor.
:	The concentration of this analyte exceeded the instrument calibration range and should be considered an estimated quantity.
	The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
MCL:	Maximum Contaminant Level
MDL:	Method Detection Limit
MRL:	Method Reporting Limit
I:	See analytical narrative
ND:	Not Detected
PQL:	Practical Quantitation Limit
Q1:	Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
Q2:	Contaminant does not appear to be "typical" product.
Q3:	Identification and quantitation of the analyte or surrogate was complicated by matrix interference.
Q4:	RPD for duplicates was outside advisory QC limits. The sample was re-analyzed with similar results. The sample matrix may be nonhomogeneous.
Q4a:	RPD for duplicates outside advisory QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
Q5:	Matrix spike recovery was not determined due to the required dilution.
Q6:	Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Sample was re-analyzed with similar results.
Q7:	Recovery and/or RPD values for matrix spike(/matrix spike duplicate) outside advisory QC limits. Matrix interference may be indicated based on acceptable blank spike recovery and/or RPD.
Q7a:	Recovery and/or RPD values for this spiked analyte outside advisory QC limits due to high concentration of the analyte in the original sample.
Q8:	Surrogate recovery was not determined due to the required dilution.
Q9:	Surrogate recovery outside advisory QC limits due to matrix interference.

Chain of Custody Record

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-8274 (0102)

Client: DEQ, Oregon	Project Manager: Dr. Kim Anderson	Date: 10/16/03	Chain of Custody Number: 002829
Address:	Telephone Number (Area Code)/Fax Number: (541) 737-8501	Lab Number: 117005	Page ____ of ____
City: Portland; State: OR; Zip Code:	Site Contact:	Lab Contact:	
Project Name and Location (State): McCormick & Baxter	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Analysis (Attach list if more space is needed)

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PAH/PCP	Metals (HNO3)	DOC	TSS	Special Instructions/ Conditions of Receipt
McCormick & Baxter #21	10/16/03	12.37							✓				✓	✓	✓	✓	45°34'37"N; 122°44'21
" " #9	10/16/03	12.50							✓				✓	✓	✓	✓	45°34'37"N; 122°44'32
" " #22	10/16/03	12.58							✓				✓	✓	✓	✓	
" " #26	10/16/03	1.15							✓				✓	✓	✓	✓	45°34'43"N; 122°44'4
" " #25	10/16/03	13.30							✓				✓	✓	✓	✓	45°34'35"N; 122°44'2
" " #7	10/16/03	13.35							✓				✓	✓	✓	✓	
" " #1	10/16/03	13.45							✓				✓	✓	✓	✓	45°34'34"N; 122°44'29
" " #27	10/16/03	14.00							✓				✓	✓	✓	✓	
" " #23	10/16/03	14.05							✓				✓	✓	✓	✓	45°34'34"N; 122°44'36

Cooler: ☐ Yes ☐ No Cooler Temp: ____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other ____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: [signature] Oraphin K.	10/16/03	3.49.	1. Received By: [signature] G. Ilics	10/16/03	1549
2. Relinquished By: [signature] G. Ilics	10/16/03	1706	2. Received By: Khose	10/17/03	[illegible]
3. Relinquished By:			3. Received By:		

Chain of Custody Record

STL Seattle
5755 8th Street E.
Tacoma, WA 98424
Tel. 253-922-2310
Fax 253-922-5047
www.stl-inc.com

SEVERN TRENT SERVICES

Severn Trent Laboratories, Inc.

STL-8274 (0102) C

Client: Oregon DEQ.	Project Manager: Dr. Kim Anderson	Date: 10/16/03	Chain of Custody Number: 002828
Address:	Telephone Number (Area Code)/Fax Number: (541) 737-8501	Lab Number: 117005	Page ____ of ____
City: Portland; State: OR; Zip Code:	Site Contact:	Lab Contact:	
Project Name and Location (State): McCormick & Baxter	Carrier/Waybill Number:		
Contract/Purchase Order/Quote No.:			

Sample I.D. and Location/Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	PAH/PCP	Metals (HNO3)	DOC	TSS	Special Instructions/ Conditions of Receipt
McCormick & Baxter #15	10/16/03	9.01							✓				✓	✓	✓	✓	
2 " #28	10/16/03	9.24							✓				✓	✓	✓	✓	45°34'47"N, 122°44'4
3 " #18	10/16/03	9.37							✓				✓	✓	✓	✓	45°34'43"N, 122°44'
4 " #16	10/16/03	9.45							✓				✓	✓	✓	✓	45°34'36"N, 122°44'25
5 " #17	10/16/03	10.05							✓				✓	✓	✓	✓	45°34'40"N, 122°44'49
6 " #14	10/16/03	10.25							✓				✓	✓	✓	✓	45°34'40"N, 122°44'44
7 " #24	10/16/03	10.40							✓				✓	✓	✓	✓	45°34'41"N, 122°44'43"
8 " #[illegible]	10/16/03	11.15							✓				✓	✓	✓	✓	45°34'41"N, 122°44'41"
9 " #11	10/16/03	11.32							✓				✓	✓	✓	✓	
10 " #10	10/16/03	11.55							✓				✓	✓	✓	✓	45°34'37"N, 122°44'35"
11 " #6	10/16/03	12.11							✓				✓	✓	✓	✓	45°34'35"N, 122°44'30"
12 " #5	10/16/03	12.22							✓				✓	✓	✓	✓	45°34'30"N, 122°44'9[illegible]

