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Sediment and Groundwater Monitoring Report

for

Old Fire Fighting Training Area
Naval Station Newport
Newport, Rhode Island

Engineering Field Activity Northeast
Naval Facilities Engineering Command

Contract Number N62472-03-D-0057
Contract Task Order 008

March 2006

TETRA TECH NUS, INC.

W5205350F

SEDIMENT AND GROUNDWATER MONITORING REPORT

FOR

OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT
NEWPORT, RHODE ISLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Engineering Field Activity Northeast
Environmental Branch (Code EV2)
Naval Facilities Engineering Command
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Lester, Pennsylvania 19113-2090

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CONTRACT NUMBER N62472-03-D-0057
CONTRACT TASK ORDER 008

March 2006

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ABBREVIATIONS AND ACRONYMS

AVS	acid volatile sulfides
ASTM	American Society for Testing and Materials
bgs	below ground surface
BPRGs	baseline preliminary remediation goals
BN	benthic
CD	compact disk
COD	chemical oxygen demand
CNESS	chord-normalized expected species shared
DI	deionized
dGPS	Differential Global Positioning System
DIUF	deionized ultrafiltered
DO	dissolved oxygen
DQO	data quality objective
DUP	duplicate
EDD	electronic data deliverables
FB	field blank
FOL	Field Operations Leader
GIS	Geographic Information System
IATA	International Air Transportation Association
ICOC	indicator constituents of concern
ID	identification
IDW	investigation-derived waste
LCS	laboratory control standard
LEL	lower explosive limit
LQAP	Laboratory Quality Assurance Plan
LTMP	Long-term Monitoring Plan
MCLs	Maximum Contaminant Levels
MDL	method detection limit
MS	matrix spike
MSD	matrix spike duplicate
NAVFAC	Naval Facilities Engineering Command
NAVSTA	Naval Station
ND	not determined
NELAC	National Environmental Laboratory Accreditation Conference
NFESC	Naval Facilities Engineering Service Center
NOAA	National Oceanic and Atmospheric Administration
NORTHDIV	Northern Division
NR	not reported
NS&T	National Status and Trends
NSN	Naval Station Newport

ABBREVIATIONS AND ACRONYMS (cont.)

O&M	operation and maintenance
ORP	oxidation-reduction potential
OSI	organism-sediment index
PAH	polycyclic aromatic hydrocarbons
PARCC	precision, accuracy, representativeness, comparability, and completeness
PCB	polychlorinated biphenyls
PE	performance evaluation
PID	photoionization detector
PPE	personal protective equipment
ppt	parts per thousand
PRG	Preliminary Remediation Goals
PTW	potable water
PVC	polyvinyl chloride
PW	porewater
QA	quality assurance
QA/QC	quality assurance/quality control
QAO	quality assurance officer
QC	quality control
QL	quantitation limits
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
RIDEM	Rhode Island Department of Environmental Management
ROD	Record of Decision
RPD	relative percent difference or redox potential discontinuity
RPRGs	recommended preliminary remediation goals
SAIC	Science Applications International Corporation
SEM	simultaneously extractable metals
SLN	sample location number
SOP	standard operating procedure
SPI	sediment profile imaging
SVOC	semivolatile organic compound
TAL	target analyte list
TBD	to be determined
TCL	target compound list
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TSA	Technical Systems Audit
TSD	treatment, storage, and disposal
U.S. EPA	United States Environmental Protection Agency
µg/kg	microgram per kilogram
VOA	volatile organic analysis
VOC	volatile organic compound

1.0 INTRODUCTION

Under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62467-94-D-0888 (CTO 833), and pursuant to Scope Change Memorandum dated May 28, 2002, Tetra Tech NUS, Inc. (TtNUS) conducted sediment and groundwater sampling activities at the Old Fire Fighting Training Area (OFFTA) site (Site 09) at the Naval Station Newport, (formerly known as the Naval Education and Training Center), in Newport, Rhode Island. Groundwater sampling was conducted in August 2004, and sediment sampling was conducted in February 2005. This report has been prepared under CLEAN Contract No. N62472-03-D-0057 (CTO 008) to describe the sampling efforts and analytical results for the samples collected. Figures 1-1 and 1-2 present the location of the OFFTA site.

1.1 SCOPE AND OBJECTIVE

The monitoring effort was implemented to continue to evaluate groundwater and sediment conditions at the site. The groundwater data from this effort is compared to previously collected groundwater data to provide a baseline of groundwater conditions prior to the initiation of the soil removal actions in 2004 (prior to mound removal). The sediment data from this effort is compared with previously collected sediment data to identify any short term impacts to the sediment from the first phase of soil removal (i.e. mound removal).

This report includes five sections: this Introduction; the Site Background, including a brief summary of existing data and the sampling and analysis program design; the field sampling performed; the findings of the investigation and data summary; and the summary and conclusions from this study. Field data collection records are presented in Appendices A through C. Detailed data from analysis of samples is provided in Appendices D and E.

2.0 BACKGROUND

This section presents background information for the OFFTA site, including a brief site description, history, and a brief summary of previous investigations.

2.1 SITE LOCATION AND DESCRIPTION

The NAVSTA is located approximately 60 miles southwest of Boston, Massachusetts, and 25 miles south of Providence, Rhode Island. It occupies approximately 1,063 acres, with portions of the facility located in the City of Newport and Towns of Middletown and Portsmouth, Rhode Island. The facility layout is long and narrow, following the western shoreline of Aquidneck Island for nearly 6 miles facing the east passage of Narragansett Bay.

2.1.1 Site Conditions

The OFFTA site is located at the northern end of Coasters Harbor Island (see Figure 1-2). The site occupies approximately 5.5 acres and is bordered by Taylor Drive to the south and is surrounded by Coasters Harbor (part of Narragansett Bay) to the east, north, and, west. The site currently is fenced, and is covered by mown grass and a temporary parking lot. A one-story concrete block building (Building 144) is located along the southern side of the site, and is used by the U.S. Army and U.S. Marine Corps recruiting offices. There are two large storm drain lines, identified as #093 (western portion) and #075 (central portion) that transport storm runoff water from parking and street areas from the south of the site and discharge at the shoreline on the north of the site.

The OFFTA site topography is generally flat, with surface elevations ranging from 8 to 12 feet above mean low water. A site plan is presented as Figure 2-1. Three mounds, previously present at the site, were removed in 2004 and early 2005.

2.1.2 Marine Habitats

The marine habitat near the site is summarized in this section. Refer to the Ecological Risk Assessment Report (SAIC, 2000), and the Phase 2 Sediment Predesign Investigation (Tetra Tech NUS, Inc., September 2002) for complete details.

Coasters Harbor is a shallow cove connected to the East Passage of Narragansett Bay. The harbor is open at each end, north and south of Coasters Harbor Island. A wide mouth faces west at the north end of the island, and a narrow opening at the head faces south at the south end of the island. The maximum

depth of the harbor at the mouth is approximately 20 feet at mean low water. At the head, the depth of the harbor is approximately 3 feet at mean low water. A tidal difference of approximately 3.5 feet has been recorded for Coasters Harbor. Circulation patterns and energies within the harbor are dominated by the tides and wind-driven flow. Hydrographic studies performed in 1996 indicate that water enters and exits at both the west and south openings and does not show a consistent directional flow pattern (Kincaid, Ellis, and DeLeo, 1996).

An August 2001 study of the marine environment proximal to the OFFTA site revealed the presence of a large eelgrass bed (*Zostera marina*) along the northwest side of Coasters Harbor Island. The offshore limits of the bed extended outside the study area to the west and to the east. The study noted that the eelgrass bed had a scale score of 4 to 5, which corresponds to between 70 percent and 100 percent coverage. Eelgrass was observed in both very dense (>70%) and sparse patches, however the dense patches were found to be much smaller than 10 feet in diameter. Oysters were also found in abundance during the study. This species was identified as dominating the eastern portion of the study area. Species diversity, including both plant and animal, seemed to increase from east to west. Other identified species include quahogs, mussels (in shallow water), and numerous types of vegetation and algae. Some scallops were observed during the study, and it is speculated that more scallops are also present within the eelgrass bed. However, it was difficult to investigate their presence due to the density of the beds (Pare, 2001).

The Rhode Island Department of Environmental Management (RIDEM) has designated the area of Narragansett Bay along the NAVSTA Newport shoreline, including Coasters Harbor, as a shellfish closure area due to known or potential sewage discharges in the area. These closure areas may also provide important seed stock for commercial shellfish beds elsewhere in Narragansett Bay.

2.2 SITE HISTORY

The NAVSTA facility has been in use by the Navy since the era of the Civil War. During World Wars I and II, military activities at the facility increased significantly and the base provided housing for many servicemen. In subsequent peacetime years, use of on-site facilities was slowly phased out until Newport became the headquarters of the Commander Cruiser-Destroyer Force Atlantic in 1962. In April 1973, the Shore Establishment Realignment Program (SER) resulted in the reorganization of naval forces, and activity at the base again declined. This reorganization resulted in the Navy excessing some 1,629 acres of its 2,420 acres.

The entire NAVSTA was listed on the U.S. Environmental Protection Agency (EPA) National Priorities List (NPL) of abandoned or uncontrolled hazardous waste sites in November 1989. The NPL identifies those

sites that pose a significant threat to the public health and environment. The OFFTA site was listed as one of the sites requiring Remedial Investigation and Feasibility Study (RI/FS) activities in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and a Federal Facilities Agreement between the EPA and the Navy.

The OFFTA site was home to a Navy fire fighting training facility from World War II until 1972. During the training operations, fuel oils were ignited in various structures at the site that simulated shipboard compartments, and then extinguished by sailors. It was reported that the two "Carrier Compartment" buildings were injected with a water/oil mixture which was subsequently set on fire for fire fighting practice. Underground piping reportedly carried the water/oil mixture to the buildings and from the buildings to an oil-water separator. No other known information is available concerning the prior fire fighting training operations.

The fire fighting training facility was closed in 1972. Upon closure, the training structures were reportedly demolished and buried in mounds on the site, and then the entire area was covered with topsoil. The site was then converted to a recreational area with a playground, a baseball field, and a picnic area with an open pavilion and barbecue grills. The field was dedicated on July 4, 1976, and used as a recreational area until its closure in October 1998 due to potential environmental and human health concerns.

In its 22 years as a recreational area, the site was used for organized activities including youth day camps, picnic functions, and little league baseball (1 year only), as well as for general recreation. A child day care center operated out of Building 144 on the site from approximately 1983 through January 1994 when it was relocated off site to a larger facility on base.

2.3 PREVIOUS STUDIES

Numerous studies have been conducted on the OFFTA site. The following sections describe the studies on marine sediment and groundwater pertinent to the work described in this monitoring report.

2.3.1 Marine Sediment Studies

A series of studies have been conducted on the chemical conditions in the marine sediment proximal to the OFFTA site. The first such study was a marine Ecological Risk Assessment (ERA) (SAIC, 2000) performed to assess ecological risks to the offshore environments of Coasters Harbor and Narragansett Bay from contaminants associated with OFFTA. The ERA included exposure and effects assessments, a characterization of risk, risk synthesis, and uncertainty analysis. Primary site contaminants were found to be petroleum-related PAHs and metals.

Risks were identified by stations, based on summaries of each weight of evidence, focusing on the exposure (contaminants present) correlated to effects (reproduction and growth inhibitions, etc). Stations were rated from these summaries as exhibiting high, intermediate, or low probability for adverse risk to ecological receptors present at those stations.

The assessment found a high probability for adverse risk at one station (SD-05) close to outfall # 075 at the central portion of the shoreline of the site, likely from polynuclear aromatic hydrocarbons (PAHs) and metals present at this area. Intermediate probability for adverse risk was estimated for a number of stations at the nearshore area and in the harbor sediment, including one reference station south of Coasters Harbor, but because a clear exposure-response relationship was not found, these risks may be considered acceptable from an ecological perspective. Low probability for adverse risk was estimated for the remainder of the stations, including one reference station and the nearshore stations more exposed to wind-driven waves. The observed risks at these stations are considered acceptable from an ecological perspective. A baseline condition associated with relatively pristine conditions was not observed at any of the site or reference stations evaluated in the risk assessment.

The findings from the ERA were included in a Feasibility Study (FS) conducted to evaluate various ways to address the contaminants detected in the soil, groundwater, and marine sediment at the OFFTA site. Previous studies were utilized in creating the FS, including several phases of remedial investigations, a human health risk assessment, and the marine ERA discussed above. The FS provided calculated Preliminary Remediation Goals (PRGs) for selected PAHs and metals and evaluated options for monitoring and removal actions for soil, groundwater and marine sediment.

Following the FS, two phases of predesign work were conducted on the marine sediment. These predesign studies were conducted to refine the areas of sediment that exceed preliminary cleanup goals stated in the FS, and to determine the source of PAHs and metals found to ensure that the area would not become re-contaminated by an unknown source if sediment removal was undertaken.

The predesign investigations found that elevated concentrations of PAHs in the sediments were present in the areas of the two storm drain outfalls. These outfalls discharge storm water runoff collected from a large portion (almost 9 acres) of the north end of Coasters Harbor Island. Forensic petroleum fingerprinting and detailed PAH analysis of samples collected from the marine sediment, the on-site soil, the groundwater, and the storm drain system, indicated that the hydrocarbons in the marine sediment were more similar to those in the sediment found in the storm drains than to the hydrocarbons found in the soil or the groundwater at the site (TtNUS, 2002; Battelle, 2002).

During construction of adjacent properties in 2001 through 2003, the storm water drainage system was altered slightly, with one or the other outfall discharging more or less water from this area. A vortex sediment capture system was installed south of the site for the western storm drain (# 093) in 2003.

2.3.2 Groundwater Studies

The groundwater at the site was evaluated in the remedial investigation (RI) report for the site. Following the completion of the RI, a Groundwater Risk Evaluation was conducted to measure human health risks from possible exposures to the groundwater. The groundwater risk evaluation found that cancer and non-cancer risks under a hypothetical residential scenario exceeded the EPA and RIDEM target risk ranges due to maximum concentrations of arsenic, benzene, and manganese. This assessment assumed that groundwater would be used in the future as a potable water source, allowing regular ingestion and washing. However, as stated in the RI, use of groundwater for potable supplies is highly unlikely due to the proximity to the ocean, the state classification of groundwater at this site as GB, the brackishness of the groundwater, and the availability of city water supply to the site. The groundwater risk assessment report acknowledges that the calculated residential risks overestimate the probable risks associated with likely exposure pathways; predicted risks from the more likely secondary groundwater pathways, which involve predominantly dermal exposures with less frequent exposures are likely to be significantly lower, and may be less than EPA benchmarks.

Incidental contact with groundwater is the most plausible scenario for groundwater exposure at this site, such as through a construction worker scenario, which was not evaluated.

The FS (February 2002) identified PRGs for the groundwater at the site based on risk (residential use), RIDEM GA groundwater objectives, and federal maximum contaminant levels (MCLs). However, due to the lack of a completed residential exposure pathway, remediation of groundwater was not deemed necessary at the time.

3.0 FIELD INVESTIGATIONS

Data was collected as described in the Work Plan for Sediment and Groundwater Monitoring, November 2004 (TtNUS, 2004). All quality control, decontamination, and health and safety procedures referenced in that Work Plan were utilized for the sampling and analysis described in the Work Plan. A summary of these procedures are provided in this section.

Activities associated with the monitoring investigations, detailed in the subsections below, included:

1. Collection of sediment samples to evaluate the existing sediment surface conditions (February 2005).
2. Collection of groundwater samples to evaluate existing groundwater conditions and compare with previously collected data (August 2004).
3. Laboratory analysis of groundwater and sediment samples.
4. Forensic analysis of sediment samples, debris samples from the shoreline and selected possible source samples (catch basin samples), to help characterize the sources of the PAHs present in the sediment.

Eelgrass mapping was proposed in the 2004 Work Plan to update the extent of eelgrass mapped in 2002. However, it was determined that such an effort was best suited to be conducted prior to the larger soil removal action, and therefore this investigation did not include an eelgrass survey.

3.1 SEDIMENT SAMPLE COLLECTION

Eighteen sediment samples (including two field duplicates) were collected and analyzed for PAHs (EPA Method 8270C SIM), and TAL Metals (EPA Methods 6010B/7470/7471). The locations selected for sampling during this effort included, by request of EPA and RIDEM, all locations previously sampled since 1994 in the intertidal area of the site, with the exception of one location. Former station SD-412, sampled in 2002 was not selected for resampling in 2005 due to its proximity to OFF-3. Analytical results from samples collected at OFF-3 in 1997 indicated that ecological PRGs for two PAHs were exceeded at this station, whereas results from SD-412 collected in 2002 did not exceed PRGs.

In addition, twelve sediment samples, two samples of shoreline asphalt debris, and two samples collected from the storm drain system that discharges to the shoreline at sediment location OFF-5 were collected for forensic analysis. Locations were selected as described in Table 3-1. Figure 3-1 presents the proposed forensic sediment sample stations. One of the storm drain samples was collected at the newly

constructed SWOS school and the second was collected from the manhole at the OFFTA site (Figure 3-1).

Stations were located visually if previous station identifiers were still present (buoys and or stakes installed during previous sampling efforts). Other stations were navigated to using Global Positioning System (GPS) and re-marked with a three foot 1”x1” oak grade stake.

Sediment was collected from intervals of 0.0 to 0.5 feet from the stations identified on Figure 3-1. Samples were collected by hand, using augers and hand tools, and were logged on a Sample Log Sheet – Solid Phase, presented in Appendix A. Copies of chains of custody and other field documentation for this effort are also presented in Appendix A.

All sampling was conducted by field scientists working from shore. Surface sediment samples were collected utilizing stainless steel digging tools or hand augers, turned into the sediment 0.5 feet below the sediment surface. The sediment was deposited from the digging tools into a stainless steel bowl. Large stones and shell matter were removed. Each sample was inspected for visual evidence of potential contamination, and then packaged for shipment to the analytical laboratory. All non-disposable sampling equipment was decontaminated in accordance with the procedures described in the Work Plan.

Plan-view photos were taken of each sample station for the field record. Photos are presented in Appendix B.

3.2 GROUNDWATER SAMPLE COLLECTION

Seventeen groundwater samples (including two duplicates) were collected from 15 groundwater wells for the groundwater monitoring effort conducted in August 2004. Locations of the wells sampled are provided on Figure 3-1.

Groundwater samples were analyzed for volatile organic compounds (VOCs), gasoline range organic compounds (GRO), diesel range organic compounds (DRO), semivolatile organic compounds (SVOCs), and metals (total). Sampling and analytical methods, required detection limits and details on sample preservation and shipping are provided in the Work Plan.

Prior to groundwater sampling, all monitoring wells to be sampled were checked for the presence of non-aqueous phase liquid (NAPL) using an electronic interface probe. No LNAPL or DNAPL was detected using the electronic interface probe.

In August 2002, all wells at the site had been developed by high volume pumping to remove fines and sediments that had settled within and around the well screens since the sampling effort in 1997. There was an allowance in the Work Plan for redevelopment of wells if necessary, however, low flow sampling methods allowed successful sample collection in accordance with the EPA SOP. Therefore development of the wells during the 2004 effort was not necessary.

To maintain similarities to the previous sampling event and maximize comparability of data, low stress (low flow) sample collection procedures and peristaltic pumps were used for the acquisition of groundwater samples, using the U.S. EPA Region I SOP for low flow sample collection (SOP GW-0001, 7/30/96, Revision 2), as described in the Work Plan. Field documentation of the parameters recorded during well purging and sample collection is presented in Low Flow Sample Log Sheets, provided in Appendix C of this report.

4.0 FINDINGS OF THE INVESTIGATION

This section presents the data of the sampling and analysis effort described in Section 3. Validated data from analysis of groundwater collected in 2004 and non-forensic analysis of sediment collected in 2005 is provided in Appendix D1 and D2, respectively. A full report on the forensic analysis of the sediment samples collected in 2005 is provided in Appendix E.

Historical data collected in previous investigations is presented for reference in this section, as pertinent to the discussion of the data collected under the 2004 Work Plan.

4.1 GROUNDWATER

Groundwater samples were analyzed using analytical methods described in the Work Plan. Laboratory analytical results for contaminants for which PRGs were established in the FS, including GRO/DRO, are provided in Table 4-1. A summary of all the results from laboratory analysis of groundwater samples collected in 1994, 1997, 2002, and 2004 is presented in Appendix D1. Data validation memoranda for the groundwater samples collected in 2004 are also presented in Appendix D1.

As shown on Table 4-1, manganese is present at concentrations above its PRG (291 µg/L) in 12 of the 17 groundwater samples collected in August 2004. Additionally, lead exceeds the PRG of 15 µg/L in one well (MW-02S) at 38.6 µg/L. This is the same location where elevated concentrations of lead were found in deep soils during the Remedial Investigation and in the Soil Predesign Investigation (TtNUS, 2005). No other PRG exceedances are noted in the 2004 groundwater data set.

Table 4-2 provides a comparison of the groundwater data to the PRGs calculated in the FS for the site, along with the sample data from previously collected groundwater samples in this area (1994, 1997 and 2002). Groundwater was analyzed for total petroleum hydrocarbons (TPH) during the 1997 and 2004 sampling events. TPH was not detected in any of the 15 wells sampled in 1997 using EPA method 418.1, an infrared spectrophotometric method for total recoverable hydrocarbons. Dissolved TPH was detected in groundwater samples from 10 wells in 2004 using EPA method 8015, a gas chromatograph (GC) method modified for extractable hydrocarbons in the C5 to C36 range. TPH concentrations [reported as diesel range organics (DRO) and gasoline range organics (GRO) separately] were detected in groundwater ranging from 250 to 1,381 µg/l in 2004. The highest concentrations of GRO and DRO were detected in MW-101.

This table also shows elevated concentrations of manganese above the calculated PRG for several locations, as was previously noted. Additionally, traces of benzene (MW-102) and one PAH (napthalene

at location MW-101 and its duplicate) were detected in the groundwater, consistent with prior analytical results for these wells in 1997. These compounds were detected comparable to (naphthalene) or well below (benzene) the concentrations previously detected, and below the PRGs calculated in the FS. Lead was elevated in several wells sampled in 1994, but in 1997 and 2004, lead was detected in fewer wells. This is possibly due to the use of bailers for collecting samples in 1994. Use of bailers in groundwater sample collection tends to liberate colloids and can draw fine-grained sediments into the water samples. Monitoring well MW-2S is the only location where lead is consistently found above PRGs over time. Manganese levels remain above the PRG. Figure 4-1 presents locations of wells where PRGs were exceeded. Due to the difference in sample collection methodologies used, the 1994 data should be set apart from the other rounds collected in 1997, 2002, and 2004.

The 2004 groundwater results are generally consistent with the results of the previous groundwater sampling efforts conducted and summarized in the FS report. However, while most wells show an improvement in groundwater quality over time (MW-10S, MW-11S, MW-102, MW-101, MW-09S, MW-03S, and MW-01R), others do not (MW-02S, MW-02D, and MW-04S).

4.2 SEDIMENT

Sediments samples were analyzed for SVOCs (EPA Method 8270C SIM) and for Target Analyte List (TAL) metals (EPA Method 6010B Trace). In addition, samples were analyzed for PAH forensic analysis and Total Petroleum Hydrocarbon (TPH) fingerprint analysis using forensic “fingerprinting” methods (GC/MS/SIM and GC/FID) described in the Work Plan.

4.2.1 Non-Forensic Analysis

Analytical results of the SVOC and TAL metals analysis conducted on sediment samples collected in February 2005 are presented in Appendix D-2. Table D-2 presents the contaminant concentrations detected in this data set as well as those measured for the ecological risk assessment (1998) and during the sampling effort conducted by TtNUS in November 2001. Data validation memoranda are also presented in Appendix D-2

4.2.1.1 Comparison to PRGs

Table 4-3 presents the constituents (PAHs and Metals) from the February 2005 data set for which PRGs were calculated, compared with those PRGs. Human health PRGs were calculated in the Feasibility Study (TtNUS 2002) for five PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) and four metals (arsenic, cadmium, chromium, and

mercury). Ecological PRGs were calculated for four PAHs (2-methyl naphthalene, acenaphthylene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene).

The comparison of the 2005 analytical results to the PRGs indicates that the human health-based PRGs for residential use soils are exceeded in 17 of the 18 sediment samples. However, at 13 of the 18 samples collected in 2005, the only criteria exceeded was that for benzo(a)pyrene, set at 134 µg/kg. Maximum concentrations of PAHs detected at concentrations greater than their respective human health PRG values [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were all detected at Station SD-5.

There were no exceedances of Human Health PRGs for metals in the sediment samples collected in 2005. Similarly, ecological PRGs were not exceeded in any of the 2005 analytical results.

4.2.1.2 Changes Over Time

Table 4-4 provides a summary of PAHs measured in surface sediment over time by different groups, and compared to the PRGs. Sediment sampling over time at OFFTA was conducted as follows:

- SAIC/URI March 1998
- TtNUS, November 1998 (Intertidal Area Only)
- TtNUS, October/November 2001
- TtNUS, 2002
- Navy Research Labs (NRL) July 2002
- NRL, October 2002
- U.S. EPA, 2003
- NRL, April 2004
- TtNUS, 2005

All PAH data provided by these efforts are presented in Appendix D-3.

Different stations were sampled during different events, limiting the stations available for point comparisons over time to those presented on Table 4-4. The specific sample stations used during the USEPA 2003 round of sediment sampling were not resampled during any previous or subsequent sampling rounds, therefore, the analytical data generated during 2003 sampling could not be used in point comparisons presented in Table 4-4.

To summarize from Table 4-4, analytical results from the 1998 sampling event detected maximum concentrations of four of the five PAHs [benzo(a)anthracene (9,300 µg/kg), benzo(a)pyrene (4,830 µg/kg), dibenzo(a,h)anthracene (3,410 µg/kg), and indeno(1,2,3-cd)pyrene (390 µg/kg)] that exceeded human health PRGs at sample station OFF-5 (i.e SD-5). Sediment samples were not analyzed for benzo(b)fluoranthene in 1998. Analytical results from the 2001 sampling event detected maximum concentrations of the five PAHs [benzo(a)anthracene (9,200 µg/kg), benzo(a)pyrene (9,500 µg/kg), dibenzo(a,h)anthracene (1,500 µg/kg), and indeno(1,2,3-cd)pyrene (5,200 µg/kg), and benzo(b)fluoranthene (12,000 µg/kg)] at sample station 410. Analytical results from the 2002 sampling events detected maximum concentrations of four of the five PAHs [benzo(a)pyrene (220 µg/kg), dibenzo(a,h)anthracene (24 µg/kg), indeno(1,2,3-cd)pyrene (92 µg/kg), and benzo(b)fluoranthene (300 µg/kg)] at sample station SD-410, and the maximum concentration of one PAH [benzo(a)anthracene (370 µg/kg)] at sample station SD-423. Analytical results from the 2004 sampling event detected maximum concentrations of three of the five PAHs [benzo(a)pyrene (1,420 µg/kg), benzo(b)fluoranthene (1,090 µg/kg), and indeno(1,2,3-cd)pyrene (150 µg/kg)] at sample station OFF-5, as well as benzo(a)anthracene (990 ug/kg) at sample station OFF-SD-415, and dibenzo(a,h)anthracene (42 µg/kg) at sample station OFF-SD-423. Overall, PAH concentrations appear to be declining in the shoreline sediments between the sampling events in 1998 and 2005.

PAHs are commonly differentiated in high molecular weight (HMW) and low molecular weight (LMW) PAHs. High molecular weight PAHs include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene). Low molecular weight PAHs include acenaphthene, acenaphthylene, anthracene, fluoranthene, fluorene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene.

Total PAHs reported by the different groups for the different data sets were not calculated in the same manner. Total PAHs reported for 2001, 2002, and 2005 by TtNUS were calculated by summing the reported HMW PAHs and the LMW PAHs. The data collected by the Navy Research Lab (NRL) from July 2002, October 2002, and April 2004 did not include HMW PAHs and LMW PAHs, but NRL reported a total PAH concentration of the sum of all the PAHs detected. Data reported by URI and SAIC in 1998 presented a total PAH concentration that accounted for a larger list of longer chain PAHs that are not measured using the standard methods. Data as reported by the individual labs is presented on Table D3, Appendix D. For Table 4-4 and this assessment, the total PAHs for the 1998 samples were recalculated by summing the HMW PAHs and LMW PAHs as was done for the TTNUS data collected in 2001, 2002, and 2005.

The table below provides a summary of point comparisons of total PAH concentrations measured at the same shoreline sampling stations over time (1998, 2001, 2002, 2004, and 2005), as reported on Table 4-4. The total PAH concentrations presented in Table 4-4 show a decrease in PAH concentrations

from the 1998 through the 2002 sampling round, followed by an increase in overall PAH concentrations in 2004 and 2005. Even though there seems to have been an increase in overall PAH concentrations from the 2002 to the 2004 and/or 2005 sampling rounds, the trend toward an overall decrease in PAH concentrations from the initial sampling rounds continues to be apparent.

COMPARISON OF CURRENT SEDIMENT ANALYTICAL DATA WITH HISTORICAL ANALYTICAL DATA

Sample Location	Sample Dates	Decreased Over Time?
OFF-1	3/27/98, 2/22/05	No
OFF-2	3/27/98, 7/25/02, 10/02, 4/04, 2/22/05	**Yes****
OFF-3	3/27/98, 10/02, 2/23/05	**Yes****
OFF-4	3/27/98, 2/23/05	**Yes**
OFF-5	3/27/98, 7/25/02, 4/04, 2/23/05	**Yes****
OFF-6	3/27/98, 2/23/05	**Yes**
OFF-7	3/27/98, 2/23/05	**Yes**
SD-337	11/19/98, 10/1/02	**Yes**
SD-410	11/14/01, 7/2/02	**Yes**
SD-411	11/13/01, 2/23/05	**Yes**
SD-412	11/13/01, 7/1/02, 4/1/04	**Yes**
SD-413	11/13/01, 2/23/05	No
SD-414	11/9/01, 2/23/05	**Yes**
SD-415	11/12/01, 7/1/02, 4/1/04	No
SD-417	11/13/01, 10/02, 2/23/05	Slightly**
SD-419	11/8/01, 7/1/02, 4/1/04	**Yes**
SD-421	11/8/01, 7/1/02, 4/1/04	**Yes**
SD-423	11/8/01, 7/1/02, 4/1/04	No
SD-424	11/13/01, 10/02, 2/23/05	Slightly**
SD-432	11/13/01, 2/23/05	No
SD-434	11/14/01, 10/1/02	**Yes**
SD-439	10/29/01, 2/22/05	**Yes**
SD-442	11/9/01, 2/23/05	**Yes**
SD-444	11/8/01, 10/1/02	**Yes**
SD-445	11/13/01, 2/23/05	**Yes**
SD-462	11/14/01, 10/1/02	**Yes**
SD-467	11/14/01, 7/1/02, 4/1/04	No
SD-468	11/12/01, 7/1/02, 4/1/04	**Yes**
SD-476	7/2/02, 7/1/02, 4/1/04	No

All samples were collected from the 0 to 0.5' interval.
* Concentrations are similar enough to be considered the same.
** A general decrease in PAH concentration was observed from the initial sampling round to the final sampling round, lowest concentrations were measured in 2002.

4.2.1.3 PAH Concentrations and Sample Depth

The second table (below) presents the summary of a comparison of total PAH concentrations collected at varying depths from the same sampling stations. This data comparison indicates that PAH concentrations have generally decrease with depth (Table D-2). Based on the available results, the higher concentration of PAHs are more likely to be surface sediment deposits, rather than a result of groundwater seeps or other influences from deep soil or sediment. Surface contamination is likely to be subject to changes in inputs described above.

COMPARISON OF CURRENT SAMPLE DEPTH INFORMATION WITH HISTORIC SAMPLE DEPTH INFORMATION

Sample Location No.	Date(s) Sampled	Depths Sampled	PAHs Decrease With Depth?
OFF-5	3/37/98, 4/27/98	0-5"-9"; 7.9-9.8"; 21.7-23.6"	**Yes**
OFF-6	3/37/98, 4/27/98	0-5"; 7.9"-13.8"	**Yes**
SD-432	11/13/01	0-6"; 18"-24"	No
SD-439	10/29/01, 11/13/01	0-6"; 6-12"; 18-24"	**Yes***
SD-442	11/13/01	0-6"; 18-24"	**Yes**
SD-445	11/13/01	0-6", 18-24"	**Yes**-slightly

***Highest concentrations were found in the 6-12" interval, and the results from 18-24" intervals shows a decrease from the 6-12" sample.

4.2.1.4 Summary

There are many potential reasons for the variations noted in PAH concentrations measured at different times in sediments, including changes to off-site inputs of PAHs to the sediment, decreases in concentrations due to natural weathering, sediment movement due to seasonal or tidal currents, spatial heterogeneity of sediment and sediment mixing. It should also be noted that there has been construction in the areas drained by the two storm drains that discharge to the shoreline over the period of 1998 to 2005, and inputs from crushed asphalt, construction, and building debris located along the shoreline of the site may have contributed to variations in sediment results. Additionally, in 2004 a vortex sediment capture system was placed in the storm drain line discharging at outfall number 093, which may have contributed to decreased levels of PAHs at sediment stations in that area.

4.2.2 Forensic Analysis of Sediments

Forensic analysis of sediments was conducted in 2005 to compare the composition of PAHs and other hydrocarbons detected in the OFFTA intertidal sediment samples to reference areas and possible source areas (the OFFTA site, as well as pavement debris present along the shoreline). This forensic study follows a similar study conducted in 2002.

The 2002 forensic study evaluated shoreline sediment PAH contaminants along with those found at reference stations and storm drains upgradient of the site, and in the soil and groundwater samples collected from test pits at the OFFTA site. This study concluded that the PAHs in the sediment likely originated from anthropogenic sources and were not directly linked to the oily soil present at the on-shore portions of the site (Battelle, 2002).

The 2005 forensic study took these previous data and findings into consideration during the evaluation of samples collected in 2005. A full narrative report on the 2005 forensic sediment analysis effort and findings is presented in Appendix E. The following paragraphs present a brief summary of those findings.

Sediment samples collected from the intertidal zone adjacent to the OFFTA site in 2005 were found to closely resemble the chemical make-up detected in the reference samples. In addition, the chemical characterization detected in 2005 was consistent with what was observed in 2002. The one exception was the presence of low level diesel in both OFFTA intertidal sediment samples and reference sediment samples.

A comparison of the PAHs and hydrocarbon mixtures detected in two asphalt debris samples collected at station SD-414 with those detected in sediment samples collected from the intertidal area of the site indicated a close match.

The forensic analysis suggests that hydrocarbons in the marine sediments at the site are a result of abraded pavement, mixed with chronic releases of diesel, marine fuels, and fall out from vehicular emissions. In addition, the study concludes that severely degraded diesel range hydrocarbons associated with the OFFTA site soil in 2002 were not observed in sediment samples collected from Coasters Harbor or the reference area sediment samples. The sediment samples exhibited a mixture of hydrocarbons associated with asphalt and newer (less degraded) diesel and marine fuel.

The conclusions drawn from the 2005 forensics study build on those concluded from the 2002 study, noting that the differences in the hydrocarbon makeup in sediments are different from those in soil and groundwater at the site, but also finding an improvement of the sediment conditions near storm outfall number 093 (SD-411) and within the drain line leading to that outfall. This improvement is likely a direct result of the installation of the vortex storm drain system in 2004. A full report on the forensic analysis of sediments is provided in Appendix E.

5.0 SUMMARY AND CONCLUSION

The monitoring effort was implemented to continue to evaluate groundwater and sediment conditions at the site.

The groundwater data from the sample collection effort conducted in 2004 shows improvement of the groundwater conditions in some wells, but not all. Although concentrations of manganese were found exceeding the PRGs, manganese is not particularly toxic and may be a function of reducing conditions in the soil at the site. The exceedance of lead is pertinent due to co-located elevated concentrations of lead in soils in the area of MW-2S (TtNUS 2005). Overall, the groundwater conditions are acceptable in a location where only an incidental contact (i.e., incidental ingestion and dermal contact) with groundwater, such as would be expected by a construction worker, is likely. The data collected in 1997, 2002, and 2004 can be used as a baseline for the groundwater conditions prior to soil removal conducted at the site. Data collected in 1994 is not directly comparable to the other three data sets due to the different methodology used to collect the samples during that effort.

The sediment data collected in February 2005 was compared with previously collected (1998, 2001, 2002, and 2004) intertidal sediment data to identify any short term impacts to the sediment from the first phase of soil removal (i.e. mound removal). The data comparison indicated that the composition of PAHs detected during each sampling round was similar, while the concentrations generally decreased over time even though an increase in PAH concentrations was observed from 2002 to 2004 and/or 2005. However, this apparent increase in PAH concentrations may be attributable to changes to inputs of PAHs to the sediment, sediment movement due to seasonal or tidal currents, spatial heterogeneity of sediment, and sediment mixing. Therefore, based on the comparison of historical and current sediment analytical data, it was determined that there were no adverse effects from the mound removal activities conducted in the winter of 2004 and 2005.

The forensic study conducted on samples collected in February 2005, coupled with similar data collected in 2002, shows that the sediments on the shoreline of the site may be impacted from chronic exposures to asphalt, fuels, and other up gradient or offsite sources. However, sediment conditions near outfall #093 show an improvement since installation of the vortex interceptor system in this storm drain line.

Finally, previous studies and reports have noted changes to PAH concentrations in the sediments near both outfalls #093 and #075. These fluctuations further indicate that the shoreline sediments are impacted by the discharges from these outfalls, and PAH fluctuations are likely a result of the contaminant inputs provided by the water discharge through these outfalls.

TABLES

TABLE 3-1

SEDIMENT SAMPLE STATION SELECTION RATIONALE – FORENSIC ANALYSIS
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

Station ID	Selection Rationale
SD-5 (formerly OFF-5) (1)	Located at discharge area of outfall #075; In 1997, sediments estimated to pose a high probability for ecological risk to ecological receptors in the ecological risk assessment; results from 1997 sampling exceeded PRGs calculated for ecological and human health exposures.
OFF-6	Results from 1997 sampling exceeded PRGs calculated for ecological and human health exposures.
OFF-3	Located near outfall #093 on west side of site; results from 1997 sampling exceeded PRGs calculated for ecological and human health exposures.
OFF-7	Located at east end of site. Fine grain sediments present, indicating this is a depositional zone.
OFF-2	Located west of outfall #093 near station 475. Results from 2002 sampling at station 475 exceeded calculated PRGs for benzo(a)pyrene.
414	Within the intertidal zone; results from 2001 sampling exceeded PRGs calculated for ecological and human health exposures.
442	Within the intertidal zone, located near large mound on shore; results from 2001 sampling exceeded PRGs calculated for ecological and human health exposures.
JPC03	Reference station sampled in 1997, 2001, and 2002.
OTS-OF093 (1)	Sediments within storm drain leading to outfall #093; sampled in 2002.
OTS-OF075 (1)	Sediments within storm drain leading to outfall #075; sampled in 2002.
OTS-OF075A	Sediments within storm drain leading to outfall #075 at manhole near central mound.
411	Sediments near outfall #093.

Notes:

(1) Forensic analysis conducted during 2002 Phase PDI by TtNUS.

Photographs of sediment stations are presented in Appendix B.

TABLE 3-2

SUMMARY OF GROUNDWATER MONITORING WELLS
OLD FIRE FIGHTING TRAINING AREA
NAVAL STATION NEWPORT, NEWPORT, RHODE ISLAND

Well Number	Total Well Depth (Feet)	Screened Interval (Feet)
MW-1R	13.5	3.5 – 13.5
MW-2D	30.5	20.5 – 30.5
MW-2S	14	4 – 14
MW-3S	14	4 – 14
MW-4S	14	3 – 13
MW-5S	18	8 – 18
MW-6R	26	16 – 26
MW-6S*	9	4 – 9
MW-7S**	13	3 – 13
MW-8R	14	4 – 14
MW-9R	15	5 – 15
MW-10S	12.5	4 – 12
MW-11R	21	16 – 21
MW-11S	9	4 – 9
MW-101	8	3 – 8
MW-102	12	2 – 12

* Well found to be dry in 2002 and not sampled.
** Well not found in 2002, presumed destroyed.

TABLE 4-1

GROUNDWATER ANALYTICAL RESULTS, AUGUST 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-01-R	OFF-MW-02-D	OFF-MW-02-S	OFF-MW-03-S	OFF-MW-04-S	OFF-MW-05-S	OFF-MW-06-R
SAMPLE NUMBER		OFF-GW-MW1R-03	OFF-GW-MW2D-03	OFF-GW-MW2S-03	OFF-GW-MW3S-03	OFF-GW-MW4S-03	OFF-GW-MW5S-03	OFF-GW-MW6R-03
SAMPLE DATE		08/26/04	08/25/04	08/25/04	08/24/04	08/25/04	08/24/04	08/24/04
	PRG VALUE							
METALS (UG/L)								
LEAD	15	1.7 UJ	1.7 UJ	38.6	1.7 UJ	2 J	1.7 UJ	1.7 UJ
MANGANESE	291	26.9 J	6250 J	203 J	1990 J	24400 J	473 J	6.6 J
SEMIVOLATILES (UG/L)								
2-METHYLNAPHTHALENE	128	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VOLATILES (UG/L)								
BENZENE	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
PETROLEUM HYDROCARBONS (UG/L)								
DIESEL RANGE ORGANICS	NA	120 U	1000 J	480 J	250	500	50 U	50 U
GASOLINE RANGE ORGANICS	NA	10 U	8 J	10 U	10 U	5.6 J	10 U	10 U

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-1

GROUNDWATER ANALYTICAL RESULTS, AUGUST 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-06-S	OFF-MW-08-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-10-S	OFF-MW-11-R
SAMPLE NUMBER		OFF-GW-MW6S-03	OFF-GW-MW8R-03	OFF-GW-MW9R-03	OFF-GW-MW9R-03-D	OFF-GW-MW10S-03	OFF-GW-MW11R-03
SAMPLE DATE		08/24/04	08/26/04	08/26/04	08/26/04	08/26/04	08/25/04
	PRG VALUE				OFF-GW-MW9R-03		
METALS (UG/L)							
LEAD	15	2.2 J	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ
MANGANESE	291	24.4 J	1280 J	588 J	546 J	873 J	4310 J
SEMIVOLATILES (UG/L)							
2-METHYLNAPHTHALENE	128	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VOLATILES (UG/L)							
BENZENE	5	5 U	5 U	5 U	5 U	5 U	5 U
PETROLEUM HYDROCARBONS (UG/L)							
DIESEL RANGE ORGANICS	NA	50 U	85 U	380	360	860 J	380
GASOLINE RANGE ORGANICS	NA	10 U	10 U	10 U	10 U	10 U	10 U

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-1

GROUNDWATER ANALYTICAL RESULTS, AUGUST 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-11-S	OFF-MW-101	OFF-MW-101	OFF-MW-102
SAMPLE NUMBER		OFF-GW-MW11S-03	OFF-GW-MW101-03	OFF-GW-MW101-03-D	OFF-GW-MW102-03
SAMPLE DATE		08/25/04	08/24/04	08/24/04	08/25/04
	PRG VALUE			OFF-GW-MW101-03	
METALS (UG/L)					
LEAD	15	1.7 UJ	1.7 UJ	1.7 UJ	1.7 UJ
MANGANESE	291	4450 J	447 J	433 J	35 J
SEMIVOLATILES (UG/L)					
2-METHYLNAPHTHALENE	128	0.2 U	0.2 U	0.2 U	0.2 U
NAPHTHALENE	20	0.2 U	0.49 J	0.12 J	0.11 J
VOLATILES (UG/L)					
BENZENE	5	5 U	0.4 J	0.5 J	2 J
PETROLEUM HYDROCARBONS (UG/L)					
DIESEL RANGE ORGANICS	NA	1200	1300	1200	1200 J
GASOLINE RANGE ORGANICS	NA	53	81	72	10

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-S	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D
SAMPLE NUMBER		OFF-A-MW1R-01	OFF-GW-MW1R	OFF-GW-MW1R-03	OFF-MW-1S	OFF-MW-2D	OFF-MW-2DF	OFF-A-MW2D-01	OFF-GW-MW2D	OFF-GW-MW2D-03
SAMPLE DATE		07/08/97	08/20/02	08/26/04	01/06/94	01/05/94	01/05/94	07/09/97	08/19/02	08/25/04
	PRG VALUE									
METALS (UG/L)										
LEAD	15	1.6 J	1 U	1.7 UJ	14.7 J	135	NA	5 J	2 B	1.7 UJ
MANGANESE	291	1580 J	189	26.9 J	2600 J	7230	NA	6390 J	4290	6250 J
DISSOLVED METALS (UG/L)										
LEAD	15	NA	NA	NA	NA	NA	2 U	NA	NA	NA
MANGANESE	291	NA	NA	NA	NA	NA	8170	NA	NA	NA
SEMIVOLATILES (UG/L)										
2-METHYLNAPHTHALENE	128	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U
NAPHTHALENE	20	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U
VOLATILES (UG/L)										
BENZENE	5	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	1 UJ	NA	NA	NA	NA	NA	1 UJ	NA	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	NA	NA	120 U	NA	NA	NA	NA	NA	1000 J
GASOLINE RANGE ORGANICS	NA	NA	NA	10 U	NA	NA	NA	NA	NA	8 J

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-02-S	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S
SAMPLE NUMBER		OFF-MW-2S	OFF-MW-2SF	OFF-A-MW2S-01	OFF-GW-MW2S	OFF-GW-MW2S-03	OFF-MW-3S	OFF-A-MW3S-01	OFF-GW-MW3S	OFF-GW-MW3S-03
SAMPLE DATE		01/05/94	01/05/94	07/09/97	08/19/02	08/25/04	01/04/94	07/10/97	08/16/02	08/24/04
	PRG VALUE									
METALS (UG/L)										
LEAD	15	110	NA	19.4 J	15	38.6	97	207 J	1 B	1.7 UJ
MANGANESE	291	291 J	NA	396 J	121	203 J	1380 J	3560 J	3180	1990 J
DISSOLVED METALS (UG/L)										
LEAD	15	NA	2 U	NA	NA	NA	NA	NA	NA	NA
MANGANESE	291	NA	269 J	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
2-METHYLNAPHTHALENE	128	10 U	NA	10 U	10 U	0.2 U	11 U	10 U	10 U	0.2 U
NAPHTHALENE	20	10 U	NA	10 U	10 U	0.2 U	11 U	10 U	10 U	0.2 U
VOLATILES (UG/L)										
BENZENE	5	10 U	NA	10 U	5 U	5 U	10 UJ	10 U	5 U	5 U
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	1 UJ	NA	NA	NA	1 UJ	NA	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	480 J	NA	NA	NA	250
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	10 U	NA	NA	NA	10 U

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-05-S	OFF-MW-05-S
SAMPLE NUMBER		OFF-MW-4S	OFF-MW-4SF	OFF-A-MW4S-01	OFF-A-MW4S-01-D	OFF-GW-MW4S	OFF-GW-MW4SL	OFF-GW-MW4S-03	OFF-MW-5S	OFF-A-MW5S-01
SAMPLE DATE		01/04/94	01/04/94	07/10/97	07/10/97	08/16/02	08/16/02	08/25/04	01/06/94	07/10/97
	PRG VALUE				OFF-A-MW4S-01					
METALS (UG/L)										
LEAD	15	32	NA	2.2 J	2.8 J	1 U	5 U	2 J	30.6 J	1.4 UJ
MANGANESE	291	28000 J	NA	12500 J	12500 J	5430	5703	24400 J	4420 J	578 J
DISSOLVED METALS (UG/L)										
LEAD	15	NA	2 UJ	NA	NA	NA	NA	NA	NA	NA
MANGANESE	291	NA	25700 J	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
2-METHYLNAPHTHALENE	128	10 U	NA	10 U	10 U	10 U	NA	0.2 U	10 U	11 U
NAPHTHALENE	20	10 U	NA	10 U	10 U	10 U	NA	0.2 U	10 U	11 U
VOLATILES (UG/L)										
BENZENE	5	10 UJ	NA	10 U	10 U	5 U	NA	5 U	10 U	10 U
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	1 UJ	1 UJ	NA	NA	NA	NA	1.1 UJ
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	500	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	5.6 J	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-05-S	OFF-MW-05-S	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-S	OFF-MW-06-S
SAMPLE NUMBER		OFF-GW-MW5S	OFF-GW-MW5S-03	OFF-MW-6R	OFF-A-MW6R-01	OFF-A-MW6R-01-F	OFF-GW-MW6R	OFF-GW-MW6R-03	OFF-MW-6S	OFF-GW-MW6S-03
SAMPLE DATE		08/21/02	08/24/04	01/06/94	07/11/97	07/11/97	08/21/02	08/24/04	01/06/94	08/24/04
	PRG VALUE									
METALS (UG/L)										
LEAD	15	1 U	1.7 UJ	59 J	1.4 UJ	NA	1 U	1.7 UJ	13.9 J	2.2 J
MANGANESE	291	513	473 J	2950 J	216 J	NA	19 B	6.6 J	1460 J	24.4 J
DISSOLVED METALS (UG/L)										
LEAD	15	NA	NA	NA	NA	1.4 UJ	NA	NA	NA	NA
MANGANESE	291	NA	NA	NA	NA	2760 J	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
2-METHYLNAPHTHALENE	128	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U	10 U	0.2 U
NAPHTHALENE	20	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U	10 U	0.2 U
VOLATILES (UG/L)										
BENZENE	5	5 U	5 U	10 U	10 U	NA	5 U	5 U	10 U	5 U
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	NA	1.1 UJ	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	NA	50 U	NA	NA	NA	NA	50 U	NA	50 U
GASOLINE RANGE ORGANICS	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	10 U

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-07-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-09-R
SAMPLE NUMBER		OFF-MW-7S	OFF-MW-7SF	OFF-A-MW7S-01	OFF-MW-8R	OFF-MW-8RF	OFF-A-MW8R-01	OFF-GW-MW8R	OFF-GW-MW8R-03	OFF-MW-9R
SAMPLE DATE		01/04/94	01/04/94	07/10/97	01/06/94	01/06/94	07/08/97	08/20/02	08/26/04	01/06/94
	PRG VALUE									
METALS (UG/L)										
LEAD	15	57.7	NA	9 J	3.1 J	NA	1.7 J	1 U	1.7 UJ	612 J
MANGANESE	291	11700 J	NA	11800 J	1030 J	NA	1780 J	3120	1280 J	18200 J
DISSOLVED METALS (UG/L)										
LEAD	15	NA	18.3	NA	NA	2 R	NA	NA	NA	NA
MANGANESE	291	NA	924 J	NA	NA	721 J	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
2-METHYLNAPHTHALENE	128	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U
NAPHTHALENE	20	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U
VOLATILES (UG/L)										
BENZENE	5	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	1.1 UJ	NA	NA	1 UJ	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	85 U	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	NA	NA	NA	10 U	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S
SAMPLE NUMBER		OFF-A-MW9R-01	OFF-A-MW9R-01-D	OFF-A-MW9R-01-F	OFF-GW-MW9R	OFF-GW-MW9R-03	OFF-GW-MW9R-03-D	OFF-MW-10S	OFF-A-MW10S-01	OFF-GW-MW10S
SAMPLE DATE		07/09/97	07/09/97	07/11/97	08/20/02	08/26/04	08/26/04	01/06/94	07/09/97	08/20/02
	PRG VALUE		OFF-A-MW9R-01				OFF-GW-MW9R-03			
METALS (UG/L)										
LEAD	15	1.4 UJ	1.4 UJ	NA	1 U	1.7 UJ	1.7 UJ	564 J	8.7 J	1 U
MANGANESE	291	832 J	794 J	NA	1570	588 J	546 J	4110 J	4450 J	1070
DISSOLVED METALS (UG/L)										
LEAD	15	NA	NA	1.4 UJ	NA	NA	NA	NA	NA	NA
MANGANESE	291	NA	NA	660 J	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
2-METHYLNAPHTHALENE	128	10 U	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U
NAPHTHALENE	20	10 U	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U
VOLATILES (UG/L)										
BENZENE	5	10 U	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	1 UJ	1 UJ	NA	NA	NA	NA	NA	1 UJ	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	380	360	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	10 U	10 U	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-10-S	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S
SAMPLE NUMBER		OFF-GW-MW10S-03	OFF-MW-11R	OFF-A-MW11R-01	OFF-GW-MW11R	OFF-GW-MW11R-03	OFF-MW-11S	OFF-A-MW11S-01	OFF-GW-MW11S	OFF-GW-MW11SL
SAMPLE DATE		08/26/04	01/05/94	07/10/97	08/19/02	08/25/04	01/05/94	07/10/97	08/19/02	08/20/02
	PRG VALUE									
METALS (UG/L)										
LEAD	15	1.7 UJ	20 U	1.4 UJ	1 U	1.7 UJ	1120	7.9 J	1 U	5 U
MANGANESE	291	873 J	5690	3460 J	2810	4310 J	2690	1340 J	742	841
DISSOLVED METALS (UG/L)										
LEAD	15	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	291	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
2-METHYLNAPHTHALENE	128	0.2 U	10 U	11 U	10 U	0.2 U	10 U	11 U	10 U	NA
NAPHTHALENE	20	0.2 U	0.6 J	11 U	10 U	0.2 U	10 U	11 U	10 U	NA
VOLATILES (UG/L)										
BENZENE	5	5 U	10 U	10 U	5 U	5 U	10 U	10 U	5 U	NA
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	1.1 UJ	NA	NA	NA	1.1 UJ	NA	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	860 J	NA	NA	NA	380	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	10 U	NA	NA	NA	10 U	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-11-S	OFF-MW-12-S	OFF-MW-12-S	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101
SAMPLE NUMBER		OFF-GW-MW11S-03	OFF-MW-11S-D	OFF-MW-12S	OFF-A-MW101-01	OFF-A-MW101-01-F	OFF-GW-MW101	OFF-GW-MW101-D	OFF-GW-MW101-03	OFF-GW-MW101-03-D
SAMPLE DATE		08/25/04	01/05/94	01/05/94	07/11/97	07/11/97	08/19/02	08/19/02	08/24/04	08/24/04
	PRG VALUE		OFF-MW-11S					OFF-GW-MW101		OFF-GW-MW101-03
METALS (UG/L)										
LEAD	15	1.7 UJ	1640 J	1640 J	1.4 UJ	NA	1 U	1 U	1.7 UJ	1.7 UJ
MANGANESE	291	4450 J	3030	3030	441 J	NA	236	237	447 J	433 J
DISSOLVED METALS (UG/L)										
LEAD	15	NA	NA	NA	NA	1.4 UJ	NA	NA	NA	NA
MANGANESE	291	NA	NA	NA	NA	468 J	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
2-METHYLNAPHTHALENE	128	0.2 U	10 U	10 U	190	NA	4 J	5 J	0.2 U	0.2 U
NAPHTHALENE	20	0.2 U	10 U	10 U	150	NA	8 J	9 J	0.49 J	0.12 J
VOLATILES (UG/L)										
BENZENE	5	5 U	10 U	10 U	8 J	NA	5 U	5 U	0.4 J	0.5 J
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	NA	1 UJ	NA	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	1200	NA	NA	NA	NA	NA	NA	1300	1200
GASOLINE RANGE ORGANICS	NA	53	NA	NA	NA	NA	NA	NA	81	72

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-2

GROUNDWATER PARAMETERS EXCEEDING PRGS, 1994 THROUGH 2004
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION		OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102
SAMPLE NUMBER		OFF-A-MW102-01	OFF-A-MW102-01-F	OFF-GW-MW102	OFF-GW-MW102-D	OFF-GW-MW102-03
SAMPLE DATE		07/11/97	07/11/97	08/19/02	08/19/02	08/25/04
	PRG VALUE				OFF-GW-MW102	
METALS (UG/L)						
LEAD	15	27.6 J	NA	1 U	1 U	1.7 UJ
MANGANESE	291	1180 J	NA	69	72	35 J
DISSOLVED METALS (UG/L)						
LEAD	15	NA	1.4 UJ	NA	NA	NA
MANGANESE	291	NA	1120 J	NA	NA	NA
SEMIVOLATILES (UG/L)						
2-METHYLNAPHTHALENE	128	3 J	NA	10 U	10 U	0.2 U
NAPHTHALENE	20	11	NA	10 U	10 U	0.11 J
VOLATILES (UG/L)						
BENZENE	5	33	NA	1 J	1 J	2 J
PETROLEUM HYDROCARBONS (MG/L)						
TOTAL PETROLEUM HYDROCARBONS	NA	1 UJ	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/L)						
DIESEL RANGE ORGANICS	NA	NA	NA	NA	NA	1200 J
GASOLINE RANGE ORGANICS	NA	NA	NA	NA	NA	10

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-3

SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS WITH PRG VALUES
FEBRUARY 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-1	OFF-2	OFF-3	OFF-4	OFF-5	OFF-6	OFF-7	OFF-7
SAMPLE NUMBER			OFF-SD-OFF1-0006-01	OFF-SD-OFF2-0006-01	OFF-SD-OFF3-0006-01	OFF-SD-OFF4-0006-01	OFF-SD-SD5-0006-01	OFF-SD-OFF6-0006-01	OFF-SD-OFF7-0006-01	OFF-SD-OFF7-0006-01-D
SAMPLE DATE			02/22/05	02/22/05	02/23/05	02/23/05	02/23/05	02/23/05	02/22/05	02/22/05
SAMPLE DEPTH			0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'
QC IDENTIFIER									ORIG	DUP
DUPLICATE										OFF-SD-OFF7-0006-01
METALS (MG/KG)										
ARSENIC	6.2		*	5.6 J	1.4 J	1.2 J	*	*	0.072 UJ	*
CADMIUM	10		4.7 J	2.7 J	2.4 J	2.2 J	2.4 J	1.9 J	9.2 J	5.4 J
CHROMIUM	3708		32.9 J	10.2 J	8.5 J	6.8 J	11.2 J	11.2 J	31.6 J	20.4 J
MERCURY	2.3		0.046	0.0074 U	0.012 J	0.0070 U	0.035	0.033	0.021	0.022
SEMIVOLATILES (UG/KG)										
2-METHYLNAPHTHALENE		185	28	3.6 U	5.4	94	54	7.9	21 J	7.2 J
ACENAPHTHYLENE		697	24	12 J	130	220	220	110	25 J	36 J
BENZO(A)ANTHRACENE	1338		1200	100	610	950	2000	560	610 J	320 J
BENZO(A)PYRENE	134		960	110	570	860	1800	520	580 J	290 J
BENZO(B)FLUORANTHENE	1338		1000	120	670	980	2100	630	780 J	400 J
DIBENZO(A,H)ANTHRACENE	134	2434	180	21	82	120 J	200 J	68 J	75 J	53 J
INDENO(1,2,3-CD)PYRENE	72519	5633	460	69	240	330 J	780	210 J	240 J	130 J

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED;
* - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-3

SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS WITH PRG VALUES
FEBRUARY 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-411	OFF-SD-413	OFF-SD-414	OFF-SD-417	OFF-SD-424	OFF-SD-432	OFF-SD-439	OFF-SD-442
SAMPLE NUMBER			OFF-SD-411-0006-01	OFF-SD-413-0006-01	OFF-SD-414-0006-01	OFF-SD-417-0006-01	OFF-SD-424-0006-01	OFF-SD-432-0006-01	OFF-SD-439-0006-01	OFF-SD-442-0006-01
SAMPLE DATE			02/23/05	02/23/05	02/23/05	02/23/05	02/22/05	02/23/05	02/22/05	02/23/05
SAMPLE DEPTH			0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'	0-0.5'
QC IDENTIFIER										ORIG
DUPLICATE										
METALS (MG/KG)										
ARSENIC	6.2		1.9 J	2.0 J	*	1.0 J	*	1.9 J	3.8 J	*
CADMIUM	10		2.8 J	2.5 J	3.2 J	2.1 J	6.7 J	2.2 J	2.8 J	3.5 J
CHROMIUM	3708		10 J	8.6 J	9.3 J	8.5 J	27.2 J	7.6 J	9.6 J	10.3 J
MERCURY	2.3		0.034	0.0083 U	0.0071 U	0.084	0.016	0.0079 U	0.016	0.022
SEMIVOLATILES (UG/KG)										
2-METHYLNAPHTHALENE		185	4 U	15	4.4	11	6.4 J	9.2	3.7 U	94 J
ACENAPHTHYLENE		697	74	230	87	220	35 J	220	28	260
BENZO(A)ANTHRACENE	1338		390	1100	440	890	150 J	NA	190 J	1500
BENZO(A)PYRENE	134		400 J	880	380	830	210 J	800	160 J	1300 J
BENZO(B)FLUORANTHENE	1338		420	990	420	960	230 J	940	240 J	1400
DIBENZO(A,H)ANTHRACENE	134	2434	55 J	120 J	47 J	110 J	42 J	100 J	26 J	160 J
INDENO(1,2,3-CD)PYRENE	72519	5633	160 J	350 J	130 J	340 J	130 J	320 J	70 J	580 J

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED;
* - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-3

SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS WITH PRG VALUES
FEBRUARY 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-442	OFF-SD-445
SAMPLE NUMBER			OFF-SD-442-0006-01-D	OFF-SD-445-0006-01
SAMPLE DATE			02/23/05	02/23/05
SAMPLE DEPTH			0-0.5'	0-0.5'
QC IDENTIFIER			DUP	
DUPLICATE			OFF-SD-442-0006-01	
METALS (MG/KG)				
ARSENIC	6.2		*	3.2 J
CADMIUM	10		1.8 J	1.7 J
CHROMIUM	3708		8.0 J	11.7 J
MERCURY	2.3		0.018 J	0.036
SEMIVOLATILES (UG/KG)				
2-METHYLNAPHTHALENE		185	18 J	5.4
ACENAPHTHYLENE		697	170	44
BENZO(A)ANTHRACENE	1338		1200	260 J
BENZO(A)PYRENE	134		1100	250 J
BENZO(B)FLUORANTHENE	1338		1500	370 J
DIBENZO(A,H)ANTHRACENE	134	2434	130 J	30 J
INDENO(1,2,3-CD)PYRENE	72519	5633	410 J	85 J

Notes:

Backlit text indicates exceedance of Human health PRGs

Grey shade indicates exceedance of Ecological PRGs

* Value for this parameter was rejected by the analytical laboratory due to Inductively Coupled Plasma (ICP) interference caused by high concentrations of magnesium and/or calcium in the sediment samples.

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED;
* - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-1	OFF-1	OFF-2	OFF-2	OFF-2	OFF-2	OFF-2	OFF-3	OFF-3
SAMPLE NUMBER			OFF-1-SD-0015	OFF-SD-OFF1-0006-01	OFF-2-SD-0015	OFF-2-200207	OFF-2-200210	OFF-2-200404	OFF-SD-OFF2-0006-01	OFF-3-SD-0015	OFF-3-200210
SAMPLE DATE			3/27/1998	2/22/2005	3/27/1998	7/1/2002	10/1/2002	4/1/2004	2/22/2005	3/27/1998	10/1/2002
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE											
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	26 J	28	77.6 J	NA	NA	NA	3.6 U	89.2 J	NA
ACENAPHTHENE			23	300	88.1	NA	NA	NA	4.1	371	NA
ACENAPHTHYLENE		697	93	24	488	NA	0 U	300	12 J	350	0 U
ANTHRACENE			255 J	750	1100 J	12	10	620	30 J	1460 J	37
BENZO(A)ANTHRACENE	1338		100	1200	3600	15	24	610	100	5690	93
BENZO(A)PYRENE	134		595	960	2410	NA	8	300	110	3450 J	33
BENZO(B)FLUORANTHENE	1338		NA	1000	NA	18	9	240	120	NA	21
BENZO(G,H,I)PERYLENE			876 J	480 J	2520 J	NA	0 U	140	94	5370 J	0 U
BENZO(K)FLUORANTHENE			NA	610	NA	NA	14	290	51	NA	33
CHRYSENE			NA	1300	NA	7	24	490	120	NA	120
DIBENZO(A,H)ANTHRACENE	134	2434	441 J	180	1290 J	NA	0 U	160	21	2810 J	0 U
FLUORANTHENE			1950	3100	8350	38	63	2460	210	14600	200
FLUORENE			40.3 J	370	303 J	NA	0 U	140	7	598 J	0 U
HIGH MOLECULAR WEIGHT PAHS			6660	6190	24700	40	195	6641	685	41800	710
INDENO(1,2,3-CD)PYRENE	72519	5633	1010	460	3070	NA	0 U	41	69	6560 J	0 U
LOW MOLECULAR WEIGHT PAHS			1530	10111	7830	110	49	3968	623.1	13700	157
NAPHTHALENE			31.9	39 BB	171	NA	0 U	68	3.6 U	149	0 U
PHENANTHRENE			1060	2900	5610	25	39	2840	120	10700	120
PYRENE			1780	2600	6750	34	53	1910	240	10700	210
TOTAL PAHS			8190	16,301	32530	150	244	10609	1,308	55500	867

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TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-3	OFF-4	OFF-4	OFF-5	OFF-5	OFF-5	OFF-5	OFF-6	OFF-6
SAMPLE NUMBER			OFF-SD-OFF3-0006-01	OFF-4-SD-0015	OFF-SD-OFF4-0006-01	OFF-5-SD-0015	OFF-5-200207	OFF-5-200404	OFF-SD-SD5-0006-01	OFF-6-SD-0015	OFF-SD-OFF6-0006-01
SAMPLE DATE			2/23/2005	3/27/1998	2/23/2005	3/27/1998	7/1/2002	4/1/2004	2/23/2005	3/27/1998	2/23/2005
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE											
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	5.4	38.1 J	94	330 J	NA	NA	54	170 J	7.9
ACENAPHTHENE			14	54	180	966	NA	NA	260	344	26
ACENAPHTHYLENE		697	130	424	220	509	NA	0	220	195	110
ANTHRACENE			220	774 J	470	2810 J	6	1200	660	1170 J	180
BENZO(A)ANTHRACENE	1338		610	2280	950	9300	21	470	2000	4250	560
BENZO(A)PYRENE	134		570	2090	860	4830	NA	1420	1800	1990	520
BENZO(B)FLUORANTHENE	1338		670	NA	980	NA	0 U	1090	2100	NA	630
BENZO(G,H,I)PERYLENE			220	1290 J	300 J	5990 J	NA	740	800 J	2630 J	210 J
BENZO(K)FLUORANTHENE			370	NA	560	NA	55	1180	1400	NA	370
CHRYSENE			640	NA	1000	NA	21	1220	2000	NA	620
DIBENZO(A,H)ANTHRACENE	134	2434	82	352 J	120 J	3410 J	NA	270	200 J	1390 J	68 J
FLUORANTHENE			1400	5580	2400	19200	42	5220	4800	11200	1700 E
FLUORENE			50	177 J	250	1360 J	NA	620	300	392 J	48
HIGH MOLECULAR WEIGHT PAHS			3402	16700	5100	60900	97	16000	11080	32000	3188
INDENO(1,2,3-CD)PYRENE	72519	5633	240	1200	330 J	7390	NA	150	780	3030	210 J
LOW MOLECULAR WEIGHT PAHS			3933.4	4640	7934	20800	110	7420	14344	11900	4261.9
NAPHTHALENE			14 BB	136	220 BB	258	NA	110	150	161	20 BB
PHENANTHRENE			800	3030	2000	14600	27	5490	3600	9470	770
PYRENE			1300	4810	2100	16900	38	4240	4300	9770	1400
TOTAL PAHS			7,335	21340	13,034	81700	210	23,420	25,424	43900	7,450

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TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-7	OFF-7	OFF-7	OFF-SSD-337	OFF-SSD-337	OFF-SD-410	OFF-SD-410	OFF-SD-410
SAMPLE NUMBER			OFF-7-SD-0015	OFF-SD-OFF7-0006-01	OFF-SD-OFF7-0006-01-D	OFF-SSD-337-00005	OFF-SSD-337-200210	OFF-SD-410-0006	OFF-SD-410-0006-0702	OFF-SD-410-0006-0702-D
SAMPLE DATE			3/27/1998	2/22/2005	2/22/2005	11/19/1998	10/1/2002	11/14/2001	7/2/2002	7/2/2002
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE				ORIG	DUP				ORIG	DUP
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	54.9	21 J	7.2 J	4000 U	NA	470	9.5 U	8.5 U
ACENAPHTHENE			120	94 J	36 J	4000 U	NA	3700	9.5 U	17
ACENAPHTHYLENE		697	169	25 J	36 J	4000 U	14	400	13	11
ANTHRACENE			393	210 J	120 J	4000 U	40	5000	38	55
BENZO(A)ANTHRACENE	1338		1160	610 J	320 J	4000 U	86	9200	180	160
BENZO(A)PYRENE	134		1330	580 J	290 J	4000 U	40	9500	220	200
BENZO(B)FLUORANTHENE	1338		NA	780 J	400 J	4000 U	46	12000	300	250
BENZO(G,H,I)PERYLENE			1020	290 J	160 J	4000 U	0 U	5500	100	83
BENZO(K)FLUORANTHENE			NA	340 J	220 J	4000 U	37	4600	120	95
CHRYSENE			NA	560 J	320 J	4000 U	110	9100	200	170
DIBENZO(A,H)ANTHRACENE	134	2434	293	75 J	53 J	4000 U	0 U	1500	24	17
FLUORANTHENE			2190	950 J	500 J	420 J	220	26000	450	410
FLUORENE			160	70 J	36 J	4000 U	0 U	3300	12	17
HIGH MOLECULAR WEIGHT PAHS			7620	3475	1893	900	739	103600	2126	1856
INDENO(1,2,3-CD)PYRENE	72519	5633	968	240 J	130 J	4000 U	0 U	5200	92	71
LOW MOLECULAR WEIGHT PAHS			2280	3573	2051.6	4000 U	234	31750	273	380
NAPHTHALENE			70	13 BBJ	6.4 BBJ	4000 U	0 U	880	9.5 U	8.5 U
PHENANTHRENE			1320	790 J	510 J	4000 U	180	18000	210	280
PYRENE			2120	1400 J	800 J	480 J	200	21000	440	400
TOTAL PAHS			9900	7,048	3,945	900	973	135,350	2,399	2,236

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TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-411	OFF-SD-411	OFF-SD-412	OFF-SD-412	OFF-SD-412	OFF-SD-413	OFF-SD-413	OFF-SD-414
SAMPLE NUMBER			OFF-SD-411-0006	OFF-SD-411-0006-01	OFF-SD-412-0006	OFF-SD-412-200207	OFF-SD-412-200404	OFF-SD-413-0006	OFF-SD-413-0006-01	OFF-SD-414-0006
SAMPLE DATE			11/13/2001	2/23/2005	11/13/2001	7/1/2002	4/1/2004	11/13/2001	2/23/2005	11/9/2001
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE										
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	66 U	4 U	28 J	NA	NA	58 U	15	100 J
ACENAPHTHENE			64 J	9.1	110 J	NA	NA	190 U	36	190 J
ACENAPHTHYLENE		697	100	74	580	NA	260	81 J	230	1500 J
ANTHRACENE			250	96	750	22	360	130 J	340	2100 J
BENZO(A)ANTHRACENE	1338		840	390	1400	NA	280	430 J	1100	4900 J
BENZO(A)PYRENE	134		680 J	400 J	1000	NA	140	320 J	880	3900 J
BENZO(B)FLUORANTHENE	1338		990 J	420	1200	NA	110	470 J	990	5100 J
BENZO(G,H,I)PERYLENE			170 J	160 J	340	NA	63	58 UJ	320 J	1300 J
BENZO(K)FLUORANTHENE			480 J	220 J	660	NA	130	220 J	570	2800 J
CHRYSENE			920	380	1200	NA	230	440 J	850	4200 J
DIBENZO(A,H)ANTHRACENE	134	2434	66 UJ	55 J	120	NA	77	58 UJ	120 J	480 J
FLUORANTHENE			1800	790	2800	22	120	830	2200	13000 J
FLUORENE			92 J	27	470	NA	140	29 J	95	560 J
HIGH MOLECULAR WEIGHT PAHS			4280	2185	12020	0 U	2178	1966	5180	24280
INDENO(1,2,3-CD)PYRENE	72519	5633	200 J	160 J	400	NA	18	86 J	350 J	1600 J
LOW MOLECULAR WEIGHT PAHS			5506	2291.5	5218	60	2899	2560	6249	38300
NAPHTHALENE			220 U	5.4 BB	280	NA	59	190 UJ	33 BB	250 J
PHENANTHRENE			1200	410	3000	16	2080	490 J	1300	9600 J
PYRENE			2000	880	2900	NA	1010	1000 J	2000	11000 J
TOTAL PAHS			9,786	4,477	17,238	60	5077	4,526	11,429	62,580

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TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-414	OFF-SD-415	OFF-SD-415	OFF-SD-415	OFF-SD-417	OFF-SD-417	OFF-SD-417	OFF-SD-419
SAMPLE NUMBER			OFF-SD-414-0006-01	OFF-SD-415-0006	OFF-SD-415-200207	OFF-SD-415-200404	OFF-SD-417-0006	OFF-SD-417-200210	OFF-SD-417-0006-01	OFF-SD-419-0006
SAMPLE DATE			2/23/2005	11/12/2001	7/1/2002	4/1/2004	11/13/2001	10/1/2002	2/23/2005	11/8/2001
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE										ORIG
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	4.4	62 U	NA	NA	68 U	NA	11	130 U
ACENAPHTHENE			13	200 UJ	NA	NA	53 J	NA	35	53 J
ACENAPHTHYLENE		697	87	24 J	48	4	250	4	220	91 J
ANTHRACENE			220	43 J	14	560	430	8	350	210 J
BENZO(A)ANTHRACENE	1338		440	120 J	0 U	990	1100	9	890	580
BENZO(A)PYRENE	134		380	140 J	NA	810	810	4	830	470
BENZO(B)FLUORANTHENE	1338		420	160	NA	560	1000	4	960	600
BENZO(G,H,I)PERYLENE			120 J	88	NA	420	250	0 U	300 J	180
BENZO(K)FLUORANTHENE			NA	72 J	NA	560	520	5	540	280 J
CHRYSENE			460	120 J	0 U	970	1000	16	930	620
DIBENZO(A,H)ANTHRACENE	134	2434	47 J	62 U	NA	350	94	0 U	110 J	130 U
FLUORANTHENE			1100	250 J	16	2420	2100	34	2100	1300
FLUORENE			45	200 UJ	0 U	270	110 J	0 U	82	69 J
HIGH MOLECULAR WEIGHT PAHS			1997	1291	0 U	9580	5084	105	4900	5530
INDENO(1,2,3-CD)PYRENE	72519	5633	130 J	91	NA	110	310	0 U	340 J	200
LOW MOLECULAR WEIGHT PAHS			3134.1	217	100	3549	6392	46	5922	1223
NAPHTHALENE			4.7 BB	200 UJ	NA	75	49 J	0 U	24 BB	440 U
PHENANTHRENE			660	150 J	10	2640	1400	34	1100	800
PYRENE			1000	250 J	13	2390	2000	33	2000	1300
TOTAL PAHS			5,131	1,508	100	13129	11,476	151	10,822	6,753

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TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-419	OFF-SD-419	OFF-SD-419	OFF-SD-421	OFF-SD-421	OFF-SD-421	OFF-SD-423	OFF-SD-423
SAMPLE NUMBER			OFF-SD-419-0006-D	OFF-SD-419-200207	OFF-SD-419-200404	OFF-SD-421-0006	OFF-SD-421-200207	OFF-SD-421-200404	OFF-SD-423-0006	OFF-SD-423-200207
SAMPLE DATE			11/8/2001	7/1/2002	4/1/2004	11/8/2001	7/1/2002	4/1/2004	11/8/2001	7/1/2002
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE			DUP							
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	140 U	NA	NA	260 U	NA	NA	380 U	NA
ACENAPHTHENE			450 U	NA	NA	860 U	NA	NA	380 J	NA
ACENAPHTHYLENE		697	130 J	320	91	260 U	43	81	380 U	64
ANTHRACENE			190 J	34	120	120 J	7	100	720 J	110
BENZO(A)ANTHRACENE	1338		530	210	220	320	35	130	1600	370
BENZO(A)PYRENE	134		540	83	120	340	49	74	1600	160
BENZO(B)FLUORANTHENE	1338		700	130	98	420	0 U	64	2100	240
BENZO(G,H,I)PERYLENE			180 J	NA	70	260 U	NA	51	540 J	NA
BENZO(K)FLUORANTHENE			340 J	210	120	210 J	0 U	72	980 J	440
CHRYSENE			590	180	190	390 J	34	130	1700	310
DIBENZO(A,H)ANTHRACENE	134	2434	140 U	NA	71	260 U	NA	41	380 U	NA
FLUORANTHENE			1300	260	750	840 J	51	570	3800	440
FLUORENE			54 J	140	36	860 U	0 U	25	320 J	240
HIGH MOLECULAR WEIGHT PAHS			5680	820	2297	3420	120	1634	16780	1520
INDENO(1,2,3-CD)PYRENE	72519	5633	200 J	NA	18	150 J	NA	12	560 J	NA
LOW MOLECULAR WEIGHT PAHS			1154	1180	827	650	170	662	4020	1640
NAPHTHALENE			450 U	NA	20	860 U	NA	36	1200 U	NA
PHENANTHRENE			780	130	560	530 J	20	420	2600	280
PYRENE			1300	270	640	750 J	52	490	3900	470
TOTAL PAHS			6,834	2000	3124	4,070	290	2296	20,800	3170

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TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-423	OFF-SD-424	OFF-SD-424	OFF-SD-424	OFF-SD-432	OFF-SD-432	OFF-SD-432	OFF-SD-434
SAMPLE NUMBER			OFF-SD-423-200404	OFF-SD-424-0006	OFF-SD-424-200210	OFF-SD-424-0006-01	OFF-SD-432-0006	OFF-SD-432-0006-D	OFF-SD-432-0006-01	OFF-SD-434-0006
SAMPLE DATE			4/1/2004	11/13/2001	10/1/2002	2/22/2005	11/13/2001	11/13/2001	2/23/2005	11/14/2001
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE							ORIG	DUP		ORIG
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	NA	58 U	NA	6.4 J	55 U	58 U	9.2	65 U
ACENAPHTHENE			NA	36 J	NA	11 J	180 U	190 U	21	210 U
ACENAPHTHYLENE		697	950	38 J	290	35 J	84	100	220	93
ANTHRACENE			770	230	51	88 J	130 J	150 J	330	150 J
BENZO(A)ANTHRACENE	1338		450	300	110	150 J	340	520	NA	400
BENZO(A)PYRENE	134		890	230 J	32	210 J	240	370	800	340 J
BENZO(B)FLUORANTHENE	1338		720	320 J	21	230 J	300	500	940	440 J
BENZO(G,H,I)PERYLENE			390	83 J	0 U	250 J	100	110	290 J	100 J
BENZO(K)FLUORANTHENE			800	140 J	35	72 J	140 J	220	570	230 J
CHRYSENE			780	310	110	170 J	320	500	970	360
DIBENZO(A,H)ANTHRACENE	134	2434	420	58 UJ	0 U	42 J	55 U	58 U	100 J	65 UJ
FLUORANTHENE			5520	640	260	260 J	750	1100	2100	810
FLUORENE			300	60 J	0 U	31 J	38 J	31 J	86	52 J
HIGH MOLECULAR WEIGHT PAHS			14590	1468	828	1254	1560	2360	8190	3720
INDENO(1,2,3-CD)PYRENE	72519	5633	110	85 J	0 U	130 J	120	140	320 J	120 J
LOW MOLECULAR WEIGHT PAHS			6800	2211	501	936.2	2232	2901	6084	975
NAPHTHALENE			170	27 J	0 U	4.8 BBJ	180 U	190 U	18 BB	210 U
PHENANTHRENE			4610	560	160	160 J	530	520	1200	680 J
PYRENE			4510	620	260	340 J	700	1000	2100	920
TOTAL PAHS			21390	3,679	1329	2,190	3,792	5,261	14,274	4,695

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TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-434	OFF-SD-434	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-442	OFF-SD-442	OFF-SD-442
SAMPLE NUMBER			OFF-SD-434-0006-D	OFF-SD-434-200210	OFF-SD-439-0006	OFF-SD-439-0006-D	OFF-SD-439-0006-01	OFF-SD-442-0006	OFF-SD-442-0006-01	OFF-SD-442-0006-01-D
SAMPLE DATE			11/14/2001	10/1/2002	10/29/2001	10/29/2001	2/22/2005	11/9/2001	2/23/2005	2/23/2005
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE			DUP		ORIG	DUP			ORIG	DUP
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	67 U	NA	370 U	370 U	3.7 U	58 J	94 J	18 J
ACENAPHTHENE			220 U	NA	120 J	74 J	11	120 J	270 J	68 J
ACENAPHTHYLENE		697	51 J	32	370 U	57 J	28	870	260	170
ANTHRACENE			100 J	1	300 J	180 J	52	1300	660	410
BENZO(A)ANTHRACENE	1338		330	3	540	490	190 J	2900	1500	1200
BENZO(A)PYRENE	134		280 J	1	550	500	160 J	2400 J	1300 J	1100
BENZO(B)FLUORANTHENE	1338		360 J	1	680	680	240 J	3200 J	1400	1500
BENZO(G,H,I)PERYLENE			67 UJ	0 U	220 J	190 J	88 J	790 J	600	380 J
BENZO(K)FLUORANTHENE			190 J	1	250 J	330 J	110 J	1600 J	820	790
CHRYSENE			300	4	600	460	170 J	2600	1500	1100
DIBENZO(A,H)ANTHRACENE	134	2434	67 UJ	0 U	74 J	68 J	26 J	280 J	160 J	130 J
FLUORANTHENE			640	12	1400	900	270	6100	3400	2500
FLUORENE			24 J	0 U	98 J	73 J	14	340 J	340	100 J
HIGH MOLECULAR WEIGHT PAHS			2954	31	3154	2918	1054	14760	7860	6610
INDENO(1,2,3-CD)PYRENE	72519	5633	94 J	0 U	240 J	200 J	70 J	990 J	580 J	410 J
LOW MOLECULAR WEIGHT PAHS			575	42	4318	2944	999	20028	11154	7593
NAPHTHALENE			220 U	0 U	370 U	370 U	4 BB	140 J	130 BBJ	27 BBJ
PHENANTHRENE			400 J	9	1300 J	760	210	4900	2800 J	1500 J
PYRENE			760	9	1100	900	410	6200	3200	2800
TOTAL PAHS			3,529	73	7,472	5,862	2,053	34,788	19,014	14,203

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-444	OFF-SD-444	OFF-SD-445	OFF-SD-445	OFF-SD-462	OFF-SD-462	OFF-SD-467	OFF-SD-467
SAMPLE NUMBER			OFF-SD-444-0006	OFF-SD-444-200210	OFF-SD-445-0006	OFF-SD-445-0006-01	OFF-SD-462-0006	OFF-SD-462-200210	OFF-SD-467-0006	OFF-SD-467-200207
SAMPLE DATE			11/8/2001	10/1/2002	11/13/2001	2/23/2005	11/14/2001	10/1/2002	11/14/2001	7/1/2002
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE										
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	130 U	NA	67 U	5.4	68 U	NA	69 U	NA
ACENAPHTHENE			420 U	NA	53 J	18	230 U	NA	230 U	NA
ACENAPHTHYLENE		697	100 J	0 U	76	44	68 U	9	69 U	NA
ANTHRACENE			200 J	15	180 J	89	38 J	4	230 U	14
BENZO(A)ANTHRACENE	1338		530	41	570	260 J	110	7	63 J	6
BENZO(A)PYRENE	134		540	12	500	250 J	130	2	53 J	44
BENZO(B)FLUORANTHENE	1338		680	9	670	370 J	160	2	74	5
BENZO(G,H,I)PERYLENE			190 J	0 U	150	96 J	98	0 U	69 U	NA
BENZO(K)FLUORANTHENE			370 J	14	320	140 J	63 J	2	32 J	0 U
CHRYSENE			560	40	540	270 J	120 J	8	68 J	5
DIBENZO(A,H)ANTHRACENE	134	2434	130 U	0 U	67 U	30 J	68 U	0 U	69 U	NA
FLUORANTHENE			1300	120	1200	450	260	26	120 J	14
FLUORENE			68 J	0 U	58 J	26	230 U	0 U	230 U	NA
HIGH MOLECULAR WEIGHT PAHS			5590	72	2910	1501	1259	68	530	59
INDENO(1,2,3-CD)PYRENE	72519	5633	220 J	0 U	160	85 J	98	0 U	69 U	NA
LOW MOLECULAR WEIGHT PAHS			1208	336	3787	1589.4	188	43	49	49
NAPHTHALENE			420 U	0 U	220 U	7 BB	230 U	0 U	230 U	NA
PHENANTHRENE			840	57	820	350	150 J	30	49 J	11
PYRENE			1200	100	1400	600	220 J	21	120 J	9
TOTAL PAHS			6,798	408	6,697	3,090	1,447	111	579	108

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE 4-4

SELECTED SEDIMENT ANALYTICAL RESULTS OVER TIME - 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODE ISLAND

SAMPLE LOCATION	HUMAN HEALTH PRG VALUE	ECOLOGICAL PRG VALUE	OFF-SD-467	OFF-SD-468	OFF-SD-468	OFF-SD-468	OFF-SD-476	OFF-SD-476	OFF-SD-476
SAMPLE NUMBER			OFF-SD-467-200404	OFF-SD-468-0006	OFF-SD-468-200207	OFF-SD-468-200404	OFF-SD-476-0006	OFF-SD-476-200207	OFF-SD-476-200401
SAMPLE DATE			4/1/2004	11/12/2001	7/1/2002	4/1/2004	7/2/2002	7/1/2002	4/1/2004
SAMPLE DEPTH			0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'	0.0-0.5'
DUPLICATE									
PAHs (UG/KG)									
2-METHYLNAPHTHALENE		185	NA	1600 U	NA	NA	8.8 U	NA	NA
ACENAPHTHENE			NA	5100 U	NA	NA	8.8 U	NA	NA
ACENAPHTHYLENE		697	370	1600 U	48	230	8.8 U	NA	420
ANTHRACENE			200	900 J	15	230	14	7	440
BENZO(A)ANTHRACENE	1338		610	660 J	75	330	59	17	590
BENZO(A)PYRENE	134		430	710 J	NA	170	70	NA	290
BENZO(B)FLUORANTHENE	1338		330	1200 J	97	130	96	NA	220
BENZO(G,H,I)PERYLENE			250	1600 U	NA	86	33	NA	140
BENZO(K)FLUORANTHENE			390	5100 U	34	160	46	NA	260
CHRYSENE			480	960 J	63	270	64	16	470
DIBENZO(A,H)ANTHRACENE	134	2434	250	1600 U	NA	98	8.8 U	NA	160
FLUORANTHENE			2430	1200 J	140	1380	130	37	2640
FLUORENE			110	5100 U	0 U	57	8.8 U	88	100
HIGH MOLECULAR WEIGHT PAHS			7360	5730	270	3688	656	33	6778
INDENO(1,2,3-CD)PYRENE	72519	5633	60	1600 U	NA	14	28	NA	38
LOW MOLECULAR WEIGHT PAHS			2560	1630	370	1541	76	190	3190
NAPHTHALENE			120	5100 U	NA	44	8.8 U	NA	90
PHENANTHRENE			1760	730 J	51	980	62	19	2140
PYRENE			2130	1000 J	120	1050	130	35	1970
TOTAL PAHS			9920	7,360	640	5229	732	223	9968

Notes:
Backlit text indicates exceedance of Human health PRGs
Grey shade indicates exceedance of Ecological PRGs
* Value for this parameter was rejected by the analytical laboratory due to Inductively Coupled Plasma (ICP) interference caused by high concentrations of magnesium and/or calcium in the sediment samples.

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

FIGURES

QUADRANGLE LOCATION

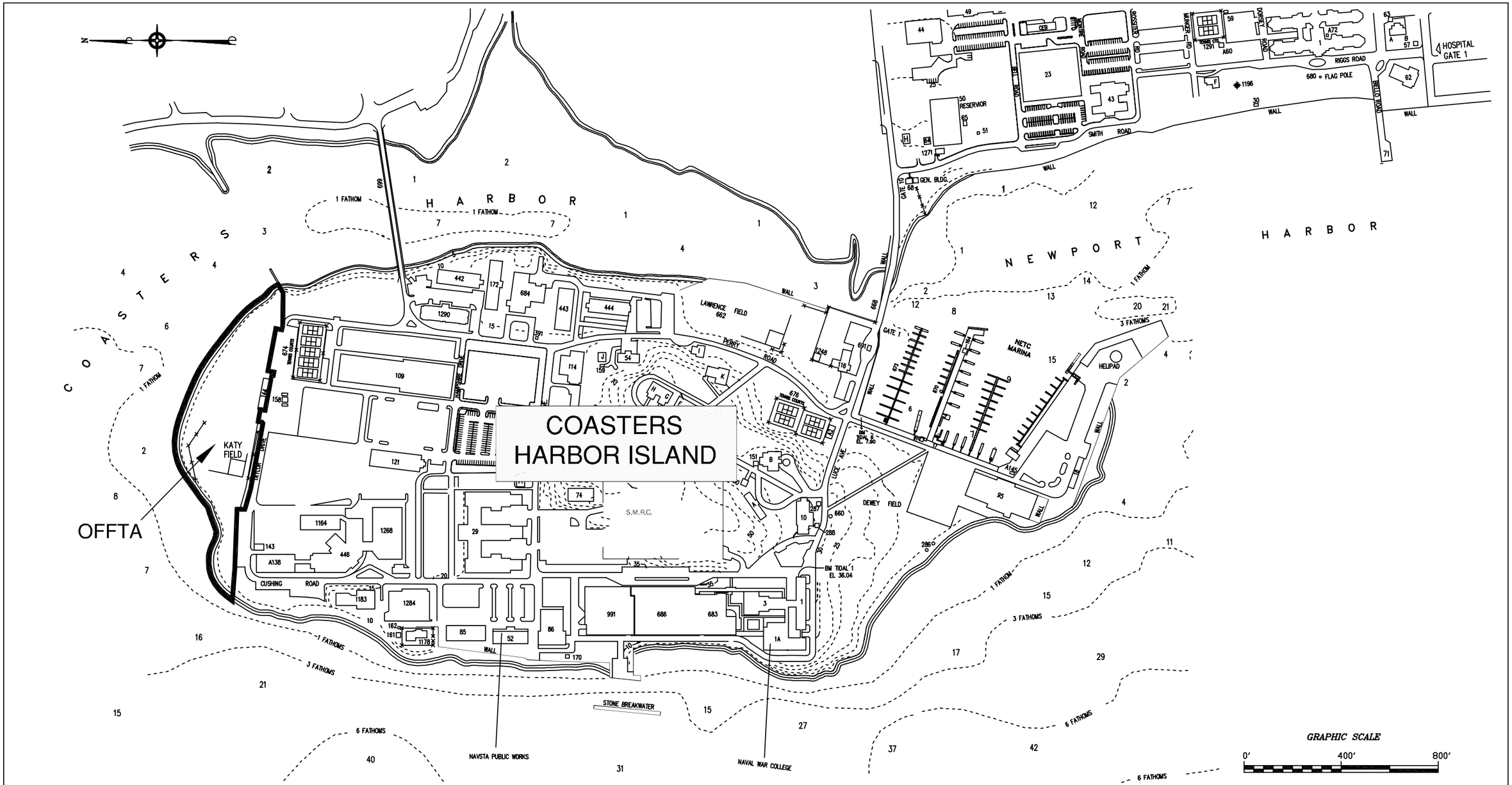
1 ½ 0 1

2000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 ½ 0 1 KILOMETER

SITE LOCUS		FIGURE 1–1	
WORKPLAN FOR SEDIMENT AND GROUNDWATER		TETRA TECH NUS, INC.	
NAVSTA NEWPORT – NEWPORT, RHODE ISLAND			
DRAWN BY: D.W. MACDOUGALL	REV.: 0		
CHECKED BY: S. PARKER	DATE: MARCH 3, 2006		
SCALE: AS SHOWN	ACAD: DWG\1611\3544\FIG_1-1.DWG	55 Jonspin Road Wilmington, MA 01887 (508)658-7899	

W5205350 CTO 008



NOTES:

BASE MAP FROM PLAN BY DEPT. OF NAVY, "COASTERS HARBOR ISLAND AND NAVAL HOSPITAL EXISTING CONDITIONS MAP", DATED: 9/98, NETC DWG NO.: 31058-307, CODE ID NO.: 80091, SCALE: 1"=200'.

OFFTA LOCATION MAP			FIGURE 1-2
OLD FIRE FIGHTING TRAINING AREA			TETRA TECH NUS, INC.
NAVSTA NEWPORT – NEWPORT, RHODE ISLAND			55 Jonspin Road Wilmington, MA 01887 (978)658-7899
DRAWN BY:	D.W. MACDOUGALL	REV.:	0
CHECKED BY:	S. PARKER	DATE:	MARCH 3, 2006
SCALE:	AS NOTED	FILE NO.:	DWG\1611\3544\FIG_1-2.DWG

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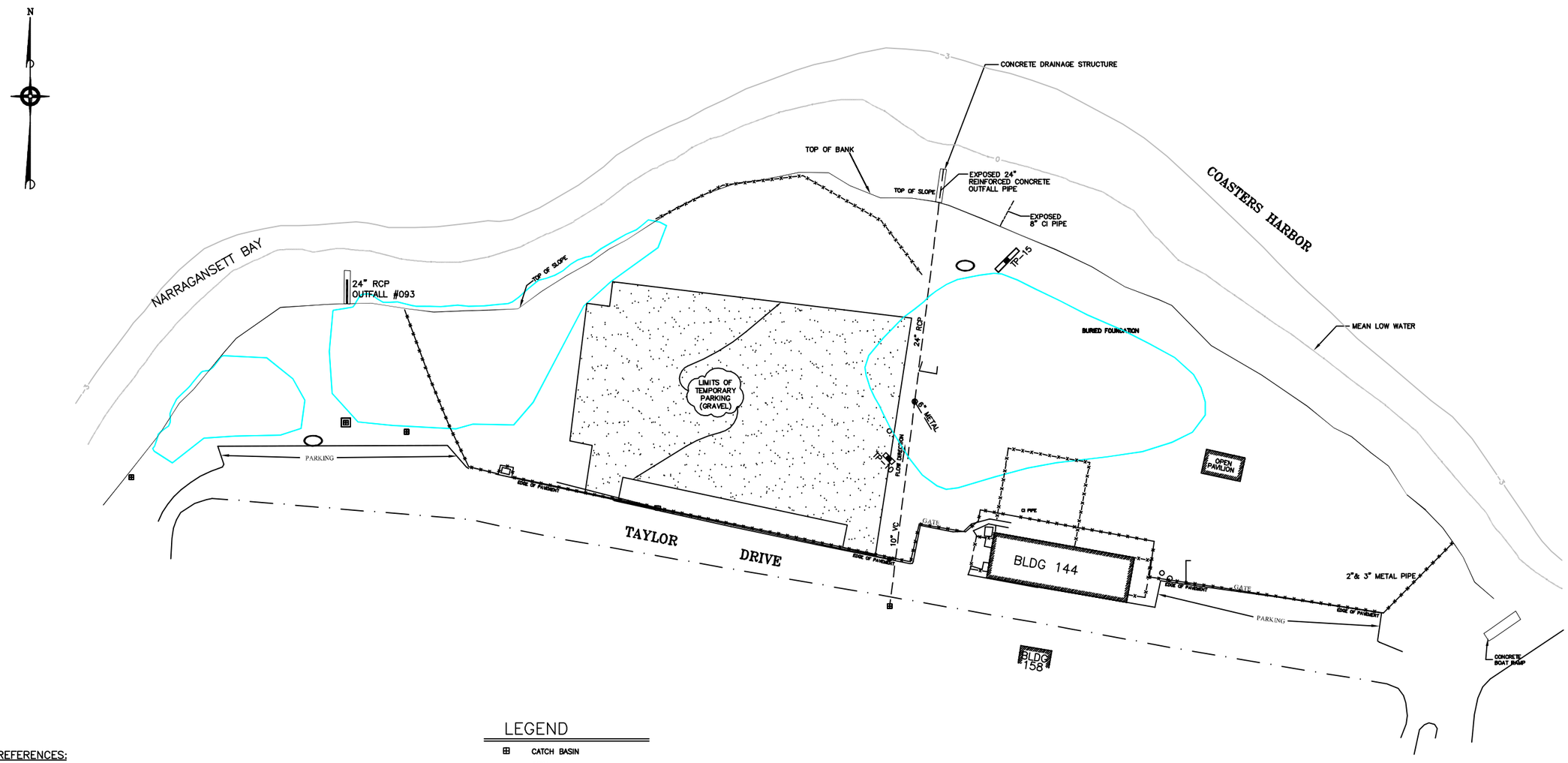
CTO 008



NOTES AND REFERENCES:

1. DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KADY FIELD, TOPOGRAPHIC, SOIL SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA, NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205-01.

2. HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1927. VERTICAL DATUM BASED ON NAVAL BASE MEAN LOW WATER.

3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

4. PLAN NOT TO BE USED FOR DESIGN.

LEGEND

- CATCH BASIN
- SIGN
- FENCE
- EXISTING CONTOUR
- SANITARY SEWER MANHOLE
- SANITARY SEWER
- STORM SEWER MANHOLE
- STORM SEWER MANHOLE

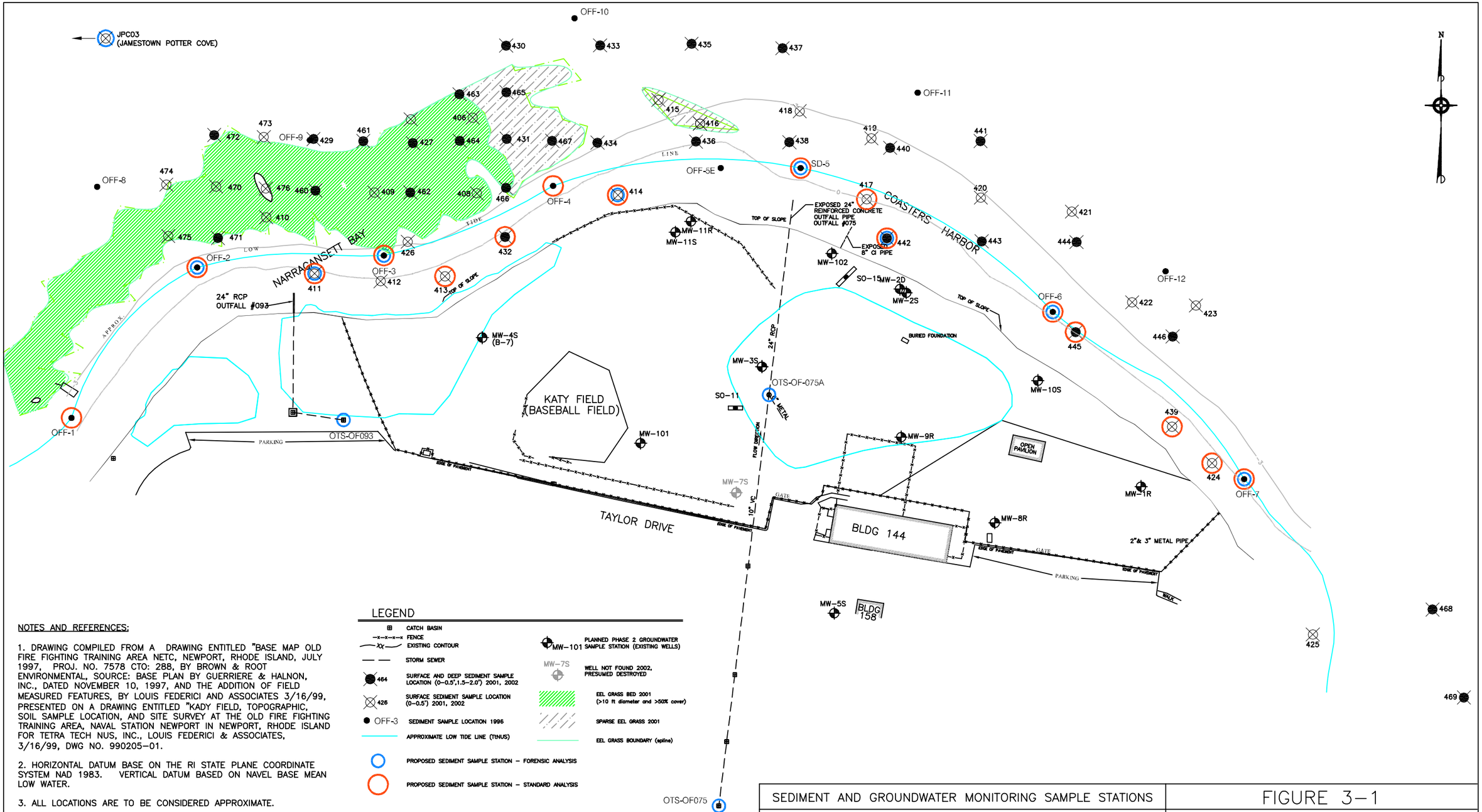
GRAPHIC SCALE

0' 100' 200'

SITE PLAN			FIGURE 2-1
OLD FIRE FIGHTING TRAINING AREA			TETRA TECH NUS, INC.
NAVSTA NEWPORT – NEWPORT, RHODE ISLAND			55 Jonspin Road Wilmington, MA 01887 (978)658-7899
DRAWN BY:	D.W. MACDOUGALL	REV.: 0	
CHECKED BY:	S PARKER	DATE: MARCH 3, 2006	
SCALE:	AS NOTED	FILE NO.: DWG\1611\3544\FIG_2-1.DWG	

W5205350

CTO 008



NOTES AND REFERENCES:

1. DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KADY FIELD, TOPOGRAPHIC, SOIL SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA, NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205-01.

2. HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1983. VERTICAL DATUM BASED ON NAVEL BASE MEAN LOW WATER.

3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

4. PLAN NOT TO BE USED FOR DESIGN.

5. SEDIMENT STATIONS SURVEYED BY PARE ENGINEERING 11/01 AND ECOTONES INC. JULY 2002 BY SUBMETER GPS (SEE TEXT).

LEGEND

- CATCH BASIN
- FENCE
- EXISTING CONTOUR
- STORM SEWER
- 464 — SURFACE AND DEEP SEDIMENT SAMPLE LOCATION (0–0.5',1.5–2.0') 2001, 2002
- 426 — SURFACE SEDIMENT SAMPLE LOCATION (0–0.5') 2001, 2002
- OFF-3 — SEDIMENT SAMPLE LOCATION 1996
- APPROXIMATE LOW TIDE LINE (TtNUS)
- PROPOSED SEDIMENT SAMPLE STATION – FORENSIC ANALYSIS
- PROPOSED SEDIMENT SAMPLE STATION – STANDARD ANALYSIS
- MW-101 — PLANNED PHASE 2 GROUNDWATER SAMPLE STATION (EXISTING WELLS)
- MW-7S — WELL NOT FOUND 2002, PRESUMED DESTROYED
- EEL GRASS BED 2001 (>10 ft diameter and >50% cover)
- SPARSE EEL GRASS 2001
- EEL GRASS BOUNDARY (spline)

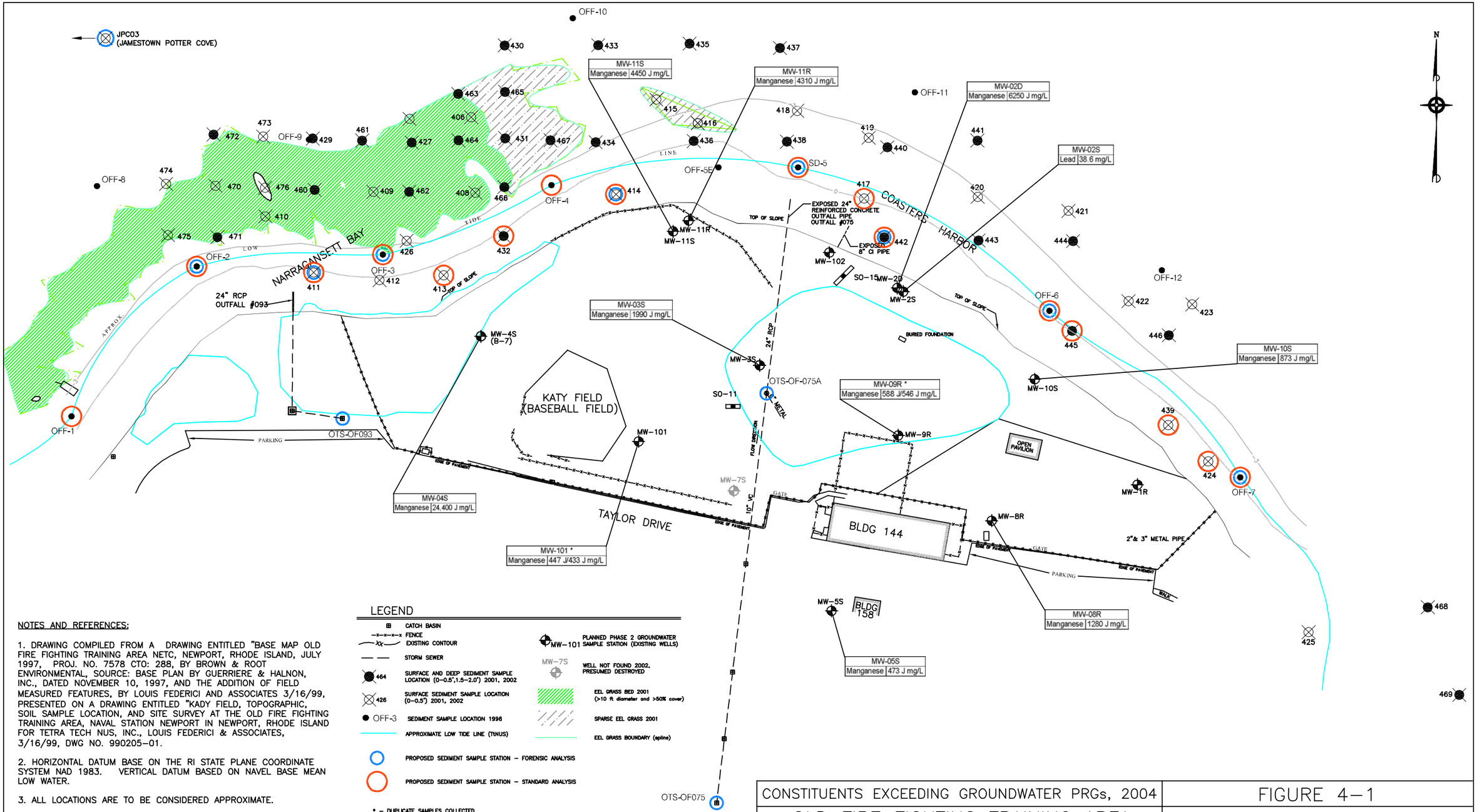
GRAPHIC SCALE

0' 100' 200'

SEDIMENT AND GROUNDWATER MONITORING SAMPLE STATIONS			FIGURE 3–1
OLD FIRE FIGHTING TRAINING AREA			TETRA TECH NUS, INC.
NAVAL STATION NEWPORT, RHODE ISLAND			55 Jonspin Road Wilmington, MA 01887 (978)658–7899
DRAWN BY:	D.W. MACDOUGALL	REV.: 0	
CHECKED BY:	S. PARKER	DATE: MARCH 3, 2006	
SCALE:	AS NOTED	FILE NO.: DWG\1611\3544\FIG_3–1.DWG	

W5205350

CTO 008



NOTES AND REFERENCES:

1. DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KADY FIELD, TOPOGRAPHIC, SOIL SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA, NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205–01.

2. HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1983. VERTICAL DATUM BASED ON NAVEL BASE MEAN LOW WATER.

3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

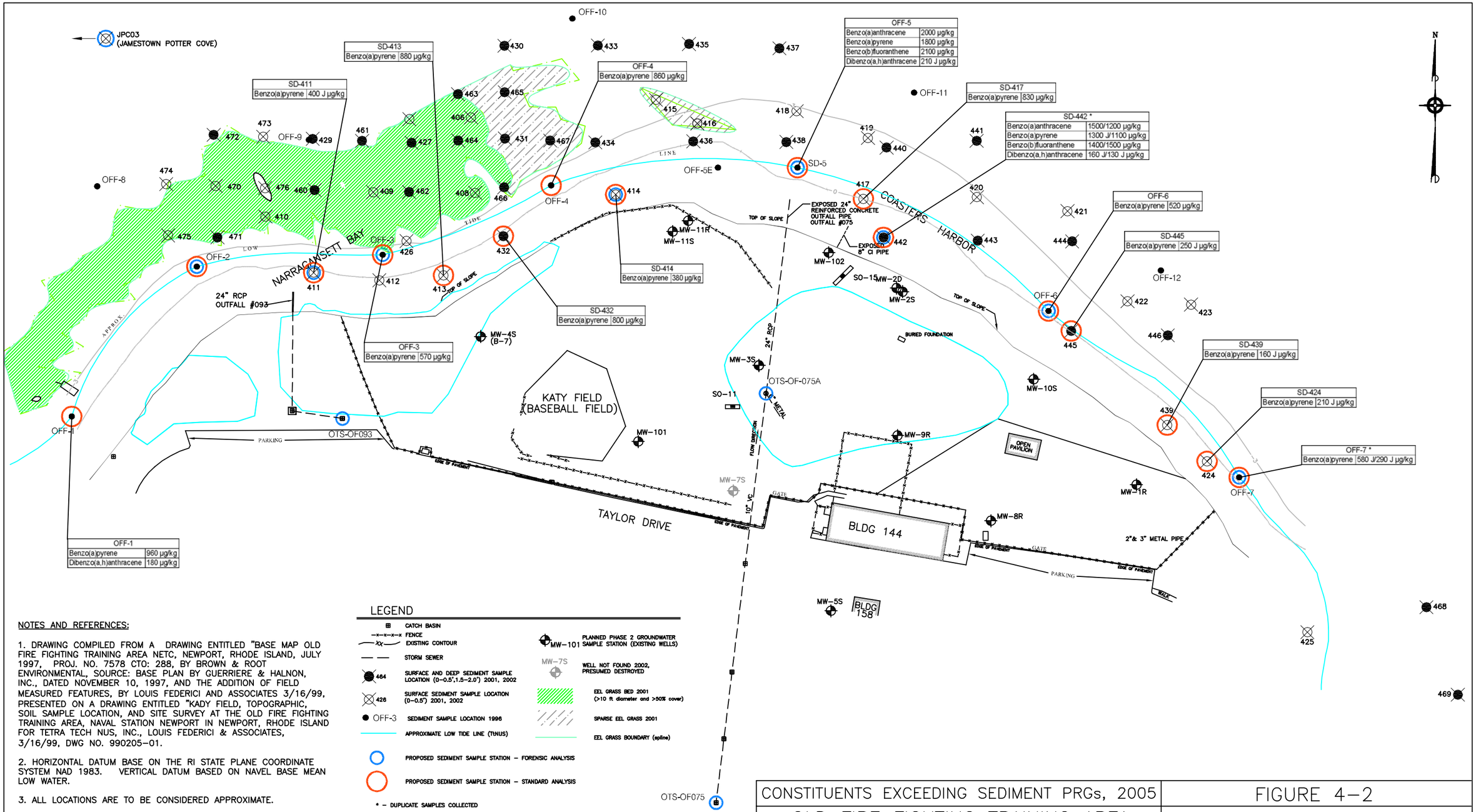
4. PLAN NOT TO BE USED FOR DESIGN.

5. SEDIMENT STATIONS SURVEYED BY PARE ENGINEERING 11/01 AND ECOTONES INC. JULY 2002 BY SUBMETER GPS (SEE TEXT).

CONSTITUENTS EXCEEDING GROUNDWATER PRGs, 2004			FIGURE 4–1
OLD FIRE FIGHTING TRAINING AREA			TETRA TECH NUS, INC.
NAVAL STATION NEWPORT, RHODE ISLAND			55 Jonspin Road Wilmington, MA 01887 (978)658–7899
DRAWN BY:	D.W. MACDOUGALL	REV.: 0	
CHECKED BY:	S. PARKER	DATE: MARCH 3, 2006	
SCALE:	AS NOTED	FILE NO.: DWG\1611\3550\FIG_4–1.DWG	

W5205350

CTO 008



NOTES AND REFERENCES:

1. DRAWING COMPILED FROM A DRAWING ENTITLED "BASE MAP OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND, JULY 1997, PROJ. NO. 7578 CTO: 288, BY BROWN & ROOT ENVIRONMENTAL, SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., DATED NOVEMBER 10, 1997, AND THE ADDITION OF FIELD MEASURED FEATURES, BY LOUIS FEDERICI AND ASSOCIATES 3/16/99, PRESENTED ON A DRAWING ENTITLED "KADY FIELD, TOPOGRAPHIC, SOIL SAMPLE LOCATION, AND SITE SURVEY AT THE OLD FIRE FIGHTING TRAINING AREA, NAVAL STATION NEWPORT IN NEWPORT, RHODE ISLAND FOR TETRA TECH NUS, INC., LOUIS FEDERICI & ASSOCIATES, 3/16/99, DWG NO. 990205-01.

2. HORIZONTAL DATUM BASE ON THE RI STATE PLANE COORDINATE SYSTEM NAD 1983. VERTICAL DATUM BASED ON NAVEL BASE MEAN LOW WATER.

3. ALL LOCATIONS ARE TO BE CONSIDERED APPROXIMATE.

4. PLAN NOT TO BE USED FOR DESIGN.

5. SEDIMENT STATIONS SURVEYED BY PARE ENGINEERING 11/01 AND ECOTONES INC. JULY 2002 BY SUBMETER GPS (SEE TEXT).

LEGEND

- CATCH BASIN
- FENCE
- EXISTING CONTOUR
- STORM SEWER
- 464 — SURFACE AND DEEP SEDIMENT SAMPLE LOCATION (0-0.5',1.5-2.0') 2001, 2002
- 426 — SURFACE SEDIMENT SAMPLE LOCATION (0-0.5') 2001, 2002
- OFF-3 — SEDIMENT SAMPLE LOCATION 1996
- APPROXIMATE LOW TIDE LINE (TtNUS)
- PROPOSED SEDIMENT SAMPLE STATION - FORENSIC ANALYSIS
- PROPOSED SEDIMENT SAMPLE STATION - STANDARD ANALYSIS
- MW-101 — PLANNED PHASE 2 GROUNDWATER SAMPLE STATION (EXISTING WELLS)
- MW-7S — WELL NOT FOUND 2002, PRESUMED DESTROYED
- EEL GRASS BED 2001 (>10 ft diameter and >50% cover)
- SPARSE EEL GRASS 2001
- EEL GRASS BOUNDARY (spline)

* - DUPLICATE SAMPLES COLLECTED

GRAPHIC SCALE

0' 100' 200'

CONSTITUENTS EXCEEDING SEDIMENT PRGs, 2005			FIGURE 4-2
OLD FIRE FIGHTING TRAINING AREA			TETRA TECH NUS, INC.
NAVAL STATION NEWPORT, RHODE ISLAND			55 Jonspin Road Wilmington, MA 01887 (978)658-7899
DRAWN BY:	D.W. MACDOUGALL	REV.: 0	
CHECKED BY:	S. PARKER	DATE: MARCH 3, 2006	
SCALE:	AS NOTED	FILE NO.: DWG\1611\3550\FIG_4-2.DWG	

REFERENCES

REFERENCES

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Kincaid, C.R., W.G. Ellis, Jr., and W. DeLeo, 1996. *Acoustic Doppler Current Profiler Study of Coasters Harbor*, Newport, Rhode Island. Preliminary Report. University of Rhode Island.

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APPENDIX A

FIELD DOCUMENTATION, SEDIMENT SAMPLE COLLECTION

TETRA TECH NUS, INC.

ANALYTICAL SERVICE
Packing List/Chain-of-Custody

Case No. NA

Subcontract No. NA

Project No. N4152-0512

Laboratory Name: MitKem

Sampler Signatures: Craig Sanchez

Date Shipped: 2-24-5

Carrier: Fed Ex

Airbill No. 8455-0072-9570

No. of Coolers

Container Type	Container Type	Container Type	Container Type	Container Type
8 oz Amber				

Analysis	Analysis	Analysis	Analysis	Analysis
~~PAH Semivolatiles~~ ~~TPH Chromatography~~ CS	PAH/TPH/Metals			

Preservative	Preservative	Preservative	Preservative	Preservative
Ice				

yr = 5

Sample Number	Matrix	Date/Time	Sample Location	Tag Number(s)	QC	Preservative	Preservative	Preservative	Preservative	Preservative
	SD	2-22-1315	OFF-SD-OFF1-0006-01		-	1				
		2-22/1335	- OFF2 -		-					
		2-23/1310	- 411 -		-					
		2-23/1300	- OFF3 - ~~412~~		-					
		2-23/1255	- 413 -		-					
		2-23/1250	- 432 -		-					
CS		2-23/1245	- OFF4 -	CS	-					
		2-23/1230	- 414 -		-					
		2-23/1205	- SD5 -		-					
		2-23/1445	- 417 -		-					
		2-23/1200	- 442 -		D2					
	SD	2-23/1155	OFF-SD-OFF6-0006-01		-	1				

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Shipment for Case Complete?	Remarks
Craig Sanchez	2-24-05 1600 hrs		YES NO	
Relinquished By: (Signature)	Date/Time	Received for Laboratory By:	Date/Time	

Tt NUS Form 0022

02354

TETRA TECH NUS, INC.

ANALYTICAL SERVICE
Packing List/Chain-of-Custody

Case No. NA

Subcontract No. NA

Project No. N4152-0512

Laboratory Name: Mia Kern

Sampler Signatures: Craig Sanchez

Date Shipped: 2-24-05

Carrier: Fed Ex

Airbill No. 8455-0072-9570

No. of Coolers

Sample Number	Matrix	Date/Time	Sample Location	Tag Number(s)	QC	Container Type: 8 oz amber	Container Type: 32 oz amber	Container Type: 1 Poly	Container Type	Container Type
						Analysis: PAH/Metals	Analysis: PAH	Analysis: HNO3	Analysis	Analysis
						Preservative: Ice	Preservative: Ice	Preservative: Metals	Preservative	Preservative
	SD	2-22/1145	OFF-SD-445-0006-01		—	1	—	—		
	↓	2-22/1215	OFF-SD-439-0006-01		—	1	—	—		
	↓	2-22/1205	OFF-SD-424-0006-01		LAB QC	2	—	—		
	SD	2-22/1150	OFF-SD-OFF7-0006-01		01	1	—	—		
	AQ	2-23/1330	OFF-SD-432-RB02-01		RB02	—	1	1		
(CS)	↓	2-22/1355	OFF-SD-OFF2-RB01-01		RB01	—	1	1		(CS)
	↓	2-22/1100	OFF-DIUF-FB01-01	(CS)	FB01	—	1	1		
	AQ	2-23/0930	OFF-DIUF-FB02-01 2 CS 2-23-5		FB02	—	1	1		
	~~AQ~~	~~2-23~~	CS 2-24-5			—	—	—		
	~~AQ~~	~~(CS) (CS) 2-23~~	CS 2-24-5			—	—	—		
	SD	2-22/1155	OFF-SD-DUP01-01		D1	1	—	—		
	SD	2-23/1202	OFF-SD-DUP02-01		D2	1	—	—		

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Shipment for Case Complete?	Remarks
Craig Sanchez	2-24-05/ 1600 hrs		YES NO	
Relinquished By: (Signature)	Date/Time	Received for Laboratory By:	Date/Time	

Tt NUS Form 0022

Σ PAHs Met Soil = 18
AQ = 4/22

02351

TETRA TECH NUS, INC.

ANALYTICAL SERVICE
Packing List/Chain-of-Custody

Case No. NA

Subcontract No. NA

Project No. N4152-0512

Laboratory Name: Woods Hole

Sampler Signatures: Craig Sanchez

Date Shipped: 7-24-5

Carrier: Fed Ex

Airbill No. 8455-0072-9672

No. of Coolers: 1

Sample Number	Matrix	Date/Time	Sample Location	Tag Number(s)	QC	Container Type: 8 oz Amber	Container Type	Container Type	Container Type	Container Type
						Analysis: PAH forensic, TPH fingerprint	Analysis	Analysis	Analysis	Analysis
						Preservative: Ice	Preservative	Preservative	Preservative	Preservative
	Asphalt	7-23 1300	off-SD-WH-Debris1		-	1				
	Asphalt	7-23 1310	off-SD-WH-Debris2		-	1				
	SD	7-22/1155	off-SD-DUP01-01		D1	1				
	SD	7-23/1202	off-SD-DUP02-01		D2	1				

CS

CS

CS

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Shipment for Case Complete?	Remarks
Craig Sanchez	7-24/1600		YES NO	
Relinquished By: (Signature)	Date/Time	Received for Laboratory By:	Date/Time	

Tt NUS Form 0022

02948

TETRA TECH NUS, INC.

ANALYTICAL SERVICE
Packing List/Chain-of-Custody

Case No.: NA
Subcontract No.: NA

Project No.: N4152-0512

Laboratory Name: Woods Hole

Sampler Signatures: Craig Sanchez

Date Shipped: 2-24-5
Airbill No.: 8455-0072-9672
Carrier: Fed Ex
No. of Coolers: 1

Container Type	Container Type	Container Type	Container Type	Container Type
Seg Amber				
Analysis	**Analysis**	**Analysis**	**Analysis**	**Analysis**
PAH Forensic TPH Fingerprint				

Sample Number	Matrix (1=5)	Date/Time	Sample Location	Tag Number(s)	QC	Preservative: Ice	Preservative	Preservative	Preservative	Preservative
	SD	2-22/1335	OFF-SD-OFF2-0006-01		LAB QC	2				
		2-23/1330	- - H11 - -		-	1				
		2-23/1300	- - OFF3 - -		-	1			CS	
		2-23/1230	- - H14 - -		-	1				
		2-23/1205	- - SD5 - -		-	1				
		2-23/1200	- - H12 - -		02	1				
		2-23/1155	- - OFF6 - -	CS	-	1				
		2-22/1150	- - OFF7 - -		01	1				
		2-22/1500	OFF-SD-JPC03-0006-01		-	1	Ref Station			
		2-23/1010	OFF-SD-075OF075-0006-01		-	1				
		2-23/1355	OFF-SD-075OF075A-0006-01		-	1				
	SD	2-23/1410	OFF-SD-075OF093-0006-01		-	1				

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Shipment for Case Complete?	Remarks
Craig Sanchez	2-24/1600		YES (circled) NO	
Relinquished By: (Signature)	**Date/Time**	**Received for Laboratory By:**	**Date/Time**	

Tt NUS Form 0022

02352

N4152-2.4

Old Fire Fighter Training Area
Newport, RI

Sediment Sampling Field Documentation
February, 2005

PAHs / Met = 22 @ $188 $4136

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- OFF 1 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 2 / 22 / 2005 1315 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to course sand
removed seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	✓
Metals	✓
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass bowl~~ stainless steel CS 2-22-5, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- OFF2 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: LAB QC (if applicable)
TPH Fingerprint / PAH Forensic Only)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 22 / 2005 1335 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
Med to course sand
removed any seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	✓
Metals	✓
TPH Fingerprint	✓ LAB QC
PAH Forensic	✓ LAB QC

NOTES/SKETCH: Stainless steel bowl CS 2-22-5

Transferred sediment into a pre-cleaned ~~glass bowl~~, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- OFF3 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NONE (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1300 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown mud to coarse sand
removed seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ SS. 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- OFF4 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1245 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to course sand
removed seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ SS. CS 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- OFFC -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1155 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
med to course sand & gravel
seashells & gravel removed

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ SS. CS 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- OFF7 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: DUP01 (if applicable)

Sample Method: Grab
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 2 / 22 / 2005 1150 hours Dup 1155 hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	X	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to coarse sand
gravel noted seashells removed

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	✓ DUP01
Metals	✓
TPH Fingerprint	✓
PAH Forensic	✓ DUP01

NOTES/SKETCH: Stainless Steel cs 2-22-5

Transferred sediment into a pre-cleaned ~~glass~~ bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- S05 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: _____ (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1205 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown/black fine to med silty sand

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ SS. CS 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 411 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1310 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to course sand
removed seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ S.S. CS 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 413 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 2 / 23 / 2005 1230 hours Dup NK hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) (SS)
brown med to course gravel sand
reworked seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ S.S. es 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 419 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NONE (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1230 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to coarse sand
removed seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ S.S. C.S. 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 417 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 2 / 23 / 2005 1445 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

	Soil		Trip Blank*
X	Sediment		Rinsate Blank*
	Lagoon/Pond		Field Duplicate collected
	Grab		Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to course sand
gravel / seashells removed

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ S.S. CS 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 424 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: LAB QC (if applicable)

Sample Method: Grab
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 2 / 22 / 2005 1205 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to course sand w/ gravel & seashells
seashells removed

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	✓
Metals	✓
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass bowl~~ Stainless Steel CS 222-5, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using ~~submeter GPS~~.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 432 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1250 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to coarse sand
gravel seashells removed

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ SS CS bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using ~~submeter GPS~~.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 439 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0 - 0.5 feet
Sample Date & Time: 2 / 22 / 2005 1215 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
med to coarse sand
removed seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ S.S. bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 442 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: DUP02 (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1200 hours Dup ____ hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
brown med to course sand
gravel / seashells removed

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs /	DUP02
Metals /	DUP02
TPH Fingerprint /	DUP02
PAH Forensic /	DUP02

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ S.S. CS 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 445 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: _____ (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 23 feet
Sample Date & Time: 2 / ~~445~~ / 2005 (CS) 1145 hours Dup ____ hours
Sampler(s): Craig Sanchez, Dan Cartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

____	Soil	____	Trip Blank*
X	Sediment	____	Rinsate Blank*
____	Lagoon/Pond	____	Field Duplicate collected
____	Grab	____	Other (Specify): ____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
med. to course sand.
flattened seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ S.S. CS 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 0750F093 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: _____ (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1410 hours Dup ____ hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig S [signature]
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

____	Soil	____	Trip Blank*
X	Sediment	____	Rinsate Blank*
____	Lagoon/Pond	____	Field Duplicate collected
____	Grab	____	Other (Specify): _____

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
med to coarse sand
gravel & seashells removed

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	
Metals	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned glass bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD-0750P075A -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: _____ (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1355 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify): ___

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
fine to med. silty sand
removed tar seashells & gravel

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	
Metals	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ CS S.S. 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 0750F075 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: 0-0.5 feet
Sample Date & Time: 2 / 23 / 2005 1010 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

	Soil		Trip Blank*
X	Sediment		Rinsate Blank*
	Lagoon/Pond		Field Duplicate collected
	Grab		Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
~~[illegible]~~ CS 2-23-05
gravel & seashells removed
fine to med silty sand

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	
Metals	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ S.S. CS 2-23-5 bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- JPC03 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: _____ feet
Sample Date & Time: 2 / 22 / 2005 1500 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	___	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
___	Grab	___	Other (Specify):

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Sand
brown med to coarse ~~gravel~~
Removed seashells & gravel!

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	✓
Metals	✓
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned glass bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, ~~which were~~ surveyed using submeter GPS.

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD-414-DEBRIS1 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: NA feet
Sample Date & Time: 2 / 23 / 2005 1350 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: [signature] Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

- ___ Soil
- X Sediment
- ___ Lagoon/Pond
- ___ Grab
- ___ Trip Blank*
- ___ Rinsate Blank*
- ___ Field Duplicate collected
- X Other (Specify): Debris

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Black pavement piece, 6" Dia shoreline has a lot of this similar material present

SAMPLE DATA/REMARKS: Piece of older asphalt on shoreline pulverized for forensic analysis. - Mix of asphalt and stone / sand / gravel typical of weathered pavement. More of this material present in area of OFF SD 6 & OFF SD 5, & OFF - OFF SD 7

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	
Metals	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ steel pan bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify) Hammer & Bowl

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD-414-DEBRIS2 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: NA (if applicable)

Sample Method: Grab
Depth Sampled: NA feet
Sample Date & Time: 2 / 23 / 2005 1340 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan Parker

Data Recorded By: [signature]
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

- ___ Soil
- X Sediment
- ___ Lagoon/Pond
- ___ Grab
- ___ Trip Blank*
- ___ Rinsate Blank*
- ___ Field Duplicate collected
- X Other (Specify): Asphalt chunk

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.) Black asphalt or tar clump fine sands are primary matrix

SAMPLE DATA/REMARKS: Piece of newer looking asphalt on shoreline pulverized for forensic analysis. Black pavement, fine sand but typical asphalt, no stone or gravel mixed in. Some pieces similar to this material are present on shoreline, but not many.

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs	
Metals	
TPH Fingerprint ✓	
PAH Forensic ✓	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned ~~glass~~ steel bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify) Hammer & Bowl

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- OFF2-RB01 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: RB01 (if applicable)

Sample Method: Grab
Depth Sampled: NA feet
Sample Date & Time: 2 / 22 / 2005 1355 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

	Soil		Trip Blank*
X	Sediment	✓	Rinsate Blank*
	Lagoon/Pond		Field Duplicate collected
✓	Grab		Other (Specify): DIWF

exp. 7-05 lot# 07M093

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
taken from S.S. bowl

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned glass bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

CS 2-23-5

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 432- RB02 -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: RB07 (if applicable)

Sample Method: Grab
Depth Sampled: NA feet
Sample Date & Time: 2 / 23 / 2005 1330 hours Dup NA hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

	Soil		Trip Blank*
X	Sediment	X	Rinsate Blank*
	Lagoon/Pond		Field Duplicate collected
X	Grab		Other (Specify): DIUF exp 7-05 lot # 0714093

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
taken from S.S. bowl

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned glass bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

CS 2-23-5

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TtNUS Form 0005

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- DIUF-FB01- -01

Tetra Tech NUS Charge No. N4152-0512
QC Information: _____ (if applicable)

Sample Method: Grab
Depth Sampled: NA feet
Sample Date & Time: 2 / 22 / 2005 _____ hours Dup ____ hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: Craig Sanchez
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

___	Soil	___	Trip Blank*
X	Sediment	✓	Rinsate Blank*
___	Lagoon/Pond	___	Field Duplicate collected
✓	Grab	___	Other (Specify): DIUF

exp. 7-05 Lot # 0714093

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
~~collected from SS. bowl~~ CS 2-22-5
direct pour of DIUF into bottleware

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned glass bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

CS 2-22-5

Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - SOLID PHASE

Site Name: Old Fire Fighting Training Area
Sample ID: OFF-SD- 01UF -01
FB02

Tetra Tech NUS Charge No. N4152-0512
QC Information: ~~RBO~~ CS FB02 (if applicable)

Sample Method: Grab
Depth Sampled: NA feet
Sample Date & Time: 2 / 23 / 2005 0930 hours Dup ____ hours
Sampler(s): Craig Sanchez, Dan Hartigan

Data Recorded By: [signature]
Signature

PID/OVA Monitor Reading: NA ppm

TYPE OF SAMPLE: (Check all that apply)

____	Soil	____	Trip Blank*
X	Sediment	____	Rinsate Blank*
____	Lagoon/Pond	____	Field Duplicate collected
____	Grab	____	Other (Specify): 01UF

exp. 7-05 Lot # 0714093

Description: (Sand, Clay, Muck, Peat, Dry, Moist, Wet, Etc.)
direct pour of 01UF into bottleware

SAMPLE DATA/REMARKS:

ANALYSIS	BOTTLE LOT No.
Check Applicable:	
PAHs ✓	
Metals ✓	
TPH Fingerprint	
PAH Forensic	

NOTES/SKETCH:

Transferred sediment into a pre-cleaned glass bowl, homogenized using a pre-cleaned plastic spoon, and transferred sample into appropriate sample container.

CS 2-23-5

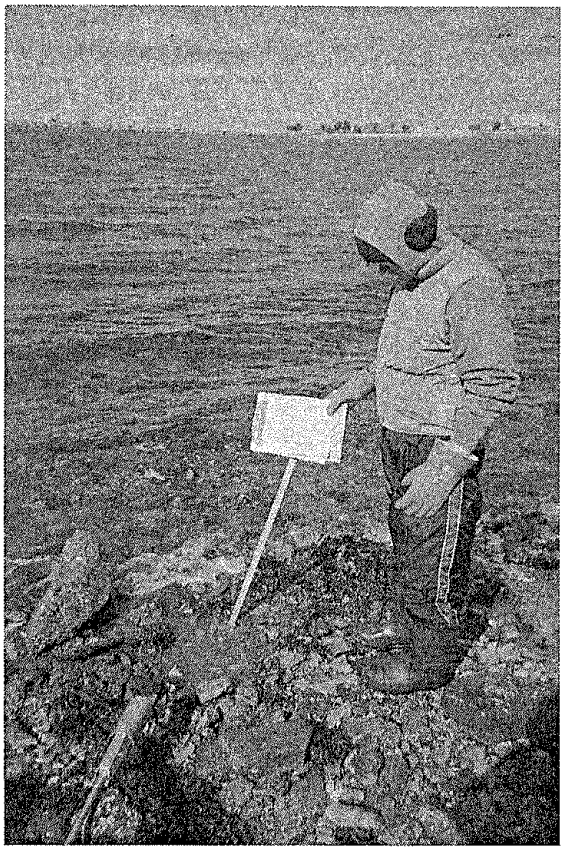
Collected sample using a decontaminated (circle one): Shovel, Trowel, Hand Auger, Other (identify)

See Work Plan for a map of sediment sample loctaions, which were surveyed using submeter GPS.

APPENDIX B

PHOTOS, SEDIMENT SAMPLE STATIONS

Photographs, Sediment Sampling OFFTA Site, February 2005
Sediment and Groundwater Sampling Report, Appendix B



SD 413

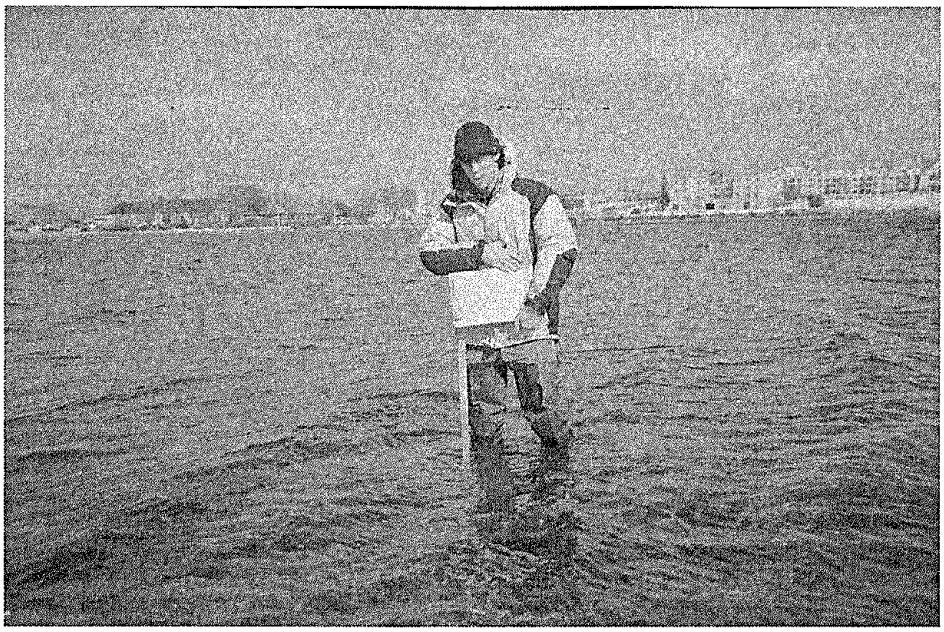
JPC -03 Reference Station

OFF -1: Old Headwall is behind sampler

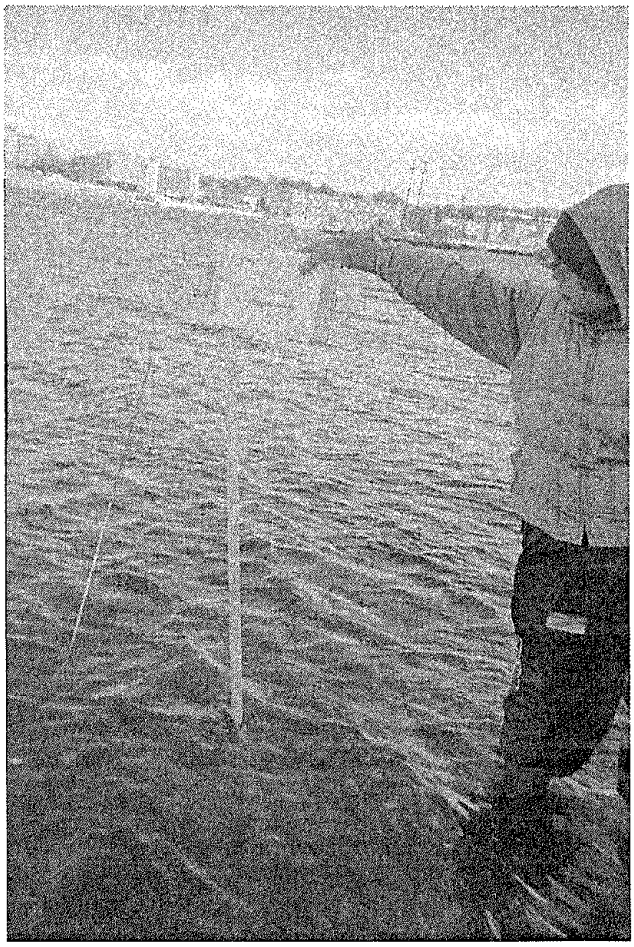
OFF-2

OFF-2

Photographs, Sediment Sampling OFFTA Site, February 2005
Sediment and Groundwater Sampling Report, Appendix B

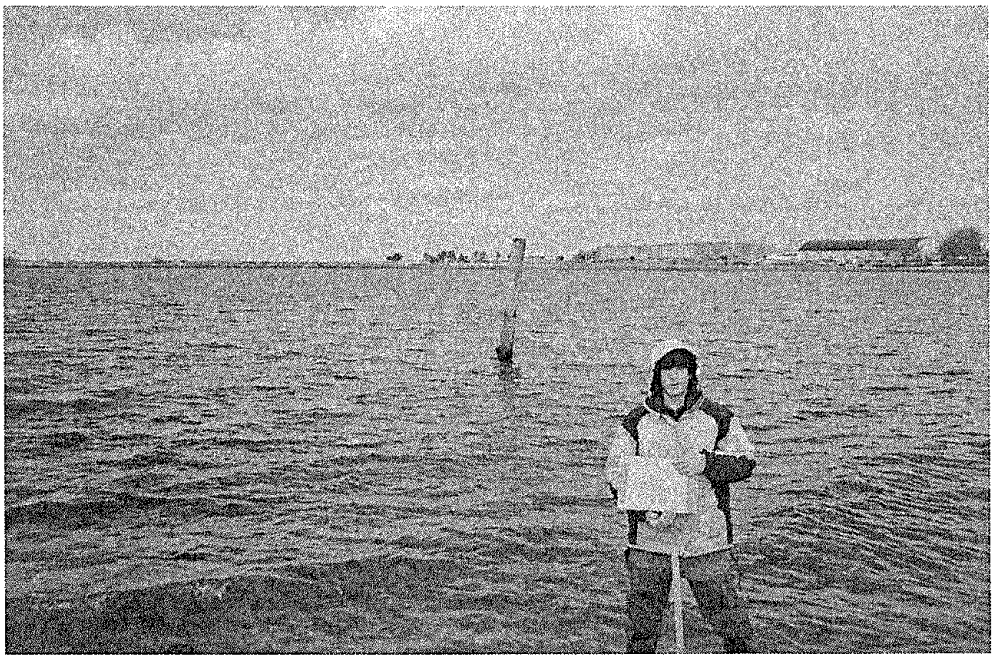


OFF-5

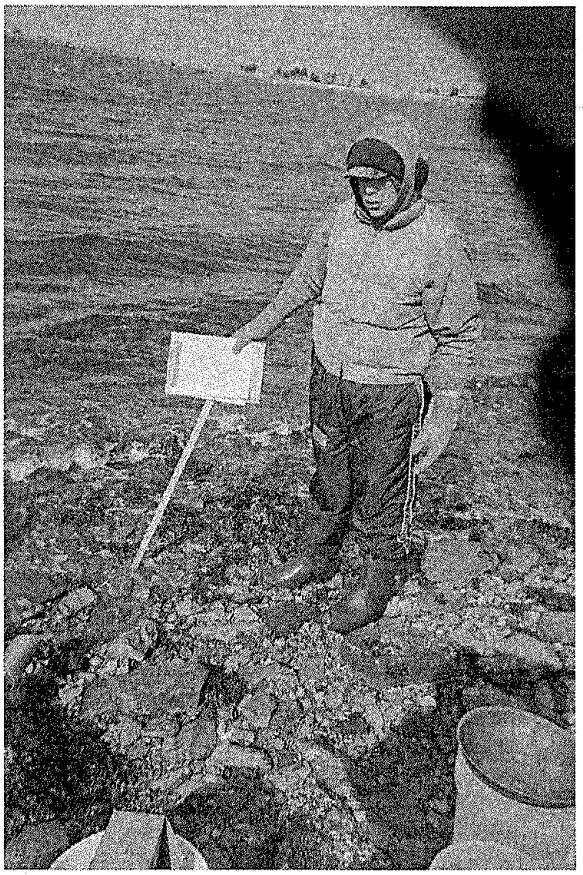


OFF-6

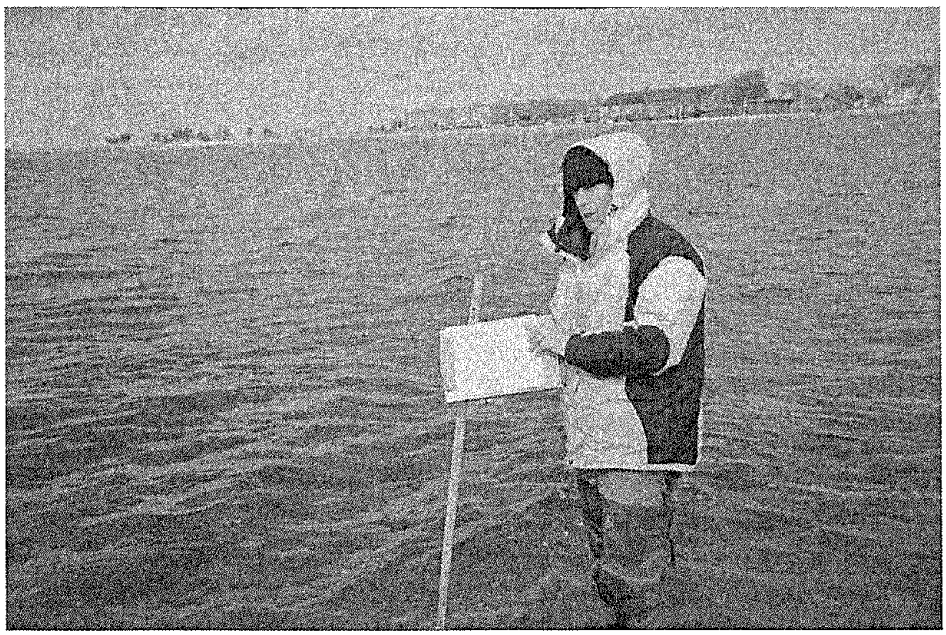
OFF-7



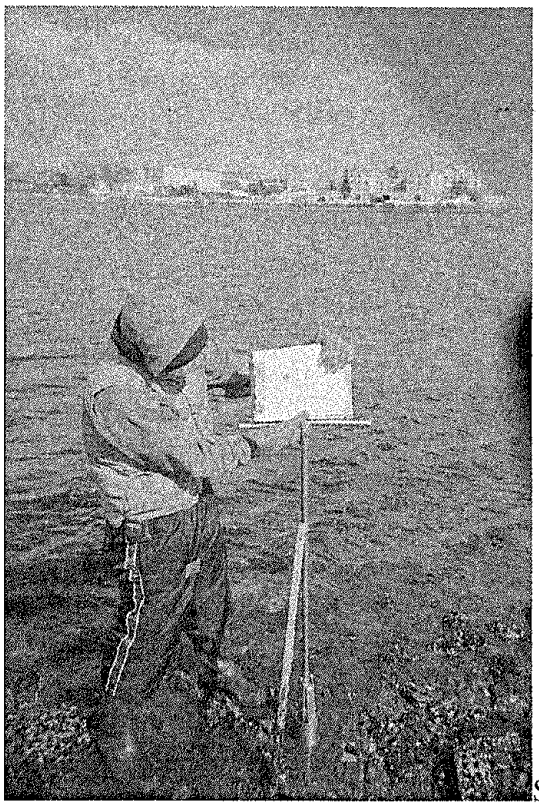
SD-411



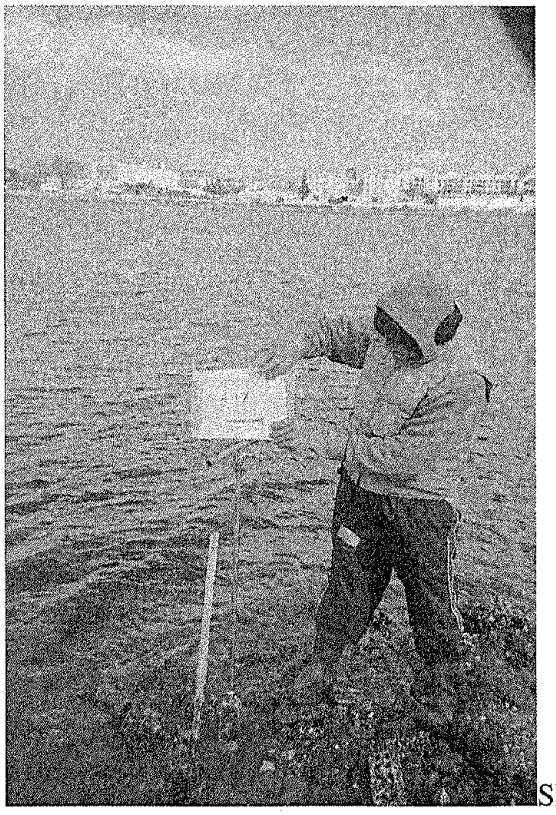
SD-413



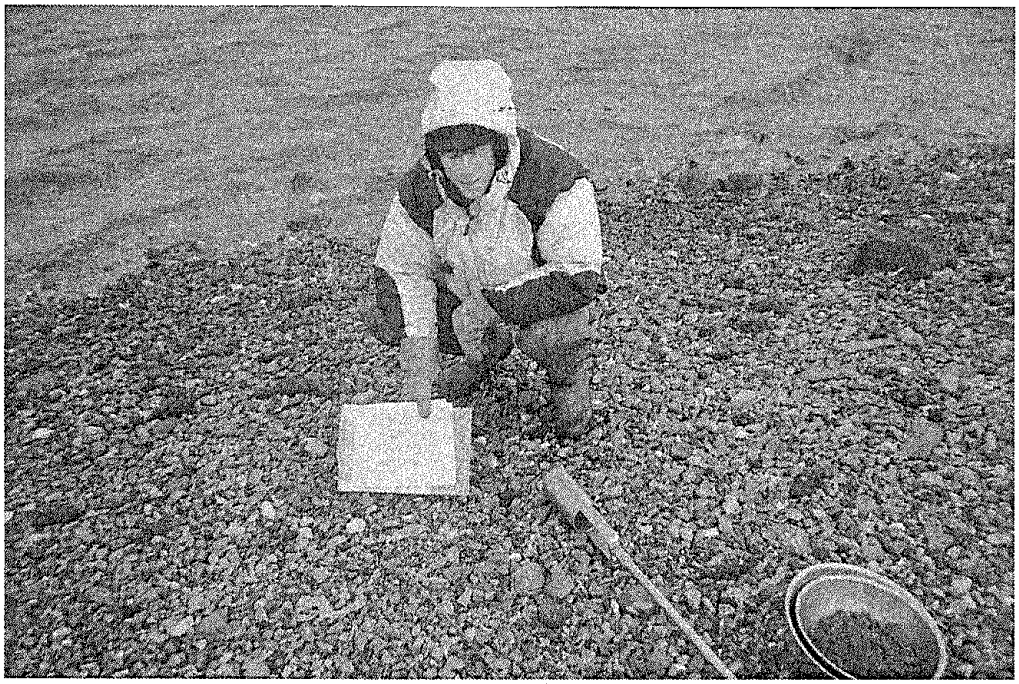
SD-414



SD-417

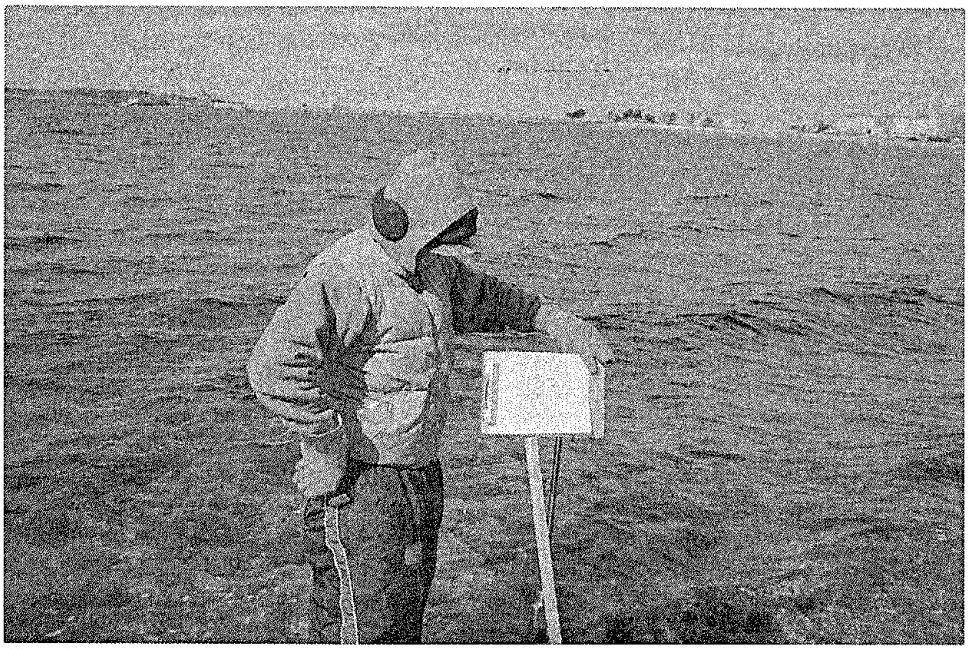


SD-417

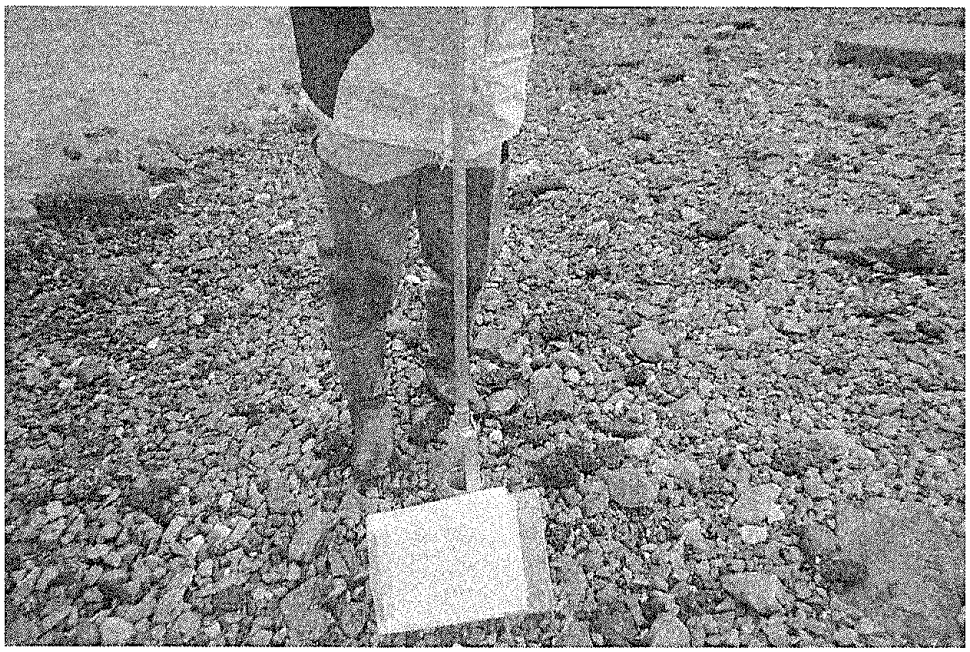


SD-424

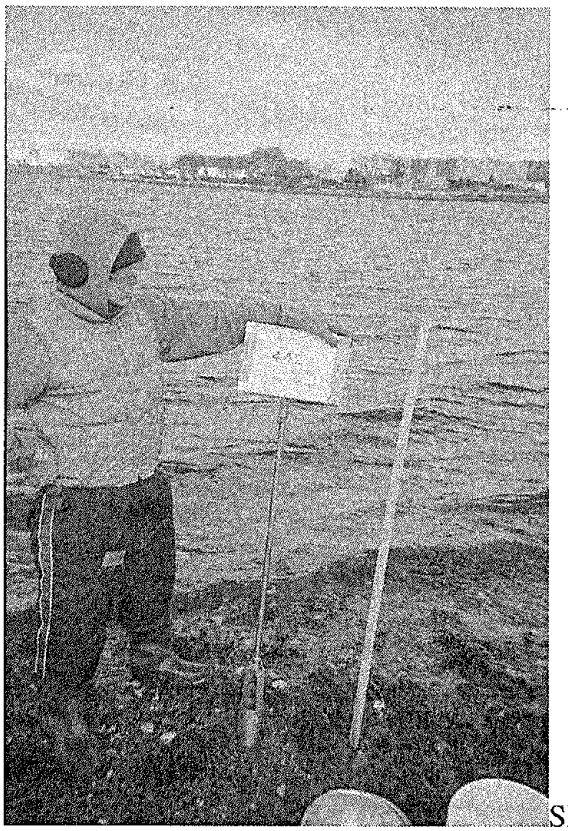
SD-424



SD-432

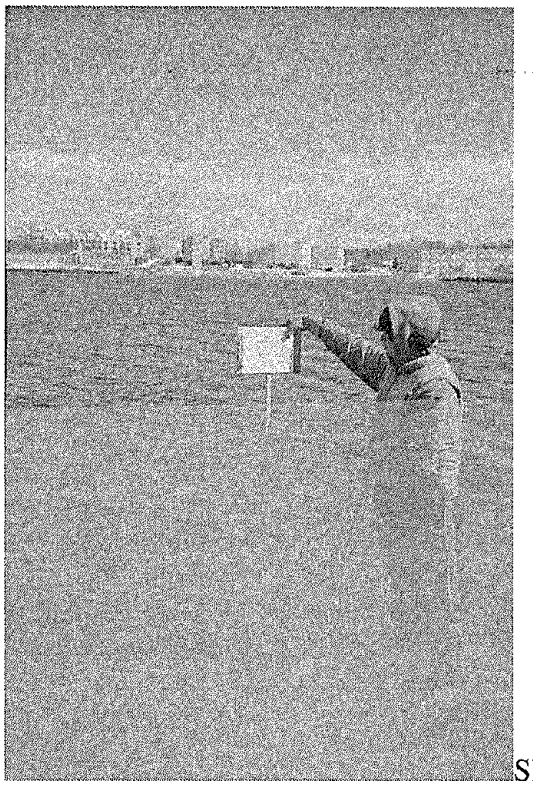


SD-439



SD-442

SD-442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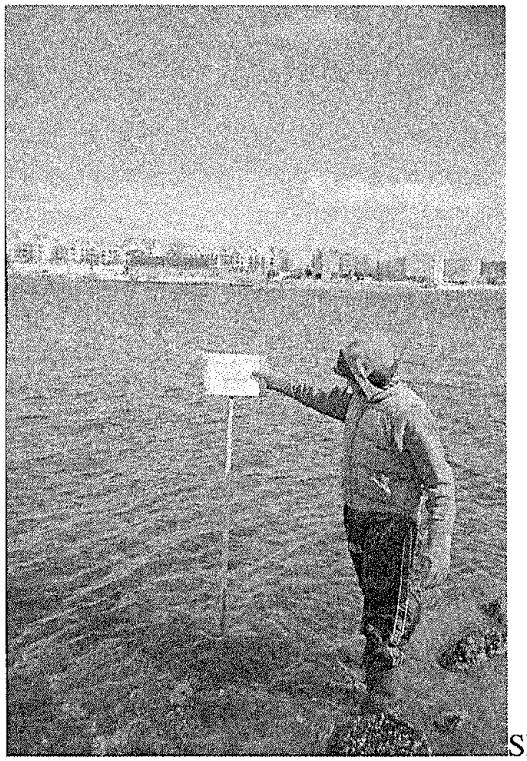
SD 445

APPENDIX C

FIELD DOCUMENTATION, GROUNDWATER SAMPLE COLLECTION

TETRA TECH NUS, INC.

SAMPLE COLLECTION SUMMARY RECORD

PROJECT NAME: OFFTA

TETRA TECH NUS JOB NO./PMS: 4152-0514

SAMPLING EVENT: GW Sampling - 3rd round

CASE NO.: NA

DAS NO.:

DATE YR=2004	TIME	SAMPLE LOCATION	FIELD QC	VOCs	GRO	DRO	SVOCs	metals			COMMENTS
8/19/04	1030	OFF-GW-TB01-03	TB	3	2	—	—	—			
8/24/04	1020	OFF-GW-MW101-03	DP01	3	2	2	2	1		1	✓
8/24	1050	OFF-GW-DUP01-03	DP01	3	2	2	2	1			✓
8/24	1255	OFF-GW-MW6R-03	MS/MSD	9	6	6	6	2		2	✓
8/24	1300	OFF-GW-MW6S-03	—	3	2	2	2	1		3	✓
8/24	1445	OFF-GW-MW5S-03	—	3	2	2	2	1		4	✓
8/24	1600	OFF-GW-RB01-03	RB01	3	2	2	2	1			
8/24	1800	OFF-GW-MW3S-03	—	3	2	2	2	1		5	✓
8/25	0945	OFF-GW-MW11R-03	—	3	2	2	2	1		6	✓
8/25	0950	OFF-GW-MW4S-03	—	3	2	2	2	1		7	✓
8/25	1200	OFF-GW-MW11S-03	—	3	2	2	2	1		8	✓
8/25	1225	OFF-GW-MW2D-03	—	3	2	2	2	1		9	✓
8/25	1440	OFF-GW-MW2S-03	—	3	2	2	2	1		10	✓
8/25	1700	OFF-GW-MW02-03	—	3	2	2	2	1		11	✓
		Shipment	#	1							

Tt NUS Form 0012

TETRA TECH NUS, INC.

SAMPLE COLLECTION SUMMARY RECORD

PROJECT NAME: OFFTA (shipment 2) TETRA TECH NUS JOB NO./PMS: 4152-05M

SAMPLING EVENT: CASE NO.: DAS NO.:

DATE YR=2009	TIME	SAMPLE LOCATION	FIELD QC	VOCs	GRO	DRO	SVOCs	metals		COMMENTS
8/19/09 ~~8/26~~	1030	OFF-GW-TB02-03	TB2	3	2	~~2~~	~~2~~	~~1~~		
8/26	1020	OFF-GW-MW9R-03	DP02	3	2	2	2	1		✓
8/26	1040	OFF-GW-DUP02-03	DP2	3	2	2	2	1		✓
8/26	1130	OFF-GW-MW10S-03	—	3	2	2	2	1		✓
8/26	1500	OFF-GW-MW1R-03	—	3	2	2	2	1		✓
8/26	1505	OFF-GW-MW8R-03	—	3	2	2	2	1		✓

Tt NUS Form 0012

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04092
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Page _____ of

Client: Tetra Tech NUS | Contact: S. Parker | Phone #: (978) 658-7899 | Fax #: (978) 658-7

Address: 55 Jonspin Rd | City: Wilmington | State: MA | Zip Code: 01887

Purchase Order #: | Proj. Name / No.: | Katahdin Quote #:

Bill (if different than above): | Address:

Sampler (Print / Sign): J. Lambert / [signature] | Copies To:

LAB USE ONLY WORK ORDER #: KATAHDIN PROJECT NUMBER

REMARKS:

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO:

TEMP°C ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

Sample Description	Date / Time coll'd YR=2004	Matrix	No. of Cntrs.	VOCs 40 mL vial HCl (Filt. ☐Y ☒N)	GRO 40 mL vial HCl (Filt. ☐Y ☒N)	SVOCs PAH 1 L amber / ice only (Filt. ☐Y ☒N)	DRO 1 L amber HCl (Filt. ☐Y ☒N)	metals 500 mL poly HNO3 (Filt. ☐Y ☒N)	(Filt. ☐Y ☐N)	(Filt. ☐Y ☐N)	(Filt. ☐Y ☐N)	(Filt. ☐Y ☐N)	(Filt. ☐Y ☐N)
OFF-GW-TB01-03	8/19 / 1030	AQ	5	3	2	—	—	1					
OFF-GW-MW101-03	8/24 / 1020	GW	DP	3	2	2	2	1					
OFF-GW-DUP01-03	8/24 / 1050	GW	DP	3	2	2	2	1					
OFF-GW-MW6R-03	8/24 / 1255	GW	29	9	6	6	6	2					
OFF-GW-MW65-03	8/24 / 1300	GW	10	3	2	2	2	1					
OFF-GW-MW55-03	8/24 / 1445	GW	10	3	2	2	2	1					
OFF-GW-RB01-03	8/24 / 1600	AQ	10	3	2	2	2	1					
OFF-GW-MW35-03	8/24 / 1800	GW	10	3	2	2	2	1					
OFF-GW-MW11R-03	8/25 / 0945	GW	10	3	2	2	2	1					
OFF-GW-MW45-03	8/25 / 0950	GW	10	3	2	2	2	1					
OFF-GW-MW115-03	8/25 / 1200	GW	10	3	2	2	2	1					
OFF-GW-MW2D-03	8/25 / 1225	GW	10	3	2	2	2	1					
OFF-GW-MW25-03	8/25 / 1440	GW	10	3	2	2	2	1					
OFF-GW-MW102-03	8/25 / 1700	GW	10	3	2	2	2	1					
	/												
	/												

8/26/04

COMMENTS
* OFF-GW-MW6R-03 = LAB QC

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
[signature]	8/26/04 0750	[signature]			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

CUSTOMER COPY

Katahdin ANALYTICAL SERVICES
340 County Road No. 5
P.O. Box 720
Westbrook, ME 04092
Tel: (207) 874-2400
Fax: (207) 775-4029

CHAIN of CUSTODY

PLEASE BEAR DOWN AND PRINT LEGIBLY IN PEN

Client: Tetra Tech NUS | Contact: S. Parker | Phone #: (978) 658-7899 | Fax #: (978) 658-7870

Address: 55 Jonspin Rd | City: Wilmington | State: MA | Zip Code: 01887

Purchase Order #: | Proj. Name / No.: OFFTA - CTO 833 (Condon) | Katahdin Quote #:

Bill (if different than above): | Address:

Sampler (Print / Sign): J. Lambert / [signature] | Copies To:

LAB USE ONLY | WORK ORDER #: | KATAHDIN PROJECT NUMBER:

REMARKS:

SHIPPING INFO: ☐ FED EX ☐ UPS ☐ CLIENT

AIRBILL NO:

TEMP°C ____ ☐ TEMP BLANK ☐ INTACT ☐ NOT INTACT

ANALYSIS AND CONTAINER TYPE PRESERVATIVES

Sample Description	Date / Time coll'd (YR: 2004)	Matrix	No. of Cntrs.	VOC 40 mL vial / HCl	GRO 40 mL vial / HCl	DRO 40 mL amber / HCl	SVOC 1 L amber liquor	metals 500 mL poly / HNO3	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N	Filt. ☐Y ☐N
OFF-GW-TB02-03	8/19 / 1020	AQ	5	3	2	1	1	1					
OFF-GW-MW9R-03	8/26 / 1020	GW	10	3	2	2	2	1					
OFF-GW-DUP02-03	8/26 / 1040	GW	10	3	2	2	2	1					
OFF-GW-MW10S-03	8/26 / 1130	GW	10	3	2	2	2	1					
OFF-GW-MW1R-03	8/26 / 1500	GW	10	3	2	2	2	1					
OFF-GW-MW5R-03	8/26 / 1505	GW	10	3	2	2	2	1					

COMMENTS

Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)
[signature]	8/27/04 1100	[signature]			
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Relinquished By: (Signature)	Date / Time	Received By: (Signature)

THE TERMS AND CONDITIONS ON THE REVERSE SIDE HEREOF SHALL GOVERN SERVICES, EXCEPT WHEN A SIGNED CONTRACTUAL AGREEMENT EXISTS.

CUSTOMER COPY

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - LIQUID PHASE

Site Name: GFFTA
Sample ID: OFF-GW-TB01-03

Tetra Tech NUS Charge No. ~~5152-0504~~ 4152-0514
QC Information: NA (if applicable)

Sample Method/Device: provided by lab
Depth Sampled: ____ feet Total Depth ____ feet (SW Only)
Sample Date & Time: 8/19/09 1030 hours
Sampler(s): J. Lambert

Recorded By: [signature] Signature

TYPE OF SAMPLE: (Check all that apply)

- ___ Groundwater
- ___ Surface Water
- ___ Residential Supply
- X Grab
- ___ Composite
- X Trip Blank*
- ___ Rinsate Blank*
- ___ Field Duplicate Collected
- ___ Other (Specify): (provided by lab)

*include sample source & lot No.

WELL PURGE DATA:

Well Depth	feet	Purge Start	hrs
Inside Diameter	Inches	Purge Stop Time	hrs
Water Level	feet	Total Gallons Purged	
Well Volume	gal.	Purge Method	

Color: ____ Turbidity: CLR/SL CLDY/CLDY/OPAQ
Comments:

JL 8/19/09

PID/FID Monitor Reading: ppm

Sampling/Purge Data

Vol. #	Turbidity	Temp °C	Salinity	pH	ORP	Spec. Cond	DO
0							
1							
2							
3							
4							
5							
6							
7							
8							

JL 8/19/09

ANALYSIS	BOTTLE LOT NO.	TRAFFIC REPORT NO.		COMMENTS
		ORGANIC	INORGANIC	
VOC				
GRO				

TtNUS Form 0004

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - LIQUID PHASE

Site Name: OFFTA
Sample ID: OFF-GW-TB02-03

Tetra Tech NUS Charge No. ~~5152-0503~~ 4152-0514
QC Information: NA (if applicable)

Sample Method/Device: provided by lab - sample date/time on container
Depth Sampled: NA feet Total Depth NA feet (SW Only)
Sample Date & Time: 8/19/04 1030 hours
Sampler(s): Provided by lab

Recorded By: [signature] (8/26/04)
Signature

TYPE OF SAMPLE: (Check all that apply)

- ___ Groundwater
- ___ Surface Water
- ___ Residential Supply
- X Grab
- ___ Composite
- X Trip Blank*
- ___ Rinsate Blank*
- ___ Field Duplicate Collected
- ___ Other (Specify): (provided by lab)

* include sample source & lot No.

WELL PURGE DATA:

Well Depth	feet	Purge Start	hrs
Inside Diameter	Inches	Purge Stop Time	hrs
Water Level	feet	Total Gallons Purged	
Well Volume	gal.	Purge Method	

Color: _____ Turbidity: CLR/SL CLDY/CLDY/OPAQ

Micro Tip/OVA Monitor Reading: ppm

Sampling/Purge Data:

Vol. #	Temp °C	pH	Spec. Cond.	DO
0				
1				
3				
4				

JL 8/26/04

ANALYSIS	BOTTLE LOT NO.	TRAFFIC REPORT NO. ORGANIC	TRAFFIC REPORT NO. INORGANIC	COMMENTS
VOC				
GRO				

TtNUS Form 0004

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - LIQUID PHASE

Site Name: OFFTA
Sample ID: OFF-GW-RB01-03

Tetra Tech NUS Charge No. 4152-0514
QC Information: NA (if applicable)

Sample Method/Device: direct pump from water to jar *
Depth Sampled: ____ feet Total Depth ____ feet (SW Only)
Sample Date & Time: 8/24/04 1600 hours
Sampler(s): J. Lambert

Recorded By: [signature] Signature

TYPE OF SAMPLE: (Check all that apply)

- ___ Groundwater
- ___ Surface Water
- ___ Residential Supply
- X Grab
- ___ Composite
- ___ Trip Blank*
- X Rinsate Blank*
- ___ Field Duplicate Collected
- ___ Other (Specify): 0406229 = DIUF

*include sample source & lot No.

poland spring s= 080404-0358

WELL PURGE DATA:

Well Depth	feet	Purge Start	hrs
Inside Diameter	Inches	Purge Stop Time	hrs
Water Level	feet	Total Gallons Purged	
Well Volume	gal.	Purge Method	

Color: ____ Turbidity: CLR/SL CLDY/CLDY/OPAQ

Comments:

* using 1' of teflon tubing on other side of silastic of peri pump

PID/FID Monitor Reading: ppm

Sampling/Purge Data

Vol. #	Turbidity	Temp °C	Salinity	pH	ORP	Spec. Cond	DO
0							
1							
2							
3							
4							
5							
6							
7							
8							

8/24/04

ANALYSIS	BOTTLE LOT NO.	TRAFFIC REPORT NO. ORGANIC	TRAFFIC REPORT NO. INORGANIC	COMMENTS
VOC				
GRO				
DRO				
SVOC				
metals				

TtNUS Form 0004

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OEETA
Sample ID: OEF-GW-MWIR-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA low-flow
Depth Sampled: 12 Feet Screened Interval Depth 3.5-13.5 feet
Sample Date & Time: 8/26/09 1500 hours NA /Dup
Sampler(s): J. Lambert
Data Recorded By: J. Lambert Signature: [signature]
Notes: no readings with the PID; set intake at midpoint of screen.

H&S Survey Meter ____ PPM
Pre-pump insertion WL 5.85 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL ____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	6 VOCs				
GRO	metals				
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ Salinity
1340	5.85		Start purge; check purge with PID								
1350	5.93*		140		18.64	470	6.31	211.4	1.19	13.1	0.22
1355	5.95		140		18.42	359	5.78	294.5	0.92	12.1	0.17
1400	5.95		160		18.10	283	5.55	322.7	0.75	6.80	0.13
1405	5.95		160		18.07	258	5.52	333.0	0.68	6.26	0.12
1410	5.96		~~160~~ 180		18.01	235	5.53	341.3	0.68	5.68	0.11
1415	5.96		180		17.98	229	5.51	349.8	0.70	3.48	0.11
1420	5.96		180		17.97	226	5.49	354.4	0.69	3.08	0.11
1425	5.96		180		17.98	226	5.52	356.1	0.70	2.66	0.11
1430	5.96		180		17.92	225	5.50	362.1	0.70	1.55	0.11
1435	5.97		180		17.94	225	5.55	362.9	0.69	2.11	0.11
1440	5.97		180		17.87	225	5.61	363.7	0.69	1.66	0.11
1445	5.97		180		17.83	226	5.62	366.0	0.68	1.18	0.11
1450	5.97		180	see pg 2	17.90	225	5.61	366.8	0.69	1.30	0.11

TtNUS Form 0009

* cannot lower any further without losing flow.

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

8789 - T + KL

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW1R-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ~~liters~~ gal	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU.	~~Comments~~ Salinity
1455	5.97		180		17.88	224	5.64	369.3	0.68	1.19	0.11
		All parameters stable per EPA SOP - 1500 sample time									

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW25-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA low flow
Depth Sampled: 10 Feet Screened Interval Depth 4-14 feet
Sample Date & Time: 8/25/04 1440 hours NA /Dup
Sampler(s): J. Lambert
Data Recorded By: J. Lambert Signature: J. Lambert
Notes:
no PID readings throughout well screen.
- tide rising

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL 6.04 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL NA ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
GRO	SVOC				
VOC	metals				
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ~~liters~~ gal	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ Salinity
1325	6.04		begin purge, checking flow with PID throughout well screen								22.12
1340	6.20*		210		15.51	35,030	6.56	128.8	0.42	5.64	↓
1345	6.12		205		15.55	35,185	6.56	147.5	0.38	4.76	22.22
1350	6.08		210		15.53	35,348	6.55	159.1	0.32	3.88	22.32
1355	6.07		210		15.41	35,447	6.55	158.7	0.28	2.44	22.36
1400	6.02		210		15.41	35,496	6.55	159.0	0.26	2.35	22.42
1405	6.03		210		15.37	35,506	6.55	157.7	0.25	1.91	22.44
1410	6.03		210		15.30	35,455	6.55	155.8	0.27	1.36	22.39
1415	6.03		210		15.31	35,447	6.55	153.8	0.25	1.18	22.39
1420	6.03		210		15.24	35,468	6.57	152.8	~~0.45~~ 0.24	1.24	22.39
1425	5.98		210		15.29	35,362	6.56	151.9	0.25	1.41	22.33
1430	5.78		210		15.33	35,251	6.55	151.4	0.24	1.31	22.24
1435	5.75		210	4.5	15.34	35,369	6.54	150.6	0.24	1.43	22.29

TtNUS Form 0009

* cannot lower pump further without losing flow.

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW2D-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA low-flow
Depth Sampled: 26 Feet Screened Interval Depth 20.5-30.5 feet
Sample Date & Time: 8/25/09 1225 hours NA /Dup
Sampler(s): J. Lambert
Data Recorded By: J. Lambert Signature: [signature]
Notes: 1100 - PM stopped by - discuss pulling up tubing to check w/ PID, Melville Sampling.

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL 5.19 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
GRO	DRO				
VOC	metals				
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ~~liters~~ gal	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ Salinity
~~1045~~ 10:50	5.19		begin	purge							
1055	5.63*		180		15.48	2184	7.06	16.9	0.72	17.5	1.13
1100	5.67*		180		15.07	2207	7.00	28.9	0.50	14.4	1.13
~~1105~~ 1110	5.65		198		14.94	2205	6.98	67.7	0.35	5.66	1.14
1130	5.65		190		14.82	2198	6.96	75.4	0.32	4.88	1.13
1135	5.65		190		14.86	2196	6.96	76.6	0.32	3.36	1.13
1140	5.66		190		14.62	2190	6.95	79.0	0.30	2.64	1.13
1155	5.65		190		14.58	2102	6.86	98.4	0.36	1.74	1.09
1200	5.65		190		14.60	2140	6.87	95.3	0.31	0.92	1.11
1205	5.65		190		14.42	2165	6.88	77.5	0.28	1.27	1.12
1210	5.65		190		14.49	2163	6.89	86.2	0.27	0.68	1.12
1215	5.65		190		14.28	2167	6.89	84.1	0.26	0.84	1.12
1220	5.65		190	4.5	14.42	2166	6.89	84.4	0.26	0.30	1.12
	- all readings		stable	as per EPA ;							

TtNUS Form 0009

*pump dial turned down as low as possible without losing flow

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

1 of 3

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: FFTA
Sample ID: OFF-GW-MW33-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA LOW FLOW
Depth Sampled: 10 Feet Screened Interval Depth 4-14 feet
Sample Date & Time: 8/24/04 ~~1455~~ hours NA /Dup
Sampler(s): D. WIELANDT 13:00
Data Recorded By: D. WIELANDT Signature: [signature]
Notes: SP. COND & TEMP ±3%
DO, TURB ±10%
ORP ±10mV
pH ±0.1

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL 5.21 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		GRO		METALS	
SVOC		DRO			

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ SAMPLE
14:55	6.18		300	begin purge							
			adjusted Purge Rate down to 260 and down again								
15:05	6.01		190		16.78	1221	6.45	63.8	1.46		0.61
			Power supply changed - went off when trying to take turb.								
15:10	5.81		210		17.17	1248	6.48	69.3	1.41	170	0.65
15:15					17.13	1295	6.50	70.0	1.60	150	0.65
15:20	5.88		200		17.02	1311	6.51	74.1	1.52	130	0.66
15:25					16.83	1326	6.52	74.0	1.53	132	0.67
15:30	5.94		200		16.83	1333	6.53	76.9	1.30	127	0.67
15:35					16.73	1342	6.52	76.0	1.16	64.5	0.68
15:40	6.03		250 *		16.60	1344	6.50	77.7	0.95	58.1	0.67
15:45					16.59	1345	6.49	78.4	0.84	53.5	0.68
15:50	6.04		210		16.52	1356	6.48	80.7	0.71	44.0	0.68

TtNUS Form 0009

* Pump stopped @ 15:35 during turbidity reading

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW#35-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ STEINITX
15:55					16.52	1361	6.48	79.5	0.68	34.7	0.68
16:00	6.07		210		16.54	1362	6.49	74.9	0.64	28.5	0.69
16:05					16.57	1367	6.50	76.3	0.64	22.3	0.69
16:10	6.03		210		16.57	1366	6.50	76.2	0.63	20.9	0.69
16:15					16.61	1371	6.49	76.2	0.63	23.9	0.69
16:20	6.07		220		16.51	1365	6.50	78.1	0.63	24.3	0.69
16:25					16.35	1365	6.52	79.2	0.62	22.4	0.69
16:30	6.04		220		16.47	1376	6.54	79.3	0.63	52.1	0.69
16:35					16.51	1373	6.54	76.7	0.61	114	0.69
16:38					16.76	1382	6.53	77.9	0.64	76.5	0.70
16:41	6.07		220		16.62	1382	6.52	78.1	0.60	95.6	0.70
16:43					16.53	1384	6.52	76.3	0.60	—	0.70
16:50					16.32	1262	6.46	81.2	0.29	582	0.66
16:53	6.20		270		16.30	1300	6.44	77.6	0.54	179	0.65
16:56					16.31	1324	6.47	76.6	0.55	125	0.67
17:00	6.20		240		16.34	1347	6.37	75.2	0.55	49.6	0.68
17:05					16.27	1343	6.33	75.2	0.58	35.3	0.68
17:10	6.15		220		16.33	1367	6.28	75.7	0.59	16.9	0.69
17:15					16.40	1369	6.26	76.7	0.62	12.9	0.69
17:20	6.18		220		16.49	1371	6.23	77.4	0.62	10.63	0.69
17:25					16.58	1371	6.19	78.2	0.63	8.91	0.69
17:30	6.10		210		16.71	1376	6.14	79.11	0.63	7.17	0.70

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

pg 3 of 3

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFF-TA
Sample ID: OFF-GW-MW35-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
17:35					16.40	1374	6.14	80.3	0.66	4.17	0.69
17:40	6.20		220		16.49	1375	6.17	80.3	0.64	5.50	0.69
17:45					16.52	1381	6.10	82.3	0.65	4.59	0.70
17:50	6.17		230		16.58	1381	6.08	82.8	0.65	3.64	0.70
17:55				~12 GAL	16.82	1379	6.13	82.5	0.63	2.95	0.70

End Purge, Parameters stabilized as per EPA SOP

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFETA
Sample ID: OFF-GW-MW4S-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA low-flow
Depth Sampled: 12' Feet Screened Interval Depth 4-14 feet
Sample Date & Time: 8/25/04 0950 hours NA /Dup
Sampler(s): J. Lambert
Data Recorded By: J. Lambert Signature: [signature]
Notes:

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 4.95 ft Post - pump insertion WL NA ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
GRO	(2)	SVOC	(2)		
VOC	(3)	metals	(1)		
DRO	(2)				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters ~~gal~~	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments Salinity
0850	4.95		begin	purge; adjusting	flow rate						
0900	5.73*		180*		17.72	1630	6.07	108.5	0.51	9.39**	0.83
0905	5.74		190		17.60	1602	6.06	112.8	0.47	8.72	0.81
0910	5.79*		180*		17.49	1560	6.06	115.0	0.45	5.53	0.79
~~0915~~ 0920 (unused reading)	5.75		180		17.56	1531	6.07	113.3	0.41	4.29	0.77
0925	5.72		180		17.62	1510	6.08	112.1	0.40	4.97	0.76
0930	5.73		180		17.64	1459	6.08	111.2	0.39	4.87	0.73
0935	5.73		180		17.75	1432	6.08	111.7	0.40	3.08	0.72
0940	5.70		180		17.59	1432	6.08	112.4	0.41	3.17	0.72
0945	5.70		180	3.0	17.72	1428	6.09	110.1	0.40	3.10	0.72
		~ parameters stable per EPA SOP									

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

* Cannot lower pump rate any further without losing flow.
** water vis. clear with small particles floating in it

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW55-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA low flow
Depth Sampled: 17 Feet Screened Interval Depth 8-18' feet
Sample Date & Time: 8/27/04 1445 hours NA /Dup
Sampler(s): J. Lambert
Data Recorded By: J. Lambert Signature: [signature]
Notes:

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL 6.46 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL NA ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	(3)	SVOC	(2)		
GRO	(2)	DRO	(2)		
metals	(1)				

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ~~liters~~ gal	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ Salinity
1350	6.46		Begin	purge							
1400	7.25*		240		19.80	634	6.59	273.3	0.88	1.58	0.31
1405	7.16		210		19.35	643	6.54	245.5	0.61	3.56	0.31
1410	7.18		210		18.82	669	6.29	266.7	0.37	2.24	0.33
1415	7.19		210		18.85	669	6.28	271.0	0.37	1.23	0.33
1420	7.19		230		18.73	672	6.28	273.5	0.41	1.41	0.33
1425	7.18		230		18.74	674	6.27	284.4	0.36	0.28	0.33
1430	7.19		230		18.60	674	6.27	293.6	0.36	0.54	0.33
1435	7.19		230		18.61	674	6.28	298.0	0.38	0.41	0.33
1440	7.19		240	4	18.62	675	6.27	300.9	0.36	0.60	0.33
	- turb near-stable and under 1 NTU; all other parameters stable.										

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

* pump turned pump dial down as far as possible.

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA 6S
Sample ID: OFF-GW-MW6S-03

Tetra Tech NUS Charge No. 4152-0514
QC: ~~MS/MSD~~ NA (If applicable)

Sample Method: EPA - low flow
Depth Sampled: 8.6 Feet Screened Interval Depth 4-9 feet
Sample Date & Time: 8/24/09 1300 hours NA /Dup
Sampler(s): J. Lambert
Data Recorded By: J. Lambert Signature: [signature]
Notes: 9.7' = TD; 7.3 = Init WL; 2.4' in well × 0.16 = 0.4 gal well vol

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL 7.24 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL NA ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		SVOC			
~~GRO~~		metals	/		
DRO					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ~~liters~~ gal	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ salinity
1140	7.24	Begin	purge: filling flow-through cell.								
1150	7.79*		200		20.76	172	6.83	191.4	7.15	11.8	0.08
1155	7.83		210		20.60	166	6.58	202.8	6.58	( )	0.08
↳ 1156 well ran dry - will wait + see how fast it recharges.											
1205	~~7.91~~ 8.10										
1215	~~8.07~~ 7.95	-evacuate well → 1.5 gal			21.25	169	6.71	227.5	6.35	77.9	0.08
↳ (3 well volumes. Will let recharge + then sample)											
note: returned at ~1500 and ~1700 in order to fill all sample bottles.											

TtNUS Form 0009

* unable to turn down pump without losing flow

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MWGR-03

Tetra Tech NUS Charge No. 4152-0514
QC: MS/MSD (If applicable)

Sample Method: EPA LOW FLOW
Depth Sampled: 23 Feet Screened Interval Depth 16-26 feet
Sample Date & Time: 8/24/04 1255 hours NA /Dup
Sampler(s): D. WIELANDT
Data Recorded By: D. WIELANDT Signature: [signature]
Notes: SP. CON & TEMP 3%, DO & TURB. 10%, ORP ± 10 MV, pH ± 0.1

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL 7.21 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL N/A ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		DRO			
GRO		METALS			
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters ~~gal~~	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments SAL/ID.
11:50	7.21 7.5		begin purge								
			230								
12:00	7.50		240		17.18	426	5.64	313.6	2.77	14	0.21
12:05					17.22	422	5.57	322.6	2.72	10	0.20
12:10	7.50		250		17.40	420	5.54	326.0	2.78	6.4	0.20
12:15					17.44	421	5.47	332.7	2.78	4.6	0.20
12:20	7.50		250		17.53	420	5.36	344.3	2.81	3.5	0.20
12:25					17.50	417	5.40	348.4	2.83	2.6	0.20
12:30	7.51		260		17.48	417	5.39	351.8	2.87	2.2	0.20
12:35					17.41	416	5.37	356.9	2.84	1.7	0.20
12:40	7.51		260		17.51	415	5.33	361.4	2.85	1.0	0.20
12:45					17.25	414	5.37	366.9	2.88	0.75	0.20
12:50	7.51		250	4	17.28	412	5.40	362.5	2.87	0.80	0.20
			End purge - Parameters stabilized as per EPA SOP								

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW8R-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA Low Flow
Depth Sampled: 15' Feet Screened Interval Depth 4-14 feet
Sample Date & Time: 8/26/04 15:05 hours NA/Dup
Sampler(s): D. WELANDT
Data Recorded By: D. WELANDT Signature: Dan Welandt
Notes: Sp. Cond & Temp 3% DO & Turb 10% pH ±0.1 ORP ±10MV

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 6.38 ft Post - pump insertion WL ____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		DRO			
GRO		METALS			
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ Skipi
13:50	6.57		290	Begin	Purge						
14:00	6.68		280		16.96	699	6.92	182.3	0.80	16.6	0.34
14:05	~~6.80~~				17.07	700	6.87	195.1	0.68	8.98	0.34
14:10	6.86		280		17.18	695	6.86	201.6	0.58	4.61	0.34
14:15					17.3	688	6.88	203.8	0.51	2.63	0.34
14:20	6.86		280		17.32	680	6.87	206.7	0.47	1.49	0.33
14:25					17.34	669	6.87	209.6	0.43	1.14	0.32
14:30	6.89		290		17.34	657	6.86	214.6	0.42	0.97	0.32
14:35					17.37	641	6.85	220.2	0.41	0.87	0.31
14:40	6.90		290		17.38	632	6.85	223.1	0.41	0.68	0.31
14:45					17.37	622	6.86	226.6	0.41	0.58	0.30
14:50	6.95		290		17.40	612	6.84	229.4	0.42	0.52	0.30
14:55					17.44	600	6.83	232.4	0.45	0.59	0.29
15:00	6.90		300	~7. GAL.	17.46	594	6.83	233.3	0.41	0.47	0.29

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFETA
Sample ID: OFF-GW- MWGR-03

Tetra Tech NUS Charge No. 4152-0514
QC: DUP 02 (If applicable)

Sample Method: EPA LOW FLOW
Depth Sampled: 11 Feet Screened Interval Depth 5-15 feet
Sample Date & Time: 8/20/04 1020 hours 1040 Dup
Sampler(s): D. WIELANDT
Data Recorded By: D WIELANDT Signature: [signature]
Notes: SP. Cond & Temp 3% pH ±0.1
DO & TURB 10% -no PID readings
ORP ±10MV

H&S Survey Meter 0.5 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL ~~0.03~~ 0.15 6.03 ft Post - pump insertion WL ____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		DRO			
GRO		METAL			
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ SALINITY
9:30	6.15		250	Begin Purge							
9:40	6.18		250		17.43	420	6.91	197.6	0.54	2.42	0.20
9:45					17:39	411	6.85	202.3	0.44	1.24	0.20
9:50	6.17		280		17:37	406	6.82	194.2	0.39	0.80	0.20
9:55					17:33	405	6.79	179.5	0.37	0.68	0.20
10:00	6.16		280		17.36	408	6.79	166.6	0.35	0.63	0.20
10:05					17:41	410	6.80	156.4	0.34	0.50	0.20
10:10	6.17		290		17:57	413	6.84	158.7	0.36	0.48	0.20
10:15				45 GAL	17:44	410	6.80	151.8	0.34	0.42	0.20
				End purge	Parameters Stabilized			per EPA-50B			

TtNUS Form 0009

PID read @ 1' intervals from bottom - no positive readings

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW05-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA low-flow
Depth Sampled: 10 Feet Screened Interval Depth 4-12 feet
Sample Date & Time: 8/26/09 1130 hours NA /Dup
Sampler(s): J. Lambert
Data Recorded By: J. Lambert Signature: [signature]
Notes: note- only PID reading of purge water above 0 was at bottom of well- will set intake a foot from bottom. (2.3 ppm)

H&S Survey Meter 0.0 PPM → in well
Pre-pump insertion WL 7.00 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL NA ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC	DRO				
GRO	metals				
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ Salinity
0925	7.00	begin	purge								
0935	7.80*		150		16.17	21558	6.72	237.3	3.16	12.8	12.95
0940	7.82		150		16.36	20,862	6.76	243.4	2.67	12.2	12.56
0945	7.83		150		16.44	20,419	6.75	245.1	2.49	14.1	12.18
0950	7.83		150		16.35	19,719	6.75	243.8	1.91	16.4	11.77
0955	7.84		150		16.27	19,290	6.76	240.0	1.64	15.3	11.50
1000	7.85		150		16.20	19,105	6.77	236.3	1.55	13.7	11.38
1005	7.87		150		16.26	18,890	6.77	233.1	1.43	10.19	11.24
1010	7.90		150		16.19	18,554	6.78	230.2	1.42	7.60	11.00
1015	7.93*		145		16.22	18,068	6.79	225.9	1.09	6.10	10.72
1020	7.93		145		16.23	17,835	6.79	224.6	1.06	4.94	10.54
1025	7.93		145		16.22	17,405	6.80	220.5	1.04	3.68	10.27
1030	7.94		145		16.17	17,074	6.80	216.7	0.90	3.59	10.05
1035	7.94		150		16.24	16,628	6.80	210.5	0.80	2.39	9.75

TtNUS Form 0009

* pump dial is as low as possible without losing flow.
- water is vis clear; no color.

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

14 28 14 42

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW105-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged ~~liters~~ ml	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ Salinity
1040	7.94		150		16.26	16,220	6.81	204.9	0.73	1.97	9.50
1045	7.94		150		16.30	16,840	6.82	199.7	0.68	1.60	9.27
1100	7.93		150		16.27	14,935	6.84	187.2	0.56	1.24	8.71
1105	7.98*		160		16.19	14,520	6.84	184.0	0.51	1.32	8.45
1110	7.98		150		16.21	14,302	6.84	180.6	0.50	0.67	8.34
1115	8.00		150		16.25	13,969	6.85	179.0	0.48	0.57	8.11
1120	8.00		150		16.26	13,852	6.85	177.5	0.47	0.73	8.04
1125	8.01		150	4.5	16.35	13,743	6.85	175.3	0.47	0.56	7.95

→ all parameters stable; turb varying erratically between 0.56 + 0.73 (less than 0.2 NTU) - will collect sample

TtNUS Form 0009

* turned pump dial down

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFP-GW-MW115-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA LOW FLOW
Depth Sampled: 7.5 Feet Screened Interval Depth 4-9 feet
Sample Date & Time: 8/25/04 1200 hours NA /Dup
Sampler(s): D. WIELANDT
Data Recorded By: D. WIELANDT Signature: D. Wielandt
Notes: Sp. COND. & TEMP ±3% pH ±0.1
DO & TURB 10%
ORP ± 10MV

H&S Survey Meter 0.0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 7.04 ft Post - pump insertion WL ____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		DRO			
GRO		METALS			
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
10:40	4.32		250	Begin Purge							
10:50					18.77	1104	6.13	92.1	0.87	0.08	0.64
10:55	4.63		260		18.96	1001	6.08	111.3	0.73	2.24	0.58
11:00					18.88	1026	6.14	105.3	0.66	1.71	0.51
11:05	5.15		300 adjusted down		18.60	1117	6.21	110.4	0.74	1.38	0.56
11:10			270		18.56	1186	6.23	109.7	0.84	1.16	0.60
11:15	5.15		280		18.54	1256	6.28	99.2	0.96	1.00	0.63
11:20					18.41	1352	6.31	106.6	1.08	0.84	0.68
11:25	5.28		280		18.43	1382	6.28	104.1	1.12	0.80	0.70
11:30					18.43	1418	6.31	103.1	1.11	0.78	0.72
11:35	5.31		300		18.39	1450	6.31	102.8	1.11	1.13	0.73
11:40					18.39	1472	6.30	108.6	1.11	0.80	0.74
11:45	~~5.04~~ 5.07		280		18.34	1478	6.32	110.5	1.11	0.86	0.75

TtNUS Form 0009

Slight petroleum odor 0ppm PID

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW115-03

Tetra Tech NUS Charge No. 4152-0514
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
11:50					18.69	1475	6.32	112.4	1.15	0.76	0.74
11:55	5.05		270	1.6 Gal	18.60	1458	6.32	116.3	1.14	0.84	0.74
				End Purge - Parameters stabilized as per EPA SOP							

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW11R-03

Tetra Tech NUS Charge No. 4152-0514
QC: NA (If applicable)

Sample Method: EPA LOW FLOW
Depth Sampled: 19 Feet Screened Interval Depth 16-21 feet
Sample Date & Time: 8/25/04 9:45 hours NA /Dup
Sampler(s): D. WIELANDT
Data Recorded By: P. WIELANDT Signature: [signature]
Notes: SP. COND & TEMP. ±3% DO & TURB 10% pH ± 0.1 ORP ± 10MV

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL 4.02 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		GRO		METALS	
SVOC		DRO			

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments SALINITY
08:45	4.30		200	Begin purge							
8:55					14.97	2904	6.97	63.1	1.22	9.81	1.52
9:00	4.27		160-adjusted up		15.09	2891	6.94	43.7	0.92	4.84	1.51
9:05					14.84	2908	6.91	41.9	0.70	5.70	1.52
9:10	4.35		220		14.47	2918	6.92	47.8	0.52	3.33	1.53
9:15					14.76	2918	6.90	58.4	0.50	3.52	1.53
9:20	4.30		200		14.98	2916	6.85	62.0	0.52	2.16	1.53
9:25					14.95	2928	6.81	63.4	0.48	2.05	1.53
9:30	4.31		210		14.88	2935	6.73	59.9	0.46	2.58	1.54
9:35					14.96	2936	6.66	59.3	0.45	2.60	1.54
9:40	4.32		200	4.3 GAL	14.92	2939	6.61	61.6	0.43	2.66	1.54
				End Purge,	Parameters		Stabilized as	Per	EPA-SOP		

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW101-03

Tetra Tech NUS Charge No. 4152-0514
QC: DUPLICATE DUP01 (If applicable)

Sample Method: EPA Low Flow
Depth Sampled: ~~8.24~~ 6 Feet Screened Interval Depth 3-8 feet
Sample Date & Time: 8/24/04 1020 hours 20/050 Dup
Sampler(s): D. WIELANDT / J. LAMBERT
Data Recorded By: D. WIELANDT Signature: [signature]
Notes: SP. COND ±. TEMP 3% pH ±0.1
DO & TURB 10%
ORP 10 MV

H&S Survey Meter 0 PPM Field Instrument Group A/B/C/D
Pre-pump insertion WL 4.70 ft Post - pump insertion WL NA ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		DRO			
GRO		METALS			
SVOC					

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~ SH WTR
9:00	4.70	begin Purge									
			220								
9:10					19.12	707	6.24	-3.1	0.35	5.52	0.34
9:15	4.80		200		18.79	1076	6.35	-9.2	0.28	1.66	0.33
9:20					18.78	685	6.37	-14.3	0.22	1.76	0.34
9:25	4.81		200		18.76	701	6.39	-12.3	0.24	1.38	0.34
9:30					18.86	724	6.43	-14.2	0.23	1.08	0.36
9:35	4.82		200		18.73	768	6.48	-16.6	0.26	1.99	0.37
9:40					18.83	779	6.50	-17.0	0.34	4.96	0.39
9:45	4.82		200		18.71	802	6.54	-20.3	0.29	4.52	0.39
9:50					18.71	809	6.56	-19.7	0.25	3.17	0.40
9:55	4.82		200		18.82	829	6.58	-21.6	0.24	2.94	0.41
10:00					19.52	832	6.60	-22.2	0.28	—	0.41
10:05	4.82		200		18.87	860	6.61	-25.1	0.24	0.69	0.42

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFF-GW. MW 101-03 S
Sample ID: OFETA

Tetra Tech NUS Charge No. 4152-0514
QC: DUP 01 (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
10:10					18.83	8606	6.61	-23.7	0.26	0.46	0.43
10:15	4.82		200	4.5 Gal.	18.87	874	6.62	-25.2	0.26	0.00	0.43
			End	Purge	Parameters		stabilized				
				as PER	EPA	SOP					

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

PURGE WATER HAD A YELLOW TINGE

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW102-03

Tetra Tech NUS Charge No. 4052-0514
QC: NA (If applicable)

Sample Method: EPA LOW FLOW
Depth Sampled: 10 Feet Screened Interval Depth 2-12 feet
Sample Date & Time: 8/25/04 17:00 hours NA /Dup
Sampler(s): D. WIELANDT
Data Recorded By: D. WIELANDT Signature: D. Wielandt
Notes: SP. COND & TEMP 3%
DO & TURB 10%
pH ±0.1
ORP ±10 mV

H&S Survey Meter 0.0 PPM
Pre-pump insertion WL ~~5.72~~ 6.45 ft
Field Instrument Group A/B/C/D
Post - pump insertion WL _____ ft

Analysis	Bottle Lot #	Analysis	Bottle Lot #	Analysis	Bottle Lot #
VOC		GRO		METALS	
SVOC		DRO			

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	Comments
13:55	6.82		210								
14:05	7.87		220		17.99	15281	7.24	235.2	0.92	4.1	8.95
14:10					17.79	14901	7.17	330.5	0.67	2.2	8.56
14:15	8.71		230 adjusted down		17.48	13490	7.19	345.7	0.59	1.1	7.72
14:20	8.85		160		17.75	11776	7.24	349.6	0.48	0.55	6.69
14:25					18.08	10785	7.26	348.3	0.49	1.2	6.10
14:30	8.02		160		17.93	9931	7.27	305.4	0.47	0.35	5.58
14:35					17.90	9504	7.27	272.6	0.54	0.45	5.34
14:40	8.42		160		17.85	9251	7.29	247.8	0.65	0.25	5.19
14:45					17.91	8912	7.34	224.3	0.67	0.65	4.99
14:50	8.36		160		17.82	8619	7.35	205.0	0.66	0.30	4.81
14:55					17.74	8246	7.35	192.8	0.65	0.15	4.59
15:00	8.18		160		17.70	8022	7.39	177.6	0.65	0.25	4.46

TtNUS Form 0009

PID used at bottom and every foot - measured purged water
no positive readings

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

2 of 2

TETRA TECH NUS, INC.

SAMPLE LOG SHEET - "LOW FLOW" GROUNDWATER

Site Name: OFFTA
Sample ID: OFF-GW-MW02-03

Tetra Tech NUS Charge No. 452-0514
QC: _____ (If applicable)

Clock Time 24hr	Water Depth below MP ft	Pump Dial 1	Purge Rate ml/min	Cumm. Volume Purged liters	Temp. °C	Spec. Cond. 2 uS/cm	pH	ORP/Eh3 mv	DO mg/L	Turbidity NTU	~~Comments~~
15:05					17.77	7890	7.41	164.8	0.66	0.20	4.39
15:10	8.07		160		17.63	7763	7.43	158.2	0.68	0.15	4.31
15:15					17.64	7647	7.43	149.5	0.66	0.25	4.24
15:20	7.96		170		17.65	7496	7.45	134.8	0.64	0.15	4.15
15:25					17.53	7376	7.47	124.7	0.76	0.45	4.09
15:30	7.88		180		17.52	7345	7.48	118.4	0.91	0.20	4.06
15:35	7				17.56	7238	7.52	112.2	0.96	0.35	4.03
15:40	7.83		170		17.53	7169	7.54	103.8	1.07	0.15	3.96
15:45					17.46	7125	7.54	94.8	3.15	0.10	3.93
15:50	7.75		170		17.74	7118	7.54	88.2	3.95	0.05	3.93
15:55					17.69	7003	7.52	87.6	3.32	0.25	3.86
16:00	7.56		170		17.71	6895	7.52	83.4	2.69	0.15	3.80
16:05					17.76	6837	7.53	79.7	2.25	0.25	3.74
16:10	7.56		170		17.54	6762	7.51	86.4	1.80	0.10	3.72
16:15					17.53	6741	7.46	89.6	1.50	0.25	3.71
16:20	7.46		180		17.58	6727	7.46	92.3	1.37	0.45	3.70
16:25					17.48	6726	7.46	96.9	1.22	0.40	3.70
16:30	7.42		180		17.71	6715	7.45	91.0	1.10	0.40	3.70
16:35					17.38	6699	7.42	89.6	1.02	0.25	3.69
16:40	7.46		180		17.38	6714	7.36	96.2	0.91	0.100	3.69
16:45					17.42	6709	7.32	105.2	0.88	0.30	3.69
16:50	7.35		180		17.42	6689	7.26	114.0	0.82	0.30	3.68
16:55					17.45	6674	7.20	127.0	0.78	0.50	3.67

End Purge, Parameters stabilized as per EPA SOP

TtNUS Form 0009

1. Pump dial setting (for example: hertz, cycle/min, etc.)
2. Siemens per cm (same as umhos/cm) at 25 °C.
3. Oxidation reduction potential (stand in for Eh).

TETRA TECH NUS, INC.

PHOTOIONIZATION DETECTOR FIELD CALIBRATION LOG

Serial No.: OFFTA EDMF 334 Model No.: Photovac PID Decal No.:

Site Name/Location: 2/Melville Tetra Tech NUS Charge No.: 4152/5152

CALIBRATION DATE	STANDARD GAS-ISOBUTYLENE	CALIBRATION READING Isobutylene Equiv. (ppm)	CALIBRATION CHECK Isobutylene Equiv. (ppm)	SIGNATURE	COMMENTS
8/23/04	Lot # 00271-04 Conc. = 100 ppm	0.0/99.8	98.7	AM- PM-	
8/24/04	Lot # 00271-04 Conc. = 100 ppm	0.0/100	86.3	AM- PM-	
8/25/04	Lot # 00271-04 Conc. = 100 ppm	0.0/100.0	91.7	AM- PM	when first started at 2000 ppm - cleared up gradually before cal.
8/26/04	Lot # 00271-04 Conc. = 100 ppm	0.0/99.8	90.3	AM PM-	
8/27/04	Lot # 00271-04 Conc. = 100 ppm	0.0/99.8	not working properly post-calibration - extreme	AM-	
	Lot # Conc. = ppm		humidity may be affecting instrument - not used today		
	Lot # Conc. = ppm				
	Lot # Conc. = ppm				
	Lot # Conc. = ppm				

TtNUS Form 0006

TETRA TECH NUS, INC.

FIELD INSTRUMENT CALIBRATION LOG

INSTRUMENT NAME: Turbidimeter

MODEL NO.:

SERIAL NO.: 4980-4704

DECAL NO.:

TETRA TECH NUS JOB NO./PMS 4152/5152

CALIBRATION DATE	AM ~~INITIAL~~ READING 0 NTU	AM ~~INITIAL~~ READING 10 NTU	PROCEDURE	PM check ~~FINAL~~ READING 0 NTU	PM check ~~FINAL~~ READING 10 NTU	SIGNATURE	COMMENTS
8/24/04	0.00	~~9.93~~ 10.00	according to manufacturers instructions	1.51	9.96	AM- PM-	
8/25/04	0.00	9.99		0.00	10.0	AM- PM-	
8/26/04	0.00	10.00		~~1.72~~ 2.82	9.93	AM PM	
8/27/04	0.00	10.00		2.70	10.0	AM- PM	

Tt NUS Form 0007

TETRA TECH NUS, INC.

FIELD INSTRUMENT CALIBRATION LOG

INSTRUMENT NAME: Turbidimeter

MODEL NO.:

SERIAL NO.: 1765-1800

DECAL NO.:

TETRA TECH NUS JOB NO./PMS 4152/5152

CALIBRATION DATE	INITIAL READING		PROCEDURE	~~FINAL READING~~ PM check		SIGNATURE	COMMENTS
	0 NTU	10 NTU		0 NTU	10 NTU		
8/24/04	0.00	9.93	According to	0.00	10.08	AM- [illegible] PM- [illegible]	
8/25/04	0.00	9.94	manufacturers	1.99	10.11	AM- [illegible] PM- [illegible]	
8/26/04	0.00	10.00	instructions	0.15	10.25	AM- [illegible] PM- [illegible]	
8/27/04	0.00	9.99		0.08	10.14	AM- [illegible] PM- [illegible]	

Tt NUS Form 0007

TETRA TECH NUS, INC.

YSI 6820 MULTIPARAMETER METER

Serial No.: 99E0152 Model No.: 600XL Decal No.:

Site Name: OFFTA-Melville Job No.: 4152/5152

Instrument is calibrated in accordance with Manufacturer's Instructions

DATE: 8/24/04	Pre Calibration Readings	Post Calibration Readings	PM Check	Calibration STDs (lot #'s) 1exp	Signature	Remarks
Cond. mS/cm 1000 mS/cm	1031	1000	1035	4599 7/05	AM-	
pH = 4.0	4.0	4.0	3.94	4439 2/06	PM-	
pH = 7.0	7.0	7.0	6.83	4597 7/06		
pH = 10.0	~~8.52~~ 10.0	10 ~~8.52~~	9.83	4423 8/05		
D.O. mg/l	104	101	9.42/102.7%	NA		
REDOX mV	235.2	235	220.0			
~~Turbidity 0 NTUs~~ 10,000 cond check	9791		9572	4120 9/04		
~~Turbidity 100 NTUs~~ 0 TD check		0.19	0.14			
Temp °C	20.9		29.70			
~~Salinity 0/00~~						

DATE: 8/25/04				See		
Cond. mS/cm 1,000	1059	1000	1054	8/24/04	AM-	
pH = 4.0	3.85	4.00	4.21	cal log for	PM-	
pH = 7.0	6.91	7.00	7.11	details		
pH = 10.0	10.14	10.02	10.16			
D.O. mg/l	9.71 mg/L / 100.7%	9.80 mg/L / 101.8%	8.14 / 92.3%			
REDOX mV	240.7 ~~241.1~~	~~238.2~~	233.1	222.6		
~~Turbidity 0 NTUs~~ 10,000 cond check	~~8~~	8762	8645			
Turbidity 100 NTUs 0 TD check	—	0.17	0.16			
Temp °C	17.09	17.09	21.04			
~~Salinity 0/00~~						

Tt NUS Form 0024

TETRA TECH NUS, INC.

YSI 6820 MULTIPARAMETER METER

Serial No.: 0055 Model No.: 600 XL Decal No.:

Site Name: OFFTA PDI / Melville Job No.: 4152/5152

Instrument is calibrated in accordance with Manufacturer's Instructions

DATE: 8/24/09	Pre Calibration Readings	Post Calibration Readings	PM Check	Calibration STDs (lot #'s)	Signature	Remarks
Cond. mS/cm 1000	1049	1000	957			
pH = 4.0	3.74	3.96	4.02	See	AM-	
pH = 7.0	7.14	7.00	6.88	99E0152	PM-	
pH = 10.0	9.52	~~8.52~~ 10.00	9.93			
D.O. mg/l	9.20 / 102.2%	9.05 / 100.9%	7.68 / 99.8%	log 8/24/09		
REDOX mV	30.0	235.0	227.2	no		
~~Turbidity 0 NTUs~~ Cond check - 10,000	—	~~8~~ 9008	9206	for details		
~~Turbidity 100 NTUs~~ DO check - 0	—	0.22	0.18			
Temp °C	20.50	20.50	29.97			
~~Salinity 0/00~~						

DATE: 8/25/09				See	AM-	
Cond. mS/cm 1000	1000	1000	1575	8/24/09	PM	
pH = 4.0	3.97	4.00	4.04			
pH = 7.0	6.93	7.00	6.92	99E0152 cal		
pH = 10.0	10.12	10.02	9.88			
D.O. mg/l	9.76 mg/L / 102.6%	9.63 mg/L / 101.7%	5.25 / 96.5%	log for details		
REDOX mV	261.1	235.2	234.6			
~~Turbidity 0 NTUs~~ Cond check - 10,000	—	8901	9201			
~~Turbidity 100 NTUs~~ DO check - 0	—	0.15	0.19			
Temp °C	17.69	17.69	45.86			
~~Salinity 0/00~~						

Tt NUS Form 0024

TETRA TECH NUS, INC.

YSI 6820 MULTIPARAMETER METER

Serial No.: 99E0152 Model No.: 600XL Decal No.:

Site Name: OFFTA / Melville Job No.: 4452/5152

Instrument is calibrated in accordance with Manufacturer's Instructions

DATE: 8/26/09	Pre Calibration Readings	Post Calibration Readings	PM Check	Calibration STDs (lot #'s)	Signature	Remarks
Cond. mS/cm 1000	1303	1000	1244	see		
pH = 4.0	4.16	4.00	4.05		AM-	
pH = 7.0	~~7.01~~ 7.00	~~7.00~~ 7.01	7.01	8/24/09	PM-	
pH = 10.0	10.08	10.01	9.97	cal log for		
D.O. mg/l	102.3% / 10.49 mg/L	101.7% / 10.59 mg/L	97.0% / 8.31 mg/L	details		
REDOX mV	236.3	236.3	230.2			
~~Turbidity 0 NTUs~~ Cond. check = 10,000	6636	—	6525			
~~Turbidity 100 NTUs~~ DO check = 0	0.17	—	0.08			
Temp °C	13.74	13.74	13.02			
~~Salinity 0/00~~						

DATE: 8/27/09						
Cond. mS/cm 1000	1237	1000	1109		AM-	
pH = 4.0	4.04	4.00	4.04	see	PM-	
pH = 7.0	6.97	7.00	6.81	8/24/09		
pH = 10.0	10.07	10.00	9.73			
D.O. mg/l	100.8% / 9.32 mg/L	101.3% / 9.37 mg/L	98.9% / 7.93 mg/L			
REDOX mV	239.2	243.3	231.0	cal log		
~~Turbidity 0 NTUs~~ Cond. check 10,000	~~6321~~	6321	5785	for		
~~Turbidity 100 NTUs~~ DO check 0	~~0~~	0.10	0.18	details		
Temp °C	9.12	9.12	25.08			
~~Salinity 0/00~~						

Tt NUS Form 0024

TETRA TECH NUS, INC.

YSI 6820 MULTIPARAMETER METER

Serial No.: -0055 Model No.: 600XC Decal No.:

Site Name: OFFTA/Melville Job No.: 4152/5152

Instrument is calibrated in accordance with Manufacturer's Instructions

DATE: 8/26/04	Pre Calibration Readings	Post Calibration Readings	PM Check	Calibration STDs (lot #'s)	Signature	Remarks
Cond. mS/cm 1000	1290	1000	1285			out of range
pH = 4.0	4.06	4.00	4.17	See	AM	
pH = 7.0	7.01	7.00	7.03			
pH = 10.0	10.01	10.00	9.97	99E0152	PM	
D.O. mg/l	103.9% / 10.85 mg/L	101.5% / 10.59 mg/L	~~97~~ 98.9% / 8.71 mg/L	log (8/24/04)		
REDOX mV	245.6	239.7	199.4			
~~Turbidity 0 NTUs~~ Cond = 10,000 check	—	6894	6614	for		
Turbidity 100 NTUs DO = 0 check	—	0.08	0.12	details		
Temp °C	13.26	13.26	~~23.02~~ 21.59			
~~Salinity 0/00~~						

DATE: 8/27/04						
Cond. mS/cm	1324	1000	995	See	AM	
pH = 4.0	4.03	4.00	4.05	99E0152		
pH = 7.0	6.94	7.00	6.88			
pH = 10.0	10.05	10.01	9.88	log (8/24/04)	PM	
D.O. mg/l	~~98.9%~~ / 9.13 mg/L	101.0% / 9.32 mg/L	98.2% / 7.97 mg/L			
REDOX mV	~~0~~ 218.0	233.7	231.1	for details		
~~Turbidity 0 NTUs~~ Cond. Check = 10,000	—	6305	4999			
Turbidity 100 NTUs DO check = 0	—	0.09	0.14			
Temp °C	19.21	19.21	25.76			
~~Salinity 0/00~~						

Tt NUS Form 0024

TETRA TECH NUS, INC.

GROUNDWATER LEVEL MEASUREMENT SHEET

SITE INFORMATION

Site Name: OFFTA

Project Number:

Personnel: J. Lambert, D. Wielandt

Date: 8/23/04

Municipality: Middletown, RI

County: Aqu

State: RI

Street or Map Location: Gaty Field

(If Off-Site):

WEATHER CONDITIONS AND EQUIPMENT

Temperature Range:

Precipitation:

Barometric Pressure:

Tidally-Influenced [ ] Yes [ ] No

Equipment No.:

Equipment Number:

Latest Calibration Date:

Well or Piezometer Number	Date/Time 8/23/04	~~Elevation of Reference Point (Feet)*~~ Depth to Bottom	Water Level Indicator Reading (Feet)*	Adjusted Depth (Feet)*	Groundwater Elevation (Feet)*
MW-1R	1215	13.47	5.78		
MW-2S	1155	13.55	5.59		
MW-2D	1200	30.65	4.29		
MW-3S	1015	13.00	5.22		
MW-4S	1040	13.80	4.55		
MW-5S	1250	18.03	6.39		
MW-6R	1305	25.48	7.12		
MW-6S	1130	8.72	7.12		
MW-8R	1220	13.48	6.23		
MW-9R	1240	15.03	5.98		
MW-10S	1210	11.57	6.83		
MW-11S	1130	8.76	3.90		

Tt NUS Form 0010

TETRA TECH NUS, INC.

GROUNDWATER LEVEL MEASUREMENT SHEET

SITE INFORMATION

Site Name: OFFTA

Project Number:

Personnel: J. Lambert, D. Wieland

Date: 8/23/04

Municipality: Middletown, RI

County:

State: RI

Street or Map Location: Navy Field

(If Off-Site):

WEATHER CONDITIONS AND EQUIPMENT

Temperature Range:

Precipitation:

Barometric Pressure:

Tidally-Influenced [ ] Yes [ ] No

Equipment No.:

Equipment Number:

Latest Calibration Date:

Well or Piezometer Number	Date/Time 8/23/04	~~Elevation of Reference Point (Feet)*~~ Depth to bottom	Water Level Indicator Reading (Feet)*	Adjusted Depth (Feet)*	Groundwater Elevation (Feet)*
MW-11R	1135	20.27	3.45		
MW-101	~~7.81~~ 1245	~~7.81~~	4.80		
MW-102	1105	11.75	5.46		

Tt NUS Form 0010

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-1R

PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 1215

PROJECT MANAGER: S. Parker

INSPECTED BY: J. Lambert
D. Wieland

VENT WELL

MONITORING INSTRUMENT READING: 0.0

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC) 5.78

WATER LEVEL DEPTH (FEET FROM TOP OF PVC) 13.47

WELL STICK-UP 0.25'

CASING STICK-UP (FEET) NA- flush mount

WELL DIAMETER (INCHES) 2"

WELL CONSTRUCTION (PVC, STEEL, ETC.) PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: no LNAPL or DNAPL tore; no loss of tore

Tt NUS Form 0021

TETRA TECH NUS, INC.	WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-25 PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 11:55 PROJECT MANAGER: S. PARKER

INSPECTED BY: D. WIECANDT

J. LAMBERT

VENT WELL

MONITORING INSTRUMENT READING: 0.0 - PID

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC) 13.55'

WATER LEVEL DEPTH (FEET FROM TOP OF PVC) 5.59' silent @ 8.00

WELL STICK-UP 0.2'

CASING STICK-UP (FEET) 0

WELL DIAMETER (INCHES) 2"

WELL CONSTRUCTION (PVC, STEEL, ETC.) PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: mostly hard bottom - no LNAPL or DNAPL noted.

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-2D

PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 1200

PROJECT MANAGER: S. Parker

INSPECTED BY: J. Lambert
D. Wielandt

VENT WELL

MONITORING INSTRUMENT READING: 0.0

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC)	~~4.29~~ ~30.05
WATER LEVEL DEPTH (FEET FROM TOP OF PVC)	4.29
WELL STICK-UP	-0.55
CASING STICK-UP (FEET)	NA - flush-mount
WELL DIAMETER (INCHES)	2"
WELL CONSTRUCTION (PVC, STEEL, ETC.)	PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: water in ~~well~~ casing to level of well tip
tone stops at ~9.6' - no LNAPL, DNAPL tone, v. soft bottom.

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-3S PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 1615 PROJECT MANAGER: S. PARKER

INSPECTED BY: D. WIELANDT

J. LAMBERT

VENT WELL

MONITORING INSTRUMENT READING: PID = 2000

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC) soft bottom 13.00

WATER LEVEL DEPTH (FEET FROM TOP OF PVC) 5.22'

WELL STICK-UP -0.1

CASING STICK-UP (FEET) 0

WELL DIAMETER (INCHES) 2"

WELL CONSTRUCTION (PVC, STEEL, ETC.) PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: Outer casing was bent, water inside the outer casing, Inner cap loose

Beeping stopped 7.105'

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-4S PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 10:40 PROJECT MANAGER: S. PARKER

INSPECTED BY: D. WIELANDT

J. LAMBERT

VENT WELL

MONITORING INSTRUMENT READING: PID 34.8

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC) 13.8'

WATER LEVEL DEPTH (FEET FROM TOP OF PVC) 4.52 4.55

WELL STICK-UP 0.2'

CASING STICK-UP (FEET) 0

WELL DIAMETER (INCHES) 2"

WELL CONSTRUCTION (PVC, STEEL, ETC.) PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: ONLY ONE BOLT

LNAPL TONE ~~[illegible]~~ < 0.01'

MW-11R is 15.20' from SB427 to the ~~[illegible]~~ south
MW-11S is ~~[illegible]~~ 20' south of SB427

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-5S

PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 12:50

PROJECT MANAGER: S. PARKER

INSPECTED BY: J. LAMBERT

D. WIELANDT

VENT WELL

MONITORING INSTRUMENT READING: 0.0

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC)	18.03
WATER LEVEL DEPTH (FEET FROM TOP OF PVC)	6.39
WELL STICK-UP	0
CASING STICK-UP (FEET)	0
WELL DIAMETER (INCHES)	2"
WELL CONSTRUCTION (PVC, STEEL, ETC.)	PVC

LOCKED UPON ARRIVAL?	YES	~~NO~~
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: casing top is heavily damaged. top is not square, tape stopped @ 26.80

Tt NUS Form 0021

TETRA TECH NUS, INC.	WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-8R PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 1220 PROJECT MANAGER: S. Parker

INSPECTED BY: J. Lambert
R. Wielandt

VENT WELL

MONITORING INSTRUMENT READING: 0.00

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC) ~~6.23~~ 13.48

WATER LEVEL DEPTH (FEET FROM TOP OF PVC) 6.23

WELL STICK-UP -0.7'

CASING STICK-UP (FEET) NA-flush mount

WELL DIAMETER (INCHES) 2"

WELL CONSTRUCTION (PVC, STEEL, ETC.) PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: tone stopped at 8.67' - no LNAPL or DNAPL tone → top of case missing; well itself partially buried, but top sealed (well should be ok).

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-9R

PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 12:40

PROJECT MANAGER: S. PARKER

INSPECTED BY: J. LAMBERT
D. WIELANDT

VENT WELL

MONITORING INSTRUMENT READING: PID - 0.0

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC) 15.03

WATER LEVEL DEPTH (FEET FROM TOP OF PVC) 5.98'

WELL STICK-UP 0.5'

CASING STICK-UP (FEET) 0.0

WELL DIAMETER (INCHES) 2"

WELL CONSTRUCTION (PVC, STEEL, ETC.) PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: tone stopped @ 8.45, soft bottom

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-10S

PROJECT NAME: S. OFFTA

DATE/TIME: 8/23/04 1210

PROJECT MANAGER: S. Parker

INSPECTED BY: S. Lambert
D. Wieland

VENT WELL

MONITORING INSTRUMENT READING: 0.0

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC)	6.83
WATER LEVEL DEPTH (FEET FROM TOP OF PVC)	11.57
WELL STICK-UP	0.1'
CASING STICK-UP (FEET)	NA- flush-mount
WELL DIAMETER (INCHES)	2"
WELL CONSTRUCTION (PVC, STEEL, ETC.)	PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: 9.26' depth at which tape stops, solid bottom, no DNAPL, no LNAPL

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-115

PROJECT NAME: OFFTA PDI

DATE/TIME: 8/23/04 1130

PROJECT MANAGER: S. Parker

INSPECTED BY: J. Cambert
D. Wieland

VENT WELL

MONITORING INSTRUMENT READING: 91.4

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC)	8.76
WATER LEVEL DEPTH (FEET FROM TOP OF PVC)	3.90
WELL STICK-UP	-0.10'
CASING STICK-UP (FEET)	NA - flush-mount
WELL DIAMETER (INCHES)	2"
WELL CONSTRUCTION (PVC, STEEL, ETC.)	PVC

LOCKED UPON ARRIVAL?	(YES)	NO
LOCKED REPLACED?	YES	(NO)
OBSTRUCTIONS?	YES	(NO)
WELL RELABELED?	YES	(NO)
SLUG TEST CONDUCTED?	YES	(NO) (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: -well difficult to open - infested w/ ants
tone stops (not steady) at 6.25'

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-11R

PROJECT NAME: OFFTA

DATE/TIME: 8/23/09 1135

PROJECT MANAGER: S. Parker

INSPECTED BY: J. Lambert
D. Wieland

VENT WELL

MONITORING INSTRUMENT READING: 0.0

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC)	20.27
WATER LEVEL DEPTH (FEET FROM TOP OF PVC)	~~3.40~~ 3.45
WELL STICK-UP	-0.2'
CASING STICK-UP (FEET)	NA - flush-mount
WELL DIAMETER (INCHES)	2"
WELL CONSTRUCTION (PVC, STEEL, ETC.)	PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: sl. covered by vegetation; no LNAPL on probe silent at 5.87' (soft (hard to feel bottom)

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-102

PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 1205

PROJECT MANAGER: S. Parker

INSPECTED BY: J. Lambert
Dan Wieland

VENT WELL

MONITORING INSTRUMENT READING: 3.4

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC)	11.75
WATER LEVEL DEPTH (FEET FROM TOP OF PVC)	5.46
WELL STICK-UP	-0.2
CASING STICK-UP (FEET)	NA- flush-mount
WELL DIAMETER (INCHES)	2"
WELL CONSTRUCTION (PVC, STEEL, ETC.)	PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: 7.82' = depth when alarm goes off - No LNAPL, DNAPL detected

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-101

PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 1345

PROJECT MANAGER: S. Parker

INSPECTED BY: J Lambert
D. Wieland

VENT WELL

MONITORING INSTRUMENT READING: 0.0

LEL/O2 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC) ~7.81

WATER LEVEL DEPTH (FEET FROM TOP OF PVC) ~4.80 (hard to tell)

WELL STICK-UP -0.3'

CASING STICK-UP (FEET) -0.5' (buried)

WELL DIAMETER (INCHES) 2"

WELL CONSTRUCTION (PVC, STEEL, ETC.) PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: - well buried under 0.5' of mulch + geotextile - tape stopped at 7.12 - soft bottom

Tt NUS Form 0021

TETRA TECH NUS, INC.	WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-6R PROJECT NAME: OFFTA

DATE/TIME: 8/23/04 1305 PROJECT MANAGER: S. PARKER

INSPECTED BY: J. LAMBERT

D. WIELANDT

VENT WELL

MONITORING INSTRUMENT READING: PID 0.0

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC)	25.48
WATER LEVEL DEPTH (FEET FROM TOP OF PVC)	17.12
WELL STICK-UP	0.5
CASING STICK-UP (FEET)	0.3
WELL DIAMETER (INCHES)	2"
WELL CONSTRUCTION (PVC, STEEL, ETC.)	PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: tone starts to disappear 17' fairly hard bottom, casing has heaved above ground level

Tt NUS Form 0021

TETRA TECH NUS, INC.

WELL INSPECTION AND GROUNDWATER LEVEL MEASUREMENT SHEET

WELL NUMBER: MW-65 PROJECT NAME: OFFTA PDI

DATE/TIME: 8/23/07 1130 PROJECT MANAGER: S. Parker

INSPECTED BY: S. Lambert

D. Wieland

VENT WELL

MONITORING INSTRUMENT READING: 0.0

LEL/02 READING: NA

WELL INSPECTION/GROUNDWATER LEVEL MEASUREMENT

WELL DEPTH (FEET FROM TOP OF PVC) ~~7.12~~ 8.72

WATER LEVEL DEPTH (FEET FROM TOP OF PVC) 7.12

WELL STICK-UP -0.15'

CASING STICK-UP (FEET) NA - flush-mount

WELL DIAMETER (INCHES) 2"

WELL CONSTRUCTION (PVC, STEEL, ETC.) PVC

LOCKED UPON ARRIVAL?	YES	NO
LOCKED REPLACED?	YES	NO
OBSTRUCTIONS?	YES	NO
WELL RELABELED?	YES	NO
SLUG TEST CONDUCTED?	YES	NO (If YES, refer to "Hydraulic Conductivity Testing Data Sheet")

GENERAL CONDITION/COMMENTS: No LNAPL, DNAPL tone

Tt NUS Form 0021

Katahdin Analytical Services, Inc
Container Request Form

Client: TT NUS Requested By: ____
QuoteNo.: ____ Job No./P.O. #: C20833 Newport
Requested By: AC Date: 8/18/04 Date Required(AM/PM): 8/20/04

CONTAINERS

QTY	Size	Desc'ption	Analysis	Preservation Lot#	Bottle Lot#
Glass					
25x3=75	40 ml	Vial	VOA	HCl	
5x2=10	40 ml	Vial	VOA Trip Blank	HCl	
24x2=48	~~125 ml~~ 40 ml	~~Amber~~ Vial	GRO	HCl	
2x2=4	~~250 ml~~ 40 ml	~~Amber~~ Vial	GRO Trip Blank	HCl	
	250 ml	Amber w/ Septa			
24x2=48	1 liter	Amber	SVOA / SLMPAHs	—	
24x2=48	~~950~~ 1000 ml	Amber	DRO	HCl	
	950 ml	Glass			
	80 oz	Amber			
	2 oz	Glass w/septa			
	4 oz	Glass			
	8 oz.	Glass			
Plastic					
	125 ml	HDPE			
	250 ml	HDPE			
24	500 ml	HDPE	Metals	HNO_3	
	1 liter	HDPE			
	1 liter	Amber			
	250 ml	Amber			
	250 ml	Poly	Coliform	$Na_2S_2O_2$	
✓			Temperature Blank		
✓			Custody Seals		

Special Notes/Instructions:

Address: Tetra Tech NUS
55 Jonspin Rd
Wilmington, MA 01887
Attn: Jenny Lambert
ph 978/658-7899

Cooler Nos.: ____
Computer labels: (y/n) N Pres. Dots: (y/n) Y
No. of Coolers: as many Chain of Custody: 5
Method of Shipment: UPS
Order Completed by: ____ On: ____

APPENDIX D

ANALYTICAL RESULTS

APPENDIX D1

GROUNDWATER DATA (2004)

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-S	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-02-S
SAMPLE NUMBER	OFF-A-MW1R-01	OFF-GW-MW1R	OFF-GW-MW1R-03	OFF-MW-1S	OFF-MW-2D	OFF-MW-2DF	OFF-A-MW2D-01	OFF-GW-MW2D	OFF-GW-MW2D-03	OFF-MW-2S	OFF-MW-2SF	OFF-A-MW2S-01
SAMPLE DATE	07/08/97	08/20/02	08/26/04	01/06/94	01/05/94	01/05/94	07/09/97	08/19/02	08/25/04	01/05/94	01/05/94	07/09/97
QC IDENTIFIER												
DUPLICATE												
METALS (UG/L)												
ALUMINUM	665 J	69 B	18.3 UJ	2820 J	6210	NA	396 U	94 B	18.3 UJ	248	NA	101 U
ANTIMONY	2.1 U	3 U	4 UJ	27 U	27 U	NA	2.8 U	3 U	2.34 U	37.5 B	NA	2.1 U
ARSENIC	1.8 U	3 U	3.03 U	3.5 B	5 B	NA	1.8 U	3 U	3.03 U	2 UJ	NA	1.8 U
BARIUM	13.9	12 B	3.3	62.8 B	60.8 B	NA	10.9	11 B	4.6	194 B	NA	183
BERYLLIUM	0.14 U	2 U	0.35 UJ	1 B	1.2 B	NA	0.14 U	2 U	0.25 U	1 U	NA	0.14 UJ
CADMIUM	0.19 U	2 U	0.3 U	0.4 UJ	0.8 J	NA	0.19 U	2 U	0.3 U	13.2 J	NA	2.4 J
CALCIUM	92500 J	24500	30000	65400 J	124000	NA	63700 J	43900	61000	131000 J	NA	281000 J
CHROMIUM	33.2	3 U	0.8 U	9.1 B	17.3	NA	7.3	3 U	0.8 U	3 U	NA	3.6 J
COBALT	33.8	27 B	4.4	52	14.6 B	NA	3.6 U	6 B	5.6	2 U	NA	14.3 J
COPPER	1.4 U	2 U	3 U	11.4 B	69.7	NA	2.9 U	2 U	2 U	106	NA	139 J
CYANIDE	NA	NA	NA	10 U	10 U	NA	NA	NA	NA	10 U	NA	NA
IRON	1260 J	134 B	18.5 UJ	9670 J	16400	NA	1570 J	424	460	4380 J	NA	1580 J
LEAD	1.6 J	1 U	1.7 UJ	14.7 J	135	NA	5 J	2 B	1.7 UJ	110	NA	19.4 J
MAGNESIUM	22000 J	4000	4490	9590 J	88300	NA	70600 J	42900	58600	298000 J	NA	718000 J
MANGANESE	1580 J	189	26.9 J	2600 J	7230	NA	6390 J	4290	6250 J	291 J	NA	396 J
MERCURY	0.01 UJ	0 U	0.01 U	0.1 U	0.1 U	NA	0.01 UJ	0 U	0.01 U	0.2	NA	0.02 J
NICKEL	61.2 U	9 B	2.6	69.8 U	22.5 U	NA	8.8 U	6 B	4.7	23.9 B	NA	25 U
POTASSIUM	7980 J	5350	2780	3980 B	57400	NA	39200 J	36800	32900	130000	NA	258000 J
SELENIUM	2.9 U	8 U	3.71 U	2 U	2 UJ	NA	2.9 U	8 U	3.71 U	20 UJ	NA	2.9 UJ
SILVER	0.82 U	2 U	0.7 U	0.4 U	0.4 U	NA	0.82 U	2 U	0.7 U	1.9 J	NA	5.1 U
SODIUM	127000 J	19300	21400	65500 J	740000	NA	429000 J	296000	330000	2410000	NA	5960000 J
THALLIUM	3.9 UJ	4 U	4.09 U	20 R	20 R	NA	3.9 UJ	4 U	4.7 UJ	20 R	NA	4.1 U
VANADIUM	0.57 U	3 U	0.75 U	7.1 J	46.9 U	NA	0.57 U	3 U	0.75 U	67.3 U	NA	0.57 U
ZINC	52 U	17 B	17	106	122 J	NA	13.7 U	15 B	3.2 U	1560 J	NA	1570
DISSOLVED METALS (UG/L)												
ALUMINUM	NA	NA	NA	NA	NA	41 B	NA	NA	NA	NA	15 U	NA
ANTIMONY	NA	NA	NA	NA	NA	27 U	NA	NA	NA	NA	55.1 B	NA
ARSENIC	NA	NA	NA	NA	NA	2 U	NA	NA	NA	NA	2 UJ	NA
BARIUM	NA	NA	NA	NA	NA	44.9 B	NA	NA	NA	NA	188 B	NA
BERYLLIUM	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	1 U	NA
CADMIUM	NA	NA	NA	NA	NA	0.4 UJ	NA	NA	NA	NA	0.6 J	NA
CALCIUM	NA	NA	NA	NA	NA	143000	NA	NA	NA	NA	130000 J	NA
CHROMIUM	NA	NA	NA	NA	NA	3 U	NA	NA	NA	NA	3 U	NA
COBALT	NA	NA	NA	NA	NA	2 U	NA	NA	NA	NA	2 U	NA
COPPER	NA	NA	NA	NA	NA	2 U	NA	NA	NA	NA	3.2 B	NA
IRON	NA	NA	NA	NA	NA	6 U	NA	NA	NA	NA	274 J	NA
LEAD	NA	NA	NA	NA	NA	2 U	NA	NA	NA	NA	2 U	NA
MAGNESIUM	NA	NA	NA	NA	NA	111000	NA	NA	NA	NA	299000 J	NA
MANGANESE	NA	NA	NA	NA	NA	8170	NA	NA	NA	NA	269 J	NA
MERCURY	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA	0.1 U	NA
NICKEL	NA	NA	NA	NA	NA	9 U	NA	NA	NA	NA	9 U	NA
POTASSIUM	NA	NA	NA	NA	NA	697000	NA	NA	NA	NA	128000	NA
SELENIUM	NA	NA	NA	NA	NA	2 UJ	NA	NA	NA	NA	2 UJ	NA
SILVER	NA	NA	NA	NA	NA	0.4 U	NA	NA	NA	NA	0.4 UJ	NA
SODIUM	NA	NA	NA	NA	NA	910000	NA	NA	NA	NA	2000000	NA
THALLIUM	NA	NA	NA	NA	NA	20 R	NA	NA	NA	NA	20 R	NA
VANADIUM	NA	NA	NA	NA	NA	4 U	NA	NA	NA	NA	4 U	NA
ZINC	NA	NA	NA	NA	NA	3 UJ	NA	NA	NA	NA	3 U	NA
MISCELLANEOUS PARAMETERS (MG/L)												
CHEMICAL OXYGEN DEMAND	NA	NA	NA	NA	48.7	NA	NA	NA	NA	444	NA	NA
CHLORIDE	NA	NA	NA	0.0798	1.65	NA	NA	NA	NA	4.74	NA	NA
TOTAL SUSPENDED SOLIDS	NA	NA	NA	NA	264	NA	NA	NA	NA	10	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)												

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-S	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-02-S
SAMPLE NUMBER	OFF-A-MW1R-01	OFF-GW-MW1R	OFF-GW-MW1R-03	OFF-MW-1S	OFF-MW-2D	OFF-MW-2DF	OFF-A-MW2D-01	OFF-GW-MW2D	OFF-GW-MW2D-03	OFF-MW-2S	OFF-MW-2SF	OFF-A-MW2S-01
SAMPLE DATE	07/08/97	08/20/02	08/26/04	01/06/94	01/05/94	01/05/94	07/09/97	08/19/02	08/25/04	01/05/94	01/05/94	07/09/97
QC IDENTIFIER												
DUPLICATE												
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)												
1,1-BIPHENYL	NA	10 U	10 U	NA	NA	NA	NA	10 U	10 UJ	NA	NA	NA
1,2,4-TRICHLOROBENZENE	10 U	NA	NA	10 U	11 U	NA	10 U	NA	NA	10 U	NA	10 U
1,2-DICHLOROBENZENE	10 U	NA	NA	10 U	11 U	NA	10 U	NA	NA	10 U	NA	10 U
1,3-DICHLOROBENZENE	10 U	NA	NA	10 U	11 U	NA	10 U	NA	NA	10 U	NA	10 U
1,4-DICHLOROBENZENE	10 U	NA	NA	10 U	11 U	NA	10 U	NA	NA	10 U	NA	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
2,4,5-TRICHLOROPHENOL	25 U	50 U	25 U	26 U	26 U	NA	25 U	50 U	0 R	26 U	NA	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
2,4-DINITROPHENOL	25 U	50 U	25 U	26 U	26 U	NA	25 U	50 U	0 R	26 U	NA	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
2-METHYLNAPHTHALENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	10 U	NA	10 U
2-METHYLPHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
2-NITROANILINE	25 U	50 U	25 U	26 U	26 U	NA	25 U	50 U	25 UJ	26 U	NA	25 U
2-NITROPHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
3-NITROANILINE	25 U	50 U	25 U	26 U	26 U	NA	25 U	50 U	25 UJ	26 U	NA	25 U
4,6-DINITRO-2-METHYLPHENOL	25 U	50 U	25 U	26 U	26 U	NA	25 U	50 U	0 R	26 U	NA	25 U
4-BROMOPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
4-CHLOROANILINE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
4-METHYLPHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
4-NITROANILINE	25 U	50 U	25 U	26 U	26 U	NA	25 U	50 U	25 UJ	26 U	NA	25 U
4-NITROPHENOL	25 U	50 U	25 U	26 U	26 U	NA	25 U	50 U	0 R	26 U	NA	25 U
ACENAPHTHENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	5 J	NA	10 U
ACENAPHTHYLENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	10 U	NA	10 U
ACETOPHENONE	NA	10 U	10 U	NA	NA	NA	NA	10 U	10 UJ	NA	NA	NA
ANTHRACENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	3 J	NA	10 U
ATRAZINE	NA	10 U	10 U	NA	NA	NA	NA	10 U	10 UJ	NA	NA	NA
BENZALDEHYDE	NA	10 U	10 UJ	NA	NA	NA	NA	10 U	10 UJ	NA	NA	NA
BENZO(A)ANTHRACENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	0.7 J	NA	10 U
BENZO(A)PYRENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	1 J	NA	10 U
BENZO(B)FLUORANTHENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	0.7 J	NA	10 U
BENZO(G,H,I)PERYLENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	0.8 J	NA	10 U
BENZO(K)FLUORANTHENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	0.8 J	NA	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	34 U	10 U	10 U	6 J	11 U	NA	10 U	10 U	10 UJ	110	NA	10 U
BUTYL BENZYL PHTHALATE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
CAPROLACTAM	NA	10 U	10 U	NA	NA	NA	NA	10 U	10 UJ	NA	NA	NA
CARBAZOLE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
CHRYSENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	1 J	NA	10 U
DIBENZO(A,H)ANTHRACENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	10 U	NA	10 U
DIBENZOFURAN	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
DIETHYL PHTHALATE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
DIMETHYL PHTHALATE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
DI-N-BUTYL PHTHALATE	10 U	10 U	10 U	2 J	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
DI-N-OCTYL PHTHALATE	10 UJ	10 U	10 U	10 U	11 U	NA	10 UJ	10 U	10 UJ	10 U	NA	10 UJ

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-S	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-02-S
SAMPLE NUMBER	OFF-A-MW1R-01	OFF-GW-MW1R	OFF-GW-MW1R-03	OFF-MW-1S	OFF-MW-2D	OFF-MW-2DF	OFF-A-MW2D-01	OFF-GW-MW2D	OFF-GW-MW2D-03	OFF-MW-2S	OFF-MW-2SF	OFF-A-MW2S-01
SAMPLE DATE	07/08/97	08/20/02	08/26/04	01/06/94	01/05/94	01/05/94	07/09/97	08/19/02	08/25/04	01/05/94	01/05/94	07/09/97
QC IDENTIFIER												
DUPLICATE												
FLUORANTHENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	2 J	NA	10 U
FLUORENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	10 U	NA	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
HEXACHLOROETHANE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
INDENO(1,2,3-CD)PYRENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	0.7 J	NA	10 U
ISOPHORONE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
NAPHTHALENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	10 U	NA	10 U
NITROBENZENE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	10 UJ	10 U	NA	10 U
PENTACHLOROPHENOL	25 U	50 U	25 U	26 U	26 U	NA	25 U	50 U	0 R	26 U	NA	25 U
PHENANTHRENE	10 U	10 U	0.2 U	10 U	11 U	NA	10 U	10 U	0.2 U	10 U	NA	10 U
PHENOL	10 U	10 U	10 U	10 U	11 U	NA	10 U	10 U	0 R	10 U	NA	10 U
PYRENE	10 UJ	10 U	0.2 U	10 U	11 U	NA	10 UJ	10 U	0.2 U	6 J	NA	10 UJ
VOLATILES (UG/L)												
1,1,1-TRICHLOROETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
1,1,2-TRICHLOROETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
1,1-DICHLOROETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
1,1-DICHLOROETHENE	10 U	5 U	5 U	10 U	10 U	NA	10 UJ	5 U	5 U	10 U	NA	10 UJ
1,2,4-TRICHLOROBENZENE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
1,2-DIBROMOETHANE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
1,2-DICHLOROBENZENE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
1,2-DICHLOROETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
1,2-DICHLOROPROPANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
1,3-DICHLOROBENZENE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
1,4-DICHLOROBENZENE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
2-BUTANONE	10 UJ	5 U	5 U	10 U	10 U	NA	10 UJ	5 U	5 U	10 U	NA	10 UJ
2-HEXANONE	10 UJ	5 U	5 U	10 U	10 U	NA	10 UJ	5 U	5 U	10 U	NA	10 UJ
4-METHYL-2-PENTANONE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
ACETONE	13 U	5 U	5 U	10 U	14 U	NA	10 U	5 U	5 U	10 U	NA	21 U
BENZENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
BROMODICHLOROMETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
BROMOFORM	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
BROMOMETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
CARBON DISULFIDE	10 UJ	5 U	5 U	10 U	1 J	NA	10 UJ	5 U	5 U	10 U	NA	10 UJ
CARBON TETRACHLORIDE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
CHLOROBENZENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
CHLORODIBROMOMETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
CHLOROETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
CHLOROFORM	10 U	39	16	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
CHLOROMETHANE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
CIS-1,2-DICHLOROETHENE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
CYCLOHEXANE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
DICHLORODIFLUOROMETHANE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
ETHYLBENZENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
ISOPROPYLBENZENE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
M+P-XYLENES	NA	NA	5 U	NA	NA	NA	NA	NA	5 U	NA	NA	NA
METHYL ACETATE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
METHYL CYCLOHEXANE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-R	OFF-MW-01-S	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-D	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-02-S
SAMPLE NUMBER	OFF-A-MW1R-01	OFF-GW-MW1R	OFF-GW-MW1R-03	OFF-MW-1S	OFF-MW-2D	OFF-MW-2DF	OFF-A-MW2D-01	OFF-GW-MW2D	OFF-GW-MW2D-03	OFF-MW-2S	OFF-MW-2SF	OFF-A-MW2S-01
SAMPLE DATE	07/08/97	08/20/02	08/26/04	01/06/94	01/05/94	01/05/94	07/09/97	08/19/02	08/25/04	01/05/94	01/05/94	07/09/97
QC IDENTIFIER												
DUPLICATE												
METHYL TERT-BUTYL ETHER	NA	5 U	5 UJ	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
METHYLENE CHLORIDE	10 UJ	5 U	5 U	10 U	10 U	NA	10 UJ	5 U	5 U	10 U	NA	10 UJ
O-XYLENE	NA	NA	5 U	NA	NA	NA	NA	NA	5 U	NA	NA	NA
STYRENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
TETRACHLOROETHENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
TOLUENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
TOTAL 1,2-DICHLOROETHENE	10 U	NA	10 U	10 U	10 U	NA	10 U	NA	10 U	10 U	NA	10 U
TOTAL XYLENES	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
TRANS-1,2-DICHLOROETHENE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
TRICHLOROETHENE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
TRICHLOROFLUOROMETHANE	NA	5 U	5 U	NA	NA	NA	NA	5 U	5 U	NA	NA	NA
VINYL CHLORIDE	10 U	5 U	5 U	10 U	10 U	NA	10 U	5 U	5 U	10 U	NA	10 U
PESTICIDES/PCBS (UG/L)												
4,4'-DDD	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
4,4'-DDE	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
4,4'-DDT	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
ALDRIN	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
ALPHA-BHC	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
ALPHA-CHLORDANE	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
AROCLOR-1016	1 U	NA	NA	1 R	1 UJ	NA	1 U	NA	NA	1.2 UJ	NA	1 U
AROCLOR-1221	2 U	NA	NA	2 R	2 UJ	NA	2 U	NA	NA	2.3 UJ	NA	2 U
AROCLOR-1232	1 U	NA	NA	1 R	1 UJ	NA	1 U	NA	NA	1.2 UJ	NA	1 U
AROCLOR-1242	1 U	NA	NA	1 R	1 UJ	NA	1 U	NA	NA	1.2 UJ	NA	1 U
AROCLOR-1248	1 U	NA	NA	1 R	1 UJ	NA	1 U	NA	NA	1.2 UJ	NA	1 U
AROCLOR-1254	1 U	NA	NA	1 R	1 UJ	NA	1 U	NA	NA	1.2 UJ	NA	1 U
AROCLOR-1260	1 U	NA	NA	1 R	1 UJ	NA	1 U	NA	NA	1.2 UJ	NA	1 U
BETA-BHC	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
DELTA-BHC	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
DIELDRIN	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
ENDOSULFAN I	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
ENDOSULFAN II	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
ENDOSULFAN SULFATE	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
ENDRIN	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
ENDRIN ALDEHYDE	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
ENDRIN KETONE	0.1 U	NA	NA	0.1 R	0.1 UJ	NA	0.1 U	NA	NA	0.12 UJ	NA	0.1 U
GAMMA-BHC (LINDANE)	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
GAMMA-CHLORDANE	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
HEPTACHLOR	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
HEPTACHLOR EPOXIDE	0.051 U	NA	NA	0.05 R	0.05 UJ	NA	0.05 U	NA	NA	0.058 UJ	NA	0.051 U
METHOXYCHLOR	0.51 U	NA	NA	0.5 R	0.5 UJ	NA	0.5 U	NA	NA	0.58 UJ	NA	0.51 U
TOXAPHENE	5.1 U	NA	NA	5 R	5 UJ	NA	5 U	NA	NA	5.8 UJ	NA	5.1 U
PETROLEUM HYDROCARBONS (MG/L)												
TOTAL PETROLEUM HYDROCARBONS	1 UJ	NA	NA	NA	NA	NA	1 UJ	NA	NA	NA	NA	1 UJ
PETROLEUM HYDROCARBONS (UG/L)												
DIESEL RANGE ORGANICS	NA	NA	120 U	NA	NA	NA	NA	NA	1000 J	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	10 U	NA	NA	NA	NA	NA	8 J	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S
SAMPLE NUMBER	OFF-GW-MW2S	OFF-GW-MW2S-03	OFF-MW-3S	OFF-A-MW3S-01	OFF-GW-MW3S	OFF-GW-MW3S-03	OFF-MW-4S	OFF-MW-4SF	OFF-A-MW4S-01	OFF-A-MW4S-01-D	OFF-GW-MW4S
SAMPLE DATE	08/19/02	08/25/04	01/04/94	07/10/97	08/16/02	08/24/04	01/04/94	01/04/94	07/10/97	07/10/97	08/16/02
QC IDENTIFIER									ORIG	DUP	
DUPLICATE										OFF-A-MW4S-01	
METALS (UG/L)											
ALUMINUM	12 U	18.3 UJ	6010	13000 J	60 B	18.3 UJ	28800	NA	923 J	1060 J	24 B
ANTIMONY	3 U	4.5 UJ	27 U	2.1 U	3 U	2.6 UJ	27 U	NA	2.1 U	2.1 U	3 U
ARSENIC	3 U	3.03 U	9.6 J	49.8	4 B	3.03 U	27.8 J	NA	6.9 U	6.4 U	5 B
BARIUM	148 B	199	67 B	93.2	30 B	18.2	53.2 B	NA	8.2	8	12 B
BERYLLIUM	2 U	0.25 U	1.4 B	0.14 U	2 U	0.25 U	1.4 B	NA	0.14 U	0.14 U	2 U
CADMIUM	3 B	0 R	2 J	3.4 J	2 U	0.3 U	0.9 J	NA	0.19 U	0.19 U	2 U
CALCIUM	247000	330000	85100 J	46300 J	27100	50600	48900 J	NA	18500 J	18800 J	12000
CHROMIUM	3 U	0.8 U	14.6	37.8	3 U	0.8 U	57.9	NA	5	5.6	3 U
COBALT	3 U	1.2 J	9.1 B	22.4	3 U	0.64 U	76.2	NA	16.1	15.6	8 B
COPPER	47	101 J	50.5	166 J	2 U	4.7 U	48.4	NA	3.2 U	3.4 U	2 U
CYANIDE	NA	NA	10 U	NA	NA	NA	10 U	NA	NA	NA	NA
IRON	169 B	500	28800 J	129000 J	10900	5510	74600 J	NA	6490 J	7010 J	622
LEAD	15	38.6	97	207 J	1 B	1.7 UJ	32	NA	2.2 J	2.8 J	1 U
MAGNESIUM	589000	942000	67800 J	46400 J	26400	23000	54200 J	NA	17600 J	18000 J	9930
MANGANESE	121	203 J	1380 J	3560 J	3180	1990 J	28000 J	NA	12500 J	12500 J	5430
MERCURY	0 U	0.06	0.12 B	0.24	0 U	0.01 U	0.1 U	NA	0.01 UJ	0.01 UJ	0 U
NICKEL	18 B	32.6	21.5 B	33.6 U	1 B	1.6 J	54.9	NA	4.8 U	5 U	2 B
POTASSIUM	429000	323000	27800	19400 J	15500	12700	14400	NA	8680 J	9070 J	7090
SELENIUM	8 U	3.71 U	2 UJ	2.9 U	8 U	3.71 U	2 UJ	NA	2.9 U	2.9 U	8 U
SILVER	2 U	0.7 U	0.7 J	1.2 U	2 U	0.7 U	0.9 J	NA	6.5 U	0.82 U	2 U
SODIUM	6050000	7480000	517000	443000 J	327000	219000	236000	NA	133000 J	135000 J	77400
THALLIUM	4 U	5.3 UJ	20 R	4.2 U	4 U	4.09 U	20 R	NA	4.5 U	6.6 U	4 U
VANADIUM	3 U	0.75 UJ	29.5 U	37.5	3 U	0.75 U	39.6 U	NA	0.91 J	1.6	3 U
ZINC	1090	2290	346 J	715	8 U	3.7 U	156 J	NA	10.4 U	8 U	8 U
DISSOLVED METALS (UG/L)											
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	58 B	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	27 U	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	3.8 J	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	15.1 B	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	0.4 UJ	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	45600 J	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	3.2 B	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	33.6 B	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	3.8 B	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	2530 J	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	2 UJ	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	42700 J	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	25700 J	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	17.9 B	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	13700	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	2 UJ	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	0.4 U	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	230000	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	20 R	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	4 U	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	3 U	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)											
CHEMICAL OXYGEN DEMAND	NA	NA	NA	NA	NA	NA	57.2	NA	NA	NA	NA
CHLORIDE	NA	NA	1.08	NA	NA	NA	0.618	NA	NA	NA	NA
TOTAL SUSPENDED SOLIDS	NA	NA	NA	NA	NA	NA	670	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)											

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S
SAMPLE NUMBER	OFF-GW-MW2S	OFF-GW-MW2S-03	OFF-MW-3S	OFF-A-MW3S-01	OFF-GW-MW3S	OFF-GW-MW3S-03	OFF-MW-4S	OFF-MW-4SF	OFF-A-MW4S-01	OFF-A-MW4S-01-D	OFF-GW-MW4S
SAMPLE DATE	08/19/02	08/25/04	01/04/94	07/10/97	08/16/02	08/24/04	01/04/94	01/04/94	07/10/97	07/10/97	08/16/02
QC IDENTIFIER									ORIG	DUP	
DUPLICATE										OFF-A-MW4S-01	
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)											
1,1-BIPHENYL	10 U	10 UJ	NA	NA	10 U	10 U	NA	NA	NA	NA	10 U
1,2,4-TRICHLOROBENZENE	NA	NA	11 U	10 U	NA	NA	10 U	NA	10 U	10 U	NA
1,2-DICHLOROBENZENE	NA	NA	11 U	10 U	NA	NA	10 U	NA	10 U	10 U	NA
1,3-DICHLOROBENZENE	NA	NA	11 U	10 U	NA	NA	10 U	NA	10 U	10 U	NA
1,4-DICHLOROBENZENE	NA	NA	11 U	10 U	NA	NA	10 U	NA	10 U	10 U	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	50 U	25 UJ	26 U	25 U	50 U	25 U	26 U	NA	25 U	25 U	50 U
2,4,6-TRICHLOROPHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2,4-DINITROPHENOL	50 U	25 UJ	26 U	25 U	50 U	25 U	26 U	NA	25 UJ	25 UJ	50 U
2,4-DINITROTOLUENE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
2-METHYLPHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
2-NITROANILINE	50 U	25 UJ	26 U	25 U	50 U	25 U	26 U	NA	25 U	25 U	50 U
2-NITROPHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
3-NITROANILINE	50 U	25 UJ	26 U	25 U	50 U	25 U	26 U	NA	25 U	25 U	50 U
4,6-DINITRO-2-METHYLPHENOL	50 U	25 UJ	26 U	25 U	50 U	25 U	26 U	NA	25 UJ	25 UJ	50 U
4-BROMOPHENYL PHENYL ETHER	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
4-CHLOROPHENYL PHENYL ETHER	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
4-NITROANILINE	50 U	25 UJ	26 U	25 U	50 U	25 U	26 U	NA	25 UJ	25 UJ	50 U
4-NITROPHENOL	50 U	25 UJ	26 U	25 U	50 U	25 U	26 U	NA	25 UJ	25 UJ	50 U
ACENAPHTHENE	10 U	0.2 U	1 J	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
ACENAPHTHYLENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
ACETOPHENONE	10 U	10 UJ	NA	NA	10 U	10 U	NA	NA	NA	NA	10 U
ANTHRACENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
ATRAZINE	10 U	10 UJ	NA	NA	10 U	10 U	NA	NA	NA	NA	10 U
BENZALDEHYDE	10 U	10 UJ	NA	NA	10 U	10 UJ	NA	NA	NA	NA	10 U
BENZO(A)ANTHRACENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
BENZO(A)PYRENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
BUTYL BENZYL PHTHALATE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
CAPROLACTAM	10 U	10 UJ	NA	NA	10 U	10 U	NA	NA	NA	NA	10 U
CARBAZOLE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
CHRYSENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	0.2 U	11 U	10 U	10 U	0.2 UJ	10 U	NA	10 U	10 U	10 U
DIBENZOFURAN	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
DIETHYL PHTHALATE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 UJ	10 UJ	10 U
DIMETHYL PHTHALATE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
DI-N-BUTYL PHTHALATE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	10 U	10 UJ	11 U	10 UJ	10 U	10 U	10 U	NA	10 U	10 U	10 U

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S
SAMPLE NUMBER	OFF-GW-MW2S	OFF-GW-MW2S-03	OFF-MW-3S	OFF-A-MW3S-01	OFF-GW-MW3S	OFF-GW-MW3S-03	OFF-MW-4S	OFF-MW-4SF	OFF-A-MW4S-01	OFF-A-MW4S-01-D	OFF-GW-MW4S
SAMPLE DATE	08/19/02	08/25/04	01/04/94	07/10/97	08/16/02	08/24/04	01/04/94	01/04/94	07/10/97	07/10/97	08/16/02
QC IDENTIFIER									ORIG	DUP	
DUPLICATE										OFF-A-MW4S-01	
FLUORANTHENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 UJ	10 UJ	10 U
FLUORENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 UJ	11 U	10 U	10 U	10 UJ	10 U	NA	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	0.2 U	11 U	10 U	10 U	0.2 UJ	10 U	NA	10 U	10 U	10 U
ISOPHORONE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
NAPHTHALENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
NITROBENZENE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
PENTACHLOROPHENOL	50 U	25 UJ	26 U	25 U	50 U	25 U	26 U	NA	25 U	25 U	50 U
PHENANTHRENE	10 U	0.2 U	11 U	10 U	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
PHENOL	10 U	10 UJ	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U
PYRENE	10 U	0.2 U	11 U	10 UJ	10 U	0.2 U	10 U	NA	10 U	10 U	10 U
VOLATILES (UG/L)											
1,1,1-TRICHLOROETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
1,1,2,2-TETRACHLOROETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
1,1,2-TRICHLOROETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
1,1-DICHLOROETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
1,1-DICHLOROETHENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
1,2,4-TRICHLOROBENZENE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
1,2-DIBROMO-3-CHLOROPROPANE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
1,2-DIBROMOETHANE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
1,2-DICHLOROBENZENE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
1,2-DICHLOROETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
1,2-DICHLOROPROPANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
1,3-DICHLOROBENZENE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
1,4-DICHLOROBENZENE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
2-BUTANONE	5 U	5 U	10 UJ	10 UJ	5 U	5 U	10 UJ	NA	10 UJ	10 UJ	5 U
2-HEXANONE	5 U	5 U	10 UJ	10 UJ	5 U	5 U	10 UJ	NA	10 UJ	10 UJ	5 U
4-METHYL-2-PENTANONE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
ACETONE	5 U	7 U	10 UJ	10 UJ	5 U	5 U	10 UJ	NA	10 U	10 UJ	5 U
BENZENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
BROMODICHLOROMETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
BROMOFORM	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
BROMOMETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
CARBON DISULFIDE	5 U	5 U	10 UJ	10 UJ	5 U	5 U	10 UJ	NA	10 U	10 UJ	5 U
CARBON TETRACHLORIDE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
CHLOROBENZENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
CHLORODIBROMOMETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
CHLOROETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
CHLOROFORM	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
CHLOROMETHANE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
CIS-1,2-DICHLOROETHENE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
CIS-1,3-DICHLOROPROPENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
CYCLOHEXANE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
DICHLORODIFLUOROMETHANE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
ETHYLBENZENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
ISOPROPYLBENZENE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
M+P-XYLENES	NA	5 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA
METHYL ACETATE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
METHYL CYCLOHEXANE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-02-S	OFF-MW-02-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-03-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-04-S
SAMPLE NUMBER	OFF-GW-MW2S	OFF-GW-MW2S-03	OFF-MW-3S	OFF-A-MW3S-01	OFF-GW-MW3S	OFF-GW-MW3S-03	OFF-MW-4S	OFF-MW-4SF	OFF-A-MW4S-01	OFF-A-MW4S-01-D	OFF-GW-MW4S
SAMPLE DATE	08/19/02	08/25/04	01/04/94	07/10/97	08/16/02	08/24/04	01/04/94	01/04/94	07/10/97	07/10/97	08/16/02
QC IDENTIFIER									ORIG	DUP	
DUPLICATE										OFF-A-MW4S-01	
METHYL TERT-BUTYL ETHER	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
METHYLENE CHLORIDE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 U	NA	10 U	10 U	5 U
O-XYLENE	NA	5 U	NA	NA	NA	5 U	NA	NA	NA	NA	NA
STYRENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
TETRACHLOROETHENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
TOLUENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
TOTAL 1,2-DICHLOROETHENE	NA	10 U	10 UJ	10 U	NA	10 U	10 UJ	NA	10 U	10 U	NA
TOTAL XYLENES	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
TRANS-1,2-DICHLOROETHENE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
TRANS-1,3-DICHLOROPROPENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
TRICHLOROETHENE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
TRICHLOROFLUOROMETHANE	5 U	5 U	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
VINYL CHLORIDE	5 U	5 U	10 UJ	10 U	5 U	5 U	10 UJ	NA	10 U	10 U	5 U
PESTICIDES/PCBS (UG/L)											
4,4'-DDD	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
4,4'-DDE	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
4,4'-DDT	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
ALDRIN	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
ALPHA-BHC	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
ALPHA-CHLORDANE	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
AROCLOR-1016	NA	NA	1 UJ	1 U	NA	NA	1.1 UJ	NA	1 U	1 U	NA
AROCLOR-1221	NA	NA	2 UJ	2 U	NA	NA	2.2 UJ	NA	2 U	2 U	NA
AROCLOR-1232	NA	NA	1 UJ	1 U	NA	NA	1.1 UJ	NA	1 U	1 U	NA
AROCLOR-1242	NA	NA	1 UJ	1 U	NA	NA	1.1 UJ	NA	1 U	1 U	NA
AROCLOR-1248	NA	NA	1 UJ	1 U	NA	NA	1.1 UJ	NA	1 U	1 U	NA
AROCLOR-1254	NA	NA	1 UJ	1 U	NA	NA	1.1 UJ	NA	1 U	1 U	NA
AROCLOR-1260	NA	NA	1 UJ	1 U	NA	NA	1.1 UJ	NA	1 U	1 U	NA
BETA-BHC	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
DELTA-BHC	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
DIELDRIN	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
ENDOSULFAN I	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
ENDOSULFAN II	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
ENDOSULFAN SULFATE	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
ENDRIN	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
ENDRIN ALDEHYDE	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
ENDRIN KETONE	NA	NA	0.1 UJ	0.1 U	NA	NA	0.11 UJ	NA	0.1 U	0.1 U	NA
GAMMA-BHC (LINDANE)	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
GAMMA-CHLORDANE	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
HEPTACHLOR	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
HEPTACHLOR EPOXIDE	NA	NA	0.05 UJ	0.051 U	NA	NA	0.054 UJ	NA	0.051 U	0.05 U	NA
METHOXYCHLOR	NA	NA	0.5 UJ	0.51 U	NA	NA	0.54 UJ	NA	0.51 U	0.5 U	NA
TOXAPHENE	NA	NA	5 UJ	5.1 U	NA	NA	5.4 UJ	NA	5.1 U	5 U	NA
PETROLEUM HYDROCARBONS (MG/L)											
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	1 UJ	NA	NA	NA	NA	1 UJ	1 UJ	NA
PETROLEUM HYDROCARBONS (UG/L)											
DIESEL RANGE ORGANICS	NA	480 J	NA	NA	NA	250	NA	NA	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	10 U	NA	NA	NA	10 U	NA	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R
SAMPLE NUMBER	OFF-GW-MW4SL	OFF-GW-MW4S-03	OFF-MW-5S	OFF-A-MW5S-01	OFF-GW-MW5S	OFF-GW-MW5S-03	OFF-MW-6R	OFF-A-MW6R-01	OFF-A-MW6R-01-F	OFF-GW-MW6R	OFF-GW-MW6R-03
SAMPLE DATE	08/16/02	08/25/04	01/06/94	07/10/97	08/21/02	08/24/04	01/06/94	07/11/97	07/11/97	08/21/02	08/24/04
QC IDENTIFIER											
DUPLICATE											
METALS (UG/L)											
ALUMINUM	61 B	18.3 UJ	28300 J	1300 J	283	18.3 UJ	82500 J	958 J	NA	55 B	18.3 UJ
ANTIMONY	15 U	2.8 UJ	27	2.1 U	3 U	6.3 U	27 U	2.1 U	NA	3 U	2.34 U
ARSENIC	15 U	3.03 U	7.3 J	1.8 U	3 U	3.03 U	16.5	1.8 U	NA	3 U	3.03 U
BARIUM	15 U	13.3	86.2 B	12.2	18 B	10.3	144 B	16.1	NA	9 B	4.1
BERYLLIUM	10 U	0.35 UJ	1.4 B	0.14 U	2 U	0.25 U	2.6 B	0.14 U	NA	2 U	0.38 UJ
CADMIUM	10 U	0.3 U	0.5 J	0.19 U	2 U	0.3 U	0.7 J	0.29 U	NA	3 B	0.3 U
CALCIUM	11845	43900	84300 J	76800 J	81800	92400	13400 J	30200 J	NA	6860	7990
CHROMIUM	15 U	1.1 J	51.3	15.6	3 U	1.2 J	113	12.1	NA	3 U	0.8 U
COBALT	15 U	30.8	46.2 B	1.4 U	3 U	1.5	111	5 J	NA	3 U	0.64 U
COPPER	10 U	2.1 U	57.2	3.4 U	2 U	3.6 U	120	5.5 U	NA	2 U	3.4 U
CYANIDE	NA	NA	10 U	NA	NA	NA	10 U	NA	NA	NA	NA
IRON	630 B	2920	81400 J	3180 J	1220	14.1 UJ	206000 J	2580 J	NA	101 B	10.7 U
LEAD	5 U	2 J	30.6 J	1.4 UJ	1 U	1.7 UJ	59 J	1.4 UJ	NA	1 U	1.7 UJ
MAGNESIUM	9980	33400	32300 J	20500 J	20600	21900	28400 J	24100 J	NA	6050	6840
MANGANESE	5703	24400 J	4420 J	578 J	513	473 J	2950 J	216 J	NA	19 B	6.6 J
MERCURY	NA	0.01 U	0.1 U	0.01 UJ	0 U	0.01 U	0.1 U	0.01 UJ	NA	0 U	0.01 U
NICKEL	3 U	6.2	95	15.2 U	5 B	5.8	170	24.1 U	NA	7 B	3.9
POTASSIUM	7432	12100	7710	5570 J	7890	7360	8290	6740 J	NA	4780	4690
SELENIUM	40 U	3.71 U	2 UJ	2.9 U	8 U	6.4 UJ	2 UJ	2.9 U	NA	8 U	4.3 UJ
SILVER	10 U	0.82 J	0.4 U	0.82 U	2 U	1.5	0.6 B	0.82 U	NA	2 U	0.7 U
SODIUM	82839	182000	49400 J	46500 J	38600	38100	49000 J	129000 J	NA	53000	60600
THALLIUM	20 U	8.7 UJ	20 R	3.9 UJ	4 U	4.6 UJ	20 R	3.9 UJ	NA	4 U	4.09 U
VANADIUM	15 U	0.75 U	32.5 J	1.6	3 U	0.75 U	46.6 J	1.4	NA	3 U	0.75 U
ZINC	40 U	10.9	329	13.4 U	76	3.9 U	380	32.6 U	NA	8 U	5.4
DISSOLVED METALS (UG/L)											
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	14.5 U	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	2.1 U	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	1.8 U	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	23.1	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	0.14 U	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	0.64 U	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	30600 J	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	0.58 U	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA	28.2	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA	3.3 U	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA	260 J	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA	1.4 UJ	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	23400 J	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	2760 J	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	0.01 UJ	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	37.6 U	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	7780 J	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	2.9 U	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA	0.82 U	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	134000 J	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	3.9 UJ	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	0.57 U	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA	11.9 U	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)											
CHEMICAL OXYGEN DEMAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	0.063	NA	NA	NA	0.0828	NA	NA	NA	NA
TOTAL SUSPENDED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)											

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R
SAMPLE NUMBER	OFF-GW-MW4SL	OFF-GW-MW4S-03	OFF-MW-5S	OFF-A-MW5S-01	OFF-GW-MW5S	OFF-GW-MW5S-03	OFF-MW-6R	OFF-A-MW6R-01	OFF-A-MW6R-01-F	OFF-GW-MW6R	OFF-GW-MW6R-03
SAMPLE DATE	08/16/02	08/25/04	01/06/94	07/10/97	08/21/02	08/24/04	01/06/94	07/11/97	07/11/97	08/21/02	08/24/04
QC IDENTIFIER											
DUPLICATE											
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)											
1,1-BIPHENYL	NA	10 UJ	NA	NA	10 U	10 U	NA	NA	NA	10 U	10 U
1,2,4-TRICHLOROBENZENE	NA	NA	10 U	11 U	NA	NA	10 U	10 U	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	10 U	11 U	NA	NA	10 U	10 U	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	10 U	11 U	NA	NA	10 U	10 U	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	10 U	11 U	NA	NA	10 U	10 U	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 UJ	NA	10 U	10 U
2,4,5-TRICHLOROPHENOL	NA	0 R	26 U	28 U	50 U	25 U	26 U	25 U	NA	50 U	25 U
2,4,6-TRICHLOROPHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
2,4-DICHLOROPHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
2,4-DIMETHYLPHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
2,4-DINITROPHENOL	NA	0 R	26 U	28 UJ	50 U	25 U	26 U	25 U	NA	50 U	25 U
2,4-DINITROTOLUENE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
2,6-DINITROTOLUENE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
2-CHLORONAPHTHALENE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
2-CHLOROPHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
2-METHYLNAPHTHALENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
2-METHYLPHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
2-NITROANILINE	NA	25 UJ	26 U	28 U	50 U	25 U	26 U	25 U	NA	50 U	25 U
2-NITROPHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
3,3'-DICHLOROBENZIDINE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
3-NITROANILINE	NA	25 UJ	26 U	28 U	50 U	25 U	26 U	25 U	NA	50 U	25 U
4,6-DINITRO-2-METHYLPHENOL	NA	0 R	26 U	28 UJ	50 U	25 U	26 U	25 U	NA	50 U	25 U
4-BROMOPHENYL PHENYL ETHER	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
4-CHLORO-3-METHYLPHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
4-CHLOROANILINE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
4-CHLOROPHENYL PHENYL ETHER	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
4-METHYLPHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
4-NITROANILINE	NA	25 UJ	26 U	28 UJ	50 U	25 U	26 U	25 U	NA	50 U	25 U
4-NITROPHENOL	NA	0 R	26 U	28 UJ	50 U	25 U	26 U	25 U	NA	50 U	25 U
ACENAPHTHENE	NA	0.37	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
ACENAPHTHYLENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
ACETOPHENONE	NA	10 UJ	NA	NA	10 U	10 U	NA	NA	NA	10 U	10 U
ANTHRACENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
ATRAZINE	NA	10 UJ	NA	NA	10 U	10 U	NA	NA	NA	10 U	10 U
BENZALDEHYDE	NA	10 UJ	NA	NA	10 U	10 UJ	NA	NA	NA	10 U	10 UJ
BENZO(A)ANTHRACENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
BENZO(A)PYRENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
BENZO(B)FLUORANTHENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
BENZO(G,H,I)PERYLENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
BENZO(K)FLUORANTHENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
BIS(2-CHLOROETHOXY)METHANE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	14 U	NA	10 U	10 U
BUTYL BENZYL PHTHALATE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
CAPROLACTAM	NA	10 UJ	NA	NA	10 U	10 U	NA	NA	NA	10 U	10 U
CARBAZOLE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
CHRYSENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
DIBENZO(A,H)ANTHRACENE	NA	0.2 U	10 U	11 U	10 U	0.2 UJ	10 U	10 U	NA	10 U	0.2 U
DIBENZOFURAN	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
DIETHYL PHTHALATE	NA	10 UJ	10 U	11 UJ	10 U	10 U	10 U	10 U	NA	10 U	10 U
DIMETHYL PHTHALATE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
DI-N-BUTYL PHTHALATE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
DI-N-OCTYL PHTHALATE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 UJ	NA	10 U	10 U