Cooler: ☐ Yes ☐ No Cooler Temp: ____

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☐ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required (business days): ☐ 24 Hours ☐ 48 Hours ☐ 5 Days ☐ 10 Days ☐ 15 Days ☐ Other ____

QC Requirements (Specify):

	Date	Time		Date	Time
1. Relinquished By: Orphin K.	10/16/03	3.49	1. Received By: [illegible]	10/16/03	1549
2. Relinquished By: [illegible]	10/16/03	1706	2. Received By: Khesl	10/17/03	130p
3. Relinquished By:			3. Received By:		

Comments:

FedEx Express USA Airbill

8410206208 70

0200 Form I.D. No.

FedEx Cop

From

Date 10/16/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

Your Internal Billing Reference

To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL Seattle

Address 5755 8th Street East

If "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8410 2062 0870

L

4a Express Package Service — Packages up to 150 lb. Delivery commitment may be later in some areas.

1 [X] FedEx Priority Overnight — Next business morning
5 [ ] FedEx Standard Overnight — Next business afternoon
6 [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
3 [ ] FedEx 2Day — Second business day
20 [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — Packages over 150 lb. Delivery commitment may be later in some areas.

7 [ ] FedEx 1Day Freight* — Next business day
8 [ ] FedEx 2Day Freight — Second business day
83 [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging — * Declared value limit

6 [ ] FedEx Envelope*
2 [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
1 [X] Other

6 Special Handling — Include FedEx address in Section 3.

3 [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
1 [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight.
31 [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

1 [X] No
4 [ ] Yes — As per attached Shipper's Declaration
[ ] Yes — Shipper's Declaration not required
6 [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

[ ] Cargo Aircraft Only

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below. [ ] Obtain Recip. Acct. No.

1 [ ] Sender — Acct. No. in Section 1 will be billed.
2 [X] Recipient
3 [ ] Third Party
4 [ ] Credit Card
5 [ ] Cash/Ch

FedEx Acct. No. / Credit Card No. 1247-7198-6 Exp. Date

Total Packages	Total Weight	Total Declared Value†	Total Charge
4	212	$ .00	Credit Card Au

†Our liability is limited to $100 unless you declare a higher value. See the *FedEx Service Guide* for details.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

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SEVERN TRENT SERVICES

375917

Custody Seal

DATE 10/16/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375917

SEVERN TRENT SERVICES

375877

Custody Seal

DATE 10/16/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375877

#5

SEVERN TRENT SERVICES

375857

Custody Seal

DATE 10/16/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375847

Custody Seal

DATE 10/16/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375847

6.1

Quantra

Custody Seal

DATE 10/16/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375867

Custody Seal

DATE 10/16/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375887

FedEx Express USA Airbill

FedEx Tracking Number 8410 2062 0870

1 From

Date 10/16/03 [redacted]

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland

Address 15816 SW Upper Boones Ferry Rd

Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

2 Your Internal Billing Reference

3 To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL Seattle

Address 5755 8th street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8410 2062 0870

Recipient's Copy

4a Express Package Service — Packages up to 150 lbs. Delivery commitment may be later in some areas.

- [x] FedEx Priority Overnight — Next business morning
- [ ] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — Packages over 150 lbs. Delivery commitment may be later in some areas.

- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging — * Declared value limit $500

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Jumbo Pak
- [x] Other

6 Special Handling — Hold at FedEx address in Section 3.

- [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight
- [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below.

- [ ] Sender — Acct. No. in Section 1 will be billed.
- [x] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check
- [ ] Obtain Recip. Acct. No.

[redacted] 124 [redacted]

Total Packages	Total Weight	Total Declared Value†	Total Charges
4	212	$ .00	

† Our liability is limited to $100 unless you declare a higher value. See back for details.