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TABLE D-1
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GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R
SAMPLE NUMBER	OFF-GW-MW4SL	OFF-GW-MW4S-03	OFF-MW-5S	OFF-A-MW5S-01	OFF-GW-MW5S	OFF-GW-MW5S-03	OFF-MW-6R	OFF-A-MW6R-01	OFF-A-MW6R-01-F	OFF-GW-MW6R	OFF-GW-MW6R-03
SAMPLE DATE	08/16/02	08/25/04	01/06/94	07/10/97	08/21/02	08/24/04	01/06/94	07/11/97	07/11/97	08/21/02	08/24/04
QC IDENTIFIER											
DUPLICATE											
FLUORANTHENE	NA	0.2 U	10 U	11 UJ	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
FLUORENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
HEXACHLOROBENZENE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
HEXACHLOROBUTADIENE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 UJ
HEXACHLOROCYCLOPENTADIENE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 UJ
HEXACHLOROETHANE	NA	10 UJ	10 U	11 U	10 U	10 UJ	10 U	10 U	NA	10 U	10 UJ
INDENO(1,2,3-CD)PYRENE	NA	0.2 U	10 U	11 U	10 U	0.2 UJ	10 U	10 U	NA	10 U	0.2 U
ISOPHORONE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
NAPHTHALENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
NITROBENZENE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
N-NITROSODIPHENYLAMINE	NA	10 UJ	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
PENTACHLOROPHENOL	NA	0 R	26 U	28 U	50 U	25 U	26 U	25 U	NA	50 U	25 U
PHENANTHRENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
PHENOL	NA	0 R	10 U	11 U	10 U	10 U	10 U	10 U	NA	10 U	10 U
PYRENE	NA	0.2 U	10 U	11 U	10 U	0.2 U	10 U	10 U	NA	10 U	0.2 U
VOLATILES (UG/L)											
1,1,1-TRICHLOROETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
1,1,2-TRICHLOROETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
1,1-DICHLOROETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
1,1-DICHLOROETHENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
1,2,4-TRICHLOROBENZENE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
1,2-DIBROMO-3-CHLOROPROPANE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
1,2-DIBROMOETHANE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
1,2-DICHLOROBENZENE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
1,2-DICHLOROETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
1,2-DICHLOROPROPANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
1,3-DICHLOROBENZENE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
1,4-DICHLOROBENZENE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
2-BUTANONE	NA	5 U	10 U	10 UJ	5 U	5 U	10 U	10 UJ	NA	5 U	5 U
2-HEXANONE	NA	5 U	10 U	10 UJ	5 U	5 U	10 U	10 U	NA	5 U	5 U
4-METHYL-2-PENTANONE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
ACETONE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
BENZENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
BROMODICHLOROMETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
BROMOFORM	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
BROMOMETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
CARBON DISULFIDE	NA	5 U	10 U	10 UJ	5 U	5 U	10 U	10 U	NA	5 U	5 U
CARBON TETRACHLORIDE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
CHLOROBENZENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
CHLORODIBROMOMETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
CHLOROETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
CHLOROFORM	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	4 J
CHLOROMETHANE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
CIS-1,2-DICHLOROETHENE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
CIS-1,3-DICHLOROPROPENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
CYCLOHEXANE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
DICHLORODIFLUOROMETHANE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
ETHYLBENZENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
ISOPROPYLBENZENE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
M+P-XYLENES	NA	5 U	NA	NA	NA	5 U	NA	NA	NA	NA	5 U
METHYL ACETATE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
METHYL CYCLOHEXANE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-04-S	OFF-MW-04-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-05-S	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R	OFF-MW-06-R
SAMPLE NUMBER	OFF-GW-MW4SL	OFF-GW-MW4S-03	OFF-MW-5S	OFF-A-MW5S-01	OFF-GW-MW5S	OFF-GW-MW5S-03	OFF-MW-6R	OFF-A-MW6R-01	OFF-A-MW6R-01-F	OFF-GW-MW6R	OFF-GW-MW6R-03
SAMPLE DATE	08/16/02	08/25/04	01/06/94	07/10/97	08/21/02	08/24/04	01/06/94	07/11/97	07/11/97	08/21/02	08/24/04
QC IDENTIFIER											
DUPLICATE											
METHYL TERT-BUTYL ETHER	NA	2 J	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
METHYLENE CHLORIDE	NA	5 U	12 U	10 U	5 U	5 U	11 U	10 U	NA	5 U	5 U
O-XYLENE	NA	5 U	NA	NA	NA	5 U	NA	NA	NA	NA	5 U
STYRENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
TETRACHLOROETHENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
TOLUENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
TOTAL 1,2-DICHLOROETHENE	NA	10 U	10 U	10 U	NA	10 U	10 U	10 U	NA	NA	10 U
TOTAL XYLENES	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
TRANS-1,2-DICHLOROETHENE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
TRANS-1,3-DICHLOROPROPENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
TRICHLOROETHENE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
TRICHLOROFLUOROMETHANE	NA	5 U	NA	NA	5 U	5 U	NA	NA	NA	5 U	5 U
VINYL CHLORIDE	NA	5 U	10 U	10 U	5 U	5 U	10 U	10 U	NA	5 U	5 U
PESTICIDES/PCBS (UG/L)											
4,4'-DDD	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
4,4'-DDE	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
4,4'-DDT	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
ALDRIN	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 U	NA	NA	NA
ALPHA-BHC	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 UJ	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 U	NA	NA	NA
AROCLOR-1016	NA	NA	1 UJ	1.1 U	NA	NA	1 R	1.1 U	NA	NA	NA
AROCLOR-1221	NA	NA	2 UJ	2.2 U	NA	NA	2 R	2.1 U	NA	NA	NA
AROCLOR-1232	NA	NA	1 UJ	1.1 U	NA	NA	1 R	1.1 U	NA	NA	NA
AROCLOR-1242	NA	NA	1 UJ	1.1 U	NA	NA	1 R	1.1 U	NA	NA	NA
AROCLOR-1248	NA	NA	1 UJ	1.1 U	NA	NA	1 R	1.1 U	NA	NA	NA
AROCLOR-1254	NA	NA	1 UJ	1.1 U	NA	NA	1 R	1.1 U	NA	NA	NA
AROCLOR-1260	NA	NA	1 UJ	1.1 U	NA	NA	1 R	1.1 U	NA	NA	NA
BETA-BHC	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 U	NA	NA	NA
DELTA-BHC	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 U	NA	NA	NA
DIELDRIN	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
ENDOSULFAN I	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 U	NA	NA	NA
ENDOSULFAN II	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
ENDRIN	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
ENDRIN KETONE	NA	NA	0.1 UJ	0.11 U	NA	NA	0.1 R	0.11 U	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 U	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 U	NA	NA	NA
HEPTACHLOR	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 UJ	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	0.05 UJ	0.054 U	NA	NA	0.05 R	0.053 U	NA	NA	NA
METHOXYCHLOR	NA	NA	0.5 UJ	0.54 U	NA	NA	0.5 R	0.53 U	NA	NA	NA
TOXAPHENE	NA	NA	5 UJ	5.4 U	NA	NA	5 R	5.3 U	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/L)											
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	1.1 UJ	NA	NA	NA	1.1 UJ	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/L)											
DIESEL RANGE ORGANICS	NA	500	NA	NA	NA	50 U	NA	NA	NA	NA	50 U
GASOLINE RANGE ORGANICS	NA	5.6 J	NA	NA	NA	10 U	NA	NA	NA	NA	10 U

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-06-S	OFF-MW-06-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-09-R	OFF-MW-09-R
SAMPLE NUMBER	OFF-MW-6S	OFF-GW-MW6S-03	OFF-MW-7S	OFF-MW-7SF	OFF-A-MW7S-01	OFF-MW-8R	OFF-MW-8RF	OFF-A-MW8R-01	OFF-GW-MW8R	OFF-GW-MW8R-03	OFF-MW-9R	OFF-A-MW9R-01
SAMPLE DATE	01/06/94	08/24/04	01/04/94	01/04/94	07/10/97	01/06/94	01/06/94	07/08/97	08/20/02	08/26/04	01/06/94	07/09/97
QC IDENTIFIER												ORIG
DUPLICATE												
METALS (UG/L)												
ALUMINUM	21100 J	67.6 J	37800	NA	2120 J	3110 J	NA	645 J	12 U	18.3 UJ	193000 J	159 U
ANTIMONY	27 U	2.34 U	27 U	NA	2.1 U	27 U	NA	2.1 U	3 U	2.34 U	27 U	4.1 U
ARSENIC	3.3 B	3.03 U	2 UJ	NA	1.8 U	3.1 B	NA	1.8 U	3 U	3.03 U	130	1.8 U
BARIUM	91.8 B	7.7	32.6 B	NA	23.2	35.5 B	NA	11.5	7 B	0.68	400	3.6 U
BERYLLIUM	1 U	0.3 UJ	4.3 B	NA	0.14 U	1 U	NA	0.14 U	2 U	0.39 UJ	9.3	0.14 U
CADMIUM	0.4 J	6.6	6.4 J	NA	2.9	0.4 UJ	NA	0.19 U	2 U	0.3 U	5.4 J	0.19 U
CALCIUM	49300 J	5890	183000 J	NA	114000 J	57600 J	NA	85000 J	54500	46800	205000 J	56500 J
CHROMIUM	27.6	0.8 U	4.5 B	NA	7	6.3 B	NA	15.8	3 U	0.8 U	247	1.3 U
COBALT	24.3 B	1.1 J	237	NA	87	3.5 B	NA	62.3	3 U	0.64 U	297	2 U
COPPER	24.9 B	4.8 U	74.7	NA	13.6 J	25.4	NA	4.4 U	2 U	4.9 U	511	2.5 U
CYANIDE	10 U	NA	10 U	NA	NA	10 U	NA	NA	NA	NA	10 U	NA
IRON	52200 J	286	70800 J	NA	4540 J	7010 J	NA	934 J	35 U	10.7 U	398000 J	187 U
LEAD	13.9 J	2.2 J	57.7	NA	9 J	3.1 J	NA	1.7 J	1 U	1.7 UJ	612 J	1.4 UJ
MAGNESIUM	22000 J	1620	47100 J	NA	30200 J	10000 J	NA	13200 J	7190	5510	95500 J	11600 J
MANGANESE	1460 J	24.4 J	11700 J	NA	11800 J	1030 J	NA	1760 J	3120	1280 J	18200 J	832 J
MERCURY	0.1 U	0.01 U	0.1 U	NA	0.01 UJ	0.1 U	NA	0.01 UJ	0 U	0.01 U	0.36	0.01 UJ
NICKEL	49.9 U	3.2	181	NA	35.7 U	9 U	NA	18 U	7 B	4	447	6.2 U
POTASSIUM	14800	4020	15200	NA	12400 J	5740	NA	5700 J	5410	3710	17800	7020 J
SELENIUM	2 UJ	3.9 UJ	20 UJ	NA	2.9 U	2 U	NA	2.9 U	8 U	3.71 U	20 UJ	2.9 U
SILVER	0.4 B	0.7 U	0.4 U	NA	1.3 U	0.4 B	NA	0.82 U	2 U	0.7 U	1.2	0.82 U
SODIUM	175000 J	30300	129000	NA	95300 J	92800 J	NA	128000 J	65000	95200	69500 J	41700 J
THALLIUM	20 R	5.1 UJ	20 R	NA	5.9 U	20 R	NA	3.9 UJ	4 U	4.09 U	20 R	3.9 UJ
VANADIUM	32.9 B	0.75 U	19.3 U	NA	0.79 J	14.6 J	NA	0.71 J	3 U	0.75 U	123	0.57 U
ZINC	254	16.2	5610 J	NA	658	75.4	NA	12.3 U	8 U	3.4 U	1180	8.9 U
DISSOLVED METALS (UG/L)												
ALUMINUM	NA	NA	NA	4470	NA	NA	25.7 J	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	212	NA	NA	27 U	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	2 UJ	NA	NA	2 U	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	890	NA	NA	19.9 B	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	21.3	NA	NA	1 U	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	6.3 J	NA	NA	0.8 J	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	55200 J	NA	NA	53100 J	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	88.7	NA	NA	3.9 B	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	212	NA	NA	2 U	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	129	NA	NA	8.6 B	NA	NA	NA	NA	NA
IRON	NA	NA	NA	16000 J	NA	NA	139 J	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	18.3	NA	NA	2 R	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	45500 J	NA	NA	8410 J	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	924 J	NA	NA	721 J	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	0.1 U	NA	NA	0.1 U	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	215	NA	NA	120	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	24800	NA	NA	5400	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	20 UJ	NA	NA	2 U	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	0.4 UJ	NA	NA	0.4 U	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	268000	NA	NA	89600 J	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	20 R	NA	NA	20 R	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	240	NA	NA	9.9 J	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	395 J	NA	NA	3 U	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)												
CHEMICAL OXYGEN DEMAND	NA	NA	44.4	NA	NA	25.6	NA	NA	NA	NA	NA	NA
CHLORIDE	0.481	NA	0.122	NA	NA	0.143	NA	NA	NA	NA	0.134	NA
TOTAL SUSPENDED SOLIDS	NA	NA	19	NA	NA	276	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)												

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OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-06-S	OFF-MW-06-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-09-R	OFF-MW-09-R
SAMPLE NUMBER	OFF-MW-6S	OFF-GW-MW6S-03	OFF-MW-7S	OFF-MW-7SF	OFF-A-MW7S-01	OFF-MW-8R	OFF-MW-8RF	OFF-A-MW8R-01	OFF-GW-MW8R	OFF-GW-MW8R-03	OFF-MW-9R	OFF-A-MW9R-01
SAMPLE DATE	01/06/94	08/24/04	01/04/94	01/04/94	07/10/97	01/06/94	01/06/94	07/08/97	08/20/02	08/26/04	01/06/94	07/09/97
QC IDENTIFIER												ORIG
DUPLICATE												
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)												
1,1-BIPHENYL	NA	10 U	NA	NA	NA	NA	NA	NA	10 U	10 U	NA	NA
1,2,4-TRICHLOROBENZENE	10 U	NA	10 U	NA	10 U	10 U	NA	10 U	NA	NA	10 U	10 U
1,2-DICHLOROBENZENE	10 U	NA	10 U	NA	10 U	10 U	NA	10 U	NA	NA	10 U	10 U
1,3-DICHLOROBENZENE	10 U	NA	10 U	NA	10 U	10 U	NA	10 U	NA	NA	10 U	10 U
1,4-DICHLOROBENZENE	10 U	NA	10 U	NA	10 U	10 U	NA	10 U	NA	NA	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	26 U	25 U	26 U	NA	25 U	25 U	NA	25 U	50 U	25 U	26 U	25 U
2,4,6-TRICHLOROPHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	26 U	25 U	26 U	NA	25 U	25 U	NA	25 U	50 U	25 U	26 U	25 U
2,4-DINITROTOLUENE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
2-METHYLPHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	26 U	25 U	26 U	NA	25 U	25 U	NA	25 U	50 U	25 U	26 U	25 U
2-NITROPHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
3-NITROANILINE	26 U	25 U	26 U	NA	25 U	25 U	NA	25 U	50 U	25 U	26 U	25 U
4,6-DINITRO-2-METHYLPHENOL	26 U	25 U	26 U	NA	25 U	25 U	NA	25 U	50 U	25 U	26 U	25 U
4-BROMOPHENYL PHENYL ETHER	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL PHENYL ETHER	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	26 U	25 U	26 U	NA	25 U	25 U	NA	25 U	50 U	25 U	26 U	25 U
4-NITROPHENOL	26 U	25 U	26 U	NA	25 U	25 U	NA	25 U	50 U	25 U	26 U	25 U
ACENAPHTHENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
ACENAPHTHYLENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
ACETOPHENONE	NA	10 U	NA	NA	NA	NA	NA	NA	10 U	10 U	NA	NA
ANTHRACENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
ATRAZINE	NA	10 U	NA	NA	NA	NA	NA	NA	10 U	10 U	NA	NA
BENZALDEHYDE	NA	10 UJ	NA	NA	NA	NA	NA	NA	10 U	10 UJ	NA	NA
BENZO(A)ANTHRACENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
BENZO(A)PYRENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
BENZO(B)FLUORANTHENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
BENZO(G,H,I)PERYLENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
BENZO(K)FLUORANTHENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	10 U	10 U	NA	10 U	1 J	NA	14 U	10 U	10 U	0.5 J	20 U
BUTYL BENZYL PHTHALATE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
CAPROLACTAM	NA	10 U	NA	NA	NA	NA	NA	NA	10 U	10 U	NA	NA
CARBAZOLE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
DIBENZOFURAN	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
DIETHYL PHTHALATE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
DIMETHYL PHTHALATE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYL PHTHALATE	10 U	10 U	10 U	NA	10 U	1 J	NA	10 U	10 U	10 U	1 J	10 U
DI-N-OCTYL PHTHALATE	10 U	10 U	10 U	NA	10 UJ	10 U	NA	10 UJ	10 U	10 U	10 U	10 UJ

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-06-S	OFF-MW-06-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-09-R	OFF-MW-09-R
SAMPLE NUMBER	OFF-MW-6S	OFF-GW-MW6S-03	OFF-MW-7S	OFF-MW-7SF	OFF-A-MW7S-01	OFF-MW-8R	OFF-MW-8RF	OFF-A-MW8R-01	OFF-GW-MW8R	OFF-GW-MW8R-03	OFF-MW-9R	OFF-A-MW9R-01
SAMPLE DATE	01/06/94	08/24/04	01/04/94	01/04/94	07/10/97	01/06/94	01/06/94	07/08/97	08/20/02	08/26/04	01/06/94	07/09/97
QC IDENTIFIER												ORIG
DUPLICATE												
FLUORANTHENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
FLUORENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
HEXACHLOROBENZENE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	10 UJ	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
ISOPHORONE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
NITROBENZENE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	26 U	25 U	26 U	NA	25 U	25 U	NA	25 U	50 U	25 U	26 U	25 U
PHENANTHRENE	10 U	0.2 U	10 U	NA	10 U	10 U	NA	10 U	10 U	0.2 U	10 U	10 U
PHENOL	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U
PYRENE	10 U	0.2 U	10 U	NA	10 UJ	10 U	NA	10 UJ	10 U	0.2 U	10 U	10 UJ
VOLATILES (UG/L)												
1,1,1-TRICHLOROETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
1,1-DICHLOROETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
1,2-DIBROMOETHANE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
1,2-DICHLOROBENZENE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
1,2-DICHLOROETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 UJ
1,2-DICHLOROPROPANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
1,3-DICHLOROBENZENE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
1,4-DICHLOROBENZENE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
2-BUTANONE	10 U	5 U	10 U	NA	10 UJ	10 U	NA	10 UJ	5 U	5 U	10 U	10 UJ
2-HEXANONE	10 U	5 U	10 U	NA	10 UJ	10 U	NA	10 UJ	5 U	5 U	10 U	10 UJ
4-METHYL-2-PENTANONE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
ACETONE	10 U	5 U	10 U	NA	180 U	10 U	NA	11 U	9	5 U	10 U	10 U
BENZENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
BROMODICHLOROMETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
BROMOFORM	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
BROMOMETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
CARBON DISULFIDE	10 U	5 U	10 U	NA	10 UJ	10 U	NA	10 UJ	5 U	5 U	10 U	10 UJ
CARBON TETRACHLORIDE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
CHLOROBENZENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
CHLORODIBROMOMETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
CHLOROETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
CHLOROFORM	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
CHLOROMETHANE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
CIS-1,2-DICHLOROETHENE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
CIS-1,3-DICHLOROPROPENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
CYCLOHEXANE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
DICHLORODIFLUOROMETHANE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
ETHYLBENZENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
ISOPROPYLBENZENE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
M+P-XYLENES	NA	5 U	NA	NA	NA	NA	NA	NA	NA	5 U	NA	NA
METHYL ACETATE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
METHYL CYCLOHEXANE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-06-S	OFF-MW-06-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-07-S	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-08-R	OFF-MW-09-R	OFF-MW-09-R
SAMPLE NUMBER	OFF-MW-6S	OFF-GW-MW6S-03	OFF-MW-7S	OFF-MW-7SF	OFF-A-MW7S-01	OFF-MW-8R	OFF-MW-8RF	OFF-A-MW8R-01	OFF-GW-MW8R	OFF-GW-MW8R-03	OFF-MW-9R	OFF-A-MW9R-01
SAMPLE DATE	01/06/94	08/24/04	01/04/94	01/04/94	07/10/97	01/06/94	01/06/94	07/08/97	08/20/02	08/26/04	01/06/94	07/09/97
QC IDENTIFIER												ORIG
DUPLICATE												
METHYL TERT-BUTYL ETHER	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 UJ	NA	NA
METHYLENE CHLORIDE	12 U	5 U	10 U	NA	10 U	10 U	NA	10 UJ	5 U	5 U	10 U	10 UJ
O-XYLENE	NA	5 U	NA	NA	NA	NA	NA	NA	NA	5 U	NA	NA
STYRENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
TETRACHLOROETHENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
TOLUENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
TOTAL 1,2-DICHLOROETHENE	10 U	10 U	10 U	NA	10 U	10 U	NA	10 U	NA	10 U	10 U	10 U
TOTAL XYLENES	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
TRANS-1,2-DICHLOROETHENE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
TRANS-1,3-DICHLOROPROPENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
TRICHLOROETHENE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
TRICHLOROFLUOROMETHANE	NA	5 U	NA	NA	NA	NA	NA	NA	5 U	5 U	NA	NA
VINYL CHLORIDE	10 U	5 U	10 U	NA	10 U	10 U	NA	10 U	5 U	5 U	10 U	10 U
PESTICIDES/PCBS (UG/L)												
4,4'-DDD	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.1 UJ	NA	0.1 U	NA	NA	0.1 R	0.1 U
4,4'-DDE	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.1 UJ	NA	0.1 U	NA	NA	0.1 R	0.1 U
4,4'-DDT	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.1 UJ	NA	0.1 U	NA	NA	0.1 R	0.1 U
ALDRIN	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
ALPHA-BHC	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
ALPHA-CHLORDANE	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
AROCLOR-1016	1.1 UJ	NA	1 UJ	NA	1.1 U	1 UJ	NA	1 U	NA	NA	1 R	1 U
AROCLOR-1221	2.2 UJ	NA	2 UJ	NA	2.1 U	2 UJ	NA	2 U	NA	NA	2 R	2 U
AROCLOR-1232	1.1 UJ	NA	1 UJ	NA	1.1 U	1 UJ	NA	1 U	NA	NA	1 R	1 U
AROCLOR-1242	1.1 UJ	NA	1 UJ	NA	1.1 U	1 UJ	NA	1 U	NA	NA	1 R	1 U
AROCLOR-1248	1.1 UJ	NA	1 UJ	NA	1.1 U	1 UJ	NA	1 U	NA	NA	1 R	1 U
AROCLOR-1254	1.1 UJ	NA	1 UJ	NA	1.1 U	1 UJ	NA	1 U	NA	NA	1 R	1 U
AROCLOR-1260	1.1 UJ	NA	1 UJ	NA	1.1 U	1 UJ	NA	1 U	NA	NA	1 R	1 U
BETA-BHC	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
DELTA-BHC	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
DIELDRIN	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.1 UJ	NA	0.1 U	NA	NA	0.1 R	0.1 U
ENDOSULFAN I	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
ENDOSULFAN II	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.1 UJ	NA	0.1 U	NA	NA	0.1 R	0.1 U
ENDOSULFAN SULFATE	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.1 UJ	NA	0.1 U	NA	NA	0.1 R	0.1 U
ENDRIN	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.05 J	NA	0.1 U	NA	NA	0.1 R	0.1 U
ENDRIN ALDEHYDE	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.1 UJ	NA	0.1 U	NA	NA	0.1 R	0.1 U
ENDRIN KETONE	0.11 UJ	NA	0.1 UJ	NA	0.11 U	0.1 UJ	NA	0.1 U	NA	NA	0.1 R	0.1 U
GAMMA-BHC (LINDANE)	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
GAMMA-CHLORDANE	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
HEPTACHLOR	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
HEPTACHLOR EPOXIDE	0.056 UJ	NA	0.05 UJ	NA	0.053 U	0.05 UJ	NA	0.051 U	NA	NA	0.05 R	0.05 U
METHOXYCHLOR	0.56 UJ	NA	0.5 UJ	NA	0.53 U	0.5 UJ	NA	0.51 U	NA	NA	0.5 R	0.5 U
TOXAPHENE	5.6 UJ	NA	5 UJ	NA	5.3 U	5 UJ	NA	5.1 U	NA	NA	5 R	5 U
PETROLEUM HYDROCARBONS (MG/L)												
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	NA	1.1 UJ	NA	NA	1 UJ	NA	NA	NA	1 UJ
PETROLEUM HYDROCARBONS (UG/L)												
DIESEL RANGE ORGANICS	NA	50 U	NA	NA	NA	NA	NA	NA	NA	85 U	NA	NA
GASOLINE RANGE ORGANICS	NA	10 U	NA	NA	NA	NA	NA	NA	NA	10 U	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-11-R
SAMPLE NUMBER	OFF-A-MW9R-01-D	OFF-A-MW9R-01-F	OFF-GW-MW9R	OFF-GW-MW9R-03	OFF-GW-MW9R-03-D	OFF-MW-10S	OFF-A-MW10S-01	OFF-GW-MW10S	OFF-GW-MW10S-03	OFF-MW-11R
SAMPLE DATE	07/09/97	07/11/97	08/20/02	08/26/04	08/26/04	01/06/94	07/09/97	08/20/02	08/26/04	01/05/94
QC IDENTIFIER	DUP			ORIG	DUP					
DUPLICATE	OFF-A-MW9R-01				OFF-GW-MW9R-03					
METALS (UG/L)										
ALUMINUM	163 U	NA	34 B	18.3 UJ	18.3 UJ	23900 J	564 U	12 U	18.3 UJ	5140
ANTIMONY	2.1 U	NA	3 U	2.34 U	3.3 UJ	35.7	2.1 U	3 U	2.8 UJ	27 U
ARSENIC	1.8 U	NA	3 U	3.03 U	3.03 U	29.7	2.9 U	3 U	3.03 U	2.1 B
BARIUM	3.5 U	NA	18 B	6.8	6.2	104 B	60	32 B	18.3	19.3 B
BERYLLIUM	0.14 U	NA	2 U	0.26 UJ	0.43 UJ	1 U	0.14 UJ	2 U	0.25 U	1.2 B
CADMIUM	0.19 U	NA	2 U	0.3 U	0.3 U	4.4 J	0.28 U	2 U	0.3 U	0.4 U
CALCIUM	54200 J	NA	37500	39700	37800	85900 J	199000 J	177000	148000	51800
CHROMIUM	1.3 U	NA	3 U	0.8 U	0.8 U	42.4	10.8 J	3 U	0.8 U	7.5 B
COBALT	1.8 U	NA	3 B	0.64 U	0.64 U	51.7	27.8	9 B	8.9	12.7 B
COPPER	2 U	NA	2 U	4.4 U	4.6 U	346	14.5 J	2 U	5.8 UJ	18.8 B
CYANIDE	NA	NA	NA	NA	NA	20 U	NA	NA	NA	10 U
IRON	183 U	NA	313	63.5 U	68.4 U	61100	2250 J	374	218	10500
LEAD	1.4 UJ	NA	1 U	1.7 UJ	1.7 UJ	564 J	8.7 J	1 U	1.7 UJ	20 U
MAGNESIUM	11100 J	NA	8730	8080	7730	168000 J	461000 J	416000	367000	94200
MANGANESE	794 J	NA	1570	588 J	546 J	4110 J	4450 J	1070	873 J	5690
MERCURY	0.01 UJ	NA	0 U	0.01 U	0.01 U	0.41	0.01 UJ	0 U	0.02 J	0.1 U
NICKEL	5.8 U	NA	4 B	2.6	2.4	126	11.9 U	3 B	2.7	17.5 U
POTASSIUM	6820 J	NA	7920	6080	5880	66300	156000 J	265000	131000	57300
SELENIUM	2.9 U	NA	8 U	3.71 U	3.71 U	2 UJ	2.9 UJ	8 U	3.71 U	2 UJ
SILVER	0.82 U	NA	2 U	0.7 U	0.7 U	3.6	3.3 U	2 U	0.7 U	0.4 U
SODIUM	39300 J	NA	82000	50900	52000	1710000 J	5130000 J	3840000	3030000	1250000
THALLIUM	3.9 UJ	NA	4 U	4.9 UJ	4.09 U	20 R	5 U	4 U	4.09 U	20 R
VANADIUM	0.57 U	NA	3 U	0.75 U	0.75 U	38 J	0.59 J	3 U	0.75 UJ	38.7 U
ZINC	8 J	NA	8 U	3 U	2.7 U	1340	44.1 U	8 U	11.9	54.5 J
DISSOLVED METALS (UG/L)										
ALUMINUM	NA	19.3 U	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	2.1 U	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	1.8 U	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	2.6 U	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	0.14 U	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	0.23 U	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	46500 J	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	0.53 U	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	3.8 U	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	4.7 U	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	10.8 U	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	1.4 UJ	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	9780 J	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	660 J	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	0.01 UJ	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	8.4 U	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	6800 J	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	2.9 U	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	0.82 U	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	39100 J	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	3.9 UJ	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	0.57 U	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	8.2 U	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)										
CHEMICAL OXYGEN DEMAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	3.85	NA	NA	NA	1.63
TOTAL SUSPENDED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)										

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-11-R
SAMPLE NUMBER	OFF-A-MW9R-01-D	OFF-A-MW9R-01-F	OFF-GW-MW9R	OFF-GW-MW9R-03	OFF-GW-MW9R-03-D	OFF-MW-10S	OFF-A-MW10S-01	OFF-GW-MW10S	OFF-GW-MW10S-03	OFF-MW-11R
SAMPLE DATE	07/09/97	07/11/97	08/20/02	08/26/04	08/26/04	01/06/94	07/09/97	08/20/02	08/26/04	01/05/94
QC IDENTIFIER	DUP			ORIG	DUP					
DUPLICATE	OFF-A-MW9R-01				OFF-GW-MW9R-03					
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
1,1-BIPHENYL	NA	NA	10 U	10 U	10 U	NA	NA	10 U	10 U	NA
1,2,4-TRICHLOROBENZENE	10 U	NA	NA	NA	NA	10 U	10 U	NA	NA	10 U
1,2-DICHLOROBENZENE	10 U	NA	NA	NA	NA	10 U	10 U	NA	NA	10 U
1,3-DICHLOROBENZENE	10 U	NA	NA	NA	NA	10 U	10 U	NA	NA	10 U
1,4-DICHLOROBENZENE	10 U	NA	NA	NA	NA	10 U	10 U	NA	NA	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-TRICHLOROPHENOL	25 U	NA	50 U	25 U	25 U	26 U	25 U	50 U	25 U	26 U
2,4,6-TRICHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DICHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-DINITROPHENOL	25 U	NA	50 U	25 U	25 U	26 U	25 U	50 U	25 U	26 U
2,4-DINITROTOLUENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-DINITROTOLUENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLORONAPHTHALENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-CHLOROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-METHYLNAPHTHALENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
2-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-NITROANILINE	25 U	NA	50 U	25 U	25 U	26 U	25 U	50 U	25 U	26 U
2-NITROPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3-NITROANILINE	25 U	NA	50 U	25 U	25 U	26 U	25 U	50 U	25 U	26 U
4,6-DINITRO-2-METHYLPHENOL	25 U	NA	50 U	25 U	25 U	26 U	25 U	50 U	25 U	26 U
4-BROMOPHENYL PHENYL ETHER	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROANILINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-CHLOROPHENYL PHENYL ETHER	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-METHYLPHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-NITROANILINE	25 U	NA	50 U	25 U	25 U	26 U	25 U	50 U	25 U	26 U
4-NITROPHENOL	25 U	NA	50 U	25 U	25 U	26 U	25 U	50 U	25 U	26 U
ACENAPHTHENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
ACENAPHTHYLENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
ACETOPHENONE	NA	NA	10 U	10 U	10 U	NA	NA	10 U	10 U	NA
ANTHRACENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
ATRAZINE	NA	NA	10 U	10 U	10 U	NA	NA	10 U	10 U	NA
BENZALDEHYDE	NA	NA	10 U	10 UJ	10 UJ	NA	NA	10 U	10 UJ	NA
BENZO(A)ANTHRACENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
BENZO(A)PYRENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
BENZO(B)FLUORANTHENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
BENZO(G,H,I)PERYLENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
BENZO(K)FLUORANTHENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
BIS(2-CHLOROETHOXY)METHANE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	10 U	NA	10 U	10 U	10 U	2 J	19 U	10 U	10 U	10 U
BUTYL BENZYL PHTHALATE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CAPROLACTAM	NA	NA	10 U	10 U	10 U	NA	NA	10 U	10 U	NA
CARBAZOLE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
CHRYSENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
DIBENZO(A,H)ANTHRACENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
DIBENZOFURAN	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DIETHYL PHTHALATE	10 U	NA	10 U	10 U	10 U	0.6 J	10 U	10 U	10 U	10 U
DIMETHYL PHTHALATE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
DI-N-BUTYL PHTHALATE	10 U	NA	10 U	10 U	10 U	0.9 J	10 U	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	10 UJ	NA	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-11-R
SAMPLE NUMBER	OFF-A-MW9R-01-D	OFF-A-MW9R-01-F	OFF-GW-MW9R	OFF-GW-MW9R-03	OFF-GW-MW9R-03-D	OFF-MW-10S	OFF-A-MW10S-01	OFF-GW-MW10S	OFF-GW-MW10S-03	OFF-MW-11R
SAMPLE DATE	07/09/97	07/11/97	08/20/02	08/26/04	08/26/04	01/06/94	07/09/97	08/20/02	08/26/04	01/05/94
QC IDENTIFIER	DUP			ORIG	DUP					
DUPLICATE	OFF-A-MW9R-01				OFF-GW-MW9R-03					
FLUORANTHENE	10 U	NA	10 U	0.2 U	0.2 U	1 J	10 U	10 U	0.2 U	10 U
FLUORENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
HEXACHLOROBENZENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROBUTADIENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
HEXACHLOROETHANE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	10 U
ISOPHORONE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
NAPHTHALENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	0.6 J
NITROBENZENE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PENTACHLOROPHENOL	25 U	NA	50 U	25 U	25 U	26 U	25 U	50 U	25 U	26 U
PHENANTHRENE	10 U	NA	10 U	0.2 U	0.2 U	10 U	10 U	10 U	0.2 U	0.8 J
PHENOL	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
PYRENE	10 UJ	NA	10 U	0.2 U	0.2 U	1 J	10 UJ	10 U	0.2 U	10 U
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
1,1,2-TRICHLOROETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
1,1-DICHLOROETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
1,1-DICHLOROETHENE	10 UJ	NA	5 U	5 U	5 U	10 U	10 UJ	5 U	5 U	10 U
1,2,4-TRICHLOROBENZENE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
1,2-DIBROMO-3-CHLOROPROPANE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
1,2-DIBROMOETHANE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
1,2-DICHLOROBENZENE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
1,2-DICHLOROETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
1,2-DICHLOROPROPANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
1,3-DICHLOROBENZENE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
1,4-DICHLOROBENZENE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
2-BUTANONE	10 UJ	NA	5 U	5 U	5 U	10 U	10 UJ	5 U	5 U	10 U
2-HEXANONE	10 UJ	NA	5 U	5 U	5 U	10 U	10 UJ	5 U	5 U	10 U
4-METHYL-2-PENTANONE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
ACETONE	10 U	NA	5 U	5 U	5 U	10 U	10 UJ	5 U	5 U	10 U
BENZENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
BROMODICHLOROMETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
BROMOFORM	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
BROMOMETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
CARBON DISULFIDE	10 UJ	NA	5 U	5 U	5 U	10 U	10 UJ	5 U	5 U	10 U
CARBON TETRACHLORIDE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
CHLOROBENZENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
CHLORODIBROMOMETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
CHLOROETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
CHLOROFORM	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
CHLOROMETHANE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
CIS-1,2-DICHLOROETHENE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
CIS-1,3-DICHLOROPROPENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
CYCLOHEXANE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
DICHLORODIFLUOROMETHANE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
ETHYLBENZENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
ISOPROPYLBENZENE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
M+P-XYLENES	NA	NA	NA	5 U	5 U	NA	NA	NA	5 U	NA
METHYL ACETATE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
METHYL CYCLOHEXANE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-09-R	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-10-S	OFF-MW-11-R
SAMPLE NUMBER	OFF-A-MW9R-01-D	OFF-A-MW9R-01-F	OFF-GW-MW9R	OFF-GW-MW9R-03	OFF-GW-MW9R-03-D	OFF-MW-10S	OFF-A-MW10S-01	OFF-GW-MW10S	OFF-GW-MW10S-03	OFF-MW-11R
SAMPLE DATE	07/09/97	07/11/97	08/20/02	08/26/04	08/26/04	01/06/94	07/09/97	08/20/02	08/26/04	01/05/94
QC IDENTIFIER	DUP			ORIG	DUP					
DUPLICATE	OFF-A-MW9R-01				OFF-GW-MW9R-03					
METHYL TERT-BUTYL ETHER	NA	NA	5 U	5 UJ	5 UJ	NA	NA	5 U	5 UJ	NA
METHYLENE CHLORIDE	10 UJ	NA	5 U	5 U	5 U	11 U	10 UJ	5 U	5 U	10 U
O-XYLENE	NA	NA	NA	5 U	5 U	NA	NA	NA	5 U	NA
STYRENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
TETRACHLOROETHENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
TOLUENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
TOTAL 1,2-DICHLOROETHENE	10 U	NA	NA	10 U	10 U	10 U	10 U	NA	10 U	10 U
TOTAL XYLENES	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
TRANS-1,2-DICHLOROETHENE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
TRANS-1,3-DICHLOROPROPENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
TRICHLOROETHENE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
TRICHLOROFLUOROMETHANE	NA	NA	5 U	5 U	5 U	NA	NA	5 U	5 U	NA
VINYL CHLORIDE	10 U	NA	5 U	5 U	5 U	10 U	10 U	5 U	5 U	10 U
PESTICIDES/PCBS (UG/L)										
4,4'-DDD	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
4,4'-DDE	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
4,4'-DDT	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
ALDRIN	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
ALPHA-BHC	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
ALPHA-CHLORDANE	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
AROCLOR-1016	1 U	NA	NA	NA	NA	1 UJ	1 U	NA	NA	1 UJ
AROCLOR-1221	2 U	NA	NA	NA	NA	2 UJ	2 U	NA	NA	2.1 UJ
AROCLOR-1232	1 U	NA	NA	NA	NA	1 UJ	1 U	NA	NA	1 UJ
AROCLOR-1242	1 U	NA	NA	NA	NA	1 UJ	1 U	NA	NA	1 UJ
AROCLOR-1248	1 U	NA	NA	NA	NA	1 UJ	1 U	NA	NA	1 UJ
AROCLOR-1254	1 U	NA	NA	NA	NA	1 UJ	1 U	NA	NA	1 UJ
AROCLOR-1260	1 U	NA	NA	NA	NA	1 UJ	1 U	NA	NA	1 UJ
BETA-BHC	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
DELTA-BHC	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
DIELDRIN	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
ENDOSULFAN I	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
ENDOSULFAN II	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
ENDOSULFAN SULFATE	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
ENDRIN	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
ENDRIN ALDEHYDE	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
ENDRIN KETONE	0.1 U	NA	NA	NA	NA	0.1 UJ	0.1 U	NA	NA	0.1 UJ
GAMMA-BHC (LINDANE)	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
GAMMA-CHLORDANE	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
HEPTACHLOR	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
HEPTACHLOR EPOXIDE	0.05 U	NA	NA	NA	NA	0.05 UJ	0.051 U	NA	NA	0.052 UJ
METHOXYCHLOR	0.5 U	NA	NA	NA	NA	0.5 UJ	0.51 U	NA	NA	0.52 UJ
TOXAPHENE	5 U	NA	NA	NA	NA	5 UJ	5.1 U	NA	NA	5.2 UJ
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	1 UJ	NA	NA	NA	NA	NA	1 UJ	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	NA	NA	380	360	NA	NA	NA	860 J	NA
GASOLINE RANGE ORGANICS	NA	NA	NA	10 U	10 U	NA	NA	NA	10 U	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-12-S	OFF-MW-12-S	OFF-MW-101
SAMPLE NUMBER	OFF-A-MW11R-01	OFF-GW-MW11R	OFF-GW-MW11R-03	OFF-MW-11S	OFF-A-MW11S-01	OFF-GW-MW11S	OFF-GW-MW11SL	OFF-GW-MW11S-03	OFF-MW-11S-D	OFF-MW-12S	OFF-A-MW101-01
SAMPLE DATE	07/10/97	08/19/02	08/25/04	01/05/94	07/10/97	08/19/02	08/20/02	08/25/04	01/05/94	01/05/94	07/11/97
QC IDENTIFIER				ORIG					DUP		
DUPLICATE									OFF-MW-11S		
METALS (UG/L)											
ALUMINUM	98.2 U	22 B	18.3 UJ	41000	487 U	21 B	60 U	18.3 UJ	48700	48700	14.3 UJ
ANTIMONY	2.1 U	3 U	3 UJ	27 U	2.1 U	3 U	15 U	2.7 UJ	27 U	27 U	2.1 U
ARSENIC	4 U	8 B	5.4 J	15.3	1.8 U	3 U	15 U	3.03 U	17.1	17.1	44.5
BARIUM	5.3	13 B	3.2	100 B	112	114 B	129 B	82	106 B	106 B	35.3
BERYLLIUM	0.14 U	2 U	0.25 U	3.4 B	0.14 UJ	2 U	10 U	0.25 U	3 B	3 B	0.14 U
CADMIUM	0.19 U	2 U	0.3 U	0.6 J	0.19 U	2 U	10 U	0.3 U	0.7 J	0.7 J	0.19 U
CALCIUM	53500 J	90800	33400	62400	196000 J	220000	227436	131000	59600	59600	16200 J
CHROMIUM	39.9	3 U	0.8 U	43.6	12.4 J	3 U	15 U	0.8 U	56.4	56.4	3.2
COBALT	6.1	5 B	3.7	45.8 B	0.94 U	3 U	15 U	0.82 J	53.6	53.6	19.5
COPPER	3.8 U	2 U	1.9 U	345	6.8 U	2 U	10 U	11.3 U	406	406	3.6 U
CYANIDE	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	10 U	NA
IRON	6480 J	8580	5320	75600	1120 J	115 B	175 U	2620	91200	91200	11900 J
LEAD	1.4 UJ	1 U	1.7 UJ	1120	7.9 J	1 U	5 U	1.7 UJ	1640 J	1640 J	1.4 UJ
MAGNESIUM	107000 J	168000	55500	84900	323000 J	351000	399657	35200	78400	78400	20000 J
MANGANESE	3460 J	2810	4310 J	2690	1340 J	742	841	4450 J	3030	3030	441 J
MERCURY	0.01 UJ	0 U	0.01 U	0.42	0.01 UJ	0 U	NA	0.01 J	0.4	0.4	0.01 UJ
NICKEL	31.5 U	1 B	1.9	121	9.3 U	3 B	3 B	6.8	137	137	1.7 U
POTASSIUM	54200 J	136000	35800	28100	118000 J	218000	172294	18600	27900	27900	20200 J
SELENIUM	2.9 U	8 U	3.71 U	2 UJ	2.9 U	8 U	40 U	3.71 U	20 UJ	20 UJ	2.9 U
SILVER	0.82 J	2 U	0.7 U	0.9 B	1.9 J	2 U	10 U	0.7 U	1.4	1.4	0.82 U
SODIUM	1010000 U	1450000	532000	614000	2760000 J	3250000	3340529	156000	555000	555000	339000 J
THALLIUM	3.9 UJ	4 U	7 UJ	20 R	3.9 UJ	4 U	20 U	11.9 UJ	20 R	20 R	3.9 UJ
VANADIUM	0.57 U	3 U	0.75 U	68.4 U	1.7	3 U	15 U	0.75 U	71.2 U	71.2 U	0.57 U
ZINC	33.1 U	8 U	2.1 U	382 J	15.2 U	8 U	40 U	41.9	402 J	402 J	4.8 U
DISSOLVED METALS (UG/L)											
ALUMINUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ANTIMONY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SODIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
THALLIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)											
CHEMICAL OXYGEN DEMAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	1.08	NA	NA	NA	NA	NA	1.04	NA
TOTAL SUSPENDED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)											

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-12-S	OFF-MW-12-S	OFF-MW-101
SAMPLE NUMBER	OFF-A-MW11R-01	OFF-GW-MW11R	OFF-GW-MW11R-03	OFF-MW-11S	OFF-A-MW11S-01	OFF-GW-MW11S	OFF-GW-MW11SL	OFF-GW-MW11S-03	OFF-MW-11S-D	OFF-MW-12S	OFF-A-MW101-01
SAMPLE DATE	07/10/97	08/19/02	08/25/04	01/05/94	07/10/97	08/19/02	08/20/02	08/25/04	01/05/94	01/05/94	07/11/97
QC IDENTIFIER				ORIG					DUP		
DUPLICATE									OFF-MW-11S		
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	1040	NA	NA
SEMIVOLATILES (UG/L)											
1,1-BIPHENYL	NA	10 U	10 UJ	NA	NA	10 U	NA	10 UJ	NA	NA	NA
1,2,4-TRICHLOROBENZENE	11 U	NA	NA	10 U	11 U	NA	NA	NA	10 U	10 U	10 U
1,2-DICHLOROBENZENE	11 U	NA	NA	10 U	11 U	NA	NA	NA	10 U	10 U	10 U
1,3-DICHLOROBENZENE	11 U	NA	NA	10 U	11 U	NA	NA	NA	10 U	10 U	10 U
1,4-DICHLOROBENZENE	11 U	NA	NA	10 U	11 U	NA	NA	NA	10 U	10 U	10 U
2,2'-OXYBIS(1-CHLOROPROPANE)	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 UJ
2,4,5-TRICHLOROPHENOL	28 U	50 U	0 R	26 U	28 U	50 U	NA	0 R	26 U	26 U	25 U
2,4,6-TRICHLOROPHENOL	11 U	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
2,4-DICHLOROPHENOL	11 U	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
2,4-DIMETHYLPHENOL	11 U	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
2,4-DINITROPHENOL	28 U	50 U	0 R	26 U	28 UJ	50 U	NA	0 R	26 U	26 U	25 U
2,4-DINITROTOLUENE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
2,6-DINITROTOLUENE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
2-CHLORONAPHTHALENE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
2-CHLOROPHENOL	11 U	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
2-METHYLNAPHTHALENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	10 U	10 U	190
2-METHYLPHENOL	11 U	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
2-NITROANILINE	28 U	50 U	25 UJ	26 U	28 U	50 U	NA	25 UJ	26 U	26 U	25 U
2-NITROPHENOL	11 U	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
3,3'-DICHLOROBENZIDINE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
3-NITROANILINE	28 U	50 U	25 UJ	26 U	28 U	50 U	NA	25 UJ	26 U	26 U	25 U
4,6-DINITRO-2-METHYLPHENOL	28 U	50 U	0 R	26 U	28 UJ	50 U	NA	0 R	26 U	26 U	25 U
4-BROMOPHENYL PHENYL ETHER	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
4-CHLORO-3-METHYLPHENOL	11 U	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
4-CHLOROANILINE,	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
4-CHLOROPHENYL PHENYL ETHER	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
4-METHYLPHENOL	11 U	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
4-NITROANILINE	28 U	50 U	25 UJ	26 U	28 UJ	50 U	NA	25 UJ	26 U	26 U	25 U
4-NITROPHENOL	28 U	50 U	0 R	26 U	28 UJ	50 U	NA	0 R	26 U	26 U	25 U
ACENAPHTHENE	11 U	10 U	0.2 U	5 J	11 U	10 U	NA	2.8 *	8 J	8 J	9 J
ACENAPHTHYLENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	10 U	10 U	10 U
ACETOPHENONE	NA	10 U	10 UJ	NA	NA	10 U	NA	10 UJ	NA	NA	NA
ANTHRACENE	11 U	10 U	0.2 U	2 J	11 U	10 U	NA	0.35	3 J	3 J	10 U
ATRAZINE	NA	10 U	10 UJ	NA	NA	10 U	NA	10 UJ	NA	NA	NA
BENZALDEHYDE	NA	10 U	10 UJ	NA	NA	10 U	NA	10 UJ	NA	NA	NA
BENZO(A)ANTHRACENE	11 U	10 U	0.2 U	0.7 J	11 U	10 U	NA	0.2 U	0.8 J	0.8 J	10 U
BENZO(A)PYRENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	0.7 J	0.7 J	10 U
BENZO(B)FLUORANTHENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	0.5 J	0.5 J	10 U
BENZO(G,H,I)PERYLENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	10 U	10 U	10 U
BENZO(K)FLUORANTHENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	0.6 J	0.6 J	10 U
BIS(2-CHLOROETHOXY)METHANE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
BIS(2-CHLOROETHYL)ETHER	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
BIS(2-ETHYLHEXYL)PHTHALATE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	9 J	10 U	10 U	10 U
BUTYL BENZYL PHTHALATE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
CAPROLACTAM	NA	10 U	10 UJ	NA	NA	10 U	NA	10 UJ	NA	NA	NA
CARBAZOLE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	2 J
CHRYSENE	11 U	10 U	0.2 U	0.7 J	11 U	10 U	NA	0.2 U	0.9 J	0.9 J	10 U
DIBENZO(A,H)ANTHRACENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	10 U	10 U	10 U
DIBENZOFURAN	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	8 J
DIETHYL PHTHALATE	11 UJ	10 U	10 UJ	10 U	11 UJ	10 U	NA	10 UJ	10 U	10 U	10 U
DIMETHYL PHTHALATE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
DI-N-BUTYL PHTHALATE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
DI-N-OCTYL PHTHALATE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 UJ

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-12-S	OFF-MW-12-S	OFF-MW-101
SAMPLE NUMBER	OFF-A-MW11R-01	OFF-GW-MW11R	OFF-GW-MW11R-03	OFF-MW-11S	OFF-A-MW11S-01	OFF-GW-MW11S	OFF-GW-MW11SL	OFF-GW-MW11S-03	OFF-MW-11S-D	OFF-MW-12S	OFF-A-MW101-01
SAMPLE DATE	07/10/97	08/19/02	08/25/04	01/05/94	07/10/97	08/19/02	08/20/02	08/25/04	01/05/94	01/05/94	07/11/97
QC IDENTIFIER				ORIG					DUP		
DUPLICATE									OFF-MW-11S		
FLUORANTHENE	11 UJ	10 U	0.2 U	2 J	11 UJ	10 U	NA	0.2 U	2 J	2 J	10 U
FLUORENE	11 U	10 U	0.2 U	1 J	11 U	10 U	NA	1.7	10 U	10 U	9 J
HEXACHLOROBENZENE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
HEXACHLOROBUTADIENE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
HEXACHLOROCYCLOPENTADIENE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
HEXACHLOROETHANE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
INDENO(1,2,3-CD)PYRENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	10 U	10 U	10 U
ISOPHORONE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
NAPHTHALENE	11 U	10 U	0.2 U	10 U	11 U	10 U	NA	0.2 U	10 U	10 U	150
NITROBENZENE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
N-NITROSO-DI-N-PROPYLAMINE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
N-NITROSODIPHENYLAMINE	11 U	10 U	10 UJ	10 U	11 U	10 U	NA	10 UJ	10 U	10 U	10 U
PENTACHLOROPHENOL	28 U	50 U	0 R	26 U	28 U	50 U	NA	0 R	26 U	26 U	25 U
PHENANTHRENE	11 U	10 U	0.2 U	6 J	11 U	10 U	NA	0.2 U	8 J	8 J	7 J
PHENOL	5 J	10 U	0 R	10 U	11 U	10 U	NA	0 R	10 U	10 U	10 U
PYRENE	11 U	10 U	0.2 U	2 J	11 U	10 U	NA	0.2	3 J	3 J	10 U
VOLATILES (UG/L)											
1,1,1-TRICHLOROETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
1,1,2,2-TETRACHLOROETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
1,1,2-TRICHLOROETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
1,1-DICHLOROETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
1,1-DICHLOROETHENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
1,2,4-TRICHLOROBENZENE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
1,2-DIBROMOETHANE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
1,2-DICHLOROBENZENE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
1,2-DICHLOROETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
1,2-DICHLOROPROPANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
1,3-DICHLOROBENZENE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
1,4-DICHLOROBENZENE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
2-BUTANONE	10 UJ	5 U	5 U	10 U	10 UJ	5 U	NA	5 U	10 U	10 U	10 UJ
2-HEXANONE	10 UJ	5 U	5 U	10 U	10 UJ	5 U	NA	5 U	10 U	10 U	10 UJ
4-METHYL-2-PENTANONE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
ACETONE	10 U	5 U	5 U	10 U	14 U	5 U	NA	5 U	10 U	10 U	41 U
BENZENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	8 J
BROMODICHLOROMETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
BROMOFORM	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
BROMOMETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CARBON DISULFIDE	10 UJ	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CARBON TETRACHLORIDE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CHLOROBENZENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CHLORODIBROMOMETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CHLOROETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CHLOROFORM	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CHLOROMETHANE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CIS-1,2-DICHLOROETHENE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
CIS-1,3-DICHLOROPROPENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
CYCLOHEXANE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
DICHLORODIFLUOROMETHANE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
ETHYLBENZENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
ISOPROPYLBENZENE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
M+P-XYLENES	NA	NA	5 U	NA	NA	NA	NA	5 U	NA	NA	NA
METHYL ACETATE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
METHYL CYCLOHEXANE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-R	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-11-S	OFF-MW-12-S	OFF-MW-12-S	OFF-MW-101
SAMPLE NUMBER	OFF-A-MW11R-01	OFF-GW-MW11R	OFF-GW-MW11R-03	OFF-MW-11S	OFF-A-MW11S-01	OFF-GW-MW11S	OFF-GW-MW11SL	OFF-GW-MW11S-03	OFF-MW-11S-D	OFF-MW-12S	OFF-A-MW101-01
SAMPLE DATE	07/10/97	08/19/02	08/25/04	01/05/94	07/10/97	08/19/02	08/20/02	08/25/04	01/05/94	01/05/94	07/11/97
QC IDENTIFIER				ORIG					DUP		
DUPLICATE									OFF-MW-11S		
METHYL TERT-BUTYL ETHER	NA	5 U	0.3 J	NA	NA	5 U	NA	5 U	NA	NA	NA
METHYLENE CHLORIDE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
O-XYLENE	NA	NA	5 U	NA	NA	NA	NA	5 U	NA	NA	NA
STYRENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
TETRACHLOROETHENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
TOLUENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
TOTAL 1,2-DICHLOROETHENE	10 U	NA	10 U	10 U	10 U	NA	NA	10 U	10 U	10 U	10 U
TOTAL XYLENES	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
TRANS-1,2-DICHLOROETHENE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
TRANS-1,3-DICHLOROPROPENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
TRICHLOROETHENE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
TRICHLOROFLUOROMETHANE	NA	5 U	5 U	NA	NA	5 U	NA	5 U	NA	NA	NA
VINYL CHLORIDE	10 U	5 U	5 U	10 U	10 U	5 U	NA	5 U	10 U	10 U	10 U
PESTICIDES/PCBS (UG/L)											
4,4'-DDD	0.11 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
4,4'-DDE	0.11 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
4,4'-DDT	0.11 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
ALDRIN	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 U
ALPHA-BHC	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 UJ
ALPHA-CHLORDANE	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 U
AROCLOR-1016	1.1 U	NA	NA	1 UJ	1.1 U	NA	NA	NA	1 UJ	1 UJ	1 U
AROCLOR-1221	2.1 U	NA	NA	2 UJ	2.1 U	NA	NA	NA	2 UJ	2 UJ	2 U
AROCLOR-1232	1.1 U	NA	NA	1 UJ	1.1 U	NA	NA	NA	1 UJ	1 UJ	1 U
AROCLOR-1242	1.1 U	NA	NA	1 UJ	1.1 U	NA	NA	NA	1 UJ	1 UJ	1 U
AROCLOR-1248	1.1 U	NA	NA	1 UJ	1.1 U	NA	NA	NA	1 UJ	1 UJ	1 U
AROCLOR-1254	1.1 U	NA	NA	1 UJ	1.1 U	NA	NA	NA	1 UJ	1 UJ	1 U
AROCLOR-1260	1.1 U	NA	NA	1 UJ	1.1 U	NA	NA	NA	1 UJ	1 UJ	1 U
BETA-BHC	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 U
DELTA-BHC	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 U
DIELDRIN	0.11 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
ENDOSULFAN I	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 U
ENDOSULFAN II	0.11 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
ENDOSULFAN SULFATE	0.11 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
ENDRIN	0.11 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
ENDRIN ALDEHYDE	0.11 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
ENDRIN KETONE	0.1 U	NA	NA	0.1 UJ	0.11 U	NA	NA	NA	0.1 UJ	0.1 UJ	0.1 U
GAMMA-BHC (LINDANE)	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 U
GAMMA-CHLORDANE	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 U
HEPTACHLOR	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 UJ
HEPTACHLOR EPOXIDE	0.053 U	NA	NA	0.05 UJ	0.053 U	NA	NA	NA	0.05 UJ	0.05 UJ	0.05 U
METHOXYCHLOR	0.53 U	NA	NA	0.5 UJ	0.53 U	NA	NA	NA	0.5 UJ	0.5 UJ	0.5 U
TOXAPHENE	5.3 U	NA	NA	5 UJ	5.3 U	NA	NA	NA	5 UJ	5 UJ	5 U
PETROLEUM HYDROCARBONS (MG/L)											
TOTAL PETROLEUM HYDROCARBONS	1.1 UJ	NA	NA	NA	1.1 UJ	NA	NA	NA	NA	NA	1 UJ
PETROLEUM HYDROCARBONS (UG/L)											
DIESEL RANGE ORGANICS	NA	NA	380	NA	NA	NA	NA	1200	NA	NA	NA
GASOLINE RANGE ORGANICS	NA	NA	10 U	NA	NA	NA	NA	53	NA	NA	NA

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102
SAMPLE NUMBER	OFF-A-MW101-01-F	OFF-GW-MW101	OFF-GW-MW101-D	OFF-GW-MW101-03	OFF-GW-MW101-03-D	OFF-A-MW102-01	OFF-A-MW102-01-F	OFF-GW-MW102	OFF-GW-MW102-D	OFF-GW-MW102-03
SAMPLE DATE	07/11/97	08/19/02	08/19/02	08/24/04	08/24/04	07/11/97	07/11/97	08/19/02	08/19/02	08/25/04
QC IDENTIFIER		ORIG	DUP	ORIG	DUP			ORIG	DUP	
DUPLICATE			OFF-GW-MW101		OFF-GW-MW101-03				OFF-GW-MW102	
METALS (UG/L)										
ALUMINUM	NA	16 B	19 B	18.3 UJ	18.3 UJ	885 J	NA	16 B	12 U	18.3 UJ
ANTIMONY	NA	3 U	3 U	2.34 U	2.6 UJ	2.1 U	NA	3 U	3 U	2.4 UJ
ARSENIC	NA	26	25	26.2	26.5	1.8 U	NA	3 U	3 U	3.03 U
BARIUM	NA	52 B	50 B	49.6	47.4	390	NA	27 B	25 B	11
BERYLLIUM	NA	2 U	2 U	0.31 UJ	0.37 UJ	0.14 U	NA	2 U	2 U	0.25 U
CADMIUM	NA	2 U	2 U	0.3 U	0.38 J	0.52 U	NA	2 U	2 U	0.3 U
CALCIUM	NA	44800	44200	47900	45700	93200 J	NA	36700	37800	49600
CHROMIUM	NA	3 U	3 U	0.8 U	0.8 U	19.8	NA	31	28	0.8 U
COBALT	NA	3 U	3 U	0.64 U	0.64 U	3.8 U	NA	3 U	3 U	0.64 U
COPPER	NA	2 U	2 B	2.2 U	2.7 U	12.3 U	NA	3 B	2 B	7.9 U
CYANIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
IRON	NA	11000	11000	6460	6670	12200 J	NA	972	941	14.6 UJ
LEAD	NA	1 U	1 U	1.7 UJ	1.7 UJ	27.6 J	NA	1 U	1 U	1.7 UJ
MAGNESIUM	NA	16000	16000	12400	12700	232000 J	NA	110000	111000	138000
MANGANESE	NA	236	237	447 J	433 J	1180 J	NA	69	72	35 J
MERCURY	NA	0 U	0 U	0.01 U	0.01 U	0.15 J	NA	0 U	0 U	0.01 U
NICKEL	NA	1 U	1 B	0.85 U	1 J	13.5 U	NA	13 B	13 B	10.4
POTASSIUM	NA	18200	16800	16200	16300	97000 J	NA	90400	93700	62100
SELENIUM	NA	8 U	8 U	3.71 U	3.71 U	2.9 U	NA	8 U	8 U	3.71 U
SILVER	NA	2 U	2 U	0.7 U	0.7 U	1.8 U	NA	2 U	2 U	0.7 U
SODIUM	NA	192000	193000	152000	155000	2260000 J	NA	1080000	1110000	1240000
THALLIUM	NA	4 U	4 U	4.3 UJ	11.6 UJ	5.7 U	NA	4 U	4 U	4.09 U
VANADIUM	NA	3 U	3 U	0.75 U	0.75 U	2	NA	3 U	3 U	0.75 U
ZINC	NA	8 U	8 U	9.2	1.6 U	128	NA	8 U	8 U	10.1
DISSOLVED METALS (UG/L)										
ALUMINUM	14.3 UJ	NA	NA	NA	NA	NA	14.3 UJ	NA	NA	NA
ANTIMONY	2.1 U	NA	NA	NA	NA	NA	2.1 U	NA	NA	NA
ARSENIC	28.3	NA	NA	NA	NA	NA	1.8 U	NA	NA	NA
BARIUM	11	NA	NA	NA	NA	NA	319	NA	NA	NA
BERYLLIUM	0.14 U	NA	NA	NA	NA	NA	0.14 U	NA	NA	NA
CADMIUM	0.19 U	NA	NA	NA	NA	NA	0.19 U	NA	NA	NA
CALCIUM	15900 J	NA	NA	NA	NA	NA	89400 J	NA	NA	NA
CHROMIUM	0.53 U	NA	NA	NA	NA	NA	0.53 U	NA	NA	NA
COBALT	3.8 U	NA	NA	NA	NA	NA	3.8 U	NA	NA	NA
COPPER	3.2 U	NA	NA	NA	NA	NA	3.9 U	NA	NA	NA
IRON	4640 J	NA	NA	NA	NA	NA	493 J	NA	NA	NA
LEAD	1.4 UJ	NA	NA	NA	NA	NA	1.4 UJ	NA	NA	NA
MAGNESIUM	19900 J	NA	NA	NA	NA	NA	232000 J	NA	NA	NA
MANGANESE	468 J	NA	NA	NA	NA	NA	1120 J	NA	NA	NA
MERCURY	0.02	NA	NA	NA	NA	NA	0.01 UJ	NA	NA	NA
NICKEL	0.72 U	NA	NA	NA	NA	NA	1.9 U	NA	NA	NA
POTASSIUM	20000 J	NA	NA	NA	NA	NA	98600 J	NA	NA	NA
SELENIUM	2.9 U	NA	NA	NA	NA	NA	2.9 U	NA	NA	NA
SILVER	0.82 U	NA	NA	NA	NA	NA	1.8 J	NA	NA	NA
SODIUM	353000 J	NA	NA	NA	NA	NA	2340000 J	NA	NA	NA
THALLIUM	3.9 UJ	NA	NA	NA	NA	NA	3.9 UJ	NA	NA	NA
VANADIUM	0.57 U	NA	NA	NA	NA	NA	0.57 U	NA	NA	NA
ZINC	10 U	NA	NA	NA	NA	NA	16 U	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/L)										
CHEMICAL OXYGEN DEMAND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL SUSPENDED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)										

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TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102
SAMPLE NUMBER	OFF-A-MW101-01-F	OFF-GW-MW101	OFF-GW-MW101-D	OFF-GW-MW101-03	OFF-GW-MW101-03-D	OFF-A-MW102-01	OFF-A-MW102-01-F	OFF-GW-MW102	OFF-GW-MW102-D	OFF-GW-MW102-03
SAMPLE DATE	07/11/97	08/19/02	08/19/02	08/24/04	08/24/04	07/11/97	07/11/97	08/19/02	08/19/02	08/25/04
QC IDENTIFIER		ORIG	DUP	ORIG	DUP			ORIG	DUP	
DUPLICATE			OFF-GW-MW101		OFF-GW-MW101-03				OFF-GW-MW102	
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)										
1,1-BIPHENYL	NA	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 UJ
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA
2,2'-OXYBIS(1-CHLOROPROPANE)	NA	10 U	10 U	10 U	10 U	10 UJ	NA	10 U	10 U	10 UJ
2,4,5-TRICHLOROPHENOL	NA	50 U	50 U	25 U	25 U	25 U	NA	50 U	50 U	25 UJ
2,4,6-TRICHLOROPHENOL	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
2,4-DICHLOROPHENOL	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
2,4-DIMETHYLPHENOL	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
2,4-DINITROPHENOL	NA	50 U	50 U	25 U	25 U	25 U	NA	50 U	50 U	25 UJ
2,4-DINITROTOLUENE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
2,6-DINITROTOLUENE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
2-CHLORONAPHTHALENE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
2-CHLOROPHENOL	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
2-METHYLNAPHTHALENE	NA	4 J	5 J	0.2 U	0.2 U	3 J	NA	10 U	10 U	0.2 U
2-METHYLPHENOL	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
2-NITROANILINE	NA	50 U	50 U	25 U	25 U	25 U	NA	50 U	50 U	25 UJ
2-NITROPHENOL	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
3,3'-DICHLOROBENZIDINE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
3-NITROANILINE	NA	50 U	50 U	25 U	25 U	25 U	NA	50 U	50 U	25 UJ
4,6-DINITRO-2-METHYLPHENOL	NA	50 U	50 U	25 U	25 U	25 U	NA	50 U	50 U	25 UJ
4-BROMOPHENYL PHENYL ETHER	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
4-CHLORO-3-METHYLPHENOL	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
4-CHLOROANILINE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
4-CHLOROPHENYL PHENYL ETHER	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
4-METHYLPHENOL	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
4-NITROANILINE	NA	50 U	50 U	25 U	25 U	25 U	NA	50 U	50 U	25 UJ
4-NITROPHENOL	NA	50 U	50 U	25 U	25 U	25 U	NA	50 U	50 U	25 UJ
ACENAPHTHENE	NA	1 J	1 J	1	1.2	3 J	NA	10 U	10 U	0.2 U
ACENAPHTHYLENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
ACETOPHENONE	NA	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 UJ
ANTHRACENE	NA	10 U	10 U	0.076 J	0.082 J	10 U	NA	10 U	10 U	0.2 U
ATRAZINE	NA	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 UJ
BENZALDEHYDE	NA	10 U	10 U	10 UJ	10 UJ	NA	NA	10 U	10 U	10 UJ
BENZO(A)ANTHRACENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
BENZO(A)PYRENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
BENZO(B)FLUORANTHENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
BENZO(G,H,I)PERYLENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
BENZO(K)FLUORANTHENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
BIS(2-CHLOROETHOXY)METHANE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
BIS(2-CHLOROETHYL)ETHER	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
BIS(2-ETHYLHEXYL)PHTHALATE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
BUTYL BENZYL PHTHALATE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
CAPROLACTAM	NA	10 U	10 U	10 U	10 U	NA	NA	10 U	10 U	10 UJ
CARBAZOLE	NA	10 U	10 U	10 U	10 U	1 J	NA	10 U	10 U	10 UJ
CHRYSENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
DIBENZO(A,H)ANTHRACENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
DIBENZOFURAN	NA	1 J	1 J	10 U	10 U	2 J	NA	10 U	10 U	10 UJ
DIETHYL PHTHALATE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
DIMETHYL PHTHALATE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
DI-N-BUTYL PHTHALATE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
DI-N-OCTYL PHTHALATE	NA	10 U	10 U	10 U	10 U	10 UJ	NA	10 U	10 U	10 UJ

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GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102
SAMPLE NUMBER	OFF-A-MW101-01-F	OFF-GW-MW101	OFF-GW-MW101-D	OFF-GW-MW101-03	OFF-GW-MW101-03-D	OFF-A-MW102-01	OFF-A-MW102-01-F	OFF-GW-MW102	OFF-GW-MW102-D	OFF-GW-MW102-03
SAMPLE DATE	07/11/97	08/19/02	08/19/02	08/24/04	08/24/04	07/11/97	07/11/97	08/19/02	08/19/02	08/25/04
QC IDENTIFIER		ORIG	DUP	ORIG	DUP			ORIG	DUP	
DUPLICATE			OFF-GW-MW101		OFF-GW-MW101-03				OFF-GW-MW102	
FLUORANTHENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
FLUORENE	NA	1 J	1 J	1.2	1.4	3 J	NA	10 U	10 U	0.2 U
HEXACHLOROBENZENE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
HEXACHLOROBUTADIENE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
HEXACHLOROCYCLOPENTADIENE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
HEXACHLOROETHANE	NA	10 U	10 U	10 UJ	10 UJ	10 U	NA	10 U	10 U	10 UJ
INDENO(1,2,3-CD)PYRENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
ISOPHORONE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
NAPHTHALENE	NA	8 J	9 J	0.49 J	0.12 J	11	NA	10 U	10 U	0.11 J
NITROBENZENE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
N-NITROSO-DI-N-PROPYLAMINE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
N-NITROSODIPHENYLAMINE	NA	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 UJ
PENTACHLOROPHENOL	NA	50 U	50 U	25 U	25 U	25 U	NA	50 U	50 U	25 UJ
PHENANTHRENE	NA	10 U	10 U	0.3	0.2	3 J	NA	10 U	10 U	0.2 U
PHENOL	NA	10 U	10 U	10 U	10 U	2 J	NA	10 U	10 U	10 UJ
PYRENE	NA	10 U	10 U	0.2 U	0.2 U	10 U	NA	10 U	10 U	0.2 U
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
1,1,2,2-TETRACHLOROETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
1,1,2-TRICHLOROETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
1,1-DICHLOROETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
1,1-DICHLOROETHENE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
1,2,4-TRICHLOROBENZENE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
1,2-DIBROMO-3-CHLOROPROPANE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
1,2-DIBROMOETHANE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
1,2-DICHLOROBENZENE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
1,2-DICHLOROETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
1,2-DICHLOROPROPANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
1,3-DICHLOROBENZENE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
1,4-DICHLOROBENZENE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
2-BUTANONE	NA	5 U	5 U	5 U	5 U	10 UJ	NA	5 U	5 U	5 U
2-HEXANONE	NA	5 U	5 U	5 U	5 U	10 UJ	NA	5 U	5 U	5 U
4-METHYL-2-PENTANONE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
ACETONE	NA	5 U	5 U	6 U	5 U	89 U	NA	5 U	5 U	5 U
BENZENE	NA	5 U	5 U	0.4 J	0.5 J	33	NA	1 J	1 J	2 J
BROMODICHLOROMETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
BROMOFORM	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
BROMOMETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CARBON DISULFIDE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CARBON TETRACHLORIDE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CHLOROBENZENE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CHLORODIBROMOMETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CHLOROETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CHLOROFORM	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CHLOROMETHANE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CIS-1,2-DICHLOROETHENE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
CIS-1,3-DICHLOROPROPENE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
CYCLOHEXANE	NA	5 U	5 U	1 J	1 J	NA	NA	5 U	5 U	5 U
DICHLORODIFLUOROMETHANE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
ETHYLBENZENE	NA	5 U	5 U	5 U	5 U	38	NA	5 U	5 U	5 U
ISOPROPYLBENZENE	NA	5 U	5 U	2 J	2 J	NA	NA	5 U	5 U	5 U
M+P-XYLENES	NA	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
METHYL ACETATE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
METHYL CYCLOHEXANE	NA	5 U	5 U	2 J	2 J	NA	NA	5 U	5 U	5 U

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-1
APPENDIX D
GROUNDWATER ANALYTICAL RESULTS
OLD FIREFIGHTER TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-101	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102	OFF-MW-102
SAMPLE NUMBER	OFF-A-MW101-01-F	OFF-GW-MW101	OFF-GW-MW101-D	OFF-GW-MW101-03	OFF-GW-MW101-03-D	OFF-A-MW102-01	OFF-A-MW102-01-F	OFF-GW-MW102	OFF-GW-MW102-D	OFF-GW-MW102-03
SAMPLE DATE	07/11/97	08/19/02	08/19/02	08/24/04	08/24/04	07/11/97	07/11/97	08/19/02	08/19/02	08/25/04
QC IDENTIFIER		ORIG	DUP	ORIG	DUP			ORIG	DUP	
DUPLICATE			OFF-GW-MW101		OFF-GW-MW101-03				OFF-GW-MW102	
METHYL TERT-BUTYL ETHER	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
METHYLENE CHLORIDE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
O-XYLENE	NA	NA	NA	5 U	5 U	NA	NA	NA	NA	5 U
STYRENE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
TETRACHLOROETHENE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
TOLUENE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
TOTAL 1,2-DICHLOROETHENE	NA	NA	NA	10 U	10 U	10 U	NA	NA	NA	10 U
TOTAL XYLENES	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
TRANS-1,2-DICHLOROETHENE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
TRANS-1,3-DICHLOROPROPENE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
TRICHLOROETHENE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
TRICHLOROFLUOROMETHANE	NA	5 U	5 U	5 U	5 U	NA	NA	5 U	5 U	5 U
VINYL CHLORIDE	NA	5 U	5 U	5 U	5 U	10 U	NA	5 U	5 U	5 U
PESTICIDES/PCBS (UG/L)										
4,4'-DDD	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	0.051 U	NA	NA	NA	NA
ALPHA-BHC	NA	NA	NA	NA	NA	0.051 UJ	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	0.051 U	NA	NA	NA	NA
AROCLOR-1016	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA
AROCLOR-1221	NA	NA	NA	NA	NA	2 U	NA	NA	NA	NA
AROCLOR-1232	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA
AROCLOR-1242	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA
AROCLOR-1248	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA
AROCLOR-1254	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA
AROCLOR-1260	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA
BETA-BHC	NA	NA	NA	NA	NA	0.051 U	NA	NA	NA	NA
DELTA-BHC	NA	NA	NA	NA	NA	0.051 U	NA	NA	NA	NA
DIELDRIN	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
ENDOSULFAN I	NA	NA	NA	NA	NA	0.051 U	NA	NA	NA	NA
ENDOSULFAN II	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
ENDOSULFAN SULFATE	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
ENDRIN	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
ENDRIN ALDEHYDE	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
ENDRIN KETONE	NA	NA	NA	NA	NA	0.1 U	NA	NA	NA	NA
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	0.051 U	NA	NA	NA	NA
GAMMA-CHLORDANE	NA	NA	NA	NA	NA	0.051 U	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	0.051 UJ	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	0.051 U	NA	NA	NA	NA
METHOXYCHLOR	NA	NA	NA	NA	NA	0.51 U	NA	NA	NA	NA
TOXAPHENE	NA	NA	NA	NA	NA	5.1 U	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (MG/L)										
TOTAL PETROLEUM HYDROCARBONS	NA	NA	NA	NA	NA	1 UJ	NA	NA	NA	NA
PETROLEUM HYDROCARBONS (UG/L)										
DIESEL RANGE ORGANICS	NA	NA	NA	1300	1200	NA	NA	NA	NA	1200 J
GASOLINE RANGE ORGANICS	NA	NA	NA	81	72	NA	NA	NA	NA	10

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TETRA TECH NUS, INC.

C-NAVY-09-04-1753W

Date: September 22, 2004 c: File N4152-D-4.10

To: Steve Parker

From: Ann Franke AF

Subject: Tier II Inorganic Data Validation
Katahdin Analytical Services SDG CTO833-1
CTO-833, Old Firefighter Training Area Site, Newport, Rhode Island

TAL Metals:

17/Groundwaters/ OFFTA-GW-DUP01- 03, OFFTA-GW-DUP02- 03, OFFTA-GW-MW101-03, OFFTA-GW-MW102-03, OFFTA-GW-MW10S-03, OFFTA-GW-MW11R-03, OFFTA-GW-MW11S-03, OFFTA-GW-MW1R-03, OFFTA-GW-MW2D-03, OFFTA-GW-MW2S-03, OFFTA-GW-MW3S-03, OFFTA-GW-MW4S-03, OFFTA-GW-MW5S-03, OFFTA-GW-MW6R-03, OFFTA-GW-MW6S-03, OFFTA-GW-MW8R-03, OFFTA-GW-MW9R-03, (Field Duplicate Pairs: OFFTA-GW-MW101-03/ OFFTA-GW-DUP01-03 and OFFTA-GW-MW9R-03/OFFTA-GW-DUP02- 03)

1/Rinsate Blank/ OFFTA-GW-RB01-03

A Tier II data validation was performed by Tetra Tech NUS, Inc. (TtNUS) on the TAL metals data from groundwater samples collected at the Old Firefighter Training Area site on August 24, 25, and 26, 2004. The metals analysis was performed according to SW-846 Methods 6010B/7470A. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The metals data were evaluated based on the following parameters:

- Data Completeness
- * Holding Times
- Calibration Verification
- Field and Laboratory Blank Analyses
- ICP Interference Check Sample Results
- * Matrix Spike/Matrix Spike Duplicate Results
- Laboratory Control Sample Results
- * Field Duplicate Precision
- ICP Serial Dilution Results
- * Detection Limits
- NA Sample Quantitation

NA – Parameter not evaluated for Tier II level data validation.

* - All quality control criteria were met for this parameter.

Data Completeness

The laboratory was contacted on September 21, 2004, about missing raw data in the electronic deliverables (PDF file) for some of the metals analytical runs. The laboratory resubmitted an addendum to the PDF file containing the missing raw data on September 22, 2004.

Calibration Verification

The percent recoveries for selenium, thallium, and manganese were above the 120 percent QC criterion; and the percent recovery for lead was below the 80 percent QC criterion, in the CRDL standard analyses. The positive selenium, thallium, and manganese results less than 3x CRDL are qualified as estimated (J) in the aqueous samples. The results may be biased high. The positive lead results less than 3x CRDL and the non-detected lead results are estimated (J, UJ) in the aqueous samples. These results may be biased low.

Field and Laboratory Blank Analyses

The field and/or laboratory blank analyses were used to calculate the maximum concentrations and action levels of the following contaminants affecting the groundwater and/or rinsate blank sample:

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Aluminum	-136	680
Antimony	3.2	16.0
Beryllium	0.35	1.8
Calcium	30.7*	154*
Copper	2.9	14.5
Iron	15.2	76.0
Selenium	4.1	20.4
Sodium	147*	733*
Thallium	9.1	45.3
Zinc	0.78	3.9

* - Value affects only the rinsate blank sample.

The positive results below the action level for antimony, beryllium, calcium, copper, iron, selenium, sodium, thallium, and zinc were changed to non-detected values in the affected aqueous samples due to field or laboratory blank contamination. In addition, positive aluminum result below the action level in sample OFF-GW-MW6S-03 and the non-detected aluminum results are estimated (J, UJ) in the aqueous samples due to negative instrument drift as evidenced by the negative laboratory blank results. The results may be biased low.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of magnesium and/or calcium in the groundwater samples:

Analyte	Action*	Affected samples
Cadmium	Reject+	OFFTA-GW-MW2S-03
Copper	J+	OFFTA-GW-MW10S-03, OFFTA-GW-MW2S-03
Vanadium	UJ – ND	OFFTA-GW-MW10S-03, OFFTA-GW-MW2S-03

* - Cadmium and copper results are biased high. Vanadium results are biased low.

The positive copper results are estimated (J) in samples OFFTA-GW-MW10S-03 and OFFTA-GW-MW2S-03 due to positive ICP interference attributed to calcium and/or magnesium. The results may be biased high. The positive cadmium result in sample OFFTA-GW-MW2S-03 is rejected (R) because the reported concentration may be due entirely (≥ 80%) to positive magnesium ICP interference. The non-detected vanadium results are estimated (UJ) in samples OFFTA-GW-MW10S-03 and OFFTA-GW-MW2S-03 due to negative ICP interference attributed to magnesium and/or calcium. The results may be biased low or false negative.

Laboratory Control Sample Results

The laboratory control sample result was above the 120 percent recovery criterion for mercury. The positive mercury result in affected sample OFFTA-GW-MW10S-03 is estimated (J). The result may be biased high.

ICP Serial Dilution Results

The ICP serial dilution percent difference (%D) for manganese was above the 15 percent QC criterion for analyte concentrations greater than 50x IDL before dilution. The positive results for manganese are estimated (J) in the groundwater samples. Since the initial sample result for manganese was less than the diluted sample result, the data may be biased low.

Overall Assessment of the Metals Data

The metals data are acceptable for use as qualified. Positive sample results changed to non-detected values due to blank contamination are treated as positive results for qualification purposes. The estimation of these non-detected values is reported in the data summary table as (UJ).

The positive selenium, thallium, and manganese results less than 3x CRDL are qualified as estimated (J) in the aqueous samples due to poor linearity near the CRDL. The results may be biased high. The positive lead results less than 3x CRDL and the non-detected lead results are estimated (J, UJ) in the aqueous samples due to poor linearity near the CRDL. These results may be biased low.

The positive results below the action level for antimony, beryllium, calcium, copper, iron, selenium, sodium, thallium, and zinc were changed to non-detected values in the affected aqueous samples due to field or laboratory blank contamination. In addition, positive aluminum result below the action level in sample OFF-GW-MW6S-03 and the non-detected aluminum results are estimated (J, UJ) in the aqueous samples due to negative instrument drift as evidenced by the negative laboratory blank results. The results may be biased low.

The positive copper results are estimated (J) in samples OFFTA-GW-MW10S-03 and OFFTA-GW-MW2S-03 due to positive ICP interference attributed to calcium and/or magnesium. The results may be biased high. The positive cadmium result in sample OFFTA-GW-MW2S-03 is rejected (R) because the

reported concentration may be due entirely to positive magnesium ICP interference. The non-detected vanadium results are estimated (UJ) in samples OFFTA-GW-MW10S-03 and OFFTA-GW-MW2S-03 due to negative ICP interference attributed to magnesium and/or calcium. The results may be biased low or false negative.

The positive mercury result in affected sample OFFTA-GW-MW10S-03 is estimated (J) due to the high laboratory control sample recovery. The result may be biased high.

The positive results for manganese are estimated (J) in the groundwater samples due to a sample matrix suppressing effect detected in the ICP serial dilution analysis. Since the initial sample result for manganese was less than the diluted sample result, the data may be biased low.

Sample results less than 2x IDL are estimated (J) due to uncertainty in values near the instrument detection limit.

Tables: Data Summary Tables

Enclosures: Data Validation Worksheets

Aqueous TAL Metal Analysis By SW6010B/7470A (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03		OFF-GW-MW10S-03	
Station Location	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03		OFF-GW-MW10S-03	
Date Sampled	8/24/04		8/26/04		8/24/04		8/25/04		8/26/04	
Date Extracted										
Date Analyzed										
Dilution Factor	1		1		1		1		1	
Percent Solids										
QC Identifier	Field Dup. OFF-GW-MW101-03		Field Dup. OFF-GW-MW9R-03		Field Dup. OFF-GW-MW101-03		None		None	
Aluminum	18.30	UJ	18.30	UJ	18.30	UJ	18.30	UJ	18.30	UJ
Antimony	2.6	UJ	3.3	UJ	2.34	U	2.4	UJ	2.8	UJ
Arsenic	26.5		3.03	U	26.2		3.03	U	3.03	U
Barium	47.4		6.2		49.6		11.0		18.3	
Beryllium	0.37	UJ	0.43	UJ	0.31	UJ	0.25	U	0.25	U
Cadmium	0.38	J	0.30	U	0.30	U	0.30	U	0.30	U
Calcium	45700		37800		47900		49600		148000	
Chromium	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U
Cobalt	0.64	U	0.64	U	0.64	U	0.64	U	8.9	
Copper	2.7	U	4.6	U	2.2	U	7.9	U	5.8	UJ
Iron	6670		68.4	U	6460		14.6	UJ	218	
Lead	1.70	UJ	1.70	UJ	1.70	UJ	1.70	UJ	1.70	UJ
Magnesium	12700		7730		12400		138000		367000	
Manganese	433	J	546	J	447	J	35.0	J	873	J
Mercury	0.01	U	0.01	U	0.01	U	0.01	U	0.02	J
Nickel	1.0	J	2.4		0.85	U	10.4		2.7	
Potassium	16300		5880		16200		62100		131000	
Selenium	3.71	U	3.71	U	3.71	U	3.71	U	3.71	U
Silver	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U
Sodium	155000		52000		152000		1240000		3030000	
Thallium	11.6	UJ	4.09	U	4.3	UJ	4.09	U	4.09	U
Vanadium	0.75	U	0.75	U	0.75	U	0.75	U	0.75	UJ
Zinc	1.6	U	2.7	U	9.2		10.1		11.9	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
R - Rejected

Aqueous TAL Metal Analysis By SW6010B/7470A (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03		OFF-GW-MW3S-03	
Station Location	OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03		OFF-GW-MW3S-03	
Date Sampled	8/25/04		8/25/04		8/26/04		8/25/04		8/25/04		8/24/04	
Date Extracted												
Date Analyzed												
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Aluminum	18.30	UJ	18.30	UJ	18.30	UJ	18.30	UJ	18.30	UJ	18.30	UJ
Antimony	3.0	UJ	2.7	UJ	4.0	UJ	2.34	U	4.5	UJ	2.6	UJ
Arsenic	5.4	J	3.03	U	3.03	U	3.03	U	3.03	U	3.03	U
Barium	3.2		82.0		3.3		4.6		199		18.2	
Beryllium	0.25	U	0.25	U	0.35	UJ	0.25	U	0.25	U	0.25	U
Cadmium	0.30	U	0.30	U	0.30	U	0.30	U		R	0.30	U
Calcium	33400		131000		30000		61000		330000		50600	
Chromium	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U
Cobalt	3.7		0.82	J	4.4		5.6		1.2	J	0.64	U
Copper	1.9	U	11.3	U	3.0	U	2.0	U	101	J	4.7	U
Iron	5320		2620		18.5	UJ	460		500		5510	
Lead	1.70	UJ	1.70	UJ	1.70	UJ	1.70	UJ	38.6		1.70	UJ
Magnesium	55500		35200		4490		58600		942000		23000	
Manganese	4310	J	4450	J	26.9	J	6250	J	203	J	1990	J
Mercury	0.01	U	0.01	J	0.01	U	0.01	U	0.06		0.01	U
Nickel	1.9		6.8		2.6		4.7		32.6		1.6	J
Potassium	35800		18600		2780		32900		323000		12700	
Selenium	3.71	U	3.71	U	3.71	U	3.71	U	3.71	U	3.71	U
Silver	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U
Sodium	532000		156000		21400		330000		7480000		219000	
Thallium	7.0	UJ	11.9	UJ	4.09	U	4.7	UJ	5.3	UJ	4.09	U
Vanadium	0.75	U	0.75	U	0.75	U	0.75	U	0.75	UJ	0.75	U
Zinc	2.1	U	41.9		17.0		3.2	U	2290		3.7	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
R - Rejected

Aqueous TAL Metal Analysis By SW6010B/7470A (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03		OFF-GW-MW9R-03	
Station Location	OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03		OFF-GW-MW9R-03	
Date Sampled	8/25/04		8/24/04		8/24/04		8/24/04		8/26/04		8/26/04	
Date Extracted												
Date Analyzed												
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		Field Dup. OFF-GW-MW9R-03	
Aluminum	18.30	UJ	18.30	UJ	18.30	UJ	67.6	J	18.30	UJ	18.30	UJ
Antimony	2.8	UJ	6.3	U	2.34	U	2.34	U	2.34	U	2.34	U
Arsenic	3.03	U	3.03	U	3.03	U	3.03	U	3.03	U	3.03	U
Barium	13.3		10.3		4.1		7.7		0.68		6.8	
Beryllium	0.35	UJ	0.25	U	0.38	UJ	0.30	UJ	0.39	UJ	0.26	UJ
Cadmium	0.30	U	0.30	U	0.30	U	6.6		0.30	U	0.30	U
Calcium	43900		92400		7990		5890		46800		39700	
Chromium	1.1	J	1.2	J	0.80	U	0.80	U	0.80	U	0.80	U
Cobalt	30.8		1.5		0.64	U	1.1	J	0.64	U	0.64	U
Copper	2.1	U	3.6	U	3.4	U	4.8	U	4.9	U	4.4	U
Iron	2920		14.1	UJ	10.70	U	286		10.70	U	63.5	U
Lead	2.0	J	1.70	UJ	1.70	UJ	2.2	J	1.70	UJ	1.70	UJ
Magnesium	33400		21900		6840		1620		5510		8080	
Manganese	24400	J	473	J	6.6	J	24.4	J	1280	J	588	J
Mercury	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Nickel	6.2		5.8		3.9		3.2		4.0		2.6	
Potassium	12100		7360		4690		4020		3710		6080	
Selenium	3.71	U	6.4	UJ	4.3	UJ	3.9	UJ	3.71	U	3.71	U
Silver	0.82	J	1.5		0.70	U	0.70	U	0.70	U	0.70	U
Sodium	182000		38100		60600		30300		95200		50900	
Thallium	8.7	UJ	4.6	UJ	4.09	U	5.1	UJ	4.09	U	4.9	UJ
Vanadium	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
Zinc	10.9		3.9	U	5.4		16.2		3.4	U	3.0	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
R - Rejected

Aqueous TAL Metal Analysis By SW6010B/7470A (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-RB01-03	
Station Location	OFF-GW-RB01-03	
Date Sampled	8/24/04	
Date Extracted		
Date Analyzed		
Dilution Factor	1	
Percent Solids		
QC Identifier	Rinsate Blank	
Aluminum	18.30	UJ
Antimony	2.34	U
Arsenic	3.03	U
Barium	0.17	U
Beryllium	0.25	U
Cadmium	0.30	U
Calcium	24.6	U
Chromium	0.80	U
Cobalt	0.64	U
Copper	1.7	UJ
Iron	10.70	U
Lead	1.70	UJ
Magnesium	7.52	U
Manganese	0.13	U
Mercury	0.01	U
Nickel	0.85	U
Potassium	238.00	U
Selenium	3.71	U
Silver	0.70	U
Sodium	150	U
Thallium	4.2	UJ
Vanadium	0.75	U
Zinc	0.77	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
R - Rejected

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INTERNAL CORRESPONDENCE

C-NAVY-09-04-1760W

Date: September 27, 2004

c: File N4152-D-4.10

To: Steve Parker

From: Dan Wielandt

Subject: Tier II Data Validation Organic Data
Katahdin Analytical Services SDG CTO833-1
CTO-833, Old Firefighter Training Area Site, Newport, Rhode Island

VOC/SVOC/GRO/DRO:
17/Groundwaters/ OFF-GW-DUP01- 03, OFF-GW-DUP02- 03, OFF-GW-MW101-03, OFF-GW-MW102-03, OFF-GW-MW10S-03, OFF-GW-MW11R-03, OFF-GW-MW11S-03, OFF-GW-MW1R-03, OFF-GW-MW2D-03, OFF-GW-MW2S-03, OFF-GW-MW3S-03, OFF-GW-MW4S-03, OFF-GW-MW5S-03, OFF-GW-MW6R-03, OFF-GW-MW6S-03, OFF-GW-MW8R-03, OFF-GW-MW9R-03
(Field Duplicate Pairs: OFF-GW-MW101-03/ OFF-GW-DUP01-03 and OFF-GW-MW9R-03/OFF-GW-DUP02- 03)

1/Rinsate Blank/ OFF-GW-RB01-03

VOC/GRO:
2/Trip Blank/ OFF-GW-TB01-03, OFF-GW-TB02-03

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the volatile (VOC), semivolatile (SVOC), gasoline range organics (GRO), and diesel range organics (DRO) from the groundwaters samples collected at the Old Firefighter Training Area on August 24, 25, and 26, 2004. The VOC and SVOC analyses were performed according to USEPA SW-846 Methods 8260B and 8270C, respectively. The GRO and DRO analyses were performed according to Modified USEPA SW-846 Method 8015B. The volatile, semivolatile, GRO, and DRO data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996.

The data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- * Data Completeness
- Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- Initial and Continuing Calibrations
- Blanks
- Surrogate Compounds
- * Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- * Laboratory Control Sample/Laboratory Control Sample Duplicate

- Field Duplicates
- * Target Compound Identification
- * Compound Quantitation and Reported Quantitation Limits
- * System Performance

NA – Parameter not included in a Tier II level data validation.

* All criteria were met for this parameter.

Preservation and Technical Holding Times

Several groundwater SVOC, which all had surrogate recoveries below the QC limits, were re-extracted beyond the analytical extraction holding time. In the following samples the results are estimated (J, UJ) due to exceeded analytical extraction holding times: MW102, MW11R, MW11S, MW2D, MW2S, MW4S, and RB01. The results may be biased low or false negative.

Initial and Continuing Calibrations

Volatiles

The following table summarizes the volatile compounds that failed to meet the continuing calibration (CC) criterion of %D < 25:

Compound	Action		Affected Samples
	(+)	NDs	
Methyl tert-butyl ether		UJ	DUP02, MW1R, MW10S, MW8R, MW9R, TB02

Semivolatiles

The following table summarizes the semivolatile compounds that failed to meet the initial calibration (IC) criterion of %RSD < 30 and the continuing calibration (CC) criterion of %D < 25:

Compound	Action		Affected Samples
	(+)	NDs	
Benzaldehyde		UJ	All Samples
Hexachloroethane		UJ	DUP01, MW101, MW3S, MW5S, MW6R, MW6S, RB01
3,3'-Dichlorobenzidine		UJ	RB01

SIM

The following table summarizes the SIM compounds that failed to meet the continuing calibration (CC) criterion of %D < 25:

	Action		Affected Samples
Compound	(+)	NDs	
Indeno(1,2,3-cd)pyrene		UJ	MW5S, MW3S
Dibenzo(a,h)anthracene		UJ	

Blanks

Volatiles

The following table summarizes the level of blank contamination detected in the field and laboratory blanks associated with these samples

Compound	Type of Blank	Maximum Concentration	Action Level	Affected Samples
Acetone	Trip	7 ug/L	70 ug/L	All samples except MW1R and MW9R

Blank actions were applied to the groundwater samples due to acetone trip blank contamination. Since acetone is a common laboratory contaminant, the 10x rule applies for action limits. These positive acetone results may be false positive or biased high.

DRO

The following table summarizes the level of blank contamination detected in the field and laboratory blanks associated with these samples.

Compound	Type of Blank	Maximum Concentration	Action Level	Affected Samples
DRO	Rinsate	46 ug/L	230 ug/L	MW1R, MW8R

Blank actions were applied to the groundwater samples due to rinsate blank contamination. The 5x rule applies for action limits. The data may be biased high or false positive.

The following actions apply for blank contamination:

- Accept values > Action Level.
- Report as (U) values > CRQL and < Action Level.
- Report CRQL (U) values < CRQL and < Action Level.

Surrogate Recovery

Semivolatiles

The percent recoveries for the acid surrogates were less then 10 percent in samples: MW11R, MW4S, MW11S, and MW2D. The results for the acid compounds in these samples are rejected (R). The results may be biased low or false negative.

DRO

The percent recoveries for O-terphenyl were below the quality control limits in the following groundwater samples: MW10S, MW102, MW2D, and MW2S. The positive results in the groundwater samples are estimated (J). The results may be biased high.

Matrix Spike/Matrix Spike Duplicate

Semivolatiles

The following tables summarize the semivolatile matrix spiking recoveries that did not meet QC limits in the matrix spike and matrix spike duplicate analysis:

MW6R					
Compound	MS %REC	MSD %REC	QC Limits	Action	
				(+)	ND
Hexachloroethane	44	49	60 – 140		UJ
Hexachlorobutadiene	58		60 – 140		UJ
Hexachlorocyclopentadiene	18	18	60 - 140		UJ

Field Duplicates

SIM

The positive naphthalene results in the field duplicate pair MW101/DUP01 are estimated (J) due to poor field duplicate precision. The bias is undetermined.

System Performance

The volatiles were qualified for instrument calibration variability and acetone trip blank contamination. Several semivolatiles were extracted outside of the extraction holding time, and had very poor acid surrogate recovery which resulted in rejection of the acid compounds. The semivolatile data set was also qualified due to calibration variability and poor matrix spike recovery. The DRO sample data set was qualified due to rinsate blank contamination and poor surrogate recovery. The GRO data set is accepted without qualification.

The "date analyzed" listed on the semivolatile data summary table are for the date of the GC/MS analysis by SIM performed for the PAH compounds. The samples were analyzed for the other non-PAH compounds by GC/MS full scan on September 4, 7, and 8, 2004.

Tables: Data Summary Tables

Enclosures: Data Validation Worksheets

Aqueous Gasoline Range Organic Analysis By SW846 M8015B (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03		OFF-GW-MW10S-03	
Station Location	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03		OFF-GW-MW10S-03	
Date Sampled	8/24/04		8/26/04		8/24/04		8/25/04		8/26/04	
Date Extracted										
Date Analyzed	9/2/2004		9/3/2004		8/30/2004		9/3/2004		9/3/2004	
Dilution Factor	1		1		1		1		1	
Percent Solids										
QC Identifier	Field Dup. OFF-GW-MW101-03		Field Dup. OFF-GW-MW9R-03		Field Dup. OFF-GW-MW101-03		None		None	
Gasoline Range Organics	72		10	U	81		10		10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Gasoline Range Organic Analysis By SW846 M8015B (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03		OFF-GW-MW3S-03	
Station Location	OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03		OFF-GW-MW3S-03	
Date Sampled	8/25/04		8/25/04		8/26/04		8/25/04		8/25/04		8/24/04	
Date Extracted												
Date Analyzed	9/3/2004		9/3/2004		9/7/2004		9/3/2004		9/3/2004		9/2/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Gasoline Range Organics	10	U	53		10	U	8.0	J	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Gasoline Range Organic Analysis By SW846 M8015B (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03		OFF-GW-MW9R-03	
Station Location	OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03		OFF-GW-MW9R-03	
Date Sampled	8/25/04		8/24/04		8/24/04		8/24/04		8/26/04		8/26/04	
Date Extracted												
Date Analyzed	9/3/2004		9/2/2004		9/2/2004		9/2/2004		9/7/2004		9/3/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		Field Dup. OFF-GW-MW9R-03	
Gasoline Range Organics	5.6	J	10	U	10	U	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Gasoline Range Organic Analysis By SW846 M8015B (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-RB01-03		OFF-GW-TB01-03		OFF-GW-TB02-03	
Station Location	OFF-GW-RB01-03		OFF-GW-TB01-03		OFF-GW-TB02-03	
Date Sampled	8/24/04		8/19/04		8/19/04	
Date Extracted						
Date Analyzed	9/3/2004		8/30/2004		9/2/2004	
Dilution Factor	1		1		1	
Percent Solids						
QC Identifier	Rinsate Blank		Trip Blank		Trip Blank	
Gasoline Range Organics	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Diesel Range Organic Analysis By SW846 M8015B (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03		OFF-GW-MW10S-03	
Station Location	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03		OFF-GW-MW10S-03	
Date Sampled	8/24/04		8/26/04		8/24/04		8/25/04		8/26/04	
Date Extracted	8/30/2004		8/31/2004		8/30/2004		8/31/2004		8/31/2004	
Date Analyzed	9/10/2004		9/10/2004		9/9/2004		9/10/2004		9/10/2004	
Dilution Factor	2		1		2		1		1	
Percent Solids										
QC Identifier	Field Dup. OFF-GW-MW101-03		Field Dup. OFF-GW-MW9R-03		Field Dup. OFF-GW-MW101-03		None		None	
Diesel Range Organics	1200		360		1300		1200	J	860	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Diesel Range Organic Analysis By SW846 M8015B (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03		OFF-GW-MW3S-03	
Station Location	OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03		OFF-GW-MW3S-03	
Date Sampled	8/25/04		8/25/04		8/26/04		8/25/04		8/25/04		8/24/04	
Date Extracted	8/31/2004		8/31/2004		8/31/2004		8/31/2004		8/31/2004		8/30/2004	
Date Analyzed	9/10/2004		9/10/2004		9/10/2004		9/10/2004		9/10/2004		9/9/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Diesel Range Organics	380		1200		120	U	1000	J	480	J	250	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Diesel Range Organic Analysis By SW846 M8015B (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03		OFF-GW-MW9R-03	
Station Location	OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03		OFF-GW-MW9R-03	
Date Sampled	8/25/04		8/24/04		8/24/04		8/24/04		8/26/04		8/26/04	
Date Extracted	8/31/2004		8/30/2004		8/30/2004		8/30/2004		8/31/2004		8/31/2004	
Date Analyzed	9/10/2004		9/9/2004		9/9/2004		9/9/2004		9/10/2004		9/10/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		Field Dup. OFF-GW-MW9R-03	
Diesel Range Organics	500		50	U	50	U	50	U	85	U	380	

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Diesel Range Organic Analysis By SW846 M8015B (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-RB01-03	
Station Location	OFF-GW-RB01-03	
Date Sampled	8/24/04	
Date Extracted	8/30/2004	
Date Analyzed	9/9/2004	
Dilution Factor	1	
Percent Solids		
QC Identifier	Rinsate Blank	
Diesel Range Organics	46	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Volatile Organic Analysis By SW8260 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03	
Station Location	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03	
Date Sampled	8/24/04		8/26/04		8/24/04		8/25/04	
Date Extracted								
Date Analyzed	8/31/2004		9/2/2004		8/31/2004		9/1/2004	
Dilution Factor	1		1		1		1	
Percent Solids								
QC Identifier	Field Dup. OFF-GW-MW101-03		Field Dup. OFF-GW-MW9R-03		Field Dup. OFF-GW-MW101-03		None	
Dichlorodifluoromethane	5	U	5	U	5	U	5	U
Chloromethane	5	U	5	U	5	U	5	U
Vinyl Chloride	5	U	5	U	5	U	5	U
Bromomethane	5	U	5	U	5	U	5	U
Chloroethane	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	U	5	U	5	U	5	U
Carbon Disulfide	5	U	5	U	5	U	5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	U	5	U	5	U	5	U
Methylene Chloride	5	U	5	U	5	U	5	U
Acetone	5	U	5	U	6	U	5	U
trans-1,2-Dichloroethene	5	U	5	U	5	U	5	U
Methyl tert-Butyl Ether	5	U	5	UJ	5	U	5	U
1,1-Dichloroethane	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)	10	U	10	U	10	U	10	U
Chloroform	5	U	5	U	5	U	5	U
Carbon Tetrachloride	5	U	5	U	5	U	5	U
1,1,1-Trichloroethane	5	U	5	U	5	U	5	U
2-Butanone	5	U	5	U	5	U	5	U
Benzene	0.5	J	5	U	0.4	J	2	J
Cyclohexane	1	J	5	U	1	J	5	U
1,2-Dichloroethane	5	U	5	U	5	U	5	U
Trichloroethene	5	U	5	U	5	U	5	U
1,2-Dichloropropane	5	U	5	U	5	U	5	U
Bromodichloromethane	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	5	U	5	U
Toluene	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	5	U	5	U	5	U	5	U
Tetrachloroethene	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U	5	U	5	U
Dibromochloromethane	5	U	5	U	5	U	5	U
1,2-Dibromoethane	5	U	5	U	5	U	5	U
2-Hexanone	5	U	5	U	5	U	5	U
Chlorobenzene	5	U	5	U	5	U	5	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Volatile Organic Analysis By SW8260 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03	
Station Location	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03	
Date Sampled	8/24/04		8/26/04		8/24/04		8/25/04	
Date Extracted								
Date Analyzed	8/31/2004		9/2/2004		8/31/2004		9/1/2004	
Dilution Factor	1		1		1		1	
Percent Solids								
QC Identifier	Field Dup. OFF-GW-MW101-03		Field Dup. OFF-GW-MW9R-03		Field Dup. OFF-GW-MW101-03		None	
Ethylbenzene	5	U	5	U	5	U	5	U
Total Xylenes	5	U	5	U	5	U	5	U
m&p-Xylene	5	U	5	U	5	U	5	U
o-Xylene	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U
Bromoform	5	U	5	U	5	U	5	U
Isopropylbenzene	2	J	5	U	2	J	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	U	5	U	5	U	5	U
1,2-Dibromo-3-chloropropane	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	U	5	U	5	U	5	U
1,2,4-Trichlorobenzene	5	U	5	U	5	U	5	U
Methyl Acetate	5	U	5	U	5	U	5	U
Methylcyclohexane	2	J	5	U	2	J	5	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Volatile Organic Analysis By SW8260 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW10S-03		OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03	
Station Location	OFF-GW-MW10S-03		OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03	
Date Sampled	8/26/04		8/25/04		8/25/04		8/26/04		8/25/04		8/25/04	
Date Extracted												
Date Analyzed	9/2/2004		8/31/2004		9/2/2004		9/2/2004		9/2/2004		9/2/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Dichlorodifluoromethane	5	U	5	U	5	U	5	U	5	U	5	U
Chloromethane	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	5	U	5	U	5	U	5	U	5	U	5	U
Chloroethane	5	U	5	U	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
Carbon Disulfide	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	U	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	5	U	5	U	5	U	5	U	5	U	7	U
trans-1,2-Dichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
Methyl tert-Butyl Ether	5	UJ	0.3	J	5	U	5	UJ	5	U	5	U
1,1-Dichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	5	U	5	U	5	U	16		5	U	5	U
Carbon Tetrachloride	5	U	5	U	5	U	5	U	5	U	5	U
1,1,1-Trichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	5	U	5	U	5	U	5	U	5	U	5	U
Cyclohexane	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	5	U	5	U	5	U	5	U
Toluene	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
Dibromochloromethane	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dibromoethane	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	5	U	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Volatile Organic Analysis By SW8260 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW10S-03		OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03	
Station Location	OFF-GW-MW10S-03		OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03	
Date Sampled	8/26/04		8/25/04		8/25/04		8/26/04		8/25/04		8/25/04	
Date Extracted												
Date Analyzed	9/2/2004		8/31/2004		9/2/2004		9/2/2004		9/2/2004		9/2/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Ethylbenzene	5	U	5	U	5	U	5	U	5	U	5	U
Total Xylenes	5	U	5	U	5	U	5	U	5	U	5	U
m&p-Xylene	5	U	5	U	5	U	5	U	5	U	5	U
o-Xylene	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform	5	U	5	U	5	U	5	U	5	U	5	U
Isopropylbenzene	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dibromo-3-chloropropane	5	U	5	U	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U
1,2,4-Trichlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U
Methyl Acetate	5	U	5	U	5	U	5	U	5	U	5	U
Methylcyclohexane	5	U	5	U	5	U	5	U	5	U	5	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Volatile Organic Analysis By SW8260 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW3S-03		OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03	
Station Location	OFF-GW-MW3S-03		OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03	
Date Sampled	8/24/04		8/25/04		8/24/04		8/24/04		8/24/04		8/26/04	
Date Extracted												
Date Analyzed	8/31/2004		8/31/2004		8/31/2004		8/31/2004		8/31/2004		9/2/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Dichlorodifluoromethane	5	U	5	U	5	U	5	U	5	U	5	U
Chloromethane	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	5	U	5	U	5	U	5	U	5	U	5	U
Chloroethane	5	U	5	U	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
Carbon Disulfide	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	U	5	U	5	U	5	U	5	U	5	U
Methylene Chloride	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
Methyl tert-Butyl Ether	5	U	2	J	5	U	5	U	5	U	5	UJ
1,1-Dichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)	10	U	10	U	10	U	10	U	10	U	10	U
Chloroform	5	U	5	U	5	U	4	J	5	U	5	U
Carbon Tetrachloride	5	U	5	U	5	U	5	U	5	U	5	U
1,1,1-Trichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	5	U	5	U	5	U	5	U	5	U	5	U
Cyclohexane	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	5	U	5	U	5	U	5	U
Toluene	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	5	U	5	U	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U	5	U	5	U	5	U	5	U
Dibromochloromethane	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dibromoethane	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	5	U	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Volatile Organic Analysis By SW8260 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW3S-03		OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03	
Station Location	OFF-GW-MW3S-03		OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03	
Date Sampled	8/24/04		8/25/04		8/24/04		8/24/04		8/24/04		8/26/04	
Date Extracted												
Date Analyzed	8/31/2004		8/31/2004		8/31/2004		8/31/2004		8/31/2004		9/2/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Ethylbenzene	5	U	5	U	5	U	5	U	5	U	5	U
Total Xylenes	5	U	5	U	5	U	5	U	5	U	5	U
m&p-Xylene	5	U	5	U	5	U	5	U	5	U	5	U
o-Xylene	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform	5	U	5	U	5	U	5	U	5	U	5	U
Isopropylbenzene	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dibromo-3-chloropropane	5	U	5	U	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U
1,2,4-Trichlorobenzene	5	U	5	U	5	U	5	U	5	U	5	U
Methyl Acetate	5	U	5	U	5	U	5	U	5	U	5	U
Methylcyclohexane	5	U	5	U	5	U	5	U	5	U	5	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Volatile Organic Analysis By SW8260 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW9R-03		OFF-GW-RB01-03		OFF-GW-TB01-03		OFF-GW-TB02-03	
Station Location	OFF-GW-MW9R-03		OFF-GW-RB01-03		OFF-GW-TB01-03		OFF-GW-TB02-03	
Date Sampled	8/26/04		8/24/04		8/19/04		8/19/04	
Date Extracted								
Date Analyzed	9/2/2004		8/31/2004		8/31/2004		9/2/2004	
Dilution Factor	1		1		1		1	
Percent Solids								
QC Identifier	Field Dup. OFF-GW-MW9R-03		Rinsate Blank		Trip Blank		Trip Blank	
Dichlorodifluoromethane	5	U	5	U	5	U	5	U
Chloromethane	5	U	5	U	5	U	5	U
Vinyl Chloride	5	U	5	U	5	U	5	U
Bromomethane	5	U	5	U	5	U	5	U
Chloroethane	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	U	5	U	5	U	5	U
1,1-Dichloroethene	5	U	5	U	5	U	5	U
Carbon Disulfide	5	U	5	U	5	U	5	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	U	5	U	5	U	5	U
Methylene Chloride	5	U	5	U	5	U	5	U
Acetone	5	U	5		7		6	
trans-1,2-Dichloroethene	5	U	5	U	5	U	5	U
Methyl tert-Butyl Ether	5	UJ	5	U	5	U	5	UJ
1,1-Dichloroethane	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)	10	U	10	U	10	U	10	U
Chloroform	5	U	5	U	5	U	5	U
Carbon Tetrachloride	5	U	5	U	5	U	5	U
1,1,1-Trichloroethane	5	U	5	U	5	U	5	U
2-Butanone	5	U	5	U	5	U	5	U
Benzene	5	U	5	U	5	U	5	U
Cyclohexane	5	U	5	U	5	U	5	U
1,2-Dichloroethane	5	U	5	U	5	U	5	U
Trichloroethene	5	U	5	U	5	U	5	U
1,2-Dichloropropane	5	U	5	U	5	U	5	U
Bromodichloromethane	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene	5	U	5	U	5	U	5	U
Toluene	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	5	U	5	U	5	U	5	U
Tetrachloroethene	5	U	5	U	5	U	5	U
trans-1,3-Dichloropropene	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	5	U	5	U	5	U	5	U
Dibromochloromethane	5	U	5	U	5	U	5	U
1,2-Dibromoethane	5	U	5	U	5	U	5	U
2-Hexanone	5	U	5	U	5	U	5	U
Chlorobenzene	5	U	5	U	5	U	5	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Volatile Organic Analysis By SW8260 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW9R-03		OFF-GW-RB01-03		OFF-GW-TB01-03		OFF-GW-TB02-03	
Station Location	OFF-GW-MW9R-03		OFF-GW-RB01-03		OFF-GW-TB01-03		OFF-GW-TB02-03	
Date Sampled	8/26/04		8/24/04		8/19/04		8/19/04	
Date Extracted								
Date Analyzed	9/2/2004		8/31/2004		8/31/2004		9/2/2004	
Dilution Factor	1		1		1		1	
Percent Solids								
QC Identifier	Field Dup. OFF-GW-MW9R-03		Rinsate Blank		Trip Blank		Trip Blank	
Ethylbenzene	5	U	5	U	5	U	5	U
Total Xylenes	5	U	5	U	5	U	5	U
m&p-Xylene	5	U	5	U	5	U	5	U
o-Xylene	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U
Bromoform	5	U	5	U	5	U	5	U
Isopropylbenzene	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U
1,2-Dichlorobenzene	5	U	5	U	5	U	5	U
1,3-Dichlorobenzene	5	U	5	U	5	U	5	U
1,2-Dibromo-3-chloropropane	5	U	5	U	5	U	5	U
1,4-Dichlorobenzene	5	U	5	U	5	U	5	U
1,2,4-Trichlorobenzene	5	U	5	U	5	U	5	U
Methyl Acetate	5	U	5	U	5	U	5	U
Methylcyclohexane	5	U	5	U	5	U	5	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Semivolatile Organic Analysis By SW8270 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03	
Station Location	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03	
Date Sampled	8/24/04		8/26/04		8/24/04		8/25/04	
Date Extracted	8/27/2004		9/2/2004		8/27/2004		8/30/2004	
Date Analyzed	9/7/2004		9/4/2004		9/7/2004		9/4/2004	
Dilution Factor	1		1		1		1	
Percent Solids								
QC Identifier	Field Dup. OFF-GW-MW101-03		Field Dup. OFF-GW-MW9R-03		Field Dup. OFF-GW-MW101-03		None	
Benzaldehyde	10	UJ	10	UJ	10	UJ	10	UJ
Phenol	10	U	10	U	10	U	10	UJ
Bis(2-Chloroethyl)ether	10	U	10	U	10	U	10	UJ
2-Chlorophenol	10	U	10	U	10	U	10	UJ
2-Methylphenol	10	U	10	U	10	U	10	UJ
2,2'-oxybis(1-Chloropropane)	10	U	10	U	10	U	10	UJ
Acetophenone	10	U	10	U	10	U	10	UJ
4-Methylphenol	10	U	10	U	10	U	10	UJ
N-Nitroso-di-n-propylamine	10	U	10	U	10	U	10	UJ
Hexachloroethane	10	UJ	10	U	10	UJ	10	UJ
Nitrobenzene	10	U	10	U	10	U	10	UJ
Isophorone	10	U	10	U	10	U	10	UJ
2-Nitrophenol	10	U	10	U	10	U	10	UJ
2,4-Dimethylphenol	10	U	10	U	10	U	10	UJ
Bis(2-Chloroethoxy)methane	10	U	10	U	10	U	10	UJ
2,4-Dichlorophenol	10	U	10	U	10	U	10	UJ
Naphthalene	0.12	J	0.2	U	0.49	J	0.11	J
4-Chloroaniline	10	U	10	U	10	U	10	UJ
Hexachlorobutadiene	10	U	10	U	10	U	10	UJ
Caprolactam	10	U	10	U	10	U	10	UJ
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	UJ
2-Methylnaphthalene	0.2	U	0.2	U	0.2	U	0.2	U
Hexachlorocyclopentadiene	10	U	10	U	10	U	10	UJ
2,4,6-Trichlorophenol	10	U	10	U	10	U	10	UJ
2,4,5-Trichlorophenol	25	U	25	U	25	U	25	UJ
1,1'-Biphenyl	10	U	10	U	10	U	10	UJ
2-Chloronaphthalene	10	U	10	U	10	U	10	UJ
2-Nitroaniline	25	U	25	U	25	U	25	UJ
Dimethylphthalate	10	U	10	U	10	U	10	UJ
2,6-Dinitrotoluene	10	U	10	U	10	U	10	UJ
Acenaphthylene	0.2	U	0.2	U	0.2	U	0.2	U
3-Nitroaniline	25	U	25	U	25	U	25	UJ
Acenaphthene	1.2		0.2	U	1		0.2	U
2,4-Dinitrophenol	25	U	25	U	25	U	25	UJ
4-Nitrophenol	25	U	25	U	25	U	25	UJ
Dibenzofuran	10	U	10	U	10	U	10	UJ

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Semivolatile Organic Analysis By SW8270 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03	
Station Location	OFF-GW-DUP01-03		OFF-GW-DUP02-03		OFF-GW-MW101-03		OFF-GW-MW102-03	
Date Sampled	8/24/04		8/26/04		8/24/04		8/25/04	
Date Extracted	8/27/2004		9/2/2004		8/27/2004		8/30/2004	
Date Analyzed	9/7/2004		9/4/2004		9/7/2004		9/4/2004	
Dilution Factor	1		1		1		1	
Percent Solids								
QC Identifier	Field Dup. OFF-GW-MW101-03		Field Dup. OFF-GW-MW9R-03		Field Dup. OFF-GW-MW101-03		None	
2,4-Dinitrotoluene	10	U	10	U	10	U	10	UJ
Diethylphthalate	10	U	10	U	10	U	10	UJ
Fluorene	1.4		0.2	U	1.2		0.2	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U	10	UJ
4-Nitroaniline	25	U	25	U	25	U	25	UJ
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	UJ
N-Nitroso-diphenylamine	10	U	10	U	10	U	10	UJ
4-Bromophenyl-phenylether	10	U	10	U	10	U	10	UJ
Hexachlorobenzene	10	U	10	U	10	U	10	UJ
Atrazine	10	U	10	U	10	U	10	UJ
Pentachlorophenol	25	U	25	U	25	U	25	UJ
Phenanthrene	0.2		0.2	U	0.3		0.2	U
Anthracene	0.082	J	0.2	U	0.076	J	0.2	U
Carbazole	10	U	10	U	10	U	10	UJ
Di-n-Butylphthalate	10	U	10	U	10	U	10	UJ
Fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U
Pyrene	0.2	U	0.2	U	0.2	U	0.2	U
Butylbenzylphthalate	10	U	10	U	10	U	10	UJ
3,3'-Dichlorobenzidine	10	U	10	U	10	U	10	UJ
Benzo(a)anthracene	0.2	U	0.2	U	0.2	U	0.2	U
Chrysene	0.2	U	0.2	U	0.2	U	0.2	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	10	UJ
Di-n-octylphthalate	10	U	10	U	10	U	10	UJ
Benzo(b)fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(k)fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(a)pyrene	0.2	U	0.2	U	0.2	U	0.2	U
Indeno(1,2,3-cd)pyrene	0.2	U	0.2	U	0.2	U	0.2	U
Dibenzo(a,h)anthracene	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(g,h,i)perylene	0.2	U	0.2	U	0.2	U	0.2	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Semivolatile Organic Analysis By SW8270 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW10S-03		OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03	
Station Location	OFF-GW-MW10S-03		OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03	
Date Sampled	8/26/04		8/25/04		8/25/04		8/26/04		8/25/04		8/25/04	
Date Extracted	9/2/2004		8/30/2004		8/30/2004		9/2/2004		8/30/2004		8/30/2004	
Date Analyzed	9/4/2004		9/3/2004		9/3/2004		9/4/2004		9/3/2004		9/3/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Benzaldehyde	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Phenol	10	U		R		R	10	U		R	10	UJ
Bis(2-Chloroethyl)ether	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
2-Chlorophenol	10	U		R		R	10	U		R	10	UJ
2-Methylphenol	10	U		R		R	10	U		R	10	UJ
2,2'-oxybis(1-Chloropropane)	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Acetophenone	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
4-Methylphenol	10	U		R		R	10	U		R	10	UJ
N-Nitroso-di-n-propylamine	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Hexachloroethane	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Nitrobenzene	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Isophorone	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
2-Nitrophenol	10	U		R		R	10	U		R	10	UJ
2,4-Dimethylphenol	10	U		R		R	10	U		R	10	UJ
Bis(2-Chloroethoxy)methane	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
2,4-Dichlorophenol	10	U		R		R	10	U		R	10	UJ
Naphthalene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
4-Chloroaniline	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Hexachlorobutadiene	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Caprolactam	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
4-Chloro-3-methylphenol	10	U		R		R	10	U		R	10	UJ
2-Methylnaphthalene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Hexachlorocyclopentadiene	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
2,4,6-Trichlorophenol	10	U		R		R	10	U		R	10	UJ
2,4,5-Trichlorophenol	25	U		R		R	25	U		R	25	UJ
1,1'-Biphenyl	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
2-Chloronaphthalene	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
2-Nitroaniline	25	U	25	UJ	25	UJ	25	U	25	UJ	25	UJ
Dimethylphthalate	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
2,6-Dinitrotoluene	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Acenaphthylene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
3-Nitroaniline	25	U	25	UJ	25	UJ	25	U	25	UJ	25	UJ
Acenaphthene	0.2	U	0.2	U	2.8	*	0.2	U	0.2	U	0.2	U
2,4-Dinitrophenol	25	U		R		R	25	U		R	25	UJ
4-Nitrophenol	25	U		R		R	25	U		R	25	UJ
Dibenzofuran	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Semivolatile Organic Analysis By SW8270 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW10S-03		OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03	
Station Location	OFF-GW-MW10S-03		OFF-GW-MW11R-03		OFF-GW-MW11S-03		OFF-GW-MW1R-03		OFF-GW-MW2D-03		OFF-GW-MW2S-03	
Date Sampled	8/26/04		8/25/04		8/25/04		8/26/04		8/25/04		8/25/04	
Date Extracted	9/2/2004		8/30/2004		8/30/2004		9/2/2004		8/30/2004		8/30/2004	
Date Analyzed	9/4/2004		9/3/2004		9/3/2004		9/4/2004		9/3/2004		9/3/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
2,4-Dinitrotoluene	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Diethylphthalate	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Fluorene	0.2	U	0.2	U	1.7		0.2	U	0.2	U	0.2	U
4-Chlorophenyl-phenylether	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
4-Nitroaniline	25	U	25	UJ	25	UJ	25	U	25	UJ	25	UJ
4,6-Dinitro-2-methylphenol	25	U		R		R	25	U		R	25	UJ
N-Nitroso-diphenylamine	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
4-Bromophenyl-phenylether	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Hexachlorobenzene	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Atrazine	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Pentachlorophenol	25	U		R		R	25	U		R	25	UJ
Phenanthrene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Anthracene	0.2	U	0.2	U	0.35		0.2	U	0.2	U	0.2	U
Carbazole	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Di-n-Butylphthalate	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Pyrene	0.2	U	0.2	U	0.2		0.2	U	0.2	U	0.2	U
Butylbenzylphthalate	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
3,3'-Dichlorobenzidine	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Benzo(a)anthracene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Chrysene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
bis(2-Ethylhexyl)phthalate	10	U	10	UJ	9	J	10	U	10	UJ	10	UJ
Di-n-octylphthalate	10	U	10	UJ	10	UJ	10	U	10	UJ	10	UJ
Benzo(b)fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(k)fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(a)pyrene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Indeno(1,2,3-cd)pyrene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Dibenzo(a,h)anthracene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(g,h,i)perylene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Semivolatile Organic Analysis By SW8270 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW3S-03		OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03	
Station Location	OFF-GW-MW3S-03		OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03	
Date Sampled	8/24/04		8/25/04		8/24/04		8/24/04		8/24/04		8/26/04	
Date Extracted	8/27/2004		8/30/2004		8/27/2004		8/27/2004		8/27/2004		9/2/2004	
Date Analyzed	9/7/2004		9/3/2004		9/7/2004		9/7/2004		9/7/2004		9/4/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
Benzaldehyde	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Phenol	10	U		R	10	U	10	U	10	U	10	U
Bis(2-Chloroethyl)ether	10	U	10	UJ	10	U	10	U	10	U	10	U
2-Chlorophenol	10	U		R	10	U	10	U	10	U	10	U
2-Methylphenol	10	U		R	10	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)	10	U	10	UJ	10	U	10	U	10	U	10	U
Acetophenone	10	U	10	UJ	10	U	10	U	10	U	10	U
4-Methylphenol	10	U		R	10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine	10	U	10	UJ	10	U	10	U	10	U	10	U
Hexachloroethane	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	U
Nitrobenzene	10	U	10	UJ	10	U	10	U	10	U	10	U
Isophorone	10	U	10	UJ	10	U	10	U	10	U	10	U
2-Nitrophenol	10	U		R	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	10	U		R	10	U	10	U	10	U	10	U
Bis(2-Chloroethoxy)methane	10	U	10	UJ	10	U	10	U	10	U	10	U
2,4-Dichlorophenol	10	U		R	10	U	10	U	10	U	10	U
Naphthalene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
4-Chloroaniline	10	U	10	UJ	10	U	10	U	10	U	10	U
Hexachlorobutadiene	10	U	10	UJ	10	U	10	UJ	10	U	10	U
Caprolactam	10	U	10	UJ	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol	10	U		R	10	U	10	U	10	U	10	U
2-Methylnaphthalene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Hexachlorocyclopentadiene	10	U	10	UJ	10	U	10	UJ	10	U	10	U
2,4,6-Trichlorophenol	10	U		R	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	25	U		R	25	U	25	U	25	U	25	U
1,1'-Biphenyl	10	U	10	UJ	10	U	10	U	10	U	10	U
2-Chloronaphthalene	10	U	10	UJ	10	U	10	U	10	U	10	U
2-Nitroaniline	25	U	25	UJ	25	U	25	U	25	U	25	U
Dimethylphthalate	10	U	10	UJ	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	10	U	10	UJ	10	U	10	U	10	U	10	U
Acenaphthylene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
3-Nitroaniline	25	U	25	UJ	25	U	25	U	25	U	25	U
Acenaphthene	0.2	U	0.37		0.2	U	0.2	U	0.2	U	0.2	U
2,4-Dinitrophenol	25	U		R	25	U	25	U	25	U	25	U
4-Nitrophenol	25	U		R	25	U	25	U	25	U	25	U
Dibenzofuran	10	U	10	UJ	10	U	10	U	10	U	10	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Semivolatile Organic Analysis By SW8270 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW3S-03		OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03	
Station Location	OFF-GW-MW3S-03		OFF-GW-MW4S-03		OFF-GW-MW5S-03		OFF-GW-MW6R-03		OFF-GW-MW6S-03		OFF-GW-MW8R-03	
Date Sampled	8/24/04		8/25/04		8/24/04		8/24/04		8/24/04		8/26/04	
Date Extracted	8/27/2004		8/30/2004		8/27/2004		8/27/2004		8/27/2004		9/2/2004	
Date Analyzed	9/7/2004		9/3/2004		9/7/2004		9/7/2004		9/7/2004		9/4/2004	
Dilution Factor	1		1		1		1		1		1	
Percent Solids												
QC Identifier	None		None		None		None		None		None	
2,4-Dinitrotoluene	10	U	10	UJ	10	U	10	U	10	U	10	U
Diethylphthalate	10	U	10	UJ	10	U	10	U	10	U	10	U
Fluorene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
4-Chlorophenyl-phenylether	10	U	10	UJ	10	U	10	U	10	U	10	U
4-Nitroaniline	25	U	25	UJ	25	U	25	U	25	U	25	U
4,6-Dinitro-2-methylphenol	25	U		R	25	U	25	U	25	U	25	U
N-Nitroso-diphenylamine	10	U	10	UJ	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	10	UJ	10	U	10	U	10	U	10	U
Hexachlorobenzene	10	U	10	UJ	10	U	10	U	10	U	10	U
Atrazine	10	U	10	UJ	10	U	10	U	10	U	10	U
Pentachlorophenol	25	U		R	25	U	25	U	25	U	25	U
Phenanthrene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Anthracene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Carbazole	10	U	10	UJ	10	U	10	U	10	U	10	U
Di-n-Butylphthalate	10	U	10	UJ	10	U	10	U	10	U	10	U
Fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Pyrene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Butylbenzylphthalate	10	U	10	UJ	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	10	UJ	10	U	10	U	10	U	10	U
Benzo(a)anthracene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Chrysene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
bis(2-Ethylhexyl)phthalate	10	U	10	UJ	10	U	10	U	10	U	10	U
Di-n-octylphthalate	10	U	10	UJ	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(k)fluoranthene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Benzo(a)pyrene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Indeno(1,2,3-cd)pyrene	0.2	UJ	0.2	U	0.2	UJ	0.2	U	0.2	U	0.2	U
Dibenzo(a,h)anthracene	0.2	UJ	0.2	U	0.2	UJ	0.2	U	0.2	U	0.2	U
Benzo(g,h,i)perylene	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Semivolatile Organic Analysis By SW8270 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW9R-03		OFF-GW-RB01-03	
Station Location	OFF-GW-MW9R-03		OFF-GW-RB01-03	
Date Sampled	8/26/04		8/24/04	
Date Extracted	9/2/2004		8/27/2004	
Date Analyzed	9/4/2004		9/7/2004	
Dilution Factor	1		1	
Percent Solids				
QC Identifier	Field Dup. OFF-GW-MW9R-03		Rinsate Blank	
Benzaldehyde	10	UJ	7	J
Phenol	10	U	10	UJ
Bis(2-Chloroethyl)ether	10	U	10	UJ
2-Chlorophenol	10	U	10	UJ
2-Methylphenol	10	U	10	UJ
2,2'-oxybis(1-Chloropropane)	10	U	10	UJ
Acetophenone	10	U	10	UJ
4-Methylphenol	10	U	10	UJ
N-Nitroso-di-n-propylamine	10	U	10	UJ
Hexachloroethane	10	U	10	UJ
Nitrobenzene	10	U	10	UJ
Isophorone	10	U	10	UJ
2-Nitrophenol	10	U	10	UJ
2,4-Dimethylphenol	10	U	10	UJ
Bis(2-Chloroethoxy)methane	10	U	10	UJ
2,4-Dichlorophenol	10	U	10	UJ
Naphthalene	0.2	U	0.2	U
4-Chloroaniline	10	U	10	UJ
Hexachlorobutadiene	10	U	10	UJ
Caprolactam	10	U	10	UJ
4-Chloro-3-methylphenol	10	U	10	UJ
2-Methylnaphthalene	0.2	U	0.093	J
Hexachlorocyclopentadiene	10	U	10	UJ
2,4,6-Trichlorophenol	10	U	10	UJ
2,4,5-Trichlorophenol	25	U	25	UJ
1,1'-Biphenyl	10	U	10	UJ
2-Chloronaphthalene	10	U	10	UJ
2-Nitroaniline	25	U	25	UJ
Dimethylphthalate	10	U	10	UJ
2,6-Dinitrotoluene	10	U	10	UJ
Acenaphthylene	0.2	U	0.2	U
3-Nitroaniline	25	U	25	UJ
Acenaphthene	0.2	U	0.2	U
2,4-Dinitrophenol	25	U	25	UJ
4-Nitrophenol	25	U	25	UJ
Dibenzofuran	10	U	10	UJ

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

Aqueous Semivolatile Organic Analysis By SW8270 (ug/l)
Site: CTO 833, Old Firefighter Training Area
Case: OFFTA; SDG: CTO833-1

EPA Sample Number	OFF-GW-MW9R-03		OFF-GW-RB01-03	
Station Location	OFF-GW-MW9R-03		OFF-GW-RB01-03	
Date Sampled	8/26/04		8/24/04	
Date Extracted	9/2/2004		8/27/2004	
Date Analyzed	9/4/2004		9/7/2004	
Dilution Factor	1		1	
Percent Solids				
QC Identifier	Field Dup. OFF-GW-MW9R-03		Rinsate Blank	
2,4-Dinitrotoluene	10	U	10	UJ
Diethylphthalate	10	U	10	UJ
Fluorene	0.2	U	0.2	U
4-Chlorophenyl-phenylether	10	U	10	UJ
4-Nitroaniline	25	U	25	UJ
4,6-Dinitro-2-methylphenol	25	U	25	UJ
N-Nitroso-diphenylamine	10	U	10	UJ
4-Bromophenyl-phenylether	10	U	10	UJ
Hexachlorobenzene	10	U	10	UJ
Atrazine	10	U	10	UJ
Pentachlorophenol	25	U	25	UJ
Phenanthrene	0.2	U	0.2	U
Anthracene	0.2	U	0.2	U
Carbazole	10	U	10	UJ
Di-n-Butylphthalate	10	U	2	J
Fluoranthene	0.2	U	0.2	U
Pyrene	0.2	U	0.2	U
Butylbenzylphthalate	10	U	10	UJ
3,3'-Dichlorobenzidine	10	U	10	UJ
Benzo(a)anthracene	0.2	U	0.082	J
Chrysene	0.2	U	0.2	UJ
bis(2-Ethylhexyl)phthalate	10	U	10	UJ
Di-n-octylphthalate	10	U	10	UJ
Benzo(b)fluoranthene	0.2	U	0.15	J
Benzo(k)fluoranthene	0.2	U	0.2	UJ
Benzo(a)pyrene	0.2	U	0.2	UJ
Indeno(1,2,3-cd)pyrene	0.2	U	0.16	J
Dibenzo(a,h)anthracene	0.2	U	0.2	
Benzo(g,h,i)perylene	0.2	U	0.15	J

U - Not detected; UJ - Detection limit approximate; J - Quantitation approximate;
* - From dilution analysis; R - Rejected; EB - Equipment Blank contamination

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name OFFTA
Reference No. _____

REGION I ORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name KATAHDIN
Case/Project No. OFFTA
SDG No. WU2661, WU2691
No. of Samples/Matrix GW

SOW/Method No. 910-8240
Sampling Date(s) 8/24, 25, 26/04
Shipping Date(s) 8/26, 27/04
Date Rec'd by lab 8/26, 27/04

Traffic Report Sample Nos. DUP01, DUP02, MW101, MW102, MW105, MW11R, MW11S, MW1R, MW2D, MW2S, MW3S, MW4S, MW5S, MW6R, MW8R, MW9R,

Trip Blank No. TB01, TB02
Equipment Blank No. RB01
Bottle Blank No. _____
Field Duplicate Nos. DUP01/MW101 DUP02/MW9R
PES Nos. _____

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision 12/96 was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPjP or amendment to QAPjP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc. that received partial Tier III validation

_____.

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation & Technical Holding Times
- GC/MS & GC/ECD Instrument Performance Check
- Initial & Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Field Duplicates
- Sensitivity Check
- PE Samples/Accuracy Check
- Target Compound Identification
- Compound Quantitation and Reported Quantitation Limits
- TICs
- Semivolatile and Pesticide/PCB Cleanup
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with compound is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Compound not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
TB, BB, EB - Compound detected in aqueous trip blank, aqueous bottle blank, or aqueous equipment blank associated with soil/sediment samples.

Validator's Name _____ Company Name _____ Phone Number _____

Date Validation Started _____ Date Validation Completed _____

EPA-NE - Data Validation
VOA/SV - Pest/PCB-I

12/96

Sampler: _____ Company: _____ Contacted: Yes No Date: _____

I. PRESERVATION AND HOLDING TIMES - Circle sample numbers with exceeded technical holding times or omitted preservation. List all required preservation codes and circle omitted preservation codes. Circle all exceeded technical holding times. Identify extraction technique after "# of Days"/(*Extraction Code).