Credit Card Auth.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

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SEVERN TRENT SERVICES

375907

Custody Seal

DATE 10/16/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375907

Custody Seal

DATE 10/16/03

SIGNATURE [illegible]

SEVERN TRENT SERVICES

375897

00103

FedEx. USA Airbill Express

8410206208 70

0200 Form I.D. No.

FedEx Copy

From

Date 10/16/03 Sender's FedEx Account Number

Sender's Name Doug McKenzie Phone 503 522 4548

Company STL - Portland

Address 15816 SW Upper Boones Ferry Rd Dept./Floor/Suite/Room

City Lake Oswego State OR ZIP 97035

Your Internal Billing Reference

To

Recipient's Name Sample Receiving Phone 253 922 2310

Company STL Seattle

Address 5755 8th Street East

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Dept./Floor/Suite/Room

City Tacoma State WA ZIP 98424

8410 2062 0870

L

4a Express Package Service — Packages up to 150 lbs. Delivery commitment may be later in some areas

1 [X] FedEx Priority Overnight — Next business morning
5 [ ] FedEx Standard Overnight — Next business afternoon
6 [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
3 [ ] FedEx 2Day — Second business day
20 [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — Packages over 150 lbs. Delivery commitment may be later in some areas

7 [ ] FedEx 1Day Freight* — Next business day
8 [ ] FedEx 2Day Freight — Second business day
83 [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging — * Declared value limit $500

6 [ ] FedEx Envelope*
2 [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
1 [X] Other

6 Special Handling — Include FedEx address in Section 3.

3 [ ] SATURDAY Delivery — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
1 [ ] HOLD Weekday at FedEx Location — Not available for FedEx First Overnight
31 [ ] HOLD Saturday at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

[X] No
4 [ ] Yes — As per attached Shipper's Declaration
[ ] Yes — Shipper's Declaration not required
6 [ ] Dry Ice — Dry Ice, 9, UN 1845 — x

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

[ ] Cargo Aircraft Only

7 Payment Bill to: Enter FedEx Acct. No. or Credit Card No. below. [ ] Obtain Recip. Acct. No.

1 [ ] Sender — Acct. No. in Section 1 will be billed.
2 [X] Recipient
3 [ ] Third Party
4 [ ] Credit Card
5 [ ] Cash/Chec

FedEx Acct. No. Credit Card No. 1247-7198-6 Exp. Date

Total Packages	Total Weight	Total Declared Value†	Total Charges
4	212	$ .00	

Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the *FedEx Service Guide* for details.

8 Release Signature Sign to authorize delivery without obtaining signature.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

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6.1

#25

C

Field Notes

09-26-03 001688.0102.27.01

1240 E. Murphy & S. McMahon Arrive on Site. Gather Supplies and read Sampling and Analysis Plan.

1320 MD Arrives on site, go over Protocols

Weather: ≈ 87° and breezy

Plan: Perform Napl Flux Sampling

H&S Meeting: Wear PPE, Sunscreen etc. Watch For Yellow Jackets

NOTES: Samples will be labled as the Following:

MBNLGB03- XX

1414 AT FIRST LOCATION NEAR Rail Road Bridge

1416 Deploy 1st Diaper (1st location) MBNLGB03-01a

1420 Deploy 2nd Diaper (1st location) MBNLGB03-01b

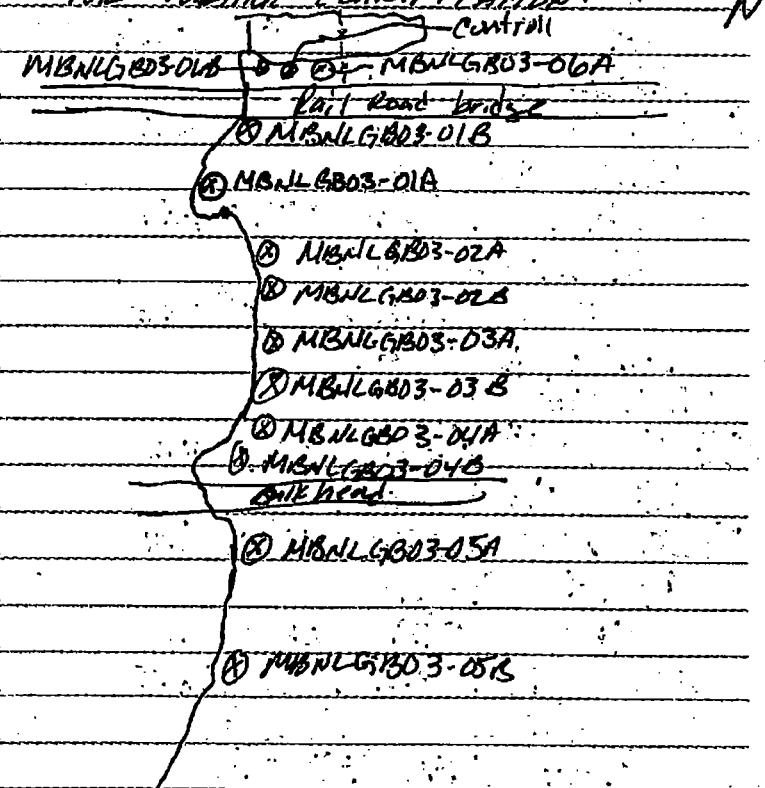
1426 Deploy 3rd Diaper (2nd location) MBNLGB03-02A

1428 Deploy 4th Diaper (2nd location) MBNLGB03-02B

1430 Deploy 5th Diaper (3rd location) MBNLGB03-03A

1432 Set 6th Diaper (3rd location)

NOTE: TO Scale; SEE GPS COORDINATES FOR FURTHER CLARIFICATION.