Sample No. (TR No.)	Matrix	Pres. Code	Date Sampled	VOA Date Analyzed	VOA # of Days from Samp. to Anal.	VOA Action	BNA Date Extracted	BNA # of Days from Samp. to Extr./(*)	BNA Date Analyzed	BNA # of Days from Extr. to Anal.	BNA Action	SVM ~~PEST/PCB~~ Date Extracted	SVM # of Days from Samp. to Extr./(*)	SVM Date Analyzed	SVM # of Days from Extr. to Anal.	SVM Action
DUP01	G.W.	1,2,3	8/24/04	8/31/04	7 ✓	arm	8/27	3 (L/L)	9/7	11	arm	8/27/04	3(L/L)	9/7/04	11	arm
DUP02			8/26/04	9/2/04	7 ✓		9/2	7	9/7	5		9/2/04	7	9/4/04	2	
MW101			8/24/04	8/31/04	7 ✓		8/27/04	3	9/7/04	11		8/27/04	3	9/7/04	11	
MW102			8/25/04	9/1/04	7 ✓		9/2 8/30	5, (8)	(9/4) 9,10	report 9/2 2✓	J,UJ (R)	8/30/04	5	9/4/04	5	
MW105			8/26/04	9/2/04	7 ✓		9/2, 9/8	7	9/7 9/9	5	arm	9/2/04	7	9/4/04	2	
MW11R			8/25/04	8/31/04	6 ✓		9/2 8/30, 9/8	5 (8), 14	(9/4) 9,10	report 9/2 2✓	J,UJ	8/30/04	5	9/3/04	4	
MW11S			8/25/04	9/2/04	8 ✓		9/2 8/30, 9/8	5 (8), 14	(9/4) 9,10	" 2✓	J,UJ	8/30/04	5	9/3/04 9/7/04	4 8	
MW1R			8/24/04	9/2/04	7 ✓		9/2	7	9/7	5	arm	9/2/04	7	9/4/04	2	
MW2D			8/25/04	9/2/04	8 ✓		9/2 8/30, 9/8	5 (8), 14	(9/4) 9,10	report 9/2 2✓	J,UJ	8/30/04	5	9/3/04	4	
MW2S			8/25/04	9/2/04	8 ✓		9/2 8/30	5 (8)	(9/4) 9,10	report 9/2 2✓	J,UJ	8/30/04	5	9/3/04	4	
MW3S			8/24/04	8/31/04	7 ✓		8/27	3	9/7	11	arm	8/27/04	3	9/8/04	12	
MW4S			8/25/04	8/31/04	6 ✓		9/2 8/30, 9/8	5 (8), 14	(9/4) 9,10	report 9/2 2✓	J,UJ	8/30/04	5	9/3/04	4	
MW5S			8/24/04	8/31/04	7 ✓		8/27	3	9/7	11	arm	8/27/04	3	9/8/04	12	
MW6R			8/24/04	8/31/04	7 ✓		8/27	3	9/7	11		8/27/04	3	9/7/04	11	
MW6S			8/24/04	8/31/04	7 ✓		8/27	3	9/7	11		8/27/04	3	9/7/04	11	
MW8R			8/26/04	9/2/04	7 ✓		9/2	7	9/7	5		9/2/04	7	9/4/04	2	
MW9R			8/26/04	9/2/04	7 ✓		9/2	7	9/7	5		9/2/04	7	9/4/04	2	
RB01	RB		8/24/04	8/31/04	7 ✓		8/27, 9/8	3, (15) ✓	9/7, 9/10	report 9/8 1	J,UJ	8/27/04	3	9/7/04	11	
TB01	TB		8/19/04	8/31/04	12 ✓											
TB02	TB		8/19/04	9/2/04	14 ✓											

-all samples extracted on 8/30 have 0 surrogate recoveries
reextracts on 9/2 & 9/8 have <10% acid surrogates
(MW025 reextract surrg OK)
report 9/2/04

Preservation Code:
1. Cool @ 4°C (± 2°)
2. Preserve with HCl to at least pH 2
3. Protect from light
4. Freeze
5. Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

MW102 - 1 surr out on reextract
MW105 - Acids out in both report original - w/in H.T.

Validator: _____ Date: _____

EPA-NE - Data Validation
VOA/SV - Pest/PCB-I

12/96

Sampler:_____ Company:_____ Contacted: Yes No Date:_____

I. PRESERVATION AND HOLDING TIMES - Circle sample numbers with exceeded technical holding times or omitted preservation.
List all required preservation codes and circle omitted preservation codes.
Circle all exceeded technical holding times.
Identify extraction technique after "# of Days"/(*Extraction Code).

Sample No. (TR No.)	Matrix	Pres. Code	Date Sampled	~~VOA~~ GRO			~~BNA~~ DRO					PEST/PCB				
				Date Analyzed	# of Days from Samp. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action
DUP01	G.W.	1,2,3	8/24/04	9/2	9	ann	8/30	6 (SEP)	9/10	11	ann					
DUP02			8/26/04	9/3	8		8/31	5	9/10	10						
MW101			8/24/04	8/30	6		8/30	6	9/9	10						
MW102			8/25/04	9/3	9		8/31	6	9/10	10						
MW10S			8/26/04	9/3	8		8/31	5	9/10	10						
MW11R			8/25/04	9/3	9		8/31	6	9/10	10						
MW11S			8/25/04	9/3	9		8/31	6	9/10	10						
MW1R			8/24/04	9/7	12		8/31	5	9/10	10						
MW2D			8/25/04	9/3	10		8/31	6	9/10	10						
MW2S			8/25/04	9/3	9		8/31	6	9/10	10						
MW3S			8/24/04	9/2	9		8/30	6	9/9	10						
MW4S			8/25/04	9/3	9		8/31	6	9/10	10						
MW5S			8/24/04	9/2	9		8/30	6	9/9	10						
MW6R			8/24/04	9/2	9		8/30	6	9/9	10						
MW6S			8/24/04	9/2	9		8/30	6	9/9	10						
MW8R			8/26/04	9/7	12		8/31	5	9/10	10						
MW9R			8/24/04	9/3	8		8/31	5	9/10	10						
RB01	RB		8/24/04	9/3	10		8/30	6	9/9	10						
TB01	TB		8/19/04	8/30	11											
TB02	TB		8/19/04	9/2	14											

Preservation Code:
1. Cool @ 4°C (± 2°)
2. Preserve with HCl to at least pH 2
3. Protect from light
4. Freeze
5. Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

Validator: DW

Date: 9/22/04

EPA-NE - Data Validation Worksheet
VOA/SV-II

II. GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)

List all Instrument Performance Checks that are outside method QC tuning acceptance criteria.

Volatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
BFB	8/26/04 08:28	M					
	9/2/04 10:58	M					
	8/23/04 14:17	Z					
	8/31/04 06:55	Z					
Comments:	9/1/04 07:05	Z					

Semivolatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
DFTPP	9/3/04 09:32	K	all		9/3/04 15:49		all
	9/4/04 0818	K			9/4/4 08:28	SIM	
	9/7/04 0841	K	5		9/7/04 1110		
	9/8/04 10:27	K			9/8/4 08:51		
Comments:	9/10/04 12:26	K					
	9/7/04 09:43	X					
	9/8/04 16:21	X					
	9/9/04 1113	X					

If tuning compounds and criteria are different from those specified in CLP SOW OLM03.1, then the validator should include a copy of the method-specific tuning criteria with this worksheet.

Validator: _____ Date: 9/17/04

VOC - LCS WG9602 - LCS acm
WG9525 - "
WG9556 "
WG9586 "

SVOC - LCS WG9487 - 8/30/04
4-chloro-3-Methyl phenol 124 52-121
2,4-Dinitrotoluene 131 51-120
Dibenzofuran 114 54-111
2,4-Dinitrotoluene 121 50-119
4-Bromophenyl-phenylether 131 59-118
Hexachloro benzene 119 55-116
Acetophenone 114 0-100

all results ND no action taken

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria.

DRO - LCS - acm
WG9597 - LCS - 9/2/04 - acm
WG9463 - LCS 8/27/04
Bis (2-ethylhexyl) phthalate 192 43-157
WG9718 - LCS - 9/8/04
N-Nitrosodiphenylamine 124 64-123

Use a separate worksheet for each MS/MSD pair.

Sample # MW6R Matrix AQ Concentration Level

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits % Rec	Method QC Limits RPD	Concentration Unspiked Sample	Concentration MS	Concentration MSD	% RSD	Action
VOC -	acm										
SVOC -	see Form III										
SIM -	acm										
DRO -	NO MS/MSD										
GRO -	acm										
GRO - LCS -	WG9703 - LCS -	121%	Rec	71 -	135	—	MW1R,	MW8R	- results	ND - no action taken	

SIM - LCS - WG9464 - acm
WG9488 - acm
WG9595 - Benzo(b) fluoranthene 156 30-150
Benzo(k) fluoranthene 151 1160 "

MW9R, DUP02, MW105, MW1R, MW8R

all results no action taken

Validator: Date:

EPA-NE - Data Validation Worksheet
VOA/SV-III

III. **INITIAL CALIBRATION** - List all analytes that are outside calibration criteria.

Date of ICAL	Instrument	Parameter	Matrix	Compound	% RSD	RRF	Samples Affected	Action
8/26/04	M	VOC	-	acm				
8/23/04	Z	VOC	—	acm				
9/3/04	K	SVOC		Benzaldehyde	31.46		all samples	UJ
9/7/04	X	SVOC		Hexachloroethane	30.59		MW01, DUP01, MW10R	UJ
				Benzaldehyde	59.97		MW05 MW55 ~~RB01~~	UJ
							MW35, RB01	
9/3/04	U	SIM	—	acm				
8/2	GC10	DRO	—	acm				
7/13	↓	DRO	—	acm				
10/3/3		DRO	—	acm				
8/17/04	GC04	GRO	—	acm				

Comments: SW-846 requires %RSD <15 - used Functional Guidelines <30%

Validator: [signature]

Date: 9/17/04

12/96

EPA-NE - Data Validation Worksheet
VOA/SV-IV

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action
8/26/04	9/2/04	M	VOC		MTBE	269		TOO2, MW8R, DUPO2, MW10S, MW1R, MW8R	UR
8/23/04	8/31/04	Z	VOC		acm				
8/23/04	9/1/04	Z	VOC		acm				
9/3/4	9/4/4	K	SVOC		Benzaldehyde	141		all samples	
9/3/4	9/7/4	K	SVOC		Benzaldehyde	103.97			
9/3/4	9/8/4	K	SVOC		"	107			
9/3/4	9/10/4	K			"	202			

Comments:

Validator: [signature]

Date: 9/17/04

12/96

EPA-NE - Data Validation Worksheet
VOA/SV-IV

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action
9/7/04	9/8/04	X	SVOC		3,3'-Dichlorobenzidine	-30.48		RB01, only	
					Benzaldehyde	43.38			
9/7/04	9/9/04	X	SVOC		2,4-Dinitrophenol	-32.04		LCS no action	
					4-Nitrophenol	30.96			
					3,3'-Dichlorobenzidine	-38.7			
					Benzaldehyde	48.35			
9/3/04	9/4/04	U	SIM	—	acm				
9/3/04	9/7/04	U	SIM	—	acm				
9/3/04	9/8/04	U	SIM		Indeno(1,2,3-cd)pyrene	25.10		MW55, MW35	
					Dibenz(a,h)anthracene	25.45			

Comments:

Validator: _____ Date: _____

12/96

EPA-NE - Data Validation Worksheet
VOA/SV-IV

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action
8/2/04	8/31/04	GC10	DRO	—	all				
8/2/04	8/1/04	GC10	DRO		all				
7/13/04	9/9/4		DRO		all				
	9/9/		DRO		all				
	9/10/04		DRO		all				
10/3/3	9/9/4		DRO		all				
	9/10/04		DRO		all				
	9/10/		DRO						
8/17/04	8/30/04	GC04	GRO	—	all	looked	@GRO	peaks only	
	8/31/04		GRO						
	9/2/4								
	9/3/4								
	9/3								
	9/3								

Comments: 9/7
9/8

Validator: DR

Date: 9/22/04

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-A

Only Acetone MTBE cyclohexane ∅ isopropyl ether & methyl cyclohexane detected in samples - ignored all other positive results in method blanks

V. BLANK ANALYSIS

List the blank contamination below.

Sampler: _____ Company: _____ Concentration Level: _____

Contacted: Yes No Date: _____

1. Laboratory: Method, Storage and Instrument Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)
—	9/2/04	VOC/AQ	WG9602		$MeCl_2$	2 µg/L
	8/31/04	"	WG9525		Acetone	3
	9/1/04		WG9558		Acetone	3
	9/2/04		WG9586			
		DRO	all method blanks clean			
		GRO	all method blanks clean			

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)
—	8/31/04	VOC/AQ	RB01		Acetone	5 µg/L
	8/31/04		TB01		Acetone	7
	9/2/04		TB02		Acetone	6
8/30/04	9/9/04	DRO/AQ	RB01		DRO	46 µg/L
		GRO	TB01		clean	
		↓	TB02			
			RB01		↓	

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-A

V. BLANK ANALYSIS

List the blank contamination below.

Concentration Level: _____

Sampler: _____ Company: _____ Contacted: Yes No Date: _____

1. Laboratory: Method, Storage and Instrument Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)
8/30/04	9/8/04	SVOC/AQ	WG9487	clean	0% surr. recovery	
9/2/04	9/4/04		WG9597	clean		
8/27/04	9/8/04		WG9463	clean		
9/8/04	9/8/04		WG9718	clean		
9/2/04	9/4/04	SVOC/AQ	WG9596		2-Methylnaphthalene	0.085 µg/L

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)
9/8/04	9/8/04		RB01 - (R.B.)		Di-n-butylphthalate	2 µg/L
					Benzaldehyde	7 µg/L
8/27/04	9/7/04		RB01		2-Methylnaphthalene	0.093 µg/L
					Benzo(a)anthracene	0.052
					Benzo(b)fluoranthene	0.15
					Indeno(1,2,3-cd)pyrene	0.16
					Dibenzo(a,h)anthracene	0.20
					Benzo(ghi)perylene	0.15

Validator: _____ Date: 9/20/04

12/96

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-B

3. **Blank Actions** - List the maximum concentrations of blank compounds.

	Compound	Type of Blank	Date Blank Sampled/Originated	Max. Conc. (units)	Action Level (units)	Sample QL	Samples Affected	Action
VOC	CH_2Cl_2	Method		2 µg/L	20		all results ND	
	Acetone	TB		7	70		all except MW1R & MW3R	U=2L or CRDL U-
SVOC	Di-n-butylphthalate	RB		3 µg/L	20 µg/L		all results ND	none
	Benzaldehyde	RB		7 µg/L	35 µg/L			none
PAH	2-Methylnaphthalene			0.093	0.46		all results ND	none
	Benzo(a)anthracene			0.082	0.41		all results ND	none
	Benzo(b)fluoranthene			0.15	0.75			
	Indeno(1,2,3-cd)pyrene			0.16	0.80			
	Dibenzo(a,h)anthracene			0.20	1.0			
	Benzo(ghi)perylene			0.15	0.75			

Comments: _____

Validator: _____

Date: 9/17/04

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-B

3. Blank Actions - List the maximum concentrations of blank compounds.

Compound	Type of Blank	Date Blank Sampled/Originated	Max. Conc. (units)	Action Level (units)	Sample QL	Samples Affected	Action
DRO	RB		46 ug/L	230		MW1R, MW5R	U > A.L.
GRO — no blank actions							

Comments: _____

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet
SV-VI

VI. **SV SURROGATE SPIKE RECOVERIES** - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Base/Neutral Method QC Acceptance Criteria					
	NBZ-d_5	2-FBP	TPH-d_{14}	1,2-DCB-d_4*	Other:	
OLM03.2	Water Soil 35-114 23-120	Water Soil 43-116 30-115	Water Soil 33-141 18-137	Water Soil 16-110 20-130		
OLC02.1	40-110	30-110	20-140	NA		
Other:						
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	Action
	SVOC SIM	See FORM 2 acceptable				

Method	Acid Method QC Acceptance Criteria					
	Phenol-d_5	2-FP	2,4,6-TBP	2-CP-d_4*	Other:	
OLM03.2	Water Soil 10-110 24-113	Water Soil 21-110 25-121	Water Soil 10-123 19-122	Water Soil 33-110 20-130		
OLC02.1	15-115	15-110	15-130	NA		
Other:						
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	Action
	DRO - O-terphenyl 49-	88 -	MW27 -	93%	J(+)	
			MW25 -	90%	↓	
			MW102 -	98%		
			MW105 -	91%		

* Advisory Surrogates - OLM03.2

Validator: _____

Date: _____

FORM 2
WATER SEMIVOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CTO 833 NS NEWPORT SDG No.: CTO833-1

	CLIENT SAMPLE ID	LAB SAMPLE ID	S1 2FP#	S2 PHL#	S3 NBZ#	S4 FBP#	S5 TBP#	S6 TPH#	S7 #	S8 #	TOT OUT
01	WG9597-BLANK	WG9597-1	45	31	63	90	67	102			0
02	WG9597-LCS	WG9597-2	54	38	78	95	97	98			0
03	OFF-GW-MW11R-03	WU2661-9	2*	0*	63	90	2*	103			3
04	OFF-GW-MW4S-03	WU2661-10	2*	0*	71	92	0*	101			3
05	OFF-GW-MW11S-03	WU2661-11	5*	5*	69	107	9*	105			3
06	OFF-GW-MW2D-03	WU2661-12	2*	0*	74	108	3*	104			3
07	OFF-GW-MW2S-03	WU2661-13	45	32	67	96	79	113			0
08	OFF-GW-MW102-03	WU2661-14	52	36	75	126*	109	120			1
09	OFF-GW-MW9R-03	WU2691-2	39	24	86	112	100	134			0
10	OFF-GW-DUP02-03	WU2691-3	42	28	86	109	89	104			0
11	OFF-GW-MW10S-03	WU2691-4	2*	0*	68	94	14*	111			3
12	OFF-GW-MW1R-03	WU2691-5	47	30	72	93	84	116			0
13	OFF-GW-MW101-03	WU2661-2	63	79	72	85	97	106			0
14	OFF-GW-DUP01-03	WU2661-3	71	90	78	90	101	103			0
15	OFF-GW-MW8R-03	WU2691-6	34	20	72	99	76	126			0
16	OFF-GW-MW6R-03	WU2661-4	83	100	85	85	90	91			0
17	OFF-GW-MW6S-03	WU2661-5	68	82	71	75	88	82			0
18	OFF-GW-MW5S-03	WU2661-6	68	84	74	78	77	103			0
19	OFF-GW-RB01-03	WU2661-7	1*	2*	82	92	1*	107			3
20	OFF-GW-MW3S-03	WU2661-8	57	84	73	86	89	96			0
21	WG9487-BLANK	WG9487-1	0*	0*	0*	0*	0*	0*			6
22	WG9487-LCS	WG9487-2	96	105	111*	114*	128	116			2
23	WG9487-LCSD	WG9487-3	85	94	97	100	111	102			0
24	WG9463-BLANK	WG9463-1	88	108	84	94	81	96			0
25	WG9463-LCS	WG9463-2	72	93	84	91	85	119			0
26	OFF-GW-MW6R-03MS	WG9463-3	72	95	88	94	85	122			0
27	OFF-GW-MW6R-03MSD	WG9463-4	75	96	85	89	81	96			0
28	WG9718-BLANK	WG9718-1	51	38	72	77	78	159			0

		QC LIMITS
S1 (2FP)	= 2-Fluorophenol	(18-103)
S2 (PHL)	= Phenol-D6	(11-117)
S3 (NBZ)	= Nitrobenzene-D5	(48-109)
S4 (FBP)	= 2-Fluorobiphenyl	(37-112)
S5 (TBP)	= 2,4,6-Tribromophenol	(22-145)
S6 (TPH)	= Terphenyl-D14	(39-164)

See attached

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 2
WATER SEMIVOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CTO 833 NS NEWPORT SDG No.: CTO833-1

	CLIENT SAMPLE ID	LAB SAMPLE ID	S1 2FP#	S2 PHL#	S3 NBZ#	S4 FBP#	S5 TBP#	S6 TPH#	S7 #	S8 #	TOT OUT
01	OFF-GW-RB01-03	WU2661-7RE	41	28	65	74	76	138			0
02	OFF-GW-MW11R-03	WU2661-9RE	2*	0*	79	80	7*	122			3
03	OFF-GW-MW4S-03	WU2661-10RE	2*	0*	59	64	8*	144			3
04	OFF-GW-MW11S-03	WU2661-11RE	2*	0*	74	87	6*	124			3
05	OFF-GW-MW2D-03	WU2661-12RE	2*	0*	63	77	10*	99			3
06	OFF-GW-MW10S-03	WU2691-4RE	5*	0*	80	86	43	138			2
07	WG9718-LCS	WG9718-2	52	38	82	91	79	108			0
08	WG9718-LCSD	WG9718-3RA	49	33	72	100	70	116			0
09	OFF-GW-MW11R03	WU2661-9RE2	0*	0*	0*	0*	0*	0*			6
10	OFF-GW-MW4S-03	WU2661-10RE2	0*	0*	0*	0*	0*	0*			6
11	OFF-GW-MW11S-03	WU2661-11RE2	0*	0*	0*	0*	0*	0*			6
12	OFF-GW-MW2D-03	WU2661-12RE2	0*	0*	0*	0*	0*	0*			6
13	OFF-GW-MW2S-03	WU2661-13RE	0*	0*	0*	0*	0*	0*			6
14	OFF-GW-MW102-03	WU2661-14RE	0*	0*	0*	0*	0*	0*			6
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											

		QC LIMITS
S1 (2FP)	= 2-Fluorophenol	(18-103)
S2 (PHL)	= Phenol-D6	(11-117)
S3 (NBZ)	= Nitrobenzene-D5	(48-109)
S4 (FBP)	= 2-Fluorobiphenyl	(37-112)
S5 (TBP)	= 2,4,6-Tribromophenol	(22-145)
S6 (TPH)	= Terphenyl-D14	(39-164)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

All attached

	EXT	ANAL	PROBLEM	H.T	
RB01 -	8/27	9/7	3 Acid out		
	9/8	9/8	OK	8 DAYS out	- repeat (UJ, J) due to H.T
MW11R	8/30	9/10	NO SURG		
	9/2	9/4	3 Acid out <10%	1 DAY OUT	- repeat REJECT (R) Acid 3, J, UJ, remain.
	9/8	9/9	3 Acid out <10%	7 DAYS out	
MW4S	8/30	9/10	No Surg.		
	9/2	9/4	3 ACID OUT <10%	1 DAY OUT	- repeat - reject Acid (R) J, UJ remains
	9/8	9/9	3 ACID OUT <10%	7 DAYS OUT	
MW11S	8/30	9/10	NO SURG		
	9/2	9/4	3 ACID OUT <10%	1 DAY OUT	— " (R)
	9/8	9/9	3 ACID OUT <10%	7 DAYS OUT	
MW2D	8/30	9/10	No SURG.		
	9/2	9/4	3 ACID OUT <10%	1 DAY OUT	— " (R)
	9/8	9/9	3 ACID OUT <10%	7 DAYS OUT	
MW2S	8/30	9/10	No SURG		
	9/2	9/4	all OK	1 DAY OUT	— J, UJ due to H.T.
MW102	8/30	9/10	NO SURG		
	9/2	9/4	1 BUR OUT OK	1 DAY OUT	— J, UJ due to H.T

KATAHDIN ANALYTICAL SERVICES
MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Client: Tetra Tech NUS, Inc
Project: CTO 833 NS NEWPORT
PO No:
Sample Date: 08/24/04
Received Date: 08/26/04
Extraction Date: 08/27/04
Analysis Date: 09/08/04
Report Date: 09/13/2004
Matrix: WATER

Lab ID: WG9463-3 & WG9463-4
Client ID: OFF-GW-MW6R-03MS & OFF-GW-MW6R-03MSD
SDG: CTO833-1
Extracted by: JC
Extraction Method: SW846 3520
Analyst: JCG
Analysis Method: SW846 8270C
Lab Prep Batch: WG9463
Units: ug/L

COMPOUND	MS SPIKE	MSD SPIKE	SAMPLE CONC.	MS CONC.	MSD CONC.	MS %REC.	MSD %REC.	%RPD	%RPD LIMIT	QC. LIMITS
Phenol	100	100	0.00	96	96	96	96	0.1	30	60-140
Bis(2-Chloroethyl)ether	50	50	0.00	42	42	83	84	0.5	30	60-140
2-Chlorophenol	100	100	0.00	94	99	94	99	5	30	60-140
2,2'-Oxybis(1-Chloropropane)	50	50	0.00	42	43	85	86	1	30	60-140
2-Methylphenol	100	100	0.00	101	99	101	99	2	30	60-140
Hexachloroethane	50	50	0.00	22	24	* 44	* 49	10	30	60-140 UJ
N-Nitroso-di-n-propylamine	50	50	0.00	39	37	78	75	4	30	60-140
4-Methylphenol	100	100	0.00	103	102	103	102	1.0	30	60-140
Nitrobenzene	50	50	0.00	43	41	85	81	4	30	60-140
Isophorone	50	50	0.00	43	40	86	79	9	30	60-140
2-Nitrophenol	100	100	0.00	88	86	88	86	2	30	60-140
2,4-Dimethylphenol	100	100	0.00	79	73	79	73	8	30	60-140
Bis(2-Chloroethoxy)methane	50	50	0.00	44	43	87	86	2	30	60-140
2,4-Dichlorophenol	100	100	0.00	82	79	82	79	4	30	60-140
4-Chloroaniline	50	50	0.00	31	32	63	65	3	30	60-140
Hexachlorobutadiene	50	50	0.00	29	30	* 58	60	4	30	60-140 UJ
4-Chloro-3-Methylphenol	100	100	0.00	97	82	97	82	17	30	60-140
Hexachlorocyclopentadiene	50	50	0.00	9.0	9.0	* 18	* 18	0.2	30	60-140 UJ
2,4,6-Trichlorophenol	100	100	0.00	89	86	89	86	4	30	60-140
2,4,5-Trichlorophenol	100	100	0.00	90	88	90	88	2	30	60-140
2-Chloronaphthalene	50	50	0.00	52	50	104	100	4	30	60-140
2-Nitroaniline	50	50	0.00	52	42	105	84	22	30	60-140
Dimethyl Phthalate	50	50	0.00	57	52	115	104	10	30	60-140
2,6-Dinitrotoluene	50	50	0.00	53	47	105	93	12	30	60-140
3-Nitroaniline	50	50	0.00	52	44	103	88	16	30	60-140
2,4-Dinitrophenol	100	100	0.00	95	79	95	79	18	30	60-140
Dibenzofuran	50	50	0.00	48	43	96	86	10	30	60-140
4-Nitrophenol	100	100	0.00	112	87	112	87	25	30	60-140
2,4-Dinitrotoluene	50	50	0.00	52	44	104	88	16	30	60-140
Diethylphthalate	50	50	0.00	53	46	106	93	13	30	60-140
4-Chlorophenyl-phenylether	50	50	0.00	53	46	105	91	14	30	60-140
4-Nitroaniline	50	50	0.00	49	40	99	79	22	30	60-140
4,6-Dinitro-2-Methylphenol	100	100	0.00	112	99	112	99	13	30	60-140
N-Nitrosodiphenylamine	100	100	0.00	110	108	110	108	2	30	60-140
4-Bromophenyl-phenylether	50	50	0.00	56	49	111	98	13	30	60-140
Hexachlorobenzene	50	50	0.00	52	48	103	96	8	30	60-140
Pentachlorophenol	100	100	0.00	111	102	111	102	8	30	60-140
Carbazole	50	50	0.00	55	49	110	99	11	30	60-140
Di-n-butylphthalate	50	50	0.00	58	51	116	101	14	30	60-140
Butylbenzylphthalate	50	50	0.00	59	50	117	100	16	30	60-140
3,3'-Dichlorobenzidine	50	50	0.00	33	33	66	66	0.0	30	60-140
bis(2-Ethylhexyl)phthalate	50	50	0.00	63	53	125	105	18	30	60-140
Di-n-octylphthalate	50	50	0.00	73	62	* 146	125	16	30	60-140 ND

FORM III SV-1 X6168.D & X6169.D

NO OCTOPUS

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-IX

IX. **FIELD DUPLICATE PRECISION** - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number MW101 Duplicate Sample Number DUP01 Matrix AQ

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			
VOC	acm									
SVOC	acm									
SVOC	Naphthalene	0.49	0.20	0.40	0.12	0.20	0.40	121	<30	J(+)
	Acenaphthene	1.0			1.2			18		acm
	Fluorene	1.2			1.4			15		acm
	Phenanthrene	0.30			0.2U				<2xQL	mountain
DRO	DRO	1200	50u	100u	1300	50u	100u	8%		acm
GRO	GRO	72	10u	20u	81	10u	20u	12%		acm

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: _____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: _____ Date: 9/12/04

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-IX

IX. **FIELD DUPLICATE PRECISION** - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number MW9R Duplicate Sample Number DUP02 Matrix AQ

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			
VOC	ACM									
SVOC	ACM									
SIM	ACM									
DRO	ACM	360	50U	100U	350			5%		comm
GRO	ACM									

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: _____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: DJV Date: 9/17/04

EPA-NE - Data Validation Worksheet
VOA/SV-VII

VII. INTERNAL STANDARD PERFORMANCE

List the internal standards that are outside the area count and retention time method QC acceptance criteria.
IS Area Count method QC acceptance criteria: +100% -50%
IS Retention Time method QC acceptance criteria: ± 0.50 min

Sample Number (TR#)	Date and Time Analyzed	Instrument	Parameter	IS Outside Area Count and/or RT Criteria	IS Area	RT Shift	Acceptable Range (IS area or RT shift)	Action
			VOC	acm				
			SVOC	acm				
			SIM	See Form	8	-	no compounds quantified w/ this IS	no action taken

Validator: [signature]

Date: 9/17/04

FORM 8
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: KATAHDIN ANALYTICAL SERVICES Lab Code: KAS

Project: CTO 833 NS NEWPORT SDG No.: CTO833-1

Lab File ID (Standard): U8607 Date Analyzed: 09/04/04

Instrument ID: GCMS-U Time Analyzed: 0854

		IS1(DCB) AREA #	RT #	IS2(NPT) AREA #	RT #	IS3(ANT) AREA #	RT #
12 HOUR STD		13443	8.82	60811	11.69	26562	15.84
UPPER LIMIT		26886	9.32	121622	12.19	53124	16.34
LOWER LIMIT		6722	8.32	30406	11.19	13281	15.34
CLIENT SAMPLE ID	LAB SAMPLE ID						
01 WG9598-BLANK	WG9598-1	28290*	8.81	63799	11.68	29087	15.83
02 WG9598-LCS	WG9598-2	11316	8.82	53902	11.68	24168	15.82
03 WG9598-LCSD	WG9598-3	14070	8.82	64620	11.68	28735	15.82
04 OFF-GW-MW9R-03	WU2691-7	27297*	8.81	60461	11.68	29073	15.82
05 OFF-GW-DUP02-03	WU2691-8	31116*	8.81	64283	11.68	31002	15.82
06 OFF-GW-MW10S-03	WU2691-9	33198*	8.82	81195	11.68	36008	15.82
07 OFF-GW-MW1R-03	WU2691-10	25305	8.81	62222	11.69	24207	15.83
08 OFF-GW-MW8R-03	WU2691-11	28967*	8.81	70053	11.68	30674	15.82
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (DCB) = 1,4-Dichlorobenzene-D4
IS2 (NPT) = Naphthalene-D8
IS3 (ANT) = Acenaphthene-D10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

FORM VIII SV-1

APPENDIX D2

SEDIMENT DATA (2005)

TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-1	OFF-1	OFF-2	OFF-2	OFF-3	OFF-3	OFF-4
SAMPLE NUMBER	OFF-1-SD-0015	OFF-SD-OFF1-0006-01	OFF-2-SD-0015	OFF-SD-OFF2-0006-01	OFF-3-SD-0015	OFF-SD-OFF3-0006-01	OFF-4-SD-0015
SAMPLE DATE	03/27/98	02/22/05	03/27/98	02/22/05	03/27/98	02/23/05	03/27/98
QC IDENTIFIER							
DUPLICATE							
AVS/SIMULTANEOUSLY EXTRACTED METALS (UMO/G)							
ACID VOLATILE SULFIDE	0.1 U	NA	0.1 U	NA	0.23	NA	0.1 U
CADMIUM	0.001	NA	0.001	NA	0.001	NA	0
COPPER	0.341	NA	0.117 U	NA	0.108 U	NA	0.413
LEAD	0.505	NA	0.215	NA	0.119	NA	0.507
NICKEL	0.052 U	NA	0.04 U	NA	0.036 U	NA	0.126
SEM/AVS	0	NA	0	NA	0.562 J	NA	0
ZINC	0.407	NA	0.549	NA	0.527	NA	0.517
METALS (MG/KG)							
ALUMINUM	21671.8 J	7090	26983.7 J	8460	23218.6 J	5570	16491.8 J
ANTIMONY	NA	4.6 R	NA	2.9 R	NA	2.4 R	NA
ARSENIC	6.3 J	0.76 R	8 J	5.6 J	3.6 J	1.4 J	4.3 J
BARIUM	NA	8.4 J	NA	10.7 J	NA	21.4 J	NA
BERYLLIUM	NA	0.44	NA	0.42	NA	0.40	NA
CADMIUM	0.31	4.7 J	0.14	2.7 J	0.18	2.4 J	0.06
CALCIUM	NA	15200 J	NA	9640 J	NA	5310 J	NA
CHROMIUM	31.1	32.9 J	36.6	10.2 J	26.5	8.5 J	24.3
COBALT	NA	4.1 J	NA	7.8 J	NA	7.4 J	NA
COPPER	58.3	24.4 J	23.7	12.5 J	12.3	19.2 J	31.4
IRON	24310 J	67300 J	29486.5 J	48400 J	22871.7 J	36400 J	22907.6 J
LEAD	131.4	65.2 J	90.2	141	60.1	68.3	95.5
MAGNESIUM	NA	6840	NA	9470	NA	3750	NA
MANGANESE	353.6	387 J	302.2	393 J	387.4	370 J	369
MERCURY	0.371	0.046	0.081	0.0074 U	0.05 U	0.012 J	0.05 U
NICKEL	34	17.8 J	26.2	17.0 J	22.2	12.6 J	20.2
POTASSIUM	NA	548 J	NA	416 J	NA	417 J	NA
SELENIUM	NA	0.068 UJ	NA	0.060 UJ	NA	0.070 UJ	NA
SILVER	0.46 J	6.3 J	0.13 UJ	2.9 UJ	0.13 UJ	4.7 UJ	0.13 UJ
SODIUM	NA	2440 J	NA	1630 J	NA	2320 J	NA
THALLIUM	NA	0.081 U	NA	0.071 U	NA	0.082 U	NA
VANADIUM	NA	18.1 J	NA	15.3 J	NA	16.7 J	NA
ZINC	156.4	356 J	314.8	68.5 J	100.8 U	83.5 J	106
MISCELLANEOUS PARAMETERS (%)							
PERCENT CLAY	0.2	NA	0.1	NA	0.2	NA	0.1
PERCENT MOISTURE	32	NA	19.4	NA	20	NA	20.1
PERCENT SAND	96	NA	97.1	NA	95.2	NA	98.5
PERCENT SILT	3.9	NA	2.8	NA	4.6	NA	1.5
TOTAL ORGANIC CARBON	1.8	NA	1.1	NA	0.9	NA	0.9

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-1	OFF-1	OFF-2	OFF-2	OFF-3	OFF-3	OFF-4
SAMPLE NUMBER	OFF-1-SD-0015	OFF-SD-OFF1-0006-01	OFF-2-SD-0015	OFF-SD-OFF2-0006-01	OFF-3-SD-0015	OFF-SD-OFF3-0006-01	OFF-4-SD-0015
SAMPLE DATE	03/27/98	02/22/05	03/27/98	02/22/05	03/27/98	02/23/05	03/27/98
QC IDENTIFIER							
DUPLICATE							
SEMIVOLATILES (UG/KG)							
1,1-BIPHENYL	7.2	NA	22.1	NA	38.6	NA	6.6
1-METHYLNAPHTHALENE	14.8 J	42	52.4 J	18	62.2 J	5.8	35.8 J
1-METHYLPHENANTHRENE	132	NA	364	NA	539	NA	282
2,3,5-TRIMETHYLNAPHTHALENE	7.7 J	NA	45.2 J	NA	22 J	NA	22.6 J
2,6-DIMETHYLNAPHTHALENE	18.9 J	NA	103 J	NA	66.9 J	NA	53.5 J
2-METHYLNAPHTHALENE	26 J	28	77.6 J	3.6 U	89.2 J	5.4	38.1 J
ACENAPHTHENE	23	300	88.1	4.1	371	14	54
ACENAPHTHYLENE	93	24	488	12 J	350	130	424
ANTHRACENE	255 J	750	1100 J	30 J	1460 J	220	774 J
BENZO(A)ANTHRACENE	100	1200	3600	100	5690	610	2280
BENZO(A)PYRENE	595	960	2410	110	3450 J	570	2090
BENZO(B)FLUORANTHENE	NA	1000	NA	120	NA	670	NA
BENZO(E)PYRENE	910 J	NA	2370 J	NA	5250 J	NA	1310 J
BENZO(G,H,I)PERYLENE	876 J	480 J	2520 J	94	5370 J	220	1290 J
BENZO(K)FLUORANTHENE	NA	610	NA	51	NA	370	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	1300	NA	120	NA	640	NA
CHRYSENE/TRIPHENYLENE	790	NA	2340	NA	4560	NA	1850
DIBENZO(A,H)ANTHRACENE	441 J	180	1290 J	21	2810 J	82	352 J
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	1950	3100	8350	210	14600	1400	5580
FLUORENE	40.3 J	370	303 J	7	598 J	50	177 J
HIGH MOLECULAR WEIGHT PAHS	6660	6190	24700	685	41800	3402	16700
INDENO(1,2,3-CD)PYRENE	1010	460	3070	69	6560 J	240	1200
LOW MOLECULAR WEIGHT PAHS	1530	10111	7830	623.1	13700	3933.4	4640
NAPHTHALENE	31.9	39 BB	171	3.6 U	149	14 BB	136
PERYLENE	225	NA	818	NA	1490 J	NA	607
PHENANTHRENE	1060	2900	5610	120	10700	800	3030
PYRENE	1780	2600	6750	240	10700	1300	4810
TOTAL PAHS	14200	NA	49600	NA	92100	NA	29900
PESTICIDES/PCBS (UG/KG)							
2,4'-DDE	0.5 U	NA	0.8 U	NA	0.8 U	NA	0.8 U
2,4'-DDT	1.1	NA	1.8	NA	0.7 J	NA	2.6
4,4'-DDD	3 J	NA	1.4 J	NA	1.8 J	NA	2.4 J
4,4'-DDE	2.5 U	NA	2.5 U	NA	2.2 U	NA	2 U
4,4'-DDT	4.3	NA	10	NA	4	NA	11.5
ALDRIN	0.7 U	NA	0.7 U	NA	0.7 U	NA	0.7 U
ALPHA-CHLORDANE	0.8	NA	0.7 J	NA	0.7 J	NA	1.2

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-1	OFF-1	OFF-2	OFF-2	OFF-3	OFF-3	OFF-4
SAMPLE NUMBER	OFF-1-SD-0015	OFF-SD-OFF1-0006-01	OFF-2-SD-0015	OFF-SD-OFF2-0006-01	OFF-3-SD-0015	OFF-SD-OFF3-0006-01	OFF-4-SD-0015
SAMPLE DATE	03/27/98	02/22/05	03/27/98	02/22/05	03/27/98	02/23/05	03/27/98
QC IDENTIFIER							
DUPLICATE							
GAMMA-BHC (LINDANE)	0.6 U	NA	0.6 U	NA	0.6 U	NA	0.6 U
HEPTACHLOR	0.5 U	NA	0.5 U	NA	0.5 U	NA	1.4 U
HEPTACHLOR EPOXIDE	0.5 U	NA	0.5 U	NA	0.5 U	NA	0.6 J
HEXACHLOROBENZENE	0.4 U	NA	0.4 U	NA	0.4 U	NA	0.4 U
MIREX	0.3 J	NA	0.6 U	NA	0.6 U	NA	0.6 U
PCB-101/90	1.2 U	NA	2.1 U	NA	2.4 U	NA	2.9
PCB-105	0.6 U	NA	1.2 U	NA	1.4 U	NA	0.7 U
PCB-118	0.7 J	NA	2.1	NA	1.8	NA	1.3
PCB-126	0.5 U	NA	0.9 J	NA	1.3 J	NA	1.7 J
PCB-128	0.6	NA	0.6 J	NA	0.8 J	NA	2.1
PCB-138/163/164	1.9	NA	10.7 J	NA	11.2 J	NA	11.4
PCB-153	1.5	NA	2.5	NA	2.5	NA	1.9
PCB-170	0.9 U	NA	0.7 U	NA	0.7 U	NA	1.8
PCB-18	1.3 J	NA	0.7 U	NA	1.7	NA	0.7 U
PCB-180	1.1	NA	1.5	NA	2.4	NA	2
PCB-187/182/159	0.6	NA	0.7	NA	0.6	NA	2.8
PCB-188	0.6 U	NA	0.6 U	NA	0.8	NA	0.6 U
PCB-195	0.5 U	NA	0.6 U	NA	0.6 U	NA	1.2
PCB-201	0.3 J	NA	1.2	NA	1	NA	1.8
PCB-206	0.5 U	NA	0.5 U	NA	0.5 U	NA	2.4 U
PCB-209	0.5 U	NA	0.5 U	NA	0.5 U	NA	0.5 U
PCB-28/50	0.7	NA	0.7 U	NA	0.6 J	NA	0.7 U
PCB-29	0.7 U	NA	0.7 U	NA	0.7 U	NA	0.7 U
PCB-44	0.6 J	NA	0.4 J	NA	1.4 J	NA	1.4 J
PCB-50	0.5 U	NA	0.5 U	NA	0.5 U	NA	0.5 U
PCB-52	0.8 U	NA	0.7 U	NA	1 U	NA	1.4 J
PCB-8	8.5 J	NA	0.3 U	NA	0.9 J	NA	0.3 U
PCB-87	0.6 UJ	NA	0.9 J	NA	0.8 J	NA	0.7 J
SUM OF PCB CONGENERS X 2	37.8	NA	45.8	NA	59.6	NA	72.2
TRANS-NONACHLOR	0.6 J	NA	0.8 U	NA	0.7 J	NA	0.8 U

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-4	OFF-5	OFF-5	OFF-5	OFF-5	OFF-6	OFF-6
SAMPLE NUMBER	OFF-SD-OFF4-0006-01	OFF-5-SD-0015	OFF-5-SD-2025	OFF-5-SD-5560	OFF-SD-SD5-0006-01	OFF-6-SD-0015	OFF-6-SD-2025
SAMPLE DATE	02/23/05	03/27/98	04/27/98	04/27/98	02/23/05	03/27/98	04/27/98
QC IDENTIFIER							
DUPLICATE							
AVS/SIMULTANEOUSLY EXTRACTED METALS (UMO/G)							
ACID VOLATILE SULFIDE	NA	23.82	NA	NA	NA	26.06	NA
CADMIUM	NA	0.002	NA	NA	NA	0.002	NA
COPPER	NA	0.156 U	NA	NA	NA	0.177 U	NA
LEAD	NA	0.386	NA	NA	NA	0.168	NA
NICKEL	NA	0.152	NA	NA	NA	0.077 U	NA
SEM/AVS	NA	-22.144 J	NA	NA	NA	-24.841 J	NA
ZINC	NA	0.982	NA	NA	NA	0.794	NA
METALS (MG/KG)							
ALUMINUM	6130	16256.3 J	25226.7 J	32802.5 J	6900	22706.9 J	24964.6 J
ANTIMONY	2.6 J	NA	NA	NA	2.8 R	NA	NA
ARSENIC	1.2 J	3.6 J	4.9 J	5.3 J	0.74 R	4.1 J	7.5 J
BARIUM	10.1 J	NA	NA	NA	18.7 J	NA	NA
BERYLLIUM	0.26 U	NA	NA	NA	0.27 U	NA	NA
CADMIUM	2.2 J	0.23	0.55	1.29	2.4 J	0.15	0.68
CALCIUM	27100 J	NA	NA	NA	72300 J	NA	NA
CHROMIUM	6.8 J	27.4	17.6	29.5	11.2 J	23	35.3
COBALT	3.8 J	NA	NA	NA	4.3 J	NA	NA
COPPER	14.5 J	16.9	13.5	5.7	51.1 J	11	42
IRON	15700 J	17649.2 J	21741.8 J	22845.6 J	39100 J	19992.8 J	23113.2 J
LEAD	57.9	138.7	59.8	12.2	62.1	47.2	156.3
MAGNESIUM	5210	NA	NA	NA	3640	NA	NA
MANGANESE	266	166.8	282	345	190 J	257.5	285.1
MERCURY	0.0070 U	0.05 U	0.071	0.05 U	0.035	0.05 U	0.176
NICKEL	10.1 J	19	22.8	24.5	12.7 J	19.3	24.8
POTASSIUM	385 J	NA	NA	NA	450 J	NA	NA
SELENIUM	0.075 UJ	NA	NA	NA	0.069 UJ	NA	NA
SILVER	3.2 UJ	0.13 UJ	0.13 UJ	0.13 UJ	4.2 UJ	0.13 UJ	0.19 J
SODIUM	2530 J	NA	NA	NA	2530 J	NA	NA
THALLIUM	0.089 U	NA	NA	NA	0.082 U	NA	NA
VANADIUM	14.1 J	NA	NA	NA	15.9 J	NA	NA
ZINC	57.5 J	79.8 U	105.2 U	53.7 U	86.8 J	105.7 U	267.1
MISCELLANEOUS PARAMETERS (%)							
PERCENT CLAY	NA	0.3	0.3	0.5	NA	0.3	NA
PERCENT MOISTURE	NA	26.2	17.3	19.4	NA	31.7	NA
PERCENT SAND	NA	97.1	91.4	89.6	NA	94.2	NA
PERCENT SILT	NA	2.6	8.3	9.9	NA	5.5	NA
TOTAL ORGANIC CARBON	NA	1	0.8	0.7	NA	1.8	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-4	OFF-5	OFF-5	OFF-5	OFF-5	OFF-6	OFF-6
SAMPLE NUMBER	OFF-SD-OFF4-0006-01	OFF-5-SD-0015	OFF-5-SD-2025	OFF-5-SD-5560	OFF-SD-SD5-0006-01	OFF-6-SD-0015	OFF-6-SD-2025
SAMPLE DATE	02/23/05	03/27/98	04/27/98	04/27/98	02/23/05	03/27/98	04/27/98
QC IDENTIFIER							
DUPLICATE							
SEMIVOLATILES (UG/KG)							
1,1-BIPHENYL	NA	151	8.9 J	6.4 UJ	NA	46.7	NA
1-METHYLNAPHTHALENE	64	278 J	35	7.1 U	36	132 J	NA
1-METHYLPHENANTHRENE	NA	1460	121	6.2 U	NA	680	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	121 J	13	4.8 U	NA	36.3 J	NA
2,6-DIMETHYLNAPHTHALENE	NA	476 J	30.3	8.6 U	NA	148 J	NA
2-METHYLNAPHTHALENE	94	330 J	42.5	3.6 U	54	170 J	NA
ACENAPHTHENE	180	966	132 J	8.2 U	260	344	NA
ACENAPHTHYLENE	220	509	144	4.6 U	220	195	NA
ANTHRACENE	470	2810 J	380	8.4 U	660	1170 J	NA
BENZO(A)ANTHRACENE	950	9300	882	8 U	2000	4250	NA
BENZO(A)PYRENE	860	4830	973	3 U	1800	1990	NA
BENZO(B)FLUORANTHENE	980	NA	NA	NA	2100	NA	NA
BENZO(E)PYRENE	NA	7590 J	616	6 U	NA	3270 J	NA
BENZO(G,H,I)PERYLENE	300 J	5990 J	547	2.2 J	800 J	2630 J	NA
BENZO(K)FLUORANTHENE	560	NA	NA	NA	1400	NA	NA
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	1000	NA	NA	NA	2000	NA	NA
CHRYSENE/TRIPHENYLENE	NA	7300	790 J	10 U	NA	3350	NA
DIBENZO(A,H)ANTHRACENE	120 J	3410 J	345	2.8 U	200 J	1390 J	NA
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	2400	19200	2300	9 U	4800	11200	NA
FLUORENE	250	1360 J	124 J	7 UJ	300	392 J	NA
HIGH MOLECULAR WEIGHT PAHS	5100	60900	7370	9	11080	32000	NA
INDENO(1,2,3-CD)PYRENE	330 J	7390	524	1.2 J	780	3030	NA
LOW MOLECULAR WEIGHT PAHS	7934	20800	2350	1	14344	11900	NA
NAPHTHALENE	220 BB	258	88.3	3.6 U	150	161	NA
PERYLENE	NA	1460	262	4.4 U	NA	734	NA
PHENANTHRENE	2000	14600	1440	10 U	3600	9470	NA
PYRENE	2100	16900	2090	8 U	4300	9770	NA
TOTAL PAHS	NA	132000	13500	27	NA	64000	NA
PESTICIDES/PCBS (UG/KG)							
2,4'-DDE	NA	0.8 U	0.8 U	0.8 U	NA	0.8 U	NA
2,4'-DDT	NA	1.7	1 U	1 U	NA	1.4	NA
4,4'-DDD	NA	2 J	1.1	0.9 U	NA	3.8 J	NA
4,4'-DDE	NA	3 U	1.1 U	0.9 U	NA	3.8	NA
4,4'-DDT	NA	11.3	1.8 J	2 J	NA	9.8	NA
ALDRIN	NA	0.7 U	0.7 U	0.7 U	NA	0.7 U	NA
ALPHA-CHLORDANE	NA	1.4	0.8 U	0.8 U	NA	0.6 J	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-4	OFF-5	OFF-5	OFF-5	OFF-5	OFF-6	OFF-6
SAMPLE NUMBER	OFF-SD-OFF4-0006-01	OFF-5-SD-0015	OFF-5-SD-2025	OFF-5-SD-5560	OFF-SD-SD5-0006-01	OFF-6-SD-0015	OFF-6-SD-2025
SAMPLE DATE	02/23/05	03/27/98	04/27/98	04/27/98	02/23/05	03/27/98	04/27/98
QC IDENTIFIER							
DUPLICATE							
GAMMA-BHC (LINDANE)	NA	0.6 U	0.6 U	0.6 U	NA	0.8 J	NA
HEPTACHLOR	NA	0.5 U	0.5 U	0.5 U	NA	0.5 U	NA
HEPTACHLOR EPOXIDE	NA	0.5 U	0.7	0.5 U	NA	0.5 U	NA
HEXACHLOROBENZENE	NA	0.5 U	0.4 U	0.4 U	NA	0.6 U	NA
MIREX	NA	0.6	0.6 U	0.6 U	NA	0.5 J	NA
PCB-101/90	NA	2.2 U	4.6	0.6 U	NA	2 U	NA
PCB-105	NA	1.7 J	1.1 U	0.6 U	NA	0.7 U	NA
PCB-118	NA	1.1	3.6	0.7 U	NA	1.6	NA
PCB-126	NA	2.5 J	1 J	0.5 U	NA	0.5 UJ	NA
PCB-128	NA	0.9 J	1.4	0.4 U	NA	1.8 J	NA
PCB-138/163/164	NA	16.2 J	7.2	0.6 U	NA	3 J	NA
PCB-153	NA	4	3.6 J	0.4 UJ	NA	2.7	NA
PCB-170	NA	1.8	1.1	0.5 U	NA	1.8 J	NA
PCB-18	NA	1.4	0.7 U	0.7 U	NA	2.8	NA
PCB-180	NA	3.9	1.1	0.5 U	NA	2.1 J	NA
PCB-187/182/159	NA	1.6	1	0.5 U	NA	1.9 J	NA
PCB-188	NA	1.3	0.6	0.6 U	NA	2.6	NA
PCB-195	NA	3.5	0.7 J	0.6 U	NA	0.6 UJ	NA
PCB-201	NA	2	0.5 U	0.5 U	NA	1.1 J	NA
PCB-206	NA	0.6 U	0.8 U	0.7 U	NA	0.6 UJ	NA
PCB-209	NA	0.7 U	0.6 U	0.5 U	NA	4.1 J	NA
PCB-28/50	NA	1.8	1.2	0.7 U	NA	2.7	NA
PCB-29	NA	0.7 U	0.7 U	0.7 U	NA	0.7 U	NA
PCB-44	NA	1.4 J	1.2	0.5 U	NA	1.8 J	NA
PCB-50	NA	0.5 U	0.5 U	0.5 U	NA	0.5 U	NA
PCB-52	NA	1.8 J	2.8	0.7 U	NA	2.6 J	NA
PCB-8	NA	0.3 U	0.7 J	0.3 U	NA	0.6	NA
PCB-87	NA	0.8 J	1	0.6 U	NA	1.6 J	NA
SUM OF PCB CONGENERS X 2	NA	103.2	74	5	NA	76.4	NA
TRANS-NONACHLOR	NA	1.3	0.8 U	0.8 U	NA	0.8 U	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-6	OFF-6	OFF-6	OFF-7	OFF-7	OFF-7	OFF-SD-411
SAMPLE NUMBER	OFF-6-SD-2035	OFF-6-SD-3540	OFF-SD-OFF6-0006-01	OFF-7-SD-0015	OFF-SD-OFF7-0006-01	OFF-SD-OFF7-0006-01-D	OFF-SD-411-0006
SAMPLE DATE	04/27/98	04/27/98	02/23/05	03/27/98	02/22/05	02/22/05	11/13/01
QC IDENTIFIER					ORIG	DUP	
DUPLICATE						OFF-SD-OFF7-0006-01	
AVS/SIMULTANEOUSLY EXTRACTED METALS (UMO/G)							
ACID VOLATILE SULFIDE	NA	NA	NA	38.21	NA	NA	NA
CADMIUM	NA	NA	NA	0.002	NA	NA	NA
COPPER	NA	NA	NA	0.09 U	NA	NA	NA
LEAD	NA	NA	NA	0.221	NA	NA	NA
NICKEL	NA	NA	NA	0.068 U	NA	NA	NA
SEM/AVS	NA	NA	NA	-37.331 J	NA	NA	NA
ZINC	NA	NA	NA	0.499	NA	NA	NA
METALS (MG/KG)							
ALUMINUM	NA	26685.6 J	5920	21885.3 J	5910	6470	7380
ANTIMONY	NA	NA	2.6 R	NA	9.9 R	5.2 R	0.74 U
ARSENIC	NA	3.7 J	2.2 R	6.8 J	0.072 UJ	1.5 R	4.4 J
BARIUM	NA	NA	19.1 J	NA	8.2 J	7.5 J	10.7 J
BERYLLIUM	NA	NA	0.34	NA	0.29	0.29 U	0.30
CADMIUM	NA	0.14	1.9 J	0.29	9.2 J	5.4 J	0.024 UJ
CALCIUM	NA	NA	87600 J	NA	4660 J	6350 J	42100 J
CHROMIUM	NA	29.7	11.2 J	43.1	31.6 J	20.4 J	11.2
COBALT	NA	NA	3.8 J	NA	7.0 J	6.6 J	4.6 J
COPPER	NA	6.6	16.5 J	32.8	62.3 J	48.5 J	18.6 J
IRON	NA	18709 J	13000 J	27506.2 J	144000 J	85600 J	16100
LEAD	NA	18.7	49.3 J	294	93.4 J	94.3	42.3 J
MAGNESIUM	NA	NA	6090	NA	3000	3550	4490
MANGANESE	NA	211.9	178 J	331.6	539 J	428 J	169 J
MERCURY	NA	0.05 U	0.033	0.119	0.021	0.022	0.058
NICKEL	NA	21.6	11.6 J	28.1	32.0 J	28.3 J	15.6 J
POTASSIUM	NA	NA	705 J	NA	348 R	392 J	775 J
SELENIUM	NA	NA	0.074 UJ	NA	0.064 UJ	0.072 UJ	0.37 UJ
SILVER	NA	0.13 UJ	0.59 UJ	0.18 J	10.3 J	9.1 J	0.061 UJ
SODIUM	NA	NA	4690 J	NA	1830 J	1900 J	4060
THALLIUM	NA	NA	0.087 U	NA	0.075 U	0.086 U	0.87 U
VANADIUM	NA	NA	22.5 J	NA	18.4 J	17.6 J	16.3
ZINC	NA	75.8 U	78.7 J	155.5	94.8 J	163 J	62.8 J
MISCELLANEOUS PARAMETERS (%)							
PERCENT CLAY	1	0.8	NA	0.6	NA	NA	NA
PERCENT MOISTURE	22.5	18	NA	34	NA	NA	NA
PERCENT SAND	81.8	90.6	NA	86.7	NA	NA	NA
PERCENT SILT	17.2	8.6	NA	12.7	NA	NA	NA
TOTAL ORGANIC CARBON	1.3	0.7	NA	1.9	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-6	OFF-6	OFF-6	OFF-7	OFF-7	OFF-7	OFF-SD-411
SAMPLE NUMBER	OFF-6-SD-2035	OFF-6-SD-3540	OFF-SD-OFF6-0006-01	OFF-7-SD-0015	OFF-SD-OFF7-0006-01	OFF-SD-OFF7-0006-01-D	OFF-SD-411-0006
SAMPLE DATE	04/27/98	04/27/98	02/23/05	03/27/98	02/22/05	02/22/05	11/13/01
QC IDENTIFIER					ORIG	DUP	
DUPLICATE						OFF-SD-OFF7-0006-01	
SEMIVOLATILES (UG/KG)							
1,1-BIPHENYL	42 J	3 J	NA	14.7	NA	NA	NA
1-METHYLNAPHTHALENE	120	7.9	7.4	34.6	20 J	8.2 J	NA
1-METHYLPHENANTHRENE	185	9.8	NA	104	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	48.1	1.7 J	NA	17.7	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	261	10	NA	59.8	NA	NA	NA
2-METHYLNAPHTHALENE	280	9.6	7.9	54.9	21 J	7.2 J	66 U
ACENAPHTHENE	249 J	52.5 J	26	120	94 J	36 J	64 J
ACENAPHTHYLENE	95.8	3.1 J	110	169	25 J	36 J	100
ANTHRACENE	629	61.5	180	393	210 J	120 J	250
BENZO(A)ANTHRACENE	988	118	560	1160	610 J	320 J	840
BENZO(A)PYRENE	1750	116	520	1330	580 J	290 J	680 J
BENZO(B)FLUORANTHENE	NA	NA	630	NA	780 J	400 J	990 J
BENZO(E)PYRENE	1490	81.2	NA	966	NA	NA	NA
BENZO(G,H,I)PERYLENE	1260	74.3	210 J	1020	290 J	160 J	170 J
BENZO(K)FLUORANTHENE	NA	NA	370	NA	340 J	220 J	480 J
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	NA	NA	620	NA	560 J	320 J	920
CHRYSENE/TRIPHENYLENE	791 J	103 J	NA	519 J	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	357	22.3	68 J	293	75 J	53 J	66 UJ
DIBENZOFURAN	NA	NA	NA	NA	NA	NA	49 J
FLUORANTHENE	2840	322	1700 E	2190	950 J	500 J	1800
FLUORENE	253 J	25.7 J	48	160	70 J	36 J	92 J
HIGH MOLECULAR WEIGHT PAHS	10100	966	3188	7620	3475	1893	4280
INDENO(1,2,3-CD)PYRENE	1140	72.2	210 J	968	240 J	130 J	200 J
LOW MOLECULAR WEIGHT PAHS	3720	412	4261.9	2280	3573	2051.6	5506
NAPHTHALENE	174	10	20 BB	70	13 BBJ	6.4 BBJ	220 U
PERYLENE	407	32.9	NA	363	NA	NA	NA
PHENANTHRENE	2040	249	770	1320	790 J	510 J	1200
PYRENE	3340	286	1400	2120	1400 J	800 J	2000
TOTAL PAHS	22300	1910	NA	16300	NA	NA	NA
PESTICIDES/PCBS (UG/KG)							
2,4'-DDE	0.8 U	0.8 U	NA	0.8 U	NA	NA	NA
2,4'-DDT	1 U	1 U	NA	1 U	NA	NA	NA
4,4'-DDD	2.2	0.9 U	NA	3.8	NA	NA	NA
4,4'-DDE	3.1	0.9 U	NA	3.1	NA	NA	NA
4,4'-DDT	2.2 J	0.6 U	NA	2.7	NA	NA	NA
ALDRIN	0.7 U	0.7 U	NA	0.7 U	NA	NA	NA
ALPHA-CHLORDANE	0.8 U	0.8 U	NA	0.7 J	NA	NA	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-6	OFF-6	OFF-6	OFF-7	OFF-7	OFF-7	OFF-SD-411
SAMPLE NUMBER	OFF-6-SD-2035	OFF-6-SD-3540	OFF-SD-OFF6-0006-01	OFF-7-SD-0015	OFF-SD-OFF7-0006-01	OFF-SD-OFF7-0006-01-D	OFF-SD-411-0006
SAMPLE DATE	04/27/98	04/27/98	02/23/05	03/27/98	02/22/05	02/22/05	11/13/01
QC IDENTIFIER					ORIG	DUP	
DUPLICATE						OFF-SD-OFF7-0006-01	
GAMMA-BHC (LINDANE)	0.6 U	0.6 U	NA	0.2 J	NA	NA	NA
HEPTACHLOR	0.5 U	0.8 U	NA	0.3 J	NA	NA	NA
HEPTACHLOR EPOXIDE	4.7	0.5 U	NA	0.5 U	NA	NA	NA
HEXACHLOROBENZENE	0.4 U	0.4 U	NA	0.4 U	NA	NA	NA
MIREX	0.6 U	0.6 U	NA	0.4 J	NA	NA	NA
PCB-101/90	3.3	0.6 U	NA	2.7	NA	NA	NA
PCB-105	2 J	0.6 U	NA	1.3 UJ	NA	NA	NA
PCB-118	3.1	0.7 U	NA	2.3	NA	NA	NA
PCB-126	2 J	0.5 U	NA	0.8 U	NA	NA	NA
PCB-128	2.2	0.4 U	NA	1	NA	NA	NA
PCB-138/163/164	9.7	0.6	NA	5.2	NA	NA	NA
PCB-153	3.6 J	0.4 UJ	NA	3.5	NA	NA	NA
PCB-170	2.5	0.6 U	NA	1.2 U	NA	NA	NA
PCB-18	11.6	0.7 U	NA	0.6 J	NA	NA	NA
PCB-180	5.5	0.5 U	NA	2.5	NA	NA	NA
PCB-187/182/159	4.3	0.6	NA	1.6	NA	NA	NA
PCB-188	0.7	0.6 U	NA	0.7	NA	NA	NA
PCB-195	0.6 U	0.6 U	NA	0.6 U	NA	NA	NA
PCB-201	1.2	0.5 U	NA	0.4 J	NA	NA	NA
PCB-206	2.7 U	0.7 U	NA	0.6	NA	NA	NA
PCB-209	3.5	0.5 U	NA	0.8	NA	NA	NA
PCB-28/50	20	1	NA	1	NA	NA	NA
PCB-29	0.7 U	0.7 U	NA	0.7 U	NA	NA	NA
PCB-44	6.9	0.5	NA	1.9	NA	NA	NA
PCB-50	0.5 U	0.5 U	NA	0.5 U	NA	NA	NA
PCB-52	8.1	0.7 U	NA	1.4	NA	NA	NA
PCB-8	4.4 J	0.3 U	NA	0.3 U	NA	NA	NA
PCB-87	1.6	0.6 U	NA	1	NA	NA	NA
SUM OF PCB CONGENERS X 2	213.8	5.4	NA	61	NA	NA	NA
TRANS-NONACHLOR	0.8 U	0.8 U	NA	0.8	NA	NA	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-411	OFF-SD-413	OFF-SD-413	OFF-SD-414	OFF-SD-414	OFF-SD-417
SAMPLE NUMBER	OFF-SD-411-0006-01	OFF-SD-413-0006	OFF-SD-413-0006-01	OFF-SD-414-0006	OFF-SD-414-0006-01	OFF-SD-417-0006
SAMPLE DATE	02/23/05	11/13/01	02/23/05	11/09/01	02/23/05	11/13/01
QC IDENTIFIER						
DUPLICATE						
AVS/SIMULTANEOUSLY EXTRACTED METALS (UMO/G)						
ACID VOLATILE SULFIDE	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA
SEM/AVS	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA
METALS (MG/KG)						
ALUMINUM	6940	7550	6580	12200	6350	6560
ANTIMONY	2.8 R	0.095 U	2.3 R	0.051 UJ	4.0 J	0.93 U
ARSENIC	1.9 J	4.7 J	2.0 J	6.7 J	1.2 R	5.2 J
BARIUM	10.6 J	9.2 J	6.5 J	23.0	69.1 J	12.8 J
BERYLLIUM	0.47	0.26	0.3 U	0.36	0.29	0.24
CADMIUM	2.8 J	0.022 UJ	2.5 J	0.87 J	3.2 J	1.5 J
CALCIUM	44500 J	11300 J	14100 J	9730 J	40700 J	11000 J
CHROMIUM	10 J	10.7	8.6 J	21.3 J	9.3 J	12.1
COBALT	3.5 J	7.4 J	5.1 J	16.8	5.8 J	3.6 J
COPPER	13.5 J	51.5 J	16.6 J	20.5 J	110 J	50.4 J
IRON	43600 J	29200	38800 J	335000	48700 J	16200
LEAD	41.2 J	191 J	75.6	105 J	239	55.2 J
MAGNESIUM	6020	5020	4360	7300	3260	3560
MANGANESE	244 J	688 J	259 J	612	345 J	130 J
MERCURY	0.034	0.017 U	0.0083 U	0.018 U	0.0071 U	0.066
NICKEL	9.2 J	17.2 J	13.0 J	27.6 J	15.3 J	11.9 J
POTASSIUM	523 J	766 J	325 J	677	307 J	599 J
SELENIUM	0.071 UJ	0.81 U	0.073 UJ	0.75 J	0.059 UJ	6.2 J
SILVER	4.0 UJ	0.056 UJ	4.6 UJ	0.051 UJ	5.8 J	0.061 UJ
SODIUM	2860 J	2300	2970 J	1670	2200 J	3830
THALLIUM	0.084 U	1.6 U	0.087 U	2.2	0.070 U	2.4 J
VANADIUM	16.4 J	17.3 J	16.2 J	24.2	11.7 J	16.4
ZINC	55.7 J	75.1 J	87.9 J	114	97.5 J	83.9 J
MISCELLANEOUS PARAMETERS (%)						
PERCENT CLAY	NA	NA	NA	NA	NA	NA
PERCENT MOISTURE	NA	NA	NA	NA	NA	NA
PERCENT SAND	NA	NA	NA	NA	NA	NA
PERCENT SILT	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-411	OFF-SD-413	OFF-SD-413	OFF-SD-414	OFF-SD-414	OFF-SD-417
SAMPLE NUMBER	OFF-SD-411-0006-01	OFF-SD-413-0006	OFF-SD-413-0006-01	OFF-SD-414-0006	OFF-SD-414-0006-01	OFF-SD-417-0006
SAMPLE DATE	02/23/05	11/13/01	02/23/05	11/09/01	02/23/05	11/13/01
QC IDENTIFIER						
DUPLICATE						
SEMIVOLATILES (UG/KG)						
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	4 U	NA	15	NA	4.8	NA
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	4 U	58 U	15	100 J	4.4	68 U
ACENAPHTHENE	9.1	190 U	36	190 J	13	53 J
ACENAPHTHYLENE	74	81 J	230	1500 J	87	250
ANTHRACENE	96	130 J	340	2100 J	220	430
BENZO(A)ANTHRACENE	390	430 J	1100	4900 J	440	1100
BENZO(A)PYRENE	400 J	320 J	880	3900 J	380	810
BENZO(B)FLUORANTHENE	420	470 J	990	5100 J	420	1000
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	160 J	58 UJ	320 J	1300 J	120 J	250
BENZO(K)FLUORANTHENE	220 J	220 J	570	2800 J	NA	520
CARBAZOLE	NA	NA	NA	NA	NA	NA
CHRYSENE	380	440 J	850	4200 J	460	1000
CHRYSENE/TRIPHENYLENE	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	55 J	58 UJ	120 J	480 J	47 J	94
DIBENZOFURAN	NA	190 U	NA	600 J	NA	68 J
FLUORANTHENE	790	830	2200	13000 J	1100	2100
FLUORENE	27	29 J	95	560 J	45	110 J
HIGH MOLECULAR WEIGHT PAHS	2185	1966	5180	24280	1997	5084
INDENO(1,2,3-CD)PYRENE	160 J	86 J	350 J	1600 J	130 J	310
LOW MOLECULAR WEIGHT PAHS	2291.5	2560	6249	38300	3134.1	6392
NAPHTHALENE	5.4 BB	190 UJ	33 BB	250 J	4.7 BB	49 J
PERYLENE	NA	NA	NA	NA	NA	NA
PHENANTHRENE	410	490 J	1300	9600 J	660	1400
PYRENE	880	1000 J	2000	11000 J	1000	2000
TOTAL PAHS	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/KG)						
2,4'-DDE	NA	NA	NA	NA	NA	NA
2,4'-DDT	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-411	OFF-SD-413	OFF-SD-413	OFF-SD-414	OFF-SD-414	OFF-SD-417
SAMPLE NUMBER	OFF-SD-411-0006-01	OFF-SD-413-0006	OFF-SD-413-0006-01	OFF-SD-414-0006	OFF-SD-414-0006-01	OFF-SD-417-0006
SAMPLE DATE	02/23/05	11/13/01	02/23/05	11/09/01	02/23/05	11/13/01
QC IDENTIFIER						
DUPLICATE						
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA
MIREX	NA	NA	NA	NA	NA	NA
PCB-101/90	NA	NA	NA	NA	NA	NA
PCB-105	NA	NA	NA	NA	NA	NA
PCB-118	NA	NA	NA	NA	NA	NA
PCB-126	NA	NA	NA	NA	NA	NA
PCB-128	NA	NA	NA	NA	NA	NA
PCB-138/163/164	NA	NA	NA	NA	NA	NA
PCB-153	NA	NA	NA	NA	NA	NA
PCB-170	NA	NA	NA	NA	NA	NA
PCB-18	NA	NA	NA	NA	NA	NA
PCB-180	NA	NA	NA	NA	NA	NA
PCB-187/182/159	NA	NA	NA	NA	NA	NA
PCB-188	NA	NA	NA	NA	NA	NA
PCB-195	NA	NA	NA	NA	NA	NA
PCB-201	NA	NA	NA	NA	NA	NA
PCB-206	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA
PCB-28/50	NA	NA	NA	NA	NA	NA
PCB-29	NA	NA	NA	NA	NA	NA
PCB-44	NA	NA	NA	NA	NA	NA
PCB-50	NA	NA	NA	NA	NA	NA
PCB-52	NA	NA	NA	NA	NA	NA
PCB-8	NA	NA	NA	NA	NA	NA
PCB-87	NA	NA	NA	NA	NA	NA
SUM OF PCB CONGENERS X 2	NA	NA	NA	NA	NA	NA
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-417	OFF-SD-424	OFF-SD-424	OFF-SD-432	OFF-SD-432	OFF-SD-432	OFF-SD-432
SAMPLE NUMBER	OFF-SD-417-0006-01	OFF-SD-424-0006	OFF-SD-424-0006-01	OFF-SD-432-0006	OFF-SD-432-0006-D	OFF-SD-432-1824	OFF-SD-432-0006-01
SAMPLE DATE	02/23/05	11/13/01	02/22/05	11/13/01	11/13/01	11/13/01	02/23/05
QC IDENTIFIER				ORIG	DUP		
DUPLICATE					OFF-SD-432-0006		
AVS/SIMULTANEOUSLY EXTRACTED METALS (UMO/G)							
ACID VOLATILE SULFIDE	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA
SEM/AVS	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)							
ALUMINUM	5610	8810	7210	8620	8050	7880	6380
ANTIMONY	2.0 J	0.051 UJ	6.6 R	1.1 J	4.4 J	4.1 J	2.1 J
ARSENIC	1.0 J	5.8 J	1.6 R	4.7 J	6.1 J	4.6 J	1.9 J
BARIUM	9.1 J	16.9 J	8.3 J	8.6 J	10.1 J	152 J	6.5 J
BERYLLIUM	0.3	0.25	0.36	0.26	0.30	0.25	0.29 U
CADMIUM	2.1 J	0.13 J	6.7 J	0.02 UJ	2.2 J	2.3 J	2.2 J
CALCIUM	25500 J	11000 J	4710 J	11000 J	6410 J	6170 J	8600 J
CHROMIUM	8.5 J	26.1	27.2 J	11.5	12.7	12.1	7.6 J
COBALT	3.6 J	7.6 J	6.1 J	7.5 J	6.2 J	6.9 J	4.6 J
COPPER	36.0 J	56.7 J	72.2 J	69.2 J	75.8 J	219 J	9.4 UJ
IRON	14500 J	51300	88300 J	24700	28900	30200	16000 J
LEAD	49.2	122 J	106	282 J	644 J	734 J	39.1
MAGNESIUM	3660	3950	5190	4120	5170	3400	4500
MANGANESE	159 J	357 J	389 J	338 J	379 J	412 J	263
MERCURY	0.084	0.035	0.016	0.019 J	0.019 U	0.019 J	0.0079 U
NICKEL	10.6 J	26.5 J	27.5 J	17.4 J	17.7 J	16.9 J	11.0 J
POTASSIUM	455 J	416 J	473 J	325 J	354 J	332 J	354 J
SELENIUM	0.070 UJ	1.7 U	0.070 UJ	0.30 UJ	9.9 J	9.4 J	0.071 UJ
SILVER	3.7 UJ	0.051 UJ	9.5 J	0.05 UJ	0.11 J	0.12 J	4.4 UJ
SODIUM	2860 J	1960	2650 J	1750	2060	2080	2660 J
THALLIUM	0.082 U	1.6 U	0.083 U	1.4 U	4.3 J	4.4 J	0.085 U
VANADIUM	14.4 J	16.8 J	18.5 J	16.5 J	14.9 J	12.9 J	14.2 J
ZINC	76.9 J	106 J	127 J	101 J	112 J	315 J	50.2 J
MISCELLANEOUS PARAMETERS (%)							
PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA
PERCENT MOISTURE	NA	NA	NA	NA	NA	NA	NA
PERCENT SAND	NA	NA	NA	NA	NA	NA	NA
PERCENT SILT	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-417	OFF-SD-424	OFF-SD-424	OFF-SD-432	OFF-SD-432	OFF-SD-432	OFF-SD-432
SAMPLE NUMBER	OFF-SD-417-0006-01	OFF-SD-424-0006	OFF-SD-424-0006-01	OFF-SD-432-0006	OFF-SD-432-0006-D	OFF-SD-432-1824	OFF-SD-432-0006-01
SAMPLE DATE	02/23/05	11/13/01	02/22/05	11/13/01	11/13/01	11/13/01	02/23/05
QC IDENTIFIER				ORIG	DUP		
DUPLICATE					OFF-SD-432-0006		
SEMIVOLATILES (UG/KG)							
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	11	NA	4.7 J	NA	NA	NA	9.9
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	11	58 U	6.4 J	55 U	58 U	60 J	9.2
ACENAPHTHENE	35	36 J	11 J	180 U	190 U	92 J	21
ACENAPHTHYLENE	220	38 J	35 J	84	100	760	220
ANTHRACENE	350	230	88 J	130 J	150 J	1400	330
BENZO(A)ANTHRACENE	890	300	150 J	340	520	2800	NA
BENZO(A)PYRENE	830	230 J	210 J	240	370	2000	800
BENZO(B)FLUORANTHENE	960	320 J	230 J	300	500	2600	940
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	300 J	83 J	250 J	100	110	670	290 J
BENZO(K)FLUORANTHENE	540	140 J	72 J	140 J	220	1100	570
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	930	310	170 J	320	500	2800	970
CHRYSENE/TRIPHENYLENE	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	110 J	58 UJ	42 J	55 U	58 U	240	100 J
DIBENZOFURAN	NA	28 J	NA	23 J	20 J	270 J	NA
FLUORANTHENE	2100	640	260 J	750	1100	6000	2100
FLUORENE	82	60 J	31 J	38 J	31 J	400 J	86
HIGH MOLECULAR WEIGHT PAHS	4900	1468	1254	1560	2360	13020	NA
INDENO(1,2,3-CD)PYRENE	340 J	85 J	130 J	120	140	810	320 J
LOW MOLECULAR WEIGHT PAHS	5922	2211	936.2	2232	2901	19272	6084.2
NAPHTHALENE	24 BB	27 J	4.8 BBJ	180 U	190 U	160 J	18 BB
PERYLENE	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	1100	560	160 J	530	520	4800	1200
PYRENE	2000	620	340 J	700	1000	5600	2100
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/KG)							
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-417	OFF-SD-424	OFF-SD-424	OFF-SD-432	OFF-SD-432	OFF-SD-432	OFF-SD-432
SAMPLE NUMBER	OFF-SD-417-0006-01	OFF-SD-424-0006	OFF-SD-424-0006-01	OFF-SD-432-0006	OFF-SD-432-0006-D	OFF-SD-432-1824	OFF-SD-432-0006-01
SAMPLE DATE	02/23/05	11/13/01	02/22/05	11/13/01	11/13/01	11/13/01	02/23/05
QC IDENTIFIER				ORIG	DUP		
DUPLICATE					OFF-SD-432-0006		
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
MIREX	NA	NA	NA	NA	NA	NA	NA
PCB-101/90	NA	NA	NA	NA	NA	NA	NA
PCB-105	NA	NA	NA	NA	NA	NA	NA
PCB-118	NA	NA	NA	NA	NA	NA	NA
PCB-126	NA	NA	NA	NA	NA	NA	NA
PCB-128	NA	NA	NA	NA	NA	NA	NA
PCB-138/163/164	NA	NA	NA	NA	NA	NA	NA
PCB-153	NA	NA	NA	NA	NA	NA	NA
PCB-170	NA	NA	NA	NA	NA	NA	NA
PCB-18	NA	NA	NA	NA	NA	NA	NA
PCB-180	NA	NA	NA	NA	NA	NA	NA
PCB-187/182/159	NA	NA	NA	NA	NA	NA	NA
PCB-188	NA	NA	NA	NA	NA	NA	NA
PCB-195	NA	NA	NA	NA	NA	NA	NA
PCB-201	NA	NA	NA	NA	NA	NA	NA
PCB-206	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA
PCB-28/50	NA	NA	NA	NA	NA	NA	NA
PCB-29	NA	NA	NA	NA	NA	NA	NA
PCB-44	NA	NA	NA	NA	NA	NA	NA
PCB-50	NA	NA	NA	NA	NA	NA	NA
PCB-52	NA	NA	NA	NA	NA	NA	NA
PCB-8	NA	NA	NA	NA	NA	NA	NA
PCB-87	NA	NA	NA	NA	NA	NA	NA
SUM OF PCB CONGENERS X 2	NA	NA	NA	NA	NA	NA	NA
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-442	OFF-SD-442
SAMPLE NUMBER	OFF-SD-439-0006	OFF-SD-439-0006-D	OFF-SD-439-0612	OFF-SD-439-1824	OFF-SD-439-0006-01	OFF-SD-442-0006	OFF-SD-442-1824
SAMPLE DATE	10/29/01	10/29/01	10/29/01	11/13/01	02/22/05	11/09/01	11/13/01
QC IDENTIFIER	ORIG	DUP					
DUPLICATE		OFF-SD-439-0006					
AVS/SIMULTANEOUSLY EXTRACTED METALS (UMO/G)							
ACID VOLATILE SULFIDE	NA	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA	NA
SEM/AVS	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA
METALS (MG/KG)							
ALUMINUM	7190	6580	11800	6240	7940	9220	7480
ANTIMONY	0.055 U	0.050 U	0.059 U	2.1 J	2.4 R	0.051 UJ	2.6 J
ARSENIC	2.4	1.5	14.9	6.1 J	3.8 J	7.2 J	9.1 J
BARIUM	6.1	5.8	7.9	33.7 J	8.7 J	12.2	69.1 J
BERYLLIUM	0.19	0.21	0.39	0.25	0.31	0.24	0.17
CADMIUM	0.60 J	1.4 J	1.2 J	2.2 J	2.8 J	0.62 J	0.63 J
CALCIUM	27400	17100	3190	765 J	2000 J	55500	46900 J
CHROMIUM	9.5 J	21.3 J	17.5 J	20.1	9.6 J	10.2	18.7
COBALT	5.6	5.9	11.1	3.8 J	6.9 J	6.3	7.2 J
COPPER	12.1	15.9	63.5	64.7 J	22.0 J	20.9 J	118 J
IRON	21300	31600	36100	28300	44600 J	22000	54900
LEAD	41.1	30.7	188	160 J	43.1 J	41.4	355 J
MAGNESIUM	3750	4290	8000	3800	3970	5540	3850
MANGANESE	330	325	609	206 J	396 J	491	335 J
MERCURY	0.016 U	0.032 J	0.061	0.068	0.016	0.02 J	0.035
NICKEL	13.0	17.2	22.3	22.9 J	16.2 J	17.7	22.8 J
POTASSIUM	336	346	559	523 J	404 J	546	335 J
SELENIUM	0.33 U	0.30 U	0.35 U	9.8 J	0.067 UJ	0.31 UJ	1.8 U
SILVER	0.055 U	0.050 U	0.059 U	0.13 J	6.6 J	0.051 UJ	0.061 UJ
SODIUM	1820	1930	2870	2320	1740 J	2530	3380
THALLIUM	2.8	3.4	4.7	3.0 J	0.078 U	1.7	1.6 U
VANADIUM	13.8	13.8	22.4	16.3 J	18.8 J	18.0	18.2 J
ZINC	45.2 J	94.7 J	175	153 J	85.2 J	75.8	459 J
MISCELLANEOUS PARAMETERS (%)							
PERCENT CLAY	NA	NA	NA	NA	NA	NA	NA
PERCENT MOISTURE	NA	NA	NA	NA	NA	NA	NA
PERCENT SAND	NA	NA	NA	NA	NA	NA	NA
PERCENT SILT	NA	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-442	OFF-SD-442
SAMPLE NUMBER	OFF-SD-439-0006	OFF-SD-439-0006-D	OFF-SD-439-0612	OFF-SD-439-1824	OFF-SD-439-0006-01	OFF-SD-442-0006	OFF-SD-442-1824
SAMPLE DATE	10/29/01	10/29/01	10/29/01	11/13/01	02/22/05	11/09/01	11/13/01
QC IDENTIFIER	ORIG	DUP					
DUPLICATE		OFF-SD-439-0006					
SEMIVOLATILES (UG/KG)							
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	NA	NA	NA	NA	3.7 U	NA	NA
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	370 U	370 U	47 J	44 J	3.7 U	58 J	61 U
ACENAPHTHENE	120 J	74 J	710	130 J	11	120 J	200 U
ACENAPHTHYLENE	370 U	57 J	160 J	41 J	28	870	56 J
ANTHRACENE	300 J	180 J	3400	280	52	1300	110 J
BENZO(A)ANTHRACENE	540	490	1400	430	190 J	2900	360
BENZO(A)PYRENE	550	500	710	440 J	160 J	2400 J	290 J
BENZO(B)FLUORANTHENE	680	680	1400	530 J	240 J	3200 J	400 J
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	220 J	190 J	170 J	200 J	88 J	790 J	61 UJ
BENZO(K)FLUORANTHENE	250 J	330 J	710	250 J	110 J	1600 J	210 J
CARBAZOLE	NA	NA	NA	NA	NA	NA	NA
CHRYSENE	600	460	1700	530	170 J	2600	340
CHRYSENE/TRIPHENYLENE	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	74 J	68 J	85 J	59 UJ	26 J	280 J	61 UJ
DIBENZOFURAN	73 J	41 J	250 J	56 J	NA	340 J	200 U
FLUORANTHENE	1400	900	5700	780	270	6100	590
FLUORENE	98 J	73 J	500	120 J	14	340 J	41 J
HIGH MOLECULAR WEIGHT PAHS	3154	2918	6415	2530	1054	14760	1681
INDENO(1,2,3-CD)PYRENE	240 J	200 J	240 J	150 J	70 J	990 J	81 J
LOW MOLECULAR WEIGHT PAHS	4318	2944	17617	3671	999	20028	1957
NAPHTHALENE	370 U	370 U	420 U	46 J	4 BB	140 J	200 U
PERYLENE	NA	NA	NA	NA	NA	NA	NA
PHENANTHRENE	1300 J	760	2200	930	210	4900	360
PYRENE	1100	900	4900	1300	410	6200	800
TOTAL PAHS	NA	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/KG)							
2,4'-DDE	NA	NA	NA	NA	NA	NA	NA
2,4'-DDT	NA	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-442	OFF-SD-442
SAMPLE NUMBER	OFF-SD-439-0006	OFF-SD-439-0006-D	OFF-SD-439-0612	OFF-SD-439-1824	OFF-SD-439-0006-01	OFF-SD-442-0006	OFF-SD-442-1824
SAMPLE DATE	10/29/01	10/29/01	10/29/01	11/13/01	02/22/05	11/09/01	11/13/01
QC IDENTIFIER	ORIG	DUP					
DUPLICATE		OFF-SD-439-0006					
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA	NA
MIREX	NA	NA	NA	NA	NA	NA	NA
PCB-101/90	NA	NA	NA	NA	NA	NA	NA
PCB-105	NA	NA	NA	NA	NA	NA	NA
PCB-118	NA	NA	NA	NA	NA	NA	NA
PCB-126	NA	NA	NA	NA	NA	NA	NA
PCB-128	NA	NA	NA	NA	NA	NA	NA
PCB-138/163/164	NA	NA	NA	NA	NA	NA	NA
PCB-153	NA	NA	NA	NA	NA	NA	NA
PCB-170	NA	NA	NA	NA	NA	NA	NA
PCB-18	NA	NA	NA	NA	NA	NA	NA
PCB-180	NA	NA	NA	NA	NA	NA	NA
PCB-187/182/159	NA	NA	NA	NA	NA	NA	NA
PCB-188	NA	NA	NA	NA	NA	NA	NA
PCB-195	NA	NA	NA	NA	NA	NA	NA
PCB-201	NA	NA	NA	NA	NA	NA	NA
PCB-206	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA
PCB-28/50	NA	NA	NA	NA	NA	NA	NA
PCB-29	NA	NA	NA	NA	NA	NA	NA
PCB-44	NA	NA	NA	NA	NA	NA	NA
PCB-50	NA	NA	NA	NA	NA	NA	NA
PCB-52	NA	NA	NA	NA	NA	NA	NA
PCB-8	NA	NA	NA	NA	NA	NA	NA
PCB-87	NA	NA	NA	NA	NA	NA	NA
SUM OF PCB CONGENERS X 2	NA	NA	NA	NA	NA	NA	NA
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA	NA

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TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-442	OFF-SD-442	OFF-SD-445	OFF-SD-445	OFF-SD-445	OFF-SD-JPC03
SAMPLE NUMBER	OFF-SD-442-0006-01	OFF-SD-442-0006-01-D	OFF-SD-445-0006	OFF-SD-445-1824	OFF-SD-445-0006-01	OFF-SD-JPC03-0006
SAMPLE DATE	02/23/05	02/23/05	11/13/01	11/13/01	02/23/05	07/02/02
QC IDENTIFIER	ORIG	DUP				
DUPLICATE		OFF-SD-442-0006-01				
AVS/SIMULTANEOUSLY EXTRACTED METALS (UMO/G)						
ACID VOLATILE SULFIDE	NA	NA	NA	NA	NA	NA
CADMIUM	NA	NA	NA	NA	NA	NA
COPPER	NA	NA	NA	NA	NA	NA
LEAD	NA	NA	NA	NA	NA	NA
NICKEL	NA	NA	NA	NA	NA	NA
SEM/AVS	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA
METALS (MG/KG)						
ALUMINUM	6910	5620	3670	7070	5520	NA
ANTIMONY	2.9 R	2.3 R	0.59 U	1.7 J	1.7 J	NA
ARSENIC	1.0 R	0.82 R	2.6 J	7.2 J	3.2 J	NA
BARIUM	20.9 J	15.1 J	11.9 J	102 J	14.2 J	NA
BERYLLIUM	0.25 U	0.26 U	0.17	0.30	0.36	NA
CADMIUM	3.5 J	1.8 J	0.82 J	2.1 J	1.7 J	NA
CALCIUM	21200 J	68100 J	89700 J	5940 J	19700 J	NA
CHROMIUM	10.3 J	8.0 J	6.2 J	30.3	11.7 J	NA
COBALT	4.6 J	3.6 J	1.9 J	4.5 J	3.6 J	NA
COPPER	17.6 J	16.1 J	19.4 J	53.2 J	21.4 J	NA
IRON	56000 J	13000 J	7440	23600	12800 J	NA
LEAD	58.3	39.4 J	15.8 J	116 J	49.8	NA
MAGNESIUM	3500	3920	3630	3430	3500	NA
MANGANESE	199 J	154 J	103 J	143 J	149 J	NA
MERCURY	0.022	0.018 J	0.058	0.18	0.036	NA
NICKEL	12.2 J	9.8 J	6.3 J	17.5 J	17.0 J	NA
POTASSIUM	407 J	452 J	557 J	770 J	606 J	NA
SELENIUM	0.076 UJ	0.070 UJ	1.7 U	8.4 J	0.062 UJ	NA
SILVER	6.8 J	2.1 UJ	0.057 UJ	0.061 UJ	3.5 UJ	NA
SODIUM	2650 J	3160 J	5960	3600	2870 J	NA
THALLIUM	0.090 U	0.083 U	0.98 U	2.8 J	0.074 U	NA
VANADIUM	16.1 J	13.1 J	10.3 J	24.8	26.6 J	NA
ZINC	77.9 J	58.8 J	60.8 J	180 J	93.3 J	NA
MISCELLANEOUS PARAMETERS (%)						
PERCENT CLAY	NA	NA	NA	NA	NA	NA
PERCENT MOISTURE	NA	NA	NA	NA	NA	NA
PERCENT SAND	NA	NA	NA	NA	NA	NA
PERCENT SILT	NA	NA	NA	NA	NA	NA
TOTAL ORGANIC CARBON	NA	NA	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-442	OFF-SD-442	OFF-SD-445	OFF-SD-445	OFF-SD-445	OFF-SD-JPC03
SAMPLE NUMBER	OFF-SD-442-0006-01	OFF-SD-442-0006-01-D	OFF-SD-445-0006	OFF-SD-445-1824	OFF-SD-445-0006-01	OFF-SD-JPC03-0006
SAMPLE DATE	02/23/05	02/23/05	11/13/01	11/13/01	02/23/05	07/02/02
QC IDENTIFIER	ORIG	DUP				
DUPLICATE		OFF-SD-442-0006-01				
SEMIVOLATILES (UG/KG)						
1,1-BIPHENYL	NA	NA	NA	NA	NA	NA
1-METHYLNAPHTHALENE	76 J	21 J	NA	NA	5.4	NA
1-METHYLPHENANTHRENE	NA	NA	NA	NA	NA	NA
2,3,5-TRIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLNAPHTHALENE	NA	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	94 J	18 J	67 U	46 J	5.4	8.6 U
ACENAPHTHENE	270 J	68 J	53 J	78 J	18	8.6 U
ACENAPHTHYLENE	260	170	76	66 J	44	8.6 U
ANTHRACENE	660	410	180 J	240	89	8.6 U
BENZO(A)ANTHRACENE	1500	1200	570	450	260 J	8.6 U
BENZO(A)PYRENE	1300 J	1100	500	470 J	250 J	8.6 U
BENZO(B)FLUORANTHENE	1400	1500	670	640 J	370 J	8.6 U
BENZO(E)PYRENE	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE	600	380 J	150	140 J	96 J	8.6 U
BENZO(K)FLUORANTHENE	820	790	320	310 J	140 J	8.6 U
CARBAZOLE	NA	NA	NA	NA	NA	8.6 U
CHRYSENE	1500	1100	540	540	270 J	8.6 U
CHRYSENE/TRIPHENYLENE	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	160 J	130 J	67 U	66 UJ	30 J	8.6 U
DIBENZOFURAN	NA	NA	24 J	34 J	NA	NA
FLUORANTHENE	3400	2500	1200	920	450	37
FLUORENE	340	100 J	58 J	69 J	26	8.6 U
HIGH MOLECULAR WEIGHT PAHS	7860	6610	2910	2710	1501	8.6 U
INDENO(1,2,3-CD)PYRENE	580 J	410 J	160	160 J	85 J	8.6 U
LOW MOLECULAR WEIGHT PAHS	11154	7593	3787	3175	1589.4	81
NAPHTHALENE	130 BBJ	27 BBJ	220 U	36 J	7 BB	8.6 U
PERYLENE	NA	NA	NA	NA	NA	NA
PHENANTHRENE	2800 J	1500 J	820	620	350	14
PYRENE	3200	2800	1400	1100	600	30
TOTAL PAHS	NA	NA	NA	NA	NA	NA
PESTICIDES/PCBS (UG/KG)						
2,4'-DDE	NA	NA	NA	NA	NA	NA
2,4'-DDT	NA	NA	NA	NA	NA	NA
4,4'-DDD	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA
ALDRIN	NA	NA	NA	NA	NA	NA
ALPHA-CHLORDANE	NA	NA	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

TABLE D-2
APPENDIX D
SEDIMENT ANALYTICAL RESULTS - DETECTED COMPOUNDS
OLD FIREFIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RI

SAMPLE LOCATION	OFF-SD-442	OFF-SD-442	OFF-SD-445	OFF-SD-445	OFF-SD-445	OFF-SD-JPC03
SAMPLE NUMBER	OFF-SD-442-0006-01	OFF-SD-442-0006-01-D	OFF-SD-445-0006	OFF-SD-445-1824	OFF-SD-445-0006-01	OFF-SD-JPC03-0006
SAMPLE DATE	02/23/05	02/23/05	11/13/01	11/13/01	02/23/05	07/02/02
QC IDENTIFIER	ORIG	DUP				
DUPLICATE		OFF-SD-442-0006-01				
GAMMA-BHC (LINDANE)	NA	NA	NA	NA	NA	NA
HEPTACHLOR	NA	NA	NA	NA	NA	NA
HEPTACHLOR EPOXIDE	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	NA	NA	NA	NA	NA	NA
MIREX	NA	NA	NA	NA	NA	NA
PCB-101/90	NA	NA	NA	NA	NA	NA
PCB-105	NA	NA	NA	NA	NA	NA
PCB-118	NA	NA	NA	NA	NA	NA
PCB-126	NA	NA	NA	NA	NA	NA
PCB-128	NA	NA	NA	NA	NA	NA
PCB-138/163/164	NA	NA	NA	NA	NA	NA
PCB-153	NA	NA	NA	NA	NA	NA
PCB-170	NA	NA	NA	NA	NA	NA
PCB-18	NA	NA	NA	NA	NA	NA
PCB-180	NA	NA	NA	NA	NA	NA
PCB-187/182/159	NA	NA	NA	NA	NA	NA
PCB-188	NA	NA	NA	NA	NA	NA
PCB-195	NA	NA	NA	NA	NA	NA
PCB-201	NA	NA	NA	NA	NA	NA
PCB-206	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA
PCB-28/50	NA	NA	NA	NA	NA	NA
PCB-29	NA	NA	NA	NA	NA	NA
PCB-44	NA	NA	NA	NA	NA	NA
PCB-50	NA	NA	NA	NA	NA	NA
PCB-52	NA	NA	NA	NA	NA	NA
PCB-8	NA	NA	NA	NA	NA	NA
PCB-87	NA	NA	NA	NA	NA	NA
SUM OF PCB CONGENERS X 2	NA	NA	NA	NA	NA	NA
TRANS-NONACHLOR	NA	NA	NA	NA	NA	NA

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

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INTERNAL CORRESPONDENCE

C-NAVY-04-05-1848W

Date: April 21, 2005

File N4152-4.1

To: Steve Parker

From: Dan Wielandt

Subject: Tier II Organic Data Review, Project OFF, SDG D0210
Mitkem Corporation
CTO 0833, Old Firefighter Training Area, Site 09, Newport, Rhode Island
Pre-Design Investigation

PAH:

18/Sediments/ OFF-SD-411-0006-01, OFF-SD-413-0006-01, OFF-SD-414-0006-01, OFF-SD-417-0006-01, OFF-SD-424-0006-01, OFF-SD-432-0006-01, OFF-SD-439-0006-01, OFF-SD-442-0006-01, OFF-SD-445-0006-01, OFF-SD-DUP01-01, OFF-SD-DUP02-01, OFF-SD-OFF1-0006-01, OFF-SD-OFF2-0006-01, OFF-SD-OFF3-0006-01, OFF-SD-OFF4-0006-01, OFF-SD-OFF6-0006-01, OFF-SD-OFF7-0006-01, OFF-SD-SD5-0006-01 (Field Duplicate Pairs: OFF-SD-OFF7-0006-01/ OFF-SD-DUP01-01 and OFF-SD-442-0006-01/ OFF-SD-DUP02-01)

2/Rinsate Blanks/ OFF-SD-OFF2-RB01-01, OFF-SD-432-RB02-01

2/Field Blanks/ OFF-SD-DIUF-FB01-01, OFF-SD-DIUF-FB02-01

A Tier II data validation was performed by Tetra Tech NUS, Inc. (TtNUS) on the polycyclic aromatic hydrocarbons (PAHs) data from sediment samples collected at the Old Firefighter Training Area on February 22 and 23, 2005. The sediment samples were analyzed for PAHs following the USEPA SW-846 Method 8270C by Selected Ion Monitoring (SIM). The PAH data validation was performed in accordance with the Region I EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, December 1996.

The data were evaluated based on the following parameters:

- Overall Evaluation of Data and Potential Usability Issues
- Data Completeness
- * Preservation and Technical Holding Times
- * GC/MS Instrument Performance Check (Tuning)
- Initial and Continuing Calibrations
- Blanks
- * Surrogate Compounds
- Internal Standards

* • Matrix Spike/Matrix Spike Duplicate
* • Laboratory Control Sample/Laboratory Control Sample Duplicate
• Field Duplicates
* • Target Compound Identification
* • Compound Quantitation and Reported Quantitation Limits
* • System Performance

* All criteria were met for this parameter.

Data Completeness

The laboratory submitted results for sample OFF-SD-424-0006-01 that had internal standard recoveries of less than ten percent. Since the extract was still within holding time, the laboratory reanalyzed the sample and submitted an analysis with acceptable internal standard recoveries. The laboratory was contacted to make corrections for several sample location identifications. The laboratory was also contacted to request that the forms be corrected to report 1-methylnaphthalene as required. All these items were addressed by the laboratory.

Initial and Continuing Calibrations

The following table summarizes the PAH compounds that failed to meet the initial calibration (IC) criterion of %RSD < 30 and continuing calibration (CC) criterion of %D < 25:

	Action		Affected
Compound	(+)	NDs	Samples
Naphthalene	J		OFF-SD-424-0006-01
Benzo(b)fluoranthene	J	UJ	OFF-SD-432-RB02-01, OFF-SD-439-0006-01, OFF-SD-445-0006-01, OFF-SD-DIUF-FB01-01, OFF-SD-DIUF-FB02-01, , OFF-SD-OFF2-RB01,
Benzo(g,h,i)perylene	J		OFF-SD-442-0006-01, OFF-SD-OFF1-0006-01, OFF-SD-SD5-0006-01
Indeno(1,2,3-cd)pyrene	J		OFF-SD-442-0006-01
Acenaphthylene	J		OFF-SD-OFF2-0006-01
Anthracene	J		

Blanks

The positive naphthalene results in the all of the sediment samples except OFF-SD-OFF2-0006-01 are qualified (BB) due to possible field contamination detected in the field blank. The positive results may be biased high or false positive.

Internal Standards

The following samples had low recoveries of the internal standard chrysene-d_{12} and/or perylene- d_{12}:

OFF-SD-411-0006-01, OFF-SD-413-0006-01, OFF-SD-414-0006-01, OFF-SD-417-0006-01, OFF-SD-432-0006-01, OFF-SD-439-0006-01, OFF-SD-442-0006-01, OFF-SD-445-0006-01, OFF-SD-DUP01-01, OFF-SD-DUP02-01, OFF-SD-OFF1-0006-01, OFF-SD-OFF3-0006-01, OFF-SD-OFF4-0006-01, OFF-SD-OFF6-0006-01, OFF-SD-OFF7-0006-01, OFF-SD-SD5-0006-01. The positive and non-detected results for the PAHs associated with these internal standards in the affected samples are estimated (J, UJ). The results may be biased low or false negative.

Matrix Spike/Matrix Spike Duplicate

The majority of compounds failed to meet recovery and precision QC limits in the matrix spike and matrix spike duplicate analysis of sample OFF-SD-424-0006-01. Professional judgment was used to estimate (J) all results for this sample due to poor matrix spike recovery and/or precision. The bias is undetermined since the recoveries were both above and below QC limits.

Field Duplicates

The positive 2-methylnaphthalene, acenaphthylene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene results in the field duplicate pair OFF-SD-442-0006-01/OFF-SD-DUP02-01 are estimated (J) due to poor field duplicate precision. The bias is undetermined.

The majority of compounds failed to meet the field duplicate QC limits in field duplicate pair OFF-SD-OFF7-0006-01/OFF-SD-DUP01-01. Professional judgment was used to estimate (J) all results for this sample due to poor field duplicate precision. The bias is undetermined.

System Performance

The data set was qualified due to calibration variability, low internal standard recovery, field blank contamination, poor matrix spike recovery/precision, and poor field duplicate precision.

Tables: Data Summary Tables

Enclosures: Data Validation Worksheets

Qual Codes for Data Summary Tables

qual_code	description
A	Lab Blank Contamination
B	Field Blank Contamination
C	Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	GC/MS Tuning Noncompliance
D	MS/MSD Recovery Noncompliance
E	LCS/LCSD Recovery Noncompliance
F	Lab Duplicate Imprecision
G	Field Duplicate Imprecision
H	Holding Time Exceedance
I	ICP Serial Dilution Noncompliance
J	GFAA PDS - GFAA MSA's r < 0.995
K	ICP Interference - includes ICS % R Noncompliance
L	Instrument Calibration Range Exceedance
M	Sample Preservation Noncompliance
N	Internal Standard Noncompliance
N01	Internal Standard Recovery Noncompliance Dioxins
N02	Recovery Standard Noncompliance Dioxins
N03	Clean-up Standard Noncompliance Dioxins
O	Poor Instrument Performance (e.g. base-line drifting)
P	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R	Surrogates Recovery Noncompliance
S	Pesticide/PCB Resolution
T	% Breakdown Noncompliance for DDT and Endrin
U	% Difference between columns/detectors >25% for positive results determined via GC/HPLC
V	Non-linear calibrations; correlation coefficient r < 0.995
W	EMPC result
X	Signal to noise response drop
Y	Percent solids <30%
Z	Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-411-0006-01	nsample	OFF-SD-411-0006-01DL	nsample	OFF-SD-413-0006-01
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0210-03A	lab_id	D0210-03ADL	lab_id	D0210-05A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	82.0	Pct_Solids	82.0	Pct_Solids	82.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	4	U	
2-METHYLNAPHTHALENE	4	U	
ACENAPHTHENE	9.1		
ACENAPHTHYLENE	74		
ANTHRACENE	96		
BENZO(A)ANTHRACENE	390		
BENZO(A)PYRENE	400	J	N
BENZO(G,H,I)PERYLENE	160	J	N
BENZO(K)FLUORANTHENE	220	J	N
CHRYSENE	380		
DIBENZO(A,H)ANTHRACENE	55	J	N
FLUORENE	27		
INDENO(1,2,3-CD)PYRENE	160	J	N
NAPHTHALENE	5.4	BB	B

Parameter	Result	Val Qual	Qual Code
BENZO(B)FLUORANTHENE	420		
FLUORANTHENE	790		
PHENANTHRENE	410		
PYRENE	880		

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	15		
2-METHYLNAPHTHALENE	15		
ACENAPHTHENE	36		
ACENAPHTHYLENE	230		
ANTHRACENE	340		
BENZO(G,H,I)PERYLENE	320	J	N
DIBENZO(A,H)ANTHRACENE	120	J	N
FLUORENE	95		
INDENO(1,2,3-CD)PYRENE	350	J	N
NAPHTHALENE	33	BB	B

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-413-0006-01DL
samp_date	2/23/2005
lab_id	D0210-05ADL
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	1100		
BENZO(A)PYRENE	880		
BENZO(B)FLUORANTHENE	990		
BENZO(K)FLUORANTHENE	570		
CHRYSENE	850		
FLUORANTHENE	2200		
PHENANTHRENE	1300		
PYRENE	2000		

nsample	OFF-SD-414-0006-01
samp_date	2/23/2005
lab_id	D0210-08A
qc_type	NM
units	UG/KG
Pct_Solids	91.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	4.8		
2-METHYLNAPHTHALENE	4.4		
ACENAPHTHENE	13		
ACENAPHTHYLENE	87		
ANTHRACENE	220		
BENZO(G,H,I)PERYLENE	120	J	N
DIBENZO(A,H)ANTHRACENE	47	J	N
FLUORENE	45		
INDENO(1,2,3-CD)PYRENE	130	J	N
NAPHTHALENE	4.7	BB	B

nsample	OFF-SD-414-0006-01DL
samp_date	2/23/2005
lab_id	D0210-08ADL
qc_type	NM
units	UG/KG
Pct_Solids	91.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	440		
BENZO(A)PYRENE	380		
BENZO(B)FLUORANTHENE	420		
BENZO(G,H,I)PERYLENE	170		
CHRYSENE	460		
FLUORANTHENE	1100		
PHENANTHRENE	660		
PYRENE	1000		

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-417-0006-01	nsample	OFF-SD-417-0006-01DL	nsample	OFF-SD-424-0006-01
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/22/2005
lab_id	D0210-10A	lab_id	D0210-10ADL	lab_id	D0210-15A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	79.0	Pct_Solids	79.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	11		
2-METHYLNAPHTHALENE	11		
ACENAPHTHENE	35		
ACENAPHTHYLENE	220		
ANTHRACENE	350		
BENZO(G,H,I)PERYLENE	300	J	N
DIBENZO(A,H)ANTHRACENE	110	J	N
FLUORENE	82		
INDENO(1,2,3-CD)PYRENE	340	J	N
NAPHTHALENE	24	BB	B

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	890		
BENZO(A)PYRENE	830		
BENZO(B)FLUORANTHENE	960		
BENZO(K)FLUORANTHENE	540		
CHRYSENE	930		
FLUORANTHENE	2100		
PHENANTHRENE	1100		
PYRENE	2000		

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	4.7	J	D
2-METHYLNAPHTHALENE	6.4	J	D
ACENAPHTHENE	11	J	D
ACENAPHTHYLENE	35	J	D
ANTHRACENE	88	J	D
BENZO(A)ANTHRACENE	150	J	D
BENZO(A)PYRENE	210	J	D
BENZO(B)FLUORANTHENE	230	J	D
BENZO(G,H,I)PERYLENE	250	J	D
BENZO(K)FLUORANTHENE	72	J	D
CHRYSENE	170	J	D
DIBENZO(A,H)ANTHRACENE	42	J	D
FLUORANTHENE	260	J	D
FLUORENE	31	J	D
INDENO(1,2,3-CD)PYRENE	130	J	D
NAPHTHALENE	4.8	BBJ	BCD
PHENANTHRENE	160	J	D
PYRENE	340	J	D

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-432-0006-01
samp_date	2/23/2005
lab_id	D0210-06A
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	9.9		
2-METHYLNAPHTHALENE	9.2		
ACENAPHTHENE	21		
ACENAPHTHYLENE	220		
ANTHRACENE	330		
BENZO(G,H,I)PERYLENE	290	J	N
DIBENZO(A,H)ANTHRACENE	100	J	N
FLUORENE	86		
INDENO(1,2,3-CD)PYRENE	320	J	N
NAPHTHALENE	18	BB	B

nsample	OFF-SD-432-0006-01DL
samp_date	2/23/2005
lab_id	D0210-06ADL
qc_type	NM
units	UG/KG
Pct_Solids	84.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)PYRENE	800		
BENZO(B)FLUORANTHENE	940		
BENZO(K)FLUORANTHENE	570		
CHRYSENE	970		
DIBENZO(A,H)ANTHRACENE	120		
FLUORANTHENE	2100		
PHENANTHRENE	1200		
PYRENE	2100		

nsample	OFF-SD-439-0006-01
samp_date	2/22/2005
lab_id	D0210-14A
qc_type	NM
units	UG/KG
Pct_Solids	88.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	3.7	U	
2-METHYLNAPHTHALENE	3.7	U	
ACENAPHTHENE	11		
ACENAPHTHYLENE	28		
ANTHRACENE	52		
BENZO(A)ANTHRACENE	190	J	N
BENZO(A)PYRENE	160	J	N
BENZO(B)FLUORANTHENE	240	J	CN
BENZO(G,H,I)PERYLENE	88	J	N
BENZO(K)FLUORANTHENE	110	J	N
CHRYSENE	170	J	N
DIBENZO(A,H)ANTHRACENE	26	J	N
FLUORANTHENE	270		
FLUORENE	14		
INDENO(1,2,3-CD)PYRENE	70	J	N
NAPHTHALENE	4	BB	B
PHENANTHRENE	210		

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-439-0006-01DL
samp_date	2/22/2005
lab_id	D0210-14ADL
qc_type	NM
units	UG/KG
Pct_Solids	88.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
PYRENE	410		

nsample	OFF-SD-442-0006-01
samp_date	2/23/2005
lab_id	D0210-11A
qc_type	NM
units	UG/KG
Pct_Solids	79.0
DUP_OF:	OFF-SD-DUP02-01

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	76	J	G
2-METHYLNAPHTHALENE	94	J	G
ACENAPHTHENE	270	J	G
ACENAPHTHYLENE	260		
DIBENZO(A,H)ANTHRACENE	160	J	N
FLUORENE	340		
NAPHTHALENE	130	BBJ	BG

nsample	OFF-SD-442-0006-01DL
samp_date	2/23/2005
lab_id	D0210-11ADL
qc_type	NM
units	UG/KG
Pct_Solids	79.0
DUP_OF:	OFF-SD-DUP02-01

Parameter	Result	Val Qual	Qual Code
ANTHRACENE	660		
BENZO(A)ANTHRACENE	1500		
BENZO(A)PYRENE	1300	J	C
BENZO(B)FLUORANTHENE	1400		
BENZO(G,H,I)PERYLENE	600		
BENZO(K)FLUORANTHENE	820		
CHRYSENE	1500		
FLUORANTHENE	3400		
INDENO(1,2,3-CD)PYRENE	580	J	C
PHENANTHRENE	2800	J	G
PYRENE	3200		

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-445-0006-01
samp_date	2/23/2005
lab_id	D0210-13A
qc_type	NM
units	UG/KG
Pct_Solids	87.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	5.4		
2-METHYLNAPHTHALENE	5.4		
ACENAPHTHENE	18		
ACENAPHTHYLENE	44		
ANTHRACENE	89		
BENZO(A)ANTHRACENE	260	J	N
BENZO(A)PYRENE	250	J	N
BENZO(B)FLUORANTHENE	370	J	CN
BENZO(G,H,I)PERYLENE	96	J	N
BENZO(K)FLUORANTHENE	140	J	N
CHRYSENE	270	J	N
DIBENZO(A,H)ANTHRACENE	30	J	N
FLUORENE	26		
INDENO(1,2,3-CD)PYRENE	85	J	N
NAPHTHALENE	7	BB	B

nsample	OFF-SD-445-0006-01DL
samp_date	2/23/2005
lab_id	D0210-13ADL
qc_type	NM
units	UG/KG
Pct_Solids	87.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
FLUORANTHENE	450		
PHENANTHRENE	350		
PYRENE	600		

nsample	OFF-SD-DUP01-01
samp_date	2/22/2005
lab_id	D0210-21A
qc_type	NM
units	UG/KG
Pct_Solids	83.0
DUP_OF:	OFF-SD-OFF7-0006-01

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	8.2	J	G
2-METHYLNAPHTHALENE	7.2	J	G
ACENAPHTHENE	36	J	G
ACENAPHTHYLENE	36	J	G
ANTHRACENE	120	J	G
BENZO(A)ANTHRACENE	320	J	G
BENZO(A)PYRENE	290	J	G
BENZO(B)FLUORANTHENE	400	J	G
BENZO(G,H,I)PERYLENE	160	J	G
BENZO(K)FLUORANTHENE	220	J	G
CHRYSENE	320	J	G
DIBENZO(A,H)ANTHRACENE	53	J	G
FLUORENE	36	J	G
INDENO(1,2,3-CD)PYRENE	130	J	G
NAPHTHALENE	6.4	BBJ	BG

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-DUP01-01DL
samp_date	2/22/2005
lab_id	D0210-21ADL
qc_type	NM
units	UG/KG
Pct_Solids	83.0
DUP_OF:	OFF-SD-OFF7-0006-01

Parameter	Result	Val Qual	Qual Code
FLUORANTHENE	500	J	G
PHENANTHRENE	510	J	G
PYRENE	800	J	G

nsample	OFF-SD-DUP02-01
samp_date	2/23/2005
lab_id	D0210-22A
qc_type	NM
units	UG/KG
Pct_Solids	80.0
DUP_OF:	OFF-SD-442-0006-01

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	21	J	G
2-METHYLNAPHTHALENE	18	J	G
ACENAPHTHENE	68	J	G
ACENAPHTHYLENE	170		
ANTHRACENE	410		
BENZO(G,H,I)PERYLENE	380	J	N
DIBENZO(A,H)ANTHRACENE	130	J	N
FLUORENE	100	J	G
INDENO(1,2,3-CD)PYRENE	410	J	N
NAPHTHALENE	27	BBJ	BG

nsample	OFF-SD-DUP02-01DL
samp_date	2/23/2005
lab_id	D0210-22ADL
qc_type	NM
units	UG/KG
Pct_Solids	80.0
DUP_OF:	OFF-SD-442-0006-01

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	1200		
BENZO(A)PYRENE	1100		
BENZO(B)FLUORANTHENE	1500		
BENZO(K)FLUORANTHENE	790		
CHRYSENE	1100		
FLUORANTHENE	2500		
PHENANTHRENE	1500	J	G
PYRENE	2800		

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-OFF1-0006-01
samp_date	2/22/2005
lab_id	D0210-01A
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	42		
2-METHYLNAPHTHALENE	28		
ACENAPHTHENE	300		
ACENAPHTHYLENE	24		
DIBENZO(A,H)ANTHRACENE	180		
FLUORENE	370		
NAPHTHALENE	39	BB	B

nsample	OFF-SD-OFF1-0006-01DL
samp_date	2/22/2005
lab_id	D0210-01ADL
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ANTHRACENE	750		
BENZO(A)ANTHRACENE	1200		
BENZO(A)PYRENE	960		
BENZO(B)FLUORANTHENE	1000		
BENZO(G,H,I)PERYLENE	480	J	C
BENZO(K)FLUORANTHENE	610		
CHRYSENE	1300		
FLUORANTHENE	3100		
INDENO(1,2,3-CD)PYRENE	460		
PHENANTHRENE	2900		
PYRENE	2600		

nsample	OFF-SD-OFF2-0006-01
samp_date	2/22/2005
lab_id	D0210-02A
qc_type	NM
units	UG/KG
Pct_Solids	92.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	18		
2-METHYLNAPHTHALENE	3.6	U	
ACENAPHTHENE	4.1		
ACENAPHTHYLENE	12	J	C
ANTHRACENE	30	J	C
BENZO(A)ANTHRACENE	100		
BENZO(A)PYRENE	110		
BENZO(B)FLUORANTHENE	120		
BENZO(G,H,I)PERYLENE	94		
BENZO(K)FLUORANTHENE	51		
CHRYSENE	120		
DIBENZO(A,H)ANTHRACENE	21		
FLUORANTHENE	210		
FLUORENE	7		
INDENO(1,2,3-CD)PYRENE	69		
NAPHTHALENE	3.6	U	
PHENANTHRENE	120		
PYRENE	240		

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-OFF3-0006-01
samp_date	2/23/2005
lab_id	D0210-04A
qc_type	NM
units	UG/KG
Pct_Solids	83.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	5.8		
2-METHYLNAPHTHALENE	5.4		
ACENAPHTHENE	14		
ACENAPHTHYLENE	130		
ANTHRACENE	220		
BENZO(G,H,I)PERYLENE	220		
DIBENZO(A,H)ANTHRACENE	82		
FLUORENE	50		
INDENO(1,2,3-CD)PYRENE	240		
NAPHTHALENE	14	BB	B

nsample	OFF-SD-OFF3-0006-01DL
samp_date	2/23/2005
lab_id	D0210-04ADL
qc_type	NM
units	UG/KG
Pct_Solids	83.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	610		
BENZO(A)PYRENE	570		
BENZO(B)FLUORANTHENE	670		
BENZO(K)FLUORANTHENE	370		
CHRYSENE	640		
FLUORANTHENE	1400		
PHENANTHRENE	800		
PYRENE	1300		

nsample	OFF-SD-OFF4-0006-01
samp_date	2/23/2005
lab_id	D0210-07A
qc_type	NM
units	UG/KG
Pct_Solids	81.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	64		
2-METHYLNAPHTHALENE	94		
ACENAPHTHENE	180		
ACENAPHTHYLENE	220		
BENZO(G,H,I)PERYLENE	300	J	N
DIBENZO(A,H)ANTHRACENE	120	J	N
FLUORENE	250		
INDENO(1,2,3-CD)PYRENE	330	J	N
NAPHTHALENE	220	BB	B

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-OFF4-0006-01DL
samp_date	2/23/2005
lab_id	D0210-07ADL
qc_type	NM
units	UG/KG
Pct_Solids	81.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ANTHRACENE	470		
BENZO(A)ANTHRACENE	950		
BENZO(A)PYRENE	860		
BENZO(B)FLUORANTHENE	980		
BENZO(K)FLUORANTHENE	560		
CHRYSENE	1000		
FLUORANTHENE	2400		
PHENANTHRENE	2000		
PYRENE	2100		

nsample	OFF-SD-OFF6-0006-01
samp_date	2/23/2005
lab_id	D0210-12A
qc_type	NM
units	UG/KG
Pct_Solids	76.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	7.4		
2-METHYLNAPHTHALENE	7.9		
ACENAPHTHENE	26		
ACENAPHTHYLENE	110		
ANTHRACENE	180		
BENZO(G,H,I)PERYLENE	210	J	N
DIBENZO(A,H)ANTHRACENE	68	J	N
FLUORANTHENE	1700	E	
FLUORENE	48		
INDENO(1,2,3-CD)PYRENE	210	J	N
NAPHTHALENE	20	BB	B

nsample	OFF-SD-OFF6-0006-01DL
samp_date	2/23/2005
lab_id	D0210-12ADL
qc_type	NM
units	UG/KG
Pct_Solids	76.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	560		
BENZO(A)PYRENE	520		
BENZO(B)FLUORANTHENE	630		
BENZO(K)FLUORANTHENE	370		
CHRYSENE	620		
PHENANTHRENE	770		
PYRENE	1400		

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-OFF7-0006-01
samp_date	2/22/2005
lab_id	D0210-16A
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	OFF-SD-DUP01-01

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	20	J	G
2-METHYLNAPHTHALENE	21	J	G
ACENAPHTHENE	94	J	G
ACENAPHTHYLENE	25	J	G
ANTHRACENE	210	J	G
BENZO(G,H,I)PERYLENE	290	J	GN
DIBENZO(A,H)ANTHRACENE	75	J	GN
FLUORENE	70	J	G
INDENO(1,2,3-CD)PYRENE	240	J	GN
NAPHTHALENE	13	BBJ	BG

nsample	OFF-SD-OFF7-0006-01DL
samp_date	2/22/2005
lab_id	D0210-16ADL
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	OFF-SD-DUP01-01

Parameter	Result	Val Qual	Qual Code
BENZO(A)ANTHRACENE	610	J	G
BENZO(A)PYRENE	580	J	GN
BENZO(B)FLUORANTHENE	780	J	GN
BENZO(K)FLUORANTHENE	340	J	GN
CHRYSENE	560	J	G
FLUORANTHENE	950	J	G
PHENANTHRENE	790	J	G
PYRENE	1400	J	G

nsample	OFF-SD-SD5-0006-01
samp_date	2/23/2005
lab_id	D0210-09A
qc_type	NM
units	UG/KG
Pct_Solids	78.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	36		
2-METHYLNAPHTHALENE	54		
ACENAPHTHENE	260		
ACENAPHTHYLENE	220		
DIBENZO(A,H)ANTHRACENE	200	J	N
FLUORENE	300		
NAPHTHALENE	150		

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: OS

nsample	OFF-SD-SD5-0006-01DL
samp_date	2/23/2005
lab_id	D0210-09ADL
qc_type	NM
units	UG/KG
Pct_Solids	78.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ANTHRACENE	660		
BENZO(A)ANTHRACENE	2000		
BENZO(A)PYRENE	1800		
BENZO(B)FLUORANTHENE	2100		
BENZO(G,H,I)PERYLENE	800	J	C
BENZO(K)FLUORANTHENE	1400		
CHRYSENE	2000		
FLUORANTHENE	4800		
INDENO(1,2,3-CD)PYRENE	780		
PHENANTHRENE	3600		
PYRENE	4300		

EPA-NE
Data Validation Worksheet Cover Page - Page 1

Site Name OFTA
Reference No. CTO-833

REGION I ORGANIC DATA VALIDATION

The following data package has been validated:

Lab Name MITKEM
Case/Project No. D0210 CTO-833
SDG No. D0210
No. of Samples/Matrix

SOW/Method No. SW-846 8270C - SIM PAH
Sampling Date(s) 2/22/23/05
Shipping Date(s) 2/24/05
Date Rec'd by lab 2/25/05

Traffic Report Sample Nos. OFF-SD-OFF1-0006-01 OFF2 411 OFF3 413, 432, OFF4 414 505, 417, 442, OFF6, 445, 439, 424, OFF7, 43, DUP01, DUP02
Trip Blank No.
Equipment Blank No. OFF-SD-432-FB02-01, OFF-SD-OFF2-RB01-01
Field Bottle Blank No. OFF-DIUF-FB01-01, OFF-DIUF-FB02-01
Field Duplicate Nos.
PES Nos. OFF7/DUP01 442/DUP02

The Region I, EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, revision 12/96 was used to evaluate the data and/or approved modifications to the EPA-NE Functional Guidelines were used to evaluate the data and are attached to this cover page: (attach modified criteria from EPA approved QAPjP or amendment to QAPjP).

A Tier II or Tier III evaluation was used to validate the data (circle one). If a Tier II validation with a partial Tier III was used, then identify samples, parameters, etc. that received partial Tier III validation

_____.

The data were evaluated based upon the following parameters:

- Overall Evaluation of Data
- Data Completeness (CSF Audit - Tier I)
- Preservation & Technical Holding Times
- GC/MS & GC/ECD Instrument Performance Check
- Initial & Continuing Calibrations
- Blanks
- Surrogate Compounds
- Internal Standards
- Matrix Spike/Matrix Spike Duplicate
- Field Duplicates
- Sensitivity Check
- PE Samples/Accuracy Check
- Target Compound Identification
- Compound Quantitation and Reported Quantitation Limits
- TICs
- Semivolatile and Pesticide/PCB Cleanup
- System Performance

Region I Definitions and Qualifiers:

A - Acceptable Data
J - Numerical value associated with compound is an estimated quantity.
R - The data are rejected as unusable. The R replaces the numerical value or sample quantitation limit.
U - Compound not detected at that numerical sample quantitation limit.
UJ - The sample quantitation limit is an estimated quantity.
TB, BB, EB - Compound detected in aqueous trip blank, aqueous bottle blank, or aqueous equipment blank associated with soil/sediment samples.

Validator's Name D. WIELANDT Company Name TENUS Phone Number (978)658-7899

Date Validation Started 3/31/05 Date Validation Completed

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB

COMPLETE SDG FILE (CSF) AUDIT

Organic Fractions: PAH

Missing Information	Date Lab Contacted	Date Received
Sample 424 had <10% IS recoveries - requested lab to reanalyze and resubmit.		
Sample ID issues		
lab incorrectly logged sample OFF2 as OFF5		
" " " " 445 455		
Due to transcription error the CO-C DIUF FB02 was identified as FB01 - final DST and Form 1's corrected to identify as DIUF - FB02		
The lab did not report 1-Methylnaphthalene		

Validator: [signature]

Date: 4/11/05

12/96

EPA-NE - Data Validation
VOA/SV - Pest/PCB-1

12/96

Sampler: _____ Company: _____ Contacted: Yes No Date: _____

I. PRESERVATION AND HOLDING TIMES - Circle sample numbers with exceeded technical holding times or omitted preservation.
List all required preservation codes and circle omitted preservation codes.
Circle all exceeded technical holding times.
Identify extraction technique after "# of Days"/(*Extraction Code).

Sample No. (TR No.)	Matrix	Pres. Code	Date Sampled	VOA			BNA					PEST/PCB				
				Date Analyzed	# of Days from Samp. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action	Date Extracted	# of Days from Samp. to Extr./(*)	Date Analyzed	# of Days from Extr. to Anal.	Action
OFF1	SED	1,3	2/22/05				3/7/5	13	3/11,13/5	4,6	acm					
OFF2									3/14/5	7						
411			2/23/05					12	3/11,13/5	4,6						
OFF3									3/11,13/5							
413									3/11,13/5							
432									3/11,13/5							
OFF4									3/11,13/5							
414									3/11,13/5							
SD5									3/11,13/5							
417									3/11,13/5							
442									3/12,13/5	5,6						
OFF6									3/12,13/5							
445									3/12,13/5							
439			2/22/5					13	3/12,13/5					4/8/5		
424									3/12,13/5	(32)	OF acm - reanalyze			reanalyze 4/18/5		
OFF7									3/12,14/5	5,7						
432-RB02	RB		2/23/05				3/1/5	6 (SED)	3/9/5	8						
OFF2-RB01	RB		2/22/05					7								
DIUF-FB01	FB		2/22/05					7								
DIUF-FB02	FB		2/23/05					6								
DUP01	SED		2/22/05				3/7	13	3/14	7						
DUP02	SED		2/23/05					12	3/14	7						

Preservation Code:
1. Cool @ 4°C (± 2°)
2. Preserve with HCl to at least pH 2
3. Protect from light
4. Freeze
5. Room Temperature (Avoid excessive heat)

(*Extraction Code:)
L/L - Liquid/Liquid
SON - Sonication
SEP - Separatory Funnel
SOX - Soxhlet
SPE - Solid Phase Extraction

Action Code:
J - Estimate (J) Detected Values
UJ - Estimate (UJ) Non-Detected Values
R - Reject (R) Non-Detected Values

cooler temp 3°C

Validator: _____

Date: 3/31/05

EPA-NE - Data Validation Worksheet
VOA/SV-II

II. GC/MS INSTRUMENT PERFORMANCE CHECK (TUNING)

List all Instrument Performance Checks that are outside method QC tuning acceptance criteria.

Volatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action

Comments:

Semivolatile Instrument Performance Check (Compound Name)	Analysis Date and Time	Instrument	Ion(s) Affected	Percent Relative Abundance	QC Limits	Samples Affected	Action
DFTPP	3/9/5 11:42	S1					
	3/9/5 16:18	S1					
	3/11/5 16:10	S1					
	3/13/5 09:46	S1					

Comments:
3/13/5 20:50 S1
3/14/ 13:43 S1
3/22/5 11:05 S4
4/8/5 09:51 S4

If tuning compounds and criteria are different from those specified in CLP SOW OLM03.1, then the validator should include a copy of the method-specific tuning criteria with this worksheet.

Validator: _____

Date: _____

EPA-NE - Data Validation Worksheet
VOA/SV-III

III. INITIAL CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Instrument	Parameter	Matrix	Compound	% RSD	RRF	Samples Affected	Action
3/9/5	51						all	acm
3/22/5	54	PAH SIM	—	Naphthalene	32.0		424	J

Comments:

Validator: DJW

Date: _____

EPA-NE - Data Validation Worksheet
VOA/SV-IV

IV. CONTINUING CALIBRATION - List all analytes that are outside calibration criteria.

Date of ICAL	Date of CCAL	Instrument	Parameter	Matrix	Compound	%D	RRF	Samples Affected	Action
3/9/05	3/9/05	S1	PAH/SIM		Benzo(b)fluoranthene	-26.1		432-RB02, OFF2-RB01, DIUF-FB01	UJ
								DIUF-FB02	
3/9/5	3/4/5	S1			Benzo(b)fluoranthene	-33.6		~~OFF1-411, OFF3, 413, 432, OFF4, 414, 415, 417, 442, OFF6,~~ 445	J
								439 ~~424~~ ~~OFF7~~	
3/9/5	3/13/5 10:07	S1			Benzo(ghi)perylene	-38.6		OFF1DL, ~~411DL, OFF3DL, 413DL, 432DL, OFF4DL, 414DL,~~ 5DSDL	J
								~~417DL~~	
3/9/5	3/13/5 20:53	S1			Indeno(1,2,3-cd)pyrene	-25.3		442DL, ~~OFF6DL, 415DL, 439DL,~~	J
					Benzo(ghi)perylene	-35.6	?	~~424DL, OFF7DL, DIUF01-DL, DIUF02DL~~	
								~~DIUF-01, DIUF02~~	
3/9	3/14/5	S1			Acenaphthylene	~~-38.6~~		~~OFF5~~ OFF2	J
					Anthracene	-26.5			
3/22/5	4/8/5	S4			acn				

Comments:

Validator: [signature]

Date: 3/31/5

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-A

V. BLANK ANALYSIS

List the blank contamination below.

Sampler: _____ Company: _____

Concentration Level: _____

Contacted: Yes No Date: _____

1. Laboratory: Method, Storage and Instrument Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)
3/1/5	3/9/5	PAH/AQ	432-RBD2 (RB)		clean	
3/1/5	3/9/5	PAH/AQ	DIUF-FBD1 FB		clean	
↓	↓	↓	DIUF FBD2 FB		Naphthalene	0.11 µg/L
			OFF2-RBD1 RB		clean	

2. Field: Equipment (Rinsate), Trip and Bottle Blanks

Date Extracted	Date Analyzed	Parameter/ Matrix	Sample No. (Blank Type)	Instrument/ Column	Compound	Conc. (units)
3/1/5	3/9/5	PAH/AQ	SBLK 1A (Method)		clean	
3/7/5	3/11/5	PAH/SOLID	SBLK 1E (Method)		clean	

Validator: _____

Date: 3/31/5

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-V-B

3. **Blank Actions** - List the maximum concentrations of blank compounds.

Compound	Type of Blank	Date Blank Sampled/Originated	Max. Conc. (units)	Action Level (units)	Sample QL	Samples Affected	Action
Naphthalene	DIUF -FB		0.1 µg/L			all but OFP 2	EB(4)

Comments: _____

Validator: _____ Date: _____

EPA-NE - Data Validation Worksheet
SV-VI

VI. **SV SURROGATE SPIKE RECOVERIES** - List all surrogate compound recoveries that are outside method QC acceptance criteria.

Method	Base/Neutral Method QC Acceptance Criteria					
	NBZ-d_5	2-FBP	TPH-d_{14}	1,2-DCB-d_4*	Other:	
OLM03.2	Water Soil 35-114 23-120	Water Soil 43-116 30-115	Water Soil 33-141 18-137	Water Soil 16-110 20-130		
OLC02.1	40-110	30-110	20-140	NA		
Other: SW846 - 8270 SIM	Benzo(e)pyrene 2/12					
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	Action
	(45-135)					

Method	Acid Method QC Acceptance Criteria					
	Phenol-d_5	2-FP	2,4,6-TBP	2-CP-d_4*	Other:	
OLM03.2	Water Soil 10-110 24-113	Water Soil 21-110 25-121	Water Soil 10-123 19-122	Water Soil 33-110 20-130		
OLC02.1	15-115	15-110	15-130	NA		
Other:						
Sample Number/Matrix	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	Action

* Advisory Surrogates - OLM03.2

Validator: _____

Date: 4/1/5

S1ALCS - AQ LCS - acm
S1ELCS - SOIL LCS - acm

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-VIII

VIII. MATRIX SPIKE/MATRIX SPIKE DUPLICATE - List all MS/MSD analytes that are outside method QC acceptance criteria.

Use a separate worksheet for each MS/MSD pair.

Sample # 424 Matrix SEDIMENT Concentration Level _____

Parameter	Compound	MS %Rec	MSD %Rec	RPD	Method QC Limits		Concentration			% RSD	Action
					% Rec	RPD	Unspiked Sample	MS	MSD		
	see attached										
	FORM 3										

Validator: [signature]

Date: 4/1/5

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Matrix Spike - EPA Sample No.: 424 Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Naphthalene	97	4.8	78	75	45-135
2-Methylnaphthalene	97	6.4	84	80	45-135
Acenaphthylene	97	35	93	60	45-135
Acenaphthene	97	11	89	80	45-135
Fluorene	97	31	81	52	45-135
Phenanthrene	97	160	420	268*	45-135
Anthracene	97	88	160	74	45-135
Fluoranthene	97	260	290	31*	45-135
Pyrene	97	340	970	649*	45-135
Benzo(a)anthracene	97	150	240	93	45-135
Chrysene	97	170	280	113	45-135
Benzo(b)fluoranthene	97	230	340	113	45-135
Benzo(k)fluoranthene	97	72	210	142*	45-135
Benzo(a)pyrene	97	210	150	-62*	45-135
Indeno(1,2,3-cd)pyrene	97	130	130	0*	45-135
Dibenzo(a,h)anthracene	97	42	76	35*	45-135
Benzo(g,h,i)perylene	97	250	170	-82*	45-135
1-Methylnaphthalene	97	4.8	75	72	45-135

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

COMMENTS:

3D

SOIL SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Matrix Spike - EPA Sample No.: 424 Level: (low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Naphthalene	97	81	78	4	60	45-135
2-Methylnaphthalene	97	72	68	16	60	45-135
Acenaphthylene	97	220	191*	104*	60	45-135
Acenaphthene	97	100	92	14	60	45-135
Fluorene	97	180	154*	99*	60	45-135
Phenanthrene	97	2600	2515*	161*	60	45-135
Anthracene	97	690	621*	157*	60	45-135
Fluoranthene	97	3300	3134*	196*	60	45-135
Pyrene	97	5900	5732*	159*	60	45-135
Benzo(a)anthracene	97	1400	1289*	173*	60	45-135
Chrysene	97	1100	959*	158*	60	45-135
Benzo(b)fluoranthene	97	1700	1515*	172*	60	45-135
Benzo(k)fluoranthene	97	730	678*	131*	60	45-135
Benzo(a)pyrene	97	1100	918*	229*	60	45-135
Indeno(1,2,3-cd)pyrene	97	410	289*	200*	60	45-135
Dibenzo(a,h)anthracene	97	160	122	111*	60	45-135
Benzo(g,h,i)perylene	97	400	155*	649*	60	45-135
1-Methylnaphthalene	97	63	60	18	60	45-135

professional judg. to fail

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 14 out of 18 outside limits
Spike Recovery: 21 out of 36 outside limits

COMMENTS: _____

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-IX

IX. **FIELD DUPLICATE PRECISION** - List all field duplicate analytes that are outside criteria.

Use a separate worksheet for each field duplicate pair.

Sample Number _____ Duplicate Sample Number _____ Matrix _____

Parameter	Compound	Sample Conc.	Sample QL		Duplicate Conc.	Duplicate QL		RPD	QC Acceptance Criteria RPD or NA*	Action
			SQL	2xSQL		SQL	2xSQL			

Reference

* For instances where one duplicate result is ND (or reported less than the sample QL).