09-26-03 001458.0102.27.01

1435 Set 7th Diaper (4th location)
MBNLGB03-04A
1440 Set 8th Diaper (4th location)
1440 MBNLGB03-04B
1450 Set 9th Diaper (5th location)
MBNLGB03-05A
1452 Set 10th Diaper (5th location)
MBNLGB03-05B
1512 Set 11th Diaper (6th location)
MBNLGB03-06A
(Willamette Cove)
1514 Set 12th Diaper (6th location)
MBNLGB03-06B
1518 Set 13th Diaper (6th location)
Control Sample
1605 Collect Control Sample
Sheen observed on both sides
(on sediments) no product
1614 Collect MBNLGB03-01B
no odor or sheen observed
1616 Collect MBNLGB03-01A
no odor or sheen observed
1623 Collect MBNLGB03-04B
UNABLE TO COLLECT REMAINING DIAPERS
DIAPERS ARE FLOATING WITHIN THE

09-26-03 001458.0102.27.01

CONTAINMENT BOOM, UNABLE TO REACH
WITHOUT A BOAT.
1625 ATTEMPT TO CALL M. OCHNER.
NOT ABLE TO REACH HIM.
1717 END OF DAY. (EOD)

Cm
09-26-03

001688.0402.27.01

09-29-03 E. Murphy

0800 Meet w/ Mark Ochsner at Warehouse to Pick up Supplies

0900 E. Murphy Arrives on site

H. Brunell on site

Weather: Overcast & light breeze

1000 DEQ arrives on site

- SET SEEPAGE METERS, GO OVER PROTOCOL FOR PIEZOMETERS

1300 LEAVE SITE FOR LUNCH

1330 BACK on site

1450 PREPARE TEDLAR BAGS FOR SAMPLING/DEPLOYMENT

SAMPLES WILL BE DESIGNATED W/THE FOLLOWING ID'S

MBPWSM03-XX

1617 OPEN MBPWSM03-01

1619 OPEN MBPWSM03-02

1621 OPEN MBPWSM03-03

1622 OPEN MBPWSM03-04

1623 OPEN MBPWSM03-05

1624 OPEN MBPWSM03-06

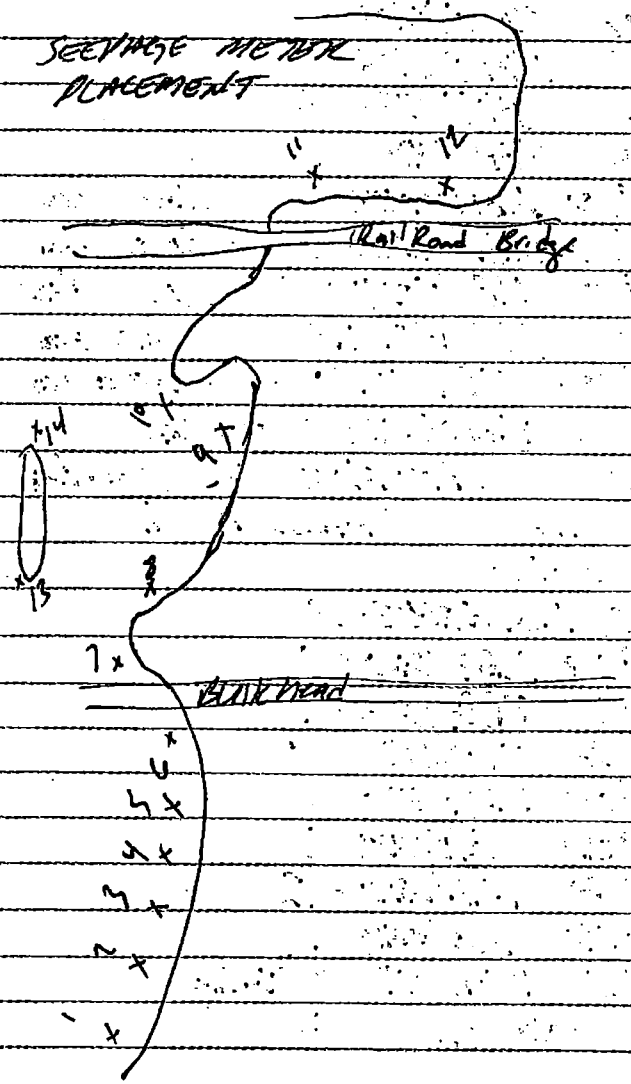
1628 OPEN MBPWSM03-07

1623 OPEN MBPWSM03-08

1620 OPEN MBPWSM03-09

09-29-03 001688.0402.27.01

SEEPAGE METER PLACEMENT



9-29-03 001688.0402.27.01

1655 OPEN MBPWSM03-11
1645 OPEN MBPWSM03-12
1625 OPEN MBPWSM03-13
1624 OPEN MBPWSM03-14
1741 Close MBPWSM03-1 - Water clear
1743 Close MBPWSM03-2 - Water clear
1747 Close MBPWSM03-3 - Water clear
1748 Close MBPWSM03-4 - Water clear
1750 Close MBPWSM03-5 - Water clear
1751 Set MBPWSM03-05 overnight
1753 Close MBPWSM03-06 - Water clear
* NOTE TIDE IS COMMING BACK IN (1741 NOTICED)
1800 Close MBPWSM03-13
1755 Close MBPWSM03-7
1803 Close MBPWSM03-8
1744 Close MBPWSM03-9
1738 Close MBPWSM03-10
Close MBPWSM03-11
Close MBPWSM03-12
1802 Close MBPWSM03-14
1805 Open MBPWSM03-9 overnight
1830 Leave Site - EOD

[signature] 09/29/03

9-30-03 001688.0402.27.01

0640 E. Murphy Arrives at office
- download & Print Stream Gage data (USGS)
- Pick up Laptop
- Pick up Water Quality instrument
0700 LEAVE OFFICE
0725 ARRIVE AT FRED MEYERS
- NO WADDERS MY SIZE IN STOCK
0740 ARRIVE ON SITE
- PRINT OFF DAILY TIDE CHART
- CALIBRATE WATER QUALITY METER
0800 H. Brunelle onsite
0820 M. Ochsner onsite
0830 LEAVE SITE FOR FISHERMANS MARINE
0940 BACK ON SITE
- CREW IS SETTING UP MANOMETERS
LATE NOTE
0846 D. ANDERSON (DEQ) RETRIEVES TEDLAR BAG FROM SEEPAGE METER #5
WATER IS CLEAR
0900 D. ANDERSON (DEQ) RETRIEVES TEDLAR BAG FROM SEEPAGE METER #9
0950 ON BEACH TAKING Manometer Readings
SEE KEN CAMERONS NOTES

9-30-03 001688.0402.27.01

1345 Preparing to sample seepage meters

1416 Collect Seepage Meter #4 Sample MBPWSM03-04 (3) 1-liter ambers & (1)-500mL Poly

1422 Collect MBPWSM03-03 (3) 1-liter ambers & (1)-500 mL Poly

*1428 Collect MBPWSM03-02

*1438 Collect MBPWSM03-01

* Same containers as above.

*1448 Collect MBPWSM03-05

*1453 Collect MBPWSM03-06

*1515 Collect MBPWSM03-14

*1525 Collect MBPWSM03-13

*1524 Collect MBPWSM03-15 (13 dup)

*1552 Collect MBPWSM03-08 MS/MSD

*1600 Collect MBPWSM1309

*1620 Collect MBPWSM03-10

*1635 Collect MBPWSM03-07

1700 EOD

* M. Ochsner & H. Brunelle still on site

10-1-03 001688.0402.27.01

0800 E. Murphy & H. Brunelle arrive on-site.

0815 H. Brunelle Prepares Samples & E. Murphy download GPS cd onto laptop.

0820 Mark Ochsner Arrives on-site & Prepares Tedlar bags for deployment

E. Murphy Calls E. Lynch in office to leave message about laptop/GPS not being able to download. Unable to provide GPS unit to crew. - Also tryed E.L's Cellphone.

0900 Continue Prep. For Todays Sampling.

1200 DEQ (K. Parette) on site. Go over seepage meter & manometer operation

Set out sample bottles for event.

1427 At MBGWMH03-01

14" :	$3\frac{3}{4}$" to top	$2\frac{1}{4}$" to ?
36" :	8" to top	$2\frac{1}{4}$"
72" :	9"	$2\frac{1}{4}$

1432 Collect MBGWMH0301 (14")

1443 Collect MBGWMH0301 (36")

Odor present, Sheen present

10-1-03 001688.0Y07.27.01
1452 Manometer readings
14" 36" 72"
SW 48.0 cm 36.2 cm 57.7 cm
GW 52.5 cm 29.1 cm 54.6 cm
1510 AT MBGWMH0302
14": 4 1/2" (T) 3 1/4" (≡)
36": 7 3/4" (TOP) 3 3/4" (≡)
72": 10 1/2" (T) 4 1/4" (≡)
1514 MBGWMH0302 (14") - Collect
no sheen or odor
- odor present halfway through bottle #1
1526 Collect MBGWMH0302 (36")
odor present, no sheen
1535 Collect MBGWMH0302 (72")
unable to notice sheen or odor due to waves from boat.
(in cm) 14" 36" 72"
SW 59.1 69.0 37.5
GW 65.7 71.2 69.6
1620 AT MBGWMH0303
14": 4 1/4" (TOP) 5 1/8" (≡)
36": 6 7/8" (TOP) 4 3/4" (≡)
72": 7 3/4" (TOP) 5 1/2" (≡)