Does the MS/MSD data indicate acceptable laboratory precision? Y N

Comments: _____

_____

Sampler Name: _____ Contractor Name: _____ Date Contacted: _____

Reason for Contact and resolution obtained: _____

Validator: _____ Date: _____

Field Dup Pair: 442/DUP02				
PARA	RESULT	RESULT	%D	> 50 %
2-METHYLNAPHTHALENE	94	18	135.71	Y J(+)
ACENAPHTHENE	270	68	119.53	Y J(+)
ACENAPHTHYLENE	260	170	41.86	
ANTHRACENE	660	410	46.73	
BENZO(A)ANTHRACENE	1500	1200	22.22	
BENZO(A)PYRENE	1300	1100	16.67	
BENZO(B)FLUORANTHENE	1400	1500	6.90	
BENZO(G,H,I)PERYLENE	600	380	44.90	
BENZO(K)FLUORANTHENE	820	790	3.73	
CHRYSENE	1500	1100	30.77	
DIBENZO(A,H)ANTHRACENE	160	130	20.69	
FLUORANTHENE	3400	2500	30.51	
FLUORENE	340	100	109.09	Y J(+)
INDENO(1,2,3-CD)PYRENE	580	410	34.34	
NAPHTHALENE	130	27	131.21	Y J(+)
PHENANTHRENE	2800	1500	60.47	Y J(+)
PYRENE	3200	2800	13.33	
1-Methyl Naphthalene	76	24	113	J+

Field Dup Pair: OFF7/DUP01				
PARA	RESULT	RESULT	%D	> 50 %
2-METHYLNAPHTHALENE	21	7.2	97.87	Y
ACENAPHTHENE	94	36	89.23	Y
ACENAPHTHYLENE	25	36	36.07	
ANTHRACENE	210	120	54.55	Y
BENZO(A)ANTHRACENE	610	320	62.37	Y
BENZO(A)PYRENE	580	290	66.67	Y
BENZO(B)FLUORANTHENE	780	400	64.41	Y
BENZO(G,H,I)PERYLENE	290	160	57.78	Y
BENZO(K)FLUORANTHENE	340	220	42.86	
CHRYSENE	560	320	54.55	Y
DIBENZO(A,H)ANTHRACENE	75	53	34.38	
FLUORANTHENE	950	500	62.07	Y
FLUORENE	70	36	64.15	Y
INDENO(1,2,3-CD)PYRENE	240	130	59.46	Y
NAPHTHALENE	13	6.4	68.04	Y
PHENANTHRENE	790	510	43.08	
PYRENE	1400	800	54.55	Y

→ proff. judg. to J+ all results

VII. INTERNAL STANDARD PERFORMANCE

List the internal standards that are outside the area count and retention time method QC acceptance criteria.
IS Area Count method QC acceptance criteria:_____
IS Retention Time method QC acceptance criteria:_____

Sample Number (TR#)	Date and Time Analyzed	Instrument	Parameter	IS Outside Area Count and/or RT Criteria	IS Area	RT Shift	Acceptable Range (IS area or RT shift)	Action
		See	attached					

Validator:_____ Date:_____

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S1E3401 Date Analyzed: 03/11/05

Instrument ID: S1 Time Analyzed: 1628

		IS4 (CRY) AREA #	RT #	IS5 (PRY) AREA #	RT #	AREA #	RT #
	12 HOUR STD	325414	19.83	632799	22.01		
	UPPER LIMIT	650828	20.33	1265598	22.51		
	LOWER LIMIT	162707	19.33	316400	21.51		
	EPA SAMPLE NO.						
01	SBLK1E	374507	19.83	739342	22.01		
02	OFF1	308323	19.84	352002	22.01	call OK - IS6	
03	411	312966	19.83	311055*	22.03	- J all but from dilution	
04	OFF3	256597	19.84	262194*	22.03	- Dil is OK - J all from IS5	
05	413	270683	19.84	235204*	22.03	dilution OK - all from IS5 J	
06	432	229891	19.84	197795*	22.03	dilution OK - J all from IS5	
07	OFF4	286557	19.86	227532*	22.04	dilution OK, J all from IS5	
08	414	232084	19.84	183266*	22.03	dilution OK - J all from IS5	
09	SD5	264407	19.87	169403*	22.05	dil. OK - J all from IS5	
10	417	239006	19.85	168125*	22.04	dilution OK - J all from IS5	
11	442	237051	19.87	146245*	22.05	dilution OK - J all from IS5	
12	OFF6	162302*	19.87	109903*	22.07	dilution OK - J all from IS4 & IS5	
13	~~455~~ 446	110476*	19.87	78594*	22.07	dil IS5 + prev. exceeded - J all from IS4, IS5	
14	439	126028*	19.87	95233*	22.08	RESULT FROM DIL OK J all from IS4, IS5	
15	424	13968*	19.87	8058*	22.07	<10% report dilution only	
16	424MS	121431*	19.88	89789*	22.08		
17	424MSD	130541*	19.88	84604*	22.08		
18	OFF7	124389*	19.88	92377*	22.09	dil IS5 + J +	J all from IS5, 4
19							
20							
21							
22							

IS4 (CRY) = Chrysene-d12
IS5 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S1E3425A Date Analyzed: 03/13/05

Instrument ID: S1 Time Analyzed: 1007

		IS1 (NPT) AREA #	RT #	IS2 (ANT) AREA #	RT #	IS3 (PHN) AREA #	RT #
	12 HOUR STD	224944	10.23	103029	13.11	176630	15.53
	UPPER LIMIT	449888	10.73	206058	13.61	353260	16.03
	LOWER LIMIT	112472	9.73	51515	12.61	88315	15.03
	EPA SAMPLE NO.						
01	S1ELCS	253667	10.23	132074	13.10	253939	15.52
02	OFF1DL	154492	10.25	123277	13.11	216736	15.52
03	411DL	264627	10.25	132831	13.11	262027	15.52
04	OFF3DL	310734	10.25	158994	13.11	307844	15.53
05	413DL	289562	10.23	141337	13.11	270462	15.52
06	432DL	314413	10.23	151798	13.11	283050	15.53
07	OFF4DL	272844	10.25	134075	13.11	262388	15.52
08	414DL	243784	10.25	120546	13.11	232794	15.53
09	SD5DL	263854	10.25	124195	13.11	246342	15.53
10	417DL	278353	10.25	141723	13.11	261034	15.52
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IS1 (NPT) = Naphthalene-d8
IS2 (ANT) = Acenaphthene-d10
IS3 (PHN) = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S1E3425A Date Analyzed: 03/13/05

Instrument ID: S1 Time Analyzed: 1007

		IS4 (CRY) AREA #	RT #	IS5 (PRY) AREA #	RT #	AREA #	RT #
	12 HOUR STD	147895	19.84	287183	22.04		
	UPPER LIMIT	295790	20.34	574366	22.54		
	LOWER LIMIT	73948	19.34	143592	21.54		
	EPA SAMPLE NO.						
01	S1ELCS	171402	19.84	257316	22.03		
02	OFF1DL	159230	19.84	253083	22.03		
03	411DL	146165	19.84	204480	22.03		
04	OFF3DL	204059	19.84	280328	22.03		
05	413DL	187881	19.84	254373	22.03		
06	432DL	195637	19.84	283862	22.03		
07	OFF4DL	186937	19.84	255809	22.03		
08	414DL	154949	19.84	222151	22.03		
09	SD5DL	171442	19.84	263220	22.03		
10	417DL	185613	19.84	268124	22.04		
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22							

IS4 (CRY) = Chrysene-d12
IS5 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S1E3439 Date Analyzed: 03/13/05

Instrument ID: S1 Time Analyzed: 2057

		IS1 (NPT) AREA #	RT #	IS2 (ANT) AREA #	RT #	IS3 (PHN) AREA #	RT #
	12 HOUR STD	207380	10.23	97719	13.11	179245	15.53
	UPPER LIMIT	414760	10.73	195438	13.61	358490	16.03
	LOWER LIMIT	103690	9.73	48860	12.61	89623	15.03
	EPA SAMPLE NO.						
01	442DL	279969	10.25	144927	13.11	274460	15.52
02	OFF6DL	259340	10.25	127994	13.11	228794	15.52
03	455DL	274828	10.23	134684	13.10	216350	15.51
04	439DL	294897	10.23	136667	13.10	227291	15.52
05	424DL	247148	10.23	128282	13.10	192783	15.52
06	OFF7DL	275481	10.25	134305	13.10	202190	15.52
07	DUP01-01DL	316245	10.25	164862	13.10	239095	15.52
08	DUP02-01DL	268360	10.24	140450	13.11	264330	15.53
09	DUP01-01	272686	10.23	123274	13.08	181936	15.52
10	DUP02-01	293771	10.23	140569	13.10	219607	15.52
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22							

IS1 (NPT) = Naphthalene-d8
IS2 (ANT) = Acenaphthene-d10
IS3 (PHN) = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S1E3439 Date Analyzed: 03/13/05

Instrument ID: S1 Time Analyzed: 2057

		IS4 (CRY) AREA #	RT #	IS5 (PRY) AREA #	RT #	AREA #	RT #
	12 HOUR STD	148605	19.84	254507	22.04		
	UPPER LIMIT	297210	20.34	509014	22.54		
	LOWER LIMIT	74303	19.34	127254	21.54		
	EPA SAMPLE NO.						
01	442DL	190672	19.84	292052	22.03		
02	OFF6DL	142012	19.83	191050	22.03		
03	455DL	105075	19.84	119662*	22.04		
04	439DL	97676	19.84	107735*	22.04		
05	424DL	67667*	19.84	85163*	22.04		
06	OFF7DL	95804	19.84	102604*	22.04		
07	DUP01-01DL	113212	19.84	126131*	22.04		
08	DUP02-01DL	150312	19.84	160296	22.04		
09	DUP01-01	76559	19.85	89445*	22.05	IS5 out in both J all from IS5	
10	DUP02-01	89937	19.86	82062*	22.05	DL's OK - J all from IS5	
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20							
21							
22							

IS4 (CRY) = Chrysene-d12
IS5 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S1E3453A Date Analyzed: 03/14/05

Instrument ID: S1 Time Analyzed: 1402

		IS1 (NPT) AREA #	RT #	IS2 (ANT) AREA #	RT #	IS3 (PHN) AREA #	RT #
	12 HOUR STD	59593	10.23	35210	13.10	60449	15.50
	UPPER LIMIT	119186	10.73	70420	13.60	120898	16.00
	LOWER LIMIT	29797	9.73	17605	12.60	30225	15.00
	EPA SAMPLE NO.						
01	OFFS	72982	10.23	36616	13.08	59576	15.50
02							
03							
04							
05							
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21							
22							

IS1 (NPT) = Naphthalene-d8
IS2 (ANT) = Acenaphthene-d10
IS3 (PHN) = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S1E3453A Date Analyzed: 03/14/05

Instrument ID: S1 Time Analyzed: 1402

		IS4 (CRY) AREA #	RT #	IS5 (PRY) AREA #	RT #	AREA #	RT #
	12 HOUR STD	48780	19.82	102415	22.00		
	UPPER LIMIT	97560	20.32	204830	22.50		
	LOWER LIMIT	24390	19.32	51208	21.50		
	EPA SAMPLE NO.						
01	OFFS	34254	19.81	51646	22.00		
02							
03							
04							
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22							

IS4 (CRY) = Chrysene-d12
IS5 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8B
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S4A7812 Date Analyzed: 04/08/05

Instrument ID: S4 Time Analyzed: 1054

		IS1 (NPT) AREA #	RT #	IS2 (ANT) AREA #	RT #	IS3 (PHN) AREA #	RT #
	12 HOUR STD	558195	8.59	304646	11.26	484819	13.57
	UPPER LIMIT	1116390	9.09	609292	11.76	969638	14.07
	LOWER LIMIT	279098	8.09	152323	10.76	242410	13.07
	EPA SAMPLE NO.						
01	424	496083	8.59	277720	11.27	610959	13.59
02							
03							
04							
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19							
20							
21							
22							

IS1 (NPT) = Naphthalene-d8
IS2 (ANT) = Acenaphthene-d10
IS3 (PHN) = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

8C
SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MD0210

Lab File ID (Standard): S4A7812 Date Analyzed: 04/08/05

Instrument ID: S4 Time Analyzed: 1054

		IS4 (CRY) AREA #	RT #	IS5 (PRY) AREA #	RT #	AREA #	RT #
	12 HOUR STD	336491	17.67	232157	19.94		
	UPPER LIMIT	672982	18.17	464314	20.44		
	LOWER LIMIT	168246	17.17	116079	19.44		
	EPA SAMPLE NO.						
01	424	470598	17.68	414389	19.96		
02							
03							
04							
05							
06							
07							
08							
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21							
22							

IS4 (CRY) = Chrysene-d12
IS5 (PRY) = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area
AREA LOWER LIMIT = - 50% of internal standard area
RT UPPER LIMIT = + 0.50 minutes of internal standard RT
RT LOWER LIMIT = - 0.50 minutes of internal standard RT

Column used to flag internal standard area values with an asterisk.
* Values outside of QC limits.

EPA-NE - Data Validation Worksheet
VOA/SV - Pest/PCB-XII

XII. TARGET COMPOUND IDENTIFICATION - List the analytes that are outside the acceptance criteria.

Sample Number	Compound	MS Ions	RRT	Action

Validator: _____

Date: _____

XV. SEMIVOLATILE CLEANUP - List all analytes that are outside method cleanup QC criteria.

Cleanup Procedure	Instrument # or Lot #	Date/Time GPC Calibrated or Check Solution Analyzed	Compound	% Rec	QC Limits	Samples Affected	Action

Did the GPC column meet; resolution requirements? Y or N
peak shape requirements? Y or N
retention time shift requirements? Y or N

Was the GPC calibration, Silica Gel cleanup checked at the method required frequency with correct compounds and concentrations? Y or N

Were all compounds less than QL for the GPC/Silica Gel/Acid-Partition blank? Y or N

Did the blank surrogate recoveries and IS area counts and RTs (if added) meet method QC acceptance criteria? Y or N

Comments:_____

Validator:_____ Date:_____

TETRA TECH NUS, INC.

INTERNAL CORRESPONDENCE

C-NAVY-04-05-1844W

Date: April 15, 2005

c: File N4152-4.10

To: Steve Parker

From: Ann Franke AF

Subject: Tier II Inorganic Data Validation, SDG D0210
Mitkem Corporation
CTO 833, Old Firefighter Training Area, Newport, Rhode Island

TAL Metals:

18/Sediments/	OFF-SD-411-0006-01, OFF-SD-413-0006-01, OFF-SD-414-0006-01, OFF-SD-417-0006-01, OFF-SD-424-0006-01, OFF-SD-432-0006-01, OFF-SD-439-0006-01, OFF-SD-442-0006-01, OFF-SD-445-0006-01, OFF-SD-DUP01-01, OFF-SD-DUP02-01, OFF-SD-OFF1-0006-01, OFF-SD-OFF2-0006-01, OFF-SD-OFF3-0006-01, OFF-SD-OFF4-0006-01, OFF-SD-OFF6-0006-01, OFF-SD-OFF7-0006-01, OFF-SD-SD5-0006-01 (Field Duplicate Pairs: OFF-SD-OFF7-0006-01/ OFF-SD-DUP01-01 and OFF-SD-442-0006-01/ OFF-SD-DUP02-01)
2/Rinsate Blanks/	OFF-SD-OFF2-RB01-01, OFF-SD-432-RB02-01
2/Field Blanks/	OFF-SD-DIUF-FB01-01, OFF-SD-DIUF-FB02-01

Tetra Tech NUS, Inc. (TtNUS) performed a Tier II data validation on the TAL metals data from sediment samples collected at the Old Firefighter Training Area on February 22 and 23, 2005. The metals analysis was performed according to SW-846 Methods 6010B/7470/7471. The Tier II data validation was performed according to the Region I, EPA-NE Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, modified February 1989.

The metals data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verification
• Field and Laboratory Blank Analyses
• ICP Interference Check Sample Results
• Matrix Spike Recoveries
• Laboratory Duplicate Results
* • Laboratory Control Sample Results
• Field Duplicate Precision
• ICP Serial Dilution Results
* • Detection Limits

NA • Sample Quantitation

NA – Parameter not evaluated for Tier II level data validation.

* - All quality control criteria were met for this parameter.

Field and Laboratory Blank Analyses

The field and laboratory blank analyses were used to calculate the maximum concentrations and action levels of the following contaminants affecting the sediment samples:

Analyte	Maximum Concentration (µg/L)	Action Level (mg/kg)
Arsenic	-3.5	0.88
Beryllium	1.1	0.28
Copper	37.4	9.4
Silver	19.8	5.0

The action levels in the table above are based on an assumption of 100 percent solids and 1 gram of sample analyzed. The action level for each sample is different, based on the actual percent solids and amount of soil sample analyzed.

The positive results below the action level for beryllium, copper, and silver were changed to non-detected values in the sediment samples due to laboratory blank contamination. In addition, the positive arsenic results below the action level and the non-detected arsenic result in sample OFF-SD-OFF7-0006-01 are estimated (J, UJ) in the sediment samples due to negative instrument drift as evidenced by the negative laboratory blank results. The results may be biased low.

The laboratory blank analyses were used to calculate the maximum concentrations and action levels of the following contaminants affecting the field blank samples:

Analyte	Maximum Concentration (µg/L)	Action Level (mg/kg)
Aluminum	102	510
Barium	8.2	41
Cadmium	0.9	4.5
Calcium	176	880
Chromium	1.2	6.0
Cobalt	1.8	9.0
Iron	236	1180
Lead	2.9	14.5
Magnesium	106	530
Manganese	3.7	18.5
Selenium	6.9	34.5
Thallium	3.9	19.5
Vanadium	2.0	10.0
Zinc	36.6	183

The positive results below the action level for aluminum, barium, cadmium, calcium, chromium, cobalt, iron, lead, magnesium, manganese, selenium, thallium, vanadium, and zinc were changed to non-detected values in the field blank samples due to laboratory blank contamination.

The following actions apply for blank contamination:

- Accept values > Action Level.
- Report as (U) values ≥ 2x IDL and ≤ Action Level. The reporting limit is the associated value.
- Report as (UJ) values < 2x IDL and ≤ Action Level. The reporting limit is the associated estimated value.

ICP Interference Check Sample Results

The following results were qualified in the affected samples due to ICP interference attributed to the high concentration of magnesium and/or calcium in the sediment samples:

Analyte	Action	Bias	Affected samples
Antimony	J +	High	OFF-SD-414-0006-01, OFF-SD-417-0006-01, OFF-SD-432-0006-01, OFF-SD-445-0006-01, OFF-SD-OFF4-0006-01
	Reject +	High	OFF-SD-411-0006-01, OFF-SD-413-0006-01, OFF-SD-424-0006-01, OFF-SD-439-0006-01, OFF-SD-442-0006-01, OFF-SD-DUP01-01, OFF-SD-DUP02-01, OFF-SD-OFF1-0006-01, OFF-SD-OFF2-0006-01, OFF-SD-OFF3-0006-01, OFF-SD-OFF6-0006-01, OFF-SD-OFF7-0006-01, OFF-SD-SD5-0006-01
Arsenic	J +	High	OFF-SD-411-0006-01, OFF-SD-413-0006-01, OFF-SD-417-0006-01, OFF-SD-432-0006-01, OFF-SD-439-0006-01, OFF-SD-445-0006-01, OFF-SD-OFF2-0006-01, OFF-SD-OFF3-0006-01, OFF-SD-OFF4-0006-01
	Reject +	High	OFF-SD-414-0006-01, OFF-SD-424-0006-01, OFF-SD-442-0006-01, OFF-SD-DUP01-01, OFF-SD-DUP02-01, OFF-SD-OFF1-0006-01, OFF-SD-OFF6-0006-01, OFF-SD-SD5-0006-01
Barium	J+	Low	All samples
Chromium	J+	Low	All samples
Cobalt	J+	Low	All samples
Copper	J+	Low	All samples
Lead	J +	High	OFF-SD-411-0006-01, OFF-SD-439-0006-01, OFF-SD-DUP02-01, OFF-SD-OFF1-0006-01, OFF-SD-OFF6-0006-01, OFF-SD-OFF7-0006-01
Manganese	J +	High	All samples except OFF-SD-432-0006-01

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Analyte	Action	Bias	Affected samples
Potassium	J +	High	All samples except OFF-SD-OFF7-0006-01
	Reject +	High	OFF-SD-OFF7-0006-01
Silver	J +	Low	All samples
Sodium	J +	High	All samples except OFF-SD-432-0006-01 and OFF-SD-445-0006-01
Vanadium	J +	High	All samples
Zinc	J +	Low	OFF-SD-411-0006-01, OFF-SD-413-0006-01, OFF-SD-414-0006-01, OFF-SD-424-0006-01, OFF-SD-439-0006-01, OFF-SD-442-0006-01, OFF-SD-DUP01-01, OFF-SD-DUP02-01, OFF-SD-OFF3-0006-01, OFF-SD-OFF6-0006-01, OFF-SD-OFF7-0006-01, OFF-SD-OFF2-0006-01, OFF-SD-SD5-0006-01

The positive antimony, arsenic, lead, manganese, potassium, sodium, and vanadium results are estimated (J) in the affected samples due to positive ICP interference attributed to calcium and/or iron. The results may be biased high. The positive antimony, arsenic, and potassium results are rejected (R) in the affected samples because the reported concentrations may be due entirely (≥ 80%) to positive calcium and/or iron ICP interference. The results may be false positive. The positive barium, chromium, cobalt, copper, silver, and zinc results are estimated (J) in affected samples due to negative ICP interference attributed to calcium and/or iron. These results may be biased low.

Matrix Spike Recoveries

The results of the matrix spike analysis of sample OFF-SD-424-0006-01 were below the 75 percent recovery criteria for antimony, copper, selenium, and zinc. The positive antimony, copper, and zinc results and the non-detected selenium results are estimated (J, UJ) in the sediment samples due to low matrix spike recoveries. The results may be biased low.

Laboratory Duplicate Results

The relative percent differences (RPD) for antimony, cadmium, calcium, chromium, copper, nickel, and zinc were greater than the 35 percent QC criterion for sediment samples in the laboratory duplicate analysis of sample OFF-SD-424-0006-01. The positive results for these metals are estimated (J) due to poor laboratory duplicate precision. The bias is undetermined.

Field Duplicate Precision

The relative percent differences (RPD) for antimony, cadmium, iron, and zinc were greater than the 50 percent QC criterion for sediment samples in field duplicate pair OFF-SD-OFF7-0006-01/OFF-SD-DUP01-01. In addition, the RPDs for cadmium, calcium, and iron were greater than the 50 percent QC criterion in field duplicate pair OFF-SD-442-0006-01/OFF-SD-DUP02-01. The positive antimony, cadmium, calcium, iron, and zinc results are estimated (J) in the sediment samples due to poor field duplicate precision. The bias is undetermined.

ICP Serial Dilution Results

The ICP serial dilution percent differences (%D) for antimony, cadmium, silver, and sodium were above the 15 percent QC criterion for analyte concentrations greater than 50x MDL before dilution. The positive results for antimony, cadmium, silver, and sodium are estimated (J) in the sediment samples. Since the initial sample results for these metals were less than the diluted sample results, the data may be biased low.

Overall Assessment of the Metals Data

The metals data are acceptable for use as qualified. Positive sample results changed to non-detected values due to blank contamination are treated as positive results for qualification purposes. The estimation of these non-detected values is reported in the data summary table as (UJ).

The positive results below the action level for beryllium, copper, and silver were changed to non-detected values in the sediment samples due to laboratory blank contamination. In addition, the positive arsenic results below the action level and the non-detected arsenic result in sample OFF-SD-OFF7-0006-01 are estimated (J, UJ) in the sediment samples due to negative instrument drift as evidenced by the negative laboratory blank results. The results may be biased low. Blank actions also were taken for aluminum, barium, cadmium, calcium, chromium, cobalt, iron, lead, magnesium, manganese, selenium, thallium, vanadium, and zinc in the field blank samples due to laboratory blank contamination.

The positive antimony, arsenic, lead, manganese, potassium, sodium, and vanadium results are estimated (J) in the affected samples due to positive ICP interference attributed to calcium and/or iron. The results may be biased high. The positive antimony, arsenic, and potassium results are rejected (R) in the affected samples because the reported concentrations may be due entirely to positive calcium and/or iron ICP interference. The results may be false positive. The positive barium, chromium, cobalt, copper, silver, and zinc results are estimated (J) in affected samples due to negative ICP interference attributed to calcium and/or iron. These results may be biased low.

The positive antimony, copper, and zinc results and the non-detected selenium results are estimated (J, UJ) in the sediment samples due to low matrix spike recoveries. The results may be biased low.

The positive results for antimony, cadmium, calcium, chromium, copper, nickel, and zinc are estimated (J) due to poor laboratory duplicate precision. The bias is undetermined.

The positive antimony, cadmium, calcium, iron, and zinc results are estimated (J) in the sediment samples due to poor field duplicate precision. The bias is undetermined.

The positive results for antimony, cadmium, silver, and sodium are estimated (J) in the sediment samples due to a sample matrix suppressing effect detected in the ICP serial dilution analysis. The results may be biased low.

Sample results less than 2x MDL for mercury are estimated (J) due to uncertainty in values near the instrument detection limit.

Tables: Data Summary Tables

Enclosures: Data Validation Worksheets

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: M

nsample	OFF-SD-411-0006-01	nsample	OFF-SD-413-0006-01	nsample	OFF-SD-414-0006-01
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/23/2005
lab_id	D0210-03A	lab_id	D0210-05A	lab_id	D0210-08A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	82.0	Pct_Solids	82.0	Pct_Solids	91.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6940		
ANTIMONY	2.8	R	K
ARSENIC	1.9	J	K
BARIUM	10.6	J	K
BERYLLIUM	0.47		
CADMIUM	2.8	J	FGI
CALCIUM	44500	J	FG
CHROMIUM	10	J	FK
COBALT	3.5	J	FK
COPPER	13.5	J	DFK
IRON	43600	J	G
LEAD	41.2	J	K
MAGNESIUM	6020		
MANGANESE	244	J	K
MERCURY	0.034		
NICKEL	9.2	J	F
POTASSIUM	523	J	K
SELENIUM	0.071	UJ	D
SILVER	4.0	UJ	AIK
SODIUM	2860	J	IK
THALLIUM	0.084	U	
VANADIUM	16.4	J	K
ZINC	55.7	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6580		
ANTIMONY	2.3	R	K
ARSENIC	2.0	J	K
BARIUM	6.5	J	K
BERYLLIUM	0.3	U	A
CADMIUM	2.5	J	FGI
CALCIUM	14100	J	FG
CHROMIUM	8.6	J	FK
COBALT	5.1	J	FK
COPPER	16.6	J	DFK
IRON	38800	J	G
LEAD	75.6		
MAGNESIUM	4360		
MANGANESE	259	J	K
MERCURY	0.0083	U	
NICKEL	13.0	J	F
POTASSIUM	325	J	K
SELENIUM	0.073	UJ	D
SILVER	4.6	UJ	AIK
SODIUM	2970	J	IK
THALLIUM	0.087	U	
VANADIUM	16.2	J	K
ZINC	87.9	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6350		
ANTIMONY	4.0	J	DFGIK
ARSENIC	1.2	R	K
BARIUM	69.1	J	K
BERYLLIUM	0.29		
CADMIUM	3.2	J	FGI
CALCIUM	40700	J	FG
CHROMIUM	9.3	J	FK
COBALT	5.8	J	FK
COPPER	110	J	DFK
IRON	48700	J	G
LEAD	239		
MAGNESIUM	3260		
MANGANESE	345	J	K
MERCURY	0.0071	U	
NICKEL	15.3	J	F
POTASSIUM	307	J	K
SELENIUM	0.059	UJ	D
SILVER	5.8	J	IK
SODIUM	2200	J	IK
THALLIUM	0.070	U	
VANADIUM	11.7	J	K
ZINC	97.5	J	DFGK

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SDG: D0210 MEDIA: SOIL DATA FRACTION: M

nsample	OFF-SD-417-0006-01	nsample	OFF-SD-424-0006-01	nsample	OFF-SD-432-0006-01
samp_date	2/23/2005	samp_date	2/22/2005	samp_date	2/23/2005
lab_id	D0210-10A	lab_id	D0210-15A	lab_id	D0210-06A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	79.0	Pct_Solids	86.0	Pct_Solids	84.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5610		
ANTIMONY	2.0	J	DFGIK
ARSENIC	1.0	J	K
BARIUM	9.1	J	K
BERYLLIUM	0.3		
CADMIUM	2.1	J	FGI
CALCIUM	25500	J	FG
CHROMIUM	8.5	J	FK
COBALT	3.6	J	FK
COPPER	36.0	J	DFK
IRON	14500	J	G
LEAD	49.2		
MAGNESIUM	3660		
MANGANESE	159	J	K
MERCURY	0.084		
NICKEL	10.6	J	F
POTASSIUM	455	J	K
SELENIUM	0.070	UJ	D
SILVER	3.7	UJ	AIK
SODIUM	2860	J	I
THALLIUM	0.082	U	
VANADIUM	14.4	J	K
ZINC	76.9	J	DFG

Parameter	Result	Val Qual	Qual Code
ALUMINUM	7210		
ANTIMONY	6.6	R	K
ARSENIC	1.6	R	K
BARIUM	8.3	J	K
BERYLLIUM	0.36		
CADMIUM	6.7	J	FGI
CALCIUM	4710	J	FG
CHROMIUM	27.2	J	FK
COBALT	6.1	J	FK
COPPER	72.2	J	DFK
IRON	88300	J	G
LEAD	106		
MAGNESIUM	5190		
MANGANESE	389	J	K
MERCURY	0.016		
NICKEL	27.5	J	F
POTASSIUM	473	J	K
SELENIUM	0.070	UJ	D
SILVER	9.5	J	IK
SODIUM	2650	J	IK
THALLIUM	0.083	U	
VANADIUM	18.5	J	K
ZINC	127	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6380		
ANTIMONY	2.1	J	DFGIK
ARSENIC	1.9	J	K
BARIUM	6.5	J	K
BERYLLIUM	0.29	U	A
CADMIUM	2.2	J	FGI
CALCIUM	8600	J	FG
CHROMIUM	7.6	J	FK
COBALT	4.6	J	FK
COPPER	9.4	UJ	ADFK
IRON	16000	J	G
LEAD	39.1		
MAGNESIUM	4500		
MANGANESE	263		
MERCURY	0.0079	U	
NICKEL	11.0	J	F
POTASSIUM	354	J	K
SELENIUM	0.071	UJ	D
SILVER	4.4	UJ	AIK
SODIUM	2660	J	I
THALLIUM	0.085	U	
VANADIUM	14.2	J	K
ZINC	50.2	J	DFG

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: M

nsample	OFF-SD-432-RB02-01	nsample	OFF-SD-439-0006-01	nsample	OFF-SD-442-0006-01
samp_date	2/23/2005	samp_date	2/22/2005	samp_date	2/23/2005
lab_id	D0210-17B	lab_id	D0210-14A	lab_id	D0210-11A
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	MG/KG	units	MG/KG
Pct_Solids	100.0	Pct_Solids	88.0	Pct_Solids	79.0
DUP_OF:		DUP_OF:		DUP_OF:	OFF-SD-DUP02-01

Parameter	Result	Val Qual	Qual Code
ALUMINUM	70.3	U	A
ANTIMONY	1.2	U	
ARSENIC	1.6	U	
BARIUM	3.6	U	A
BERYLLIUM	0.15	U	
CADMIUM	0.11	U	A
CALCIUM	95.8	U	A
CHROMIUM	0.54	U	A
COBALT	0.45	U	A
COPPER	6.3	U	
IRON	141	U	A
LEAD	1.4	U	A
MAGNESIUM	40.6	U	A
MANGANESE	5.5	U	A
MERCURY	0.066	U	
NICKEL	0.59	U	
POTASSIUM	160	U	
SELENIUM	1.6	U	A
SILVER	0.91	U	
SODIUM	130	U	
THALLIUM	1.2	U	
VANADIUM	0.59	U	A
ZINC	9.4	U	A

Parameter	Result	Val Qual	Qual Code
ALUMINUM	7940		
ANTIMONY	2.4	R	K
ARSENIC	3.8	J	K
BARIUM	8.7	J	K
BERYLLIUM	0.31		
CADMIUM	2.8	J	FGI
CALCIUM	2000	J	FG
CHROMIUM	9.6	J	FK
COBALT	6.9	J	FK
COPPER	22.0	J	DFK
IRON	44600	J	G
LEAD	43.1	J	K
MAGNESIUM	3970		
MANGANESE	396	J	K
MERCURY	0.016		
NICKEL	16.2	J	F
POTASSIUM	404	J	K
SELENIUM	0.067	UJ	D
SILVER	6.6	J	IK
SODIUM	1740	J	IK
THALLIUM	0.078	U	
VANADIUM	18.8	J	K
ZINC	85.2	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6910		
ANTIMONY	2.9	R	K
ARSENIC	1.0	R	K
BARIUM	20.9	J	K
BERYLLIUM	0.25	U	A
CADMIUM	3.5	J	FGI
CALCIUM	21200	J	FG
CHROMIUM	10.3	J	FK
COBALT	4.6	J	FK
COPPER	17.6	J	DFK
IRON	56000	J	G
LEAD	58.3		
MAGNESIUM	3500		
MANGANESE	199	J	K
MERCURY	0.022		
NICKEL	12.2	J	F
POTASSIUM	407	J	K
SELENIUM	0.076	UJ	D
SILVER	6.8	J	IK
SODIUM	2650	J	IK
THALLIUM	0.090	U	
VANADIUM	16.1	J	K
ZINC	77.9	J	DFGK

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: M

nsample	OFF-SD-445-0006-01	nsample	OFF-SD-DIUF-FB01-01	nsample	OFF-SD-DIUF-FB02-01
samp_date	2/23/2005	samp_date	2/22/2005	samp_date	2/23/2005
lab_id	D0210-13A	lab_id	D0210-19B	lab_id	D0210-20B
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	UG/L	units	UG/L
Pct_Solids	87.0	Pct_Solids	100.0	Pct_Solids	100.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5520		
ANTIMONY	1.7	J	DFGIK
ARSENIC	3.2	J	K
BARIUM	14.2	J	K
BERYLLIUM	0.36		
CADMIUM	1.7	J	FGI
CALCIUM	19700	J	FG
CHROMIUM	11.7	J	FK
COBALT	3.6	J	FK
COPPER	21.4	J	DFK
IRON	12800	J	G
LEAD	49.8		
MAGNESIUM	3500		
MANGANESE	149	J	K
MERCURY	0.036		
NICKEL	17.0	J	F
POTASSIUM	606	J	K
SELENIUM	0.062	UJ	D
SILVER	3.5	UJ	AIK
SODIUM	2870	J	I
THALLIUM	0.074	U	
VANADIUM	26.6	J	K
ZINC	93.3	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	47.3	U	A
ANTIMONY	1.2	U	
ARSENIC	1.6	U	
BARIUM	2.9	U	A
BERYLLIUM	0.15	U	
CADMIUM	0.13	U	A
CALCIUM	49.2	U	A
CHROMIUM	0.47	U	A
COBALT	0.19	U	A
COPPER	6.3	U	
IRON	54.5	U	A
LEAD	1.4	U	A
MAGNESIUM	42.8	U	A
MANGANESE	3.6	U	A
MERCURY	0.073	U	
NICKEL	0.59	U	
POTASSIUM	160	U	
SELENIUM	1.3	U	A
SILVER	0.91	U	
SODIUM	178		
THALLIUM	1.2	U	
VANADIUM	0.47	U	
ZINC	6.7	U	A

Parameter	Result	Val Qual	Qual Code
ALUMINUM	35.6	U	A
ANTIMONY	1.2	U	
ARSENIC	1.6	U	
BARIUM	2.1	U	
BERYLLIUM	0.15	U	
CADMIUM	0.10	U	
CALCIUM	65.5	U	A
CHROMIUM	0.38	U	
COBALT	0.15	U	
COPPER	6.3	U	
IRON	1.9	U	
LEAD	1.2	U	A
MAGNESIUM	20	U	
MANGANESE	2.7	U	A
MERCURY	0.070	U	
NICKEL	0.59	U	
POTASSIUM	160	U	
SELENIUM	5.1	U	A
SILVER	0.91	U	
SODIUM	130	U	
THALLIUM	1.4	U	A
VANADIUM	0.47	U	
ZINC	5.3	U	A

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: M

nsample	OFF-SD-DUP01-01	nsample	OFF-SD-DUP02-01	nsample	OFF-SD-OFF1-0006-01
samp_date	2/22/2005	samp_date	2/23/2005	samp_date	2/22/2005
lab_id	D0210-21A	lab_id	D0210-22A	lab_id	D0210-01A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	83.0	Pct_Solids	80.0	Pct_Solids	85.0
DUP_OF:	OFF-SD-OFF7-0006-01	DUP_OF:	OFF-SD-442-0006-01	DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6470		
ANTIMONY	5.2	R	K
ARSENIC	1.5	R	K
BARIUM	7.5	J	K
BERYLLIUM	0.29	U	A
CADMIUM	5.4	J	FGI
CALCIUM	6350	J	FG
CHROMIUM	20.4	J	FK
COBALT	6.6	J	FK
COPPER	48.5	J	DFK
IRON	85600	J	G
LEAD	94.3		
MAGNESIUM	3550		
MANGANESE	428	J	K
MERCURY	0.022		
NICKEL	28.3	J	F
POTASSIUM	392	J	K
SELENIUM	0.072	UJ	D
SILVER	9.1	J	IK
SODIUM	1900	J	IK
THALLIUM	0.086	U	
VANADIUM	17.6	J	K
ZINC	163	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5620		
ANTIMONY	2.3	R	K
ARSENIC	0.82	R	K
BARIUM	15.1	J	K
BERYLLIUM	0.26	U	A
CADMIUM	1.8	J	FGI
CALCIUM	68100	J	FG
CHROMIUM	8.0	J	FK
COBALT	3.6	J	FK
COPPER	16.1	J	DFK
IRON	13000	J	G
LEAD	39.4	J	K
MAGNESIUM	3920		
MANGANESE	154	J	K
MERCURY	0.018	J	P
NICKEL	9.8	J	F
POTASSIUM	452	J	K
SELENIUM	0.070	UJ	D
SILVER	2.1	UJ	AIK
SODIUM	3160	J	IK
THALLIUM	0.083	U	
VANADIUM	13.1	J	K
ZINC	58.8	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	7090		
ANTIMONY	4.6	R	K
ARSENIC	0.76	R	K
BARIUM	8.4	J	K
BERYLLIUM	0.44		
CADMIUM	4.7	J	FGI
CALCIUM	15200	J	FG
CHROMIUM	32.9	J	FK
COBALT	4.1	J	FK
COPPER	24.4	J	DFK
IRON	67300	J	G
LEAD	65.2	J	K
MAGNESIUM	6840		
MANGANESE	387	J	K
MERCURY	0.046		
NICKEL	17.8	J	F
POTASSIUM	548	J	K
SELENIUM	0.068	UJ	D
SILVER	6.3	J	IK
SODIUM	2440	J	IK
THALLIUM	0.081	U	
VANADIUM	18.1	J	K
ZINC	356	J	DFG

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: M

nsample	OFF-SD-OFF2-0006-01	nsample	OFF-SD-OFF2-RB01-01	nsample	OFF-SD-OFF3-0006-01
samp_date	2/22/2005	samp_date	2/22/2005	samp_date	2/23/2005
lab_id	D0210-02A	lab_id	D0210-18B	lab_id	D0210-04A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	UG/L	units	MG/KG
Pct_Solids	92.0	Pct_Solids	100.0	Pct_Solids	83.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	8460		
ANTIMONY	2.9	R	K
ARSENIC	5.6	J	K
BARIUM	10.7	J	K
BERYLLIUM	0.42		
CADMIUM	2.7	J	FGI
CALCIUM	9640	J	FG
CHROMIUM	10.2	J	FK
COBALT	7.8	J	FK
COPPER	12.5	J	DFK
IRON	48400	J	G
LEAD	141		
MAGNESIUM	9470		
MANGANESE	393	J	K
MERCURY	0.0074	U	
NICKEL	17.0	J	F
POTASSIUM	416	J	K
SELENIUM	0.060	UJ	D
SILVER	2.9	UJ	AIK
SODIUM	1630	J	IK
THALLIUM	0.071	U	
VANADIUM	15.3	J	K
ZINC	68.5	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	44.6	U	A
ANTIMONY	1.2	U	
ARSENIC	1.6	U	
BARIUM	2.5	U	A
BERYLLIUM	0.15	U	
CADMIUM	0.10	U	
CALCIUM	93.9	U	A
CHROMIUM	0.80	U	A
COBALT	0.27	U	A
COPPER	6.3	U	
IRON	70.4	U	A
LEAD	1.4	U	A
MAGNESIUM	109	U	A
MANGANESE	5.1	U	A
MERCURY	0.073	U	
NICKEL	0.59	U	
POTASSIUM	160	U	
SELENIUM	1.1	U	A
SILVER	0.91	U	
SODIUM	885		
THALLIUM	1.3	U	A
VANADIUM	0.52	U	A
ZINC	7.3	U	A

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5570		
ANTIMONY	2.4	R	K
ARSENIC	1.4	J	K
BARIUM	21.4	J	K
BERYLLIUM	0.40		
CADMIUM	2.4	J	FGI
CALCIUM	5310	J	FG
CHROMIUM	8.5	J	FK
COBALT	7.4	J	FK
COPPER	19.2	J	DFK
IRON	36400	J	G
LEAD	68.3		
MAGNESIUM	3750		
MANGANESE	370	J	K
MERCURY	0.012	J	P
NICKEL	12.6	J	F
POTASSIUM	417	J	K
SELENIUM	0.070	UJ	D
SILVER	4.7	UJ	AIK
SODIUM	2320	J	IK
THALLIUM	0.082	U	
VANADIUM	16.7	J	K
ZINC	83.5	J	DFGK

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: M

nsample	OFF-SD-OFF4-0006-01	nsample	OFF-SD-OFF6-0006-01	nsample	OFF-SD-OFF7-0006-01
samp_date	2/23/2005	samp_date	2/23/2005	samp_date	2/22/2005
lab_id	D0210-07A	lab_id	D0210-12A	lab_id	D0210-16A
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	81.0	Pct_Solids	76.0	Pct_Solids	85.0
DUP_OF:		DUP_OF:		DUP_OF:	OFF-SD-DUP01-01

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6130		
ANTIMONY	2.6	J	DFGIK
ARSENIC	1.2	J	K
BARIUM	10.1	J	K
BERYLLIUM	0.26	U	A
CADMIUM	2.2	J	FGI
CALCIUM	27100	J	FG
CHROMIUM	6.8	J	FK
COBALT	3.8	J	FK
COPPER	14.5	J	DFK
IRON	15700	J	G
LEAD	57.9		
MAGNESIUM	5210		
MANGANESE	266		
MERCURY	0.0070	U	
NICKEL	10.1	J	F
POTASSIUM	385	J	K
SELENIUM	0.075	UJ	D
SILVER	3.2	UJ	AIK
SODIUM	2530	J	I
THALLIUM	0.089	U	
VANADIUM	14.1	J	K
ZINC	57.5	J	DFG

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5920		
ANTIMONY	2.6	R	K
ARSENIC	2.2	R	K
BARIUM	19.1	J	K
BERYLLIUM	0.34		
CADMIUM	1.9	J	FGI
CALCIUM	87600	J	FG
CHROMIUM	11.2	J	FK
COBALT	3.8	J	FK
COPPER	16.5	J	DFK
IRON	13000	J	G
LEAD	49.3	J	K
MAGNESIUM	6090		
MANGANESE	178	J	K
MERCURY	0.033		
NICKEL	11.6	J	F
POTASSIUM	705	J	K
SELENIUM	0.074	UJ	D
SILVER	0.59	UJ	AIK
SODIUM	4690	J	IK
THALLIUM	0.087	U	
VANADIUM	22.5	J	K
ZINC	78.7	J	DFGK

Parameter	Result	Val Qual	Qual Code
ALUMINUM	5910		
ANTIMONY	9.9	R	K
ARSENIC	0.072	UJ	O
BARIUM	8.2	J	K
BERYLLIUM	0.29		
CADMIUM	9.2	J	FGI
CALCIUM	4660	J	FG
CHROMIUM	31.6	J	FK
COBALT	7.0	J	FK
COPPER	62.3	J	DFK
IRON	144000	J	G
LEAD	93.4	J	K
MAGNESIUM	3000		
MANGANESE	539	J	K
MERCURY	0.021		
NICKEL	32.0	J	F
POTASSIUM	348	R	K
SELENIUM	0.064	UJ	D
SILVER	10.3	J	IK
SODIUM	1830	J	IK
THALLIUM	0.075	U	
VANADIUM	18.4	J	K
ZINC	94.8	J	DFGK

PROJ_NO: 4152

SDG: D0210 MEDIA: SOIL DATA FRACTION: M

nsample	OFF-SD-SD5-0006-01
samp_date	2/23/2005
lab_id	D0210-09A
qc_type	NM
units	MG/KG
Pct_Solids	78.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ALUMINUM	6900		
ANTIMONY	2.8	R	K
ARSENIC	0.74	R	K
BARIUM	18.7	J	K
BERYLLIUM	0.27	U	A
CADMIUM	2.4	J	FGI
CALCIUM	72300	J	FG
CHROMIUM	11.2	J	FK
COBALT	4.3	J	FK
COPPER	51.1	J	DFK
IRON	39100	J	G
LEAD	62.1		
MAGNESIUM	3640		
MANGANESE	190	J	K
MERCURY	0.035		
NICKEL	12.7	J	F
POTASSIUM	450	J	K
SELENIUM	0.069	UJ	D
SILVER	4.2	UJ	AIK
SODIUM	2530	J	IK
THALLIUM	0.082	U	
VANADIUM	15.9	J	K
ZINC	86.8	J	DFGK

REGION I
Data Review Worksheets

Site Name OFFTA
Reference Number

REGION I REVIEW OF INORGANIC CONTRACT LABORATORY DATA PACKAGE

The hardcopied (laboratory name) Mitkem Corp. data package received at Region I has been reviewed and the quality assurance and performance data summarized. The data review included:

Case No. CTO 833 SAS No. _____ Sampling Date(s) 2/22, 2/23/05
SDG. No. D0210 Matrix Sediment Shipping Date(s) 2/24/05
No. of Samples 22 Date Rec'd by Lab 2/25/05

Traffic Report Nos: See next page

~~Trip Blank No.:~~ OFF-DIUF-FB01-01, OFF-DIUF-FB02-01,
Equipment Blank No. OFF-SD-OFF2-RB01-01, OFF-SD-432-RB02-01,
Field Dup Nos: OFF-SD-OFF7-0006-01/OFF-SD-DUP01-01 + OFF-SD-442-0006-01/OFF-SD-DUP02-01

SOW No. _____ requires that specific analytical work be done and that associated reports be provided by the laboratory to the Regions, EMSL-LV, and SMO. The general criteria used to determine the performance were based on an examination of:

- -Data Completeness
- -Holding Times
- -Calibrations
- -Blanks
- -ICP Interference Check Results
- -Matrix Spike Recoveries
- -Laboratory Duplicates
- -Field Duplicates
- -Lab Control Sample Results
- -Furnace AA Results
- -ICP Serial Dilution Results
- -Detection Limit Results
- -Sample Quantitation

Overall Comments: Tier II. Metals. Methods 6010B/7470/7471.

Definitions and Qualifiers:

A - Acceptable data.
J - Approximate data due to quality control criteria.
R - Reject data due to quality control criteria.
U - Analyte not detected.

Reviewer: Ann Franke Date: 4/05

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Mitkem Corporation Contract: CTO 833 New

Lab Code: MITKEM Case No. SAS No.: SDG No.: MD0210

SOW No.: SW846

EPA Sample No.	Lab Sample ID.
OFF-SD-411-0006-01	D0210-03
413	D0210-05
414	D0210-08
417	D0210-10
424	D0210-15
424D	D0210-15DUP
424S	D0210-15MS
432	D0210-06
432-RB02-01	D0210-17
439-0006-01	D0210-14
442	D0210-11
~~455~~ 445	D0210-13
DIUF-FB01-~~01a~~-01	D0210-19
DIUF-FB01-~~01b~~-01	D0210-20
DIUF-FB01-01bD	D0210-20DUP
DIUF-FB01-01bS	D0210-20MS
SD-DUP01-01	D0210-21
DUP02-01	D0210-22
OFF1-0006-01	D0210-01

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature

Signature: Sharyn B Lawler Name: Sharyn B. Lawler

Date: 3/22/05 Title: Data Reviewer

U.S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Mitkem Corporation Contract: CTO 833 New

Lab Code: MITKEM Case No. SAS No.: SDG No.: MD0210

SOW No.: SW846

EPA Sample No.	Lab Sample ID.
OFF-SD- OFF2-RB01 - 01	D0210-18
· OFF3 - 0006-01	D0210-04
· OFF4	D0210-07
· OFF6	D0210-12
· OFF7	D0210-16
· OFF~~S~~2	D0210-02
· SD5	D0210-09

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature

Signature: Sharyn B Lawler Name: Sharyn B Lawler

Date: 3/22/05 Title: Data Reviewer

Soil Results (ug/L) -- Calculated from Reported Dry Weight Results (mg/kg)

Worksheet - Conversion Table

ug/L

2xMDL ug/L

	SAMPLE #:	411		413		414		417		424		432		439		442		445		DUP01	
	Wt, Metals:	1.15		1.12		1.23		1.21		1.12		1.11		1.14		1.12		1.23		1.11	
	Wt, Hg:	0.62		0.62		0.65		0.75		0.75		0.64		0.71		0.69		0.65		0.64	
	Wt. CN:																				
	%Solid:	82.0		82.0		91.0		79.0		86.0		84.0		88.0		79.0		87.0		83.0	
28	Aluminum	✓ 130888		120861		142151		107252		138893		118974		159308		122279		118139		119216	
2.4	Antimony	52.8		42.2		89.5		38.2		127.1	N*	39.2		48.2	N*	51.3		36.4	N*	95.8	
3.2	Arsenic	35.8		36.7		26.9		19.1	B	30.8	*	35.4		76.2	*	17.7	B	68.5	*	27.6	
4.2	Barium	200	B	119	B	1547		174	B	160	B	121	B	175	B	370		304		138	
0.30	Beryllium	8.9		5.5	B	6.5		5.7	B	6.9		5.4	B	6.2		4.4	B	7.7		5.3	
0.20	Cadmium	52.8		45.9		71.6		40.1		129.1	*E	41.0		56.2	*E	61.9		36.4	*E	99.5	
86	Calcium	x50 839270		258989		x50 911110		487509		90733	*	160373		40128	*	375155		421619	*	117005	
0.76	Chromium	188.6		158.0		208.2		162.5		524.0	*	141.7		192.6	*	182.3		250.4	*	375.9	
0.30	Cobalt	66.0		93.7		129.8		68.8		117.5		85.8		138.4		81.4		77.0		121.6	
12.6	Copper	254.6		304.9		2462.5		688.2		1390.9	N*	175.3		441.4	N*	311.4		458.0	N*	893.7	
38	Iron	x50 822296		x50 712678		x50 1090198		277211		x50 1701011		298368		x50 894854		x50 990976		273946		x100 1577266	
0.92	Lead	777		1389		5350		941		2042	*E	729		865	*E	1032		1066	*E	1738	
40	Magnesium	113537		80084		72978		69972		99980		83916		79654		61936		74907		65412	
3.6	Manganese	4602		4757		7723		3040		7494	E	4904		7945	E	3522		3189	E	7886	
0.10	Mercury	✓ 0.173	B	0.042	U	0.042	U	0.498		0.103	B	0.042	U	0.100	B	0.120	B	0.204		0.117	
1.18	Nickel	174		239		343		203		530	*E	205		325	*E	216		364	*E	521	
320	Potassium	9864		5970		6873		8699		9112		6601		8106		7202		12970		7223	
1.96	Selenium	1.3	U	1.3	U	1.3	U	1.3	U	1.3	UN	1.3	U	1.3	UN	1.3	U	1.3	UN	1.3	U
1.82	Silver	75.4		84.5		129.8		70.7		183.0	*E	82.1		132.4	*E	120.3		74.9	*E	167.7	
26.0	Sodium	53940		54553		49249		54677		51050	E	49604		34911	E	46894		61424	E	35009	
2.4	Thallium	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
0.94	Vanadium	309		298		262		275		356		265		377		285		569		324	
4.6	Zinc	1051		1615		2183		1470		2447	N*	936		1709	N*	1379		1997	N*	3003	
	Cyanide																				
	Note: Formulas based on ICP Vol = 50 mls and Hg Vol. = 100 mls.																				

○ - Blanks

Soil Results (ug/L) -- Calculated from Reported Dry Weight Results (mg/kg)

SAMPLE #:		DUP02		OFF1		OFF3		OFF4		OFF6		OFF7		OFF2		SD5	
Wt, Metals:		1.19		1.15		1.16		1.10		1.19		1.24		1.22		1.24	
Wt, Hg:		0.63		0.66		0.74		0.74		0.64		0.70		0.62		0.67	
Wt. CN:																	
%Solid:		80.0		85.0		83.0		81.0		76.0		85.0		92.0		78.0	
Aluminum		107005		138610		107256		109237		107081		124583		189910		133474	
Antimony	N*	43.8	N*	89.9		46.2		46.3		47.0	N*	208.7	N*	65.1		54.2	
Arsenic	*	15.6	B*	14.9	B	27.0		21.4		39.8	*	1.5	U*	125.7		14.3	B
Barium	B	288		164	B	412		180	B	345		173	B	240		362	
Beryllium	B	5.0	B	8.6		7.7		4.6	B	6.1		6.1		9.4		5.2	B
Cadmium	*E	34.3	*E	91.9		46.2		39.2		34.4	*E	193.9	*E	60.6		46.4	
Calcium	*	100 1296624	*	297160		102249		482922		100 1584509	*	98233	*	216399		100 1398571	
Chromium	*	152.3	*	643.2		163.7		121.2		202.6	*	666.1	*	229.0		216.7	
Cobalt		68.5		80.2		142.5		67.7		68.7		147.6		175.1		83.2	
Copper	N*	306.5	N*	477.0		369.7		258.4		298.5	N*	1313.3	N*	280.6		988.5	
Iron		247520		450 1315715		450 700918		279774		235144		100 3035520		450 1086483		100 756350	
Lead	*E	750	*E	1275		1315		1032		892	*E	1969	*E	3165		1201	
Magnesium		74637		133722		72210		92842		110156		63240		212583		70412	
Manganese	E	2932	E	7566		7125		4740		3220	E	11362	E	8822		3675	
Mercury	B	0.091	B	0.258		0.074	B	0.042	U	0.161	B	0.125	B	0.042	U	0.183	B
Nickel	*E	187	*E	348		243		180		210	*E	675	*E	382		246	
Potassium		8606		10713		8030		6861		12752		7336		9338		8705	
Selenium	UN	1.3	UN	1.3	U	1.3	U	1.3	U	1.3	UN	1.3	UN	1.3	U	1.3	U
Silver	*E	40.0	*E	123.2		90.5		57.0		10.7	B*	217.1	*E	65.1		81.2	
Sodium	E	60166	E	47702		44674		45085		84833	E	38576	E	36590		48940	
Thallium	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
Vanadium		249		354		322		251		407		388		343		308	
Zinc	N*	1120	N*	6960		1608		1025		1424	N*	1998	N*	1538		1679	
Cyanide																	
Note: Formulas																	

REGION I
Data Review Worksheets

I. DATA COMPLETENESS

MISSING INFORMATION	DATE LAB CONTACTED	DATE REC'D
None		

REGION I
Data Review Worksheets

II. HOLDING TIMES

Complete table for all samples and circle the analysis date for samples not within criteria.

SAMPLE ID	DATE SAMPLED	HG DATE ANALYSIS	CYANIDE DATE ANALYSIS	OTHERS DATE ANALYSIS	pH	ACTION
OFF1	2/22/05	(14) 3/8/05		3/8 and/or 3/9/05	NA	None
OFF2	↓	↓		↓	↓	↓
411	2/23					
OFF3	↓	↓		↓	↓	↓
413						
432						
OFF4						
414						
SD5						
417						
442						
OFF6						
445	↓	↓		↓	↓	↓
439	2/22					
424	↓	↓		↓	↓	↓

METALS - 180 DAYS FROM SAMPLE COLLECTION
MERCURY - 28 DAYS FROM SAMPLE COLLECTION
CYANIDE - 14 DAYS FROM SAMPLE COLLECTION

ACTION:

1. If holding times are exceeded all positive results are estimated (J) and non-detects are estimated (UJ).

2. If holding times are grossly exceeded, the reviewer may determine that non-detects are unusable (R).

Cooler Temp 3°C

REGION I
Data Review Worksheets

II. HOLDING TIMES

Complete table for all samples and circle the analysis date for samples not within criteria.

SAMPLE ID	DATE SAMPLED	HG DATE ANALYSIS	CYANIDE DATE ANALYSIS	OTHERS DATE ANALYSIS	pH	ACTION
OFF 7	2/22/05	3/8/05		3/8 and/or 3/9/05	NA	None
432-RB02	2/23				< 2	
OFF2-RB01	2/22					
D14F-FB01	2/22					
D14F-FB02	2/23					
DUP01-01	2/22				NA	
DUP02-01	2/23					

METALS - 180 DAYS FROM SAMPLE COLLECTION
MERCURY - 28 DAYS FROM SAMPLE COLLECTION
CYANIDE - 14 DAYS FROM SAMPLE COLLECTION

ACTION:

1. If holding times are exceeded all positive results are estimated (J) and non-detects are estimated (UJ).

2. If holding times are grossly exceeded, the reviewer may determine that non-detects are unusable (R).

REGION I
Data Review worksheets

III A. INSTRUMENT CALIBRATION (Section 1)

1. Recovery Criteria

List the analytes which did not meet the percent recovery (%R) criteria for Initial or Continuing Calibration.

DATE	ICV/CCV#	ANALYTE	%R	ACTION	SAMPLES AFFECTED
All met criteria					

ACTIONS:

If any analyte does not meet the %R criteria follow the actions stated below:

For Positive Results:

	Accept	Estimate (J)	Reject (R)
Metals	90-110%R	75-89%R, 111-125%R	<75%R, >125%R
Mercury	80-120%R	65-79%R, 121-135%R	<65%R, >135%R
Cyanide	85-115%R	70-84%R, 116-130%R	<70%R, >130%R

For Non-detected Results:

	Accept	Estimate (UJ)	Reject (R)
Metals	90-125%R	75-89%R	<75%R, >125%R
Mercury	80-135%R	65-79%R	<65%R, >135%R
Cyanide	85-130%R	70-84%R	<70%R, >130%R

CRDL standard analyses: (80-120% QC criteria)

Analyte	% Rs	Actions

NA, Method 6010B

REGION I
Data Review Worksheets

III B. INSTRUMENT CALIBRATION (Section 2)

2. Analytical Sequence

A. Did the laboratory use the proper number of standards for calibration as described in the SOW? Yes or No

B. Were calibrations performed at the beginning of each analysis? Yes or No

C. Were calibration standards analyzed at the beginning of sample analysis and at a minimum frequency of ten percent or every two hours during analysis, whichever is more frequent? Yes or No

D. Were the correlation coefficients for the calibration curves for AA, Hg, and ~~CN~~ NA ≥ 0.995? Yes or No

E. Was a standard at 2xCRDL analyzed for all ICP analyses? NA Yes or No

If No,

The data may be affected. Use professional judgement to determine the severity of the effect and qualify the data accordingly. Discuss any actions below and list the samples affected.

calibration curve correlation coefficients

NA, ICP II

IV A. BLANK ANALYSIS RESULTS (Sections 1-3)

List the blank contamination in Sections 1 & 2 below. A separate worksheet should be used for soil and water blanks.

1. Laboratory Blanks See Blank Worksheet

MATRIX: Sed.

DATE	ICB/CCB#	PREP BL	ANALYTE	CONC./UNITS

2. Equipment/Trip Blanks

DATE	EQUIP BL#	Field Note description	ANALYTE	CONC./UNITS
2/22/05	OFF-SD-OFF2-RB01-01	DIUF, SS Bowl		
2/23	" " - 432 - RB02-01	DIUF, SS Bowl		Apply to all sediments
2/22	" " - DIUF-FB01-01	Direct pour DIUF into bottleware		
2/23	" " - DIUF-FB02-01	" " "		

3. Frequency Requirements

A. Was a preparation blank analyzed for each matrix, for every 20 samples and for each digestion batch? Yes or No

B. Was a calibration blank run every 10 samples or every 2 hours whichever is more frequent? Yes or No

If No,

The data may be affected. Use professional judgement to determine the severity of the effect and qualify the data accordingly. Discuss any actions below, and list the samples affected.

Rinsate Blank Samples ug/L

BLANK WORKSHEET

	ICB				CCB										PBW (ug/L)			TB	BB	RB		MAX	AL
	1	2	3	4	1	2	3	4	5	6	7	8	9	10	1	2	3	1	1	1	2		
Aluminum					30.1		67.1	49.4	61.3	44.4	102	49.4	67.7									102	
Antimony	5.5				4.5	2.8	4.3	2.9	3.1	3.2	2.5	3.5	2.3		8.4							8.4	
Arsenic									-2.1		-1.9	-2.6			1.9							1.9	
Barium	8.2					2.7	2.4	3.5		3.7	2.1	2.9	2.4		3.2							8.2	
Beryllium	0.2				1.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2			0.82							1.1	
Cadmium	0.2				0.9	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.3		0.61							0.9	
Calcium					57.7	-38.6	66.9	63.3	59.9	53.3	176	80.2	40									176	
Chromium	0.8				1.2	0.5		0.4		0.4			0.4		0.90							1.2	
Cobalt	1.8				0.9	0.7	0.3	0.9	0.4	1.0	0.5	0.7	0.3		0.77							1.8	
Copper					10.4										9.51							10.4	
Iron	-62.2				-46.8	-47.2		59.1	-19.4	104	90.6	236	171		-24.8							236	
Lead	1.4				0.9	1.1	0.9	1.6	1.0	1.6	1.4	1.1	1.8		2.9							2.9	
Magnesium					34.8		69.7	33.8	67.3	53.6	106	51.7	76									106	
Manganese								3.7		3.7	2.1	3.6	2.3									3.7	
Mercury																							
Nickel	1.3				1.2					0.7					0.87							1.3	
Potassium																							
Selenium					6.8	-1.0	3.2			1.3		3.0	6.9		3.7							6.9	
Silver	19.8														1.5							19.8	
Sodium																							
Thallium	2.7				1.8	2.8	-2.2	1.4	2.8	3.9		2.0			2.4							3.9	
Vanadium	2.0				1.4	0.9	0.9	0.8		1.1	0.8	0.9	0.7		0.90							2.0	
Zinc	7.2				8.7	3.1	3.1	4.0	2.7	3.6	3.6	3.7	3.6		36.6							36.6	

BLANK WORKSHEET

	ICB				CCB										PB			TB	BB	RB		MAX	AL
	1	2	3	4	10 1	11 2	12 3	4	5	6	7	8	9	10	1	2	3	1	1	1	2		
Aluminum						33.1	85.9																
Antimony					3.3	3.5	2.7																
Arsenic							-1.7																
Barium					2.7		3.0																
Beryllium							0.2																
Cadmium						0.2	0.2																
Calcium							47	89.3		130.9	89.4	76.8											
Chromium							0.5																
Cobalt					0.4	0.2	0.4																
Copper																							
Iron					-41.4	-51.4	-40.4																
Lead					0.9	0.6																	
Magnesium						38.8	101																
Manganese																							
Mercury																							
Nickel							1.0																
Potassium																							
Selenium					2.6	3.9	2.2																
Silver																							
Sodium																							
Thallium					1.6	1.4	1.5																
Vanadium					0.8		1.0																
Zinc					2.8	3.0	3.3																

REGION I
Data Review Worksheets

IV B. BLANK ANALYSIS RESULTS (Section 4)

4. Blank Actions

The Action Levels for any analyte is equal to five times the highest concentration of that element's contamination in any blank. The action level for samples which have been concentrated or diluted should be multiplied by the concentration/dilution factor. No positive sample result should be reported unless the concentration of the analyte in the sample exceeds the Action Level (AL). Specific actions are as follows:

1. When the concentration is greater than the IDL, but less than the Action Level, report the sample concentration detected with a U.
2. When the sample concentration is greater than the Action Level, report the sample concentration unqualified.

MATRIX: Water- Applies to Field Blanks (RB + FB) MATRIX: _____

ELEMENT	MAX. CONC./ UNITS ug/L	AL/ UNITS ug/L		ELEMENT	MAX. CONC./ UNITS	AL/ UNITS	
Al	102	510		Fe	236	1180	
Sb	8.4	—	ND	Pb	2.9	14.5	
As	1.9	—	ND	Mg	106	530	
Ba	8.2	41		Mn	3.7	18.5	
Be	1.1	—	ND	Ni	1.3	—	ND
Cd	0.9	4.5		Se	6.9	34.5	
Ca	176	880		Ag	19.8	—	ND
Cr	1.2	6.0		Tl	3.9	19.5	
Co	1.8	9.0		V	2.0	10	
Cu	10.4	—	ND	Zn	36.6	183	

NOTE: Blanks analyzed during a soil case must be converted to mg/kg in order to compare them with the sample results.

$$\text{Conc. in ug/L} \times \frac{\text{Volume diluted to (200ml)}}{\text{Weight digested (1gram)}} \times \frac{1L}{1000ml} \times \frac{1000gm}{1kg} \times \frac{1mg}{1000ug} = mg/kg$$

Multiplying this result by 5 to arrive at the action level gives a final result in mg/kg which can then be compared to sample results.

All field blanks ND after blank actions except sodium.

Sediment - Samples

µg/L

Applies to PBS

2xMDL

Soil Aq

mg/Kg µg/L

BLANK WORKSHEET

	ICB 1	ICB 2	ICB 3	ICB 4	CCB 1	CCB 2	CCB 3	CCB 4	CCB 5	CCB 6	CCB 7	CCB 8	CCB 9	CCB 10
Aluminum					30.1		67.1	49.4	61.3	44.4	102	49.4	67.7	
Antimony	5.5				4.5	2.8	4.3	2.9	3.1	3.2	2.5	3.5	2.3	
Arsenic (0.152 / 3.2)									-2.1		-1.9	-2.6		
Barium	8.2					2.7	2.4	3.5		3.7	2.1	2.9	2.4	
Beryllium	0.2				1.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2		
Cadmium	0.2				0.9	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.3	
Calcium					57.7	-38.6	66.9	63.3	59.9	53.3	176	80.2	40	
Chromium	0.8				1.2	0.5		0.4		0.4			0.4	
Cobalt	1.8				0.9	0.7	0.3	0.9	0.4	1.0	0.5	0.7	0.3	
Copper					10.4									
Iron	-62.2				-46.8	-47.2		59.1	-19.4	104	90.6	236	171	
Lead	1.4				0.9	1.1	0.9	1.6	1.0	1.6	1.4	1.1	1.8	
Magnesium					34.8		69.7	33.8	67.3	53.6	106	51.7	76	
Manganese								3.7		3.7	2.1	3.6	2.3	
Mercury														
Nickel	1.3				1.2					0.7				
Potassium														
Selenium					6.8	-1.0	3.2			1.3		3.0	6.9	
Silver	19.8													
Sodium														
Thallium	2.7				1.8	2.8	-2.2	1.4	2.8	3.9		2.0		
Vanadium	2.0				1.4	0.9	0.9	0.8		1.1	0.8	0.9	0.7	
Zinc	7.2				8.7	3.1	3.1	4.0	2.7	3.6	3.6	3.7	3.6	

	PBS mg/kg 1	PBS µg/L 1	PBS mg/kg 2	PBS µg/L 2	RB 1 (RB01)	RB 2 (RB02)	RB 3 (FB01)	RB 4 (FB02)	MAX µg/L
Aluminum	0.946	18.9	0.598	12.0	44.6	70.3	47.3	35.6	102
Antimony	0.217	4.3							5.5
Arsenic			-.175	-3.5					-3.5
Barium	0.299	6.0	0.285	5.7	2.5	3.6	2.9		8.2
Beryllium	0.019	0.38	0.007	0.14					1.1
Cadmium	0.012	0.24				0.11	0.13		0.9
Calcium	3.94	78.8	3.65	73	93.9	95.8	49.2	65.5	176
Chromium	0.047	0.94	0.042	0.84	0.8	0.54	0.47		1.2
Cobalt					0.27	0.45	0.19		1.8
Copper	1.87	37.4	0.416	8.3					37.4
Iron	1.37	27.4	10.78	216	70.4	141	54.5		236
Lead	0.047	0.94	0.07	1.4	1.4	1.4	1.4	1.2	1.8
Magnesium			1.24	24.8	109	40.6	42.8		109
Manganese	0.94	18.8	0.663	13.3	5.1	5.5	3.6	2.7	18.8
Mercury									
Nickel	0.068	1.4	0.033	0.66					1.4
Potassium									
Selenium	0.236	4.7			1.1	1.6	1.3	5.1	6.9
Silver			-.021	-.42					19.8
Sodium	11.62	232			885		178		885
Thallium	0.149	3.0			1.3			1.4	3.9
Vanadium			0.026	0.52	0.52	0.59			2.0
Zinc	0.893	17.9	1.17	23.4	7.3	9.4	6.7	5.3	23.4

\ - Delete |-| ≤ 2xMDL

ICP PB Conversion: $\frac{mg}{Kg} \times \frac{1g}{0.050L} \times = \mu g/L$

$\frac{mg}{Kg} \times 20 = \mu g/L$

Seal.

BLANK WORKSHEET

	ICB				CCB										PB			TB	BB	RB		MAX	AL
	1	2	3	4	10 ~~1~~	11 ~~2~~	12 ~~3~~	4	5	6	7	8	9	10	1	2	3	1	1	1	2		
Aluminum						33.1	85.9																
Antimony					3.3	3.5	2.7																
Arsenic							~~-1.7~~																
Barium					2.7		3.0																
Beryllium							0.2																
Cadmium						0.2	0.2																
Calcium							47	89.3		130.9	89.4	76.8											
Chromium							0.5																
Cobalt					0.4	0.2	0.4																
Copper																							
Iron					-41.4	-51.4	-40.4																
Lead					0.9	0.6																	
Magnesium						38.8	101																
Manganese																							
Mercury																							
Nickel							1.0																
Potassium																							
Selenium					2.6	3.9	2.2																
Silver																							
Sodium																							
Thallium					1.6	1.4	1.5																
Vanadium					0.8		1.0																
Zinc					2.8	3.0	3.3																

REGION I
Data Review Worksheets

IV B. BLANK ANALYSIS RESULTS (Section 4)

4. Blank Actions

The Action Levels for any analyte is equal to five times the highest concentration of that element's contamination in any blank. The action level for samples which have been concentrated or diluted should be multiplied by the concentration/dilution factor. No positive sample result should be reported unless the concentration of the analyte in the sample exceeds the Action Level (AL). Specific actions are as follows:

1. When the concentration is greater than the IDL, but less than the Action Level, report the sample concentration detected with a U.
2. When the sample concentration is greater than the Action Level, report the sample concentration unqualified.

*Neg results ⇒ J+ < AL
UJ - ND's

MATRIX: Sediment

ELEMENT	MAX. CONC./ UNITS ug/L	AL ug/L	AL/ UNITS mg/kg (wet-weight)	
Al	102	510	25.5	> AL
Sb	5.5	27.5	1.4	> AL
*As	-3.5	17.5	0.88	J+ < AL UJ - ND
Ba	8.2	41.0	2.1	> AL
Be	1.1	5.5	0.28	
Cd	0.9	4.5	0.23	> AL
Ca	176	880	44	> AL
Cr	1.2	6.0	0.30	> AL
Co	1.8	9.0	0.45	> AL
Cu	37.4	187	9.4	

MATRIX: _____

ELEMENT	MAX. CONC./ UNITS ug/L	AL ug/L	AL/ UNITS mg/kg (wet-weight)	
Fe	236	1180	59	> AL
Pb	1.8	9.0	0.45	> AL
Mg	109	545	27.3	> AL
Mn	18.8	94	4.7	> AL
Ni	1.4	70	0.35	> AL
Se	6.9	34.5	1.7	- ND
Ag	19.8	99	5.0	
Na	885	4425	221	> AL
Tl	3.9	19.5	0.98	- ND
V	2.0	10.0	0.5	> AL
Zn	23.4	117	5.9	> AL

NOTE: Blanks analyzed during a soil case must be converted to mg/kg in order to compare them with the sample results.

$$\text{Conc. in ug/L} \times \frac{\text{Volume diluted to (200ml)}}{\text{Weight digested (1gram)}} \times \frac{1L}{1000ml} \times \frac{1000gm}{1kg} \times \frac{1mg}{1000ug} = mg/kg$$

Multiplying this result by 5 to arrive at the action level gives a final result in mg/kg which can then be compared to sample results.

ICP Conversion: $\mu g/L \times \frac{0.050\,L}{1\,g} = mg/kg$

(÷20)

All sediment blank actions are due to lab. contamination.

REGION I
Data Review Worksheets

V A. ICP INTERFERENCE CHECK SAMPLE (Sections 1 & 2)

1. Recovery Criteria

List any elements in the ICS AB solution which did not meet the criteria for %R.

DATE	ELEMENT	%R	ACTION	SAMPLES AFFECTED
	All met criteria			

ACTIONS:

If an element does not meet the %R criteria , follow the actions stated below:

	PERCENT RECOVERY		
	<50%	50-79%	>120%
Positive Sample Results	R	J	J
Non-detected Sample Results	R	UJ	A

2. Frequency Requirements

Were Interference QC samples run at the beginning and end of each sample analysis run or a minimum of twice per 8 hour working shift, whichever is more frequent? Yes or No

If no,

The data may be affected. Use professional judgement to determine the severity of the effect and qualify the data accordingly. Discuss any actions below and list the samples affected.

REGION I
Data Review Worksheets

V B. ICP INTERFERENCE CHECK SAMPLE (Section 3)

3. Report the concentration of any elements detected in the ICS A solution > 2xIDL that should not be present.

ELEMENT/(2xMDL)	CONC. DETECTED IN THE ICS ug/l					CONC. OF INTERFERENTS IN THE ICS ug/l			
						AL	CA	FE	MG
Sb (2.4)	12	6							
As (3.2)	6								
Ba (4.2)	-16	-19	-19	V (.94) 5	5 4				
Cr (0.76)	-7	-7	-7	Zn (4.6)	-5				
Co (0.30)	-5	-6	-6			500000	500000	200000	500000
Cu (12.6)	-15	-19	-19 -10 -13						
Pb (6.92)	2	2	-2						
Mn (3.6)	26	27	23	Na/(260)	290	250000	250000	100000	250000 50%
Se (1.96)	10	-7	-2						
Ag (1.82)	7	-9	-8	K/(320)	581				
Tl (2.4)	14	7	12						

Estimate the concentration produced by the interfering element in all affected samples. See guidelines for examples. List the samples affected by interferences below:

SAMPLE AFFECTED	ELEMENT AFFECTED	SAMPLE CONC. (ug/L)	SAMPLE INTERFERENT CONC. AL	CA	FE	MG	ESTIMATED INTERF. (ug/L)

ACTIONS:

1. In general, the sample data can be accepted without qualification if the sample concentrations of Al, Ca, Fe, and Mg are less than 50% of their respective levels in the ICS solution.

2. Estimate (J) positive results for affected elements for samples with levels of interferents 50% or more of that in the ICS solution.

3. Reject (R) positive results if the ~~reported concentration is due entirely to the interfering element.~~ estimated interference is > 80% of the sample concentration.

4. Estimate (UJ) non-detected results for which false negatives are suspect.

Give explanations for any actions taken below:

ICP Interference Worksheet - Fe

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C-	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	411	52.8	Fe	200000	822296	49.3	0.5	42.2	Reject
Arsenic	6		35.8		200000	822296	24.7	0.4	28.7	J
Barium	-19		200		200000	822296	-78.1	2.0	159.9	J
Chromiur	-7		188.6		200000	822296	-28.8	1.9	150.9	J
Cobalt	-6		66.0		200000	822296	-24.7	0.7	52.8	J
Copper	-19		254.6		200000	822296	-78.1	2.5	203.7	J
Lead	2		777		200000	822296	8.2	7.8	621.6	J
Mangane	27		4602		200000	822296	111.0	46.0	3681.5	J
Potassiur	581		9864		200000	822296	2388.8	98.6	7891.0	J
Selenium	10		ND		200000	822296	41.1	#VALUE!	#VALUE!	A-ND
Silver	-9		75.4		200000	822296	-37.0	0.8	60.4	J
Sodium	290		53940		200000	822296	1192.3	539.4	43151.7	J
Thallium	14		ND		200000	822296	57.6	#VALUE!	#VALUE!	A-ND
Vanadiun	5		309		200000	822296	20.6	3.1	247.4	J
Zinc	-5		1051		200000	822296	-20.6	10.5	840.4	J
Antimony	12	413	42.2	Fe	200000	712678	42.8	0.4	33.8	Reject
Arsenic	6		36.7		200000	712678	21.4	0.4	29.4	J
Barium	-19		119		200000	712678	-67.7	1.2	95.5	J
Chromiur	-7		158.0		200000	712678	-24.9	1.6	126.4	J
Cobalt	-6		93.7		200000	712678	-21.4	0.9	74.9	J
Copper	-19		304.9		200000	712678	-67.7	3.0	243.9	J
Lead	2		1389		200000	712678	7.1	13.9	1110.9	Accept
Mangane	27		4757		200000	712678	96.2	47.6	3805.8	J
Potassiur	581		5970		200000	712678	2070.3	59.7	4775.7	J
Selenium	10		ND		200000	712678	35.6	#VALUE!	#VALUE!	A-ND
Silver	-9		84.5		200000	712678	-32.1	0.8	67.6	J
Sodium	290		54553		200000	712678	1033.4	545.5	43642.4	J
Thallium	14		ND		200000	712678	49.9	#VALUE!	#VALUE!	A-ND
Vanadiun	5		298		200000	712678	17.8	3.0	238.0	J
Zinc	-5		1615		200000	712678	-17.8	16.1	1291.6	J
Antimony	12	414	89.5	Fe	200000	1090198	65.4	0.9	71.6	J
Arsenic	6		26.9		200000	1090198	32.7	0.3	21.5	Reject
Barium	-19		1547		200000	1090198	-103.6	15.5	1237.5	J
Chromiur	-7		208.2		200000	1090198	-38.2	2.1	166.6	J
Cobalt	-6		129.8		200000	1090198	-32.7	1.3	103.9	J
Copper	-19		2462.5		200000	1090198	-103.6	24.6	1970.0	J
Lead	2		5350		200000	1090198	10.9	53.5	4280.2	Accept
Mangane	27		7723		200000	1090198	147.2	77.2	6178.5	J
Potassiur	581		6873		200000	1090198	3167.0	68.7	5498.0	J
Selenium	10		ND		200000	1090198	54.5	#VALUE!	#VALUE!	A-ND
Silver	-9		129.8		200000	1090198	-49.1	1.3	103.9	J
Sodium	290		49249		200000	1090198	1580.8	492.5	39399.4	J
Thallium	14		ND		200000	1090198	76.3	#VALUE!	#VALUE!	A-ND
Vanadiun	5		262		200000	1090198	27.3	2.6	209.5	J
Zinc	-5		2183		200000	1090198	-27.3	21.8	1746.1	J

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C-	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	417	38.2	Fe	200000	277211	16.6	0.4	30.6	J
Arsenic	6		19.1		200000	277211	8.3	0.2	15.3	J
Barium	-19		174		200000	277211	-26.3	1.7	139.2	J
Chromiur	-7		162.5		200000	277211	-9.7	1.6	130.0	J
Cobalt	-6		68.8		200000	277211	-8.3	0.7	55.1	J
Copper	-19		688.2		200000	277211	-26.3	6.9	550.6	J
Lead	2		941		200000	277211	2.8	9.4	752.5	Accept
Mangane	27		3040		200000	277211	37.4	30.4	2431.8	J
Potassiur	581		8699		200000	277211	805.3	87.0	6959.0	J
Selenium	10		ND		200000	277211	13.9	#VALUE!	#VALUE!	A-ND
Silver	-9		70.7		200000	277211	-12.5	0.7	56.6	J
Sodium	290		54677		200000	277211	402.0	546.8	43742.0	Accept
Thallium	14		ND		200000	277211	19.4	#VALUE!	#VALUE!	A-ND
Vanadiun	5		275		200000	277211	6.9	2.8	220.2	J
Zinc	-5		1470		200000	277211	-6.9	14.7	1176.1	Accept
Antimony	12	424	127.1	Fe	200000	1701011	102.1	1.3	101.7	Reject
Arsenic	6		30.8		200000	1701011	51.0	0.3	24.7	Reject
Barium	-19		160		200000	1701011	-161.6	1.6	127.9	J
Chromiur	-7		524.0		200000	1701011	-59.5	5.2	419.2	J
Cobalt	-6		117.5		200000	1701011	-51.0	1.2	94.0	J
Copper	-19		1390.9		200000	1701011	-161.6	13.9	1112.7	J
Lead	2		2042		200000	1701011	17.0	20.4	1633.6	Accept
Mangane	27		7494		200000	1701011	229.6	74.9	5995.0	J
Potassiur	581		9112		200000	1701011	4941.4	91.1	7289.5	J
Selenium	10		ND		200000	1701011	85.1	#VALUE!	#VALUE!	A-ND
Silver	-9		183.0		200000	1701011	-76.5	1.8	146.4	J
Sodium	290		51050		200000	1701011	2466.5	510.5	40839.7	J
Thallium	14		ND		200000	1701011	119.1	#VALUE!	#VALUE!	A-ND
Vanadiun	5		356		200000	1701011	42.5	3.6	285.1	J
Zinc	-5		2447		200000	1701011	-42.5	24.5	1957.2	J
Antimony	12	432	39.2	Fe	200000	298368	17.9	0.4	31.3	J
Arsenic	6		35.4		200000	298368	9.0	0.4	28.3	J
Barium	-19		121		200000	298368	-28.3	1.2	97.0	J
Chromiur	-7		141.7		200000	298368	-10.4	1.4	113.4	J
Cobalt	-6		85.8		200000	298368	-9.0	0.9	68.6	J
Copper	-19		175.3		200000	298368	-28.3	1.8	140.2	J
Lead	2		729		200000	298368	3.0	7.3	583.3	Accept
Mangane	27		4904		200000	298368	40.3	49.0	3923.5	Accept
Potassiur	581		6601		200000	298368	866.8	66.0	5281.1	J
Selenium	10		ND		200000	298368	14.9	#VALUE!	#VALUE!	A-ND
Silver	-9		82.1		200000	298368	-13.4	0.8	65.6	J
Sodium	290		49604		200000	298368	432.6	496.0	39682.9	Accept
Thallium	14		ND		200000	298368	20.9	#VALUE!	#VALUE!	A-ND
Vanadiun	5		265		200000	298368	7.5	2.6	211.8	J
Zinc	-5		936		200000	298368	-7.5	9.4	748.9	Accept

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C-	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	439	48.2	Fe	200000	894854	53.7	0.5	38.5	Reject
Arsenic	6		76.2		200000	894854	26.8	0.8	61.0	J
Barium	-19		175		200000	894854	-85.0	1.7	139.6	J
Chromiur	-7		192.6		200000	894854	-31.3	1.9	154.1	J
Cobalt	-6		138.4		200000	894854	-26.8	1.4	110.8	J
Copper	-19		441.4		200000	894854	-85.0	4.4	353.1	J
Lead	2		865		200000	894854	8.9	8.6	691.8	J
Mangane	27		7945		200000	894854	120.8	79.5	6356.3	J
Potassiur	581		8106		200000	894854	2599.6	81.1	6484.7	J
Selenium	10		ND		200000	894854	44.7	#VALUE!	#VALUE!	A-ND
Silver	-9		132.4		200000	894854	-40.3	1.3	105.9	J
Sodium	290		34911		200000	894854	1297.5	349.1	27929.1	J
Thallium	14		ND		200000	894854	62.6	#VALUE!	#VALUE!	A-ND
Vanadiun	5		377		200000	894854	22.4	3.8	301.8	J
Zinc	-5		1709		200000	894854	-22.4	17.1	1367.6	J
Antimony	12	442	51.3	Fe	200000	990976	59.5	0.5	41.1	Reject
Arsenic	6		17.7		200000	990976	29.7	0.2	14.2	Reject
Barium	-19		370		200000	990976	-94.1	3.7	295.9	J
Chromiur	-7		182.3		200000	990976	-34.7	1.8	145.8	J
Cobalt	-6		81.4		200000	990976	-29.7	0.8	65.1	J
Copper	-19		311.4		200000	990976	-94.1	3.1	249.2	J
Lead	2		1032		200000	990976	9.9	10.3	825.3	Accept
Mangane	27		3522		200000	990976	133.8	35.2	2817.2	J
Potassiur	581		7202		200000	990976	2878.8	72.0	5761.8	J
Selenium	10		ND		200000	990976	49.5	#VALUE!	#VALUE!	A-ND
Silver	-9		120.3		200000	990976	-44.6	1.2	96.3	J
Sodium	290		46894		200000	990976	1436.9	468.9	37515.5	J
Thallium	14		ND		200000	990976	69.4	#VALUE!	#VALUE!	A-ND
Vanadiun	5		285		200000	990976	24.8	2.8	227.9	J
Zinc	-5		1379		200000	990976	-24.8	13.8	1102.8	J
Antimony	12	445	36.4	Fe	200000	273946	16.4	0.4	29.1	J
Arsenic	6		68.5		200000	273946	8.2	0.7	54.8	J
Barium	-19		304		200000	273946	-26.0	3.0	243.1	J
Chromiur	-7		250.4		200000	273946	-9.6	2.5	200.3	J
Cobalt	-6		77.0		200000	273946	-8.2	0.8	61.6	J
Copper	-19		458.0		200000	273946	-26.0	4.6	366.4	J
Lead	2		1066		200000	273946	2.7	10.7	852.7	Accept
Mangane	27		3189		200000	273946	37.0	31.9	2551.1	J
Potassiur	581		12970		200000	273946	795.8	129.7	10375.7	J
Selenium	10		ND		200000	273946	13.7	#VALUE!	#VALUE!	A-ND
Silver	-9		74.9		200000	273946	-12.3	0.7	59.9	J
Sodium	290		61424		200000	273946	397.2	614.2	49139.0	Accept
Thallium	14		ND		200000	273946	19.2	#VALUE!	#VALUE!	A-ND
Vanadiun	5		569		200000	273946	6.8	5.7	455.4	J
Zinc	-5		1997		200000	273946	-6.8	20.0	1597.4	Accept

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C-	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	DUP01	95.8	Fe	200000	1577266	94.6	1.0	76.7	Reject
Arsenic	6		27.6		200000	1577266	47.3	0.3	22.1	Reject
Barium	-19		138		200000	1577266	-149.8	1.4	110.6	J
Chromiur	-7		375.9		200000	1577266	-55.2	3.8	300.7	J
Cobalt	-6		121.6		200000	1577266	-47.3	1.2	97.3	J
Copper	-19		893.7		200000	1577266	-149.8	8.9	714.9	J
Lead	2		1738		200000	1577266	15.8	17.4	1390.1	Accept
Mangane	27		7886		200000	1577266	212.9	78.9	6309.1	J
Potassiur	581		7223		200000	1577266	4582.0	72.2	5778.4	J
Selenium	10		ND		200000	1577266	78.9	#VALUE!	#VALUE!	A-ND
Silver	-9		167.7		200000	1577266	-71.0	1.7	134.1	J
Sodium	290		35009		200000	1577266	2287.0	350.1	28007.5	J
Thallium	14		ND		200000	1577266	110.4	#VALUE!	#VALUE!	A-ND
Vanadiun	5		324		200000	1577266	39.4	3.2	259.4	J
Zinc	-5		3003		200000	1577266	-39.4	30.0	2402.8	J
Antimony	12	DUP02	43.8	Fe	200000	247520	14.9	0.4	35.0	J
Arsenic	6		15.6		200000	247520	7.4	0.2	12.5	J
Barium	-19		288		200000	247520	-23.5	2.9	230.0	J
Chromiur	-7		152.3		200000	247520	-8.7	1.5	121.9	J
Cobalt	-6		68.5		200000	247520	-7.4	0.7	54.8	J
Copper	-19		306.5		200000	247520	-23.5	3.1	245.2	J
Lead	2		750		200000	247520	2.5	7.5	600.1	Accept
Mangane	27		2932		200000	247520	33.4	29.3	2345.7	J
Potassiur	581		8606		200000	247520	719.0	86.1	6884.9	J
Selenium	10		ND		200000	247520	12.4	#VALUE!	#VALUE!	A-ND
Silver	-9		40.0		200000	247520	-11.1	0.4	32.0	J
Sodium	290		60166		200000	247520	358.9	601.7	48133.1	Accept
Thallium	14		ND		200000	247520	17.3	#VALUE!	#VALUE!	A-ND
Vanadiun	5		249		200000	247520	6.2	2.5	199.5	J
Zinc	-5		1120		200000	247520	-6.2	11.2	895.6	Accept
Antimony	12	OFF1	89.9	Fe	200000	1315715	78.9	0.9	71.9	Reject
Arsenic	6		14.9		200000	1315715	39.5	0.1	11.9	Reject
Barium	-19		164		200000	1315715	-125.0	1.6	131.4	J
Chromiur	-7		643.2		200000	1315715	-46.1	6.4	514.6	J
Cobalt	-6		80.2		200000	1315715	-39.5	0.8	64.1	J
Copper	-19		477.0		200000	1315715	-125.0	4.8	381.6	J
Lead	2		1275		200000	1315715	13.2	12.7	1019.7	J
Mangane	27		7566		200000	1315715	177.6	75.7	6052.7	J
Potassiur	581		10713		200000	1315715	3822.2	107.1	8570.7	J
Selenium	10		ND		200000	1315715	65.8	#VALUE!	#VALUE!	A-ND
Silver	-9		123.2		200000	1315715	-59.2	1.2	98.5	J
Sodium	290		47702		200000	1315715	1907.8	477.0	38161.6	J
Thallium	14		ND		200000	1315715	92.1	#VALUE!	#VALUE!	A-ND
Vanadiun	5		354		200000	1315715	32.9	3.5	283.1	J
Zinc	-5		6960		200000	1315715	-32.9	69.6	5567.8	Accept

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

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ICP Interference Worksheet

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C-	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	OFF3	46.2	Fe	200000	700918	42.1	0.5	37.0	Reject
Arsenic	6		27.0		200000	700918	21.0	0.3	21.6	J
Barium	-19		412		200000	700918	-66.6	4.1	329.7	J
Chromiur	-7		163.7		200000	700918	-24.5	1.6	130.9	J
Cobalt	-6		142.5		200000	700918	-21.0	1.4	114.0	J
Copper	-19		369.7		200000	700918	-66.6	3.7	295.8	J
Lead	2		1315		200000	700918	7.0	13.2	1052.1	Accept
Mangane	27		7125		200000	700918	94.6	71.2	5699.8	J
Potassiur	581		8030		200000	700918	2036.2	80.3	6423.8	J
Selenium	10		ND		200000	700918	35.0	#VALUE!	#VALUE!	A-ND
Silver	-9		90.5		200000	700918	-31.5	0.9	72.4	J
Sodium	290		44674		200000	700918	1016.3	446.7	35739.1	J
Thallium	14		ND		200000	700918	49.1	#VALUE!	#VALUE!	A-ND
Vanadiun	5		322		200000	700918	17.5	3.2	257.3	J
Zinc	-5		1608		200000	700918	-17.5	16.1	1286.3	J
Antimony	12	OFF4	46.3	Fe	200000	279774	16.8	0.5	37.1	J
Arsenic	6		21.4		200000	279774	8.4	0.2	17.1	J
Barium	-19		180		200000	279774	-26.6	1.8	144.0	J
Chromiur	-7		121.2		200000	279774	-9.8	1.2	96.9	J
Cobalt	-6		67.7		200000	279774	-8.4	0.7	54.2	J
Copper	-19		258.4		200000	279774	-26.6	2.6	206.7	J
Lead	2		1032		200000	279774	2.8	10.3	825.4	Accept
Mangane	27		4740		200000	279774	37.8	47.4	3792.1	Accept
Potassiur	581		6861		200000	279774	812.7	68.6	5488.6	J
Selenium	10		ND		200000	279774	14.0	#VALUE!	#VALUE!	A-ND
Silver	-9		57.0		200000	279774	-12.6	0.6	45.6	J
Sodium	290		45085		200000	279774	405.7	450.8	36067.7	Accept
Thallium	14		ND		200000	279774	19.6	#VALUE!	#VALUE!	A-ND
Vanadiun	5		251		200000	279774	7.0	2.5	201.0	J
Zinc	-5		1025		200000	279774	-7.0	10.2	819.7	Accept
Antimony	12	OFF6	47.0	Fe	200000	235144	14.1	0.5	37.6	J
Arsenic	6		39.8		200000	235144	7.1	0.4	31.8	J
Barium	-19		345		200000	235144	-22.3	3.5	276.4	J
Chromiur	-7		202.6		200000	235144	-8.2	2.0	162.1	J
Cobalt	-6		68.7		200000	235144	-7.1	0.7	55.0	J
Copper	-19		298.5		200000	235144	-22.3	3.0	238.8	J
Lead	2		892		200000	235144	2.4	8.9	713.4	Accept
Mangane	27		3220		200000	235144	31.7	32.2	2575.7	Accept
Potassiur	581		12752		200000	235144	683.1	127.5	10201.6	J
Selenium	10		ND		200000	235144	11.8	#VALUE!	#VALUE!	A-ND
Silver	-9		10.7		200000	235144	-10.6	0.1	8.5	J
Sodium	290		84833		200000	235144	341.0	848.3	67866.2	Accept
Thallium	14		ND		200000	235144	16.5	#VALUE!	#VALUE!	A-ND
Vanadiun	5		407		200000	235144	5.9	4.1	325.6	J
Zinc	-5		1424		200000	235144	-5.9	14.2	1138.8	Accept

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	OFF7	208.7	Fe	200000	3035520	182.1	2.1	167.0	Reject
Arsenic	6		ND		200000	3035520	91.1	#VALUE!	#VALUE!	A-ND
Barium	-19		173		200000	3035520	-288.4	1.7	138.3	J
Chromiur	-7		666.1		200000	3035520	-106.2	6.7	532.9	J
Cobalt	-6		147.6		200000	3035520	-91.1	1.5	118.0	J
Copper	-19		1313.3		200000	3035520	-288.4	13.1	1050.6	J
Lead	2		1969		200000	3035520	30.4	19.7	1575.1	J
Mangane	27		11362		200000	3035520	409.8	113.6	9089.7	J
Potassiur	581		7336		200000	3035520	8818.2	73.4	5868.7	Reject
Selenium	10		ND		200000	3035520	151.8	#VALUE!	#VALUE!	A-ND
Silver	-9		217.1		200000	3035520	-136.6	2.2	173.7	J
Sodium	290		38576		200000	3035520	4401.5	385.8	30861.1	J
Thallium	14		ND		200000	3035520	212.5	#VALUE!	#VALUE!	A-ND
Vanadiun	5		388		200000	3035520	75.9	3.9	310.3	J
Zinc	-5		1998		200000	3035520	-75.9	20.0	1598.7	J
Antimony	12	OFF2	65.1	Fe	200000	1086483	65.2	0.7	52.1	Reject
Arsenic	6		125.7		200000	1086483	32.6	1.3	100.6	J
Barium	-19		240		200000	1086483	-103.2	2.4	192.2	J
Chromiur	-7		229.0		200000	1086483	-38.0	2.3	183.2	J
Cobalt	-6		175.1		200000	1086483	-32.6	1.8	140.1	J
Copper	-19		280.6		200000	1086483	-103.2	2.8	224.5	J
Lead	2		3165		200000	1086483	10.9	31.7	2532.1	Accept
Mangane	27		8822		200000	1086483	146.7	88.2	7057.7	J
Potassiur	581		9338		200000	1086483	3156.2	93.4	7470.7	J
Selenium	10		ND		200000	1086483	54.3	#VALUE!	#VALUE!	A-ND
Silver	-9		65.1		200000	1086483	-48.9	0.7	52.1	J
Sodium	290		36590		200000	1086483	1575.4	365.9	29272.2	J
Thallium	14		ND		200000	1086483	76.1	#VALUE!	#VALUE!	A-ND
Vanadiun	5		343		200000	1086483	27.2	3.4	274.8	J
Zinc	-5		1538		200000	1086483	-27.2	15.4	1230.2	J
Antimony	12	SD5	54.2	Fe	200000	756350	45.4	0.5	43.3	Reject
Arsenic	6		14.3		200000	756350	22.7	0.1	11.5	Reject
Barium	-19		362		200000	756350	-71.9	3.6	289.4	J
Chromiur	-7		216.7		200000	756350	-26.5	2.2	173.3	J
Cobalt	-6		83.2		200000	756350	-22.7	0.8	66.5	J
Copper	-19		988.5		200000	756350	-71.9	9.9	790.8	J
Lead	2		1201		200000	756350	7.6	12.0	961.0	Accept
Mangane	27		3675		200000	756350	102.1	36.8	2940.3	J
Potassiur	581		8705		200000	756350	2197.2	87.0	6963.8	J
Selenium	10		ND		200000	756350	37.8	#VALUE!	#VALUE!	A-ND
Silver	-9		81.2		200000	756350	-34.0	0.8	65.0	J
Sodium	290		48940		200000	756350	1096.7	489.4	39152.3	J
Thallium	14		ND		200000	756350	52.9	#VALUE!	#VALUE!	A-ND
Vanadiun	5		308		200000	756350	18.9	3.1	246.1	J
Zinc	-5		1679		200000	756350	-18.9	16.8	1343.2	J

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet - Ca

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C-	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	411	52.8	Ca	250000	839270	40.3	0.5	42.2	J
Arsenic	6		35.8		250000	839270	20.1	0.4	28.7	J
Barium	-19		200		250000	839270	-63.8	2.0	159.9	J
Chromiur	-7		188.6		250000	839270	-23.5	1.9	150.9	J
Cobalt	-6		66.0		250000	839270	-20.1	0.7	52.8	J
Copper	-19		254.6		250000	839270	-63.8	2.5	203.7	J
Lead	2		777		250000	839270	6.7	7.8	621.6	Accept
Mangane	27		4602		250000	839270	90.6	46.0	3681.5	J
Potassiur	581		9864		250000	839270	1950.5	98.6	7891.0	J
Selenium	10		ND		250000	839270	33.6	#VALUE!	#VALUE!	A-ND
Silver	-9		75.4		250000	839270	-30.2	0.8	60.4	J
Sodium	290		53940		250000	839270	973.6	539.4	43151.7	J
Thallium	14		ND		250000	839270	47.0	#VALUE!	#VALUE!	A-ND
Vanadiun	5		309		250000	839270	16.8	3.1	247.4	J
Zinc	-5		1051		250000	839270	-16.8	10.5	840.4	J
Antimony	12	413	42.2	Ca	250000	258989	12.4	0.4	33.8	J
Arsenic	6		36.7		250000	258989	6.2	0.4	29.4	J
Barium	-19		119		250000	258989	-19.7	1.2	95.5	J
Chromiur	-7		158.0		250000	258989	-7.3	1.6	126.4	J
Cobalt	-6		93.7		250000	258989	-6.2	0.9	74.9	J
Copper	-19		304.9		250000	258989	-19.7	3.0	243.9	J
Lead	2		1389		250000	258989	2.1	13.9	1110.9	Accept
Mangane	27		4757		250000	258989	28.0	47.6	3805.8	Accept
Potassiur	581		5970		250000	258989	601.9	59.7	4775.7	J
Selenium	10		ND		250000	258989	10.4	#VALUE!	#VALUE!	A-ND
Silver	-9		84.5		250000	258989	-9.3	0.8	67.6	J
Sodium	290		54553		250000	258989	300.4	545.5	43642.4	Accept
Thallium	14		ND		250000	258989	14.5	#VALUE!	#VALUE!	A-ND
Vanadiun	5		298		250000	258989	5.2	3.0	238.0	J
Zinc	-5		1615		250000	258989	-5.2	16.1	1291.6	Accept
Antimony	12	414	89.5	Ca	250000	911110	43.7	0.9	71.6	J
Arsenic	6		26.9		250000	911110	21.9	0.3	21.5	Reject
Barium	-19		1547		250000	911110	-69.2	15.5	1237.5	J
Chromiur	-7		208.2		250000	911110	-25.5	2.1	166.6	J
Cobalt	-6		129.8		250000	911110	-21.9	1.3	103.9	J
Copper	-19		2462.5		250000	911110	-69.2	24.6	1970.0	J
Lead	2		5350		250000	911110	7.3	53.5	4280.2	Accept
Mangane	27		7723		250000	911110	98.4	77.2	6178.5	J
Potassiur	581		6873		250000	911110	2117.4	68.7	5498.0	J
Selenium	10		ND		250000	911110	36.4	#VALUE!	#VALUE!	A-ND
Silver	-9		129.8		250000	911110	-32.8	1.3	103.9	J
Sodium	290		49249		250000	911110	1056.9	492.5	39399.4	J
Thallium	14		ND		250000	911110	51.0	#VALUE!	#VALUE!	A-ND
Vanadiun	5		262		250000	911110	18.2	2.6	209.5	J
Zinc	-5		2183		250000	911110	-18.2	21.8	1746.1	Accept

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C-	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	417	38.2	Ca	250000	487509	23.4	0.4	30.6	J
Arsenic	6		19.1		250000	487509	11.7	0.2	15.3	J
Barium	-19		174		250000	487509	-37.1	1.7	139.2	J
Chromiur	-7		162.5		250000	487509	-13.7	1.6	130.0	J
Cobalt	-6		68.8		250000	487509	-11.7	0.7	55.1	J
Copper	-19		688.2		250000	487509	-37.1	6.9	550.6	J
Lead	2		941		250000	487509	3.9	9.4	752.5	Accept
Mangane	27		3040		250000	487509	52.7	30.4	2431.8	J
Potassiur	581		8699		250000	487509	1133.0	87.0	6959.0	J
Selenium	10		ND		250000	487509	19.5	#VALUE!	#VALUE!	A-ND
Silver	-9		70.7		250000	487509	-17.6	0.7	56.6	J
Sodium	290		54677		250000	487509	565.5	546.8	43742.0	J
Thallium	14		ND		250000	487509	27.3	#VALUE!	#VALUE!	A-ND
Vanadiun	5		275		250000	487509	9.8	2.8	220.2	J
Zinc	-5		1470		250000	487509	-9.8	14.7	1176.1	Accept
Antimony	12	442	51.3	Ca	250000	375155	18.0	0.5	41.1	J
Arsenic	6		17.7		250000	375155	9.0	0.2	14.2	J
Barium	-19		370		250000	375155	-28.5	3.7	295.9	J
Chromiur	-7		182.3		250000	375155	-10.5	1.8	145.8	J
Cobalt	-6		81.4		250000	375155	-9.0	0.8	65.1	J
Copper	-19		311.4		250000	375155	-28.5	3.1	249.2	J
Lead	2		1032		250000	375155	3.0	10.3	825.3	Accept
Mangane	27		3522		250000	375155	40.5	35.2	2817.2	J
Potassiur	581		7202		250000	375155	871.9	72.0	5761.8	J
Selenium	10		ND		250000	375155	15.0	#VALUE!	#VALUE!	A-ND
Silver	-9		120.3		250000	375155	-13.5	1.2	96.3	J
Sodium	290		46894		250000	375155	435.2	468.9	37515.5	Accept
Thallium	14		ND		250000	375155	21.0	#VALUE!	#VALUE!	A-ND
Vanadiun	5		285		250000	375155	7.5	2.8	227.9	J
Zinc	-5		1379		250000	375155	-7.5	13.8	1102.8	Accept
Antimony	12	445	36.4	Ca	250000	421619	20.2	0.4	29.1	J
Arsenic	6		68.5		250000	421619	10.1	0.7	54.8	J
Barium	-19		304		250000	421619	-32.0	3.0	243.1	J
Chromiur	-7		250.4		250000	421619	-11.8	2.5	200.3	J
Cobalt	-6		77.0		250000	421619	-10.1	0.8	61.6	J
Copper	-19		458.0		250000	421619	-32.0	4.6	366.4	J
Lead	2		1066		250000	421619	3.4	10.7	852.7	Accept
Mangane	27		3189		250000	421619	45.5	31.9	2551.1	J
Potassiur	581		12970		250000	421619	979.8	129.7	10375.7	J
Selenium	10		ND		250000	421619	16.9	#VALUE!	#VALUE!	A-ND
Silver	-9		74.9		250000	421619	-15.2	0.7	59.9	J
Sodium	290		61424		250000	421619	489.1	614.2	49139.0	Accept
Thallium	14		ND		250000	421619	23.6	#VALUE!	#VALUE!	A-ND
Vanadiun	5		569		250000	421619	8.4	5.7	455.4	J
Zinc	-5		1997		250000	421619	-8.4	20.0	1597.4	Accept

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet

Calculation of Est. ICP Interference D = A X B/C										
			Reported			B-Interf.				
	A-Max.		Sample		C-	Level in				
Affected	Conc. in		Conc.	Inter-	Intf. Lev. In	Sample	D-Est	1% Sample	80% Sample	
Element	ICS (ug/L)	Sample	(ug/L)	ferent	ICS (ug/L)	(ug/L)	Intf ug/L	Conc (ug/L)	Conc (ug/L)	Action*
Antimony	12	DUP02	43.8	Ca	250000	1296624	62.2	0.4	35.0	Reject
Arsenic	6		15.6		250000	1296624	31.1	0.2	12.5	Reject
Barium	-19		288		250000	1296624	-98.5	2.9	230.0	J
Chromiun	-7		152.3		250000	1296624	-36.3	1.5	121.9	J
Cobalt	-6		68.5		250000	1296624	-31.1	0.7	54.8	J
Copper	-19		306.5		250000	1296624	-98.5	3.1	245.2	J
Lead	2		750		250000	1296624	10.4	7.5	600.1	J
Mangane	27		2932		250000	1296624	140.0	29.3	2345.7	J
Potassiur	581		8606		250000	1296624	3013.4	86.1	6884.9	J
Selenium	10		ND		250000	1296624	51.9	#VALUE!	#VALUE!	A-ND
Silver	-9		40.0		250000	1296624	-46.7	0.4	32.0	J
Sodium	290		60166		250000	1296624	1504.1	601.7	48133.1	J
Thallium	14		ND		250000	1296624	72.6	#VALUE!	#VALUE!	A-ND
Vanadiun	5		249		250000	1296624	25.9	2.5	199.5	J
Zinc	-5		1120		250000	1296624	-25.9	11.2	895.6	J
Antimony	12	OFF1	89.9	Ca	250000	297160	14.3	0.9	71.9	J
Arsenic	6		14.9		250000	297160	7.1	0.1	11.9	J
Barium	-19		164		250000	297160	-22.6	1.6	131.4	J
Chromiun	-7		643.2		250000	297160	-8.3	6.4	514.6	J
Cobalt	-6		80.2		250000	297160	-7.1	0.8	64.1	J
Copper	-19		477.0		250000	297160	-22.6	4.8	381.6	J
Lead	2		1275		250000	297160	2.4	12.7	1019.7	Accept
Mangane	27		7566		250000	297160	32.1	75.7	6052.7	Accept
Potassiur	581		10713		250000	297160	690.6	107.1	8570.7	J
Selenium	10		ND		250000	297160	11.9	#VALUE!	#VALUE!	A-ND
Silver	-9		123.2		250000	297160	-10.7	1.2	98.5	J
Sodium	290		47702		250000	297160	344.7	477.0	38161.6	Accept
Thallium	14		ND		250000	297160	16.6	#VALUE!	#VALUE!	A-ND
Vanadiun	5		354		250000	297160	5.9	3.5	283.1	J
Zinc	-5		6960		250000	297160	-5.9	69.6	5567.8	Accept
Antimony	12	OFF4	46.3	Ca	250000	482922	23.2	0.5	37.1	J
Arsenic	6		21.4		250000	482922	11.6	0.2	17.1	J
Barium	-19		180		250000	482922	-36.7	1.8	144.0	J
Chromiun	-7		121.2		250000	482922	-13.5	1.2	96.9	J
Cobalt	-6		67.7		250000	482922	-11.6	0.7	54.2	J
Copper	-19		258.4		250000	482922	-36.7	2.6	206.7	J
Lead	2		1032		250000	482922	3.9	10.3	825.4	Accept
Mangane	27		4740		250000	482922	52.2	47.4	3792.1	J
Potassiur	581		6861		250000	482922	1122.3	68.6	5488.6	J
Selenium	10		ND		250000	482922	19.3	#VALUE!	#VALUE!	A-ND
Silver	-9		57.0		250000	482922	-17.4	0.6	45.6	J
Sodium	290		45085		250000	482922	560.2	450.8	36067.7	J
Thallium	14		ND		250000	482922	27.0	#VALUE!	#VALUE!	A-ND
Vanadiun	5		251		250000	482922	9.7	2.5	201.0	J
Zinc	-5		1025		250000	482922	-9.7	10.2	819.7	Accept

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet

Calculation of Est. ICP Interference D = A X B/C										
Affected Element	A-Max. Conc. in ICS (ug/L)	Sample	Reported Sample Conc. (ug/L)	Inter-ferent	C-Intf. Lev. In ICS (ug/L)	B-Interf. Level in Sample (ug/L)	D-Est Intf ug/L	1% Sample Conc (ug/L)	80% Sample Conc (ug/L)	Action*
Antimony	12	OFF6	47.0	Ca	250000	1584509	76.1	0.5	37.6	Reject
Arsenic	6		39.8		250000	1584509	38.0	0.4	31.8	Reject
Barium	-19		345		250000	1584509	-120.4	3.5	276.4	J
Chromiur	-7		202.6		250000	1584509	-44.4	2.0	162.1	J
Cobalt	-6		68.7		250000	1584509	-38.0	0.7	55.0	J
Copper	-19		298.5		250000	1584509	-120.4	3.0	238.8	J
Lead	2		892		250000	1584509	12.7	8.9	713.4	J
Mangane	27		3220		250000	1584509	171.1	32.2	2575.7	J
Potassiur	581		12752		250000	1584509	3682.4	127.5	10201.6	J
Selenium	10		ND		250000	1584509	63.4	#VALUE!	#VALUE!	A-ND
Silver	-9		10.7		250000	1584509	-57.0	0.1	8.5	J
Sodium	290		84833		250000	1584509	1838.0	848.3	67866.2	J
Thallium	14		ND		250000	1584509	88.7	#VALUE!	#VALUE!	A-ND
Vanadiun	5		407		250000	1584509	31.7	4.1	325.6	J
Zinc	-5		1424		250000	1584509	-31.7	14.2	1138.8	J
Antimony	12	SD5	54.2	Ca	250000	1398571	67.1	0.5	43.3	Reject
Arsenic	6		14.3		250000	1398571	33.6	0.1	11.5	Reject
Barium	-19		362		250000	1398571	-106.3	3.6	289.4	J
Chromiur	-7		216.7		250000	1398571	-39.2	2.2	173.3	J
Cobalt	-6		83.2		250000	1398571	-33.6	0.8	66.5	J
Copper	-19		988.5		250000	1398571	-106.3	9.9	790.8	J
Lead	2		1201		250000	1398571	11.2	12.0	961.0	Accept
Mangane	27		3675		250000	1398571	151.0	36.8	2940.3	J
Potassiur	581		8705		250000	1398571	3250.3	87.0	6963.8	J
Selenium	10		ND		250000	1398571	55.9	#VALUE!	#VALUE!	A-ND
Silver	-9		81.2		250000	1398571	-50.3	0.8	65.0	J
Sodium	290		48940		250000	1398571	1622.3	489.4	39152.3	J
Thallium	14		ND		250000	1398571	78.3	#VALUE!	#VALUE!	A-ND
Vanadiun	5		308		250000	1398571	28.0	3.1	246.1	J
Zinc	-5		1679		250000	1398571	-28.0	16.8	1343.2	J

*Accept (A) results if Est. Interf. < 1% sample conc.
Reject (R) positive results if positive Est. Interf. > 80% sample conc.
Note: Sample concentrations (ug/L) are calculated by data validator from reported dry-weight (mg/kg) results.

ICP Interference Worksheet Actions, Fe + Ca

Element	Fe	Ca	Fe	Ca	Fe	Ca	Fe	Ca	Fe	Fe	Fe	Fe	Ca	Fe	Ca
	411	411	413	413	414	414	417	417	424	432	439	442	442	445	445
Antimony	Reject	J	Reject	J	J	J	J	J	Reject	J	Reject	Reject	J	J	J
Arsenic	J	J	J	J	Reject	Reject	J	J	Reject	J	J	Reject	J	J	J
Barium	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
Chromiur	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
Cobalt	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
Copper	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
Lead	J	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	Accept	J	Accept	Accept	Accept	Accept
Mangane	J	J	J	Accept	J	J	J	J	J	Accept	J	J	J	J	J
Potassiur	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
~~Selenium~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~
Silver	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
Sodium	J	J	J	Accept	J	J	Accept	J	J	Accept	J	J	Accept	Accept	Accept
~~Thallium~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~
Vanadiun	J	J	J	J	J	J	J	J	J	J	J	J	J	J	J
Zinc	J	J	J	Accept	J	Accept	Accept	Accept	J	Accept	J	J	Accept	Accept	Accept

Element	Fe	Fe	Ca	Fe	Ca	Fe	Fe	Ca	Fe	Ca	Fe	Fe	Fe	Ca	
	DUP01	DUP02	DUP02	OFF1	OFF1	OFF3	OFF4	OFF4	OFF6	OFF6	OFF7	OFF2	SD5	SD5	
Antimony	Reject	J	Reject	Reject	J	Reject	J	J	J	Reject	Reject	Reject	Reject	Reject	~~J~~, R
Arsenic	Reject	J	Reject	Reject	J	J	J	J	J	Reject	A-ND	J	Reject	Reject	~~J~~, R
Barium	J	J	J	J	J	J	J	J	J	J	J	J	J	J	All J
Chromiur	J	J	J	J	J	J	J	J	J	J	J	J	J	J	
Cobalt	J	J	J	J	J	J	J	J	J	J	J	J	J	J	
Copper	J	J	J	J	J	J	J	J	J	J	J	J	J	J	
Lead	Accept	Accept	J	J	Accept	Accept	Accept	Accept	Accept	J	J	Accept	Accept	Accept	+J, A
Mangane	J	J	J	J	Accept	J	Accept	J	Accept	J	J	J	J	J	All J except 432-A
Potassiur	J	J	J	J	J	J	J	J	J	J	Reject	J	J	J	All J except OFF7-R
~~Selenium~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	—
Silver	J	J	J	J	J	J	J	J	J	J	J	J	J	J	All - J
Sodium	J	Accept	J	J	Accept	J	Accept	J	Accept	J	J	J	J	J	All +J exc. 432, 445-A
~~Thallium~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	~~A-ND~~	—
Vanadiun	J	J	J	J	J	J	J	J	J	J	J	J	J	J	All +J
Zinc	J	Accept	J	Accept	Accept	J	Accept	Accept	Accept	J	J	J	J	J	-J, A

REGION I
Data Review Worksheets

VI. MATRIX SPIKE

TR # 424

MATRIX: sediment

1. Recovery Criteria

List the percent recoveries for analytes which did not meet the required criteria.

S - amount of spike added
SSR - spikes sample result
SR - sample result

Analyte	SSR	SR	S	%R	Action
~~Antimony~~	18.7765	6.5766	23.62	51.7	J +
Copper	110.77	72.20	58.66	65.7	J+ all samples
Selenium	7.4264	ND	23.62	31.4	UJ-ND all samples
Zinc	200.57	126.78	117.84	62.6	J+ all samples

Matrix Spike Actions apply to all samples of the same matrix.

MS of Field Blank sample D1UF-FB02-01 - N/A - MS not required for QC sample

ACTIONS:

Pb - No action

1. If the sample concentration exceeds the spike concentration by a factor of 4 or more, ~~no action is taken~~.

2. If any analyte does not meet the %R criteria follow the actions stated below:

	PERCENT RECOVERY		
	<30%	30%-74%	>125%
Positive Sample Results	J	J	J
Non-detected Results	R	UJ	A

2. Frequency Criteria

A. Was a matrix spike prepared at the required frequency?

Yes or No

B. Was a post digestion spike analyzed for elements that did not meet required criteria for matrix spike recovery?

Yes or No

A separate worksheet should be used for each matrix spike pair.

REGION I
Data Review Worksheets

VII. LABORATORY DUPLICATES

List the concentrations of any analyte not meeting the criteria for duplicate precision. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evaluate precision by circling either the RPD or CRDL for each element.

% Solids 86.0 %
ICP wt: 1.129 g

Form X value (mg/kg) / 1.12 x 0.86

MATRIX: Sediment

Element	Lab *"CRDL" water ug/L	Lab *"CRDL" soil mg/kg	Sample # 424	Duplicate#	RPD	Action
Aluminum	200					
Antimony	20 ~~60~~	1.03	6.5766	4.3508	40.7	J+ off 4 - others already R
Arsenic	20 ~~10~~	1.03	1.5624	2.9343	61.0	None - Diff (1.37) < 2xCRDL (2.06)
Barium	200					
Beryllium	5	0.26				
Cadmium	5	0.26	6.6584	4.5119	38.4	J+
Calcium	800 ~~5000~~	41.5	4714.5	7638.07	47.3	J+
Chromium	20 ~~10~~	1.04	27.2372	13.2871	68.8	J+
Cobalt	50	2.6				
Copper	30 ~~25~~	1.56	72.2040	42.7389	51.3	J+
Iron	20 ~~100~~					
Lead	10 ~~3.5~~	0.52	106.2879	77.7213	31.0	None < 35
Magnesium	5000					
Manganese	50 ~~15~~					
Mercury	0.2					
Nickel	50 ~~40~~	2.6	27.5361	18.8531	37.4	J+
Potassium	1000 ~~5000~~					
Selenium	30 ~~5~~					
Silver	30 ~~10~~	1.56	9.5394	7.3035	26.6	None - Diff (2.23) < 2xCRDL (3.12)
Sodium	1000 ~~5000~~					
Thallium	20 ~~10~~					
Vanadium	50					
Zinc	50 ~~20~~	2.6	126.78	86.07	38.2	J+
Cyanide	10					

Laboratory Duplicate Actions should be applied to all other samples of the same matrix type.

ACTIONS: Lab Dup of QC sample FB02 - N/A

1. Estimate (J) positive results for elements which have an RPD >20% for waters and >35% for soils.

2. If sample results are less than 5x the CRDL, estimate (J) ~~positive~~ results for elements whose absolute difference is >CRDL, 2xCRDL for soils). If both samples are non-detected, the RPD is not ~~calculated~~ (NC). Per Guidelines, App. C, UJ NDs.

* Lab has previously said that "CRDL" is determined by lab from Method 6010B requirements for allowable lab blank contamination.

REGION I
Data Review Worksheets

VIII. FIELD DUPLICATES

List the concentrations of all analytes in the field duplicate pair. For soil duplicates, calculate the CRDL in mg/kg using the sample weight, volume and percent solids data for the sample. Indicate what criteria was used to evalute the precision by circling either the RPD or CRDL for each element.

See F.D. Worksheet

MATRIX: Sed.

Element	CRDL water ug/L	CRDL soil mg/kg	Sample # OFF7 / 442	Duplicate# DUP01 / DUP02	RPD	Action
Aluminum	200					
Antimony	60					
Arsenic	10					J+
Barium	200					
Beryllium	5					
Cadmium	5					
Calcium	5000					J+
Chromium	10					J+
Cobalt	50					
Copper	25					
Iron	100					
Lead	3 5					J+
Magnesium	5000					
Manganese	15					
Mercury	0.2					
Nickel	40					
Potassium	5000					
Selenium	5					
Silver	10					
Sodium	5000					
Thallium	10					
Vanadium	50					
Zinc	20					
Cyanide	10					J+

Field Duplicate Actions should be applied to all other samples of the same matrix type.

ACTIONS:

1. Estimate (J) positive results for elements which have an RPD >30% for waters and >50% for soils.

2. If sample results are less than 5x the CRDL, estimate (J) positive results and (UJ) nondetected results for elements whose absolute difference is >2xCRDL, (4xCRDL for soils). If both samples are non-detected, the RPD is not calculated (NC).

Field Duplicates Worksheet OFF7/DUP01
--%RPD and Absolute Difference

MATRIX:	Soil												
1st Dup. Sample #:		OFF7											
	%SOLID:	85.0		1st DUP	2nd DUP								
Wt (g), Metals:		1.24		SAMPLE #	SAMPLE #		CRITERIA:			CRITERIA:			
	Wt (g), Hg:	0.70		OFF7	DUP01		**%RPD,**			**ABS DIFF,**			
Wt (g), Cyanide:				REPORTED	REPORTED		if both			if both			
	Mitkem	Dry CRDL	5xCRDL	CONC	CONC		results>=	**%RPD**	ABS	results not	4xCRDL	**ABS DIFF**	
ANALYTE	CRDL(mg/kg)	(mg/kg)**	(mg/kg)	(mg/kg)	(mg/kg)	%RPD	5xCRDL	**>50%?***	DIFF	>=5xCRDL	(mg/kg)	**>4xCRDL?***	ACTION*
ALUMINUM	10	9.49	47.4	5910	6470	9.0	9.0	no	560		37.95		
ANTIMONY	1	0.95	4.7	9.9	5.2	62.3	62.3	yes	4.7		3.80		J+
ARSENIC	1	0.95	4.7	U	1.5	200.0			1.5	1.5	3.80	no	
BARIUM	10	9.49	47.4	8.2	7.5	8.9			0.7	0.7	37.95	no	
BERYLLIUM	0.25	0.24	1.2	0.29	0.29	0.0			0	0	0.95	no	
CADMIUM	0.25	0.24	1.2	9.2	5.4	52.1	52.1	yes	3.8		0.95		J+
CALCIUM	40	37.95	189.8	4660	6350	30.7	30.7	no	1690		151.80		
CHROMIUM	1	0.95	4.7	31.6	20.4	43.1	43.1	no	11.2		3.80		
COBALT	2.5	2.37	11.9	7	6.6	5.9			0.4	0.40	9.49	no	
COPPER	1.5	1.42	7.1	62.3	48.5	24.9	24.9	no	13.8		5.69		
IRON	10	9.49	47.4	144000	85600	50.9	50.9	yes	58400		37.95		J+
LEAD	0.5	0.47	2.4	93.4	94.3	1.0	1.0	no	0.9		1.90		
MAGNESIUM	25	23.72	118.6	3000	3550	16.8	16.8	no	550		94.88		
MANGANES	2.5	2.37	11.9	539	428	23.0	23.0	no	111		9.49		
MERCURY	0.03	0.010	0.050	0.021	0.022	4.7			0.001	0.001	0.04	no	
NICKEL	2.5	2.37	11.9	32	28.3	12.3	12.3	no	3.7		9.49		
POTASSIUM	50	47.44	237.2	348	392	11.9	11.9	no	44		189.75		
SELENIUM	1.5	1.42	7.1	U	U	NC			NC		5.69		
SILVER	1.5	1.42	7.1	10.3	9.1	12.4	12.4	no	1.2		5.69		
SODIUM	50	47.44	237.2	1830	1900	3.8	3.8	no	70		189.75		
THALLIUM	1	0.95	4.7	U	U	NC			NC		3.80		
VANADIUM	2.5	2.37	11.9	18.4	17.6	4.4	4.4	no	0.8		9.49		
ZINC	2.5	2.37	11.9	94.8	163	52.9	52.9	yes	68.2		9.49		J+
CYANIDE		0.00	0.00			#DIV/0!	#DIV/0!	#####	0		0.00		

* - "no" means criteria were met; "yes" means criteria were not met, and action is required.

** - Adjusted for actual sample weight and % solids.

Field Duplicates Worksheet 442/DUP02
--%RPD and Absolute Difference

MATRIX:	Soil												
1st Dup. Sample #:		442											
%SOLID:		79.0		1st DUP	2nd DUP								
Wt (g), Metals:		1.12		SAMPLE #	SAMPLE #		CRITERIA:			CRITERIA:			
Wt (g), Hg:		0.69		442	DUP02		%RPD,			ABS DIFF,			
Wt (g), Cyanide:				REPORTED	REPORTED		if both			if both			
	Mitkem	Dry CRDL	5xCRDL	CONC	CONC		results>=	%RPD	ABS	results not	4xCRDL	ABS DIFF	
ANALYTE	CRDL(mg/kg)	(mg/kg)**	(mg/kg)	(mg/kg)	(mg/kg)	%RPD	5xCRDL	>50%?*	DIFF	>=5xCRDL	(mg/kg)	>4xCRDL?*	ACTION*
ALUMINUM	10	11.30	56.5	6910	5620	20.6	20.6	no	1290		45.21		
ANTIMONY	1	1.13	5.7	2.9	2.3	23.1			0.6	0.6	4.52	no	
ARSENIC	1	1.13	5.7	1	0.82	19.8			0.18	0.18	4.52	no	
BARIUM	10	11.30	56.5	20.9	15.1	32.2			5.8	5.8	45.21	no	
BERYLLIUM	0.25	0.28	1.4	0.25	0.26	3.9			0.01	0.01	1.13	no	
CADMIUM	0.25	0.28	1.4	3.5	1.8	64.2	64.2	yes	1.7		1.13		J+
CALCIUM	40	45.21	226.0	21200	68100	105.0	105.0	yes	46900		180.83		J+
CHROMIUM	1	1.13	5.7	10.3	8	25.1	25.1	no	2.3		4.52		
COBALT	2.5	2.83	14.1	4.6	3.6	24.4			1	1.00	11.30	no	
COPPER	1.5	1.70	8.5	17.6	16.1	8.9	8.9	no	1.5		6.78		
IRON	10	11.30	56.5	56000	13000	124.6	124.6	yes	43000		45.21		J+
LEAD	0.5	0.57	2.8	58.3	39.4	38.7	38.7	no	18.9		2.26		
MAGNESIUM	25	28.25	141.3	3500	3920	11.3	11.3	no	420		113.02		
MANGANES	2.5	2.83	14.1	199	154	25.5	25.5	no	45		11.30		
MERCURY	0.03	0.011	0.055	0.022	0.018	20.0			0.004	0.004	0.04	no	
NICKEL	2.5	2.83	14.1	12.2	9.8	21.8			2.4	2.4	11.30	no	
POTASSIUM	50	56.51	282.5	407	452	10.5	10.5	no	45		226.04		
SELENIUM	1.5	1.70	8.5	U	U	NC			NC		6.78		
SILVER	1.5	1.70	8.5	6.8	2.1	105.6			4.7	4.7	6.78	no	
SODIUM	50	56.51	282.5	2650	3160	17.6	17.6	no	510		226.04		
THALLIUM	1	1.13	5.7	U	U	NC			NC		4.52		
VANADIUM	2.5	2.83	14.1	16.1	13.1	20.5			3	3	11.30	no	
ZINC	2.5	2.83	14.1	77.9	58.8	27.9	27.9	no	19.1		11.30		
CYANIDE		0.00	0.00			#DIV/0!	#DIV/0!	#####	0		0.00		

* - "no" means criteria were met; "yes" means criteria were not met, and action is required.

** - Adjusted for actual sample weight and % solids.

IX. LABORATORY CONTROL SAMPLE

1. Aqueous LCS

List any LCS recoveries not within the 80-120% criteria and the samples affected.

DATE	ELEMENT	%R	ACTION	SAMPLES AFFECTED
All met criteria				

2. Solid LCS

List any analytes that were not within the control windows set by the EPA for the solid LCS sample. The 80-120% criteria is not used to evaluate solid LCS results.

ELEMENT	LCS CONC.	CONTROL WINDOWS	ACTION	SAMPLES AFFECTED
All met criteria				

ACTIONS:

AQUEOUS LCS	Percent Recovery <50%	51-79%	>120%
Positive Results	R	J	J
Non-detected Results	R	UJ	A

SOLID LCS	<EPA Control Windows	>EPA Control Windows
Positive Results	J	J
Non-detected Results	UJ	A

3. Frequency Criteria

A. Was an LCS analyzed for every matrix, every digestion batch, and every 20 samples? Yes or No

REGION I
Data Review Worksheets

XI. INDUCTIVELY COUPLED PLASMA (ICP) SERIAL DILUTION ANALYSIS

_____ Serial Dilutions were performed for each matrix and results of the diluted sample analysis agreed within ~~ten~~ fifteen percent of the original undiluted analysis.

_____ Serial Dilutions were not performed for the following:

_____

✓ Serial Dilutions were performed, but analytical results did not agree within 15% for analyte concentrations greater than 50x the IDL before dilution.

Report all results below that do not meet the required laboratory criteria for ICP serial dilution analysis.

MATRIX: Sed.

ELEMENT	MDL mg/kg	MDL µg/L*	50xIDL	424 SAMPLE RESULT	SERIAL DILUTION	%D	ACTION
Antimony	0.056	1.12	56	126.69	149.56	18.1	J+ OFF7
Aluminum							
Barium							
Beryllium							
Cadmium	0.0055	0.11	5.5	128.27	158.37	23.5	J+
Calcium							
Chromium							
Cobalt							
Copper							
Iron							
Lead							
Magnesium							
Manganese							
Nickel							
Potassium							
Silver	0.019	0.38	19	183.77	296.83	61.5	J+
Sodium	7.5	150	7500	51102.7	59804.97	17.0	J+
Vanadium							
Zinc							

Actions apply to all samples of the same matrix.

ACTIONS:

1. Estimate (J) positive results if %D >15.

* mg/kg X 20 = µg/L
(Vol. = 50 mls)

REGION I
Data Review Worksheets

XII. DETECTION LIMIT RESULTS

1. Instrument Detection Limits

NA Instrument Detection Limit results were present and found to be less than the Contract Required Detection Limits.
-No required QLs were specified in the Tech Spec.

_____ IDLs were not included in the data package on Form XI.

_____ IDLs were present, but the criteria was not met for the following elements: _____

2. Reporting Requirements

✓ Were sample results on Form I reported down to the ~~IDL~~ MDL not the CRDL for all analytes? Yes or No

NA Were sample results that were analyzed by ICP for Se, Tl, As, or Pb at least 5x IDL. Yes or No

NA, Tier II Were sample weights, volumes, and dilutions taken into account when reporting detection limits on Form I. Yes or No

If No,

The reported results may be inaccurate. Make the necessary changes on the data summary tables and request that the laboratory resubmit the corrected data.

J + < 2x MDL due to uncertainty near the MDL.