10-1-03 001688.0Y07.27.01
1627 Collect MBGWMH0303 (14")
no sheen or odor
1636 Collect MBGWMH0303 (36")
no odor or sheen
1639 Collect MBGWMH0303 (72")
14" 36" 72"
GW 51.5 59.3 20.5
SW 62.9 56.8 17.9
1657 AT MBGWMH0304
14": 3 7/8" TOP 3.0" ≡
36": 6 5/8" TOP 3" ≡
72": 8" TOP 3" ≡
1702 Collect MBGWMH0304 (14")
no odor or sheen
1708 Collect MBGWMH0304 (36")
no odor or sheen
1714 Collect MBGWMH0304 (72")
no odor or sheen
14" 36" 72"
SW 41.8 61.8 43.3
GW 58.2 67.0 42.5
1806 AT MBGWMH0306
1810 Collect MBGWMH0306 (14")
1818 Collect MBGWMH0306 (36")
1820 Collect MBGWMH0306 (72")

10-1-03 001688.0Y02.27.01

For MBGWMH03-06

14": 4 1/4 (=) 4 3/4 (top)
36": 3 1/4 (=) 7 3/4 (top)
72": 4 (=) 7 1/4 (top)
1838 AT MBGWMH03-05
14": 4 (top) 3 (=)
36": 6 3/4 (top) 3 1/2 (=)
72": 7 1/2 (top) 3 3/4 (=)
1842 Collect MBGWMH0305 (14")
1850 Collect MBGWMH0305 (36")
1900 Collect MBGWMH0305 (72")

Duplicate Collected

	GW	SO
14"	67.2	63.2
36"	—	—
72"	—	—

1908 MBGWMH0305 (84")
1940 EOD

EM 10/1/03

0-2-03 001688.0Y02.27.01

GW	SW 1700 E Murphy & H. Brunelle
61.3	61.8 Arrive on Site
77.0	68.1 Pack Samples & Fill out Chain
58.5	55.0 0900 Collect MBGWMH03RN + Rinsate
	MARK OCHSNER ARRIVES ON Site
	1000 LEAVE SITE End of DAY

EM 10/2/03

10-7-03
1042 deploy 1st diaper MBNLGB03-01
1045 deploy 2nd diaper MBNLGB03-02
1055 deploy 3rd diaper MBNLGB03-03
1057 deploy 4th diaper MBNLGB03-04
1106 deploy 5th diaper MBNLGB03-05
1109 deploy 6th diaper MBNLGB03-06
1112 deploy 7th diaper MBNLGB03-07
1114 deploy 8th diaper MBNLGB03-08
1121 deploy 9th diaper MBNLGB03-09
1123 deploy 10th diaper MBNLGB03-10
1123 deploy control diaper next to 10
1153 Pick up control no noticeable
Sheen or odor
1210 Pick up MBNLGB03-01
no sheen or odor
1212 Pick up MBNLGB03-02
no Sheen or odor
1225 Pick up MBNLGB03-03
no odor or Sheen
1226 pick up MBNLGB03-04
no odor or Sheen
1230 Pick up MBNLGB03-05
no odor or Sheen
1232 Pick up MBNLGB03-07
no odor or Sheen

10-7-03 001688.0Y02 27.01
1236 Pick up MBNLGB03-08
no odor or Sheen
1242 Pick up MBNLGB03-09
no odor or Sheen
1245 Pick up MBNLGB03-10
no odor or Sheen
note: many Seeps located around
09 & 10.
1430 leave site - EOD

[signature] 10/07/03

10-8-03 001688.0Y02.03.01

0840 Arrive on site, Pre-pare trap
0900 West Coast Marine arrives on site
0920 deploy 1st trap (using Chicken Bizzards)
0935 deploy 2nd trap
0950 deploy 3rd trap
1005 deploy 4th trap
1030 Leave site, EOD

* No Lamprey or Larvae observed

Cam 10/8/03

-9-03 001688.0Y02.27.01

800 Arrive at warehouse
Pick up supplies
'00 Arrive at boat dock
weather Cool & Rainy
3d at trap #1
2 Crayfish in trap
One: 10 cm ♀
two: 10.5 cm
0 odor or Sheen observed
laced in bag #1
no pinchers on either Crayfinch
950 Pick up 2nd trap
no odor or Sheen
no pinchers
9cm not large enough
955 Seven Six Cray Fish in trap
1: 10.2 cm
2: 9 cm
3: 9.4 cm
4: 10 cm
5: 10.5 cm
6: 9 cm
7: 12 cm
All had pinchers, no odor or sheen