APPENDIX D3

SEDIMENT PAH DATA (1998 THROUGH 2005)

APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	**Human Health PRG**	**Ecological PRG**	OFF-1	OFF-1	OFF-SD-FTA1	OFF-2	OFF-2	OFF-2	OFF-2	OFF-2	OFF-SD-FTA2	OFF-SD-FTA2
SAMPLE NUMBER			OFF-1-SD-0015	OFF-SD-OFF1-0006-01	FTA1	OFF-2-200207	OFF-2-200210	OFF-2-200404	OFF-2-SD-0015	OFF-SD-OFF2-0006-01	FTA2	FTA2-AVG
SAMPLE DATE			3/27/98	2/22/05	9/30/03	7/1/02	10/1/02	4/1/04	3/27/98	2/22/05	9/30/03	9/30/03
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE											ORIG	AVG
PAHs (UG/KG)												
2-METHYLNAPHTHALENE		185	26 J	28	NA	NA	NA	NA	77.6 J	3.6 U	NA	NA
ACENAPHTHENE			23	300	52	NA	NA	NA	88.1	4.1	38	46
ACENAPHTHYLENE		697	93	24	23	NA	0 U	300	488	12 J	100	58
ANTHRACENE			255 J	750	190	12	10	620	1100 J	30 J	300	210
BENZO(A)ANTHRACENE	1338		100	1200	1000	15	24	610	3600	100	1300	900
BENZO(A)PYRENE	134		595	960	710	NA	8	300	2410	110	990	715
BENZO(B)FLUORANTHENE	1338		NA	1000	850	18	9	240	NA	120	1200	965
BENZO(G,H,I)PERYLENE			876 J	480 J	260	NA	0 U	140	2520 J	94	290	215
BENZO(K)FLUORANTHENE			NA	610	460	NA	14	290	NA	51	600	450
CHRYSENE			NA	1300	860	7	24	490	NA	120	1100	775
DIBENZO(A,H)ANTHRACENE	134	2434	441 J	180	75	NA	0 U	160	1290 J	21	90	59.5
FLUORANTHENE			1950	3100	1400	38	63	2460	8350	210	2000	1430
FLUORENE			40.3 J	370	57	NA	0 U	140	303 J	7	97	72
INDENO(1,2,3-CD)PYRENE	72519	5633	1010	460	240	NA	0 U	41	3070	69	320	215
NAPHTHALENE			31.9	39 BB	23	NA	0 U	68	171	3.6 U	60	44.5
PHENANTHRENE			1060	2900	770	25	39	2840	5610	120	1400	990
PYRENE			1780	2600	2000	34	53	1910	6750	240	2200	1800
LOW MOLECULAR WEIGHT PAHS			1530	10111	1115	110	49	3968	7830	623.1	1995	1420.5
HIGH MOLECULAR WEIGHT PAHS			6660	6190	7855	40	195	6641	24700	685	10090	7524.5
TOTAL PAHS			8190	16301	8970	150	244	10609	32530	1308.1	12085	8945

NO QUALIFIER - POSITIVE HIT; J -VALUE IS ESTIMATED;
NA - NOT ANALYZED; R - VALUE IS NOT USABLE; U - VALUE IS NOT DETECTED; UJ -VALUE IS NOT DETECTED AND ESTIMATED

APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-FTA2	OFF-3	OFF-3	OFF-3	OFF-SD-FTA3	OFF-SD-JPC03	OFF-SD-JPC03	OFF-SD-JPC03
SAMPLE NUMBER			FTA2-D	OFF-3-200210	OFF-3-SD-0015	OFF-SD-OFF3-0006-01	FTA3	MCA-SD-JPC03-200207	MCA-SD-JPC03-200210	MCA-SD-JPC03-200404
SAMPLE DATE			9/30/03	10/1/02	3/27/98	2/23/05	9/30/03	7/1/02	10/1/02	4/1/04
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE			DUP							
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	NA	NA	89.2 J	5.4	NA	NA	NA	NA
ACENAPHTHENE			54	NA	371	14	67	NA	NA	NA
ACENAPHTHYLENE		697	16	0 U	350	130	15	3	0 U	26
ANTHRACENE			120	37	1460 J	220	160	9	11	42
BENZO(A)ANTHRACENE	1338		500	93	5690	610	750	NA	0 U	120
BENZO(A)PYRENE	134		440	33	3450 J	570	590	NA	0 U	95
BENZO(B)FLUORANTHENE	1338		730	21	NA	670	1100	NA	0 U	77
BENZO(G,H,I)PERYLENE			140	0 U	5370 J	220	180	NA	0 U	59
BENZO(K)FLUORANTHENE			300	33	NA	370	460	NA	0 U	90
CHRYSENE			450	120	NA	640	680	NA	0 U	120
DIBENZO(A,H)ANTHRACENE	134	2434	29	0 U	2810 J	82	43	NA	0 U	58
FLUORANTHENE			860	200	14600	1400	1200	4	5	330
FLUORENE			47	0 U	598 J	50	53	130	0 U	10
INDENO(1,2,3-CD)PYRENE	72519	5633	110	0 U	6560 J	240	160	NA	0 U	0
NAPHTHALENE			29	0 U	149	14 BB	29	0 U	0 U	10
PHENANTHRENE			580	120	10700	800	850	7	8	170
PYRENE			1400	210	10700	1300	2100	4	2	270
LOW MOLECULAR WEIGHT PAHS			846	157	13700	3933.4	1174	160	19	258
HIGH MOLECULAR WEIGHT PAHS			4959	710	41800	3402	7263	0 U	7	1219
TOTAL PAHS			5805	867	55500	7335.4	8437	160	26	1477

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-JPC03	OFF-4	OFF-4	OFF-SD-FTA4	OFF-5	OFF-5	OFF-5	OFF-5	OFF-5
SAMPLE NUMBER			OFF-SD-JPC03-0006	OFF-4-SD-0015	OFF-SD-OFF4-0006-01	FTA4	OFF-5-200207	OFF-5-200404	OFF-5-SD-0015	OFF-5-SD-2025	OFF-5-SD-5560
SAMPLE DATE			7/2/02	3/27/98	2/23/05	9/30/03	7/1/02	4/1/04	3/27/98	4/27/98	4/27/98
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0.7-0.8	1.8-2
DUPLICATE											
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	8.6 U	38.1 J	94	NA	NA	NA	330 J	42.5	3.6 U
ACENAPHTHENE			8.6 U	54	180	110	NA	NA	966	132 J	8.2 U
ACENAPHTHYLENE		697	8.6 U	424	220	80	NA	0	509	144	4.6 U
ANTHRACENE			8.6 U	774 J	470	420	6	1200	2810 J	380	8.4 U
BENZO(A)ANTHRACENE	1338		8.6 U	2280	950	1200	21	470	9300	882	8 U
BENZO(A)PYRENE	134		8.6 U	2090	860	1300	NA	1420	4830	973	3 U
BENZO(B)FLUORANTHENE	1338		8.6 U	NA	980	1700	0 U	1090	NA	NA	NA
BENZO(G,H,I)PERYLENE			8.6 U	1290 J	300 J	290	NA	740	5990 J	547	2.2 J
BENZO(K)FLUORANTHENE			8.6 U	NA	560	930	55	1180	NA	NA	NA
CHRYSENE			8.6 U	NA	1000	900	21	1220	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	134	2434	8.6 U	352 J	120 J	69	NA	270	3410 J	345	2.8 U
FLUORANTHENE			37	5580	2400	2400	42	5220	19200	2300	9 U
FLUORENE			8.6 U	177 J	250	190	NA	620	1360 J	124 J	7 UJ
INDENO(1,2,3-CD)PYRENE	72519	5633	8.6 U	1200	330 J	290	NA	150	7390	524	1.2 J
NAPHTHALENE			8.6 U	136	220 BB	130	NA	110	258	88.3	3.6 U
PHENANTHRENE			14	3030	2000	1500	27	5490	14600	1440	10 U
PYRENE			30	4810	2100	2800	38	4240	16900	2090	8 U
LOW MOLECULAR WEIGHT PAHS			81	4640	7934	2430	110	7420	20800	2350	1
HIGH MOLECULAR WEIGHT PAHS			8.6 U	16700	5100	11879	97	16000	60900	7370	9
TOTAL PAHS			81	21340	13034	14309	207	23420	81700	9720	10

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SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-5	OFF-5E	OFF-5E	OFF-SD-FTA5	OFF-6	OFF-6	OFF-6	OFF-6	OFF-SD-FTA6
SAMPLE NUMBER			OFF-SD-SD5-0006-01	OFF-5E-SD-2025	OFF-5E-SD-5560	FTA5	OFF-6-SD-0015	OFF-6-SD-2035	OFF-6-SD-3540	OFF-SD-OFF6-0006-01	FTA6
SAMPLE DATE			2/23/05	4/27/98	4/27/98	9/30/03	3/27/98	4/27/98	4/27/98	2/23/05	9/30/03
SAMPLE DEPTH IN FEET			0-0.5	0.7-0.8	1.8-2	0-0.5	0-0.5	0.7-1.1	1.1-1.3	0-0.5	0-0.5
DUPLICATE											
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	54	18.7	3.6 U	NA	170 J	280	9.6	7.9	NA
ACENAPHTHENE			260	267 J	8.2 U	54	344	249 J	52.5 J	26	28
ACENAPHTHYLENE		697	220	11	0.2 J	82	195	95.8	3.1 J	110	120
ANTHRACENE			660	390	8.4 U	310	1170 J	629	61.5	180	320
BENZO(A)ANTHRACENE	1338		2000	829	8 U	1100	4250	988	118	560	1300
BENZO(A)PYRENE	134		1800	648	3 U	1000	1990	1750	116	520	1100
BENZO(B)FLUORANTHENE	1338		2100	NA	NA	1400	NA	NA	NA	630	1500
BENZO(G,H,I)PERYLENE			800 J	293	1.9 J	210	2630 J	1260	74.3	210 J	220
BENZO(K)FLUORANTHENE			1400	NA	NA	750	NA	NA	NA	370	900
CHRYSENE			2000	NA	NA	970	NA	NA	NA	620	890
DIBENZO(A,H)ANTHRACENE	134	2434	200 J	115	1 J	53	1390 J	357	22.3	68 J	71
FLUORANTHENE			4800	2050	9 U	2100	11200	2840	322	1700 E	2300
FLUORENE			300	205 J	7 UJ	110	392 J	253 J	25.7 J	48	110
INDENO(1,2,3-CD)PYRENE	72519	5633	780	302	1.5 J	230	3030	1140	72.2	210 J	240
NAPHTHALENE			150	8.8	3.6 U	68	161	174	10	20 BB	74
PHENANTHRENE			3600	1950	10 U	1300	9470	2040	249	770	1200
PYRENE			4300	1910	8 U	2400	9770	3340	286	1400	2700
LOW MOLECULAR WEIGHT PAHS			14344	2850	1	1924	11900	3720	412	4261.9	1852
HIGH MOLECULAR WEIGHT PAHS			11080	6260	7	10213	32000	10100	966	3188	11221
TOTAL PAHS			25424	9110	8	12137	43900	13820	1378	7449.9	13073

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SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-7	OFF-7	OFF-7	OFF-SD-FTA7	OFF-8	OFF-SD-FTA8	OFF-9	OFF-SD-FTA9	OFF-10
SAMPLE NUMBER			OFF-7-SD-0015	OFF-SD-OFF7-0006-01	OFF-SD-OFF7-0006-01-D	FTA7	OFF-8-SD-0015	FTA8	OFF-9-SD-0015	FTA9	OFF-10-SD-0015
SAMPLE DATE			3/27/98	2/22/05	2/22/05	9/30/03	4/7/98	9/30/03	4/7/98	9/30/03	4/3/98
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE				ORIG	DUP						
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	54.9	21 J	7.2 J	NA	14.4	NA	3.1 J	NA	3.1 J
ACENAPHTHENE			120	94 J	36 J	48	34	45	4.1 J	22	2.5 J
ACENAPHTHYLENE		697	169	25 J	36 J	92	18.5	84	5.7	100	4.1 J
ANTHRACENE			393	210 J	120 J	330	70.1	280	11.3	270	9.8 J
BENZO(A)ANTHRACENE	1338		1160	610 J	320 J	1300	214	1200	57.3	800	35.2
BENZO(A)PYRENE	134		1330	580 J	290 J	1100	218	920	76.1	710	45.1
BENZO(B)FLUORANTHENE	1338		NA	780 J	400 J	1400	NA	1200	NA	960	NA
BENZO(G,H,I)PERYLENE			1020	290 J	160 J	240	141	190	52.5	140	40.5 J
BENZO(K)FLUORANTHENE			NA	340 J	220 J	840	NA	720	NA	530	NA
CHRYSENE			NA	560 J	320 J	890	NA	780	NA	690	NA
DIBENZO(A,H)ANTHRACENE	134	2434	293	75 J	53 J	75	41.5	49	13.6 U	46	8.6 J
FLUORANTHENE			2190	950 J	500 J	2300	455	1500	117	1300	86.2
FLUORENE			160	70 J	36 J	120	34.7	94	5.3 J	87	2.8 J
INDENO(1,2,3-CD)PYRENE	72519	5633	968	240 J	130 J	250	136	210	48.1	160	35.3
NAPHTHALENE			70	13 BBJ	6.4 BBJ	73	22.8	66	4.3	54	4
PHENANTHRENE			1320	790 J	510 J	1300	261	1100	46.3	1100	31.3
PYRENE			2120	1400 J	800 J	2600	401	2300	102	1500	87.5
LOW MOLECULAR WEIGHT PAHS			2280	3573	2051.6	1963	456	1669	80	1633	58
HIGH MOLECULAR WEIGHT PAHS			7620	3475	1893	10995	1530	9069	425	6836	294
TOTAL PAHS			9900	7048	3944.6	12958	1986	10738	505	8469	352

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SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-10	OFF-10	OFF-SD-FTA10	OFF-11	OFF-11	OFF-11	OFF-SD-FTA11	OFF-12	OFF-SD-FTA12
SAMPLE NUMBER			OFF-10-SD-1520	OFF-10-SD-2530	FTA10	OFF-11-SD-0015	OFF-11-SD-105110	OFF-11-SD-5055	FTA11	OFF-12-SD-0015	FTA12
SAMPLE DATE			4/7/98	4/7/98	9/30/03	4/3/98	4/7/98	4/7/98	9/30/03	4/3/98	9/30/03
SAMPLE DEPTH IN FEET			0.5-0.7	0.8-1	0-0.5	0-0.5	3.4-3.6	1.6-1.8	0-0.5	0-0.5	0-0.5
DUPLICATE											
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	3 J	2.6 J	NA	17.5 J	3.6 U	3.6 U	NA	117 J	NA
ACENAPHTHENE			1.8 J	0.9 J	12	27.9	8.2 U	13.4 J	20	321	5
ACENAPHTHYLENE		697	3 J	2.1 J	48	9	4.6 U	1.1 J	42	58.3	7
ANTHRACENE			8.9	3.5 J	130	64 J	0.4 J	21.4	120	572 J	25
BENZO(A)ANTHRACENE	1338		23.4	15.5	360	168	8 U	44.7	510	1200	130
BENZO(A)PYRENE	134		31.3	19.8	270	148	3 U	37.5	530	1420	100
BENZO(B)FLUORANTHENE	1338		NA	NA	380	NA	NA	NA	700	NA	140
BENZO(G,H,I)PERYLENE			31.8	18.6	62	95.2 J	1.8 J	25.2	130	815 J	27
BENZO(K)FLUORANTHENE			NA	NA	180	NA	NA	NA	350	NA	70
CHRYSENE			NA	NA	320	NA	NA	NA	500	NA	130
DIBENZO(A,H)ANTHRACENE	134	2434	6.6	4.8	16	23.9 J	0.8 J	4.8	31	280 J	7
FLUORANTHENE			70.4	35.7	660	388	9 U	146	1200	3120	240
FLUORENE			2 J	1.6 J	52	25.1 J	0.3 J	12 J	46	271 J	9
INDENO(1,2,3-CD)PYRENE	72519	5633	26.9	14.8	68	86.3	1.5 J	23.1	140	777	28
NAPHTHALENE			3.5 J	2.7 J	22	9.8	3.6 U	3.6 U	31	128	7
PHENANTHRENE			26.7	16.2	560	238	1 U	136	750	2510	140
PYRENE			63.5	40.2	730	337	8 U	125	1100	3020	290
LOW MOLECULAR WEIGHT PAHS			49	30	824	391	1	184	1009	3980	193
HIGH MOLECULAR WEIGHT PAHS			226	131	3046	1180	6	402	5191	10000	1162
TOTAL PAHS			275	161	3870	1571	7	586	6200	13980	1355

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SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-13	OFF-14	OFF-15	OFF-16	OFF-17	OFF-18	OFF-18	OFF-18	OFF-19
SAMPLE NUMBER			OFF-13-SD-0015	OFF-14-SD-0015	OFF-15-SD-0015	OFF-16-SD-0015	OFF-17-SD-0015	OFF-18-SD-0015	OFF-18-SD-105110	OFF-18-SD-5055	OFF-19-SD-0015
SAMPLE DATE			4/3/98	4/7/98	4/7/98	4/3/98	4/3/98	4/3/98	4/7/98	4/7/98	4/7/98
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	3.4-3.6	1.6-1.8	0-0.5
DUPLICATE											
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	65.6 J	15.5	9.5	23.9 J	19.7 J	63.8 J	91.1	210	31.5
ACENAPHTHENE			110 J	11.4	5.1 J	37.6 J	25.6	59.7	208 J	52.8 J	43.8
ACENAPHTHYLENE		697	156 J	25.2	11.9	35.8 J	41.1	141	80.2	210	40.6
ANTHRACENE			482 J	51.8	35	88 J	120 J	340 J	799	741	104
BENZO(A)ANTHRACENE	1338		1160 J	216	106	195 J	251	730	1260	787	316
BENZO(A)PYRENE	134		1150 J	255	103	220 J	333	964	1170	931	322
BENZO(B)FLUORANTHENE	1338		NA	NA	NA	NA	NA	NA	NA	NA	NA
BENZO(G,H,I)PERYLENE			744 J	195	100	181 J	270 J	899 J	643	944	201
BENZO(K)FLUORANTHENE			NA	NA	NA	NA	NA	NA	NA	NA	NA
CHRYSENE			NA	NA	NA	NA	NA	NA	NA	NA	NA
DIBENZO(A,H)ANTHRACENE	134	2434	213 J	52.2	44	49.6 J	76.1 J	273 J	204	248	57.4
FLUORANTHENE			2600 J	308	185	444 J	528 J	1880	3020	1350	542
FLUORENE			123 J	17.2	7.6	34.1 J	30.9 J	74.8 J	302 J	100 J	51.3
INDENO(1,2,3-CD)PYRENE	72519	5633	646 J	172	116	156 J	237	785	619	821	195
NAPHTHALENE			61.2 J	20.6	11.3	19.9 J	25	68.1	157	158	53.3
PHENANTHRENE			1440 J	130	87.4	331 J	271	918	1930	528	294
PYRENE			2530 J	344	187	513 J	544 J	1810	2520	1500	523
LOW MOLECULAR WEIGHT PAHS			2440	271	168	570	533	1670	3570	1999.9	619
HIGH MOLECULAR WEIGHT PAHS			8430	1360	712	1570	1930	6290	9110	5310	2040
TOTAL PAHS			10870	1631	880	2140	2463	7960	12680	7309.9	2659

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SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	**Human Health PRG**	**Ecological PRG**	OFF-20	OFF-21	OFF-22	OFF-23	OFF-SSD-333	OFF-SSD-333	OFF-SSD-333	OFF-SSD-334
SAMPLE NUMBER			OFF-20-SD-0015	OFF-21-SD-0015	OFF-22-SD-0015	OFF-23-SD-0015	OFF-SSD-333-00005	OFF-SSD-333-00005-D	OFF-SSD-333-00005-MAX	OFF-SSD-334-00005
SAMPLE DATE			4/3/98	4/3/98	3/27/98	4/3/98	11/19/98	11/19/98	11/19/98	11/19/98
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE							ORIG	DUP	MAX	
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	40.4 J	13.1 J	3.1 J	43.4	1800 U	1800 U	1800 U	2300 U
ACENAPHTHENE			75.3	9.4	1.8 J	89.5	1800 U	1800 UJ	1800 U	2300 UJ
ACENAPHTHYLENE		697	14.8	18.3	4.4 J	77.5	1800 U	1800 U	1800 U	230 J
ANTHRACENE			217 J	47.9 J	9.5 J	348	250 J	400 J	400	600 J
BENZO(A)ANTHRACENE	1338		320	151	35.6	616	850 J	1100 J	1100	1900 J
BENZO(A)PYRENE	134		257	176	38.8	758	770 J	910 J	910	1400 J
BENZO(B)FLUORANTHENE	1338		NA	NA	NA	NA	940 J	1100 J	1100	2300 U
BENZO(G,H,I)PERYLENE			131 J	133 J	60.4 J	700	310 J	490 J	490	780 J
BENZO(K)FLUORANTHENE			NA	NA	NA	NA	550 J	530 J	550	2300 U
CHRYSENE			NA	NA	NA	NA	680 J	1100 J	1100	1700 J
DIBENZO(A,H)ANTHRACENE	134	2434	50.3 J	40.4 J	12.2 J	179	1800 U	1800 U	1800 U	290 J
FLUORANTHENE			882	291	65.9	1560	2300	2700	2700	4400
FLUORENE			92.6 J	11.3 J	2.4 J	106	1800 U	1800 UJ	1800 U	2300 UJ
INDENO(1,2,3-CD)PYRENE	72519	5633	150	126	33.9	511	430 J	550 J	550	1000 J
NAPHTHALENE			40.1	8.7	3.2 J	41.6	1800 U	1800 U	1800 U	2300 U
PHENANTHRENE			828	126	23.5	770	1200 J	1700 J	1700	2100 J
PYRENE			751	334	69.2	1420	1700 J	2100	2100	3700
LOW MOLECULAR WEIGHT PAHS			1310	234	48	1480	1450	2100	2100	2930
HIGH MOLECULAR WEIGHT PAHS			2560	1140	248	5080	8530	10580	10600	15170
TOTAL PAHS			3870	1374	296	6560	9980	12680	12700	18100

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SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SSD-335	OFF-SSD-336	OFF-SSD-337	OFF-SSD-337	OFF-SD-406	OFF-SD-407	OFF-SD-408	OFF-SD-408
SAMPLE NUMBER			OFF-SSD-335-00005	OFF-SSD-336-00005	OFF-SSD-337-00005	OFF-SSD-337-200210	OFF-SD-406-0006	OFF-SD-407-0006	OFF-SD-408-0006	OFF-SD-408-0006-D
SAMPLE DATE			11/19/98	11/19/98	11/19/98	10/1/02	11/12/01	11/12/01	11/14/01	11/14/01
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE									ORIG	DUP
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	2100 U	4000 U	4000 U	NA	64 U	66 U	60 U	64 UJ
ACENAPHTHENE			2100 UJ	4000 UJ	4000 U	NA	210 U	220 U	200 U	210 UJ
ACENAPHTHYLENE		697	2100 U	4000 U	4000 U	14	64 U	66 U	60 U	64 UJ
ANTHRACENE			500 J	4000 U	4000 U	40	210 U	220 U	23 J	33 J
BENZO(A)ANTHRACENE	1338		1800 J	620 J	4000 U	86	64 U	66 U	85	110 J
BENZO(A)PYRENE	134		1300 J	520 J	4000 U	40	64 U	66 U	90	130 J
BENZO(B)FLUORANTHENE	1338		1700 J	610 J	4000 U	46	64 U	66 U	120	170 J
BENZO(G,H,I)PERYLENE			790 J	4000 U	4000 U	0 U	64 U	66 U	78	96 J
BENZO(K)FLUORANTHENE			720 J	4000 U	4000 U	37	210 U	220 U	53 J	84 J
CHRYSENE			1500 J	570 J	4000 U	110	210 U	220 U	84 J	120 J
DIBENZO(A,H)ANTHRACENE	134	2434	2100 U	4000 U	4000 U	0 U	64 U	66 U	60 U	64 UJ
FLUORANTHENE			3700	1200 J	420 J	220	210 U	46 J	160 J	230 J
FLUORENE			2100 UJ	4000 UJ	4000 U	0 U	210 U	220 U	200 U	210 UJ
INDENO(1,2,3-CD)PYRENE	72519	5633	950 J	4000 U	4000 U	0 U	64 U	66 U	74	100 J
NAPHTHALENE			2100 U	4000 U	4000 U	0 U	210 U	220 U	200 U	210 UJ
PHENANTHRENE			2300	810 J	4000 U	180	210 U	24 J	94 J	130 J
PYRENE			2900	1100 J	480 J	200	210 U	37 J	150 J	220 J
LOW MOLECULAR WEIGHT PAHS			2800	810	4000 U	234	64 U	24	117	163
HIGH MOLECULAR WEIGHT PAHS			15360	4620	900	739	64 U	83	894	1260
TOTAL PAHS			18160	5430	900	973	64 U	107	1011	1423

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-409	OFF-SD-410	OFF-SD-410	OFF-SD-410	OFF-SD-410	OFF-SD-411	OFF-SD-411	OFF-SD-412
SAMPLE NUMBER			OFF-SD-409-0006	OFF-SD-410-0006	OFF-SD-410-0006-0702	OFF-SD-410-0006-0702-D	OFF-SD-410-1824	OFF-SD-411-0006	OFF-SD-411-0006-01	OFF-SD-412-0006
SAMPLE DATE			11/14/01	11/14/01	7/2/02	7/2/02	7/2/02	11/13/01	2/23/05	11/13/01
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	1.5-2	0-0.5	0-0.5	0-0.5
DUPLICATE					ORIG	DUP				
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	61 U	470	9.5 U	8.5 U	7.8 U	66 U	4 U	28 J
ACENAPHTHENE			200 U	3700	9.5 U	17	7.8 U	64 J	9.1	110 J
ACENAPHTHYLENE		697	61 U	400	13	11	7.8 U	100	74	580
ANTHRACENE			200 U	5000	38	55	15	250	96	750
BENZO(A)ANTHRACENE	1338		58 J	9200	180	160	54	840	390	1400
BENZO(A)PYRENE	134		69	9500	220	200	60	680 J	400 J	1000
BENZO(B)FLUORANTHENE	1338		78	12000	300	250	83	990 J	420	1200
BENZO(G,H,I)PERYLENE			61 U	5500	100	83	32	170 J	160 J	340
BENZO(K)FLUORANTHENE			35 J	4600	120	95	36	480 J	220 J	660
CHRYSENE			51 J	9100	200	170	58	920	380	1200
DIBENZO(A,H)ANTHRACENE	134	2434	61 U	1500	24	17	7.8 U	66 UJ	55 J	120
FLUORANTHENE			100 J	26000	450	410	140	1800	790	2800
FLUORENE			200 U	3300	12	17	7.8 U	92 J	27	470
INDENO(1,2,3-CD)PYRENE	72519	5633	61 U	5200	92	71	26	200 J	160 J	400
NAPHTHALENE			200 U	880	9.5 U	8.5 U	7.8 U	220 U	5.4 BB	280
PHENANTHRENE			75 J	18000	210	280	72	1200	410	3000
PYRENE			91 J	21000	440	400	120	2000	880	2900
LOW MOLECULAR WEIGHT PAHS			75	31750	273	380	87	5506	2291.5	5218
HIGH MOLECULAR WEIGHT PAHS			482	103600	2126	1856	609	4280	2185	12020
TOTAL PAHS			557	135350	2399	2236	696	9786	4476.5	17238

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-412	OFF-SD-412	OFF-SD-413	OFF-SD-413	OFF-SD-414	OFF-SD-414	OFF-SD-415	OFF-SD-415
SAMPLE NUMBER			OFF-SD-412-200207	OFF-SD-412-200404	OFF-SD-413-0006	OFF-SD-413-0006-01	OFF-SD-414-0006	OFF-SD-414-0006-01	OFF-SD-415-0006	OFF-SD-415-200207
SAMPLE DATE			7/1/02	4/1/04	11/13/01	2/23/05	11/9/01	2/23/05	11/12/01	7/1/02
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE										
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	NA	NA	58 U	15	100 J	4.4	62 U	NA
ACENAPHTHENE			NA	NA	190 U	36	190 J	13	200 UJ	NA
ACENAPHTHYLENE		697	NA	260	81 J	230	1500 J	87	24 J	48
ANTHRACENE			22	360	130 J	340	2100 J	220	43 J	14
BENZO(A)ANTHRACENE	1338		NA	280	430 J	1100	4900 J	440	120 J	0 U
BENZO(A)PYRENE	134		NA	140	320 J	880	3900 J	380	140 J	NA
BENZO(B)FLUORANTHENE	1338		NA	110	470 J	990	5100 J	420	160	NA
BENZO(G,H,I)PERYLENE			NA	63	58 UJ	320 J	1300 J	120 J	88	NA
BENZO(K)FLUORANTHENE			NA	130	220 J	570	2800 J	NA	72 J	NA
CHRYSENE			NA	230	440 J	850	4200 J	460	120 J	0 U
DIBENZO(A,H)ANTHRACENE	134	2434	NA	77	58 UJ	120 J	480 J	47 J	62 U	NA
FLUORANTHENE			22	120	830	2200	13000 J	1100	250 J	16
FLUORENE			NA	140	29 J	95	560 J	45	200 UJ	0 U
INDENO(1,2,3-CD)PYRENE	72519	5633	NA	18	86 J	350 J	1600 J	130 J	91	NA
NAPHTHALENE			NA	59	190 UJ	33 BB	250 J	4.7 BB	200 UJ	NA
PHENANTHRENE			16	2080	490 J	1300	9600 J	660	150 J	10
PYRENE			NA	1010	1000 J	2000	11000 J	1000	250 J	13
LOW MOLECULAR WEIGHT PAHS			60	2899	2560	6249	38300	3134.1	217	100
HIGH MOLECULAR WEIGHT PAHS			0 U	2178	1966	5180	24280	1997	1291	0 U
TOTAL PAHS			60	5077	4526	11429	62580	5131.1	1508	100

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-415	OFF-SD-416	OFF-SD-417	OFF-SD-417	OFF-SD-417	OFF-SD-418	OFF-SD-419	OFF-SD-419
SAMPLE NUMBER			OFF-SD-415-200404	OFF-SD-416-0006	OFF-SD-417-0006	OFF-SD-417-0006-01	OFF-SD-417-200210	OFF-SD-418-0006	OFF-SD-419-0006	OFF-SD-419-0006-D
SAMPLE DATE			4/1/04	11/14/01	11/13/01	2/23/05	10/1/02	11/8/01	11/8/01	11/8/01
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE									ORIG	DUP
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	NA	61 U	68 U	11	NA	120 U	130 U	140 U
ACENAPHTHENE			NA	78 J	53 J	35	NA	410 U	53 J	450 U
ACENAPHTHYLENE		697	4	280	250	220	4	120 U	91 J	130 J
ANTHRACENE			560	380	430	350	8	60 J	210 J	190 J
BENZO(A)ANTHRACENE	1338		990	1200	1100	890	9	180	580	530
BENZO(A)PYRENE	134		810	1400	810	830	4	160	470	540
BENZO(B)FLUORANTHENE	1338		560	1600	1000	960	4	180	600	700
BENZO(G,H,I)PERYLENE			420	790	250	300 J	0 U	76 J	180	180 J
BENZO(K)FLUORANTHENE			560	680	520	540	5	89 J	280 J	340 J
CHRYSENE			970	1200	1000	930	16	180 J	620	590
DIBENZO(A,H)ANTHRACENE	134	2434	350	220	94	110 J	0 U	120 U	130 U	140 U
FLUORANTHENE			2420	2800	2100	2100	34	430	1300	1300
FLUORENE			270	120 J	110 J	82	0 U	410 U	69 J	54 J
INDENO(1,2,3-CD)PYRENE	72519	5633	110	860	310	340 J	0 U	80 J	200	200 J
NAPHTHALENE			75	200 U	49 J	24 BB	0 U	410 U	440 U	450 U
PHENANTHRENE			2640	1500	1400	1100	34	250 J	800	780
PYRENE			2390	2400	2000	2000	33	370 J	1300	1300
LOW MOLECULAR WEIGHT PAHS			3549	2358	6392	5922	46	310	1223	1154
HIGH MOLECULAR WEIGHT PAHS			9580	13150	5084	4900	105	1745	5530	5680
TOTAL PAHS			13129	15508	11476	10822	151	2055	6753	6834

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-419	OFF-SD-419	OFF-SD-420	OFF-SD-421	OFF-SD-421	OFF-SD-421	OFF-SD-422	OFF-SD-423
SAMPLE NUMBER			OFF-SD-419-200207	OFF-SD-419-200404	OFF-SD-420-0006	OFF-SD-421-0006	OFF-SD-421-200207	OFF-SD-421-200404	OFF-SD-422-0006	OFF-SD-423-0006
SAMPLE DATE			7/1/02	4/1/04	11/8/01	11/8/01	7/1/02	4/1/04	11/8/01	11/8/01
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE										
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	NA	NA	280 U	260 U	NA	NA	290 U	380 U
ACENAPHTHENE			NA	NA	930 U	860 U	NA	NA	130 J	380 J
ACENAPHTHYLENE		697	320	91	120 J	260 U	43	81	210 J	380 U
ANTHRACENE			34	120	340 J	120 J	7	100	450 J	720 J
BENZO(A)ANTHRACENE	1338		210	220	860	320	35	130	1300	1600
BENZO(A)PYRENE	134		83	120	850	340	49	74	1000	1600
BENZO(B)FLUORANTHENE	1338		130	98	1000	420	0 U	64	1200	2100
BENZO(G,H,I)PERYLENE			NA	70	280 J	260 U	NA	51	480	540 J
BENZO(K)FLUORANTHENE			210	120	580 J	210 J	0 U	72	560 J	980 J
CHRYSENE			180	190	990	390 J	34	130	1500	1700
DIBENZO(A,H)ANTHRACENE	134	2434	NA	71	280 U	260 U	NA	41	290 U	380 U
FLUORANTHENE			260	750	2000	840 J	51	570	2900	3800
FLUORENE			140	36	110 J	860 U	0 U	25	160 J	320 J
INDENO(1,2,3-CD)PYRENE	72519	5633	NA	18	310 J	150 J	NA	12	500	560 J
NAPHTHALENE			NA	20	930 U	860 U	NA	36	970 U	1200 U
PHENANTHRENE			130	560	1300	530 J	20	420	1800	2600
PYRENE			270	640	2000	750 J	52	490	2700	3900
LOW MOLECULAR WEIGHT PAHS			1180	827	1870	650	170	662	2750	4020
HIGH MOLECULAR WEIGHT PAHS			820	2297	8870	3420	120	1634	12140	16780
TOTAL PAHS			2000	3124	10740	4070	290	2296	14890	20800

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-423	OFF-SD-423	OFF-SD-424	OFF-SD-424	OFF-SD-424	OFF-SD-425	OFF-SD-426	OFF-SD-427
SAMPLE NUMBER			OFF-SD-423-200207	OFF-SD-423-200404	OFF-SD-424-0006	OFF-SD-424-0006-01	OFF-SD-424-200210	OFF-SD-425-0006	OFF-SD-426-0006	OFF-SD-427-0006
SAMPLE DATE			7/1/02	4/1/04	11/13/01	2/22/05	10/1/02	11/13/01	11/14/01	11/12/01
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5	0-0.5
DUPLICATE										
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	NA	NA	58 U	6.4 J	NA	44 J	63 U	82 U
ACENAPHTHENE			NA	NA	36 J	11 J	NA	120 J	210 U	270 U
ACENAPHTHYLENE		697	64	950	38 J	35 J	290	52 J	63 U	82 U
ANTHRACENE			110	770	230	88 J	51	340	210 U	270 U
BENZO(A)ANTHRACENE	1338		370	450	300	150 J	110	830	63 U	82 U
BENZO(A)PYRENE	134		160	890	230 J	210 J	32	640 J	63 U	82 U
BENZO(B)FLUORANTHENE	1338		240	720	320 J	230 J	21	900 J	63 U	82 U
BENZO(G,H,I)PERYLENE			NA	390	83 J	250 J	0 U	160 J	63 U	82 U
BENZO(K)FLUORANTHENE			440	800	140 J	72 J	35	430 J	210 U	270 U
CHRYSENE			310	780	310	170 J	110	820	210 U	270 U
DIBENZO(A,H)ANTHRACENE	134	2434	NA	420	58 UJ	42 J	0 U	54 UJ	63 U	82 U
FLUORANTHENE			440	5520	640	260 J	260	1500	210 U	39 J
FLUORENE			240	300	60 J	31 J	0 U	140 J	210 U	270 U
INDENO(1,2,3-CD)PYRENE	72519	5633	NA	110	85 J	130 J	0 U	200 J	63 U	82 U
NAPHTHALENE			NA	170	27 J	4.8 BBJ	0 U	45 J	210 U	270 U
PHENANTHRENE			280	4610	560	160 J	160	1300	210 U	270 U
PYRENE			470	4510	620	340 J	260	1700	210 U	35 J
LOW MOLECULAR WEIGHT PAHS			1640	6800	2211	936.2	501	2041	63 U	82 U
HIGH MOLECULAR WEIGHT PAHS			1520	14590	1468	1254	828	7180	63 U	74
TOTAL PAHS			3160	21390	3679	2190.2	1329	9221	63 U	74

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-427	OFF-SD-427	OFF-SD-428	OFF-SD-428	OFF-SD-429	OFF-SD-430	OFF-SD-430	OFF-SD-431	OFF-SD-431
SAMPLE NUMBER			OFF-SD-427-1824	OFF-SD-427-1824-D	OFF-SD-428-0006	OFF-SD-428-1824	OFF-SD-429-0006	OFF-SD-430-0006	OFF-SD-430-1824	OFF-SD-431-0006	OFF-SD-431-1824
SAMPLE DATE			11/12/01	11/12/01	11/14/01	11/14/01	11/12/01	11/12/01	11/12/01	11/12/01	11/12/01
SAMPLE DEPTH IN FEET			1.5-2	1.5-2	0-0.5	1.5-2	0-0.5	0-0.5	1.5-2	0-0.5	1.5-2
DUPLICATE			ORIG	DUP							
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	60 U	58 U	73 U	60 U	65 U	63 U	61 U	62 U	58 U
ACENAPHTHENE			200 U	190 U	240 U	200 U	210 U	210 U	200 U	200 U	190 U
ACENAPHTHYLENE		697	60 U	58 U	64 J	47 J	65 U	63 U	61 U	62 U	58 U
ANTHRACENE			200 U	190 U	180 J	100 J	210 U	210 U	200 U	200 U	190 U
BENZO(A)ANTHRACENE	1338		60 U	58 U	580	370	65 U	63 U	61 U	62 U	58 U
BENZO(A)PYRENE	134		60 U	58 U	530 J	320 J	65 U	63 U	61 U	62 U	58 U
BENZO(B)FLUORANTHENE	1338		60 U	58 U	740 J	420 J	65 U	63 U	61 U	62 U	58 U
BENZO(G,H,I)PERYLENE			60 U	58 U	170 J	100 J	65 U	63 U	61 U	62 U	58 U
BENZO(K)FLUORANTHENE			200 U	190 U	320 J	210 J	210 U	210 U	200 U	200 U	190 U
CHRYSENE			200 U	190 U	610	350	210 U	210 U	200 U	200 U	190 U
DIBENZO(A,H)ANTHRACENE	134	2434	60 U	58 U	73 UJ	60 UJ	65 U	63 U	61 U	62 U	58 U
FLUORANTHENE			200 U	190 U	1200	680	36 J	36 J	200 U	31 J	24 J
FLUORENE			200 U	190 U	51 J	26 J	210 U	210 U	200 U	200 U	190 U
INDENO(1,2,3-CD)PYRENE	72519	5633	60 U	58 U	200 J	120 J	65 U	63 U	61 U	62 U	58 U
NAPHTHALENE			200 U	190 U	240 U	200 U	210 U	210 U	200 U	200 U	190 U
PHENANTHRENE			200 U	190 U	740	390	210 U	25 J	200 U	200 U	190 U
PYRENE			200 U	190 U	1500	840	33 J	31 J	200 U	28 J	23 J
LOW MOLECULAR WEIGHT PAHS			60 U	58 U	1035	563	65 U	25	61 U	62 U	58 U
HIGH MOLECULAR WEIGHT PAHS			60 U	58 U	5850	3410	69	67	61 U	59	47
TOTAL PAHS			60 U	58 U	6885	3973	69	92	61 U	59	47

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-432	OFF-SD-432	OFF-SD-432	OFF-SD-432	OFF-SD-433	OFF-SD-433	OFF-SD-434	OFF-SD-434	OFF-SD-434
SAMPLE NUMBER			OFF-SD-432-0006	OFF-SD-432-0006-01	OFF-SD-432-0006-D	OFF-SD-432-1824	OFF-SD-433-0006	OFF-SD-433-1824	OFF-SD-434-0006	OFF-SD-434-0006-D	OFF-SD-434-1824
SAMPLE DATE			11/13/01	2/23/05	11/13/01	11/13/01	11/12/01	11/12/01	11/14/01	11/14/01	11/14/01
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5	1.5-2	0-0.5	1.5-2	0-0.5	0-0.5	1.5-2
DUPLICATE			ORIG		DUP				ORIG	DUP	
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	55 U	9.2	58 U	60 J	68 U	61 U	65 U	67 U	62 U
ACENAPHTHENE			180 U	21	190 U	92 J	220 U	200 U	210 U	220 U	210 U
ACENAPHTHYLENE		697	84	220	100	760	68 U	61 U	93	51 J	94
ANTHRACENE			130 J	330	150 J	1400	220 U	200 U	150 J	100 J	230
BENZO(A)ANTHRACENE	1338		340	NA	520	2800	68 U	61 U	400	330	540
BENZO(A)PYRENE	134		240	800	370	2000	68 U	61 U	340 J	280 J	460
BENZO(B)FLUORANTHENE	1338		300	940	500	2600	37 J	61 U	440 J	360 J	570
BENZO(G,H,I)PERYLENE			100	290 J	110	670	68 U	61 U	100 J	67 UJ	160
BENZO(K)FLUORANTHENE			140 J	570	220	1100	220 U	200 U	230 J	190 J	290
CHRYSENE			320	970	500	2800	220 U	200 U	360	300	570
DIBENZO(A,H)ANTHRACENE	134	2434	55 U	100 J	58 U	240	68 U	61 U	65 UJ	67 UJ	60 J
FLUORANTHENE			750	2100	1100	6000	46 J	200 U	810	640	1000
FLUORENE			38 J	86	31 J	400 J	220 U	200 U	52 J	24 J	63 J
INDENO(1,2,3-CD)PYRENE	72519	5633	120	320 J	140	810	68 U	61 U	120 J	94 J	190
NAPHTHALENE			180 U	18 BB	190 U	160 J	220 U	200 U	210 U	220 U	210 U
PHENANTHRENE			530	1200	520	4800	25 J	200 U	680 J	400 J	700
PYRENE			700	2100	1000	5600	47 J	200 U	920	760	880
LOW MOLECULAR WEIGHT PAHS			2232	6084.2	2901	19272	25	61 U	975	575	1087
HIGH MOLECULAR WEIGHT PAHS			1560	8190	2360	13020	130	61 U	3720	2954	4720
TOTAL PAHS			3792	14274.2	5261	32292	155	61 U	4695	3529	5807

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-434	OFF-SD-435	OFF-SD-435	OFF-SD-436	OFF-SD-436	OFF-SD-436	OFF-SD-437	OFF-SD-437
SAMPLE NUMBER			OFF-SD-434-200210	OFF-SD-435-0006	OFF-SD-435-1824	OFF-SD-436-0006	OFF-SD-436-0006-D	OFF-SD-436-1824	OFF-SD-437-0006	OFF-SD-437-1824
SAMPLE DATE			10/1/02	11/12/01	11/12/01	11/12/01	11/12/01	11/12/01	11/8/01	11/8/01
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	1.5-2	0-0.5	0-0.5	1.5-2	0-0.5	1.5-2
DUPLICATE						ORIG	DUP			
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	NA	72 U	60 U	64 U	65 U	26 J	140 U	120 U
ACENAPHTHENE			NA	240 U	200 U	38 J	32 J	48 J	450 U	410 U
ACENAPHTHYLENE		697	32	72 U	60 U	210	210	280	140 U	120 U
ANTHRACENE			1	240 U	200 U	370	420	440	51 J	410 U
BENZO(A)ANTHRACENE	1338		3	72 U	60 U	980	1200	1200	140	120 U
BENZO(A)PYRENE	134		1	32 J	60 U	850	1000	1100	130 J	120 U
BENZO(B)FLUORANTHENE	1338		1	48 J	60 U	1000	1300	1300	160	120 U
BENZO(G,H,I)PERYLENE			0 U	72 U	60 U	480	530	620	140 U	120 U
BENZO(K)FLUORANTHENE			1	240 U	200 U	440	530	520	77 J	410 U
CHRYSENE			4	26 J	200 U	870	1100	1100	150 J	410 U
DIBENZO(A,H)ANTHRACENE	134	2434	0 U	72 U	60 U	140	170	160	140 U	120 U
FLUORANTHENE			12	47 J	200 U	2100	2600	2700	360 J	410 U
FLUORENE			0 U	240 U	200 U	96 J	110 J	120 J	450 U	410 U
INDENO(1,2,3-CD)PYRENE	72519	5633	0 U	27 J	60 U	540	610	680	62 J	120 U
NAPHTHALENE			0 U	240 U	200 U	37 J	28 J	53 J	450 U	410 U
PHENANTHRENE			9	29 J	200 U	1300	1500	1600	200 J	410 U
PYRENE			9	50 J	200 U	1800	2300	2400	300 J	410 U
LOW MOLECULAR WEIGHT PAHS			42	29	60 U	2051	2300	2567	251	120 U
HIGH MOLECULAR WEIGHT PAHS			31	230	60 U	9200	11340	11780	1379	120 U
TOTAL PAHS			73	259	60 U	11251	13640	14347	1630	120 U

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-438	OFF-SD-438	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-439	OFF-SD-440
SAMPLE NUMBER			OFF-SD-438-0006	OFF-SD-438-1824	OFF-SD-439-0006	OFF-SD-439-0006-01	OFF-SD-439-0006-D	OFF-SD-439-0612	OFF-SD-439-1824	OFF-SD-440-0006
SAMPLE DATE			11/8/01	11/8/01	10/29/01	2/22/05	10/29/01	10/29/01	11/13/01	11/8/01
SAMPLE DEPTH IN FEET			0-0.5	1.5-2	0-0.5	0-0.5	0-0.5	0.5-1	1.5-2	0-0.5
DUPLICATE					ORIG		DUP			
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	130 U	120 U	370 U	3.7 U	370 U	47 J	44 J	120 U
ACENAPHTHENE			67 J	380 U	120 J	11	74 J	710	130 J	400 U
ACENAPHTHYLENE		697	150	120 U	370 U	28	57 J	160 J	41 J	140
ANTHRACENE			320 J	380 U	300 J	52	180 J	3400	280	210 J
BENZO(A)ANTHRACENE	1338		770	120 U	540	190 J	490	1400	430	580
BENZO(A)PYRENE	134		740	120 U	550	160 J	500	710	440 J	580
BENZO(B)FLUORANTHENE	1338		880	120 U	680	240 J	680	1400	530 J	660
BENZO(G,H,I)PERYLENE			250 J	120 U	220 J	88 J	190 J	170 J	200 J	230
BENZO(K)FLUORANTHENE			520	380 U	250 J	110 J	330 J	710	250 J	390 J
CHRYSENE			810	380 U	600	170 J	460	1700	530	580
DIBENZO(A,H)ANTHRACENE	134	2434	130 U	120 U	74 J	26 J	68 J	85 J	59 UJ	120 U
FLUORANTHENE			1800	380 U	1400	270	900	5700	780	1400
FLUORENE			120 J	380 U	98 J	14	73 J	500	120 J	74 J
INDENO(1,2,3-CD)PYRENE	72519	5633	280 J	120 U	240 J	70 J	200 J	240 J	150 J	270
NAPHTHALENE			420 U	380 U	370 U	4 BB	370 U	420 U	46 J	400 U
PHENANTHRENE			1200	380 U	1300 J	210	760	2200	930	890
PYRENE			1800	380 U	1100	410	900	4900	1300	1200
LOW MOLECULAR WEIGHT PAHS			1857	120 U	4318	999	2944	17617	3671	1314
HIGH MOLECULAR WEIGHT PAHS			7850	120 U	3154	1054	2918	6415	2530	5890
TOTAL PAHS			9707	120 U	7472	2053	5862	24032	6201	7204

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-440	OFF-SD-441	OFF-SD-441	OFF-SD-442	OFF-SD-442	OFF-SD-442	OFF-SD-442	OFF-SD-443
SAMPLE NUMBER			OFF-SD-440-1824	OFF-SD-441-0006	OFF-SD-441-1824	OFF-SD-442-0006	OFF-SD-442-0006-01	OFF-SD-442-0006-01-D	OFF-SD-442-1824	OFF-SD-443-0006
SAMPLE DATE			11/8/01	11/8/01	11/8/01	11/9/01	2/23/05	2/23/05	11/13/01	11/13/01
SAMPLE DEPTH IN FEET			1.5-2	0-0.5	1.5-2	0-0.5	0-0.5	0-0.5	1.5-2	0-0.5
DUPLICATE							ORIG	DUP		
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	120 U	630 U	160 U	58 J	94 J	18 J	61 U	67 U
ACENAPHTHENE			390 U	2100 U	540 U	120 J	270 J	68 J	200 U	30 J
ACENAPHTHYLENE		697	120 U	630 U	160 U	870	260	170	56 J	110
ANTHRACENE			390 U	2100 U	77 J	1300	660	410	110 J	210 J
BENZO(A)ANTHRACENE	1338		120 U	600 J	180	2900	1500	1200	360	670
BENZO(A)PYRENE	134		120 U	570 J	170	2400 J	1300 J	1100	290 J	550
BENZO(B)FLUORANTHENE	1338		120 U	670	180	3200 J	1400	1500	400 J	690
BENZO(G,H,I)PERYLENE			120 U	300 J	97 J	790 J	600	380 J	61 UJ	150
BENZO(K)FLUORANTHENE			390 U	320 J	86 J	1600 J	820	790	210 J	360
CHRYSENE			390 U	640 J	190 J	2600	1500	1100	340	700
DIBENZO(A,H)ANTHRACENE	134	2434	120 U	630 U	160 U	280 J	160 J	130 J	61 UJ	67 U
FLUORANTHENE			390 U	1600 J	390 J	6100	3400	2500	590	1400
FLUORENE			390 U	2100 U	540 U	340 J	340	100 J	41 J	58 J
INDENO(1,2,3-CD)PYRENE	72519	5633	120 U	310 J	85 J	990 J	580 J	410 J	81 J	180
NAPHTHALENE			390 U	2100 U	540 U	140 J	130 BBJ	27 BBJ	200 U	220 U
PHENANTHRENE			390 U	890 J	310 J	4900	2800 J	1500 J	360	760
PYRENE			390 U	1300 J	390 J	6200	3200	2800	800	1400
LOW MOLECULAR WEIGHT PAHS			120 U	890	387	20028	11154	7593	1957	1168
HIGH MOLECULAR WEIGHT PAHS			120 U	6310	1768	14760	7860	6610	1681	6100
TOTAL PAHS			120 U	7200	2155	34788	19014	14203	3638	7268

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-443	OFF-SD-444	OFF-SD-444	OFF-SD-444	OFF-SD-445	OFF-SD-445	OFF-SD-445	OFF-SD-446
SAMPLE NUMBER			OFF-SD-443-1824	OFF-SD-444-0006	OFF-SD-444-1824	OFF-SD-444-200210	OFF-SD-445-0006	OFF-SD-445-0006-01	OFF-SD-445-1824	OFF-SD-446-0006
SAMPLE DATE			11/13/01	11/8/01	11/8/01	10/1/02	11/13/01	2/23/05	11/13/01	11/8/01
SAMPLE DEPTH IN FEET			1.5-2	0-0.5	1.5-2	0-0.5	0-0.5	0-0.5	1.5-2	0-0.5
DUPLICATE										
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	67 U	130 U	77 J	NA	67 U	5.4	46 J	300 U
ACENAPHTHENE			220 U	420 U	250 J	NA	53 J	18	78 J	330 J
ACENAPHTHYLENE		697	67 U	100 J	140 U	0 U	76	44	66 J	330
ANTHRACENE			220 U	200 J	670	15	180 J	89	240	880 J
BENZO(A)ANTHRACENE	1338		58 J	530	960	41	570	260 J	450	2300
BENZO(A)PYRENE	134		43 J	540	860	12	500	250 J	470 J	2500
BENZO(B)FLUORANTHENE	1338		53 J	680	950	9	670	370 J	640 J	3100
BENZO(G,H,I)PERYLENE			67 U	190 J	260 J	0 U	150	96 J	140 J	880 J
BENZO(K)FLUORANTHENE			25 J	370 J	520	14	320	140 J	310 J	1500
CHRYSENE			64 J	560	950	40	540	270 J	540	2500
DIBENZO(A,H)ANTHRACENE	134	2434	67 U	130 U	140 U	0 U	67 U	30 J	66 UJ	270 J
FLUORANTHENE			130 J	1300	1800	120	1200	450	920	5100
FLUORENE			220 U	68 J	340 J	0 U	58 J	26	69 J	360 J
INDENO(1,2,3-CD)PYRENE	72519	5633	67 U	220 J	290 J	0 U	160	85 J	160 J	1000 J
NAPHTHALENE			220 U	420 U	110 J	0 U	220 U	7 BB	36 J	140 J
PHENANTHRENE			64 J	840	2100	57	820	350	620	3500
PYRENE			130 J	1200	2100	100	1400	600	1100	5300
LOW MOLECULAR WEIGHT PAHS			64	1208	3547	72	3787	1589.4	3175	5540
HIGH MOLECULAR WEIGHT PAHS			503	5590	8690	336	2910	1501	2710	24450
TOTAL PAHS			567	6798	12237	408	6697	3090.4	5885	29990

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-446	OFF-SD-460	OFF-SD-460	OFF-SD-460	OFF-SD-461	OFF-SD-461	OFF-SD-462	OFF-SD-462	OFF-SD-462
SAMPLE NUMBER			OFF-SD-446-1824	OFF-SD-460-0006	OFF-SD-460-0006-D	OFF-SD-460-1824	OFF-SD-461-0006	OFF-SD-461-1824	OFF-SD-462-0006	OFF-SD-462-1824	OFF-SD-462-200210
SAMPLE DATE			11/8/01	11/14/01	11/14/01	11/14/01	11/14/01	11/14/01	11/14/01	11/14/01	10/1/02
SAMPLE DEPTH IN FEET			1.5-2	0-0.5	0-0.5	1.5-2	0-0.5	1.5-2	0-0.5	1.5-2	0-0.5
DUPLICATE				ORIG	DUP						
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	53 J	65 U	77 UJ	62 U	67 U	55 U	68 U	60 U	NA
ACENAPHTHENE			120 J	210 U	260 UJ	210 U	220 U	180 U	230 U	200 U	NA
ACENAPHTHYLENE		697	58 J	65 U	77 UJ	62 U	67 U	55 U	68 U	60 U	9
ANTHRACENE			310 J	36 J	45 J	210 U	220 U	180 U	38 J	200 U	4
BENZO(A)ANTHRACENE	1338		590	120	110 J	29 J	67 U	55 U	110	60 U	7
BENZO(A)PYRENE	134		700 J	140	120 J	40 J	46 J	55 U	130	60 U	2
BENZO(B)FLUORANTHENE	1338		920 J	200	160 J	42 J	56 J	55 U	160	60 U	2
BENZO(G,H,I)PERYLENE			270 J	100	81 J	62 U	67 U	55 U	98	60 U	0 U
BENZO(K)FLUORANTHENE			410 J	64 J	62 J	210 U	220 U	180 U	63 J	200 U	2
CHRYSENE			630	130 J	110 J	33 J	220 U	180 U	120 J	200 U	8
DIBENZO(A,H)ANTHRACENE	134	2434	150 UJ	65 U	77 UJ	62 U	67 U	55 U	68 U	60 U	0 U
FLUORANTHENE			1200	290	240 J	64 J	76 J	180 U	260	39 J	26
FLUORENE			130 J	210 U	260 UJ	210 U	220 U	180 U	230 U	200 U	0 U
INDENO(1,2,3-CD)PYRENE	72519	5633	290 J	110	77 UJ	62 U	67 U	55 U	98	60 U	0 U
NAPHTHALENE			53 J	210 U	260 UJ	210 U	220 U	180 U	230 U	200 U	0 U
PHENANTHRENE			980	130 J	160 J	42 J	60 J	180 U	150 J	46 J	30
PYRENE			1600	240	230 J	56 J	71 J	180 U	220 J	47 J	21
LOW MOLECULAR WEIGHT PAHS			1704	166	205	42	60	55 U	188	46	43
HIGH MOLECULAR WEIGHT PAHS			6610	1394	1113	264	249	55 U	1259	86	68
TOTAL PAHS			8314	1560	1318	306	309	55 U	1447	132	111

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-463	OFF-SD-463	OFF-SD-464	OFF-SD-464	OFF-SD-465	OFF-SD-465	OFF-SD-466	OFF-SD-466	OFF-SD-467
SAMPLE NUMBER			OFF-SD-463-0006	OFF-SD-463-1824	OFF-SD-464-0006	OFF-SD-464-1824	OFF-SD-465-0006	OFF-SD-465-1824	OFF-SD-466-0006	OFF-SD-466-1824	OFF-SD-467-0006
SAMPLE DATE			11/14/01	11/14/01	11/14/01	11/14/01	11/14/01	11/14/01	11/14/01	11/14/01	11/14/01
SAMPLE DEPTH IN FEET			0-0.5	1.5-2	0-0.5	1.5-2	0-0.5	1.5-2	0-0.5	1.5-2	0-0.5
DUPLICATE											
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	61 U	59 U	70 U	56 U	63 U	58 U	62 U	63 U	69 U
ACENAPHTHENE			200 U	200 U	230 U	180 U	210 U	190 U	200 UJ	39 J	230 U
ACENAPHTHYLENE		697	61 U	59 U	70 U	56 U	63 U	58 U	74 J	63 U	69 U
ANTHRACENE			200 U	200 U	230 U	180 U	210 U	190 U	120 J	77 J	230 U
BENZO(A)ANTHRACENE	1338		61 U	59 U	34 J	56 U	32 J	26 J	420 J	280	63 J
BENZO(A)PYRENE	134		61 U	59 U	70 U	56 U	63 UJ	58 U	370	420	53 J
BENZO(B)FLUORANTHENE	1338		61 U	59 U	70 U	56 U	63 UJ	24 J	450	450	74
BENZO(G,H,I)PERYLENE			61 U	59 U	70 U	56 U	63 UJ	58 U	130 J	180	69 U
BENZO(K)FLUORANTHENE			200 U	200 U	230 U	180 U	210 UJ	190 U	250	200 J	32 J
CHRYSENE			200 U	200 U	32 J	180 U	32 J	24 J	420	280	68 J
DIBENZO(A,H)ANTHRACENE	134	2434	61 U	59 U	70 U	56 U	63 UJ	58 U	62 U	62 J	69 U
FLUORANTHENE			200 U	200 U	68 J	180 U	51 J	51 J	800 J	420	120 J
FLUORENE			200 U	200 U	230 U	180 U	210 U	190 U	29 J	210 U	230 U
INDENO(1,2,3-CD)PYRENE	72519	5633	61 U	59 U	70 U	56 U	63 UJ	58 U	150 J	210	69 U
NAPHTHALENE			200 U	200 U	230 U	180 U	210 U	190 U	200 U	210 U	230 U
PHENANTHRENE			200 U	200 U	44 J	180 U	210 U	50 J	460 J	260	49 J
PYRENE			200 U	200 U	59 J	180 U	51 J	48 J	820	420	120 J
LOW MOLECULAR WEIGHT PAHS			61 U	59 U	44	56 U	63 U	50	683	376	49
HIGH MOLECULAR WEIGHT PAHS			61 U	59 U	193	56 U	166	173	3810	2922	530
TOTAL PAHS			61 U	59 U	237	56 U	166	223	4493	3298	579

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-467	OFF-SD-467	OFF-SD-467	OFF-SD-468	OFF-SD-468	OFF-SD-468	OFF-SD-468	OFF-SD-469
SAMPLE NUMBER			OFF-SD-467-1824	OFF-SD-467-200207	OFF-SD-467-200404	OFF-SD-468-0006	OFF-SD-468-1824	OFF-SD-468-200207	OFF-SD-468-200404	OFF-SD-469-0006
SAMPLE DATE			11/14/01	7/1/02	4/1/04	11/12/01	11/12/01	7/1/02	4/1/04	11/12/01
SAMPLE DEPTH IN FEET			1.5-2	0-0.5	0-0.5	0-0.5	1.5-2	0-0.5	0-0.5	0-0.5
DUPLICATE										
PAHs (UG/KG)										
2-METHYLNAPHTHALENE		185	61 U	NA	NA	1600 U	100 U	NA	NA	150 U
ACENAPHTHENE			200 U	NA	NA	5100 U	340 U	NA	NA	500 U
ACENAPHTHYLENE		697	61 U	NA	370	1600 U	100 U	48	230	70 J
ANTHRACENE			200 U	14	200	900 J	88 J	15	230	130 J
BENZO(A)ANTHRACENE	1338		61 U	6	610	660 J	180	75	330	460
BENZO(A)PYRENE	134		61 U	44	430	710 J	200	NA	170	500
BENZO(B)FLUORANTHENE	1338		61 U	5	330	1200 J	280	97	130	690
BENZO(G,H,I)PERYLENE			61 U	NA	250	1600 U	170	NA	86	370
BENZO(K)FLUORANTHENE			200 U	0 U	390	5100 U	110 J	34	160	270 J
CHRYSENE			200 U	5	480	960 J	200 J	63	270	520
DIBENZO(A,H)ANTHRACENE	134	2434	61 U	NA	250	1600 U	100 U	NA	98	98 J
FLUORANTHENE			200 U	14	2430	1200 J	360	140	1380	970
FLUORENE			200 U	NA	110	5100 U	340 U	0 U	57	500 U
INDENO(1,2,3-CD)PYRENE	72519	5633	61 U	NA	60	1600 U	160	NA	14	350
NAPHTHALENE			200 U	NA	120	5100 U	340 U	NA	44	500 U
PHENANTHRENE			200 U	11	1760	730 J	160 J	51	980	460 J
PYRENE			200 U	9	2130	1000 J	390	120	1050	890
LOW MOLECULAR WEIGHT PAHS			61 U	49	2560	1630	248	370	1541	660
HIGH MOLECULAR WEIGHT PAHS			61 U	59	7360	5730	2050	270	3688	5118
TOTAL PAHS			61 U	108	9920	7360	2298	640	5229	5778

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-469	OFF-SD-470	OFF-SD-471	OFF-SD-472	OFF-SD-473	OFF-SD-473	OFF-SD-474	OFF-SD-474	OFF-SD-475
SAMPLE NUMBER			OFF-SD-469-1824	OFF-SD-470-0006	OFF-SD-471-0006	OFF-SD-472-0006	OFF-SD-473-0006	OFF-SD-473-1820	OFF-SD-474-0006	OFF-SD-474-1824	OFF-SD-475-0006
SAMPLE DATE			11/12/01	7/2/02	7/2/02	7/2/02	7/2/02	7/3/02	7/2/02	7/3/02	7/2/02
SAMPLE DEPTH IN FEET			1.5-2	0-0.5	0-0.5	0-0.5	0-0.5	1.5-1.65	0-0.5	1.5-2	0-0.5
DUPLICATE											
PAHs (UG/KG)											
2-METHYLNAPHTHALENE		185	100 UJ	8.2 U	12	10 U	8.4 U	8.5 U	11 U	9 U	11
ACENAPHTHENE			330 UJ	8.2 U	22	10 U	14	8.5 U	11 U	9 U	97
ACENAPHTHYLENE		697	47 J	8.2 U	140	10 U	8.4 U	8.5 U	11 U	9 U	44
ANTHRACENE			99 J	8.2 U	240 J	17	49	13	13	14	410 J
BENZO(A)ANTHRACENE	1338		160 J	24	720	53	100	40	51	41	610
BENZO(A)PYRENE	134		240 J	26	630	68	100	49	65	47	500
BENZO(B)FLUORANTHENE	1338		350 J	39	710	100	140	74	100	62	600
BENZO(G,H,I)PERYLENE			180 J	15	330	33	45	24	32	26	270
BENZO(K)FLUORANTHENE			100 J	18	380 J	35	56	27	34	30	240 J
CHRYSENE			210 J	25	720	58	88	43	59	49	620
DIBENZO(A,H)ANTHRACENE	134	2434	100 UJ	8.2 U	87	10 U	11	8.5 U	11 U	9 U	86
FLUORANTHENE			360 J	58	1600	120	220	98	110	110	1400
FLUORENE			330 UJ	8.2 U	81	10 U	19	8.5 U	11 U	9 U	150
INDENO(1,2,3-CD)PYRENE	72519	5633	170 J	13	250	29	39	21	27	21	240
NAPHTHALENE			330 UJ	8.2 U	28	10 U	8.4 U	8.5 U	11 U	9 U	11
PHENANTHRENE			180 J	27	1000	66	150	51	50	68	1400
PYRENE			400 J	50	1900	130	180	89	110	110	1600
LOW MOLECULAR WEIGHT PAHS			326	27	1523	83	232	64	63	82	2123
HIGH MOLECULAR WEIGHT PAHS			2170	268	7327	626	979	465	588	496	6166
TOTAL PAHS			2496	295	8850	709	1211	529	651	578	8289

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APPENDIX D-3

SEDIMENT PAH DATA 1998 THROUGH 2005
OLD FIRE FIGHTING TRAINING AREA
NAVSTA NEWPORT, NEWPORT, RHODEISLAND

SAMPLE LOCATION	Human Health PRG	Ecological PRG	OFF-SD-476	OFF-SD-476	OFF-SD-476
SAMPLE NUMBER			OFF-SD-476-0006	OFF-SD-476-200207	OFF-SD-476-200401
SAMPLE DATE			7/2/02	7/1/02	4/1/04
SAMPLE DEPTH IN FEET			0-0.5	0-0.5	0-0.5
DUPLICATE					
PAHs (UG/KG)					
2-METHYLNAPHTHALENE		185	8.8 U	NA	NA
ACENAPHTHENE			8.8 U	NA	NA
ACENAPHTHYLENE		697	8.8 U	NA	420
ANTHRACENE			14	7	440
BENZO(A)ANTHRACENE	1338		59	17	590
BENZO(A)PYRENE	134		70	NA	290
BENZO(B)FLUORANTHENE	1338		96	NA	220
BENZO(G,H,I)PERYLENE			33	NA	140
BENZO(K)FLUORANTHENE			46	NA	260
CHRYSENE			64	16	470
DIBENZO(A,H)ANTHRACENE	134	2434	8.8 U	NA	160
FLUORANTHENE			130	37	2640
FLUORENE			8.8 U	88	100
INDENO(1,2,3-CD)PYRENE	72519	5633	28	NA	38
NAPHTHALENE			8.8 U	NA	90
PHENANTHRENE			62	19	2140
PYRENE			130	35	1970
LOW MOLECULAR WEIGHT PAHS			76	190	3190
HIGH MOLECULAR WEIGHT PAHS			656	33	6778
TOTAL PAHS			732	223	9968

Notes:

Backlit text indicates exceedance of Human health PRGs

Grey shade indicates exceedance of Ecological PRGs

* Value for this parameter was rejected by the analytical laboratory due to Inductively Coupled Plasma (ICP) interference caused by high concentrations of magnesium and/or calcium in the sediment samples.

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APPENDIX E

FORENSIC SEDIMENT INVESTIGATION REPORT
(NEWFIELDS 2005)

NEWFIELDS

FINAL REVISION

HYDROCARBON CHARACTERIZATION
NAVAL STATION NEWPORT, RHODE ISLAND
OLD FIRE FIGHTING TRAINING AREA
SITE 09

February 2006

prepared for

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LIST OF ATTACHMENTS

Attachment A: Tables
Attachment B: Figures
Attachment C: High Resolution Hydrocarbon Fingerprinting Results by GC/FID
Attachment D: Saturated Hydrocarbon Results by GC/MS/SIM
Attachment E: Triterpane Fingerprinting Results by GC/MS/SIM
Attachment F: Laboratory Report for Data Delivery Group ETR0502110
Attachment G: Quality Control Data Summary
Attachment H: Environmental Forensics Overview and Supplemental Reference Materials
Attachment I: Past OFFTA Soil Samples and Biodegradation Patterns

Executive Summary

The Navy conducted a hydrocarbon characterization of sediments collected around the Old Fire Fighting Training Area (OFFTA) within the Naval Station that abuts Coasters Harbor in Newport, RI (Site). The results of this study were intended to help the project team evaluate sediment impacts associated with the restoration of the OFFTA Site during 2004 and 2005. A sampling strategy based upon the known historic and current candidate sources was developed based on the Navy User's Guide for Determining the Sources of Contaminants in Sediment (Stout et al., 2003). The framework for this assessment was described in a previous hydrocarbon investigation that established the sediment conditions prior to the restoration activities (Emsbo-Mattingly, 2002). This systematic assessment relied on the geospatial distributions of hydrocarbon fingerprints, saturated hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), and geochemical biomarkers. Collectively, these multiple lines of evidence helped determine the most likely origin of PAHs in the study area.

Two rounds of samples were collected from the OFFTA Study Area in 2002 and 2005. The samples collected in 2002 included two soil samples from areas that previously had elevated levels of PAHs. In addition, the Navy collected sediment samples within the storm sewers and along the OFFTA shoreline. The samples collected in 2005 also included sediment samples from the storm sewers and OFFTA shoreline. Four of the 2005 sediment locations were co-located with 2002 sediment samples to assess the change in sediment quality during the site restoration activities. An additional sediment sample was collected in 2002 and 2005 from a Reference Area location in Jamestown Potter Cove to identify regional hydrocarbon patterns not associated with the OFFTA Site. Additional Reference Area sediment samples from the Narragansett Bay collected as part of other environmental assessments were added to this analysis to better represent the hydrocarbon heterogeneity in this complex coastal environment. In addition, Reference Materials of commonly encountered petroleum and tar products (e.g., fuels, lubricating oils, and pavement) were added to this source identification study. The kerosene and diesel reference samples were combusted and evaporated to better represent the hydrocarbon residues and weathering states of fuels likely used at the OFFTA.

The results of this study indicated that the Coasters Harbor and Reference Area sediments contained similar hydrocarbon mixtures. The anthropogenic hydrocarbons associated with local and regional background consisted of diesel and asphalt range petroleum mixed with heavy pyrogenic PAHs from byproducts of combustion (e.g., soot) or carbonization (e.g., tar). These data revealed that the dominant origin of this material was likely varying types of abraded pavement commingled with diesel and marine fuel oil attributed to chronic releases from regional vehicular traffic. The absence of weathered diesel and heavy fuel oil associated with the OFFTA soils ruled severely against the candidacy of OFFTA derived hydrocarbons in the proximal sediments. By contrast, Coasters Harbor sediments contained a complex mixture of diesel range petroleum and pyrogenic PAHs consistent with non-OFFTA sources (e.g., background and tar containing pavement). The inconsistent degree of weathering between the diesel signatures and the saturate/biomarker patterns in the sediment samples could not have originated from the petroleum residues in the soils impacted by OFFTA activities.

The PAH concentrations and compositions exhibited no significant changes in sediment samples collected between 2002 and 2005 except in one storm sewer where the concentrations of PAHs declined over the study period. Therefore, recent restoration activities at the OFFTA site did not adversely impact proximal sediments; indeed, the sediment quality associated with the reconstructed storm water system reduced the transport of hydrocarbon enriched particulates to Coasters Harbor.

1. INTRODUCTION

The former Old Fire Fighting Training Area (OFFTA) resided on the bank of Coaster Harbor within the current Naval Station in Newport, Rhode Island (Figure 1a). It is also referred to as Site 9. The Newport area is one of the most intensely developed regions around Narragansett Bay as indicated by the density of paved roadways (Figure 1b). The former OFFTA facility consisted of several simulated air craft carrier compartment buildings and other naval structures constructed for the purpose of training naval personnel in various fire suppression techniques. Nearby tanks or oil tanker trucks presumably supplied fire training fuel into fire fighter training facilities. The candidate fuel types for the fire training exercises may have included kerosene range jet fuel (JP5), diesel range marine fuel oil (MFO, a.k.a. diesel fuel marine or DFM), and heavy fuel oil (HFO). The diesel range petroleum was likely the dominant material used because kerosene was expensive and heavy fuel oil was difficult to ignite outside of an industrial boiler.

This hydrocarbon characterization was part of a more comprehensive assessment intended to develop an appropriate risk management decision for the site. Past environmental studies identified several contaminants of concern in sediments from Coasters Harbor adjacent to the OFFTA site including polycyclic aromatic hydrocarbons (PAHs). A previous hydrocarbon characterization concluded that fire fighter training fuels were not the source of PAHs in sediments around the OFFTA; rather, the PAH fingerprint of Coasters Harbor sediments consisted of background material mixed with storm drain runoff (Emsbo-Mattingly, 2002). The present investigation tested the durability of these conclusions with many samples collected at the same locations three years after the initial phase of the investigation. In addition, it included samples from new locations intended to further evaluate the potential migration of fuel contaminated OFFTA soils mobilized as part of recent site remediation activities.

The primary objectives of the project were to determine:

1) the relationships among hydrocarbons in OFFTA soils, Coasters Harbor sediments, Reference Area sediment, and Reference Material samples of petroleum and tar; and

2) the extent to which PAHs in Coasters Harbor sediments could be attributed to impacts of hydrocarbons derived from OFFTA activities.

This study compared the composition of PAHs and other hydrocarbons in surficial sediment samples collected in Coasters Harbor with one Reference Area representing ambient background from Jamestown Potter Cove (JPC). The results from samples collected during a previous hydrocarbon characterization in 2002 were compared to sample results generated in 2005. Additional Reference Area sediment samples were added from other environmental investigations around Narragansett Bay to better represent the range of background PAH signatures. Inspection of a roadmap (Figure 1b) revealed a striking difference between the degree of urbanization between these Reference Areas and Coasters Harbor. The higher degree of paved surfaces in Newport, RI implied that the constituents of roadway runoff (e.g., vehicular soot and abraded pavement) will be present at higher levels in Coasters Harbor sediments relative to the Reference Area sediments. Irrespective of concentration, however, the composition of background PAHs helped establish the variability in background PAH signatures present in Narragansett Bay.

Several attachments were added to this report in response to reviewer comments. Attachment G presents a summary of quality control data that establish the validity of these data for forensic interpretation. Attachment H contains forensic data generated from common petroleum and tar containing materials that are commonly encountered during environmental investigations. Attachment I displays the biodegraded hydrocarbon signatures encountered around the OFFTA site during past investigations.

2. TECHNICAL APPROACH

Past assessments demonstrated the presence of PAHs in the Coasters Harbor sediments. In order to help evaluate the possible effects of historical OFFTA activities on proximal sediments, a sampling strategy that incorporated the known historic and current candidate sources was developed based on the Navy User's Guide for Determining the Sources of Contaminants in Sediment (Stout et al., 2003). The historical activity of greatest environmental concern in the Study Area was primarily fire fighter training associated with the simulated carrier compartments and other naval structures in the area (Figure 2). Other potential hydrocarbon sources included landside runoff channeled through storm sewers.

The sampling plan prioritized sediment samples in the most likely direction of surface and sub-surface runoff from the OFFTA structures (Figure 2). Samples collected for the hydrocarbon characterization in 2002 (Figure 2, blue circles) were primarily used to evaluate the origins of PAHs in a previously identified hot spot (Figure 2, sample 410). Samples collected in 2005 (Figure 2, red circles) were collected along the OFFTA shoreline to determine if on site remediation activities mobilized OFFTA fuel contaminated soils offshore by erosion or other migration pathway. Additional samples were collected in 2002 and 2005 from the storm water sewers that drain parking lots and roadways into Coasters Harbor. Soil samples were collected in 2002 in test pits with hydrocarbon contamination potentially associated with historical OFFTA activities. Two samples of abraded asphalt were collected from the shoreline of Coasters Harbor and served as representative examples of pavement used in the Newport area over time. Reference Area sediment samples were collected from Jamestown Potter Cove in 2002 and 2005. Additional Reference Area sediment samples (top 6 to 8 inches) from other studies (Emsbo-Mattingly 2004a and 2004b) were added to this report to help define the regional background signature of Narragansett Bay (Figure 1). Reference Materials of crude oil, petroleum fuels (kerosene, diesel, #2 Fuel Oil, #4 Fuel Oil, and #6 Fuel Oil), petroleum lubricating oil, coal tar, and pavement were also added to the analysis for comparison purposes. Table 1 summarizes the samples discussed in this report. Figures 1 and 2 present maps of the applicable sample locations.

This hydrocarbon characterization is centrally focused on the forensic samples collected in 2005. Selected data from the 2002 study were incorporated when necessary to describe OFFTA contamination signatures and other relevant comparisons. The reader is referred to Attachment H for additional information on the petroleum and tar Reference Materials briefly described in the report. The reader is also referred to Attachment I and the previous forensic study (Emsbo-Mattingly, 2002) for a discussion of historical hydrocarbon fingerprints observed at the OFFTA site.

Identifying the origin of PAHs in the sediment is a stepwise process that depends on several factors. This process begins with a general discussion of concentrations of carbon-containing materials. Thereafter, the hydrocarbon composition, PAH, and biomarker compositions are evaluated. At each step, the composition of the sediment samples are compared to those of the candidate source samples (e.g., contaminated soils from OFFTA, pavement samples from the OFFTA shoreline, and selected Reference Materials) and Reference Area sediments. The following sections evaluate the similarities and differences among the source and release area samples. These data provide multiple lines of evidence for determining the most likely origin of PAHs in the study area.

3. ANALYTICAL METHODS

The samples were prepared and analyzed in accordance with published methods (Emsbo-Mattingly *et al.*, 2003; Stout *et al.*, 2003; Stout *et al.*, 2002). The samples were analyzed by several methods in order to provide a detailed description of hydrocarbons with a broad molecular weight range. In general, the high resolution hydrocarbons fingerprint painted a broad-brush picture of the dominant extractable hydrocarbons types while the mass spectrophotometric methods provided more detailed and purified profiles of the tar and petroleum products (Emsbo-Mattingly *et al.*, 2003; Stout *et al.*, 2002). We used these data collectively to characterize the types of hydrocarbon materials in the study samples.

3.1 Sample Collection and Shipping

The field team collected approximately 16 samples that included 2 blind duplicates in February, 2005 (Figures 1 and 2). Surficial sediment samples were collected from the 0" to 6" interval with a grab sampler. The depth interval was selected by Navy to evaluate PAH impacts associated with the ongoing risk assessment activities (TTNUS, 2005).

The field samples were shipped via overnight courier and received between 2°C and 6°C at the Woods Hole Group Environmental Laboratories (WHGEL) in Raynham, Massachusetts. The samples were received by the laboratory on February 25, 2005 (Table 1). One sample (OFF-SD-DUP01-01) had a cracked lid upon receipt. The secondary packaging maintained the sample integrity. The lid was replaced by the laboratory. Other information related to chain of custody and sample receipt was provided at the end of the laboratory reports (Attachment F).

The sample ID's were abbreviated when necessary to simplify the tables and figures used for data presentation (Table 1).

3.2 Sample Preparation

An aliquot of each sediment sample (30 g wet weight for sediments and soils; 10 g wet weight for debris samples) was fortified with surrogates, dried with sodium sulfate and serially shake extracted with dichloromethane (DCM). The Debris sample included the surface and subsurface material from the pavement fragment that were crushed and mixed prior to extraction. The sample extracts were concentrated by Kuderna-Danish and nitrogen blow down techniques. Sulfur and polar interferences were removed with a copper powder and alumina, respectively. The sample extracts and diluents were split prior to analysis. The extracts were fortified with internal standards and submitted for GC/FID and GC/MS/SIM analyses (described below).

3.3 High Resolution Hydrocarbon Fingerprint and TPH

The sample extracts were analyzed using a high-resolution gas chromatograph equipped with a flame ionization detector (GC/FID). High resolution GC/FID fingerprints were generated over a broad carbon range (approximately n-C_9 to n-C_{40}) that provided an overall assessment of the semi-volatile hydrocarbons present in each sample. These fingerprints provided information on the dominant extractable hydrocarbons that potentially included pyrogenic PAHs, petroleum products, and detrital vegetation. The GC/FID fingerprints for each field and QC sample were placed in Attachment C.

3.4 Polycyclic Aromatic Hydrocarbons (PAH)

The sample extracts were also analyzed using a high-resolution gas chromatograph equipped with a mass spectrometer operated in the selected ion monitoring mode (GC/MS/SIM). The instrument was calibrated to allow for quantification of a broad range of 2- through 6-ring PAHs, selected alkylated PAH homologues, selected sulfur-containing compounds (dibenzothiophenes), and other compounds useful for the identification of hydrocarbon sources in the environment. Table 2 presented an inventory of the target compounds along with abbreviations used in selected figures of this report. The acronym EPAPAH was used in the discussion in reference to the sum of the 16 individual EPA Priority Pollutant PAH compounds

(Table 2). Similarly, the acronym TPAH refers to the sum of forty-three PAHs used for the forensic analysis of PAH patterns. Collectively, the concentrations of these target compounds helped qualitatively and quantitatively compare the Study Area samples. The concentrations of PAHs in solid samples were reported in dry weight units. As part of the discussion, PAH histograms were constructed to summarize the most significant compositional features.

3.5 Saturated Hydrocarbon Fingerprints and Triterpane Biomarkers

Environmental forensic investigators demonstrated that the presence and/or pattern of biomarkers revealed information about the specific source(s) of petrogenic residues in the environment; e.g., petroleum or coal (Stout et al., 2002). Accordingly, the sample extract was injected into a GC/MS/SIM instrument. Saturated hydrocarbon fingerprints were generated from this analysis (Attachment D). These fingerprints helped identify the types of petroleum products in the sample. In addition, the laboratory generated triterpane fingerprints (Attachment E). The relative abundances diagnostic biomarkers helped identify different origins of heavy fossil fuel.

3.6 Visual Presentation of Data

This investigation generated a substantial quantity of chemistry data, both chromatographic and numerical. In order to present this data in a meaningful manner, we used a variety of visual and graphical techniques to display and explain the most significant features. Largely, we relied upon four methods of data visualization in this report. These include:

- Gas Chromatograms presented the raw output from analytical instruments used to characterize the hydrocarbon distributions.
- Histograms for graphically comparing detailed PAH data.
- Principal Component Analysis Plots using multidimensional statistics to ascertain similarities or differences in chemical composition among samples.
- Whenever possible, color coding and symbols were used to illustrate the most relevant compositional features.

Reference Material samples of petroleum and tar products are presented in Attachment H. Historical site data are presented in Attachment I. The reader is advised to refer to these attachments for comparison purposes.

4. RESULTS AND DISCUSSION

We divided the results and discussion into method-specific sections for ease of presentation. This section opens with an assessment of the quality control data associated with the forensic results. This is followed by a discussion of the major hydrocarbon patterns evident in the field samples using high resolution hydrocarbon fingerprints (GC/FID). Thereafter, we present a more detailed description of the hydrocarbon materials evident in the GC/MS/SIM data. These data helped equate source identification features in the absence of compounds that might otherwise interfere with the interpretation. Herein, the PAH data proved most useful for characterizing the soot and tar residues while the saturate and biomarkers helped describe the petroleum materials. The multiple lines of evidence developed in these sections of this report are drawn together in the subsequent summary section.

4.1 Quality Control Assessment

All of the analytical data generated in 2002 and 2005 was carefully reviewed and evaluated before any forensic evaluation was conducted. These quality control data (Attachment G) demonstrated a high degree of precision, accuracy, representativeness, comparability, and sensitivity with respect to the project wok plan (TTNUS, 2005). A summary of this assessment follows.

The methods used to generate the forensic data evaluated in this report had a nominal detection limit for sediments around 1 ug/kg. These limits were sufficiently low to measure PAH concentrations and evaluate hydrocarbon patterns at levels significant for the site risk assessment; i.e., low mg/kg levels for total EPAPAHs. In addition, the methods were more than adequate to detect strong hydrocarbon signatures in ambient background samples. In this way, the hydrocarbon patterns in source, site, and reference samples were reliably identified, compared, and quantified within the calibration range of the methods. The trace level techniques used for the generation of these forensic data minimized the uncertainty of the forensic interpretation.

Additional quality control data further demonstrated the minimal uncertainty associated with these forensic data. The method blanks contained low levels of PAHs that indicated the absence of bias associated with false positives; thus, these samples represented the field conditions from which they were collected. The laboratory control sample and surrogate spike recoveries fell within the applicable QC limits for accuracy. Despite particulate homogenization in the laboratory, the sample duplicates from 2002 presented a high degree of variability in terms of absolute concentration. By contrast, the surrogates in the same samples exhibited a high degree of precision and indicated that the cause of variability was sample matrix heterogeneity and not the laboratory procedure. The variability in absolute concentration among these duplicates did not affect the forensic interpretation, because the relative abundances of the PAHs did not change significantly (see samples 5 and 5(DUP) in Figure 5b). This type of concentration variability and source signature similarity was consistent with the presence of hard particles with relatively concentrated PAHs distributed heterogeneously in the field samples; e.g., a tar containing aggregate.

The variability in one of the duplicate field samples collected in 2005 also exhibited high variability in multiple target analyte concentrations. Again, the differences in the absolute concentration did not affect the interpretation (see samples Debris1' and Debris1' DUP in Figure 5b). The high degree of precision among corresponding surrogate and laboratory control duplicate analytes indicated that the laboratory techniques performed exceptionally well. Independent check standards contained target analytes from a source independent of the calibration standards and verified the high degree of measurement accuracy in 2002 and 2005. Finally, reference crude oil samples established that the alkylated PAHs were measured precisely and accurately relative to years of historical performance. The high degree of measurement precision among 2002 and 2005 data are further supported by the close clustering of the crude oil samples in the PCA scores plot (see Crude02, Crude05a, and Crude05b in Figure 5e plus PAH section below for further discussion). Collectively, these data demonstrate that the methods used in 2002 and 2005 were comparable and sufficient for forensic interpretation.

4.2 Dominant Hydrocarbon Signatures

High resolution hydrocarbon fingerprints (GC/FID) revealed the dominant hydrocarbon patterns in the environmental samples. The principal patterns of interest in this study included organic residues of thermal decomposition *(e.g.,* soot, creosote, and tar-based asphalt) and petroleum *(e.g.,* diesel, heavy fuel oil, and petroleum asphalt). These patterns were identified by characteristic assemblages of saturated and aromatic hydrocarbons.

The sediment samples collected from the storm sewers contained heavy asphalt range hydrocarbons characteristic of abraded petroleum asphalt in roadway runoff (Figures 3a, 3b, and 3c, respectively). These samples also contained heavy PAHs with 3- to 6-rings indicative of thermal decomposition (e.g., soot or weathered tar product). Of these samples, OFF-SD-OTSOF075-0006-01 (Figure 3b) contained the highest level of heavy PAHs (e.g., soot or weathered tar product). Sample OFF-SD-OTSOF075A-0006-01 (Figure 3c) also contained heavily biodegraded middle distillate as indicated by the pronounced unresolved complex mixture (UCM) eluting between decane (n-C_{10}) and pentacosane (n-C_{25}) topped by isoprenoids in the absence of normal alkanes. This diesel range material was not observed hydrologically up gradient within the storm water sewer (Figure 3b) or down gradient below the storm sewer outfall (Figure 3d). Importantly, Coasters Harbor sediment from the OF075 outfall area (OFF-SD-SD5-0006-01 in Figure 3d) most closely resembled sediments collected closer to the parking lot areas (see late eluting UCM and 3- to 6- PAHs in Figures 3a and 3b). This pervasive fingerprint also appeared in the reference area (OFF-SD-JPC03-0006-01 in Figure 3e) and throughout the OFFTA area (see examples OFF-SD-414-0006-01 in Figure 3f and OFF-SD-442-0006-01 in Figure 3g) with one exception. Sample OFF-SD-OFF7-0006-01 (Figure 3h) shared the compositional features of asphalt range material and heavy PAHs; however, it also contained diesel range petroleum. This material was moderately biodegraded as indicated by the slightly higher abundance of normal alkanes relative to the isoprenoid hydrocarbons.

The samples of abraded pavement collected from the OFFTA shoreline helped clarify the likely origin of the heavy petroleum and PAHs observed throughout the Study Area. Specifically, the late eluting UCM in OFF-SD-414-DEBRIS1 (Figure 3i) was a very consistent feature of the storm sewer, Coasters Harbor and Reference Area samples. This pattern also appeared in SO15 (Figure I1f) collected from a test pit within the OFFTA. We attributed this chemical fingerprint to petroleum asphalt paving material. In addition, the heavy PAHs in OFF-SD-414-DEBRIS2 (Figure 3j) were also widely observed throughout the storm sewer, Coasters Harbor and Reference Area samples. A distinctive feature of the OFF-SD-414-DEBRIS2 sample was the higher levels of 2-ring PAHs. These more reactive PAHs persisted in the insulated confines of the pavement piece with restricted exposure to benthic organisms, seawater, air, and other sources of biogeochemical weathering. This wide range of PAHs was consistent with a tar product, like several types of paving binder used historically to pave roads (Figures H1n and H1o). These pieces of abraded pavement exemplified the most abundant and pervasive hydrocarbons observed in the Coasters Harbor and Reference Area sediment samples.

The diesel range material in OFF-SD-OTSOF075A-0006-01 (Figure 3c) and OFF-SD-OFF7-0006-01 (Figure 3h) was not from the same release. The heavily weathered hydrocarbons in OFF-SD-OTSOF075A-0006-01 (Figure 3c) were similar to the middle distillate in sample SO11 (Figure I1a) collected from an adjacent test pit that was excavated near some former OFFTA equipment. In both cases, the normal alkanes were very low in comparison to the isoprenoid hydrocarbons. The physical proximity and compositional similarity of samples OFF-SD-OTSOF075A-0006-01 and SO11 suggested the possibility that low levels (Table 3) of residual fire fighter training fuel leaked into the storm sewer system. However, these lighter and more reactive distillate hydrocarbons were not widely distributed possibly due to dilution and weathering. In addition, the degraded diesel range hydrocarbons were clearly not the source of heavy PAHs observed widely in the Coasters Harbor and the Reference Area samples. Similarly, the heavily biodegraded middle distillate in OFF-SD-OTSOF075A-0006-01 (Figure 3c) was distinct from the less degraded middle distillate in the surface sediment grab sample OFF-SD-OFF7-0006-01 (Figure 3h). This conclusion is based on the principal that weathered fuel oil can not become less weathered as it migrates through the environment. It is more likely that OFF-SD-OFF7-

0006-01 represents a distinct and possibly more modern release of diesel in the inner reaches of Coasters Harbor.

4.3 Petrogenic and Pyrogenic PAH Patterns

The concentration and distribution of polycyclic aromatic hydrocarbons (PAHs) provided greater detail and specificity about the type of petroleum, tar, soot, and plant material in the field samples. For example, petroleum possesses a petrogenic PAH pattern consisting of low parent abundance relative to the alkylated PAHs; e.g., C0 < C1. By contrast, pyrogenic PAHs form during the partial combustion or pyrolysis of organic matter. A pyrogenic PAH pattern exhibits high parent abundance relative to the alkylated PAH; e.g., C0 > C1 > C2, before weathering. Finally, diagenetic PAHs, like retene and perylene, form naturally in sediments containing specific types of decaying vegetation. The reader is encouraged to pay particular attention to the use of the terms, petrogenic, pyrogenic, and diagenetic, because they indicate the presence of PAHs from different sources in this study. Forensic scientists employ diagnostic concentration patterns and relative abundances to help identify the presence of PAHs from distinct origins. At the outset, it should also be noted that the PAH data are more reliable source indicators than the peak heights used in the simpler hydrocarbon fingerprinting due, in part, to the potential presence of interferences *(e.g.,* QC compounds, phthalates, halogenated organics, and others) and subtle chromatographic changes (peak widening) that can occur in the GC/FID fingerprints. Consequently, we used the more reliable PAH data for the definitive characterization of PAH sources.

The PAH concentrations in the Study Area were stable (Table 3). Using the sum of 16 EPA Priority Pollutant PAHs (EPAPAH analytes in Table 2), the PAH concentration ranged from 0.52 mg/kg in the Reference Area to 21.9 mg/kg in the parking lot storm sewer (Table 3). Intermediate concentrations prevailed in the Coasters Harbor sediment samples (2.82 mg/kg in OFF-SD-OFF2-0006-01 to 16.5 mg/kg in OFF-SD-442-0006-01). These intermediate concentrations were consistent with the notion that PAHs in Coasters Harbor sediments were largely composed of regional background material mixed with local storm sewer discharges. The PAH concentrations measured in 2005 were very similar to those observed in 2002 study (0.11 mg/kg in the Reference Area, 36.0 mg/kg in a parking lot storm sewer, and 0.41 mg/kg to 17.0 mg/kg in Coasters Harbor sediment samples)(Table 3). Therefore, this mixture model was consistent over the three year study period. Collectively, these results were consistent with published PAH concentration ranges in urban background sediments that are below about 20 mg/kg for the sum of EPAPAHs (Stout, *et al.*, 2004).

Table 3 provided additional insight into the local PAH sources and distribution in Coasters Harbor. First, the OFF-SD-414-DEBRIS2 sample (7,660 mg/kg EPAPAH) demonstrated that very little particle abrasion from old pavement could significantly influence proximal sediments through migration mechanisms such as storm sewers and tidal movement. Thus, the higher density of roadways and vehicular traffic in the Newport area might explain some of the differences in PAH concentration between the Reference Area and Coasters Harbor (Figure 1b). Second, the chronic input of PAHs conveyed through storm sewers was evident in the higher PAH concentrations at OFF-SD-OTS-075 over time (36.0 mg/kg EPAPAHs in 2002 and 21.9 mg/kg EPAPAHs in 2005) relative to the receiving sediments in Coasters Harbor. Third, a modest reduction in PAH concentration occurred at the OTS-OF075 sampling location over the last three years. We speculated that the reduction in PAH concentration reflected a change in the use of land in the local watershed over the last three years. Similarly, the change in land use (old parking lot converted to new building, lawn and smaller parking lot) and the installation of a Vortex sediment trap upgradient of the OFF-SD-OTSOF093-0006-01 sampling location was credited with the dramatic reduction in PAHs over this same time interval (14.6 mg/kg EPAPAHs in 2002 and 0.44 mg/kg EPAPAHs in 2005). In summary, the reduction of PAH concentration in the storm sewers and the stable sediment concentrations established that recent remediation activities did not cause significant adverse effects on Coasters Harbor sediments.

The PAH composition of sediment samples from the Study Area predominantly originated from urban runoff. Specifically, the sediment samples from the parking lot storm sewer contained a mixture of pyrogenic 3- to 6-ring PAHs and petrogenic 3- to 4-ring PAHs (Figure 4a). This modern pyrogenic

material reflected the typical signature of soot from vehicular emissions (Figure 4d in Emsbo-Mattingly, 2002) and old abraded pavement with a tar binder (Figure 4g). The petrogenic material resembled residual petroleum characteristic of petroleum asphalt pavement (Figure 4f). This mixture of pyrogenic and petrogenic PAHs reappeared in the Reference Area (Figure 4b) and throughout the Coaster Harbor sediment samples (Figures 4c, 4d, and 4e). The varying expression of pyrogenicity (PAH contour sloping down to the right of a homologous series of PAHs) and petrogenicity (PAH contour rising to the middle or right of a homologous series of PAHs) was likely caused by PAH contributions of abraded pavement and vehicular runoff from local roadways. In addition, pyrogenic and petrogenic PAHs may have also originated from regional releases of middle and heavy fuel oils associated with recreational and industrial traffic on land and water.

As discussed previously, three samples from the Study Area contained PAH patterns with low level influences from diesel range petroleum. First, the soil sample (SO11) collected in 2002 from a test pit in the OFFTA demonstrated the PAH signature of middle distillate fuel used as part of historical fire fighter training (Figure I2a). This signature was dominated by petrogenic 2-ring PAHs with progressively lesser amounts of petrogenic 3- and 4-ring PAHs and no significant pyrogenic 3- to 6-ring PAHs like that observed in the sediment samples (Figures 4a, 4b, 4c, 4d, and 4e). Second, the storm sewer sediment sample from OFF-SD-OF075A-0006-01 was predominantly pyrogenic with some petrogenic 2- and 3-ring PAHs derived from diesel range petroleum (Figure 4d). Third, the surface sediment OFF-SD-OFF7-0006-01 was similarly dominated by pyrogenic PAHs with lesser amounts of petrogenic PAHs (Figure 4e). The low levels of diesel derived PAHs were evident in the petrogenic 2- and possibly 3-ring PAHs. The diesel in OF075A was slightly heavier (more N3, N4, PA3, PA4) than OFF7 possibly due to evaporation. In short, none of the diesel related patterns were the source of the pyrogenic 3- to 6-ring PAHs that dominated the Coasters Harbor and Reference Area sediment samples.

The likely sources of dominant PAHs in the Study Area sediment samples appeared in the two pavement samples. First, OFF-SD-414-DEBRIS1 demonstrated a typical pattern of residual petroleum used commonly to bind sand and gravel during the modern manufacture of pavement. Notice the high levels of petrogenic 3- to 4-ring PAHs (Figure 4f). Low levels of pyrogenic 5- and 6-ring PAHs likely formed during the pavement preparation and cooking process. Alternatively, they may indicate the adherence of soot or other combustion byproducts. These features are evident in the modern pavement Reference Material samples (Figures H2l and H2m). Second, OFF-SD-414-DEBRIS2 demonstrated a commonly encountered pattern of tar derived PAHs. Notice the pyrogenic 3- to 6-ring PAHs with no corresponding mixtures of petrogenic PAHs (Figure 4g). These features are evident in historical pavement Reference Materials (Figures H2n and H2m). Recognizing that soot exhibits a similar PAH signature, we attributed the primary source of pyrogenic 3- to 6-ring PAHs to the pavement pieces because they were littered around the intertidal shoreline adjacent to the OFFTA and exhibited eroded edges. The high PAH concentration of these materials was such that tidal erosion of these particles and ongoing inputs of local storm sewer systems favored tar bound pavement as the most likely and potent source of heavy pyrogenic PAHs.

The distinction between the PAH composition of pavement samples and other petroleum products was evident by direct comparison with various reference samples. Notice how the petrogenic PAH patterns in the kerosene (Figure 4h), diesel (Figure 4i), and crude oil (Figure 4j) reference samples differed from the pyrogenic 3- to 6-ring PAHs that dominated the sediment samples and caused the greatest environmental concern at this site. Environmental weathering of these petrogenic PAHs caused the loss of lighter molecular weight constituents, but weathering could not transform them into heavy pyrogenic PAHs. Therefore, severely weathered petroleum products may contribute heavy alkylated PAHs to the sediment, but they could not serve as the source for the heavy pyrogenic PAHs in the sediments.

The PAH composition of other reference material samples are presented in Attachment H. Herein, additional samples of crude, #2 fuel oil, #4 fuel oil, #6 fuel oil, used lube oil, combusted kerosene, combusted diesel, and pavement samples are presented. The abundances of petrogenic relative to pyrogenic PAHs in the fuels and lubricating oils (Figures H2a to H2k) were not observed in the Coasters Harbor sediments; therefore, these materials were not considered significant PAH sources near the

OFFTA shoreline. As discussed previously, samples of historical pavement (Figures H2n and H2o) contained higher levels of pyrogenic PAHs commensurate with the compositional patterns observed in the Debris 2 and Coasters Harbor sediment samples.

We used Principal Components Analysis[a] (PCA) to compare the PAH compositional features more quantitatively. PCA was run on a data set that included Coasters Harbor sediments, JPC Reference Area sediments, OFFTA soils, and the shoreline Debris samples. Factors 1 and 2 accounted for 86% and 11% of the variability, respectively. As a rule of thumb, samples that plotted closely together on the PCA scores plots (Figures 5a to 5e) were compositionally similar and the degree of separation among samples was proportional to the compositional differences. For example, OFF-SD-414-DEBRIS2 plotted by itself in the upper right of because it primarily contained pyrogenic 3- to 6-ring PAHs while the Test Pit 11 (SO11 and AQ11 from 2002) samples plotted in the lower center and lower right because they contained petrogenic 2- and 3-ring PAHs (Figure 5a). Notice that the alkylated 2- and 3-ring PAHs plotted in the lower right of the PCA loading plot (Figure 5f). The remaining samples contained mixtures of pyrogenic and petrogenic PAHs. Figure 5b explores the narrow compositional variability within the dashed box in Figure 5a. Herein, the Coasters Harbor sediment samples plotted between the Reference Area (JPC03) and the Storm Sewer (OF075) samples. Notice also that these samples plotted closely to DEBRIS1 which contained modern pavement with an asphalt range petroleum binder. The low levels of diesel range PAHs caused OFF-SD-OFF7-0006-01 and OFF-SD-OTSOF075A-0006-01 to plot slightly to the lower right of the remaining sediment samples collected from Coasters Harbor. Samples that plotted to the upper right of DEBRIS1 contained higher levels of soot or abraded pavement with a tar binder (e.g., 442, 471, and OF075). Notice that the pyrogenic 3- to 6-ring PAHs plotted in the upper right of the PCA loading plot (Figure 5f). In summary, the Coasters Harbor sediments were compositional intermediates within the mixing zone between regional background PAHs and local roadway runoff.

Figure 5b strongly affirmed that the PAH composition did not change at locations OF075, SD5, and JPC03 over the three year study period. Notice the close proximity in the scores plot of samples collected from these locations in 2002 and 2005. Therefore, these data indicated that recent site remediation activities did not change the composition of sediment at these locations. In fact, the only significant compositional change occurred in the OF093 storm sewer where the 2002 sample contained more pyrogenic PAHs than the 2005 sample. This relationship suggested that lower levels of pyrogenic 3- to 6-ring PAHs were en route to the receiving sediments. The decline of PAH concentrations between the sample collection events of 2002 and 2005 was attributed to 1) a change in the land use from a large parking lot to a building surrounded by lawn and a smaller parking lot, and 2) the installation of a Vortex storm drain filtration system upstream of the sample collection location. In short, these improvements appear to be removing particulates, trash, and oil as intended.

Figure 5c compares OFFTA study samples with additional Reference Area samples collected as part of other environmental sediment projects in Narragansett Bay. These additional Reference Area locations are summarized in Table 1 and identified in Figure 1. These data established that background PAH signatures in Narragansett Bay varied in composition. The PAH features that controlled the spread of the samples in Figure 5c reflected changes in the proportion of residual petroleum (e.g., alkylated 4-ring PAHs) and pyrogenic PAHs (e.g., pyrogenic 4- to 6-ring PAHs) in each Reference Area (Figure 5f). This compositional heterogeneity was likely caused by varying PAH contributions from the Providence River, local storm water runoff, and vehicular activity. The local influence of urban runoff was evident in the higher levels of pyrogenic PAHs around the more urban Newport area represented by the Reference

[a] Principal Component Analysis (PCA; Pirouette, Version 3.02, Infometrix, Seattle, WA) is a factor analysis method that generates new independent variables (i.e. factors) that are linear combinations of the original input variables *(e.g.*, PAH concentrations). This method reduces the dimensionality of the data to a few important "principal components" (axes) that best describe variations in the data. The first axis (1st PC) demonstrates the most prominent trend and successive axes (2nd PC, 3rd PC, etc.) demonstrate additional trends in decreasing order of importance. Prior to PCA, the PAH concentration input data are log-transformed to reduce the effect of widely varying concentrations between samples and between individual analytes. The primary objective of the PCA conducted for this study was to aid in the classification of field samples based on their chemical similarities or differences, without any pre-classification as to their nature/source(s). In this report, the results of a PCA are presented using 2-dimensional factor score and loading plots.

Area sediments collected near Castle Hill (DSCH01 and 02, Figure 5c). In summary, the Coasters Harbor sediments plotted within the wider compositional range of the Reference Area samples. This finding strongly supported the conclusion that PAH inputs to the Reference Areas were consistent with PAH inputs to Coasters Harbor sediments (Figure 5c). In summary, the Coasters Harbor sediment samples plotted among the Reference Area samples indicating a compositional mixture of PAHs from various non-point sources.

Figure 5d demonstrated the unique features of middle petroleum distillates that were absent in the hydrocarbon residues in Coasters Harbor sediment samples. Specifically, petroleum products altered by combustion or evaporation in the laboratory retained a unique character (alkylated 2- and 3-ring PAHs with little to no pyrogenic PAHs) that was not observed in Coasters Harbor sediments. The general trend within the lower right corner of the scores plot (Figure 5d) among progressively more evaporated fuels parallels the compositional changes that occur during environmental weathering; e.g., volatilization, biodegradation, and dissolution. Therefore, the weathering of OFFTA fuel residues was not the source of PAHs in proximal shoreline sediments. Similarly, Reference Material samples of crude oil, fuels and lubricants plotted far below and to the right of the Coasters Harbor sediments (Figure 5e). Therefore, these materials were also not dominant constituents of sediments around the OFFTA shoreline. By contrast, reference samples of historical pavement (PAV001, PAV004, PAV005, PAV006, PAV007, and PAV008) exhibited a range of compositional features that closely resembled the SO15 and Debris 2 samples (Figure 5e). These reference materials demonstrate that the more pyrogenic PAHs in Coasters Harbor sediments were most likely derived from abraded pavement.

In summary, the PAH histograms and PCA results collectively indicated that the PAH composition of the Coasters Harbor sediments were very similar. The differences among these samples were best explained as varying mixtures of regional (Reference Area) and local (Storm Sewer) inputs. The likely origin for most of these PAHs included abraded pavement bound with a mixture of petroleum and tar. Chronic inputs of soot and vehicular fuels may have also contributed PAHs to the sediments. The influence of middle distillate in SO11 was limited to the adjacent storm sewer sampling location OFF-SD-OTSOF075A-0006-01. The PAHs derived from middle distillate caused minor increases of petrogenic 2- and 3-ring PAHs. The PAH pattern of diesel in OFF-SD-OFF7-0006-01 did not appear to originate from the storm sewer because it contained lighter PAHs consistent with a less weathered state; hence, this material was an independent modern land or marine diesel release.

4.4 Fugitive Petroleum and Plant Waxes

The saturated hydrocarbon fingerprints revealed the purified profile of fossil fuels (*e.g.,* petroleum and coal) and plant waxes with minimal aromatic interferences (*e.g.,* PAHs). As described previously, most of the sediment samples contained multiple petroleum products mixed with naturally occurring organic material. This sensitive method employed mass spectroscopy to isolate the saturated hydrocarbon fraction within these complex mixtures.

All of the sediment samples from Coasters Harbor and the Reference Area contained diesel range petroleum distillates mixed with heavier asphalt range petroleum residuals and plant waxes (Table 3). All three of these complex mixtures (diesel range, asphalt range, and plant wax hydrocarbons) were components of regional and local background. Sample OFF-SD-JPC03-0006-01 (Figure 6a) exemplified the diesel, asphalt, and plant wax range hydrocarbons present in regional background. The normal alkanes in the middle distillate ranged from approximately n-dodecane (n-C_{12}) to n-tetracosane (n-C_{24}). This range probably extended to hexacosane (n-C_{26}); however, the asphalt range material obscured the high molecular weight tail of the diesel constituents. The diesel range hydrocarbons are heavier than typical diesel fuel oil that commonly contains normal alkanes eluting between n-nonane (n-C_9) and n-hexacosane (n-C_{26}). The difference between the Reference Area signature and typical diesel was attributed to evaporation. Biodegradation was not likely a significant factor in the alteration of this material as indicated by the high normal alkanes, like n-heptadecane (n-C_{17}), relative to the isoprenoid benchmarks, like pristane. The absence of a middle distillate in the 2002 Reference Area and the

minimal degree of biodegradation in 2005 suggested that this material was released in the last three years.

The storm sewer samples illustrated several hydrocarbon types in local runoff. Sample OFF-SD-OTSOF093-0006-01 contained a middle distillate mixed with heavy residual petroleum (Figure 6b). The middle distillate contained normal alkanes ranging from approximately n-tetradecane (n-C_{14}) to n-C_{26}. This hydrocarbon range differed from typical diesel range products that contain hydrocarbons eluting between n-C_9 and n-C_{26}. The difference could be the result of refining or evaporation. Biodegradation was not evident because pristane was approximately three times lower than n-heptadecane (n-C_{17}) – this relative abundance of pristane and n-C_{17} is typical for un-biodegraded diesel fuel. The heavier range petroleum exhibited a UCM topped by large normal alkanes eluting from at least n-C_{24} to n-tetracontane (n-C_{40}). The high abundances of normal alkanes relative to the UCM indicated the presence of a heavy fuel product. Sample OFF-SD-OTSOF075-0006-01 contained normal alkanes eluting between n-C_{24} and n-octatricontane (n-C_{38}) with distinctly higher levels of odd-carbon numbered chains relative to even-carbon numbered chains (Figure 6c). This classic plant wax pattern was large enough to mask the presence of petroleum asphalt. The higher levels of plant waxes coincided with the greater amount of plant material in the drainage area of OF075 relative to OF093. No diesel range material was observed. By contrast, sample OFF-SD-OTSOF075A-0006-01 contained lower levels of plant wax mixed with diesel and asphalt range petroleum (Figure 6d). The diesel range material eluted between n-C_9 and n-C_{24}. Considering the presence of heavier hydrocarbons that obscured the tail end of the diesel pattern, this material likely extended to n-C_{26} in accordance with typical diesel range products. Severe biodegradation was evident in the preferential loss of normal alkanes relative to the isoprenoids (e.g., little to no n-C_{17} was present while pristane persisted). Like the diesel range material collected in sample SO11 from the OFFTA test pit in 2002 (Figure I1a), the primary feature of this middle distillate was the unresolved complex mixture (UCM) eluting between n-decane (n-C_{10}) and n-C_{24} with a maximum around n-hexadecane (n-C_{16}). This biodegraded middle distillate did not appear in the other Study Area samples.

The sediment samples in Coasters Harbor matched the Reference Area with varying amounts of the basic components of regional background: plant wax mixed with diesel and asphalt range petroleums. Sample OFF-SD-SD5-0006-01 (Figure 6e) exhibited more plant waxes than the Reference Area probably because of ongoing inputs from nearby storm sewers (see Figure 6c). The diesel range material appeared evaporated (i.e., n-C_9 to n-C_{12} range hydrocarbons were largely absent) and moderately biodegraded (i.e., n-C_{17} was only slightly higher than pristane). This material was less biodegraded than the OFFTA diesel and was therefore from a different source. The absence of an OFFTA diesel at this location suggested that a low level release through the storm system was not of a sufficient magnitude to be detected amidst the pre-existing diesel range hydrocarbons in the local background environment.

Samples throughout the OFFTA shoreline resembled hydrocarbon mixture in OFF-SD-SD5-0006-01. To the west, the evaporated middle distillate in OFF-SD-OFF02-0006-01 (Figure 6f) and OFF-SD-411-0006-01 (Figure 6g) exhibited slightly more biodegradation than OFF-SD-SD5-0006-01 (e.g., n-C_{17} was equal to or slightly less than pristane). Like the sediment sample at outfall OF075 (Figure 6e), outfall OF093 (Figure 6g) also contained elevated plant waxes in comparison to neighboring sediment samples. Lower levels of plant waxes appeared in OFF-414-0006-01 (Figure 6h) with higher levels of evaporated diesel range hydrocarbons. To the east, the higher levels of evaporated and moderately biodegraded diesel persisted in OFF-SD-442-0006-01 (Figure 6i) and OFF-SD-OFF7-0006-01 (Figure 6j). As indicated by the high resolution hydrocarbon fingerprinting data, OFF-SD-OFF7-0006-01 (Figure 6j) contained higher levels of this middle distillate material relative to the asphalt range petroleum in the remaining Study Area samples.

In summary, we speculated that low level, chronic releases of middle distillates, probably marine fuel oil, occurred throughout the lower Narragansett. These releases were compositionally distinct from the more biodegraded fuel found in the OFFTA soils. A recent release may have occurred to the east of the Study Area as suggested by the highest level of lightly biodegraded diesel in OFF-SD-OFF7-0006-01. However, it was not possible to further determine the source of this evaporated diesel range material.

4.5 Genetic Origins of Heavy Hydrocarbons

Triterpane biomarkers reside in the heavy molecular weight fraction of crude oil and coal. The relative abundances of specific biomarkers help identify the conditions and region where the crude oil and coal were formed (Peters and Moldowan, 1993). The term, genetic signature, refers to the relationship between the molecular architecture of preserved organic matter to the organisms and geochemical processes controlling or influencing the formation of fossil fuel. Having survived millennia under heated and pressurized conditions, selected biomarkers (*e.g.,* triterpanes and steranes) resist the degradation processes that occur in most coastal sediment environments. These biomarkers are capable of differentiating the origins of heavy hydrocarbons even when most of the more labile compounds degrade.

Table 3 summarizes the specific assemblages of triterpane biomarkers that helped compare sources of heavy petroleum in the field and selected reference samples. Table 4 describes the features of each Pattern. Pattern A pervaded the Study Area including the Storm Sewers, Coasters Harbor, and Reference Area samples (see OFF-SD-414-DEBRIS1 in Figure 7a). The low level of tricyclic terpanes was likely caused by the removal of lighter hydrocarbons during the refining process. Samples OFF-SD-OTSOF075A-0006-01 (Figure 7b) and OFF-SD-SD5-0006-01 (Figure 7c) exemplified Pattern A in the Storm Sewers and Coasters Harbor, respectively. Pattern A appeared in the Reference Area as well (Figure 7d). Thus, the pervasive nature of Pattern A was consistent with a wide distribution of a very similar heavy residual petroleum product; for example, petroleum based paving asphalt.

Different triterpane biomarker fingerprints appeared in several locations. For example, we observed Pattern B in sample OFF-SD-OTSOF093-0006-01 (Figure 7e). This genetic difference between OFF-SD-OTSOF093-0006-01 and the Pattern A samples was attributed to the presence of heavy fuel oil as discussed in Section 4.3. Another Storm Drain sample (OFF-SD-OTSOF075-0006-01) exhibited Pattern C. This material was attributed to a slightly different form of petroleum asphalt. Pattern D was associated with trace levels of triterpane biomarkers that were too low to reliably classify. Pattern E was dominated by tricyclic triterpanes indicative of a diesel range petroleum distillate. Pattern F was observed in the crude oil Reference Material sample. It consisted of Ts < Tm, NH < H, and a full complement of triterpanes and homohopanes. Pattern G occurred in kerosene range distillates that contained no detectable triterpane biomarkers. Pattern H was observed in sample SO15. The distinction between Pattern H and A helped differentiate hydrocarbon in OFFTA soils from the Coasters Harbor sediment samples.

In summary, the wide distribution of heavy residual petroleum provided an additional line of evidence that asphalt was present in most of the Study Area samples. Isolated occurrences of other triterpane biomarker patterns helped confirm the presence of heavy fuel oil in OFF-SD-OTSOF093-0006-01. Subtle differences in the biomarker fingerprint likely demonstrated the presence of varying types of asphalt in the local storm sewer systems (e.g., OFF-SD-OF075-0006-01). These triterpane patterns help determine that hydrocarbons in OFFTA were not significant constituents of Coasters Harbor sediments. Rather, the triterpane patterns supported the conclusion that heavy petroleum hydrocarbons in Coasters Harbor and Narragansett sediments originated from similar materials; e.g., abraded pavement from proximal roads and parking lots.

5. SUMMARY

The Navy conducted a hydrocarbon characterization of sediments collected around the Old Fire Fighter Training Area (OFFTA) within the Naval Station adjacent to Coasters Harbor in Newport, RI. The objective of this study was to assess the potential PAH sediment impacts from 1) the historical operation of the OFFTA and 2) recent site restoration activities. This study compared the concentrations and compositions of hydrocarbon residues in contaminated OFFTA soil with sediments collected in Coasters Harbor, Reference Area sediments in Narragansett Bay, and selected Reference Material samples of common petroleum and tar products. In order to address the project objectives, advanced chemical analyses (high resolution hydrocarbon fingerprints, alkylated PAHs, and biomarker fingerprints) were performed on approximately 29 samples collected in 2002 and 2005 from the Study Area. The results of these analyses yielded the following conclusions:

- The Reference Area samples from Jamestown Potter Cove in 2005 established that regional background contained plant waxes mixed with diesel and asphalt range petroleum hydrocarbons. The plant wax and asphalt signatures were consistent between 2002 and 2005. However, the diesel only appeared in 2005 and consisted of evaporated and moderately biodegraded middle distillate hydrocarbons. Despite the occurrence of low level diesel in 2005, the dominant hydrocarbon concentrations and PAH compositions were all very stable between 2002 and 2005.

- The Coasters Harbor sediments mirrored the chemical trends in the Jamestown Potter Cove Reference Area. All of these sediment samples contained plant waxes mixed with diesel and asphalt range petroleum hydrocarbons. Like these Reference Area samples, the plant waxes and asphalt signatures were consistent between 2002 and 2005. In addition, the diesel only appeared in 2005 and consisted of evaporated and lightly to moderately biodegraded middle distillate hydrocarbons. Despite the occurrence of low level diesel in 2005, the hydrocarbon concentrations and PAH compositions were all very stable between 2002 and 2005. Historical or recent releases of OFFTA related fuel residues were not detected in Coasters Harbor sediments.

- The additional Reference Area sediment samples collected in other areas of Narragansett Bay in 2004 demonstrated different compositional features attributed to varying PAH contributions from the Providence River, local storm water runoff, and vehicular activity. The local influence of urban runoff was evident in the higher levels of pyrogenic PAHs around the more urban Newport area represented by the Reference Area sediments collected near Castle Hill. The Coasters Harbor sediments were consistent with the compositional range of PAHs in these Reference Area samples.

- The OFFTA contaminated soil (SO11 from 2002) contained heavily biodegraded diesel range hydrocarbons which also appeared at lower levels in a sediment sample from an adjacent storm sewer (OFF-SD-OTSOF075A-0006-01). The Coasters Harbor and Reference Area sediments collected in 2005 also exhibited diesel range petroleum; however, this material was only lightly to moderately biodegraded. The diesel range hydrocarbons in the Coasters Harbor sediments were not from the OFFTA soils or sewers because the more degraded petroleum in the OFFTA areas could not become less degraded as it migrated into the proximal Coasters Harbor sediments.

- The low concentrations of lightly to moderately biodegraded diesel throughout the Coasters Harbor and Reference Area in 2005 were not significant sources of petrogenic or pyrogenic 4- to 6-ring PAHs that dominated these samples. At most, the low level diesel range hydrocarbons caused only small changes in the 2- and 3-ring PAH profiles of the sediment samples. The pervasive, low level diesel signature in the Reference Area and Coasters Harbor was attributed to chronic releases from vehicular traffic on land and water.

- Two pieces of abraded pavement (OFF-SD-414-DEBRIS1 and OFF-SD-414-DEBRIS2) collected on the intertidal shoreline near outfall OF075 consisted of sand and gravel bound with residual petroleum and tar, respectively. The composition of these materials matched well with the anthropogenic hydrocarbon mixtures in the Coasters Harbor and Reference Area sediments; especially the Debris 1 sample which contained high levels of residual petroleum and low levels of pyrogenic PAHs likely from embedded tar or adsorbed soot. The asphalt range petroleum contained mostly petrogenic 4-ring PAHs while the tar binder contained mostly pyrogenic 3- to 6-ring PAHs. A mixture of these paving materials from regional roadways constituted a very likely source of the dominant hydrocarbons in the Study Area sediments.

- The OFFTA contaminated soils (SO11 from 2002) and pavement samples (Debris 1 and Debris 2) represented well the range of hydrocarbons observed in OFFTA soils collected during past investigations. The historical data indicated that the detectable petroleum hydrocarbons were associated with biodegraded diesel like SO11 and residual range hydrocarbons like SO15 and Debris 1. The PAHs varied independently of the petroleum and most closely resembled the Debris 1 and Debris 2 pavement samples.

- The concentration of natural and anthropogenic hydrocarbons was likely higher in Coasters Harbor relative to the Reference Area due to the higher density and dimension of roadways, vehicles, and storm water conveyance systems around Newport, RI.

In summary, we observed similar hydrocarbon mixtures in sediment samples from Coasters Harbor and the Reference Area. The anthropogenic hydrocarbons associated with local and regional background consisted of diesel and asphalt range petroleum mixed with heavy pyrogenic PAHs. The dominant origin of this material was likely varying types of abraded pavement mixed with chronic releases of diesel and marine fuel oil from ambient vehicular traffic. The PAH concentrations and compositions exhibited no significant changes in sediment samples collected between 2002 and 2004 except in the OF093 storm sewer where lower concentrations of PAHs were observed. The diesel range hydrocarbons associated with the OFFTA were not observed in Coasters Harbor or Reference Area sediments.

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Attachment A
Tables

Table 1. Study Area Sample Summary

Client ID	Location	Date Collected	Abbreviation	High Resolution Hydrocarbon Fingerprint	Quantitative PAH	Alkane MS Fingerprint	Biomarker MS Fingerprint
				Laboratory Sample IDs			
Sediment (2005)							
OFF-SD-OTSOF075-0006-01	OF-075A	2/23/2005	OF075	0502110-10	0502110-10	0502110-10	0502110-10
OFF-SD-OTSOF075A-0006-01	Sewer Sediment	2/23/2005	OF075A	0502110-11	0502110-11	0502110-11	0502110-11
OFF-SD-SD5-0006-01	OF-075A Outfall Sediment	2/23/2005	SD5	0502110-05	0502110-05	0502110-05	0502110-05
OFF-SD-442-0006-01	East of OF-075A	2/23/2005	442	0502110-06	0502110-06	0502110-06	0502110-06
OFF-SD-OFF6-0006-01		2/23/2005	OFF6	0502110-07	0502110-07	0502110-07	0502110-07
OFF-SD-OFF7-0006-01		2/23/2005	OFF7	0502110-08	0502110-08	0502110-08	0502110-08
OFF-SD-414-0006-01	West of OF-075A	2/23/2005	414	0502110-04	0502110-04	0502110-04	0502110-04
OFF-SD-414-Debris1		2/23/2005	DEB1	0502110-13	0502110-13	0502110-13	0502110-13
OFF-SD-414-Debris2		2/23/2005	DEB2	0502110-14	0502110-14	0502110-14	0502110-14
OFF-SD-OTSOF093-0006-01	OF-093 Sewer Sediment	2/23/2005	OF093	0502110-12	0502110-12	0502110-12	0502110-12
OFF-SD-411-0006-01	OF-093 Outfall Sediment	2/23/2005	411	0502110-02	0502110-02	0502110-02	0502110-02
OFF-SD-OFF2-0006-01	West of OF-093	2/22/2005	OFF2	0502110-01	0502110-01	0502110-01	0502110-01
OFF-SD-OFF3-0006-01	East of OF-093	2/23/2005	OFF3	0502110-03	0502110-03	0502110-03	0502110-03
OFF-SD-DUP01-01	Field Dup 1	2/23/2005	DUP01	0502110-15	0502110-15	0502110-15	0502110-15
OFF-SD-DUP02-01	Field Dup 2	2/23/2005	DUP02	0502110-16	0502110-16	0502110-16	0502110-16
Sediment (2002)							
OFF-SD-5-0006 (Fine Particles)	Sediment from Terminus of Parking Lot Drain OFF-OTS-OF75	7/2/2002	5(FP)	V5870	V5870	V5870	V5870
OFF-SD-5-0006 (Large Particles)		7/2/2002	5(LP)	V5870	V5870	V5870	V5870
OFF-SD-5-0006 (Mixed)		7/2/2002	5	V5870	V5870	V5870	V5870
OFF-SD-5-0006 (Mixed DUP)		7/2/2002	5(DUP)	V5870	V5870	V5870	V5870
OFF-SD-410-0006	Hot Spot Sediment from Terminus of Drain OFF-OTS-OF93	7/2/2002	410-00	V5874	V5874	V5874	V5874
OFF-SD-410-1824	Hot Spot Sediment from Terminus of Drain OFF-OTS-OF93	7/2/2002	410-18	V5875	V5875	V5875	V5875
OFF-SD-471-0006	Around Hot Spot: Sediment from Terminus of Drain OFF-OTS-OF93	7/2/2002	471	V5872	V5872	V5872	V5872
OFF-SD-470-0006	Around Hot Spot Sediment from Terminus of Drain OFF-OTS-OF93	7/2/2002	470	V5873	V5873	V5873	V5873
OFF-SD-DUP1-0006	Field Duplicate of SD-410-0006	7/2/2002	DUP1	V5876	V5876	V5876	V5876
OFF-OTS-OF75	Parking Lot Drain Catch Basin	7/11/2002	OF75	V6976	V6976	V6976	V6976
OFF-OTS-OF93	Storm Drain Catch Basin	7/11/2002	OF93	V6977	V6977	V6977	V6977
Soil (2002)							
OFF-SO-11-0607	Land Side Test Pit	7/11/2002	SO11	V6979	V6979	V6979	V6979
OFF-SO-15-0607	Shore Side Test Pit	7/11/2002	SO15	V6978	V6978	V6978	V6978
Water (2002)							
OFF-AQ-11-0607	Land Side Test Pit	7/11/2002	AQ11	V6980	V6980	V6980	V6980
Reference Area Sediments							
OFF-SD-JPC03-0006-01	Jamestown Potter Cove 2005	2/23/2005	JPC03'	0502110-09	0502110-09	0502110-09	0502110-09
OFF-SD-JPC03-0006	Jamestown Potter Cove 2002	7/2/2002	JPC03	V5871	V5871	V5871	V5871
Allen Harbor R1-4	Coggeshall Cove-Area 4	3/24/2004	AHR1-4	S1445	S1445	S1445	S1445
Allen Harbor R2-1	Jamestown Conanicut Point-Area 1	3/24/2004	AHR2-1	S1447	S1447	S1447	S1447
Allen Harbor R3-2	Wickford Fishing Cove-Area 2	3/25/2004	AHR3-2	S1466	S1466	S1466	S1466
Derektor Shipyard CC01	Cranston Cove-Area 1	8/26/2004	DSCC01	0408124-09	0408124-09	0408124-09	0408124-09
Derektor Shipyard CC02	Cranston Cove-Area 2	8/26/2004	DSCC02	0408124-10	0408124-10	0408124-10	0408124-10
Derektor Shipyard JPC01	Jamestown Potter Cove-Area 1	8/26/2004	DSJPC01	0408124-11	0408124-11	0408124-11	0408124-11
Derektor Shipyard JPC03	Jamestown Potter Cove-Area 3	8/26/2004	DSJPC03	0408124-12	0408124-12	0408124-12	0408124-12
Derektor Shipyard CH01	Castle Hill-Area 1	8/26/2004	DSCH01	0408124-14	0408124-14	0408124-14	0408124-14
Derektor Shipyard CH02	Castle Hill-Area 2	8/26/2004	DSCH02	0408124-15	0408124-15	0408124-15	0408124-15

Table 1. Study Area Sample Summary (continued).

Client ID	Location	Date Collected	Abbreviation	High Resolution Hydrocarbon Fingerprint	Quantitative PAH	Alkane MS Fingerprint	Biomarker MS Fingerprint
				Laboratory Sample IDs			
Reference Standards							
Diesel Uncombusted	Reference Standard	10/9/2001	D00C	T2574	T2574	T2574	T2574
Diesel 50% Combusted	Reference Standard	10/9/2001	D50C	T2574	T2574	T2574	T2574
Diesel 100% Combusted	Reference Standard	10/9/2001	D100C	T2574	T2574	T2574	T2574
Diesel Unevaporated	Reference Standard	10/9/2001	D00E	W7747	W7747	W7747	W7747
Diesel 50% Evaporated	Reference Standard	10/9/2001	D50E	W7747	W7747	W7747	W7747
Diesel 100% Evaporated	Reference Standard	10/9/2001	D100E	W7747	W7747	W7747	W7747
Kerosene Uncombusted	Reference Standard	10/9/2001	K00C	W7748	W7748	W7748	W7748
Kerosene 50% Combusted	Reference Standard	10/9/2001	K50C	W7748	W7748	W7748	W7748
Kerosene 100% Combusted	Reference Standard	10/9/2001	K100C	W7748	W7748	W7748	W7748
Kerosene Unevaporated	Reference Standard	10/9/2001	K00E	W7748	W7748	W7748	W7748
Kerosene 50% Evaporated	Reference Standard	10/9/2001	K50E	W7748	W7748	W7748	W7748
Kerosene 100% Evaporated	Reference Standard	10/9/2001	K100E	W7748	W7748	W7748	W7748
Fuel #2	Reference Standard	9/1/2005	Fuel#2	0508103-10	0508103-10	0508103-10	0508103-10
Fuel #4	Reference Standard	9/1/2005	Fuel#4	0508103-11	0508103-11	0508103-11	0508103-11
Fuel #6	Reference Standard	9/1/2005	Fuel#6	0508103-12	0508103-12	0508103-12	0508103-12
Coal Tar	Reference Standard	9/1/2005	CoalTar	0508103-13	0508103-13	0508103-13	0508103-13
Castrol GTX 10W30 New	Reference Standard	9/14/2005	LubeNew	0510085-04	0510085-04	0510085-04	0510085-04
Castrol GTX 10W30 Old	Reference Standard	9/14/2005	LubeOld	0510085-05	0510085-05	0510085-05	0510085-05
Pavement 1940	Reference Standard	11/17/2003	PAV001	T9572	T9572	T9572	T9572
Pavement 1941	Reference Standard	11/17/2003	PAV002	T9573	T9573	T9573	T9573
Pavement 1938	Reference Standard	11/17/2003	PAV003	T9574B	T9574B	T9574B	T9574B
Pavement 1940	Reference Standard	11/17/2003	PAV004	T9575	T9575	T9575	T9575
Pavement 1941	Reference Standard	11/17/2003	PAV005	T9576B	T9576B	T9576B	T9576B
Pavement 1955	Reference Standard	11/17/2003	PAV006	T9577	T9577	T9577	T9577
Pavement >1965	Reference Standard	11/17/2003	PAV007	T9574M	T9574M	T9574M	T9574M
Pavement >1965	Reference Standard	11/17/2003	PAV008	T9576M	T9576M	T9576M	T9576M
Pavement 2003	Reference Standard	11/17/2003	PAV009	T9578	T9578	T9578	T9578
Pavement 2005	Reference Standard	7/11/2005	PAV010	0510085-01	0510085-01	0510085-01	0510085-01
Pavement 2005	Reference Standard	7/11/2005	PAV011	0510085-02	0510085-02	0510085-02	0510085-02
Crude 2002	Reference Standard	Unknown	Crude02	AA923NSC	AA923NSC	AA923NSC	AA923NSC
Crude 2005	Reference Standard	Unknown	Crude05a	SO021805AWS01	SO021805AWS01	SO021805AWS01	SO021805AWS01
Crude 2005	Reference Standard	Unknown	Crude05b	SW031405AWS01	SW031405AWS01	SW031405AWS01	SW031405AWS01

Table 2. PAH Analytes

Analyte	Abbreviation	Aromatic Ring Number	Total PAH (TPAH)	EPA Priority Pollutant PAH (EPAPAH)
Naphthalene	NO	2	X	X
C1-Naphthalenes	N1	2	X	
C2-Naphthalenes	N2	2	X	
C3-Naphthalenes	N3	2	X	
C4-Naphthalenes	N4	2	X	
Biphenyl	B	2	X	
Acenaphthylene	AY	3	X	X
Acenaphthene	AE	3	X	X
Dibenzofuran	DF	3	X	
Fluorene	FO	3	X	X
C1-Fluorenes	F1	3	X	
C2-Fluorenes	F2	3	X	
C3-Fluorenes	F3	3	X	
Anthracene	A0	3	X	X
Phenanthrene	P0	3	X	X
C1-Phenanthrenes/Anthracenes	PA1	3	X	
C2-Phenanthrenes/Anthracenes	PA2	3	X	
C3-Phenanthrenes/Anthracenes	PA3	3	X	
C4-Phenanthrenes/Anthracenes	PA4	3	X	
Dibenzothiophene	DBT0	3	X	
C1-Dibenzothiophenes	DBT1	3	X	
C2-Dibenzothiophenes	DBT2	3	X	
C3-Dibenzothiophenes	DBT3	3	X	
C4-Dibenzothiophenes	DBT4	3	X	
Benzo(b)fluorene	BF	4		
Fluoranthene	FL0	4	X	X
Pyrene	PY0	4	X	X
C1-Fluoranthenes/Pyrenes	FP1	4	X	
C2-Fluoranthenes/Pyrenes	FP2	4	X	
C3-Fluoranthenes/Pyrenes	FP3	4	X	
Benzo(a)anthracene	BA0	4	X	X
Chrysene	C0	4	X	X
C1-Chrysenes	BC1	4	X	
C2-Chrysenes	BC2	4	X	
C3-Chrysenes	BC3	4	X	
C4-Chrysenes	BC4	4	X	
Benzo(b)fluoranthene	BB	5	X	X
Benzo(j/k)fluoranthene	BJK	5	X	X
Benzo(a)fluoranthene	BB	5		
Benzo(e)pyrene	BEP	5	X	
Benzo(a)pyrene	BAP	5	X	X
Perylene	PER	5	X	
Indeno(1,2,3-c,d)pyrene	IND	6	X	X
Dibenz(a,h)anthracene	DA	5	X	X
Benzo(g,h,i)perylene	GHI	6	X	X

Table 3. Summary of Hydrocarbon Chemistry.

Sample	Total EPAPAHs (ppm)	Total PAHs (ppm)	Total Extractable Hydrocarbons (ppm)	Saturates & Biomarkers KR	DR	RR	PW	TT	Dominant Anthropogenic Hydrocarbon Pattern
Sediment (2005)									
OFF-SD-OTSOF075-0006-01	21.9	42.3	520			X	X	C	Asphalt, Heavy PAHs
OFF-SD-OTSOF075A-0006-01	9.94	17.7	1,100		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-SD5-0006-01	6.35	9.09	320		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-442-0006-01	16.5	22.4	230		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-OFF6-0006-01	14.0	22.8	1,100		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-OFF7-0006-01	3.35	6.91	780		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-414-0006-01	4.91	7.35	340		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-414-DEBRIS1	1.25	18.8	5,100			X		A	Asphalt, Heavy PAHs
OFF-SD-414-DEBRIS1DUP	1.27	19.5	6,300			X		A	Asphalt, Heavy PAHs
OFF-SD-414-DEBRIS2	7,660	10,600	30,000					D	Heavy PAHs
OFF-SD-OTSOF093-0006-01	0.44	1.07	140		X	X		B	Diesel, Heavy Fuel Oil
OFF-SD-411-0006-01	5.67	8.22	280		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-OFF2-0006-01	2.82	4.26	160		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-OFF2-0006-01DUP	3.28	4.90	270		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-OFF3-0006-01	6.77	9.95	420		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-JPC03-0006-01	0.52	0.83	51.0		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-DUP01-01	4.69	8.95	830		X	X	X	A	Diesel, Asphalt, Heavy PAHs
OFF-SD-DUP02-01	16.6	23.0	280		X	X	X	A	Diesel, Asphalt, Heavy PAHs
Crude	1,230	12,400	650,000	X	X	X	X	F	Crude
Sediment (2002)									
OFF-SD-5-0006 (Fine Particles)	17.5	24.7	nd			X	X	A	Asphalt, Heavy PAHs
OFF-SD-5-0006 (Large Particles)	4.82	6.95	nd		X	X	X	A	Asphalt, Heavy PAHs
OFF-SD-5-0006 (Mixed)	8.22	11.5	nd	na	na	na	na	na	
OFF-SD-5-0006 (Mixed DUP)	7.28	10.8	nd	na	na	na	na	na	
OFF-SD-JPC03-0006	0.11	0.19	nd			X	X	A	Asphalt, Heavy PAHs
OFF-SD-410-0006	2.94	4.09	nd			X	X	A	Asphalt, Heavy PAHs
OFF-SD-410-1824	1.86	2.54	nd			X	X	A	Asphalt, Heavy PAHs
OFF-SD-471-0006	0.41	0.64	nd			X	X	A	Asphalt, Heavy PAHs
OFF-SD-470-0006	17.0	24.5	nd			X	X	A	Asphalt, Heavy PAHs
OFF-SD-DUP1-0006	2.44	3.35	nd			X	X	A	Asphalt, Heavy PAHs
OFF-OTS-OF75	36.0	45.5	nd			X	X	A	Asphalt, Heavy PAHs
OFF-OTS-OF93	14.6	18.9	nd			X	X	A	Asphalt, Heavy PAHs
Soil (2002)									
OFF-SO-11-0607	53.0	777	nd		X			E	Severely Biodegraded Diesel
OFF-SO-15-0607	56.6	107	nd			X	X	H	Petroleum Asphalt
Water (2002)									
OFF-AQ-11-0607	0.84	16.7	nd		X			E	Severely Biodegraded Diesel
Reference Standards									
Diesel Unaltered	2,860	49,600	883,000		X			E	Diesel
Diesel 50% Combusted	1,960	44,900	898,000		X			E	Diesel
Diesel 100% Combusted	3,240	9,150	709,000		X			E	Diesel
Diesel 50% Evaporated	1,080	22,600	880,000		X			E	Diesel
Diesel 100% Evaporated	1,350	41,600	790,000		X			E	Diesel
Kerosene Unaltered	1,330	9,830	864,000	X				G	Kerosene
Kerosene 50% Combusted	1,680	13,000	843,000	X				G	Kerosene
Kerosene 100% Combusted	108	154	812,000	X				G	Kerosene
Kerosene 50% Evaporated	21,000	79,600	837,000	X				G	Kerosene
Kerosene 100% Evaporated	15,400	165,000	865,000	X				G	Kerosene
Crude	1,380	12,400	630,000	X	X	X	X	F	Crude

Key:
Saturated Hydrocarbon Fingerprint Categories: KR kerosene range, DR diesel range, RR residual range, and PW plant waxes.
Triterpane (TT) Biomarkers: Patterns described in Table 4.
na is not analyzed
nd is not detected

Table 4. Summary of Triterpane Patterns.

Triterpane Pattern	Approximate Relative Abundances				Oleanane Present (Yes/No)
	Tricyclic Triterpanes	Ts:Tm	NH:H	Homohopanes	
A	< Tm	≈ 0.5	≈ 0.75	Full Range	Yes
B	< Tm	≈ 0.5	> 1	Full Range	Yes
C	< Tm	≈ 0.5	≈ 1	Full Range	Yes
D	trace	trace	trace	trace	No
E	Dominant	≈ 1	≈ 0.75	trace	Yes
F	> Tm, <H	0.5	≈ 0.75	Full Range	No
G	not detected	not detected	not detected	not detected	No
H	< Tm	≈ 0.5	≈ 0.5	Full Range	No

Ts 18α(H)-22,29,30-Trisnorneohopane
Tm 17α(H)-22,29,30-Trisnorhopane
NH 30-Norhopane
H Hopane

Attachment B
Figures

Figure 1a. Location Map and Reference Area Locations

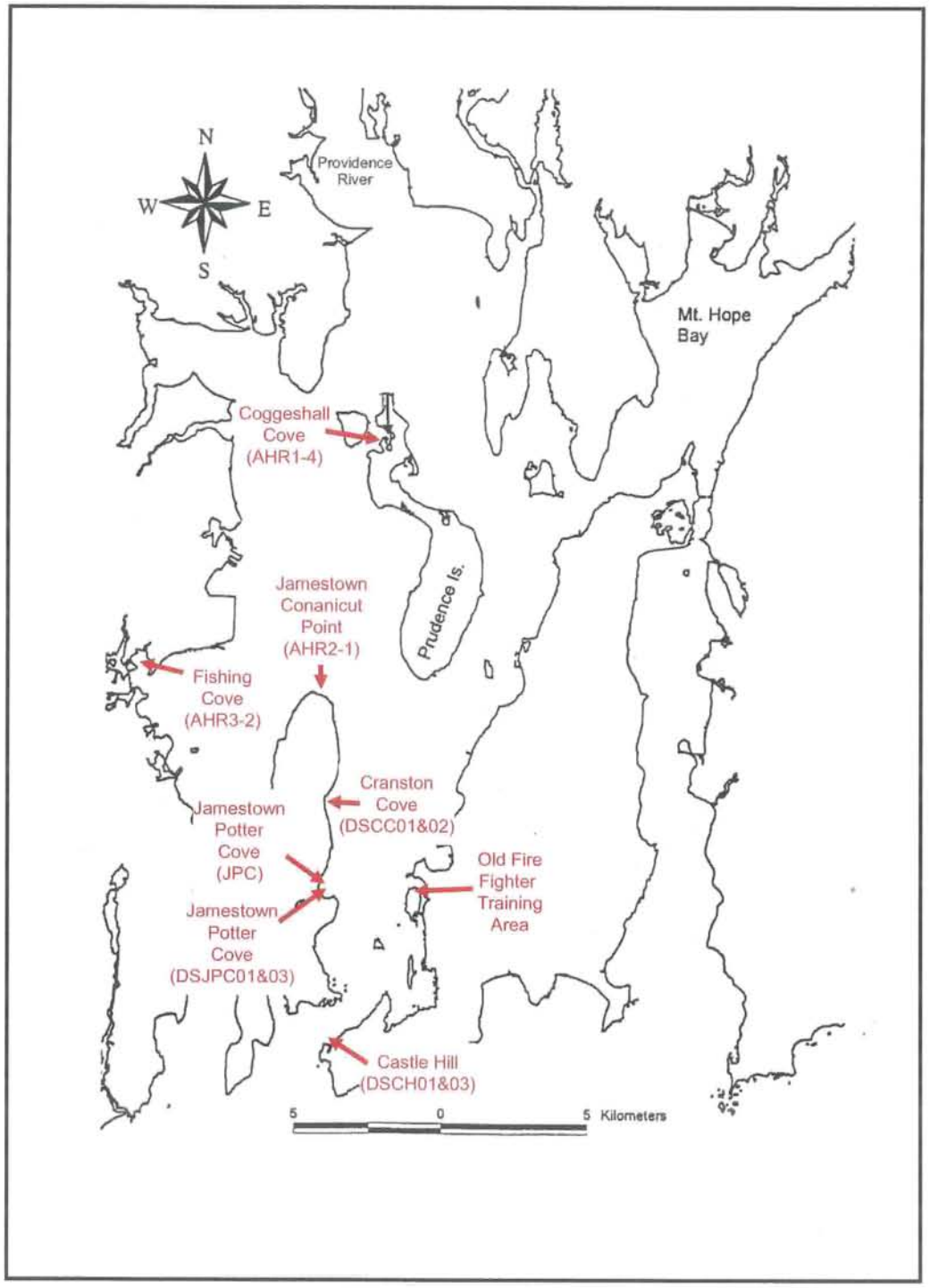


Figure 1b. Reference Area Locations and Proximal Road Densities.

Source: www.Google.com

Figure 2. Site Map and Forensic Sampling Locations

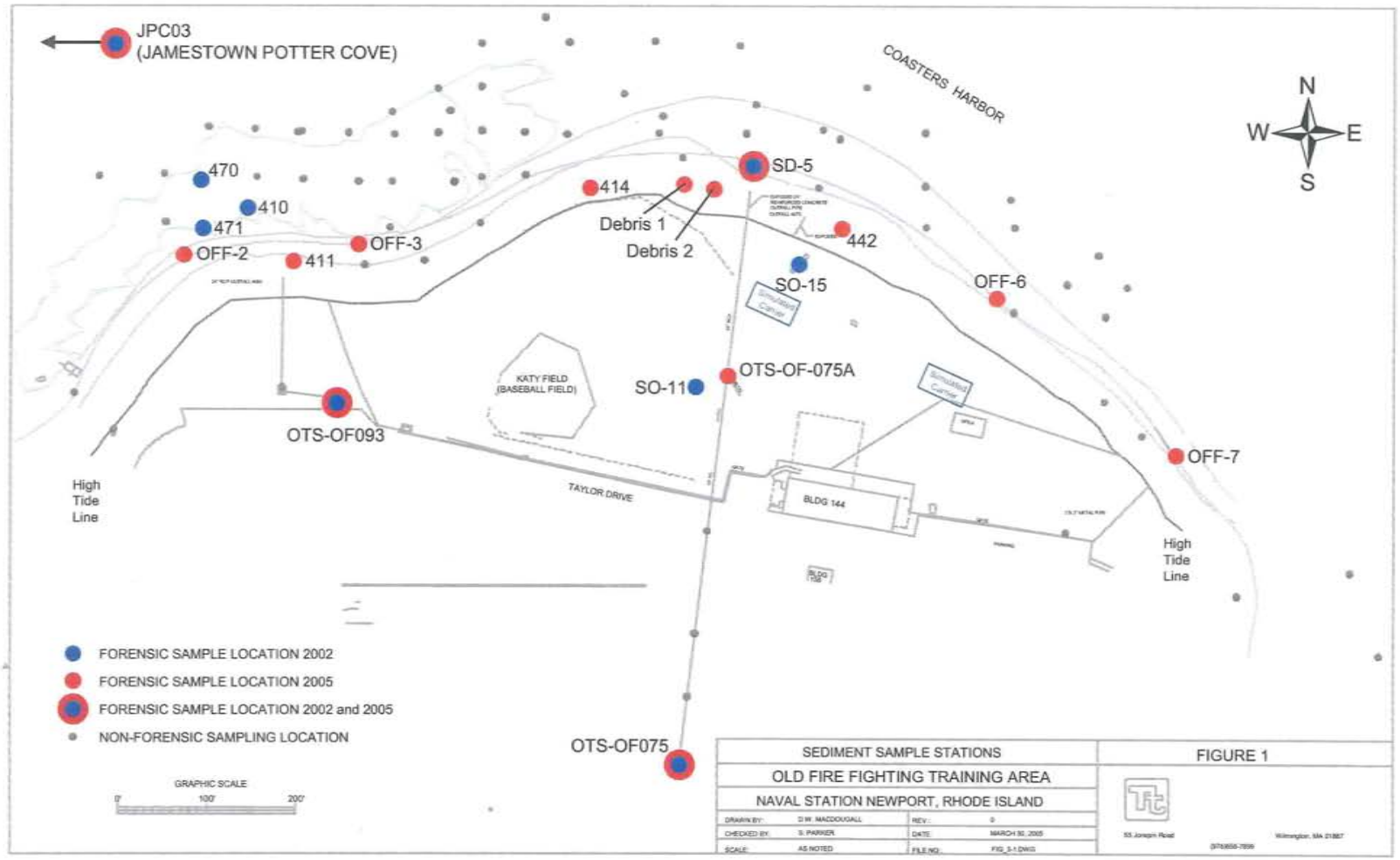
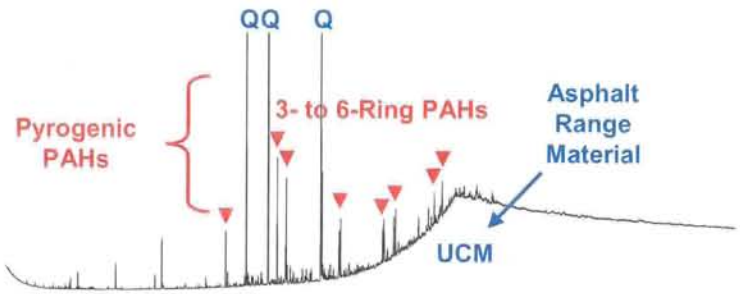
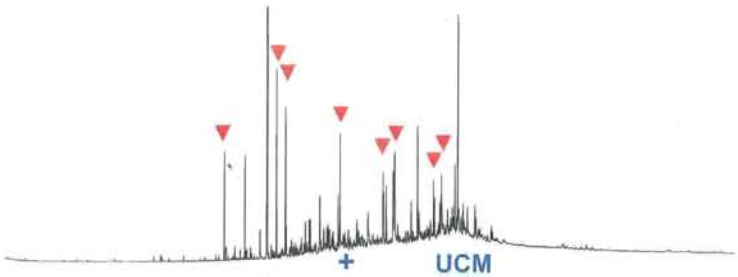


Figure 3. Selected High Resolution Hydrocarbon Fingerprints (GC/FID)

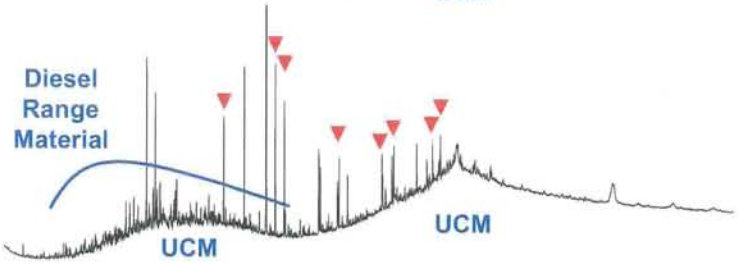
a. OFF-SD-OTSOF093-0006-01
Weathered asphalt range petroleum with low levels of heavy pyrogenic PAHs. Fingerprint resembled abraded asphalt with soot or weathered tar product residues.



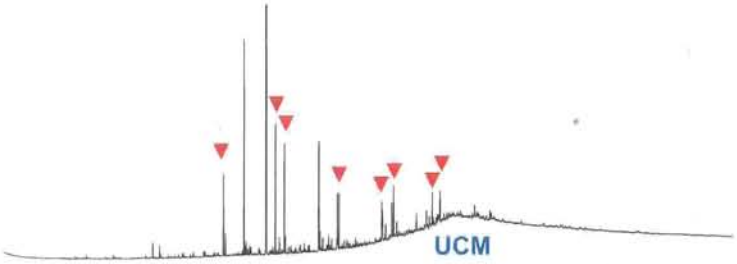
b. OFF-SD-OTSOF075-0006-01
Weathered asphalt range petroleum with low levels of heavy PAHs. Wider asphalt range (+) and higher levels of PAHs than OF093 sample. Fingerprint resembled abraded asphalt with soot or weathered tar product residues.



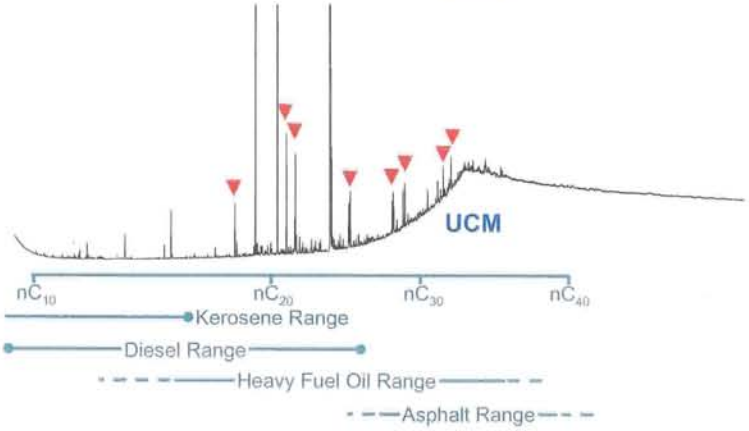
c. OFF-SD-OTSOF075A-0006-01
Weathered asphalt and diesel range petroleums with low levels of heavy PAHs. Absence of normal alkanes and isoprenoids indicates severe biodegradation.



d. OFF-SD-SD5-0006-01
Weathered asphalt range petroleum with low levels of heavy PAHs. Fingerprint resembled abraded asphalt with soot or weathered tar product residues.



e. OFF-SD-JPC03-0006-01
Weathered asphalt range petroleum with low levels of heavy PAHs. Fingerprint resembled abraded asphalt with soot or weathered tar product residues.



PAH Analytes in Table 2
Q quality control compounds
UCM unresolved complex mixture

Figure 3. Selected High Resolution Hydrocarbon Fingerprints (GC/FID) (cont'd)

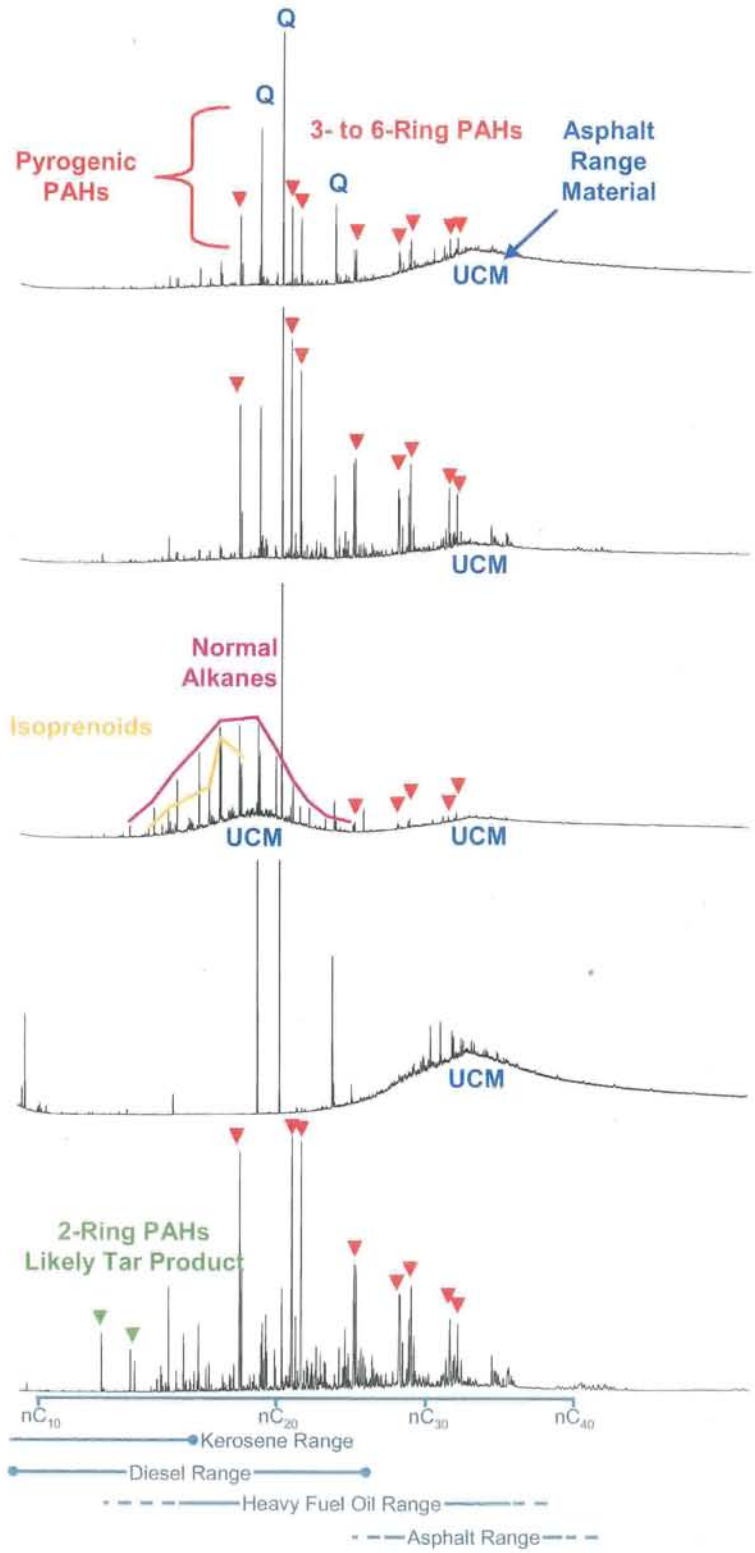
f. OFF-SD-414-0006-01
Weathered asphalt range petroleum with low levels of heavy PAHs. Fingerprint resembled abraded asphalt with soot or weathered tar product residues.

g. OFF-SD-442-0006-01
Weathered asphalt range petroleum with higher levels of PAHs than sample 414. Fingerprint resembled abraded asphalt with possible soot or weathered tar product residues.

h. OFF-SD-OFF7-0006-01
Diesel range material with normal alkanes slightly higher than isoprenoids indicates moderate biodegradation. Weathered asphalt range petroleum with low levels of heavy PAHs. Fingerprint resembled moderately weathered diesel mixed with abraded asphalt and soot or weathered tar product residues.

i. OFF-SD-414-DEBRIS1
Weathered asphalt range petroleum. Fingerprint resembled abraded petroleum asphalt.

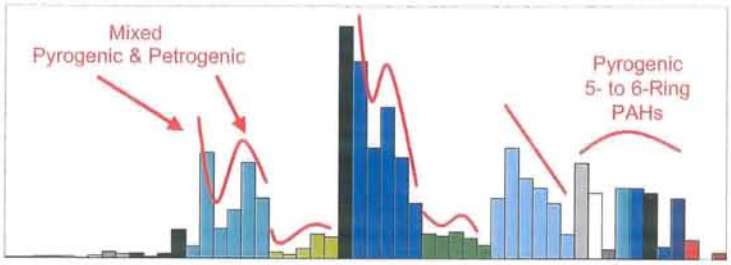
j. OFF-SD-414-DEBRIS2
High levels of 2- to 6-ring PAHs indicates the presence of a tar product. Older pavement contained tar binder.



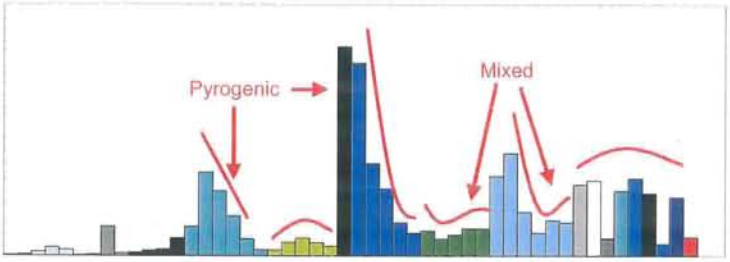
PAH Analytes in Table 2
Q quality control compounds
UCM unresolved complex mixture

Figure 4. Selected PAH Histograms (GC/MS/SIM).

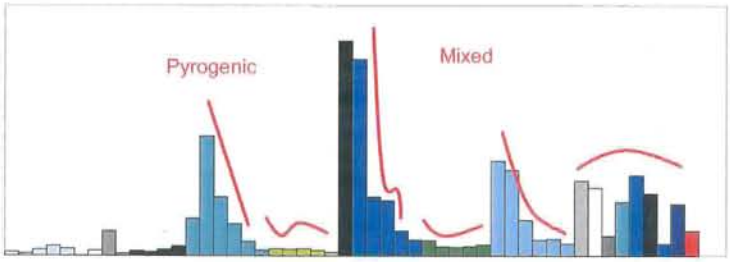
a. OFF-SD-OTSOF075-0006-01
Parking Lot Runoff with a mixture of heavy petrogenic (petroleum asphalt and fuels) and pyrogenic (soot or pavement with tar binder) PAHs.



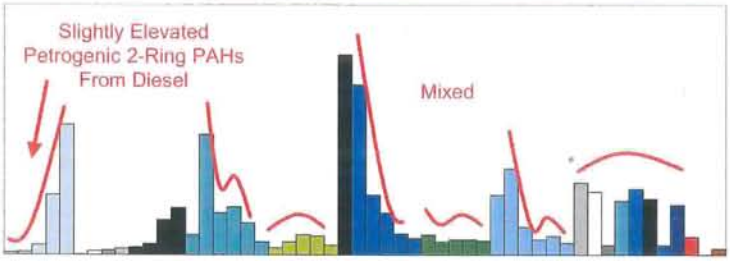
b. OFF-SD-JPC03-0006-01
Reference Area with mixture of heavy petrogenic and pyrogenic PAHs. Like OF075, these PAHs likely came from pavement runoff.



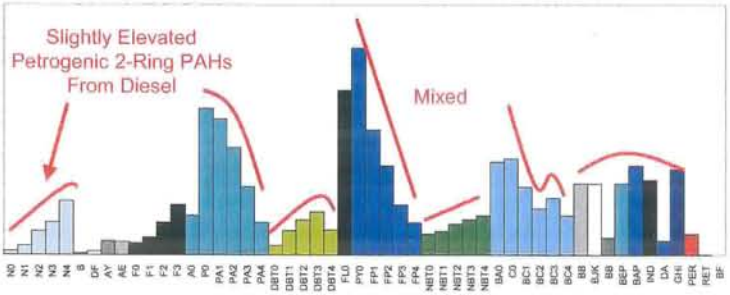
c. OFF-SD-SD5-0006-01
Similar to the parking lot runoff and Reference Area sediment samples.



d. OFF-SD-OTSOF075A-0006-01
Similar to the parking lot runoff and Reference Area sediment samples. Elevated levels of petrogenic 2-Ring PAHs likely sourced to diesel range petroleum. This diesel contains heavier naphthalenes and phenanthrenes relative to OFF07.



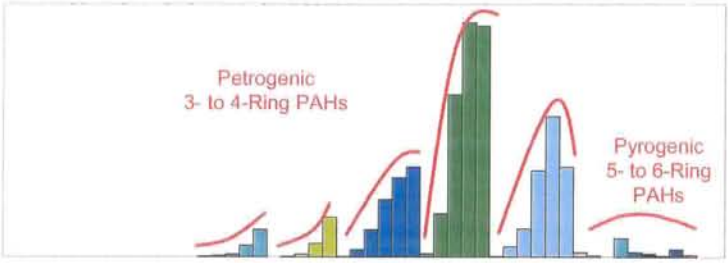
e. OFF-SD-OFF7-0006-01
Similar to the parking lot runoff and Reference Area sediment samples. Elevated levels of petrogenic 2-Ring PAHs likely sourced to diesel range petroleum.



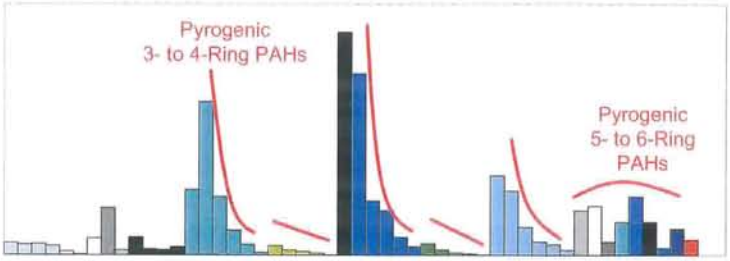
PAH abbreviations on Table 2.

Figure 4. Selected PAH Histograms (GC/MS/SIM).

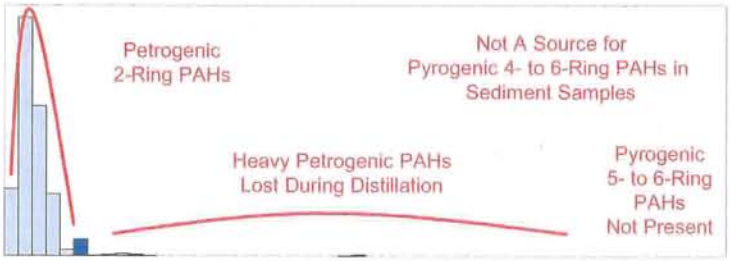
f. OFF-SD-414-Debris1
Heavy petrogenic 3- and 4-Ring PAHs with low levels of pyrogenic 5- and 6-Ring PAHs. This is the signature of a crude oil residual from which the lighter material was removed during the refining process.



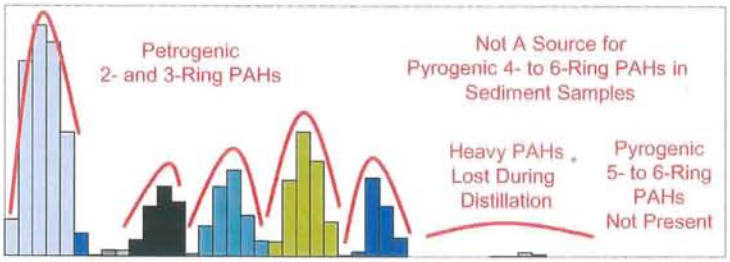
g. OFF-SD-414-Debris2
Pyrogenic 3- to 6-Ring PAHs characteristic of tar products, like pavement binder.



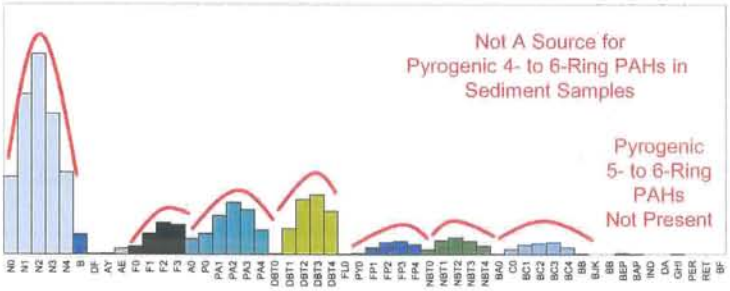
h. Kerosene Reference Sample
Predominantly petrogenic 2-Ring PAHs with no pyrogenic 3- to 6-Ring PAHs as seen in the sediment samples.



i. Diesel Reference Sample
Predominantly petrogenic 2- to 4-Ring Ring PAHs with no pyrogenic 3- to 6-Ring PAHs as seen in the sediment samples.



j. Crude Reference Sample
Petrogenic 2- to 4-ring PAHs with little to no pyrogenic 5- to 6-Ring PAHs. This is the material from which all petroleum products are manufactured. In the absence of carbonization or combustion, this material and refined products could not be the source of the pyrogenic 4- to 6-Ring PAHs observed in the sediment samples.



PAH abbreviations on Table 2.

Figure 5. Principal Components Analysis of PAH Analytes In Field and Reference Samples.

a. Sample Groupings (PCA Scores Plot).
The Coasters Harbor and Jamestown Potter Cover sediment samples were compositionally similar and dominated by pyrogenic PAHs (dashed box). The differences among sediment samples were primarily attributed to slightly varying levels of petrogenic PAHs. Samples with higher levels of pyrogenic PAHs plotted towards the upper right while higher levels of petroleum fell in the lower half of the scatter plot. Most end members that represented discrete PAH sources plotted at some distance from the cluster of sediment samples (dashed box, see Figure 5b). For example, sample S015 contained distinctly more pyrogenic PAHs likely from low levels of tar pavement binder or soot. Notice how it is plots in the general direction of tar derived pavement (DEBRIS2'). The residual diesel associated with the OFFTA plotted near the bottom (SO11 and AQ11). None of the sediment samples exhibited significant contributions of this material; i.e., the sediment samples did not plot near these two samples. The associated loadings plot for these samples was used to create a PCA model (Figure 5f) for comparison with other reference samples (see Figures 5c, 5d, and 5e).

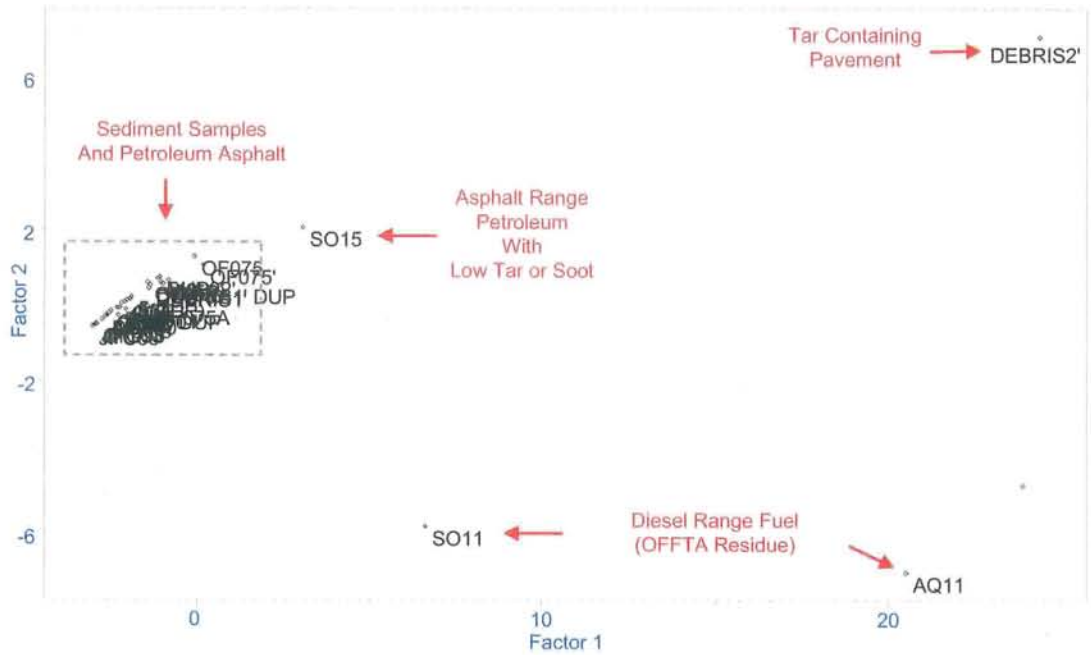


Figure 5. Principal Components Analysis of PAH Analytes In Field and Reference Samples (cont).

b. Sample Groupings (Magnified Area of PCA Scores Plot).
This plot reveals the contents of the dashed box in Figure 5a at greater magnification. Samples collected from the storm sewer OF075 in 2002 and 2005 were compositionally similar and enriched in pyrogenic PAHs. The pyrogenic PAHs may reflect the presence of old abraded pavement (containing tar) or commingled soot from vehicular emissions. Samples from the reference area collected in 2002 and 2005 plotted closely in the lower left corner. These compositionally similar samples were largely pyrogenic, but also exhibited more pronounced heavy petrogenic PAHs that indicated the presence of heavy residual petroleum. The remaining sediment samples possessed intermediate features indicative of a mixture between local storm sewer debris and regional background. Notice the compositional similarity of the other samples collected at SD-5 between 2002 and 2005 (5 and SD5'). The PAH composition at this location was unchanged between sample collection periods. Interestingly, the composition of sediment collected from OF093 contained far less pyrogenic PAHs in 2005 than it did in 2002. This change likely reflected reduced impacts from soot and tar pavement particles between the sampling periods due to changes in the local land use and the installation of a particulate trap.

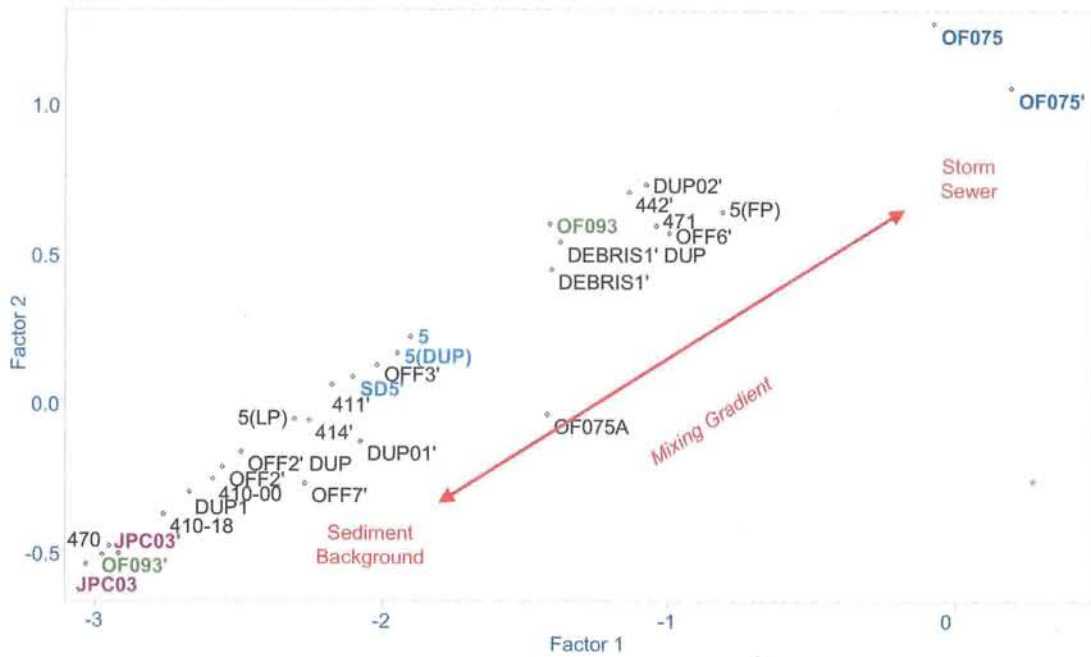


Figure 5. Principal Components Analysis of PAH Analytes In Field and Reference Samples (cont).

c. Sample Groupings (PCA Scores Plot with Additional Reference Area Sediment Samples). Sediment samples collected as part of other projects from Reference Areas of Narragansett Bay were added to PCA for comparison purposes. A PCA Model (inner box) was constructed using the loading factors of the study area samples (Figure 5f). The PCA results of the additional Reference Area samples presents a more representative range of sediment composition throughout Narragansett Bay (Figure 1). Herein, the JPC Reference Area sediments plotted in the lower left corner while the additional Reference Area samples plotted to the upper right. Importantly, the Coasters Harbor sediment samples plotted between these two sets of Reference Area samples indicating an intermediate composition. This plot also established that Reference Area samples collected closer to developed areas, such as Newport, plotted furthest to the upper right (DSCH01) indicating higher levels of pyrogenic PAHs. These data demonstrated that the compositional variability among the collective Reference Area samples bounded the compositional features of the Coasters Harbor sediments. Therefore, non-point sources of PAHs comprised a likely origin for PAHs measured in around the OFFTA shoreline.

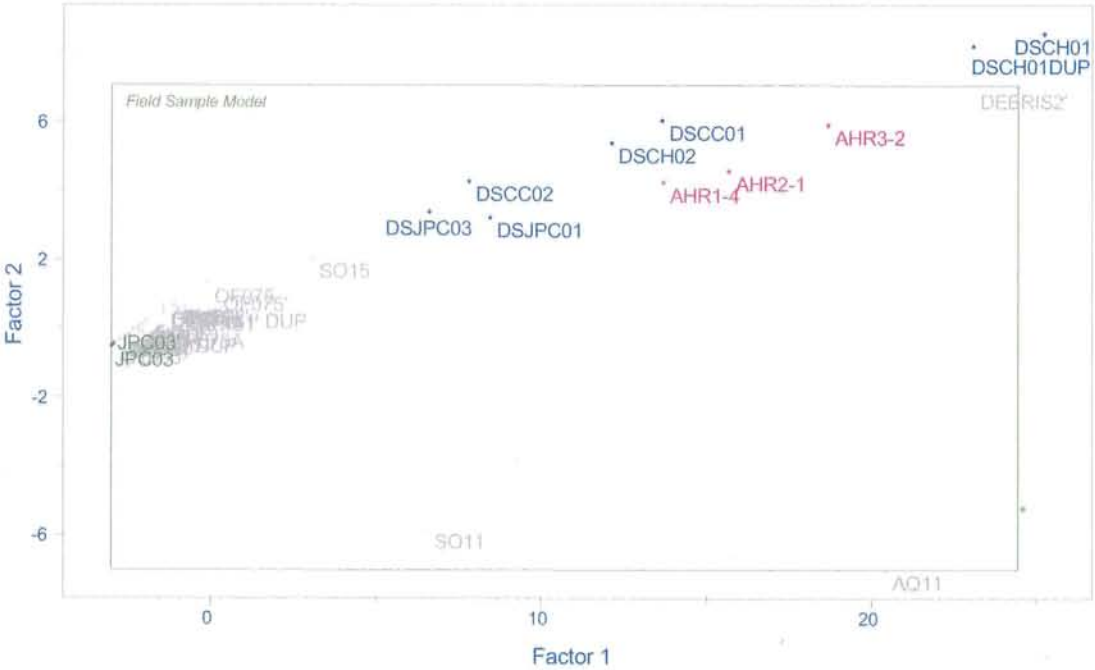


Figure 5. Principal Components Analysis of PAH Analytes In Field and Reference Samples (cont).

d. Sample Groupings (PCA Scores Plot with Evaporated and Combusted Fuels Added).
Samples of evaporated and combusted fuels were added to PCA for comparison purposes. The PCA Model (inner box) of the field sample loading factors (Figure 5f) was again used to demonstrate compositional relationships with OFFTA study area samples. This plot demonstrates that samples SO15 and AQ11 were the only samples to demonstrate PAH signatures strongly influenced by middle distillates. In terms of PAHs, the sediment samples from 2002 and 2005 were compositionally distinct from fuel residues of the OFFTA.

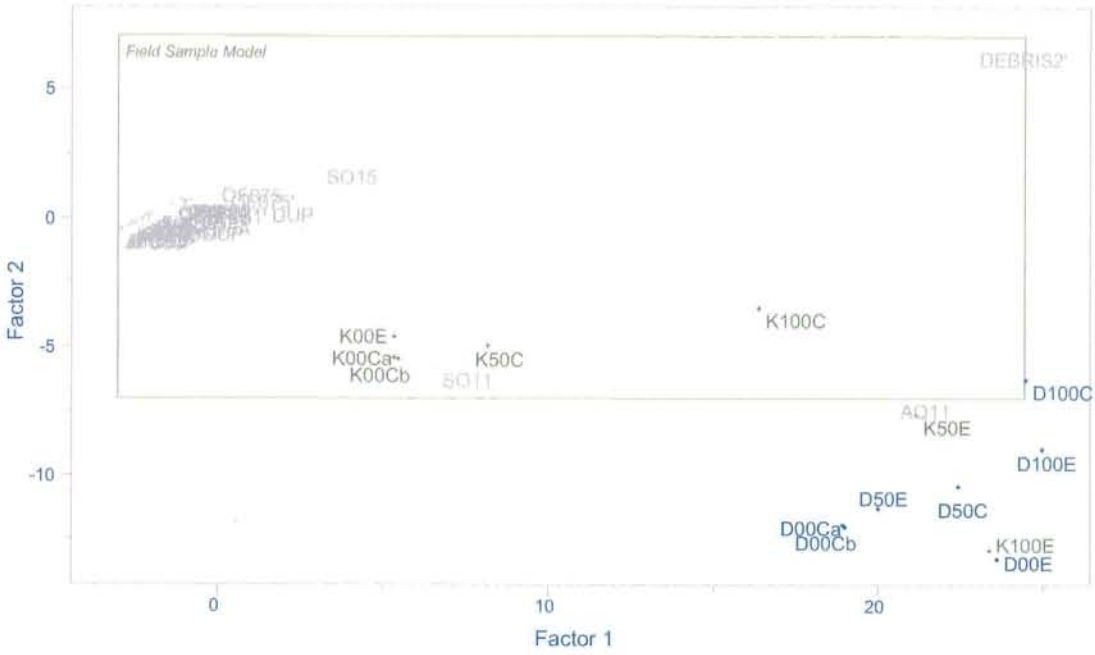


Figure 5. Principal Components Analysis of PAH Analytes In Field and Reference Samples (cont).

e. Sample Groupings (PCA Scores Plot with Reference Samples Added).
Samples of petroleum products, coal tar, and pavement were added to PCA for comparison purposes. The PCA Model (inner box) of the field sample loading factors (Figure 5f) was again used to demonstrate compositional relationships with OFFTA study area samples. These data demonstrate several important points. First, petroleum products like crude, lubricating, #2, #4, and #6 fuel oils plotted towards the lower right and were very distinct from the Coasters Harbor sediment samples. Second, the petroleum and tar binders used to make pavement conveyed a wide range of compositional patterns. The older pavement samples (PAV001, PAV004, PAV005, PAV006, PAV007, and PAV008) overlapped with the compositional range of samples SO15 and Debris2 – this is the same compositional range of the DS and AH Reference Area samples presented in Figure 5c. Therefore, abraded pavement is a likely non-point source of PAHs observed in the Reference Areas and Coasters Harbor sediments. Third, the reference crude oil samples were run with the OFFTA field samples collected in 2002 and 2005. The close grouping of these samples demonstrated a high degree of method comparability and precision throughout the OFFTA forensic study.

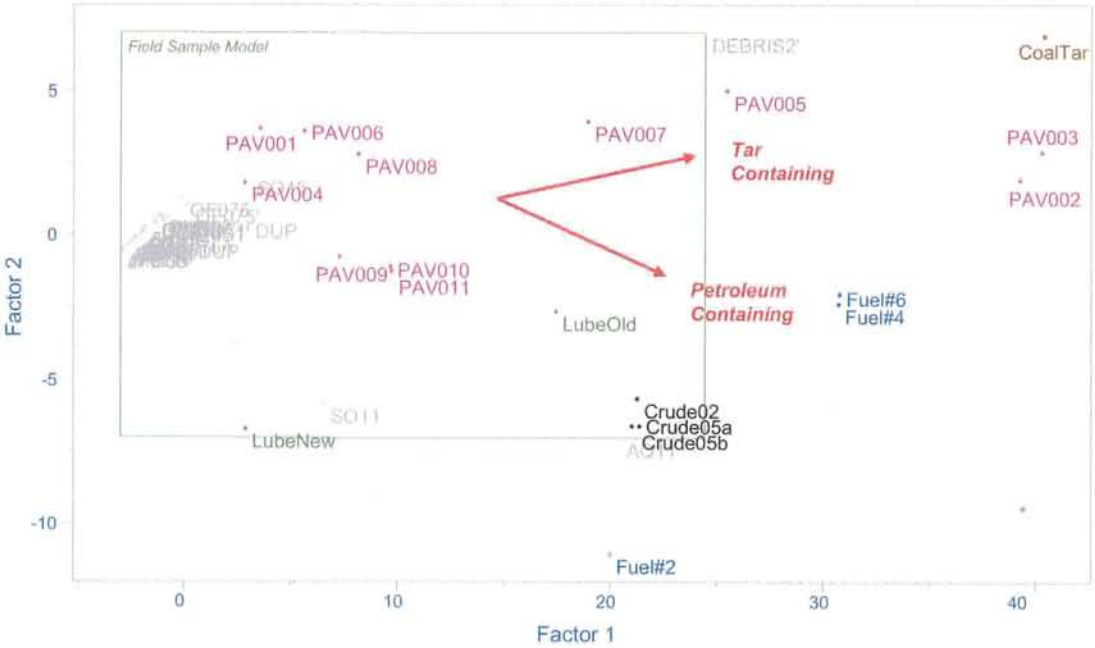


Figure 5. Principal Components Analysis of PAH Analytes In Field and Reference Samples (cont).

f. Analyte Groupings (PCA Loadings Plot).
Principal components 1 (x-axis) and 2 (y-axis) accounted for 86% and 11% of the variability, respectively. The PAH concentration data illustrate the primary compositional features that differentiated the samples: heavy petroleum residuals enriched in 4-ring petrogenic PAHs plotted in the upper left, soot or tar residues enriched in 3- to 6-ring PAHs plotted to the upper right, and middle distillates enriched in 2-ring petrogenic PAHs plotted towards the lower right.

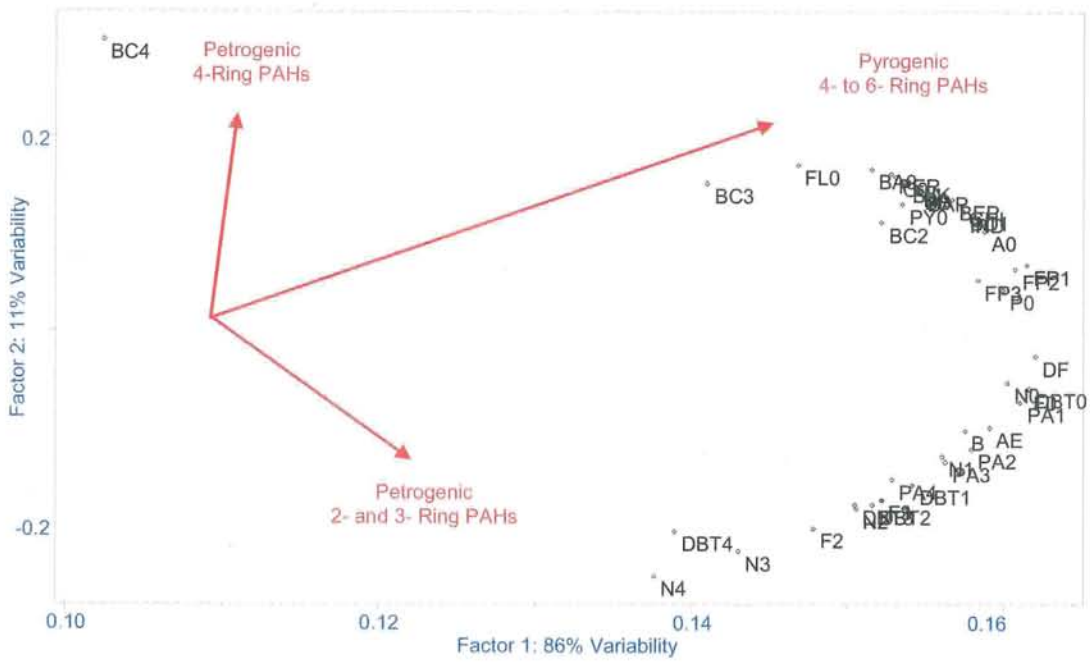


Figure 6. Saturated Hydrocarbon Fingerprints (GC/MS/SIM).

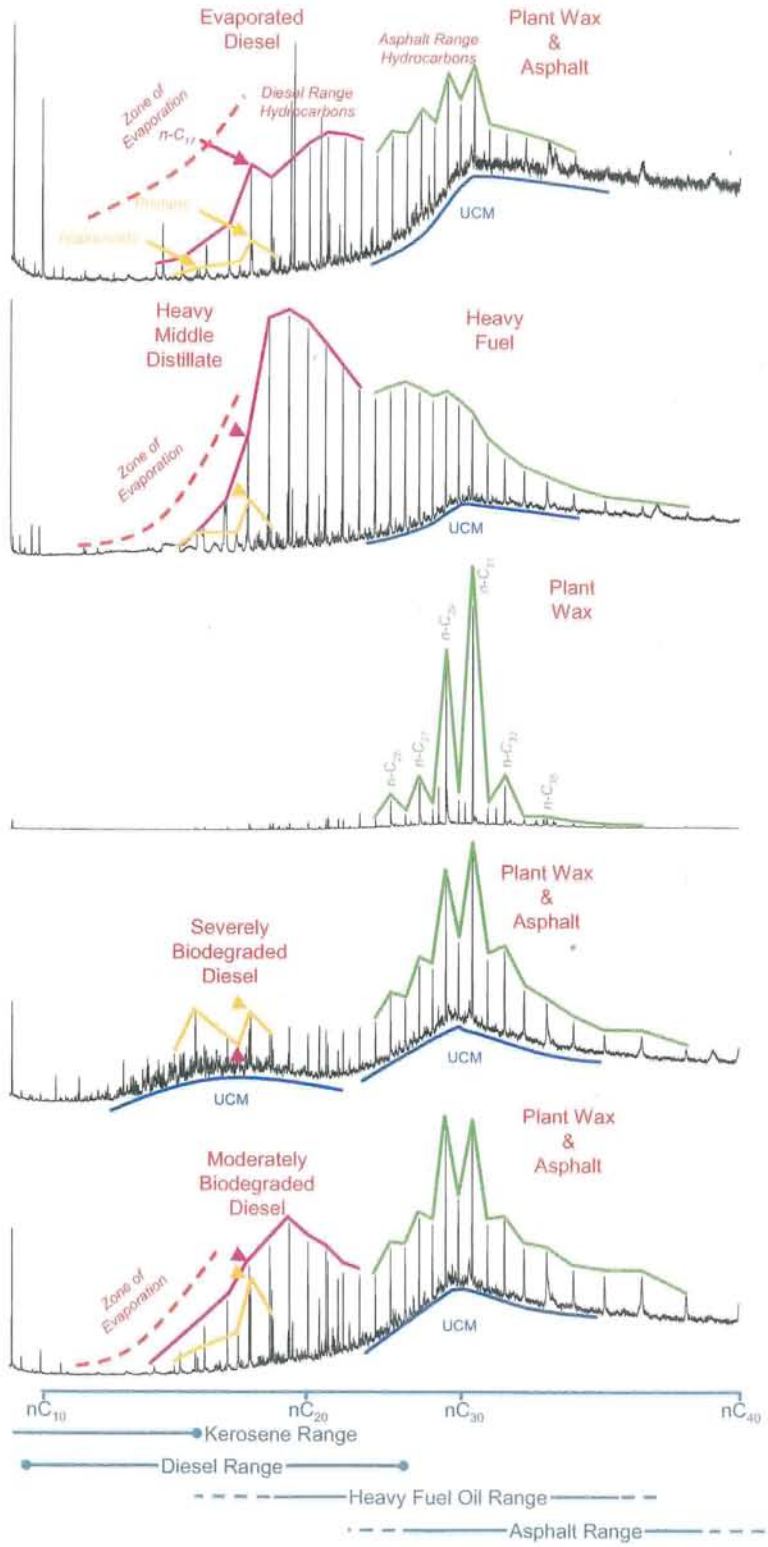
a. OFF-SD-JPC03-0006-01
Diesel and asphalt range petroleums mixed with plant waxes. Loss of lighter diesel components likely by evaporation. Light to moderate biodegradation evident in high n-C_{17} relative to pristane. Odd-carbon numbered heavy alkanes from plant waxes and UCM from asphalt.

b. OFF-SD-OTSOF093-0006-01
Pronounced homologous series of normal alkanes spanned the middle and heavy molecular weight ranges. The middle range material is heavier than typical diesel products and may indicate the presence of evaporated diesel or heavy fuel thinner. Little biodegradation was evident.

c. OFF-SD-OTSOF075-0006-01
Dominant plant waxes indicated by the heavy normal alkanes with a preference for odd- over even-number of carbons (see jagged profile). Middle distillate and heavy asphalt range petroleum were not evident.

d. OFF-SD-OTSOF075A-0006-01
Low normal alkanes relative to isoprenoids plus a wide middle range UCM indicated a severely biodegraded diesel range material. Heavier normal alkanes and late eluting UCM indicated asphalt. The jagged profile of the heavy normal alkanes also indicated plant waxes.

e. OFF-SD-SD5-0006-01
Similar to OFF-SD-OTSOF075A-0006-01 with heavier middle range distillate. The slightly higher abundance of n-C_{17} relative to pristane indicates moderate biodegradation.



UCM unresolved complex mixture
▲ Heptadecane or n-C_{17}
▲ Pristane

Figure 6. Saturated Hydrocarbon Fingerprints (GC/MS/SIM).

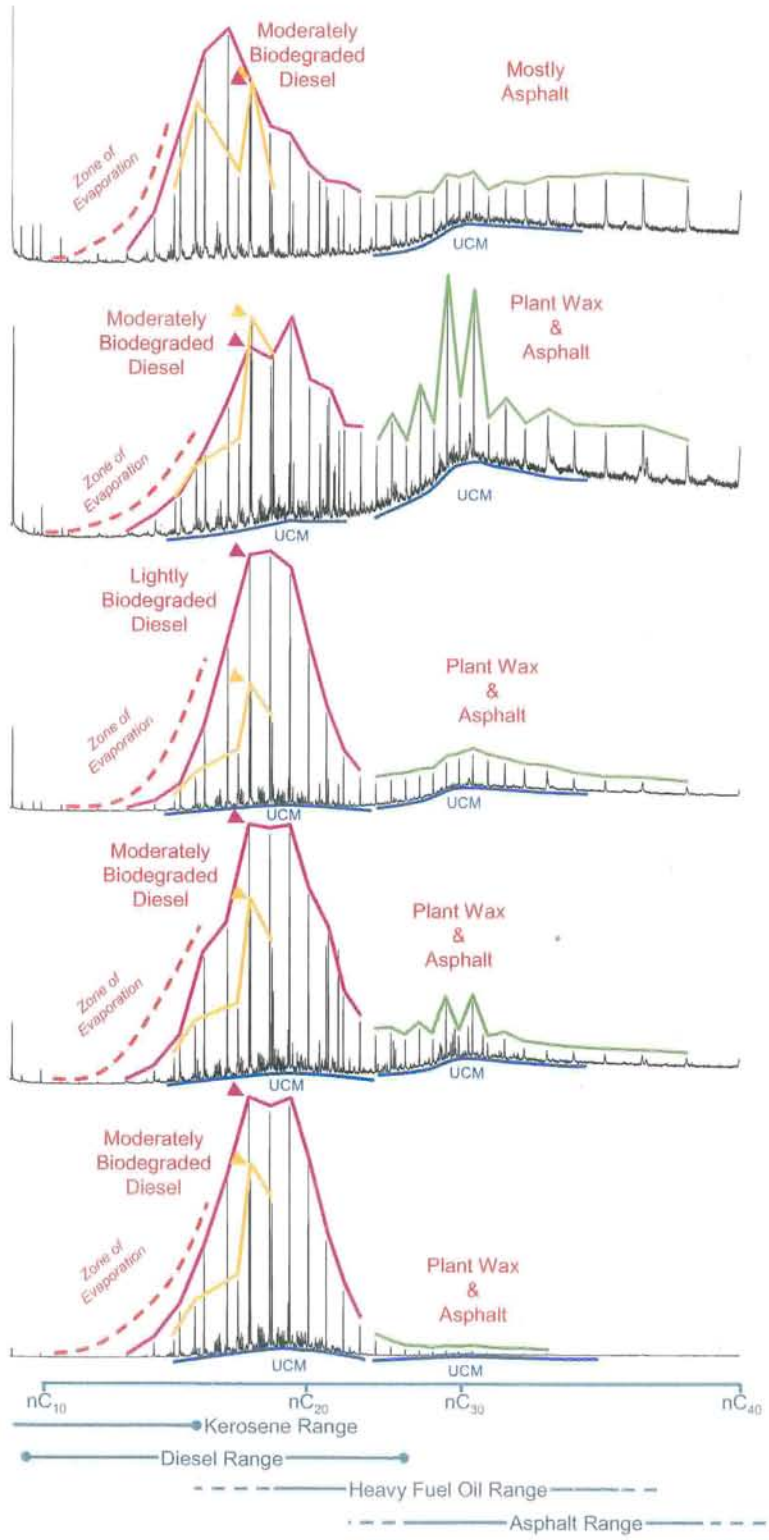
f. OFF-SD-OFF02-0006-01
Similar to OFF-SD-SD5-0006-01 with slightly lower levels of plant wax and higher levels of heavy middle distillate range material. Moderate weathering of the middle distillate material was indicated by the approximately equal levels of n-C_{17} and pristane.

g. OFF-SD-411-0006-01
Similar to OFF-SD-SD5-0006-01. Moderate weathering of the heavy middle distillate range material was indicated by the approximately equal levels of normal alkanes relative to isoprenoids.

h. OFF-SD-414-0006-01
Similar to OFF-SD-SD5-0006-01 with slightly lower levels of plant wax and higher levels of heavy middle distillate range material. Light to moderate biodegradation of the middle distillate material was indicated by the higher levels of most normal alkanes relative to isoprenoids.

i. OFF-SD-442-0006-01
Similar to OFF-SD-SD5-0006-01 with higher levels of heavy middle distillate range material. The slightly higher levels of normal alkanes in the middle distillate range indicates moderate weathering.

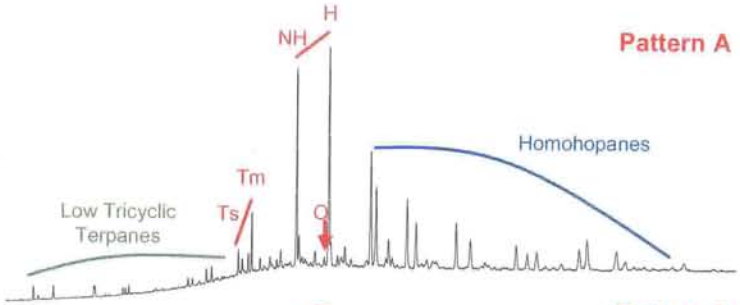
j. OFF-SD-OFF7-0006-01
Similar to OFF-SD-SD5-0006-01 with higher levels of heavy middle distillate. The slightly higher levels of normal alkanes in the middle distillate range indicates moderate weathering.



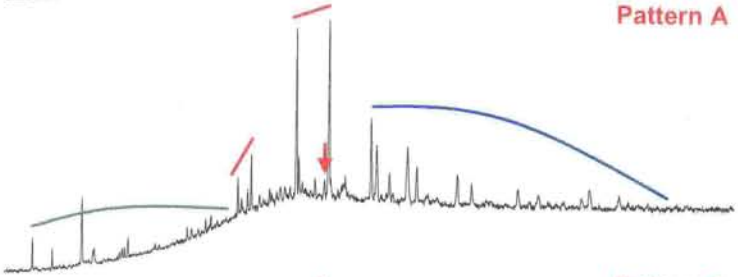
UCM unresolved complex mixture
▲ Heptadecane or n-C_{17}
▲ Pristane

Figure 7. Triterpane Biomarker Patterns (GC/MS/SIM).

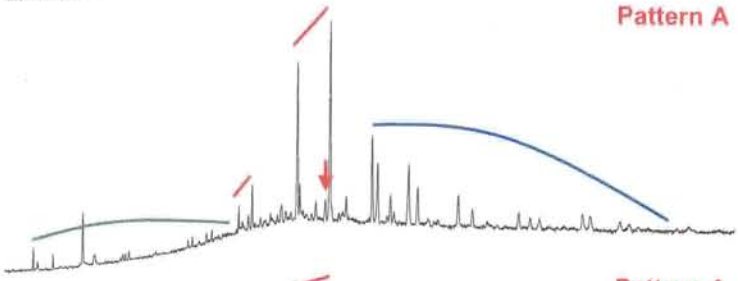
a. OFF-SD-414-DEBRIS1
Pattern A consists of Ts:Tm ≈ 0.5 and NH:H ≈ 0.75 to 0.9 with a full range of homohopanes. The low levels of tricyclic terpanes was consistent with a heavy residual refinery product, like asphalt.



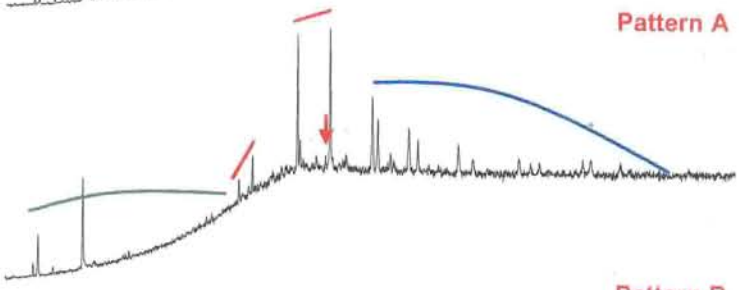
b. OFF-SD-OTSOF075A-0006-01
Pattern A was observed in the storm sewer system around the OFFTA. This supported the assumption that storm sewers served as pathways for the migration of abraded pavement.



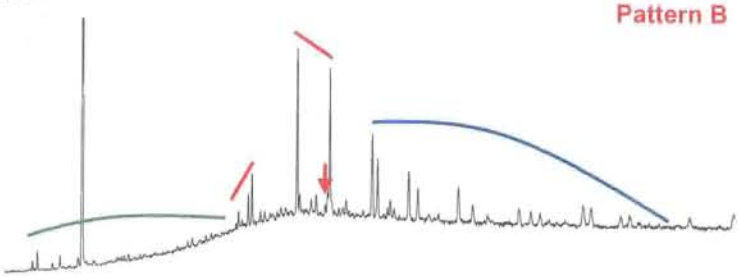
c. OFF-SD-SD5-0006-01
Pattern A continued hydraulically down gradient to the receiving sediments around the outfall. All of the Coasters Harbor sediments contained this same triterpane fingerprint.



d. OFF-SD-JPC03-0006-01
The ubiquitous nature of Patterns A was further revealed in the Reference Area sediment.



e. OFF-SD-OTSOF093-0006-01
Pattern B confirmed that the heavy residual petroleum at the OF093 sampling location was distinct from background. As suggested by the high abundances of normal alkanes in the saturate fingerprint of this sample, the unique triterpane pattern supported the likely identification of heavy fuel at this location.



Ts 18α(H)-22,29,30-Trisnorneohopane
Tm 17α(H)-22,29,30-Trisnorhopane
NH 30-Norhopane
H Hopane
O Oleanane

Attachment C
High Resolution Hydrocarbon Fingerprinting Results by GC/FID

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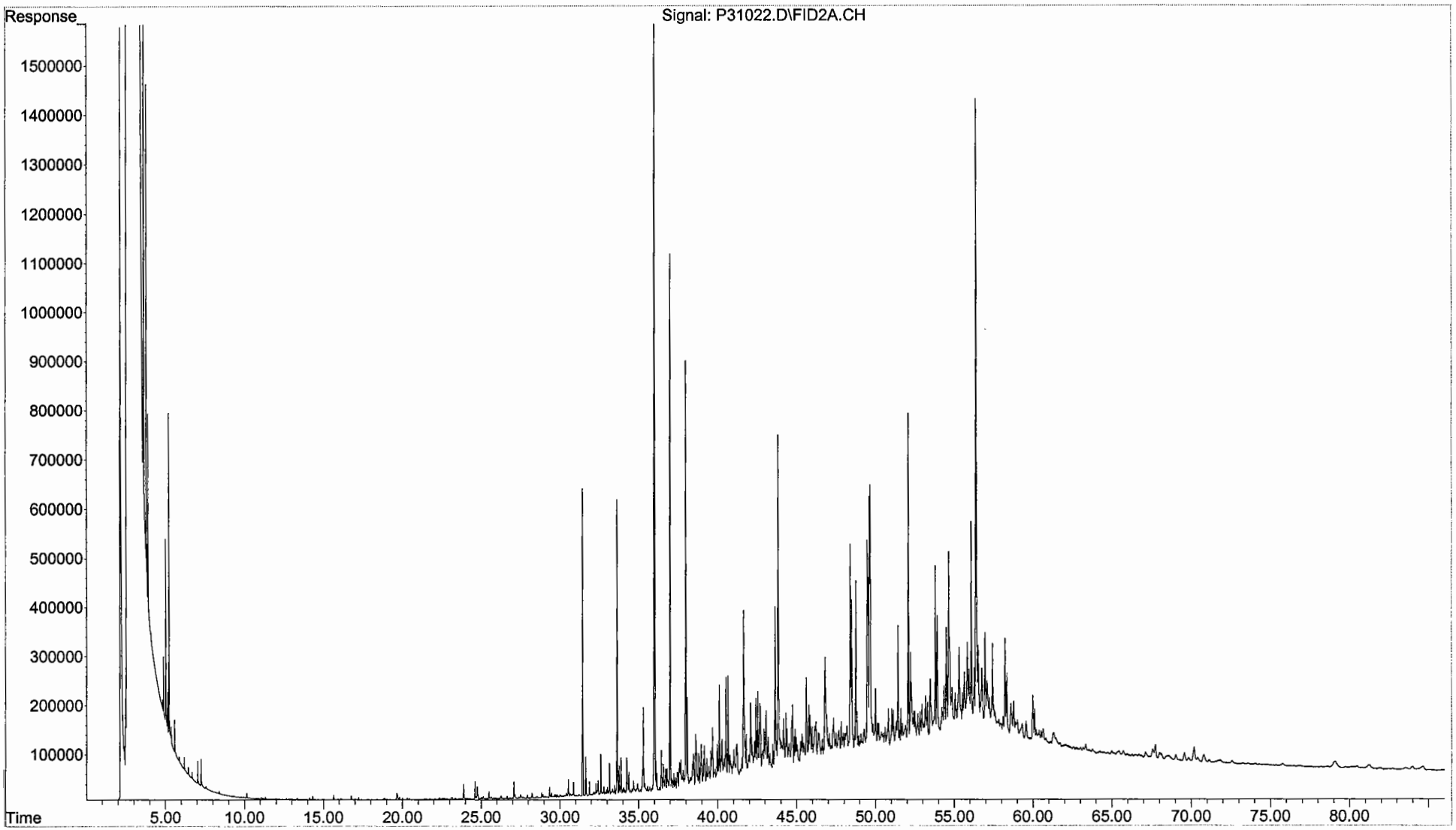
0502110-10



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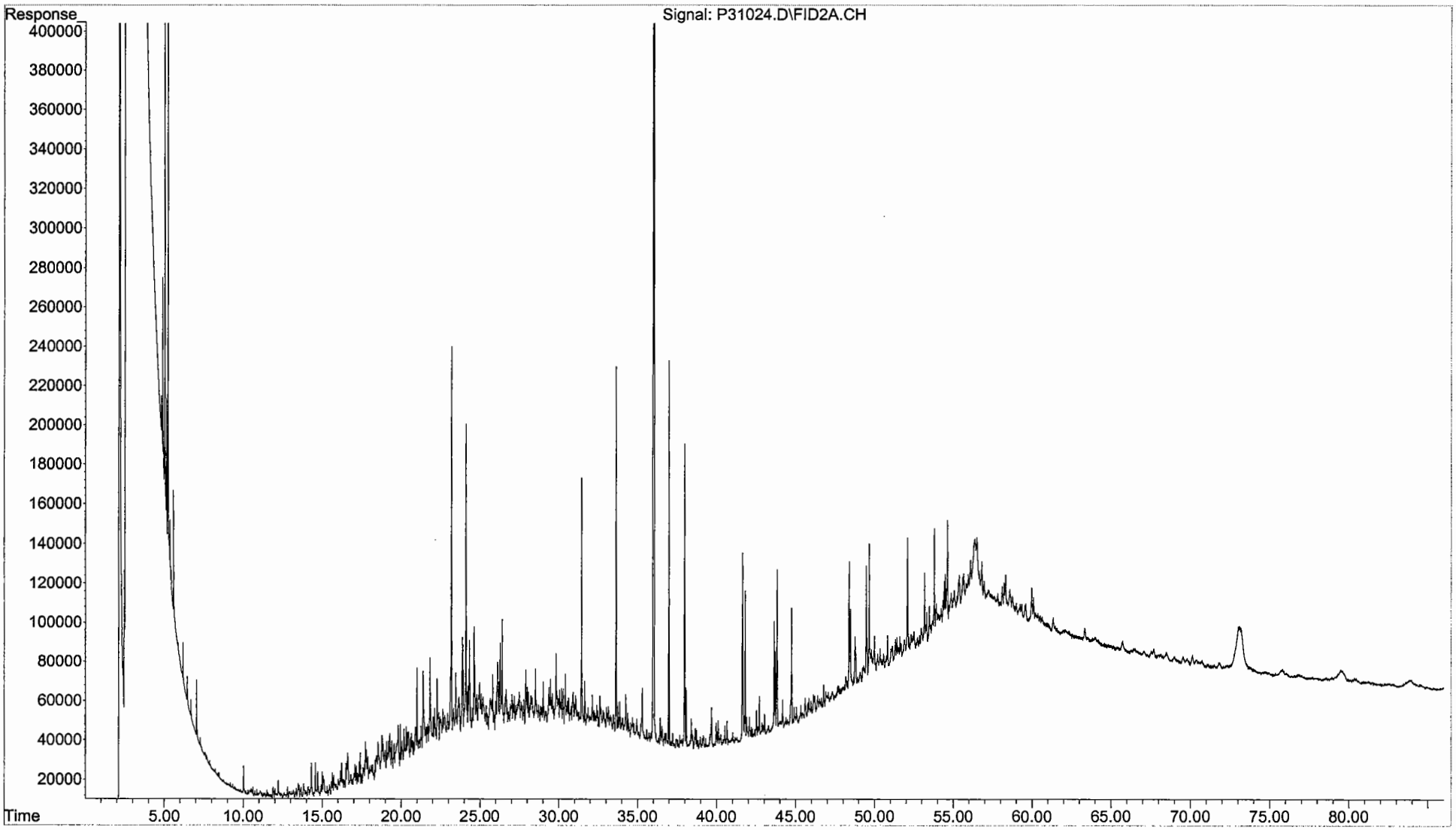
OFF-SD-OTSOF075A-0006-01
0502110-11



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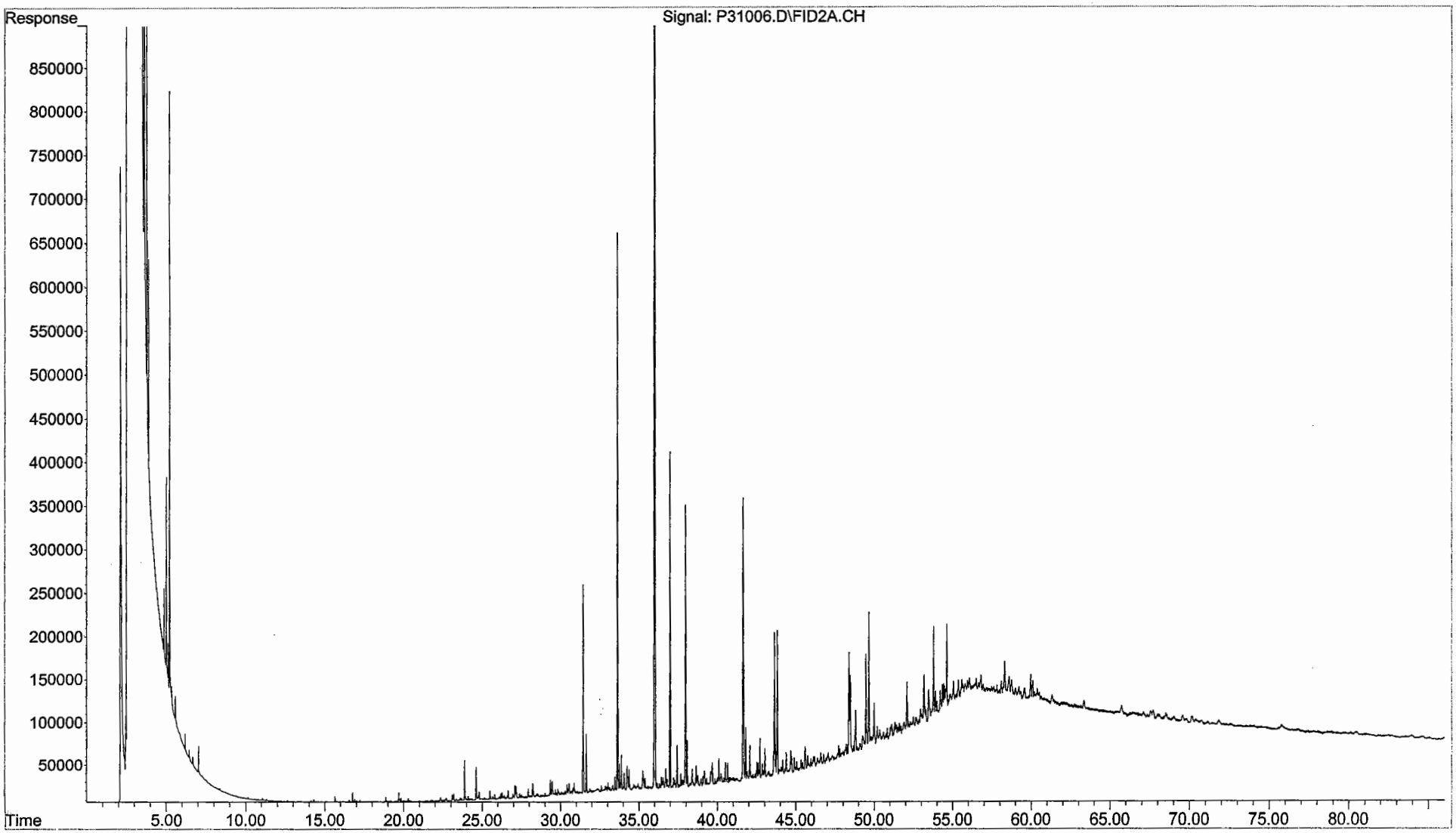
OFF-SD-SD5-0006-01
0502110-05



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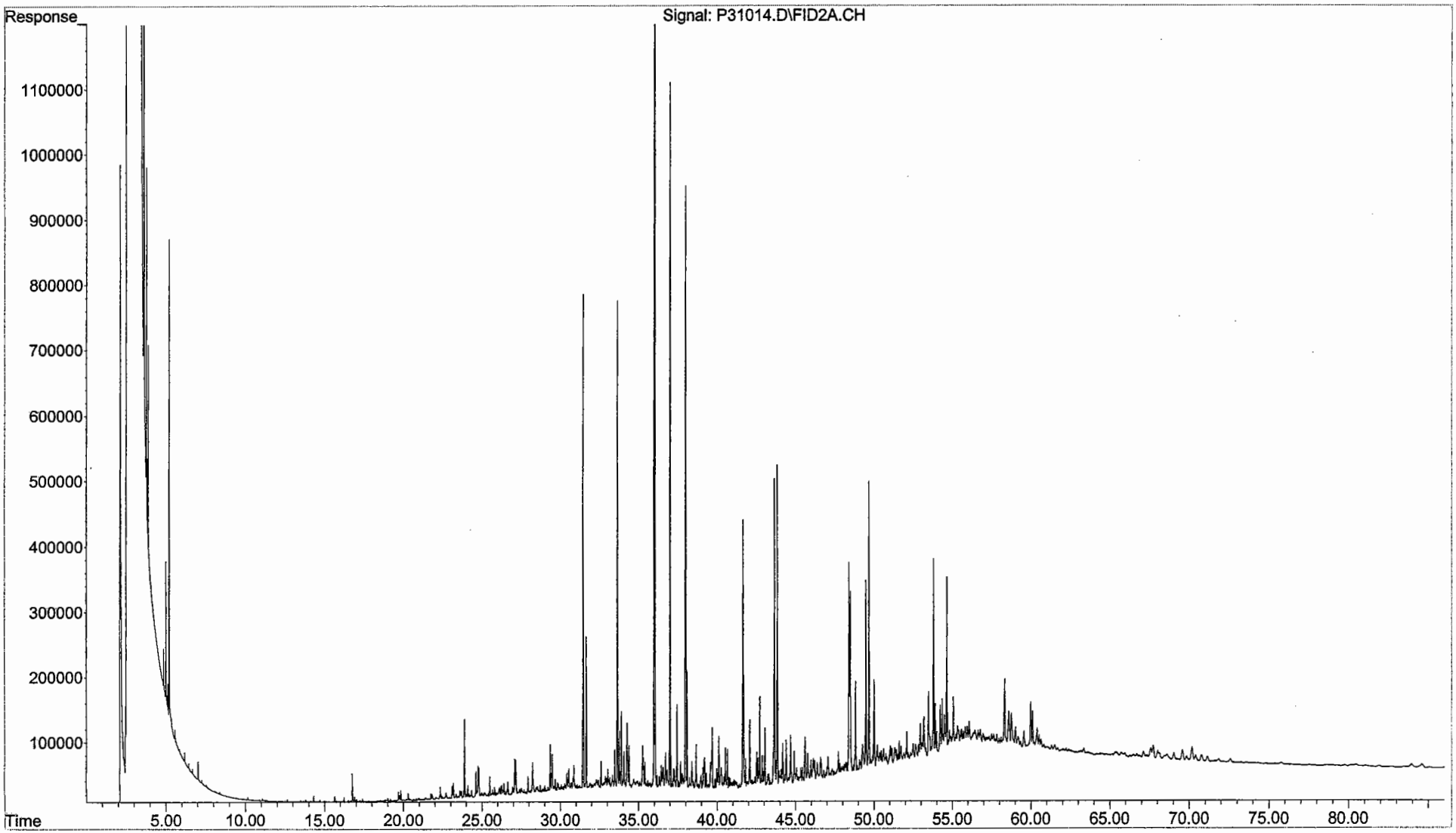
0502110-06



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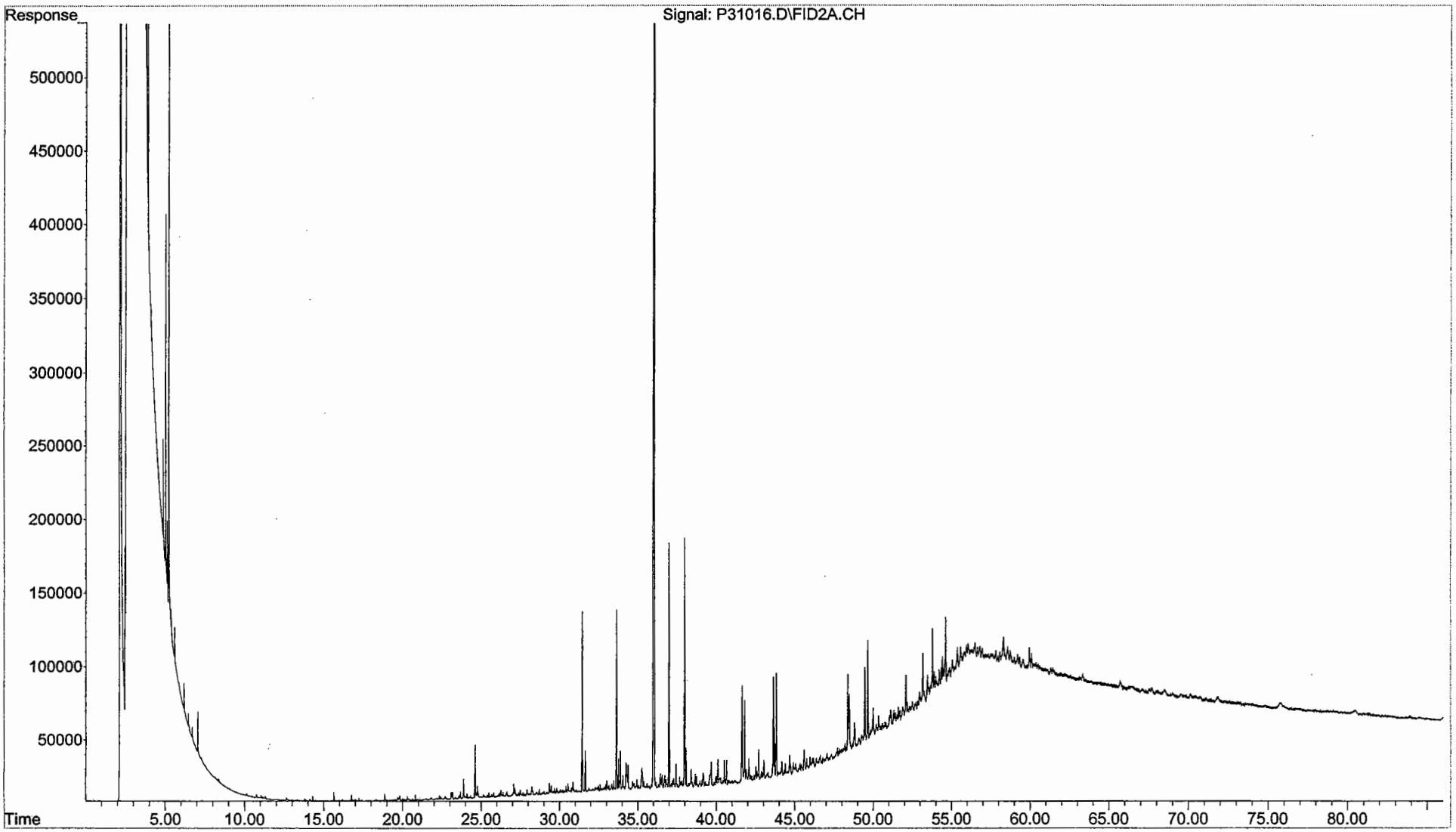
OFF-SD-OFF6-0006-01
0502110-07



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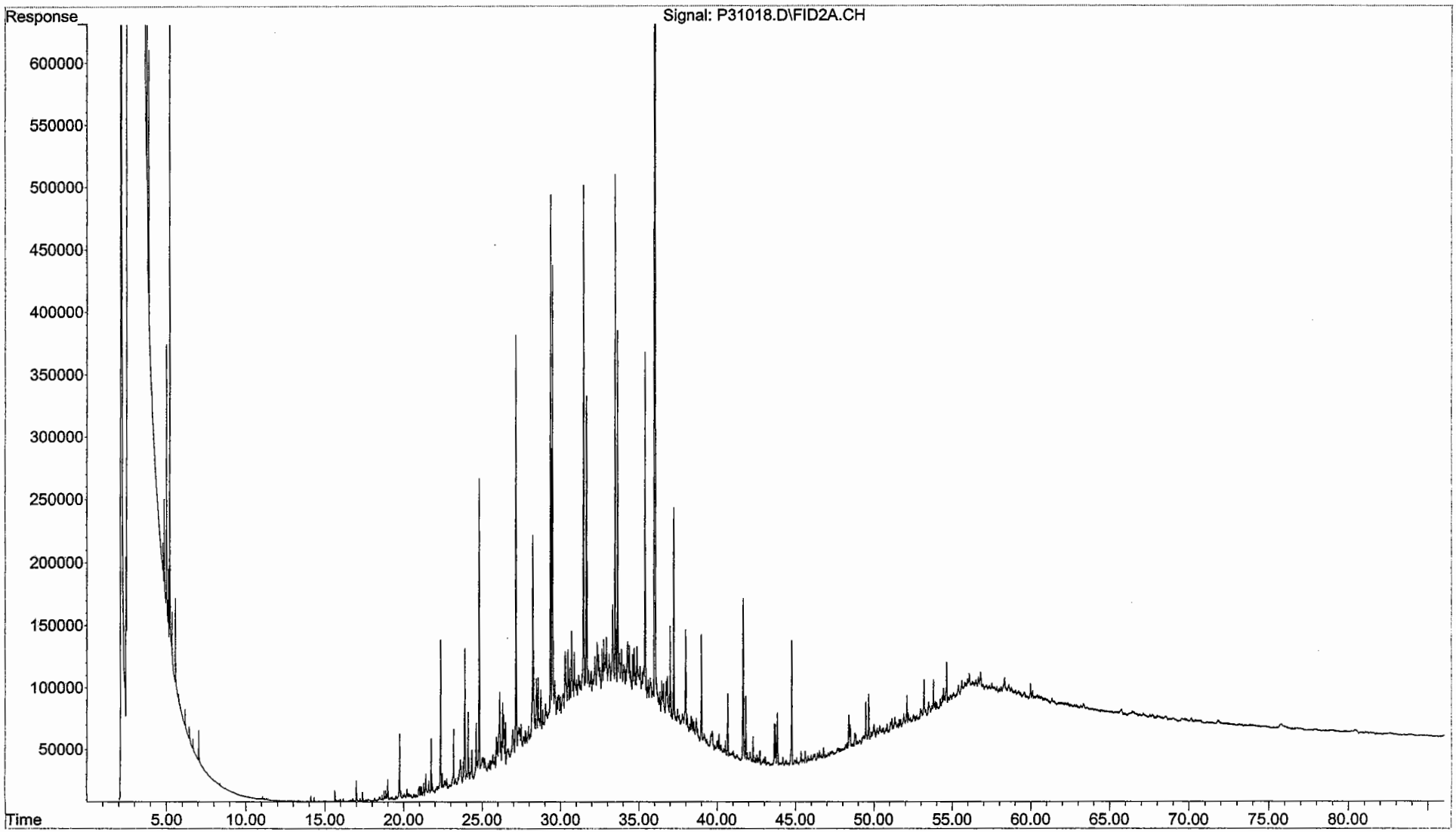
OFF-SD-OFF7-0006-01
0502110-08



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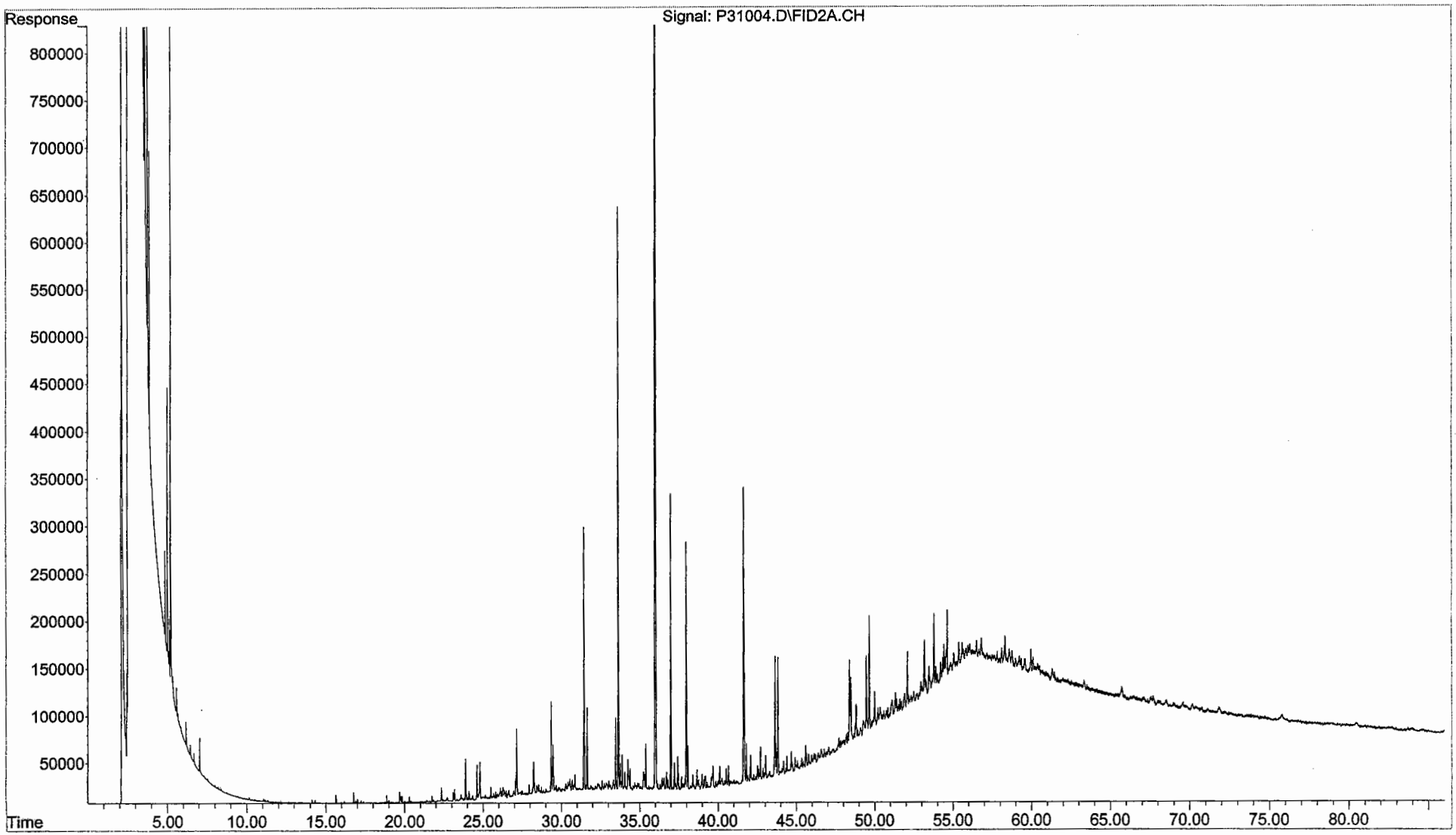

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OFF-SD-414-DEBRIS1
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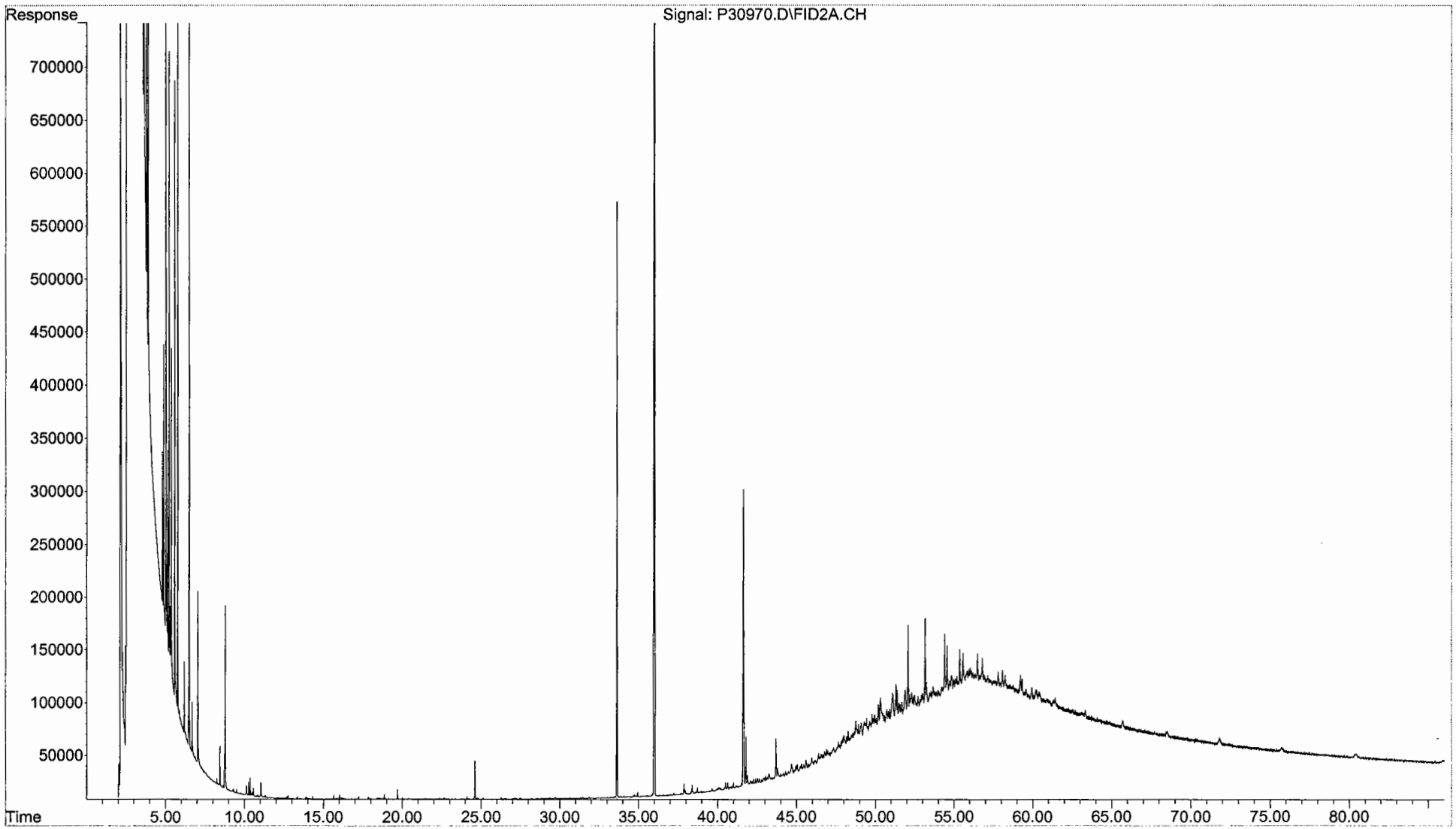

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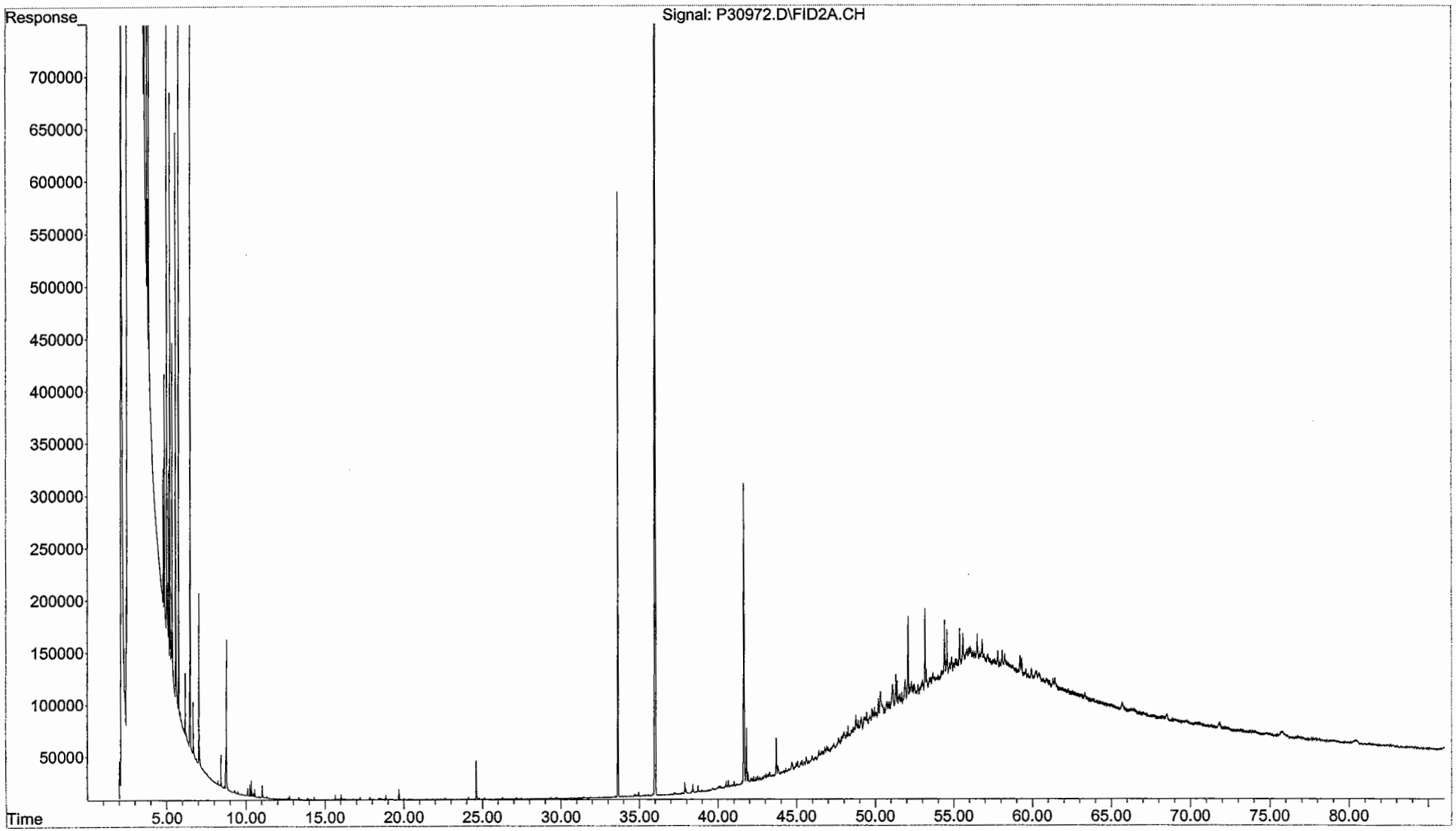

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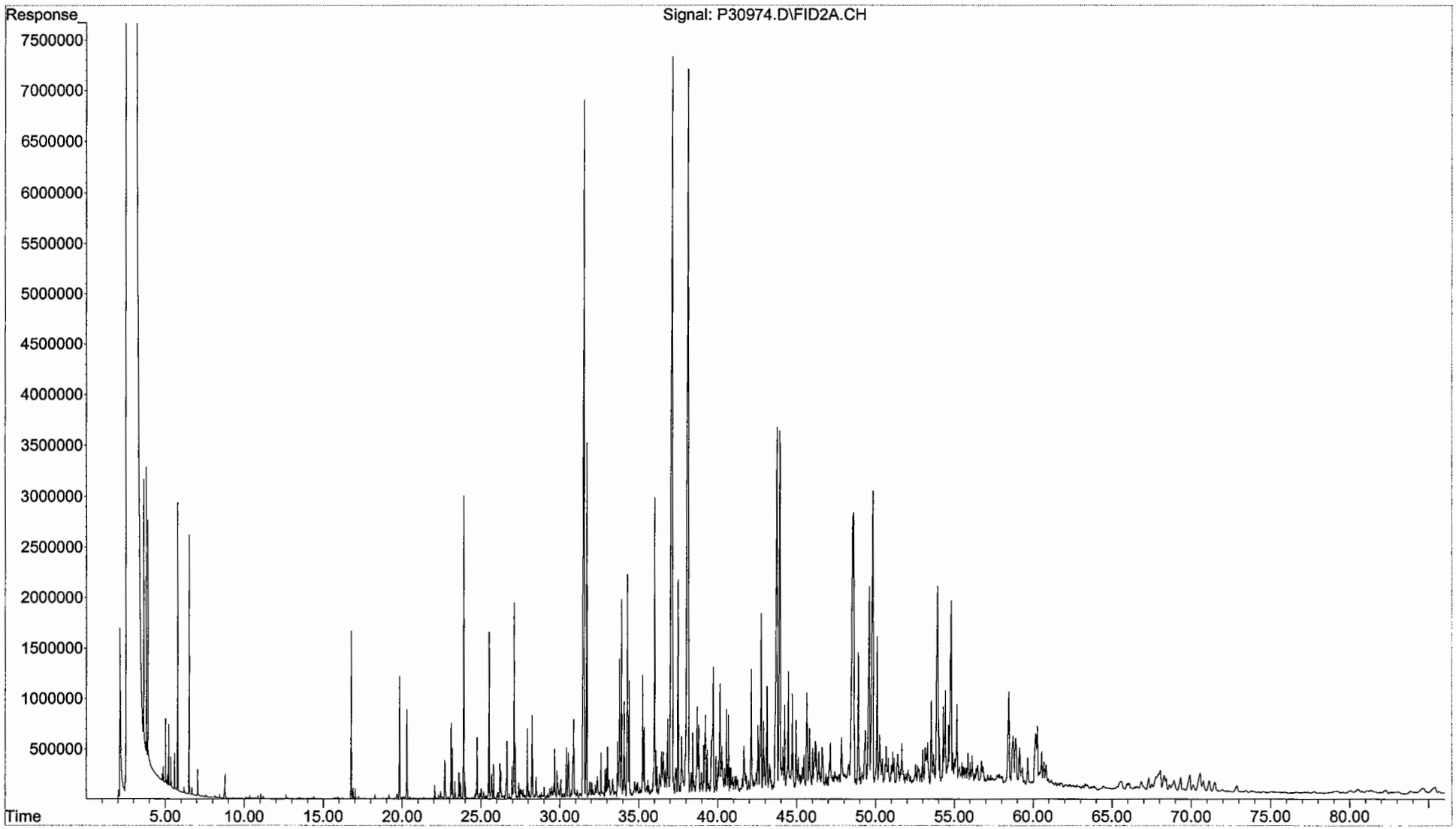
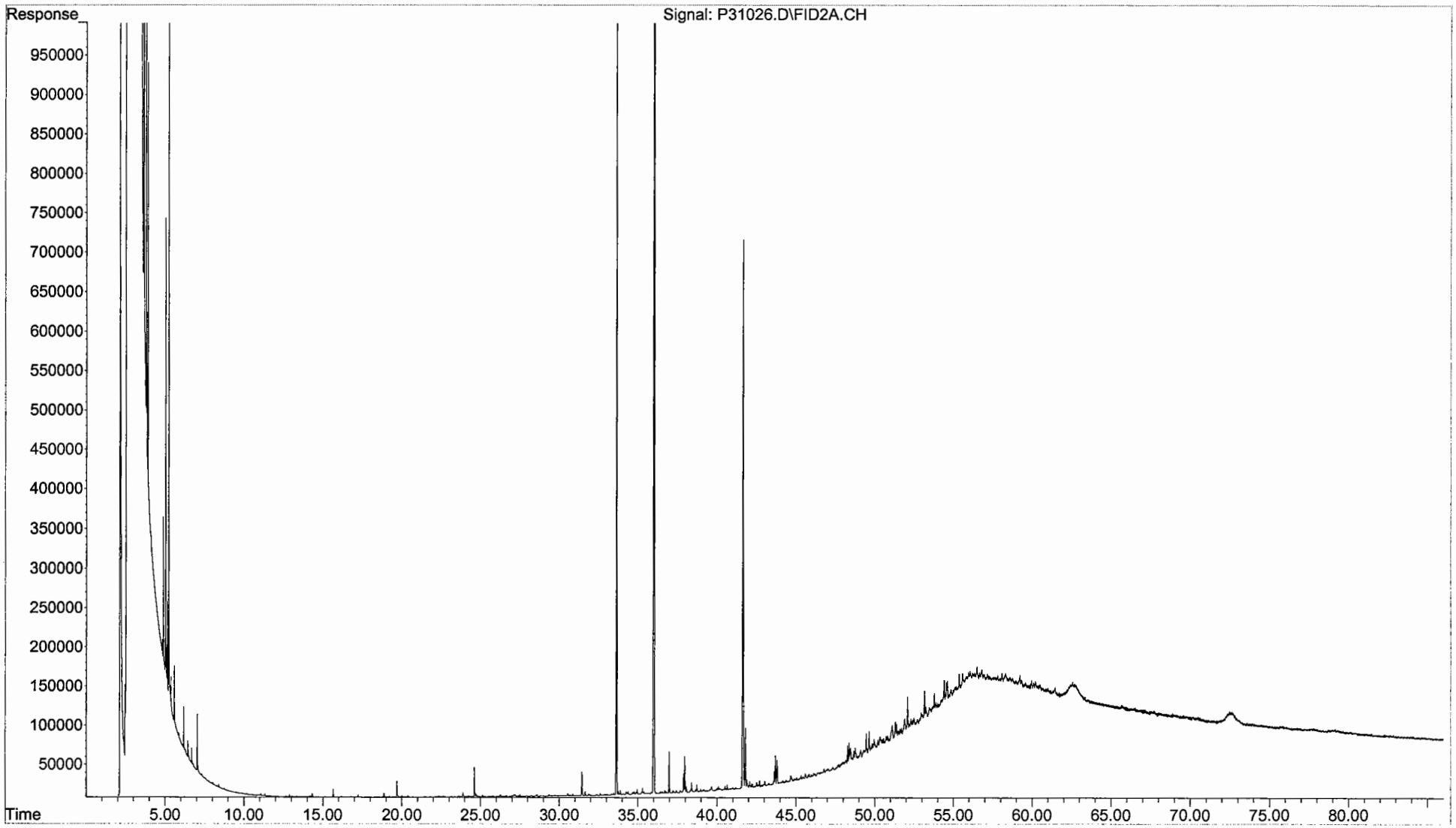
Acquired : 15 Mar 2005 2:37 am using AcqMethod PAH30302.M
Sample Name: 0502110-14-AFID
Misc Info : 1X

OFF-SD-414-DEBRIS2
0502110-14



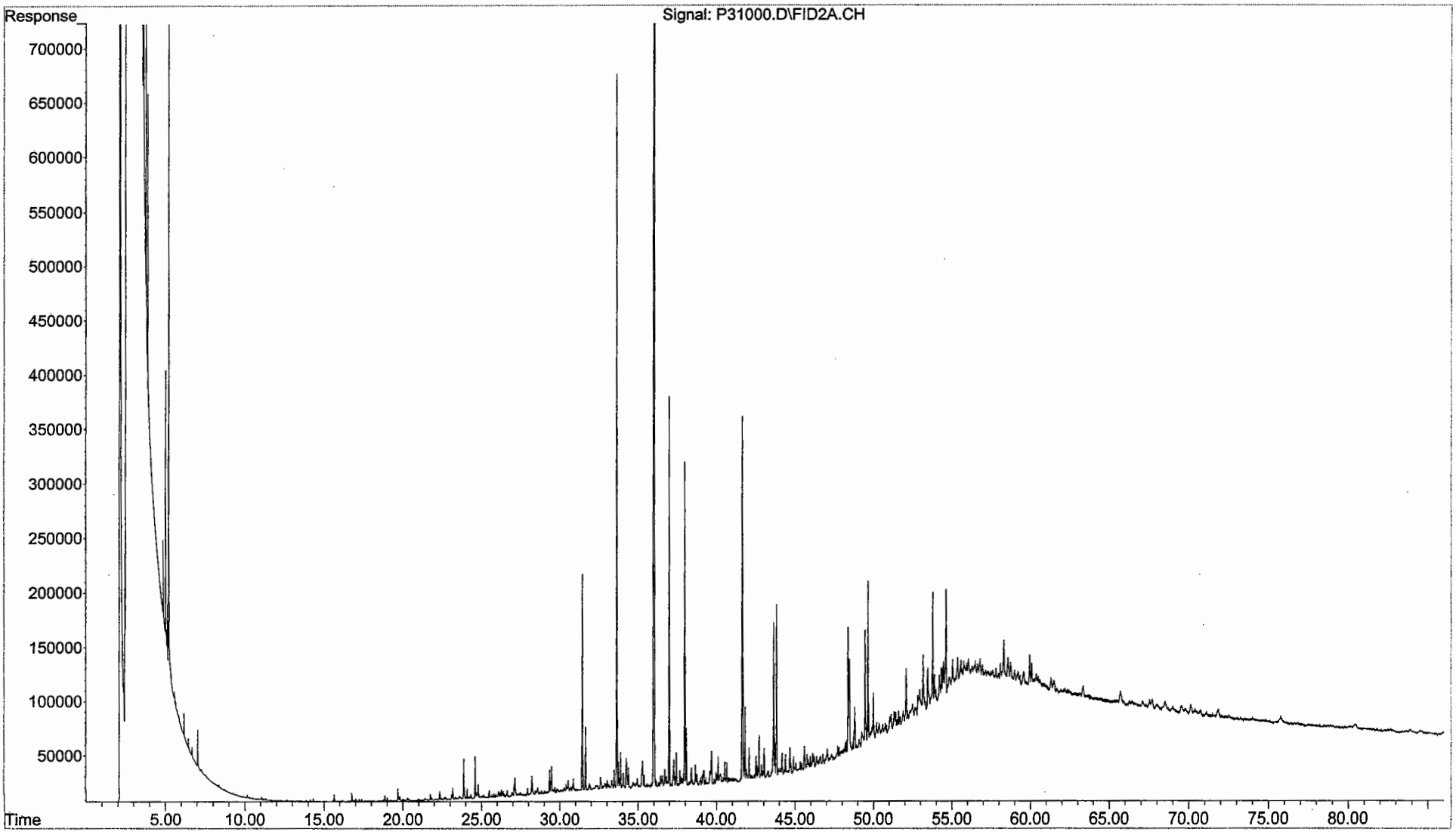
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P31026.D
Operator : AC
Instrument : PAH#3
Acquired : 17 Mar 2005 12:25 am using AcqMethod PAH30302.M
Sample Name: 0502110-12-AFID
Misc Info : 1X RERUN

OFF-SD-OTSOF093-0006-01
0502110-12



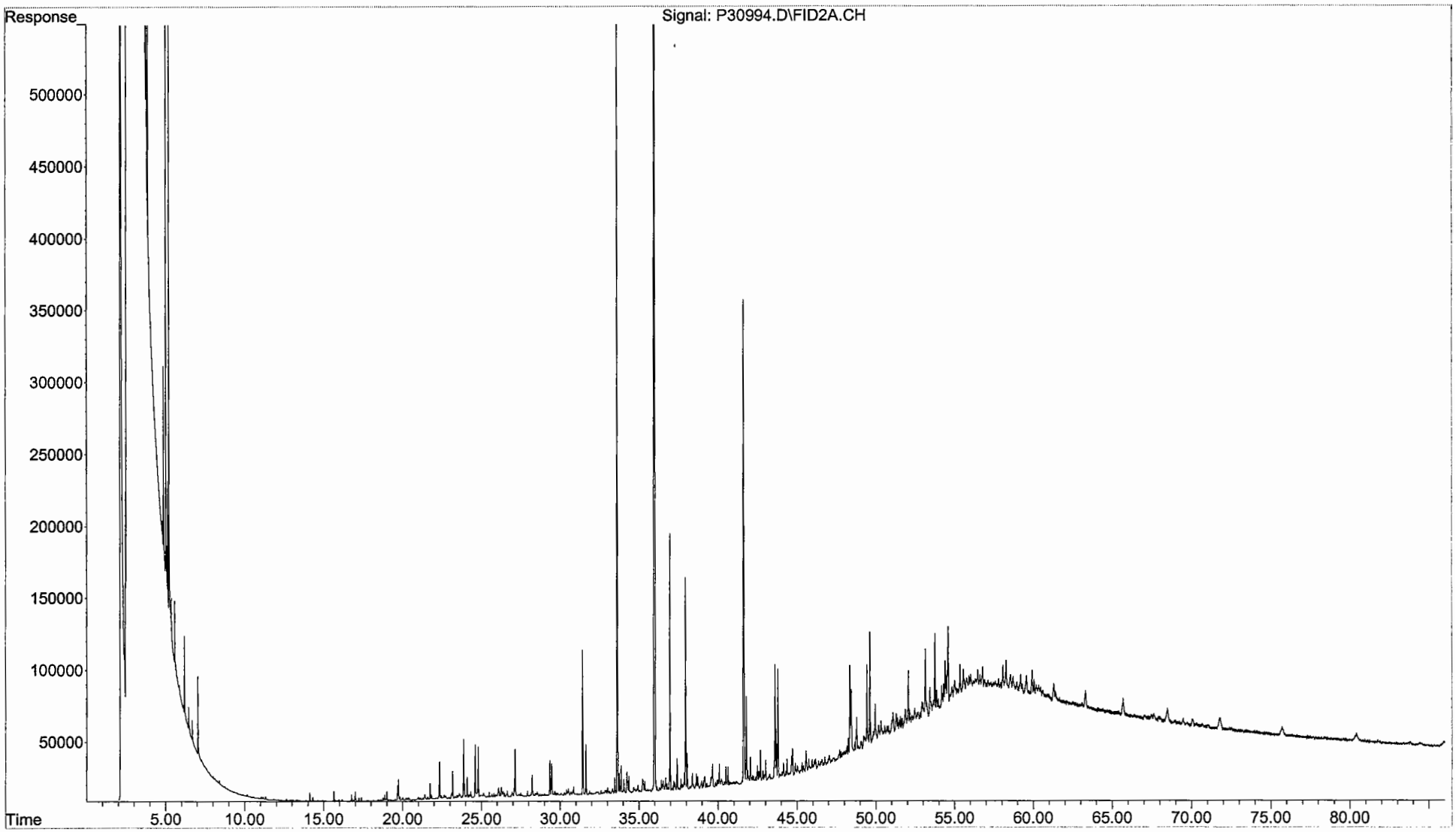
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P31000.D
Operator : AC
Instrument : PAH#3
Acquired : 16 Mar 2005 1:35 am using AcqMethod PAH30302.M
Sample Name: 0502110-02-AFID
Misc Info : 1X RERUN

OFF-SD-411-0006-01
0502110-02



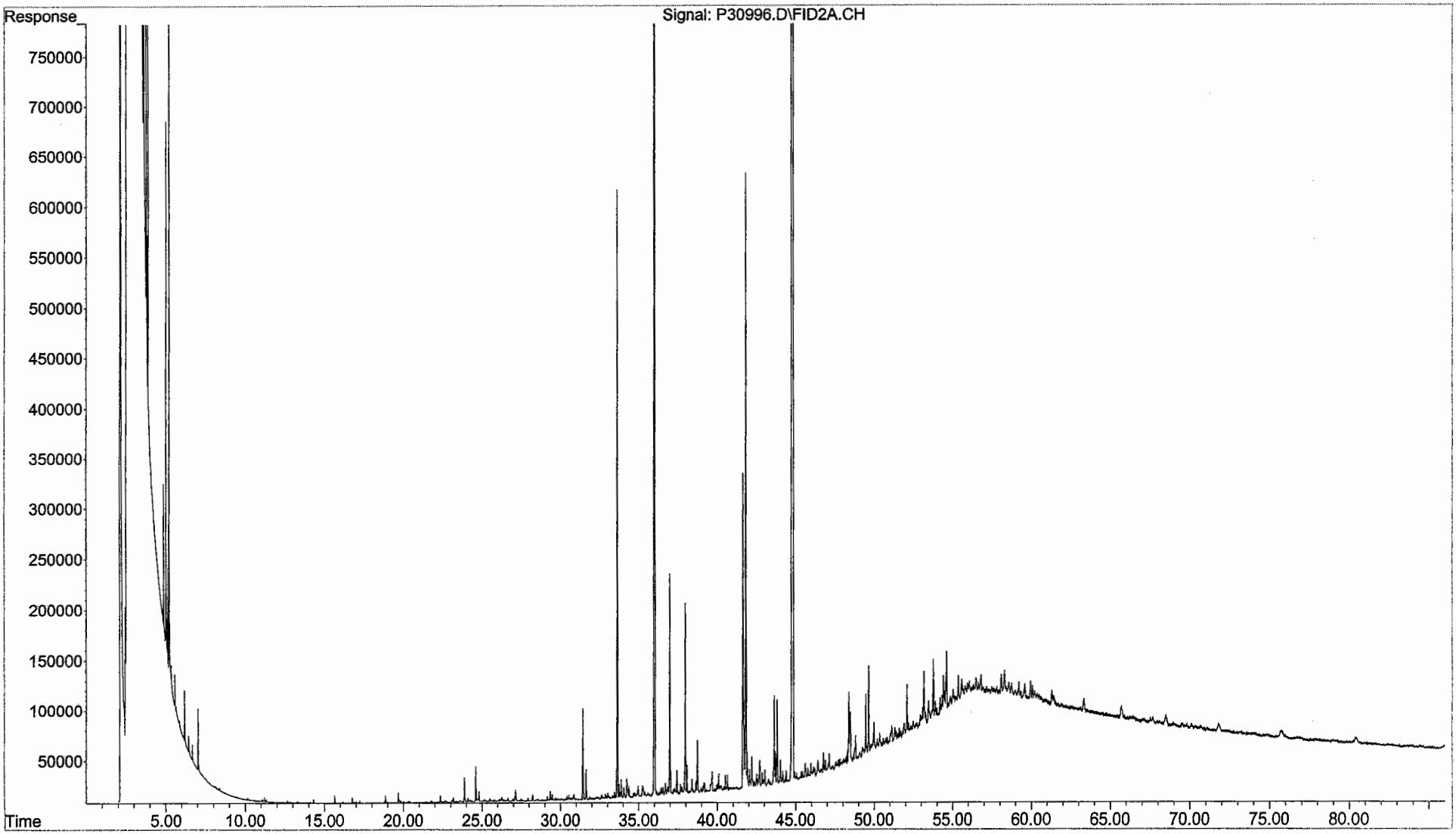
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P30994.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 8:17 pm using AcqMethod PAH30302.M
Sample Name: 0502110-01-AFID
Misc Info : 1X RERUN

OFF-SD-OFF2-0006-01
0502110-01



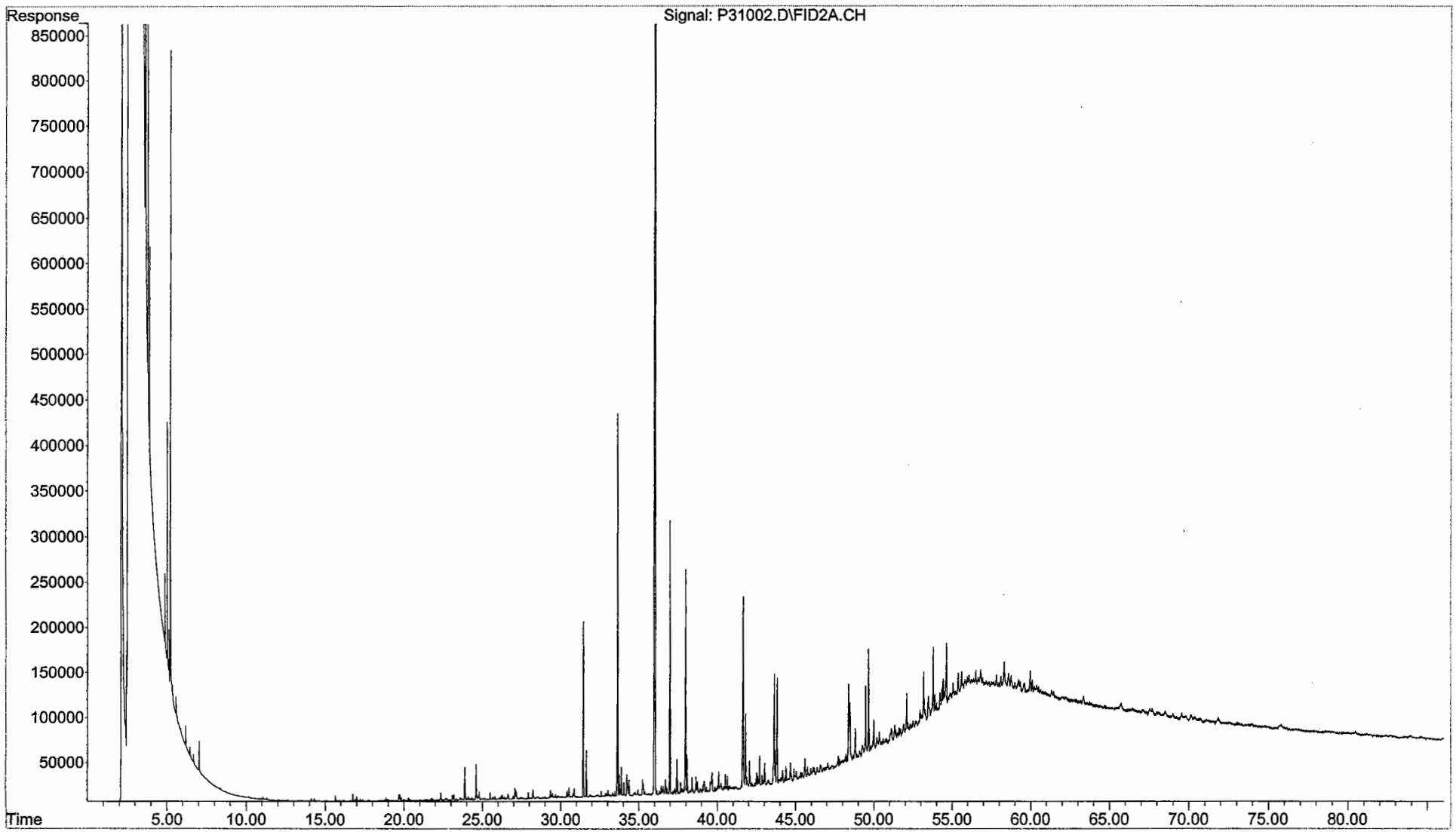
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P30996.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 10:04 pm using AcqMethod PAH30302.M
Sample Name: 0502110-01D-AFID
Misc Info : 1X RERUN

OFF-SD-OFF2-0006-01 Duplicate
0502110-01D



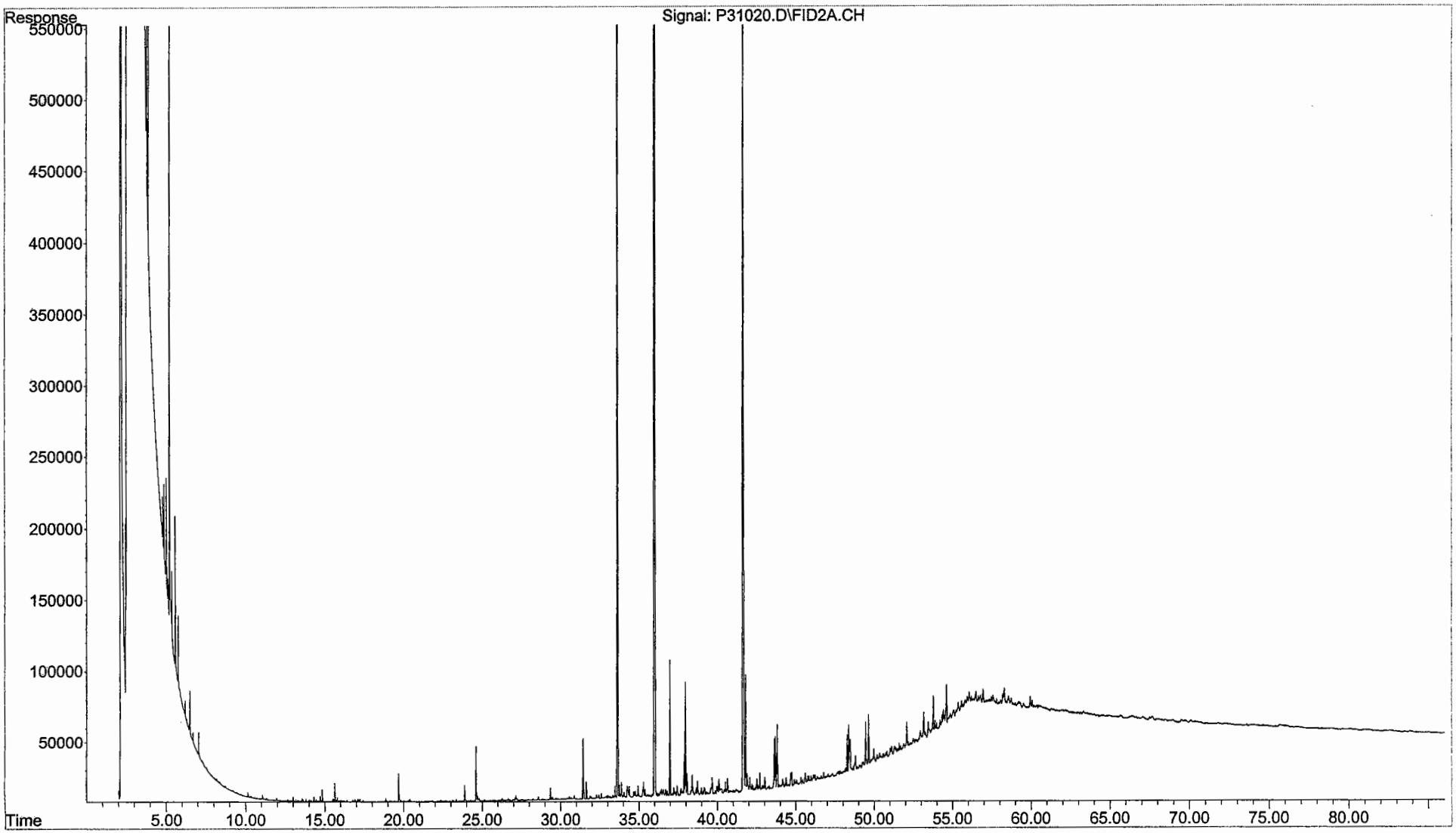
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P31002.D
Operator : AC
Instrument : PAH#3
Acquired : 16 Mar 2005 3:19 am using AcqMethod PAH30302.M
Sample Name: 0502110-03-AFID
Misc Info : 1X RERUN

OFF-SD-OFF3-0006-01
0502110-03



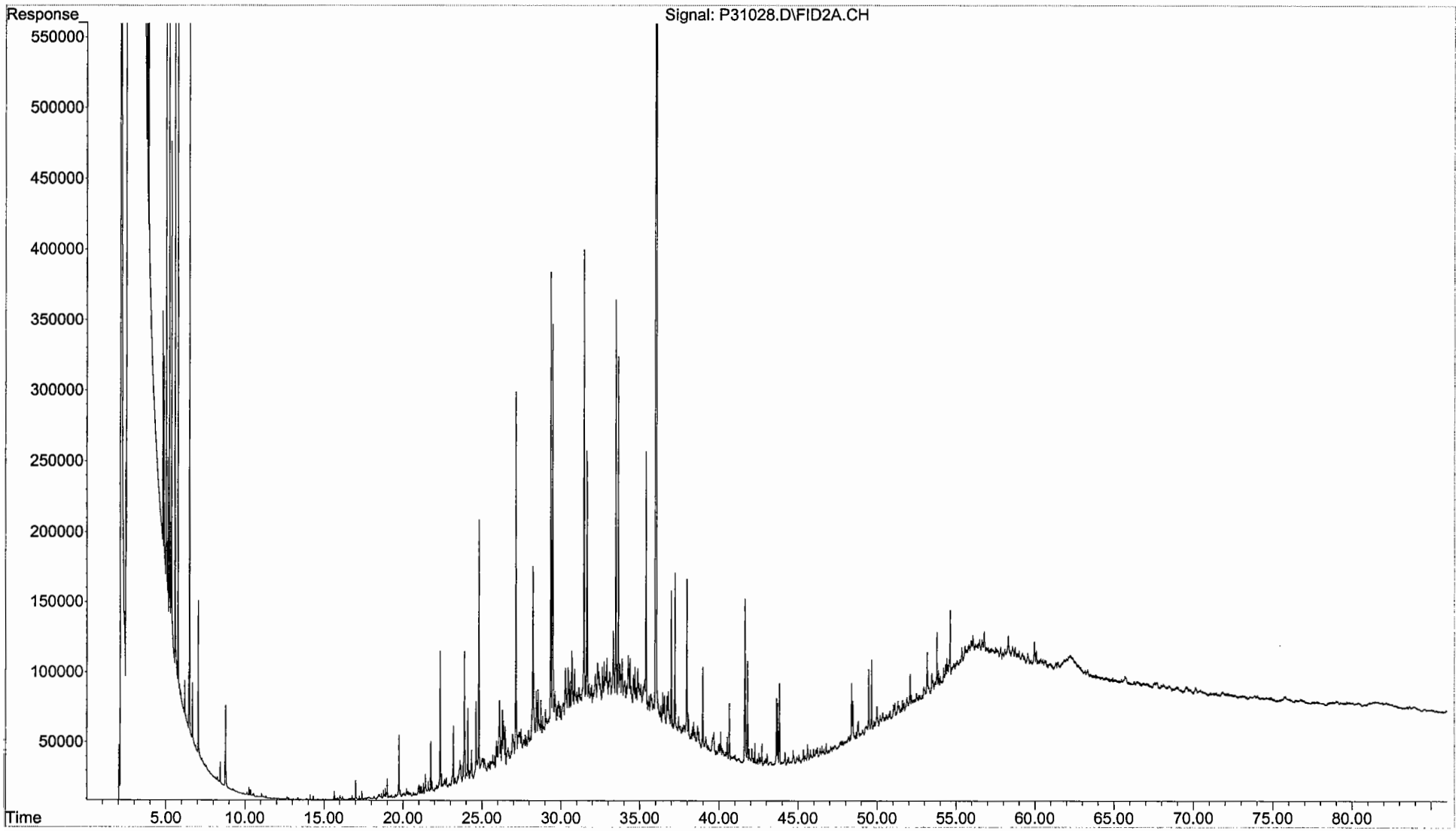
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P31020.D
Operator : AC
Instrument : PAH#3
Acquired : 16 Mar 2005 7:11 pm using AcqMethod PAH30302.M
Sample Name: 0502110-09-AFID
Misc Info : 1X RERUN

OFF-SD-JPC03-0006-01
0502110-09



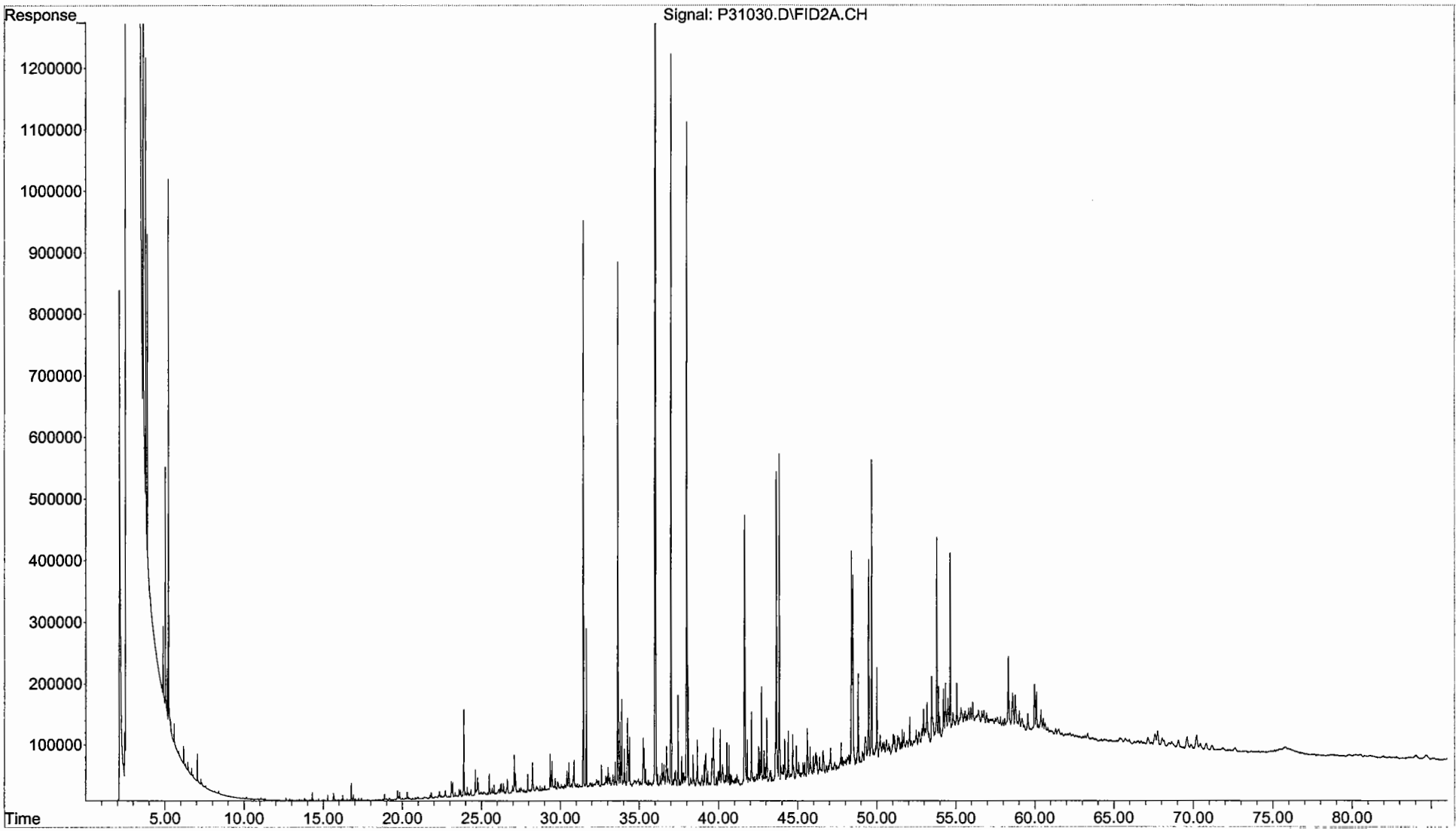
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P31028.D
Operator : AC
Instrument : PAH#3
Acquired : 17 Mar 2005 2:08 am using AcqMethod PAH30302.M
Sample Name: 0502110-15-AFID
Misc Info : 1X RERUN

OFF-SD-DUP01-01
0502110-15



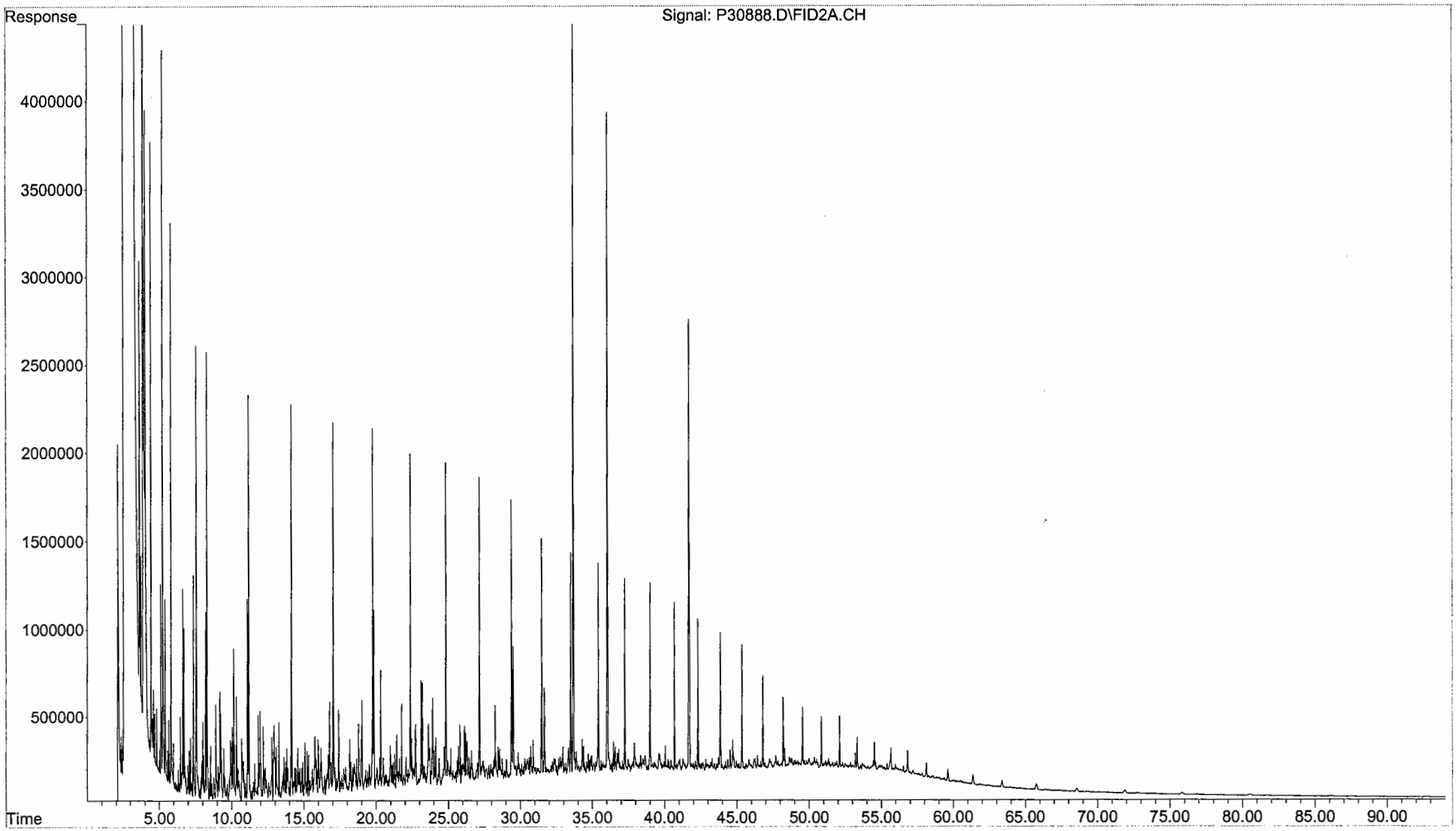
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P31030.D
Operator : AC
Instrument : PAH#3
Acquired : 17 Mar 2005 3:52 am using AcqMethod PAH30302.M
Sample Name: 0502110-16-AFID
Misc Info : 1X RERUN

OFF-SD-DUP02-01
0502110-16



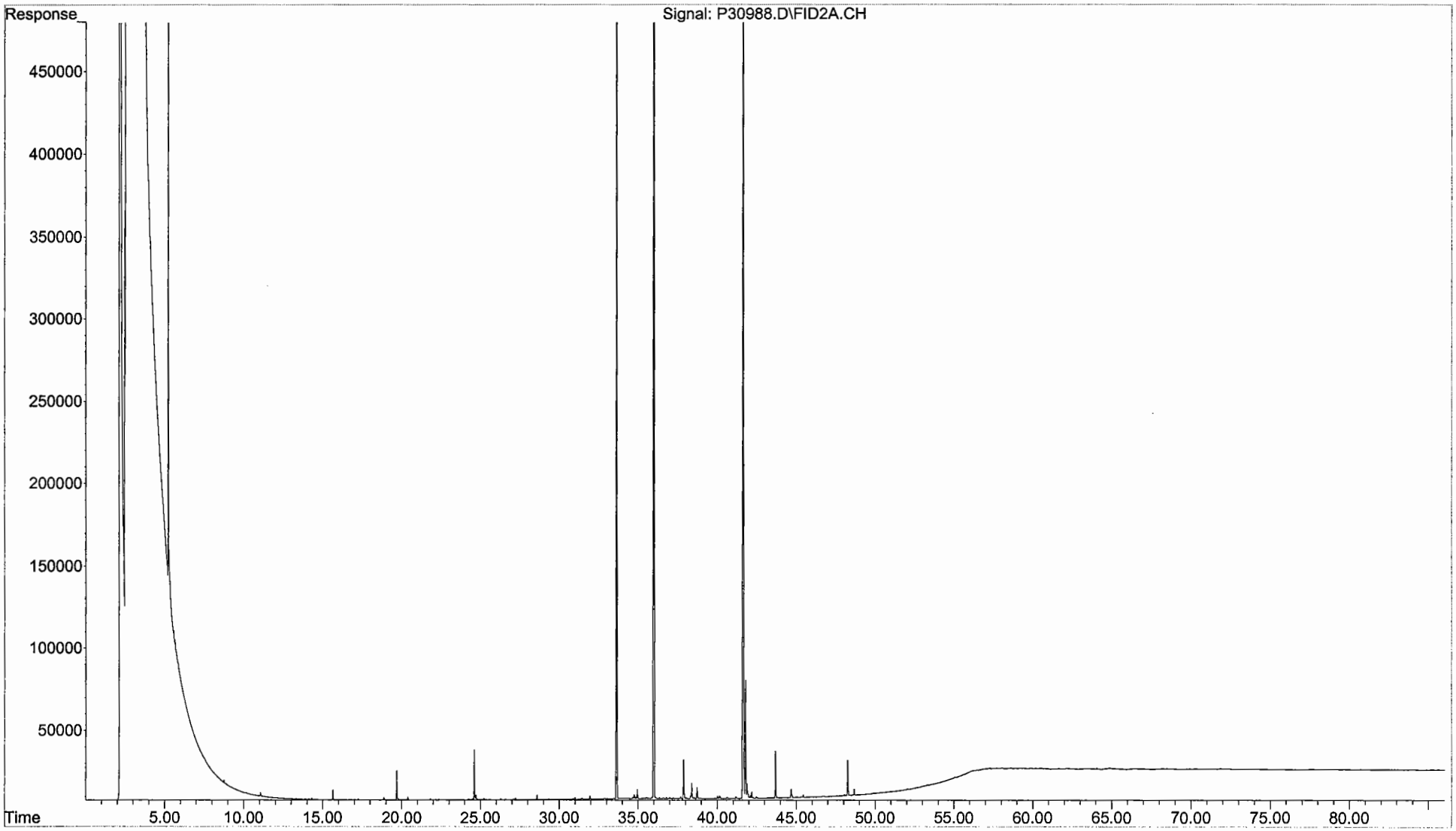
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\ICAL\P30888.D
Operator : AC
Instrument : PAH#3
Acquired : 08 Mar 2005 9:18 am using AcqMethod HC30307.M
Sample Name: ANS3030701
Misc Info : WHGRPAA37 5.002MG/ML