10-9-03 001688.0Y02.27.01
1005 AT 4th trap
Two Crayfish in trap
one: 10.5
two: 10.0
no odor or sheen observed
Worms on Cray Fish
Note: no Females (Gravid)
Observed in any of the traps
Will deploy traps in same location
& come out again tomorrow.
1120 Arrive Back in office
EOD

Cm 10/9/03

10-10-03 001688.0Y02.27.01
820 ARRIVE ON SITE
R. Whitchurch Already on site
830 West Coast Marine on site
load up & head to sample
location
Weather: overcast, rain & sun breaks.
Plan: GPS in all trap locations,
Collect remaining samples
845 1st trap 1 Cray Fish in trap
11 cm in length
no sheen or odor (one primary pincher missing)
one pincher very small (secondary pincher)
no lamprey or lamprey larve
855 AT Trap #2 no Crayfish
in trap
Called Mark OCHSNER, he
suggested drying a new bait,
909 Pull up trap 3
911 Only one Cray Fish in trap
Cray Fish 8.7 cm
Will get dog food & Re-set traps
1010 LEAVE SITE FOR STORE
Pick up Cat FOOD, SALMON
IN SAVORY SAUCE.

10-10-03 001688.0Y02.27.01

1045 ARRIVE BACK ON SITE
Drop Trap#1 in SAME location
Drop trap#2 in SAME location
Drop trap#3 in line w/#2
JUST further OUT towards Dolphins
Will Rename to trap 2b.
Drop trap #4 JUST TO the
OUTSIDE OF YELLOW BOOM.
1200 E. Murphy & R. Whitchurch
ARRIVE AT OFFICE TRAILER
ON SITE TO Prep SAMPLES.
LAT LONG LOCATIONS FOR
EACH TRAP:

Trap#1 45° 34.60 N
122° 44.40 W

Trap#2 45° 34.64 N
122° 44.55 W

Trap#2b 45° 34.62 N
122° 44.56 W

Trap#3 45° 34.67 N
122° 44.[illegible]

10-10-03 001688.0Y02.27.01

Trap #4 45° 34.76 N
122° 44.73 W

315 leave Site & HEAD TO
Wharehouse
330 Arrive AT Wharehouse
drop OFF Supplies & prep.
Weigh Sample bag #3 (weigh Crayfish only)
≈ 192 grams
Weigh Sample bag #1 (weigh Crayfish only)
≈ 102 grams
Weigh Crayfish from Sample bag #4
≈ 68 grams
430 BACK in OFFICE END

[illegible] 10/10/03

10-13-03 001688.0Y02.27.03
0800 ARRIVE AT OFFICE Pick up Camera
0830 Arrive AT Warehouse
0845 Arrive AT Dock
A Murphy Called to inform me that the Alarm was going off AT McCormick (Door #4) - E. Murphy
Informs R. Whitchurch.
0900 HEAD TOWARDS SITE
WEATHER: Cool & Overcast
Plan: Pick up remaining traps
AT Trap #1 → 2 Crayfish
9.08 #1 10.5 cm in length
no Sheen or Odor
#2 10.cm in length
911 AT Trap #2a → 3 Crayfish in trap
#1: 9.5 cm in length
#2: 9.0 cm in length
#3: 10.5 cm in length *
No Odor or Sheen.
*only able to Keep 1
0914 AT trap #2b → 4 in trap
#1 8 cm in Length
#2 6.5 cm in length
#3 6.0 cm in length
#4 11.5 cm in length

B03 001688.0Y02.27.01
T Trap #4 → 3 crayfish
1 12 cm
2 9 cm on Primary Pincher Missing
3 8.5 cm
0 Odor or Sheen observed in trap 2b or 3
911 AT Warehouse
Sample MBCFGB03-01 (4CF)
0845 10-10-03
Weight: 166.3 g
Sample MBCFGB03-02 (2CF)
0911 10-13-03
Weight: 84.2 g
Sample MBCFGB03-03 (4 CF)
0955 10-9-03 weight: 172.8
Sample MBCFGB03-04 (3 CF)
1005 10-9-03
Weight 114.9
1110 Arrive AT OFFICE Fill out ER & Get GPS unit
1200 HEAD BACK OUT TO SITE
1220 ARRIVE ON SITE
- FILL OUT COC & WAIT FOR Currier
LATE NOTE: NO LAMPREY OR LAMPREY Larva were observed in Water.

Site #1 – at end of row of piling ~250 upstream of old loading dock

Sediment/water/probe measurements:
14 inch probe
sediment to top of probe – 0.37 feet
sediment to water surface – 0.31 feet
36 inch probe:
sediment to top of probe – 1.0 feet
sediment to water surface – 0.67 feet
72 inch probe:
sediment to top of probe – 3.31 feet
sediment to water surface - 0.52 feet

Manometer readings:
14 inch probe
surface water – 44.3 cm
probe – 40.9 cm
36 inch probe
surface water – 40.3 cm
probe – 44.0 cm
72 inch probe – not measured, oil at this location

Site #2 – directly onshore from barrel #6

Sediment/water/probe measurements:
14 inch probe
sediment to top of probe – 0.35 feet (top of probe below water surface)
sediment to water surface – 0.55 feet
36 inch probe:
sediment to top of probe – 0.84 feet
sediment to water surface – 0.55 feet
72 inch probe:
sediment to top of probe – 2.85 feet
sediment to water surface - 0.55 feet

Manometer readings:
14 inch probe
surface water – 47.5 cm
probe – 43.5 cm
36 inch probe
surface water – 59.6 cm
probe – 61.9 cm
72 inch probe
surface water – 61.9 cm

probe – 62.8 cm

Site #3 – farthest upstream site

Sediment/water/probe measurements:
14 inch probe
sediment to top of probe – 0.35 feet (top of probe below water)
sediment to water surface – 0.37 feet
36 inch probe:
sediment to top of probe – 0.53 feet
sediment to water surface – 0.32 feet
72 inch probe:
sediment to top of probe – 1.83 feet
sediment to water surface - 0.34 feet

Manometer readings:
14 inch probe
surface water – 61.4 cm
probe – 59.9 cm
36 inch probe
surface water – 60.8 cm
probe – 52.2 cm
72 inch probe
surface water – 74.5 cm
probe – 68.6 cm

Site #4 – onshore from downstream end of island

Sediment/water/probe measurements:
14 inch probe
sediment to top of probe – 0.46 feet
sediment to water surface – 0.38 feet
36 inch probe:
sediment to top of probe – 0.75 feet
sediment to water surface – 0.37 feet
72 inch probe:
sediment to top of probe – 0.75 feet
sediment to water surface - 0.37 feet

Manometer readings:
14 inch probe
surface water – 71.2 cm

probe – 71.8 cm
36 inch probe
surface water – 62.1 cm
probe – 76.6 cm
second reading – surface water – 61.0
second reading – probe – 77.0
72 inch probe
surface water – 70.9 cm
probe – 57.3 cm

Site #5 - ~120 downstream from Site #4

Sediment/water/probe measurements:
14 inch probe
sediment to top of probe – 0.42 feet
sediment to water surface – 0.27 feet
36 inch probe:
sediment to top of probe – 0.80 feet
sediment to water surface – 0.28 feet
72 inch probe:
sediment to top of probe – 0.78 feet
sediment to water surface - 0.28 feet

Manometer readings:
14 inch probe
surface water – 78.9 cm
probe – 46.9 cm
36 inch probe
surface water – 64.7 cm
probe – 66.6 cm
72 inch probe
surface water – 67.5 cm
probe – 78.6 cm

Site #6 – onshore from barrel #10

Sediment/water/probe measurements:
14 inch probe
sediment to top of probe – 0.17 feet
sediment to water surface – 0.15 feet
36 inch probe:
sediment to top of probe – 0.47 feet

sediment to water surface – 0.17 feet
72 inch probe:
sediment to top of probe – 0.58 feet
sediment to water surface - 0.18 feet

Manometer readings:
14 inch probe
surface water – 51.5 cm
probe – 76.2 cm
second run – surface water – 71.3 cm
second run – probe – 74.4
36 inch probe
surface water – 44.3 cm
probe – 50.2 cm
72 inch probe
surface water – 61.5 cm
probe – 62.6 cm

Site #7 – at edge of rocks on upstream side of bridge

Sediment/water/probe measurements:
14 inch probe
sediment to top of probe – 0.22 feet
sediment to water surface – 0.11 feet
36 inch probe:
sediment to top of probe – 0.36 feet
sediment to water surface – 0.11 feet
72 inch probe:
sediment to top of probe – 0.51 feet
sediment to water surface - 0.19 feet

Manometer readings:
14 inch probe
surface water – 80.2 cm
probe – 71.6 cm
36 inch probe
surface water – 72.0 cm
probe – 57.2 cm
72 inch probe
surface water – 76.3 cm
probe – 58.0 cm

Site #8 – in Cove

Sediment/water/probe measurements:
14 inch probe
sediment to top of probe – 0.35 feet (top of probe below water surface)
sediment to water surface – 0.50 feet
36 inch probe:
sediment to top of probe – 0.35 feet (top of probe below water surface)
sediment to water surface – 0.52 feet
72 inch probe:
sediment to top of probe – 0.52 feet (top of probe at water surface)
sediment to water surface - 0.52 feet

Manometer readings:
14 inch probe
surface water – 70.1 cm
probe – 71.3 cm
36 inch probe
surface water – 74.8 cm
probe – 69.0 cm
72 inch probe
surface water – 58.5 cm
probe – 60.8 cm