North Slope Crude Reference Sample



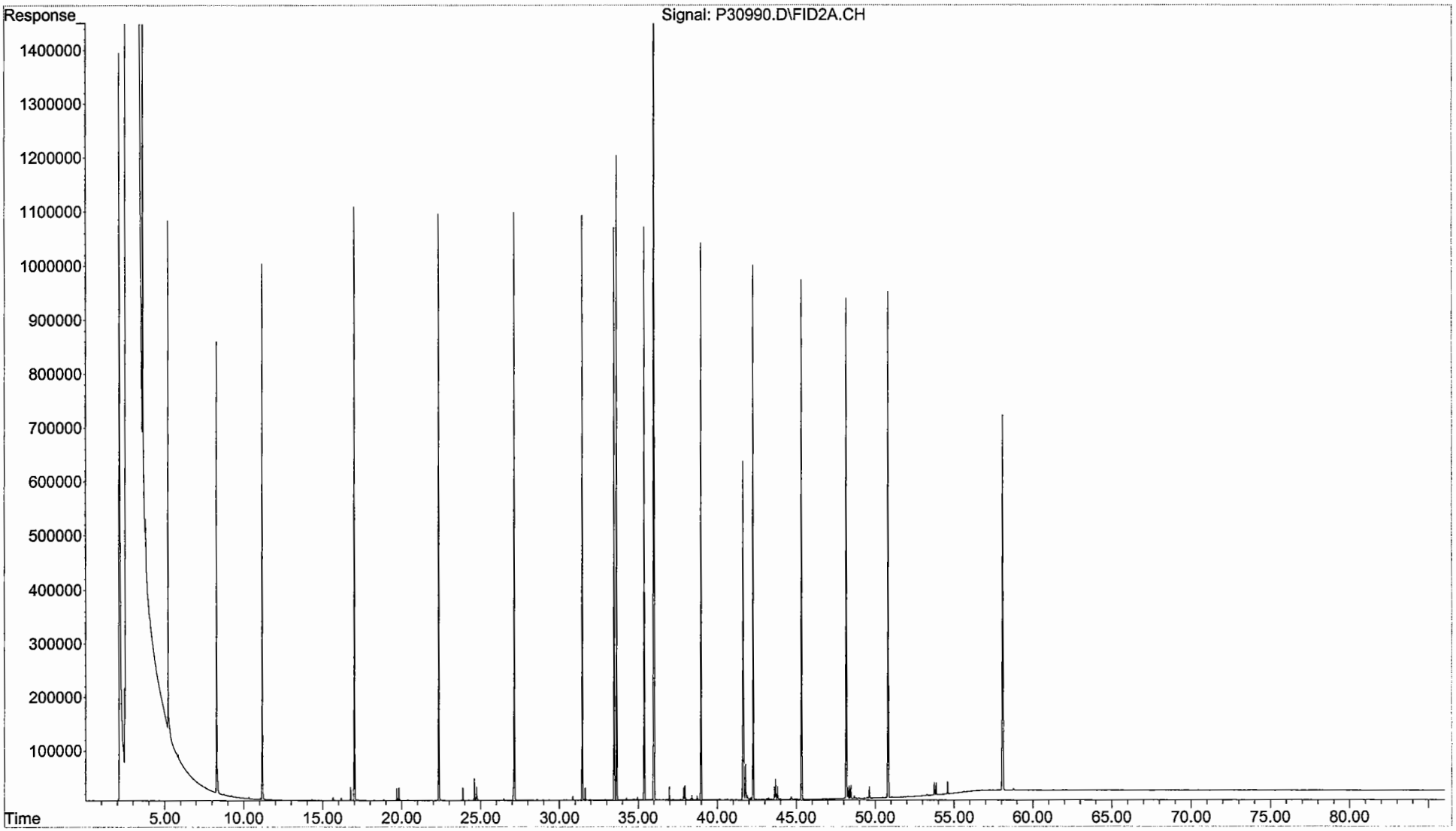
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P30988.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 2:58 pm using AcqMethod PAH30302.M
Sample Name: SS030205B06
Misc Info : 1X RERUN

Procedural Blank
SS030205B06



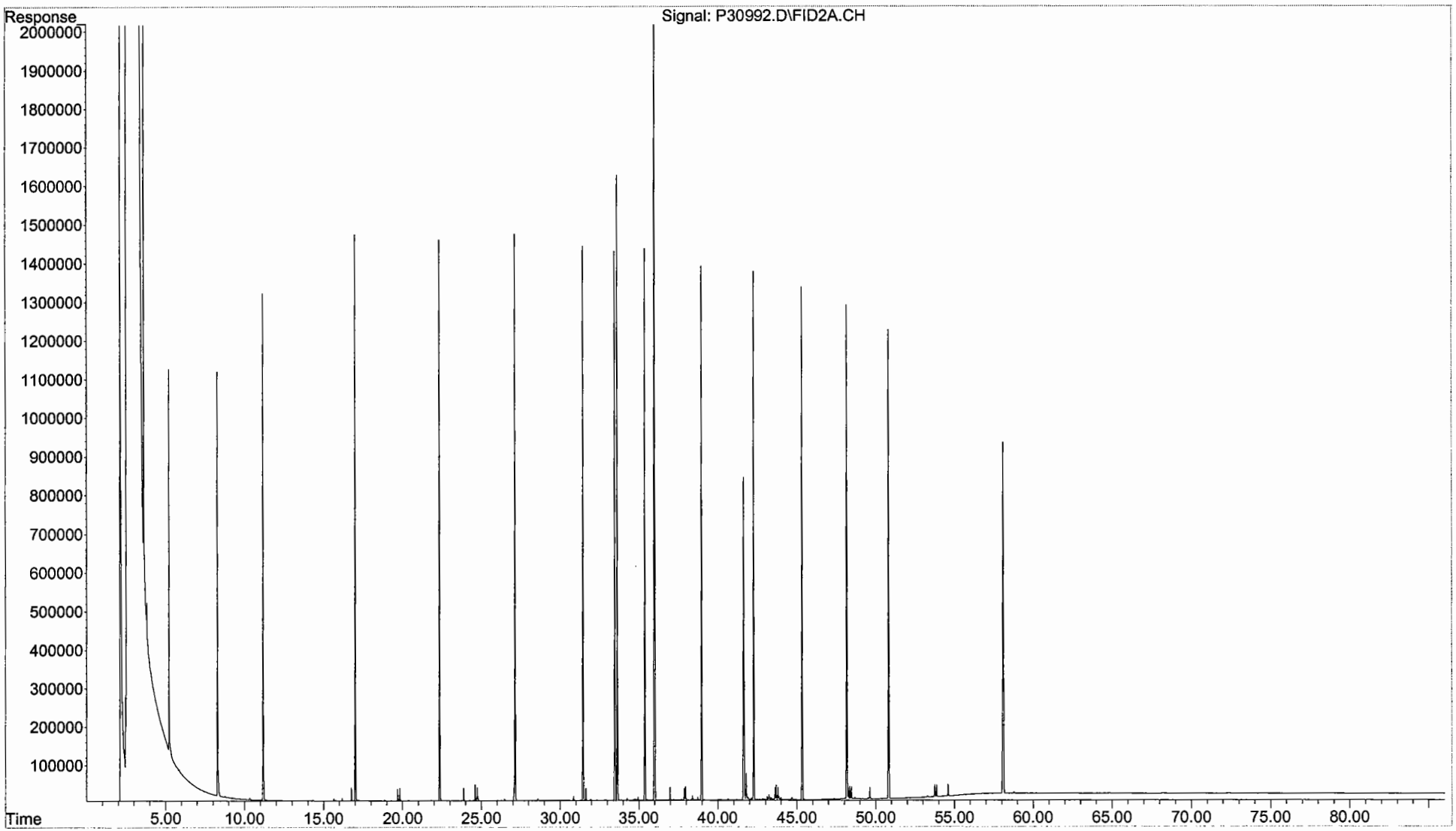
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P30990.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 4:45 pm using AcqMethod PAH30302.M
Sample Name: SS030205BS04-AFID
Misc Info : 1X RERUN

Blank Spike
SS030205BS04



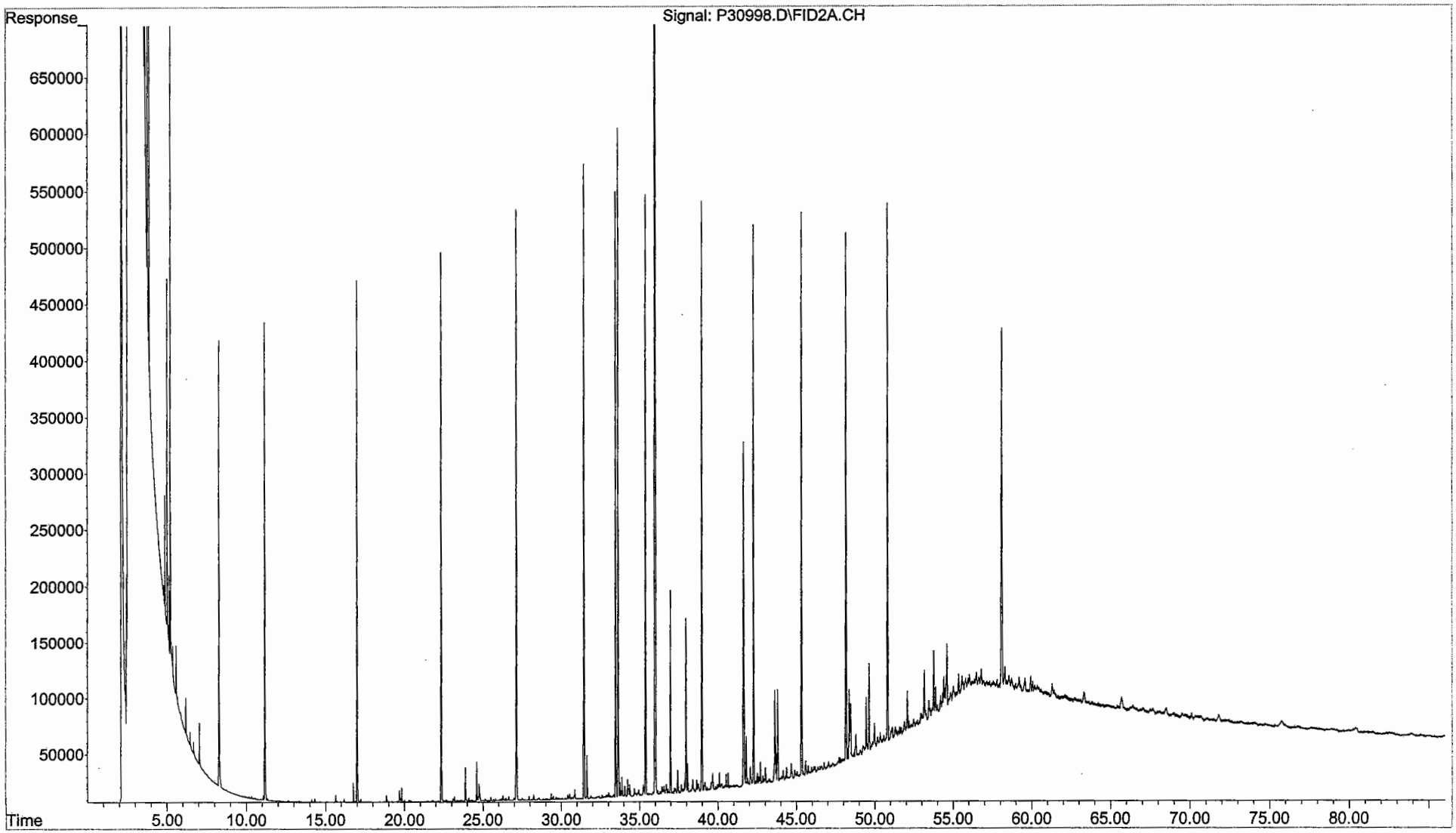
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P30992.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 6:31 pm using AcqMethod PAH30302.M
Sample Name: SS030205BSD03-AFID
Misc Info : 1X RERUN

Blank Spike Duplicate
SS030205BSD03



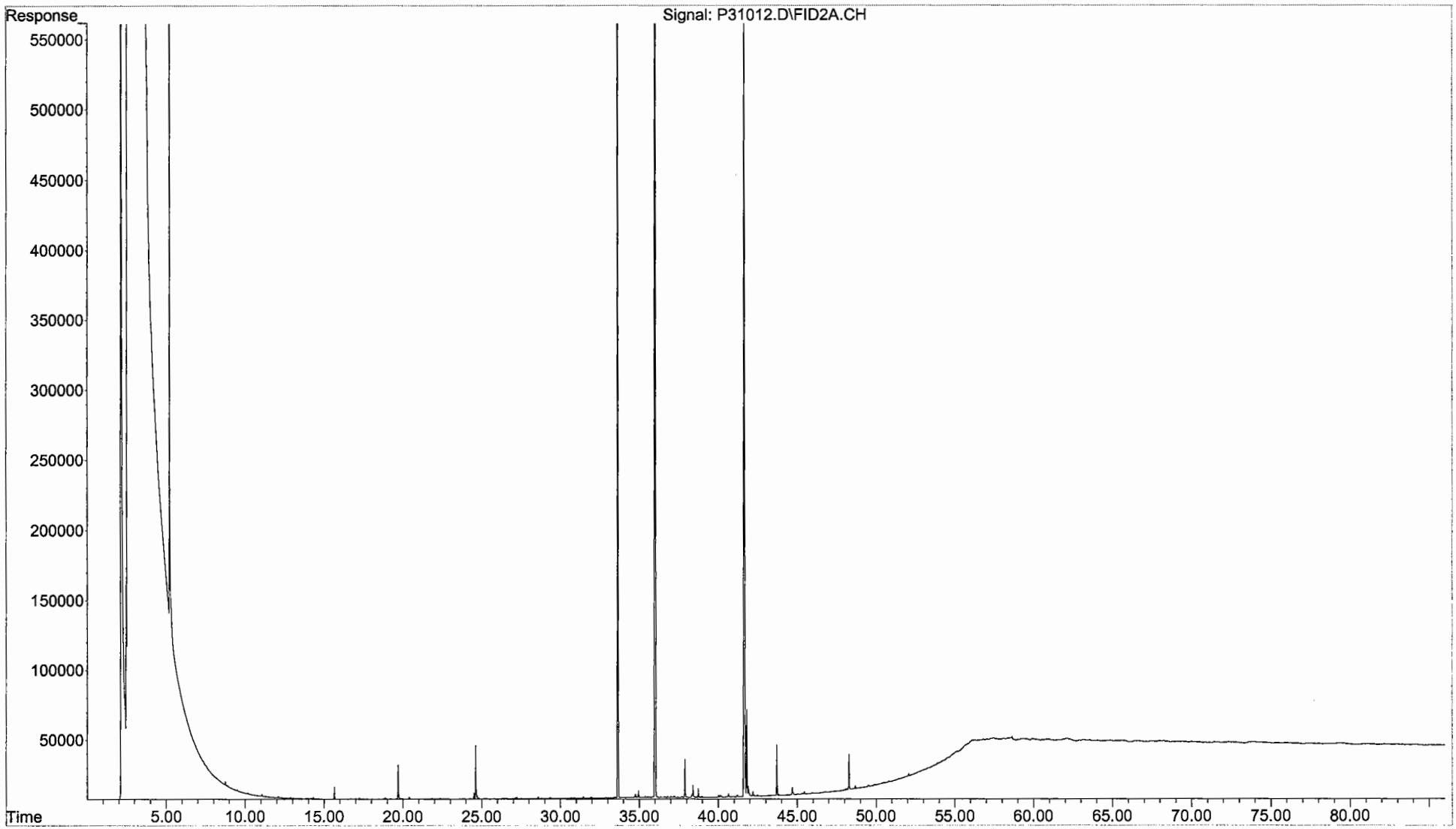
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P30998.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 11:49 pm using AcqMethod PAH30302.M
Sample Name: 0502110-01M-AFID
Misc Info : 1X RERUN

OFF-SD-OFF2-0006-01 Matrix Spike
0502110-01M



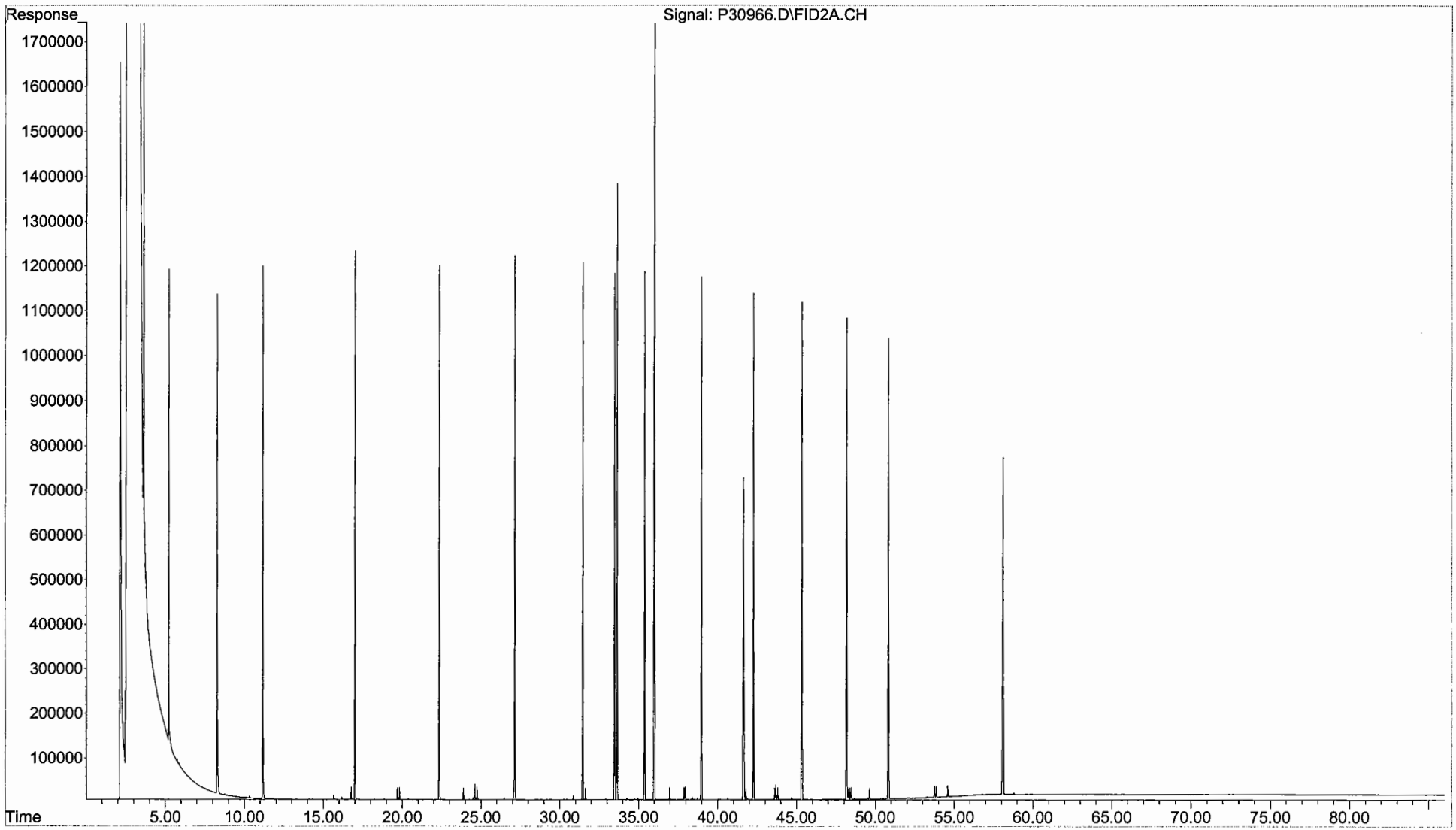
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P31012.D
Operator : AC
Instrument : PAH#3
Acquired : 16 Mar 2005 12:07 pm using AcqMethod PAH30302.M
Sample Name: SS031405B02
Misc Info : 1X ETR0502110 REALUM

Procedural Blank
SS031405B02



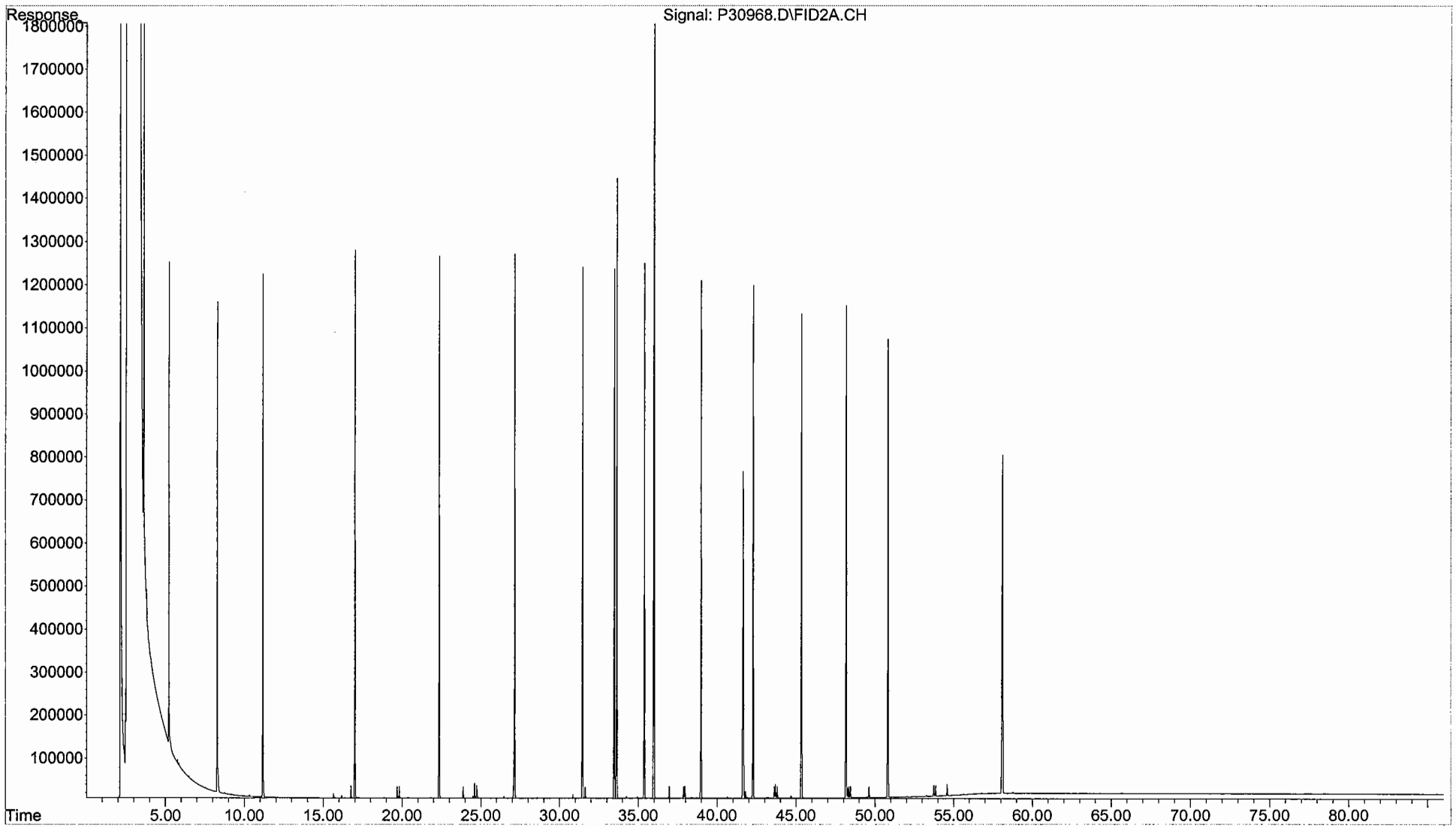
File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P30966.D
Operator : AC
Instrument : PAH#3
Acquired : 14 Mar 2005 7:35 pm using AcqMethod PAH30302.M
Sample Name: SS031405BS02-AFID
Misc Info : 1X ETR0502110

Blank Spike
SS031405BS02



File :\\Boston1\ftp_users\Boston\nfef_whg\Coasters Harbor\0502110\F
... ID\P30968.D
Operator : AC
Instrument : PAH#3
Acquired : 14 Mar 2005 9:22 pm using AcqMethod PAH30302.M
Sample Name: SS031405BSD02-AFID
Misc Info : 1X ETR0502110

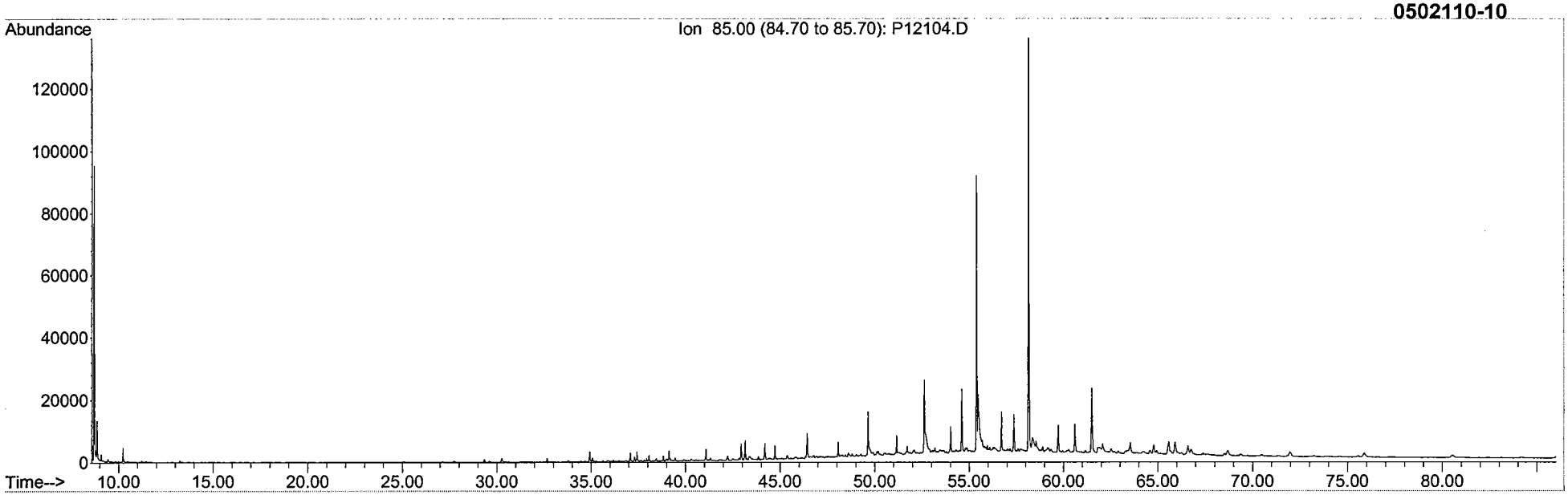
Blank Spike Duplicate
SS031405BSD02

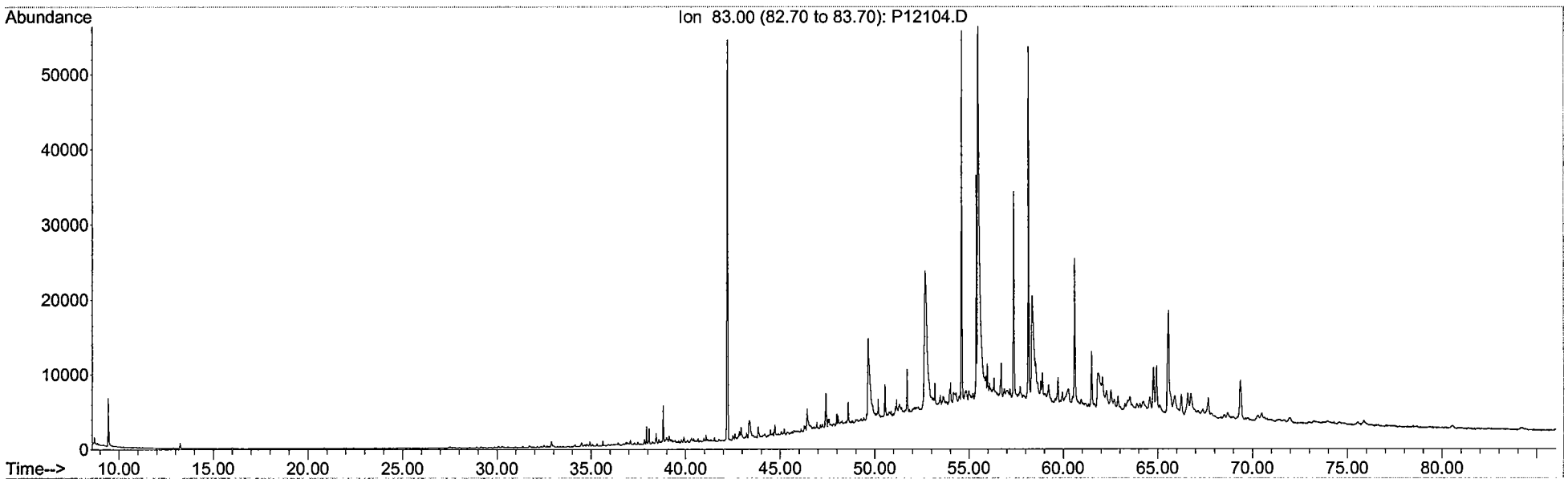


Attachment D
Saturated Fingerprinting Results by GC/MS/SIM

File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12104.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 9:06 pm using AcqMethod PAH10216
Sample Name: 0502110-10
Misc Info : 1X

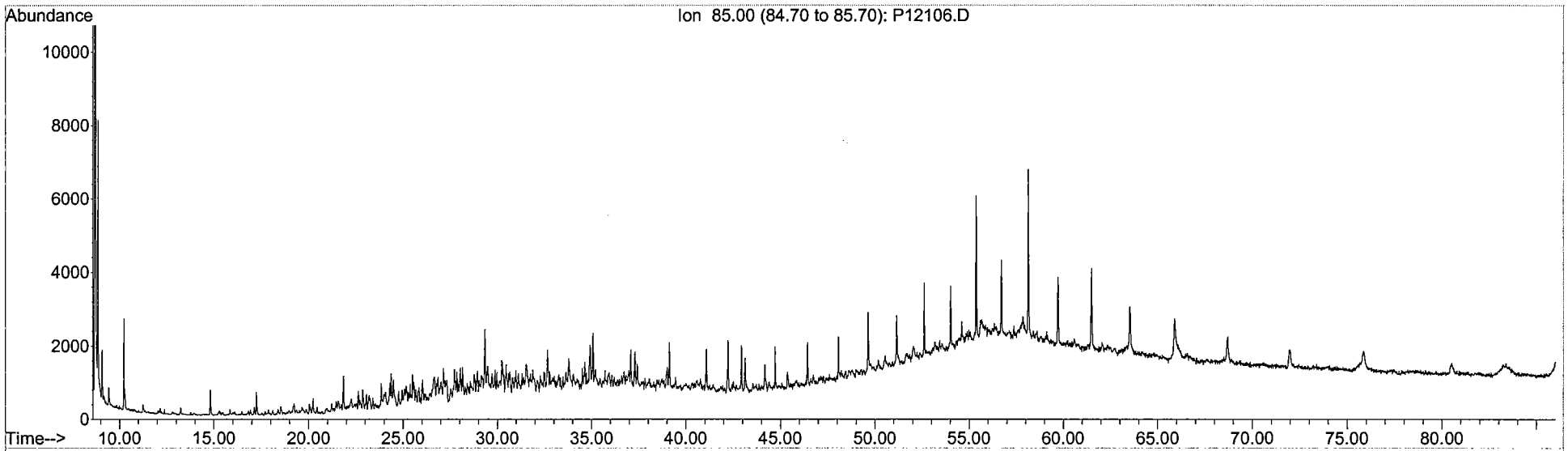
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OTSOF075-0006-01
0502110-10

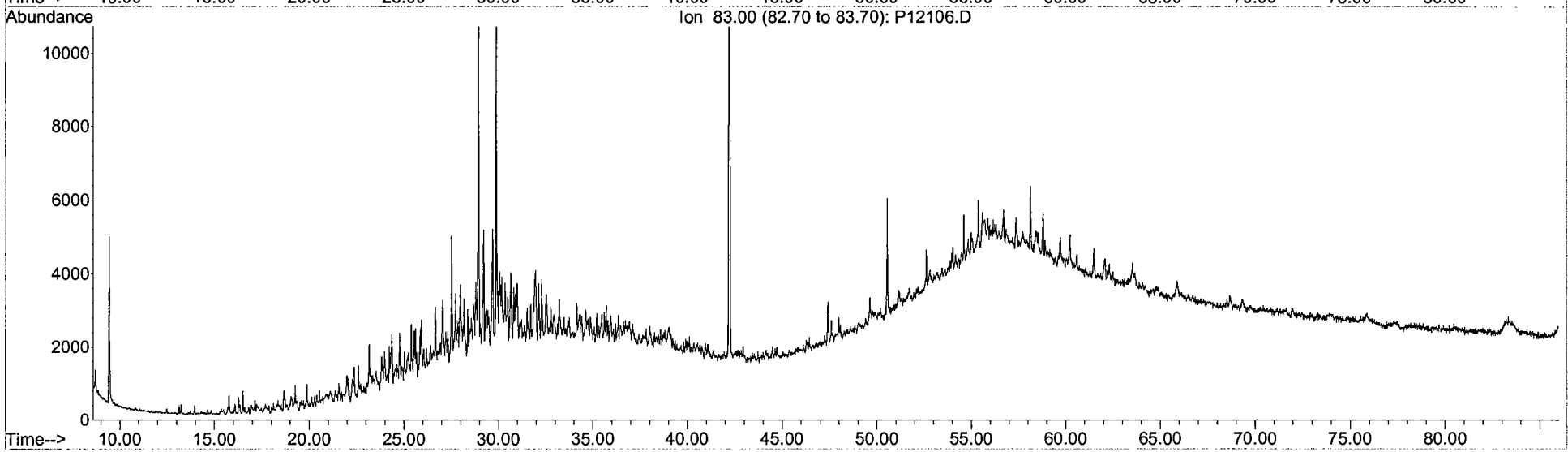




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12106.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 10:49 pm using AcqMethod PAH10216
Sample Name: 0502110-11
Misc Info : 1X

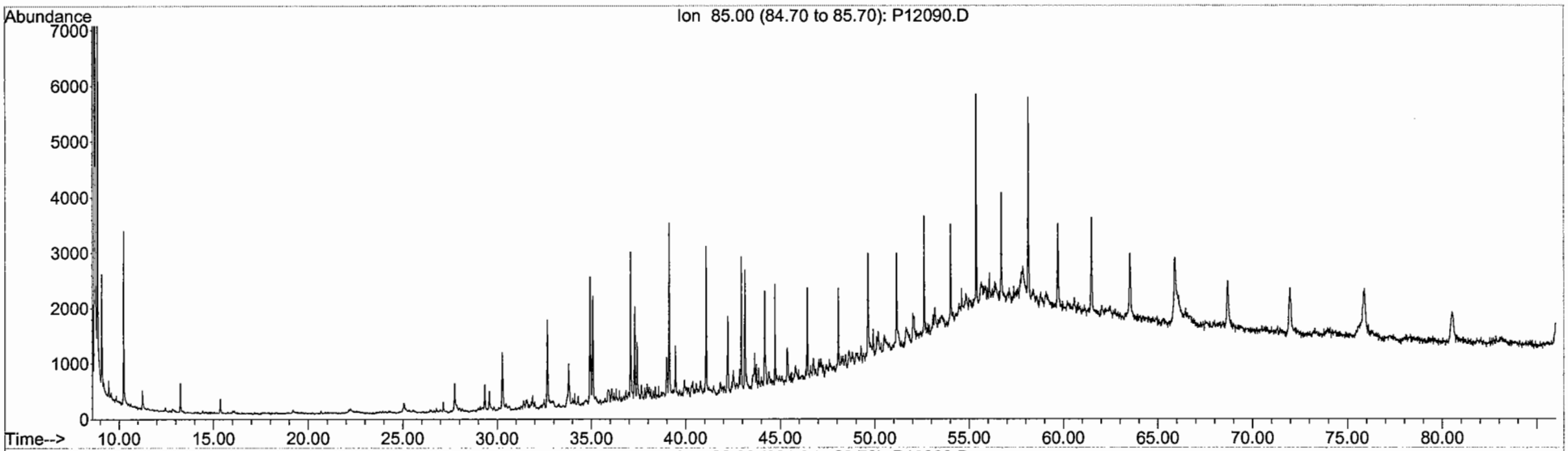
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OTSOF075A-0006-01
0502110-11

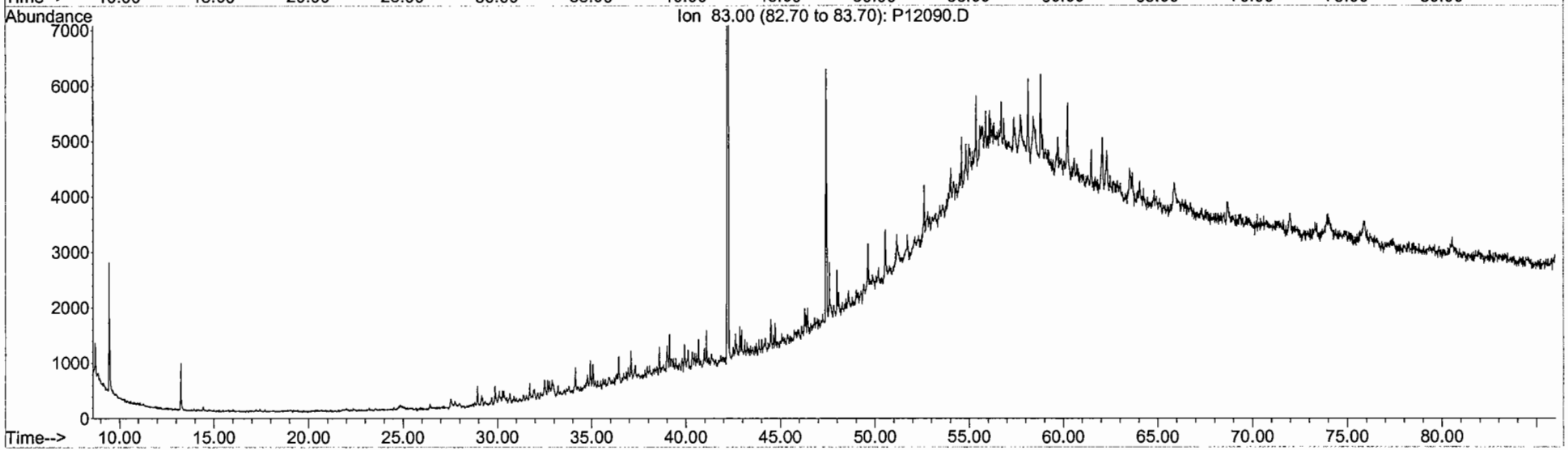




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12090.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 9:06 am using AcqMethod PAH10216
Sample Name: 0502110-05
Misc Info : 1X

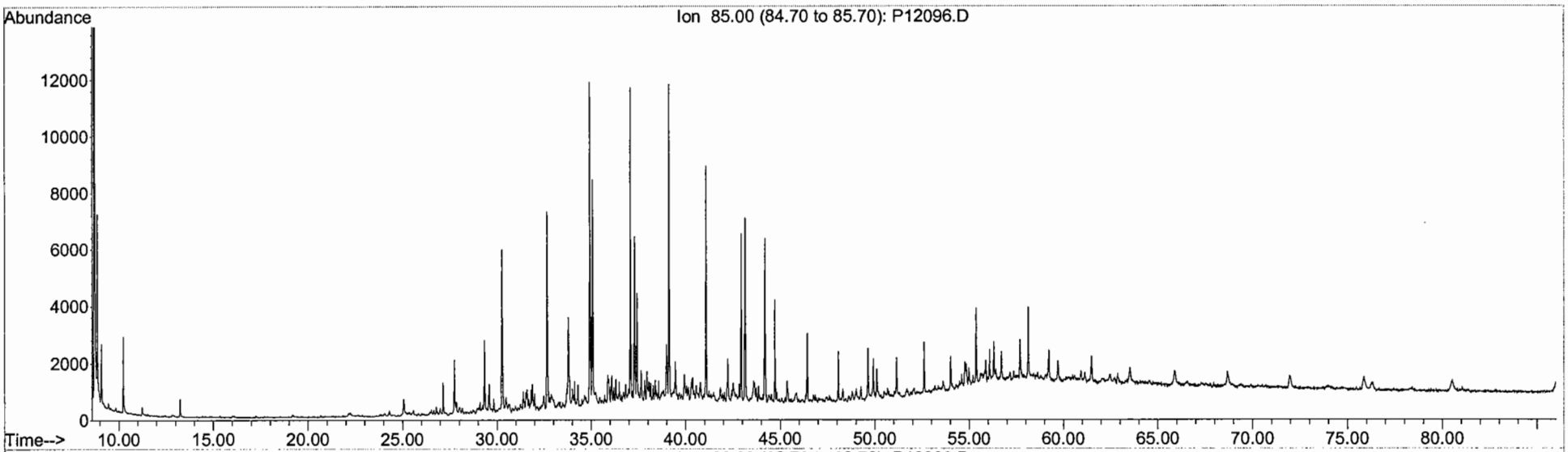
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-SD5-0006-01
0502110-05

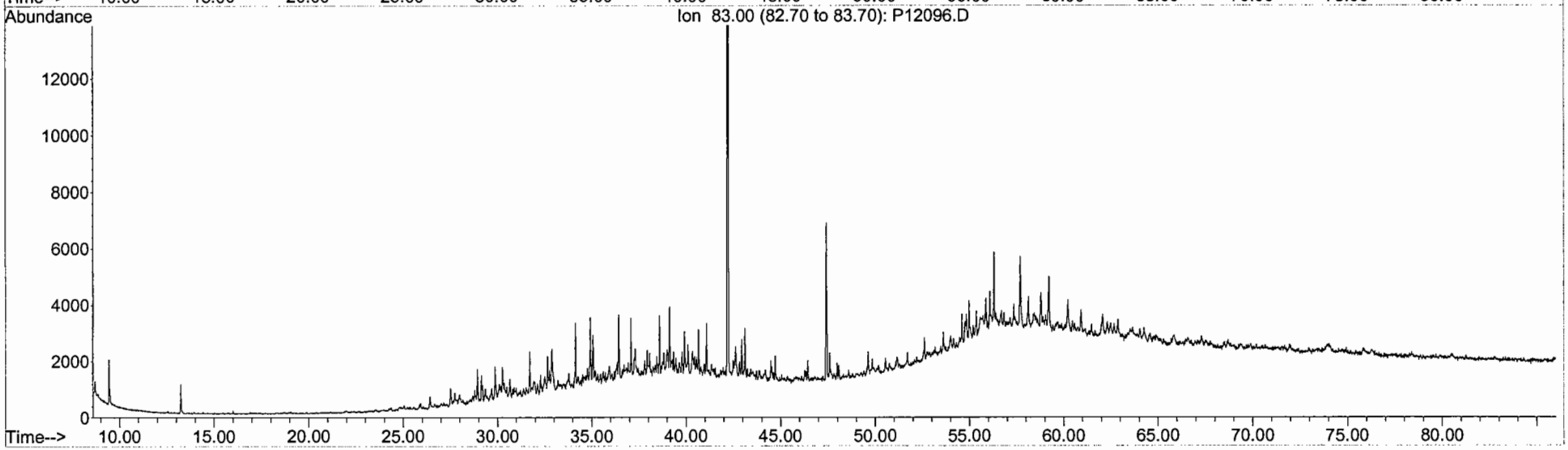




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12096.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 2:16 pm using AcqMethod PAH10216
Sample Name: 0502110-06
Misc Info : 1X

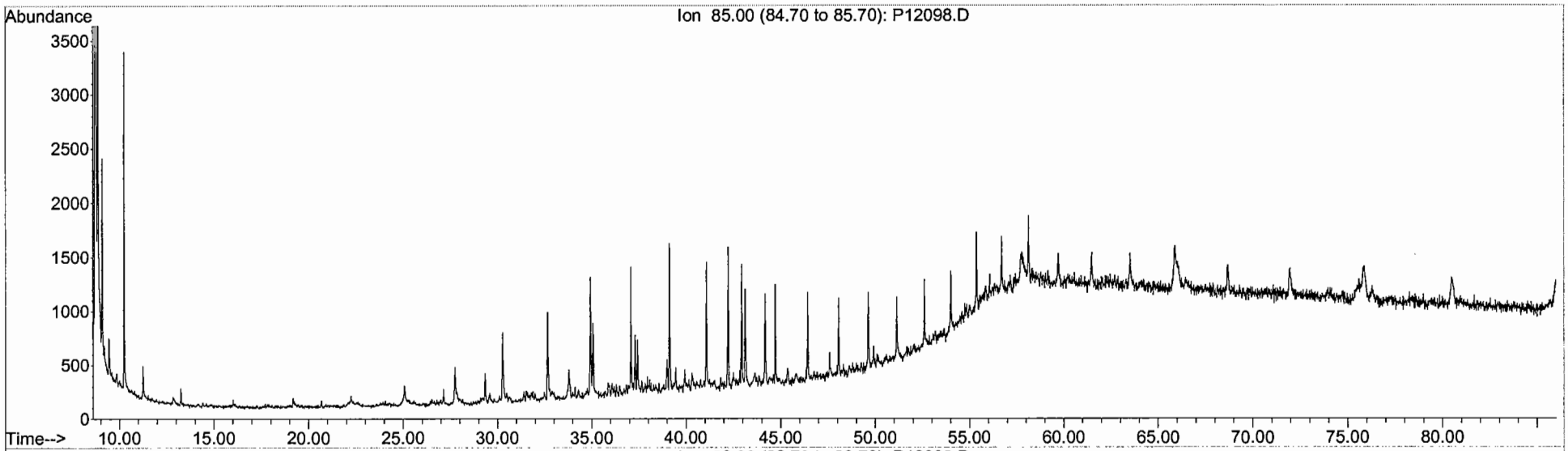
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-442-0006-01
0502110-06

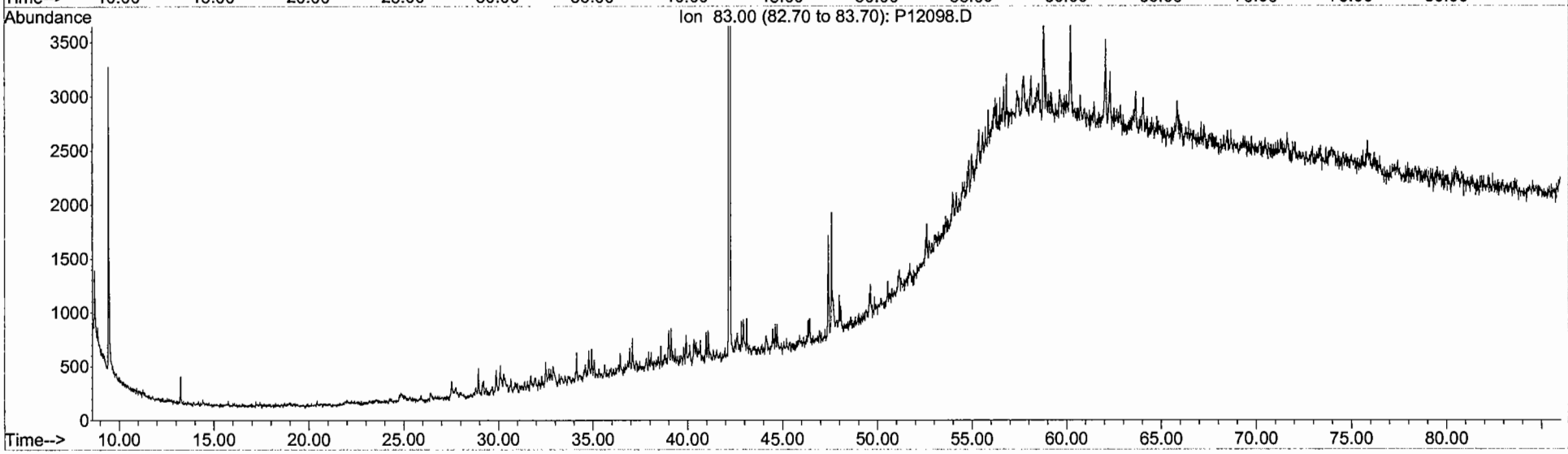




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12098.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 4:01 pm using AcqMethod PAH10216
Sample Name: 0502110-07
Misc Info : 1X

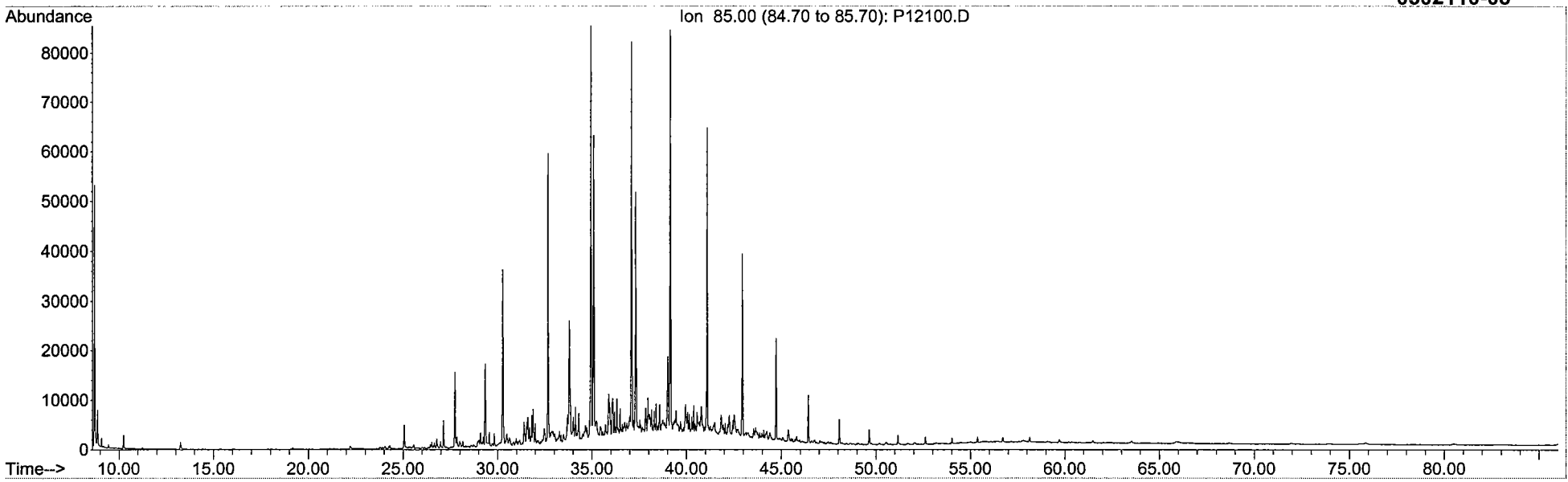
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OFF6-0006-01
0502110-07

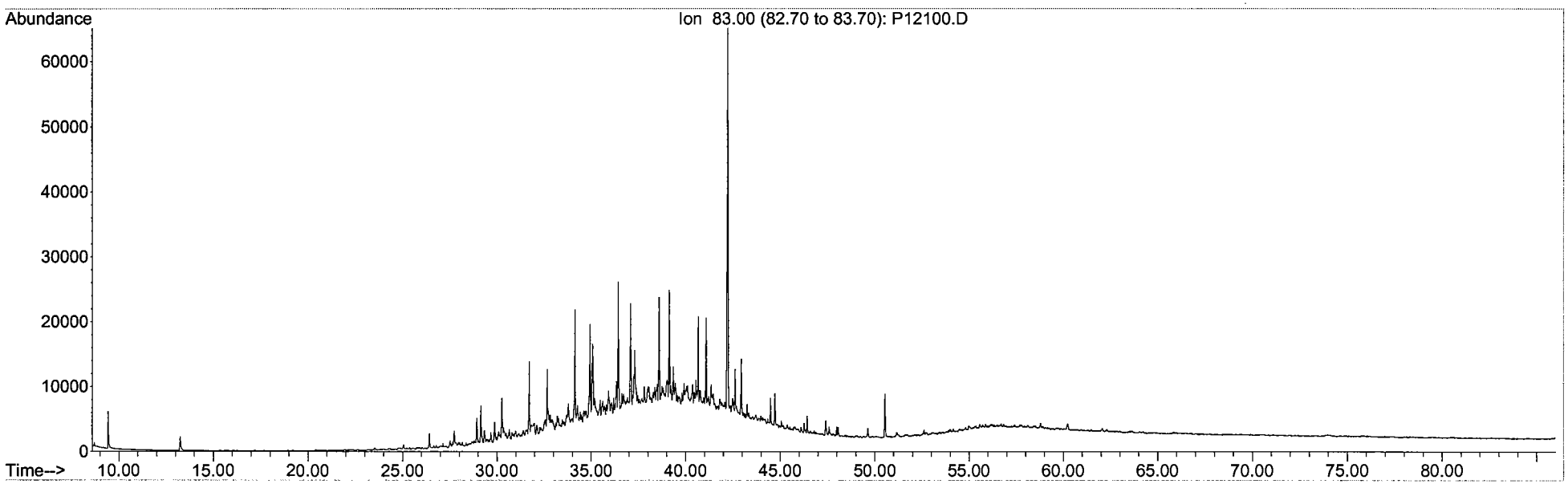




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12100.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 5:43 pm using AcqMethod PAH10216
Sample Name: 0502110-08
Misc Info : 1X

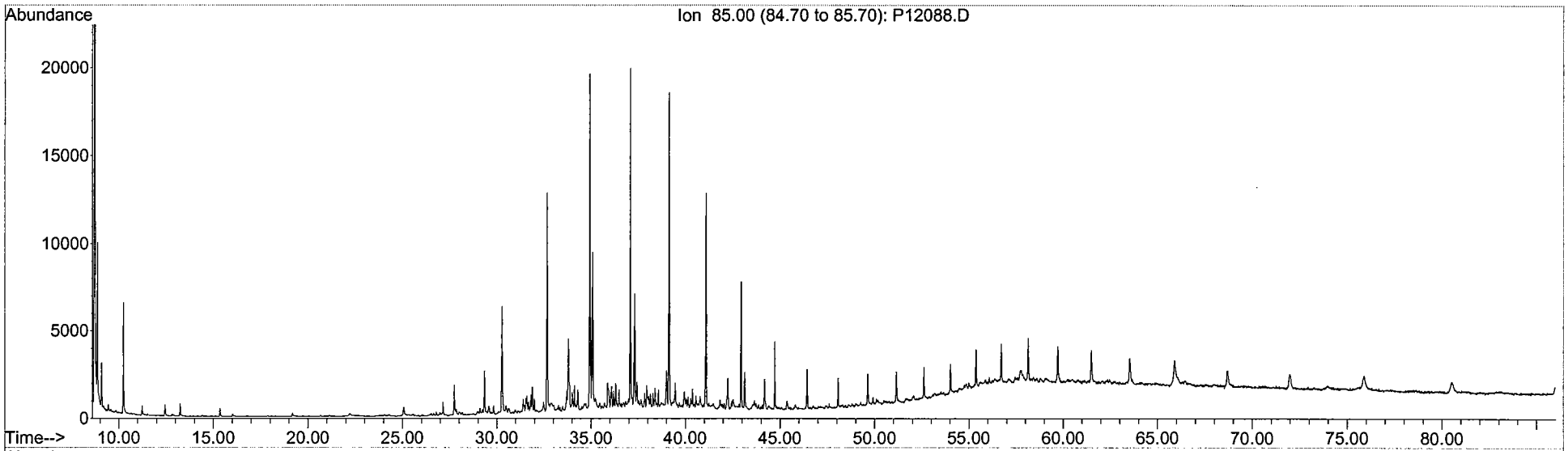
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OFF7-0006-01
0502110-08

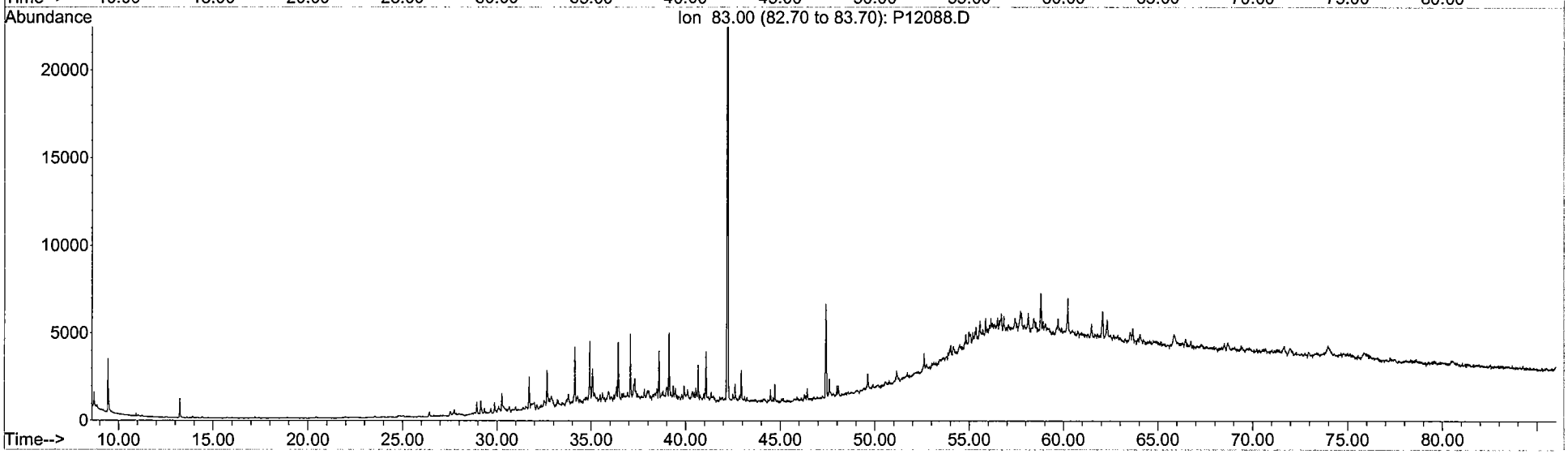




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12088.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 7:23 am using AcqMethod PAH10216
Sample Name: 0502110-04
Misc Info : 1X

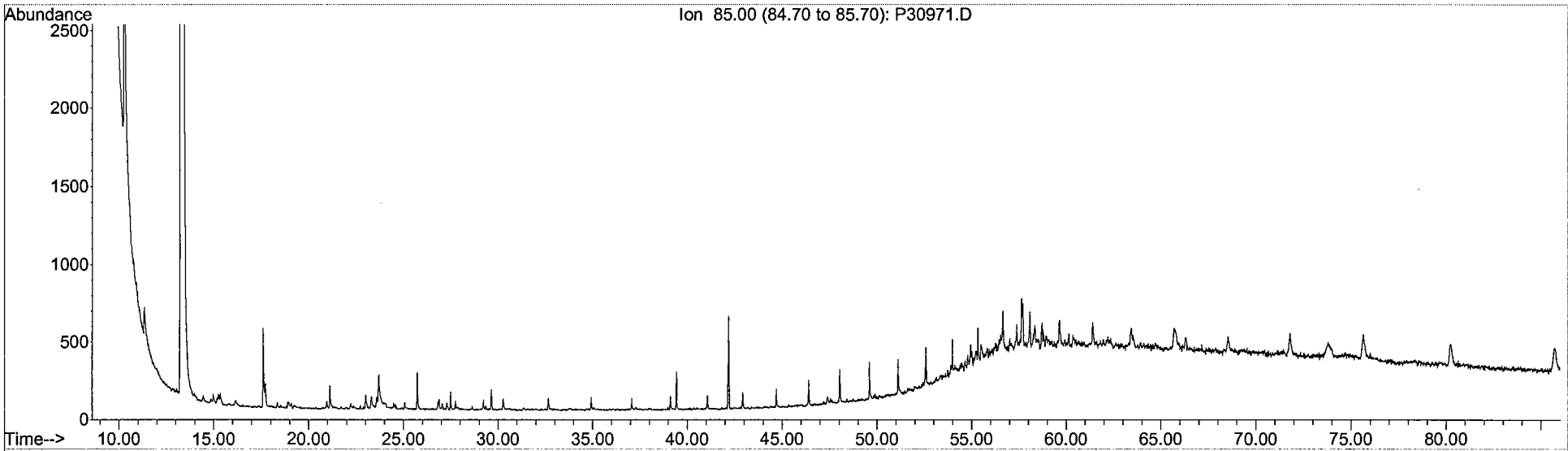
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-414-0006-01
0502110-04

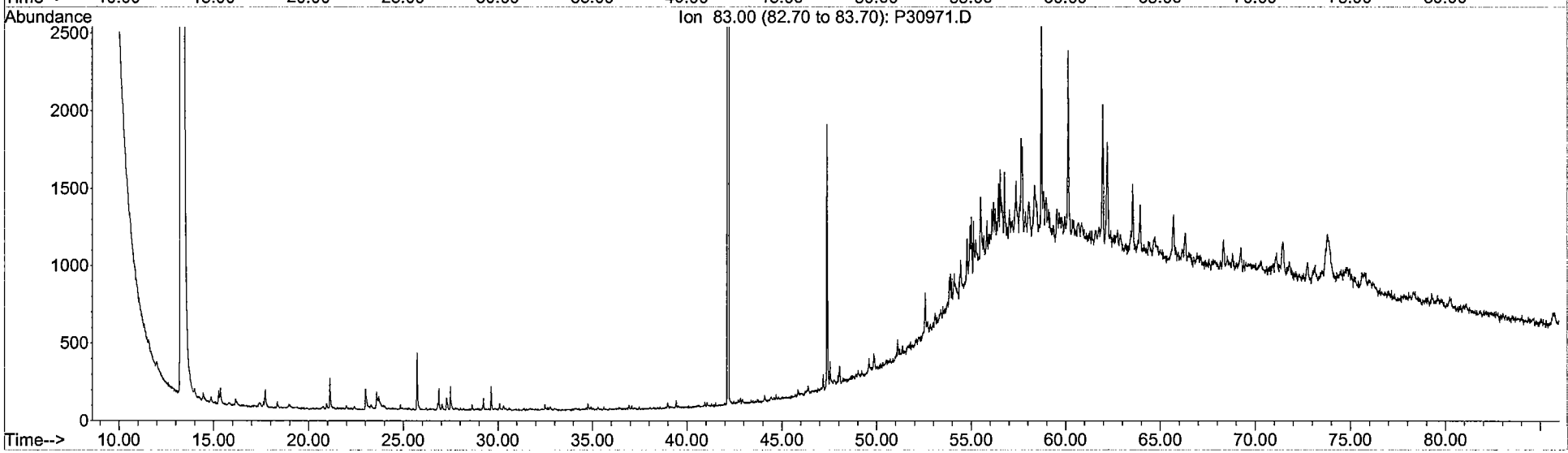




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30971.D
Operator : AC
Instrument : PAH#3
Acquired : 14 Mar 2005 11:08 pm using AcqMethod PAH30302
Sample Name: 0502110-13
Misc Info : 1X

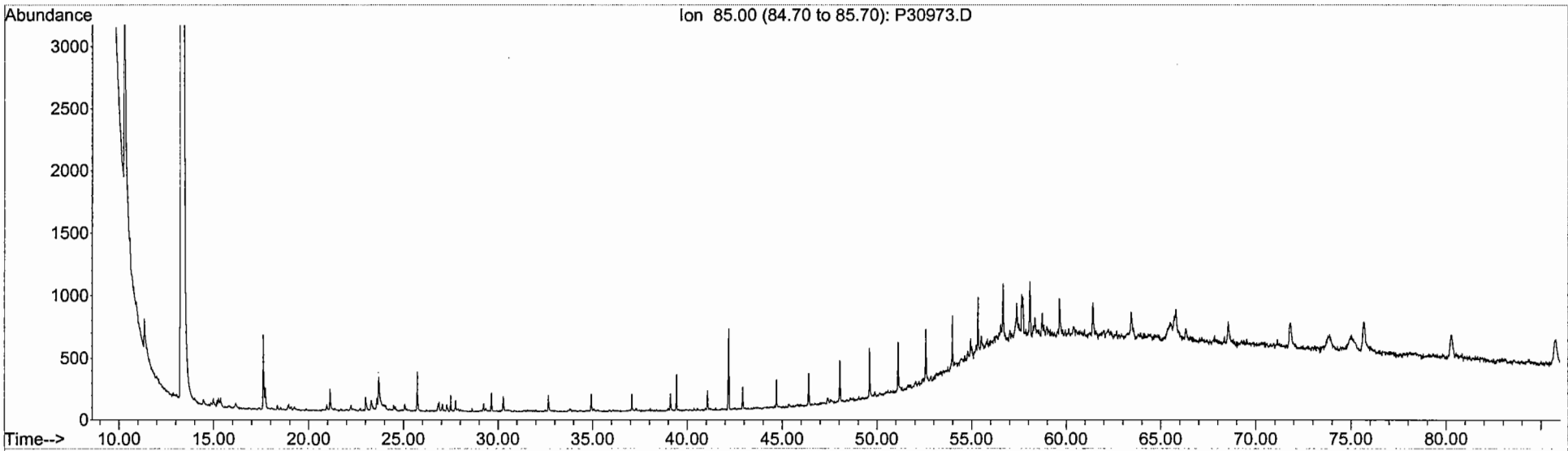
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-414-DEBRIS1
0502110-13

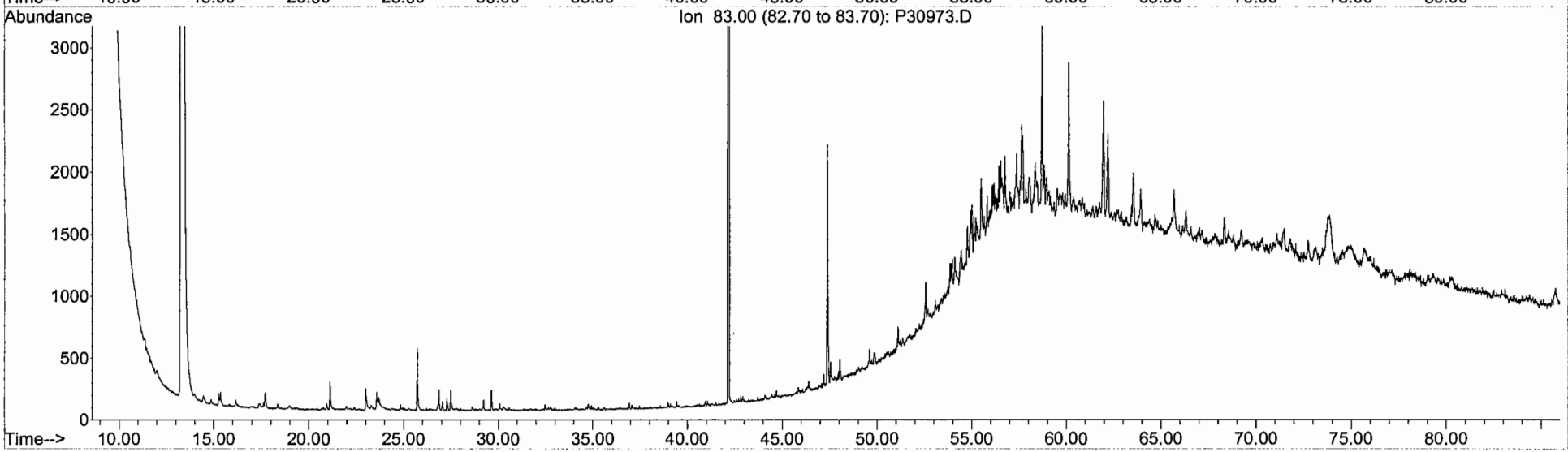




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30973.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 12:51 am using AcqMethod PAH30302
Sample Name: 0502110-13D
Misc Info : 1X

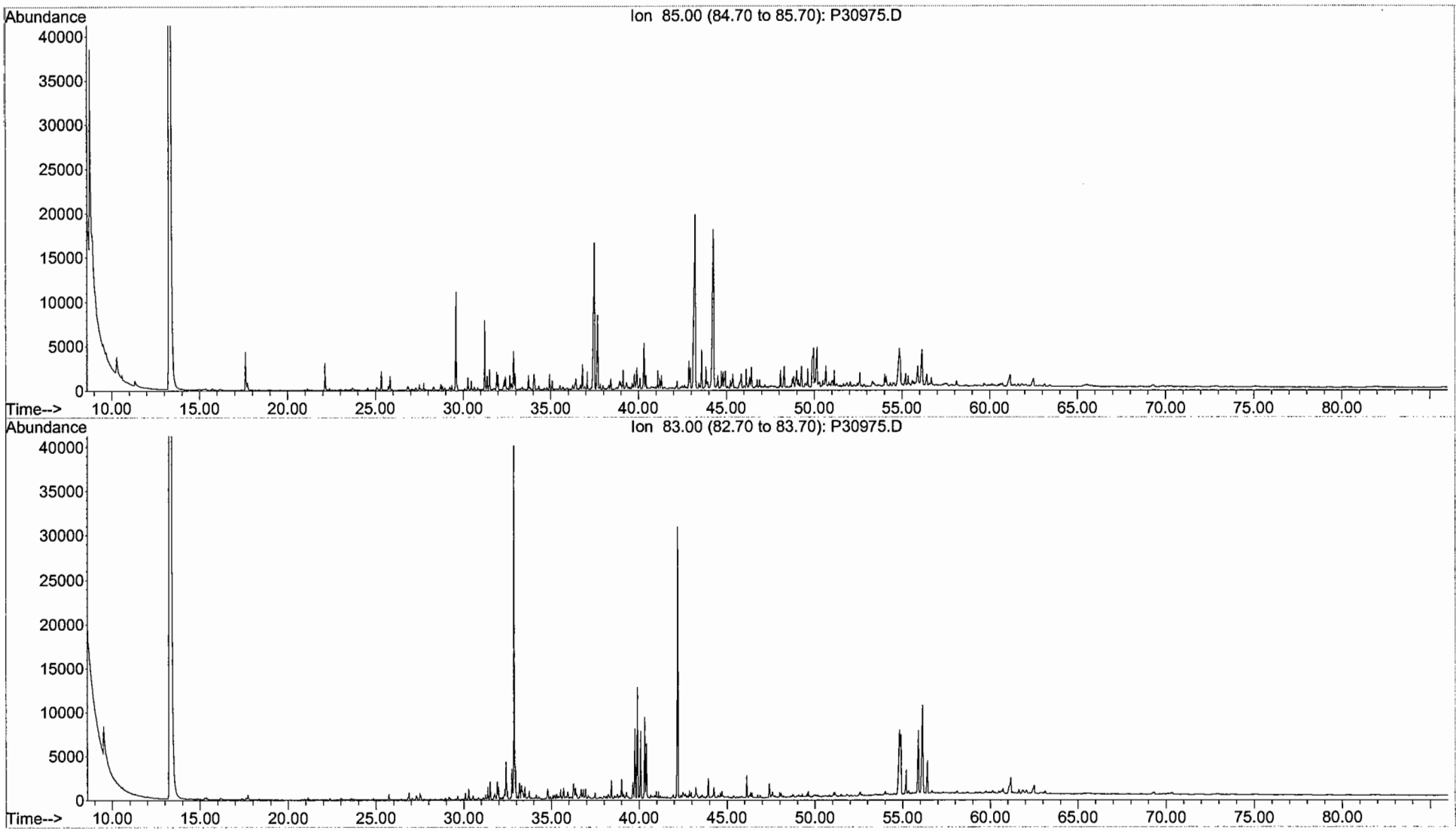
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-414-DEBRIS1 Duplicate
0502110-13D





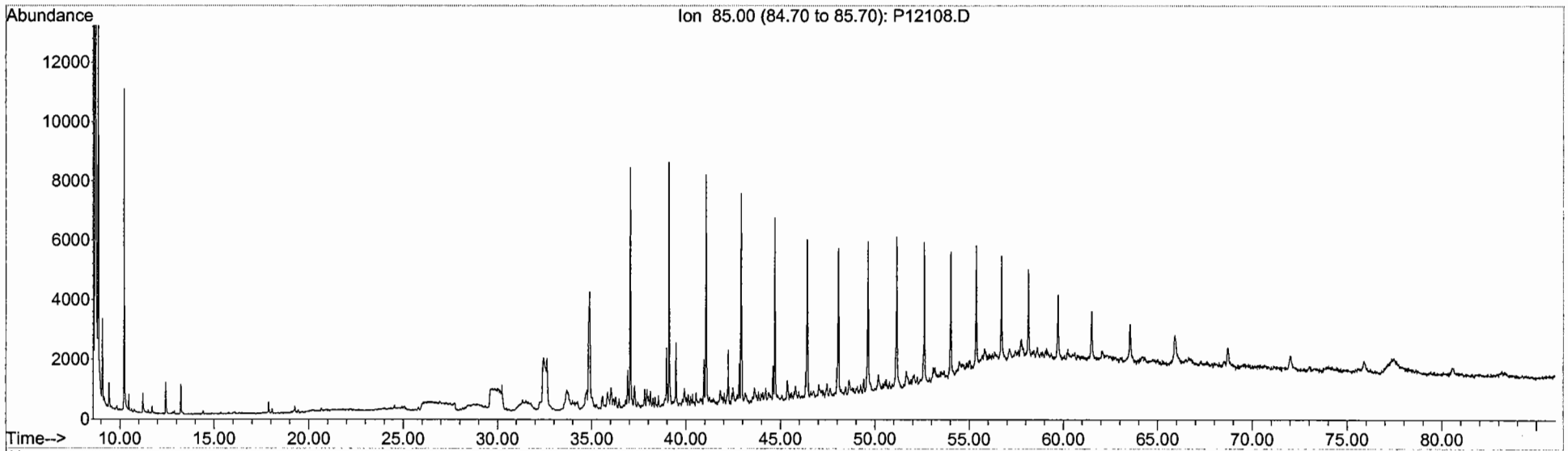
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30975.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 2:37 am using AcqMethod PAH30302
Sample Name: 0502110-14
Misc Info : 1X

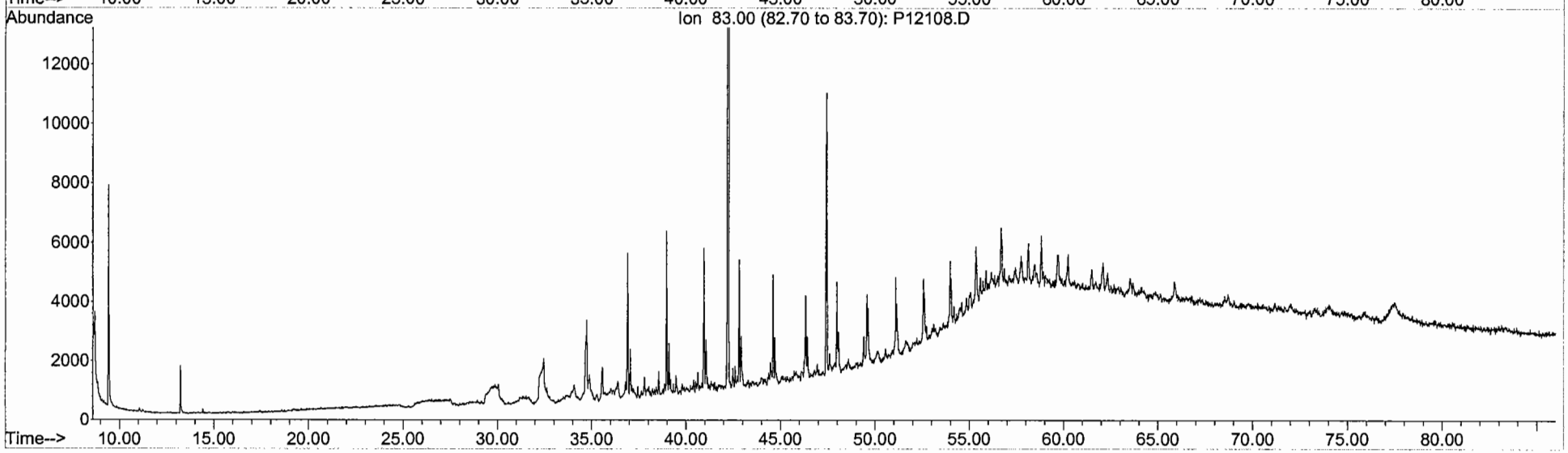
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-414-DEBRIS2
0502110-14



File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12108.D
Operator : AC
Instrument : PAHINST1
Acquired : 6 Mar 2005 12:19 pm using AcqMethod PAH10216
Sample Name: 0502110-12
Misc Info : 1X

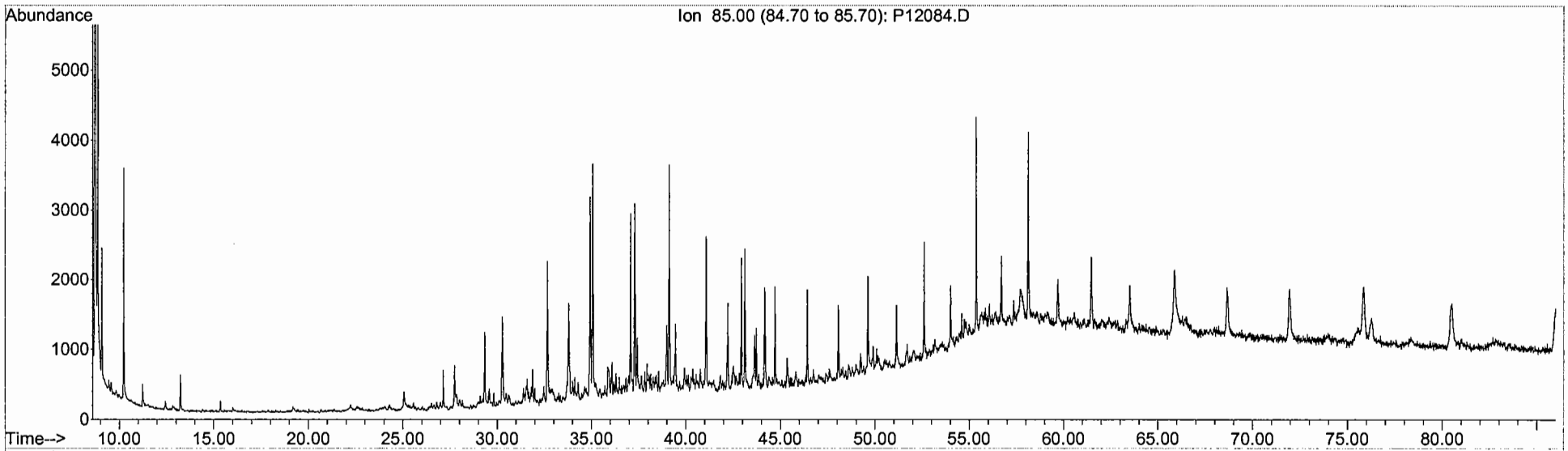
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OTSOF093-0006-01
0502110-12

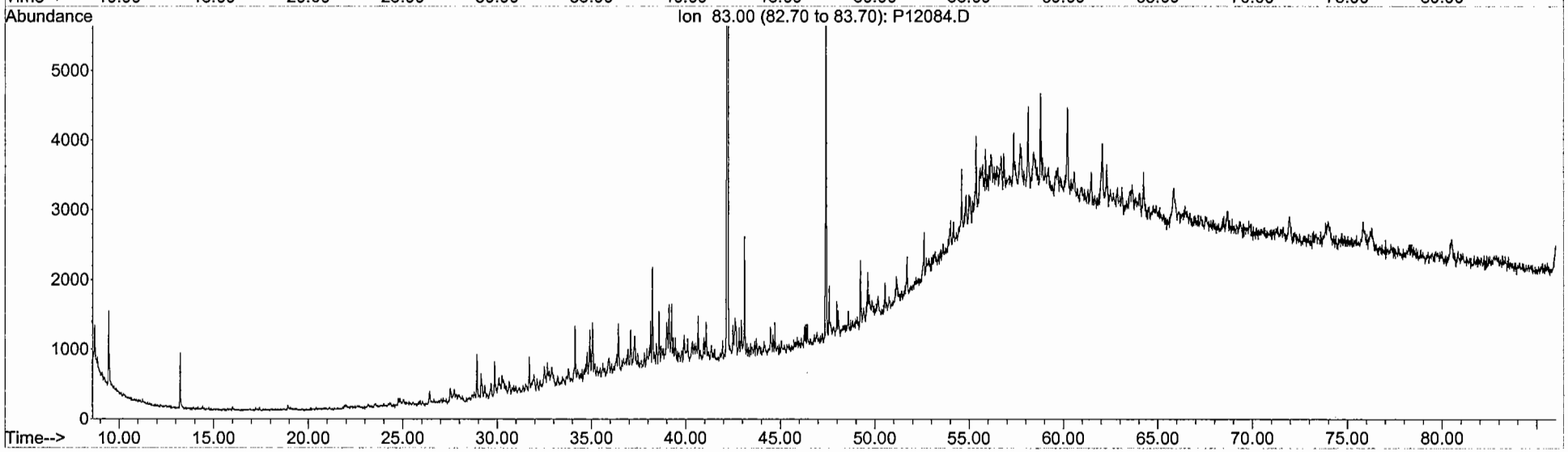




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12084.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 3:58 am using AcqMethod PAH10216
Sample Name: 0502110-02
Misc Info : 1X

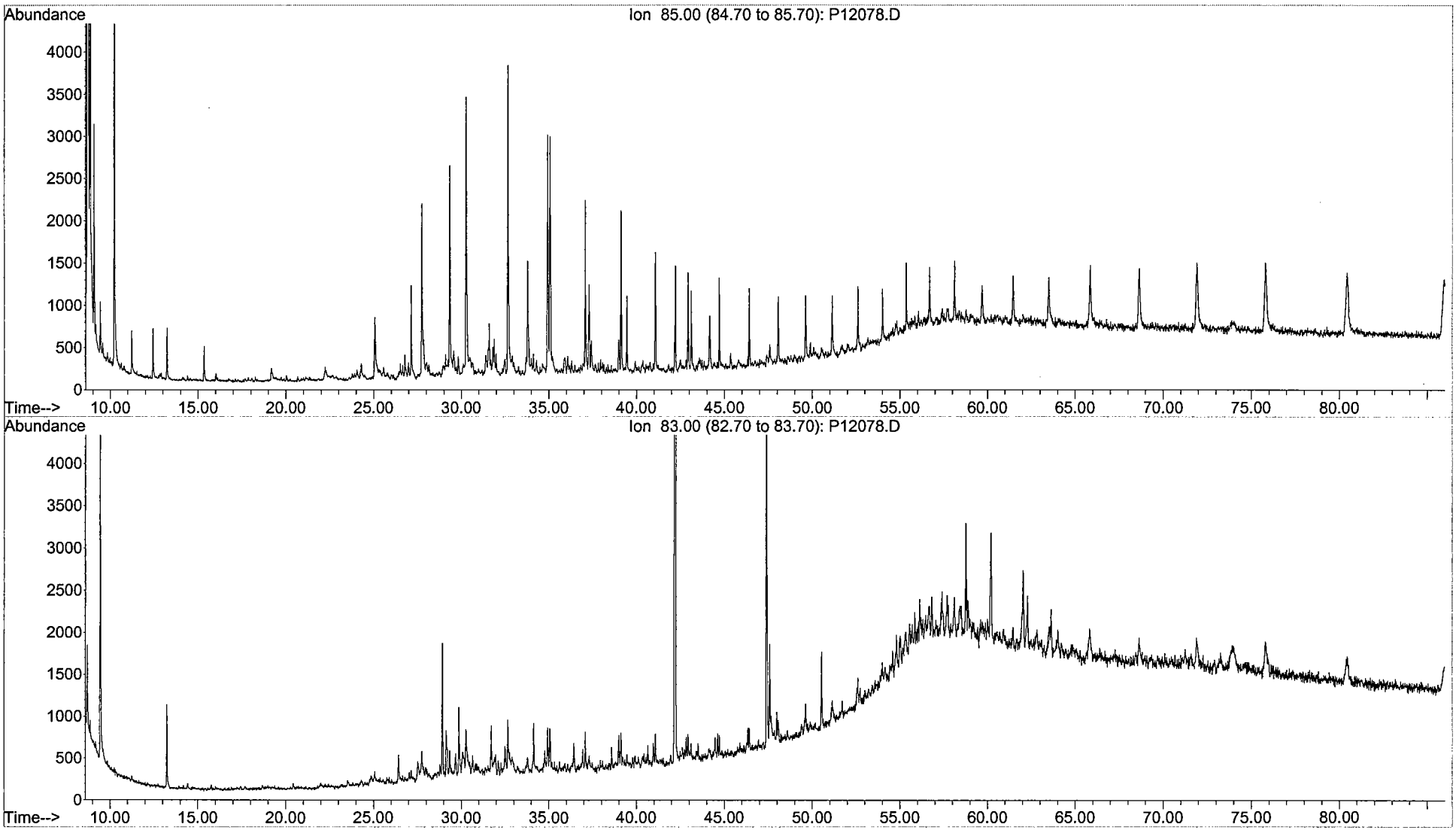
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-411-0006-01
0502110-02





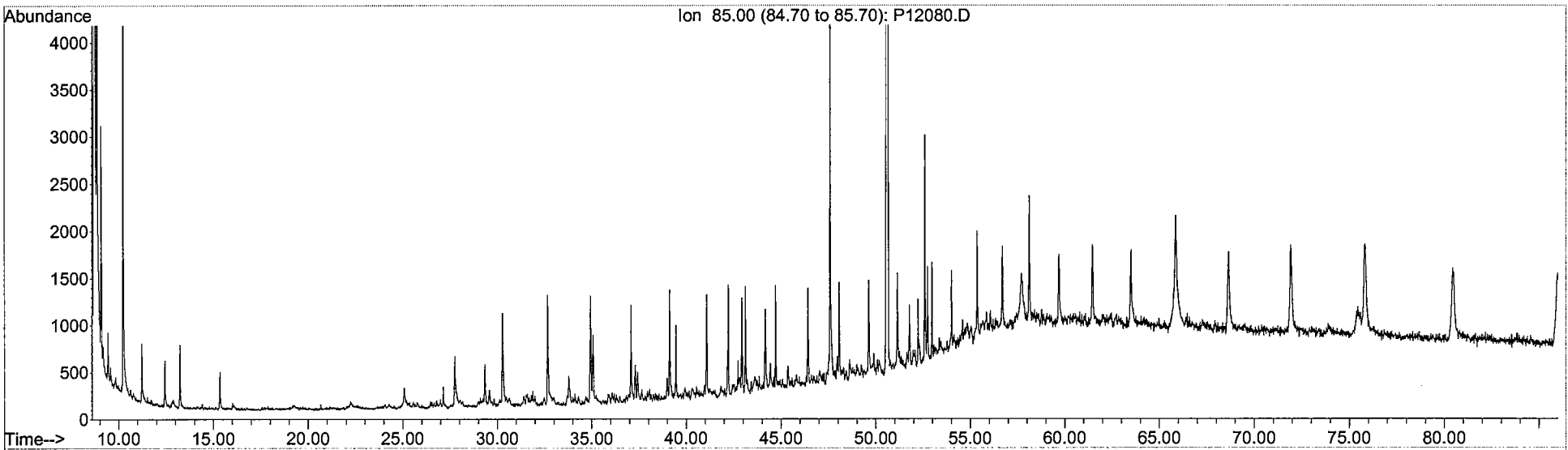
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12078.D
Operator : AC
Instrument : PAHINST1
Acquired : 4 Mar 2005 10:47 pm using AcqMethod PAH10216
Sample Name: 0502110-01
Misc Info : 1X

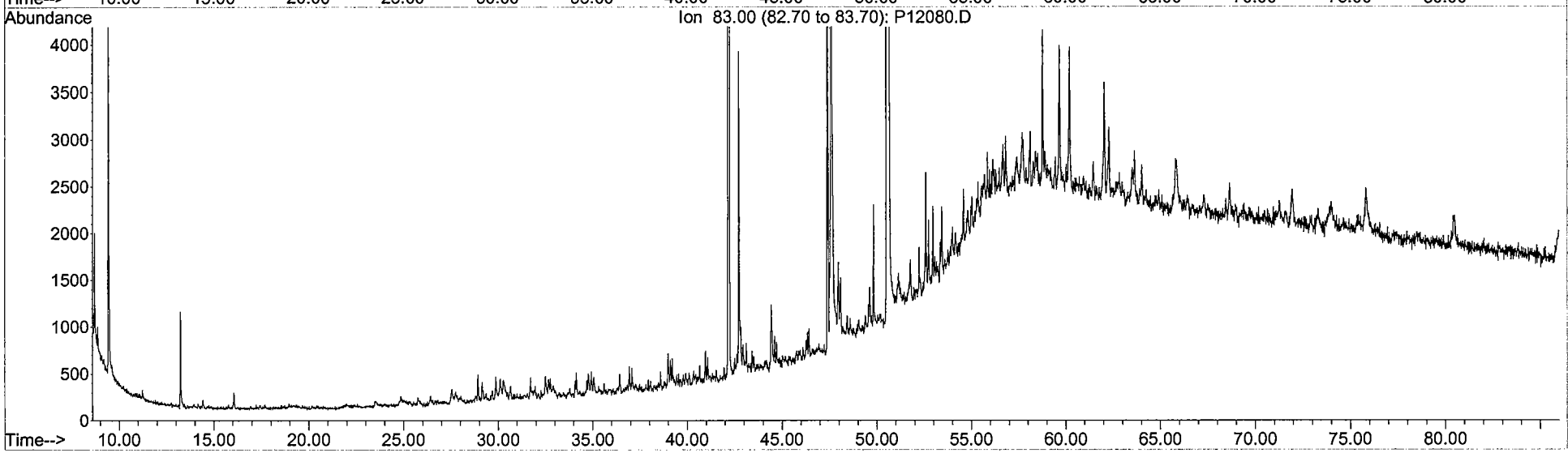
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OFF2-0006-01
0502110-01



File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12080.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 12:31 am using AcqMethod PAH10216
Sample Name: 0502110-01D
Misc Info : 1X

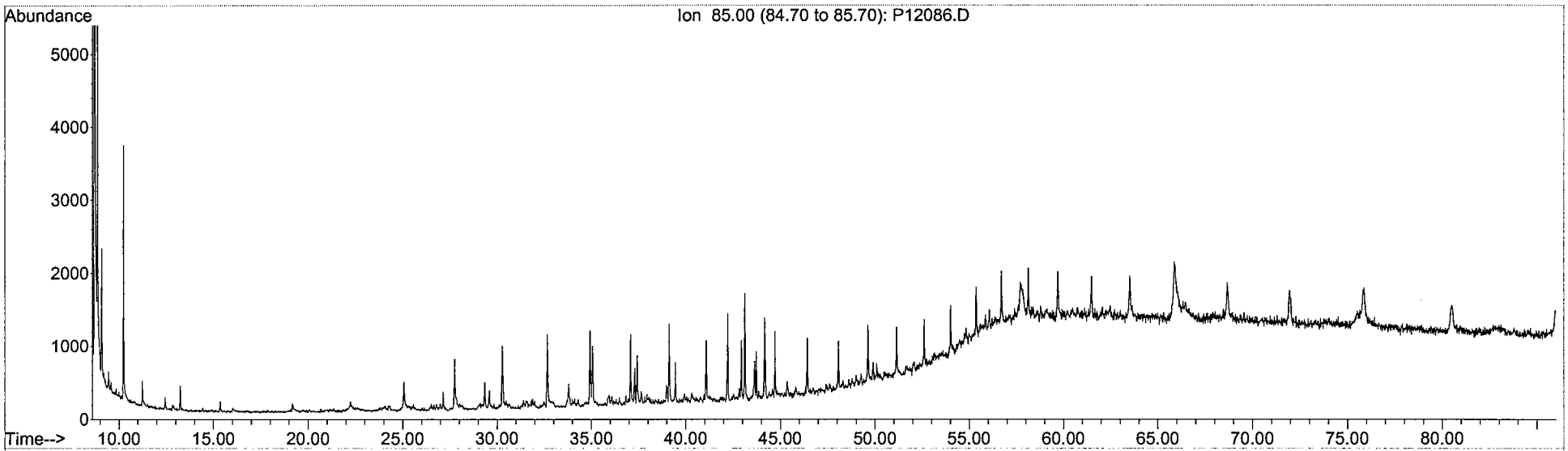
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OFF2-0006-01 Duplicate
0502110-01D

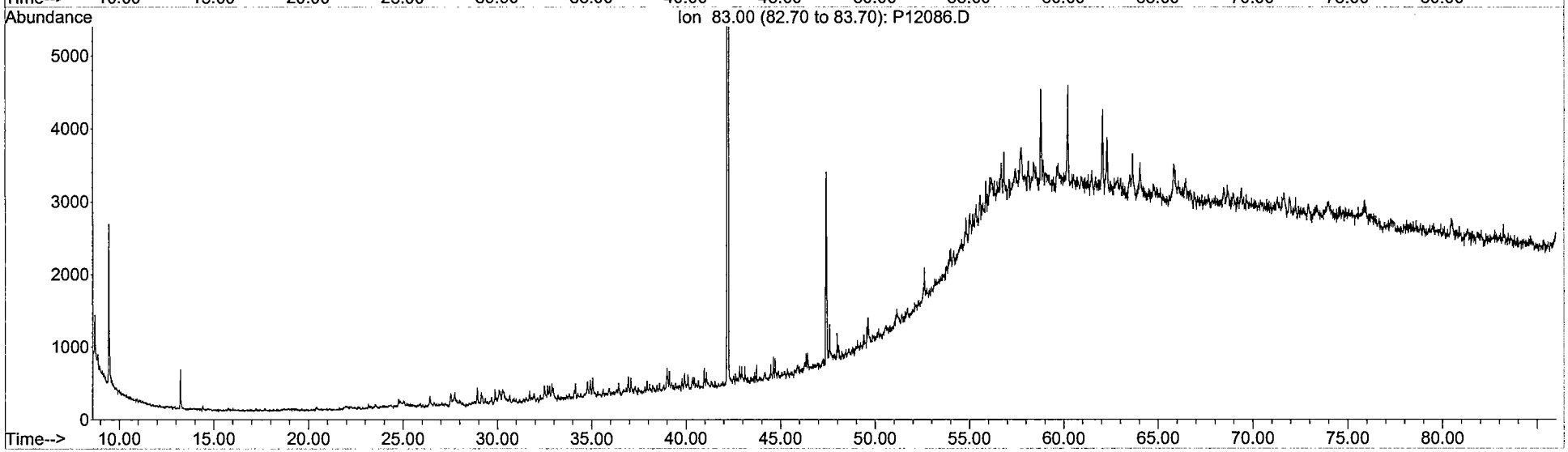




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12086.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 5:41 am using AcqMethod PAH10216
Sample Name: 0502110-03
Misc Info : 1X

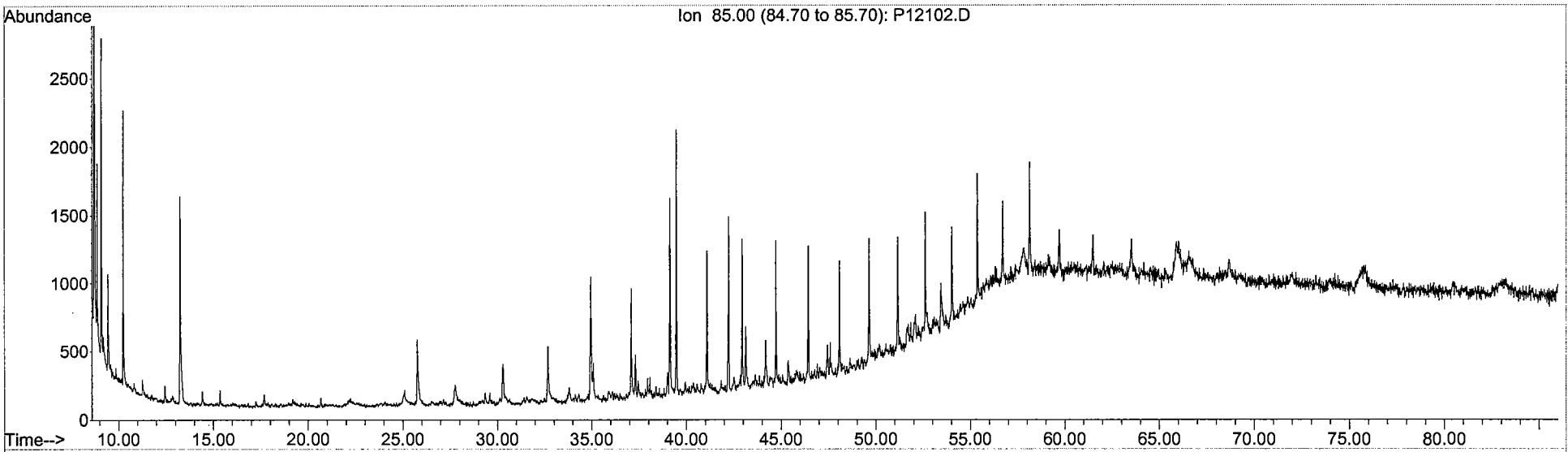
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OFF3-0006-01
0502110-03

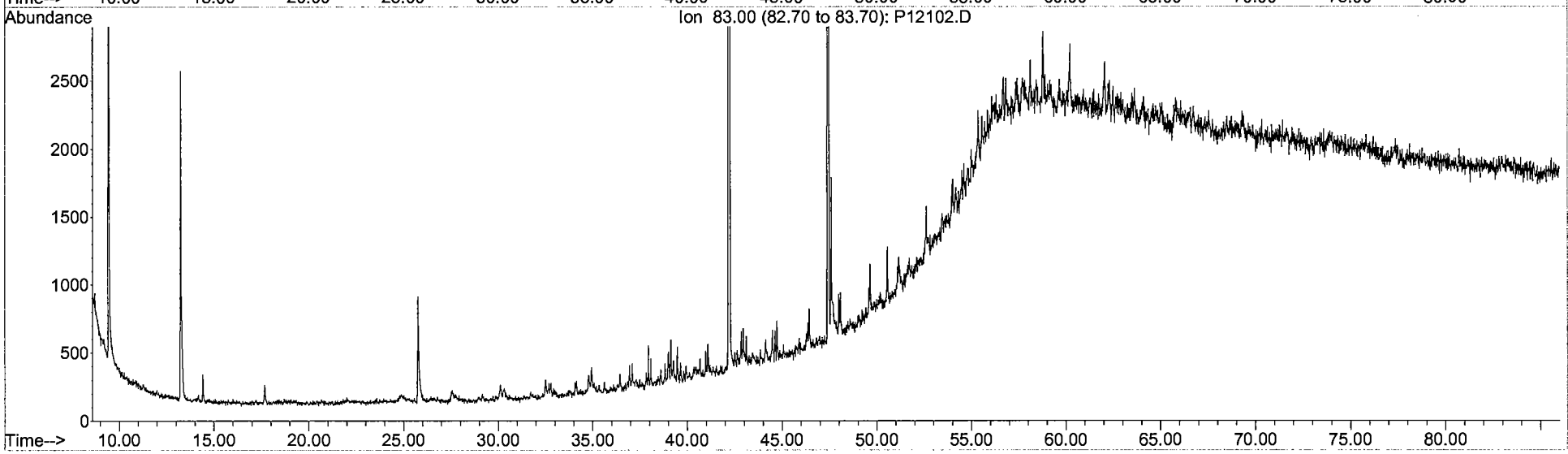




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12102.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 7:24 pm using AcqMethod PAH10216
Sample Name: 0502110-09
Misc Info : 1X

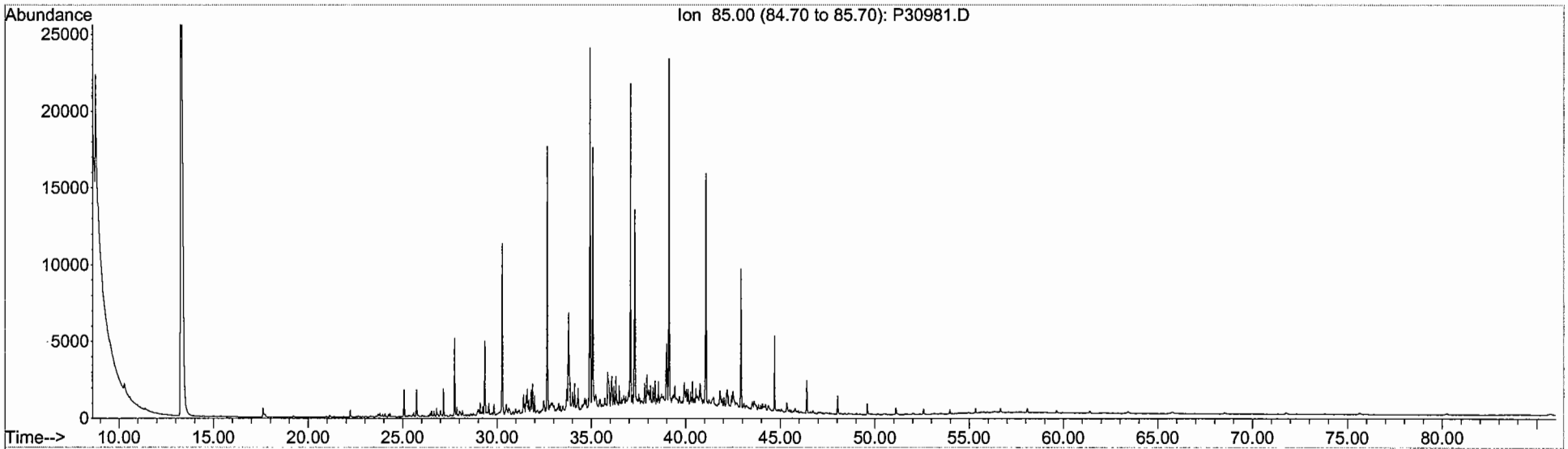
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-JPC03-0006-01
0502110-09

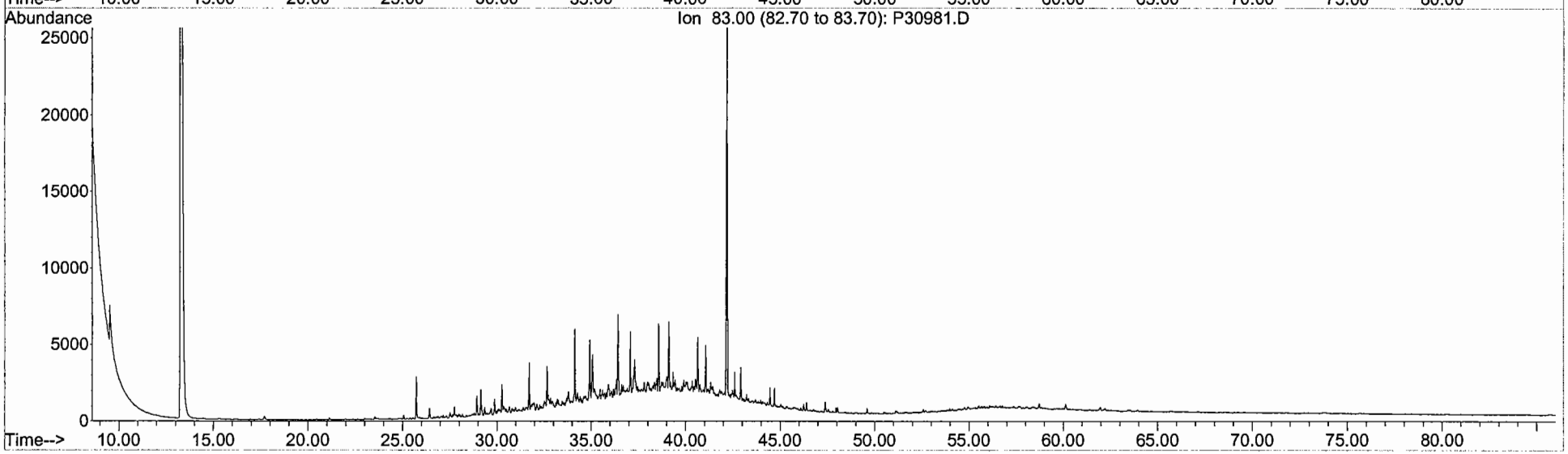




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30981.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 7:51 am using AcqMethod PAH30302
Sample Name: 0502110-15
Misc Info : 1X REALUMINA

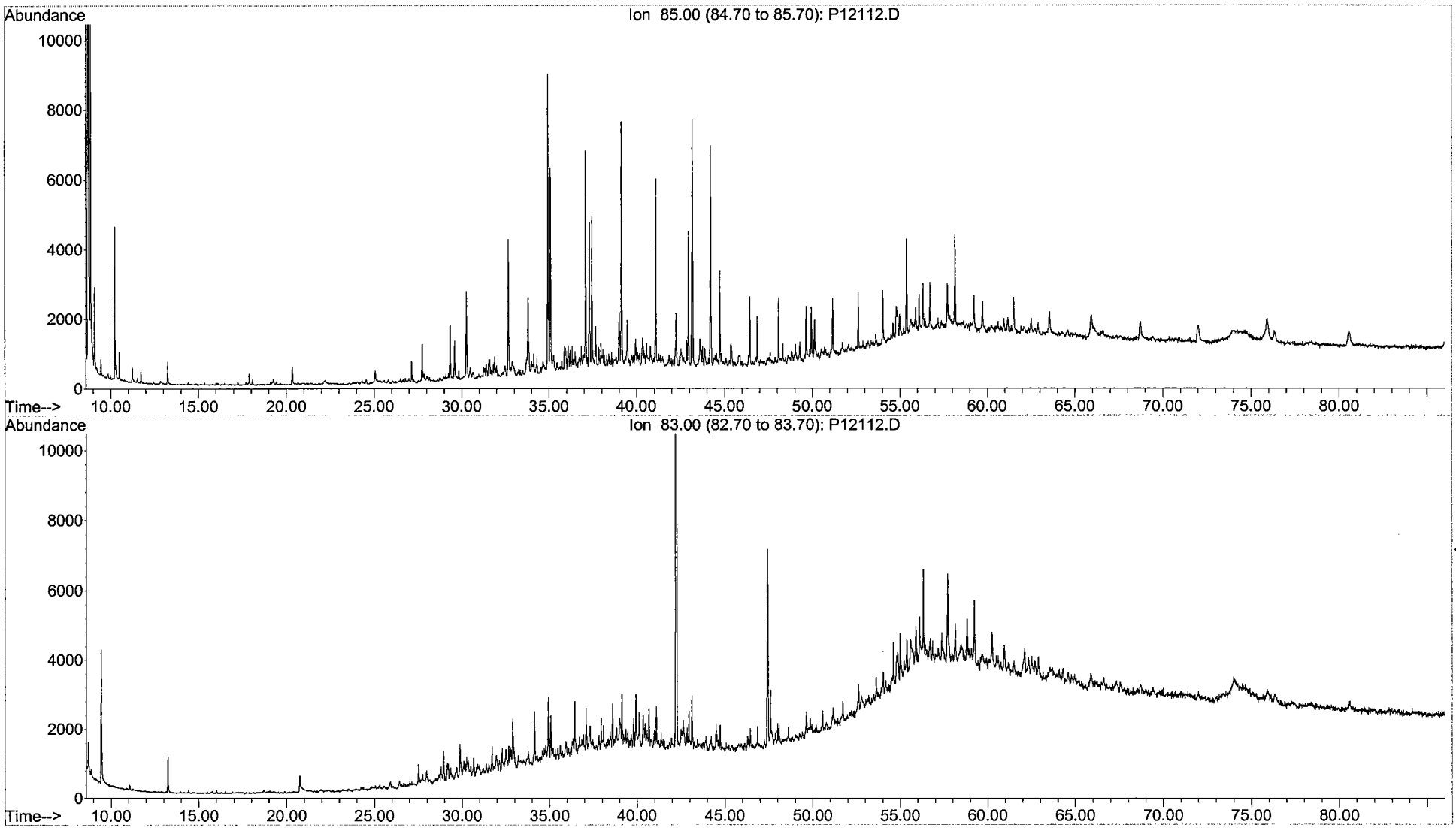
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-DUP01-01
0502110-15





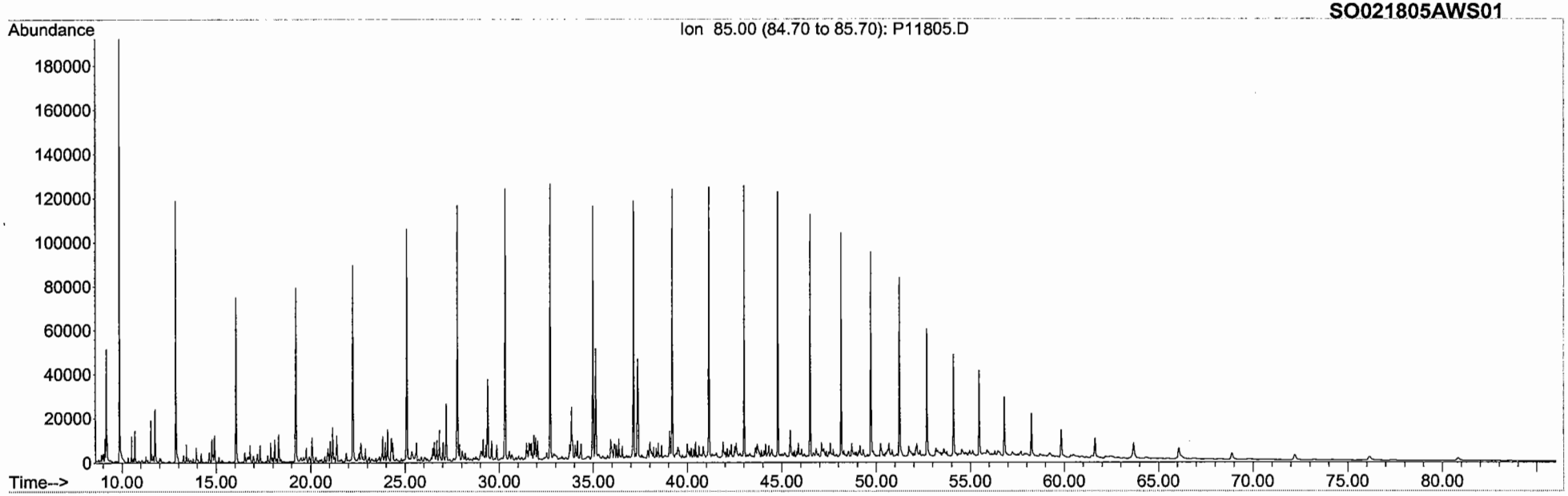
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12112.D
Operator : AC
Instrument : PAHINST1
Acquired : 6 Mar 2005 5:25 pm using AcqMethod PAH10216
Sample Name: 0502110-16
Misc Info : 1X

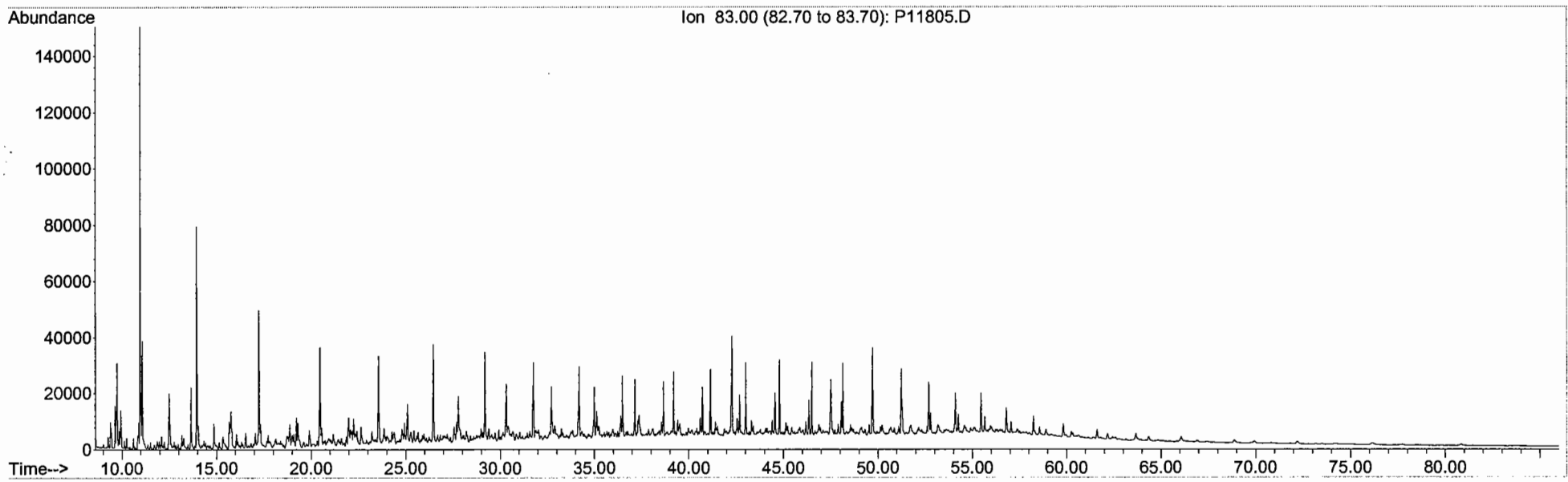
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-DUP02-01
0502110-16



File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\ICALS\P11805.D
Operator : AC
Instrument : PAHINST1
Acquired : 17 Feb 2005 11:07 am using AcqMethod PAH10216
Sample Name: SO021805AWS01
Misc Info : ANS1021601 AA37 5.002MG/ML

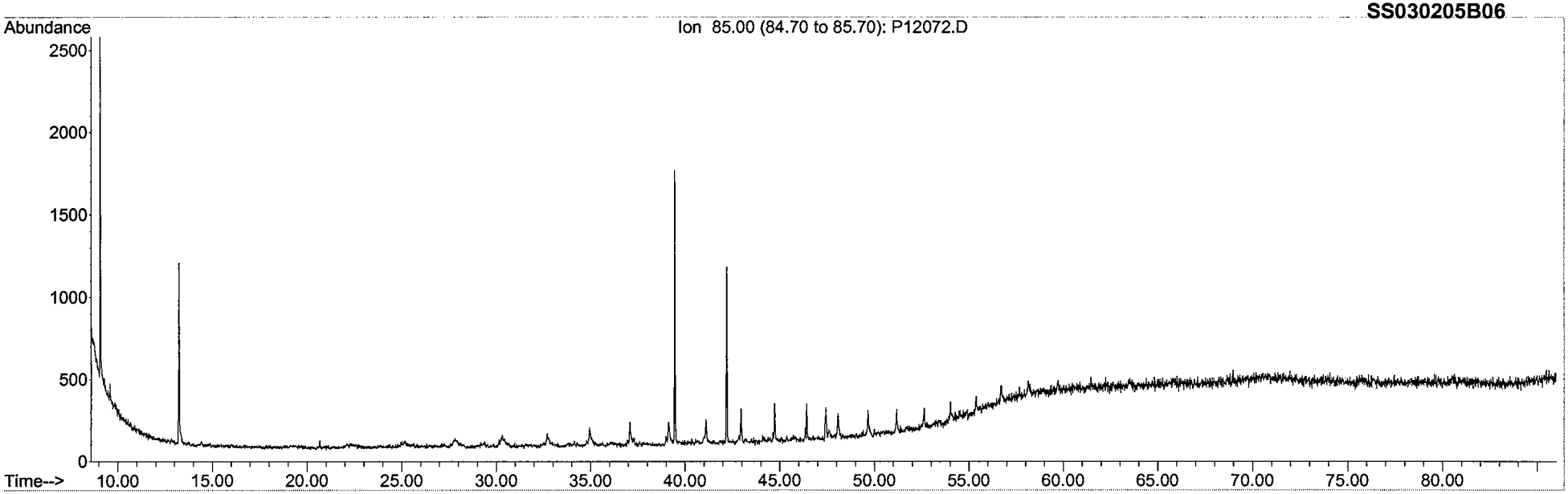
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
North Slope Crude Reference Sample
SO021805AWS01

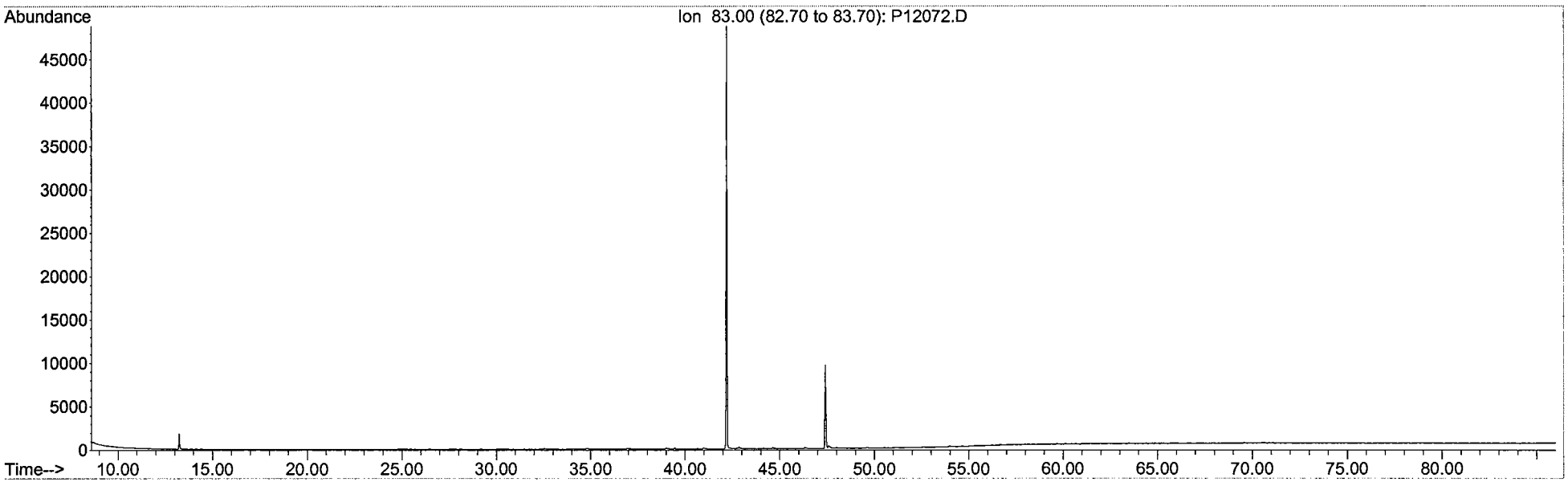




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12072.D
Operator : AC
Instrument : PAHINST1
Acquired : 4 Mar 2005 5:35 pm using AcqMethod PAH10216
Sample Name: SS030205B06
Misc Info : 1X ETR 0502110

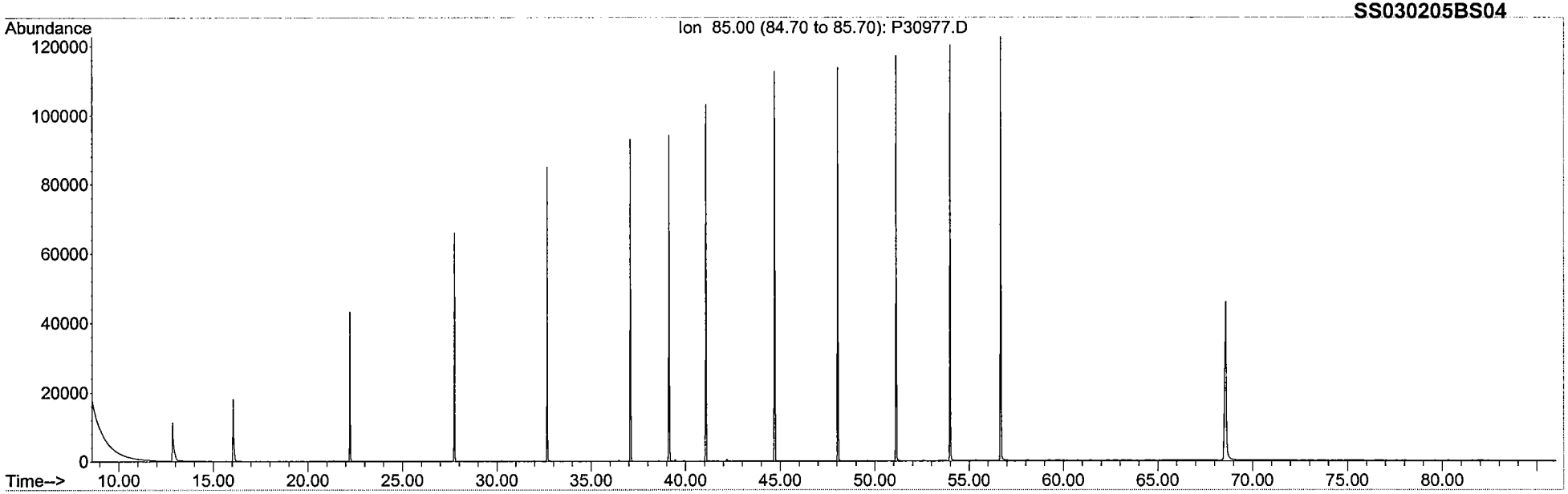
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
Procedural Blank
SS030205B06

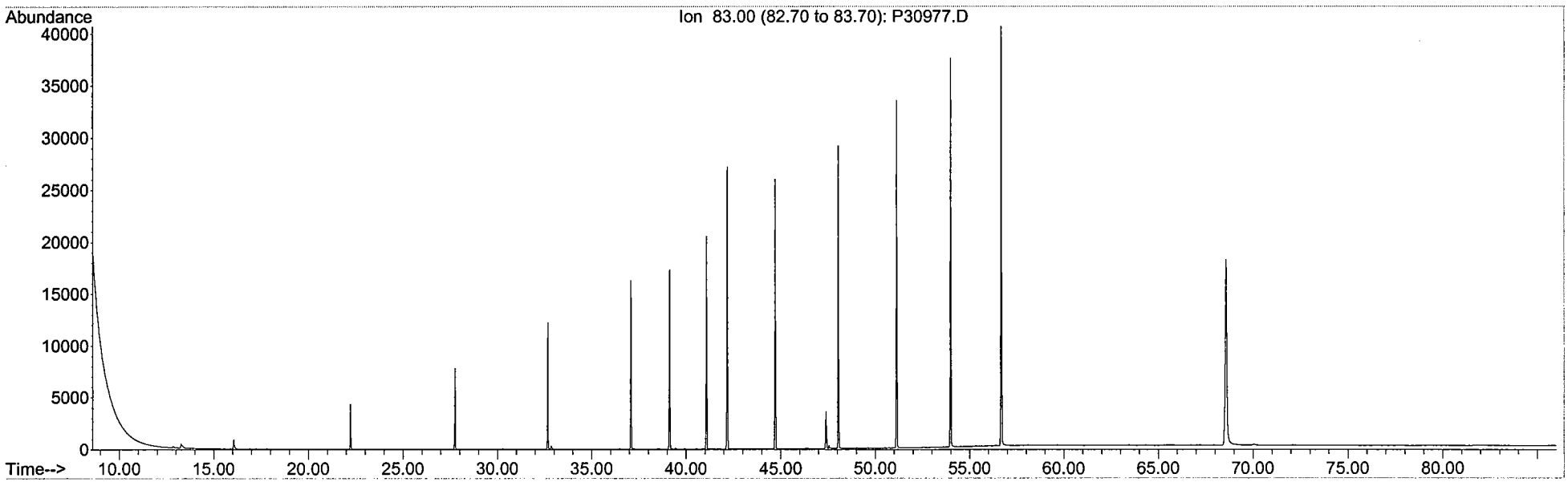




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30977.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 4:20 am using AcqMethod PAH30302
Sample Name: SS030205BS04
Misc Info : 1X REALUMINA

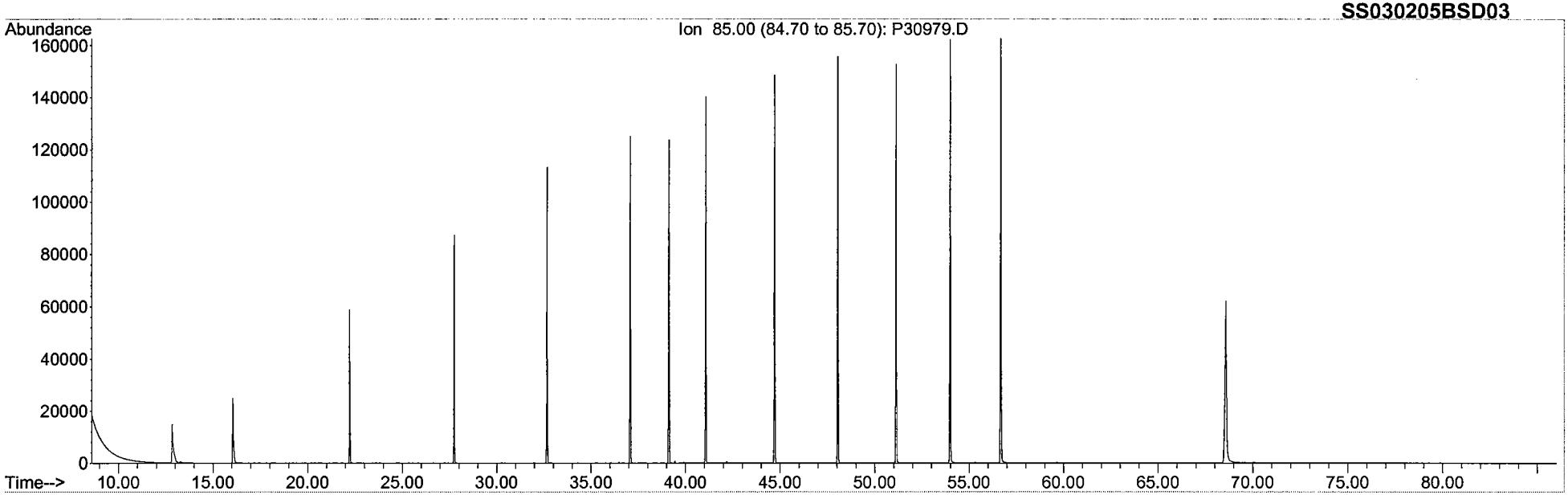
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
Blank Spike
SS030205BS04

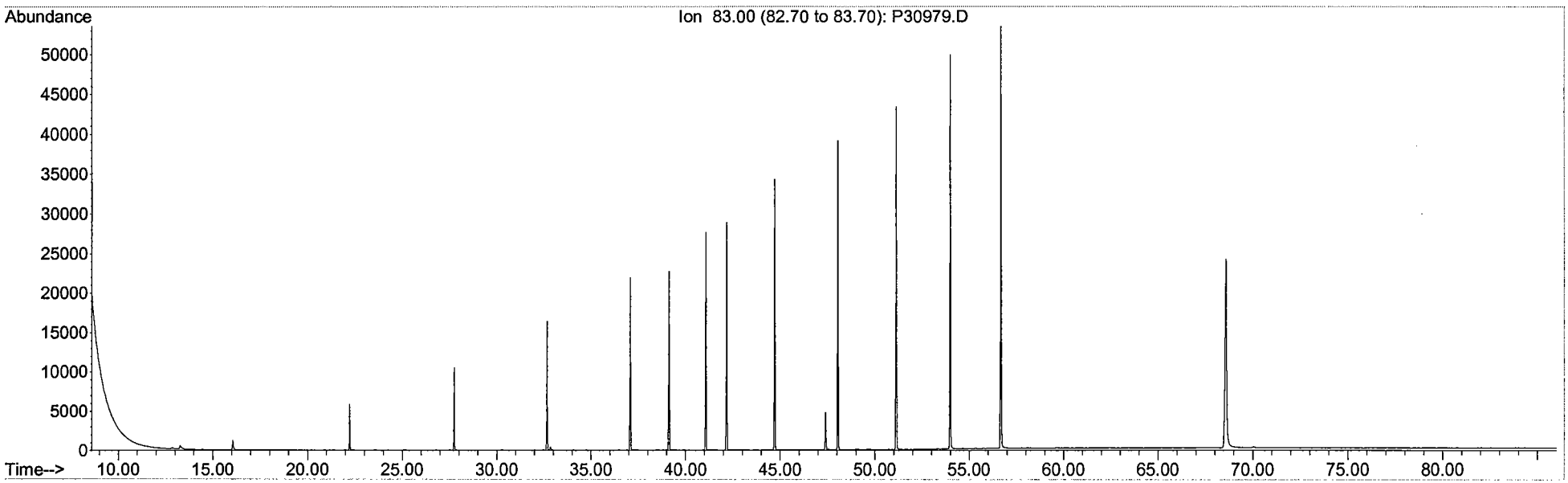




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30979.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 6:05 am using AcqMethod PAH30302
Sample Name: SS030205BSD03
Misc Info : 1X REALUMINA

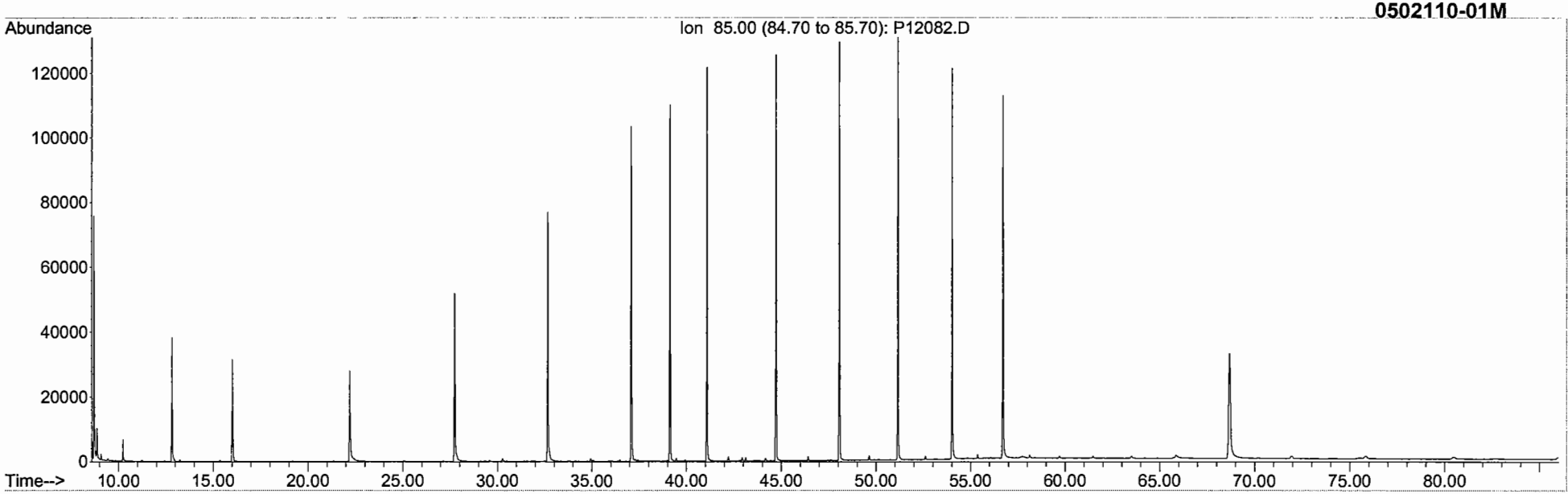
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
Blank Spike Duplicate
SS030205BSD03

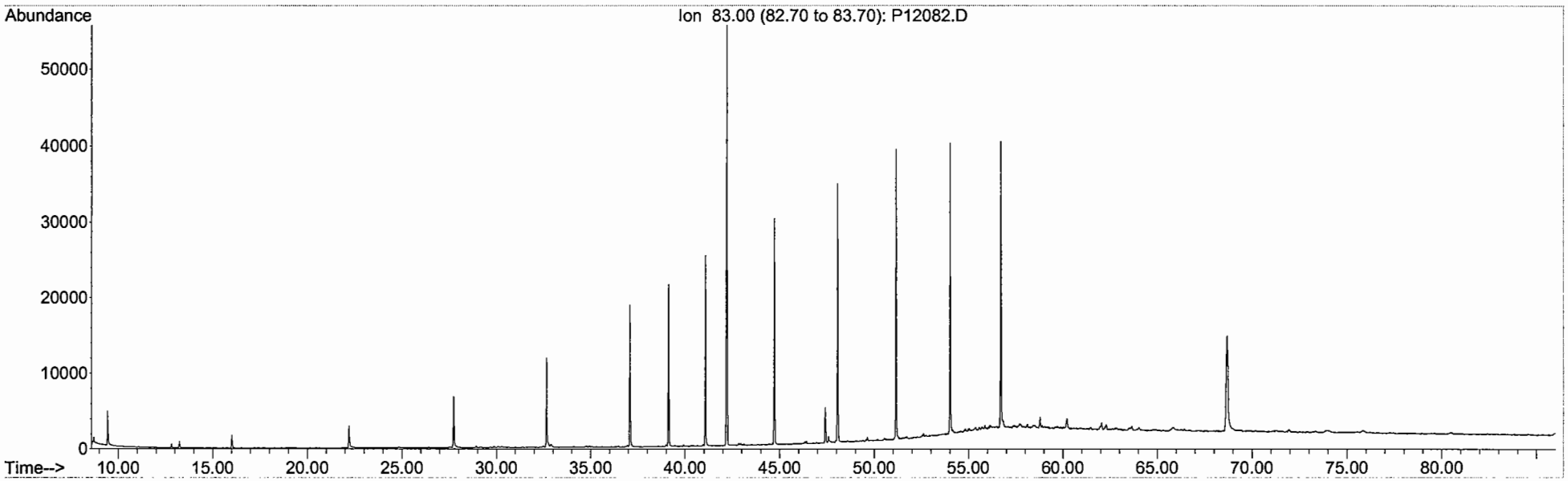




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12082.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 2:15 am using AcqMethod PAH10216
Sample Name: 0502110-01M
Misc Info : 1X

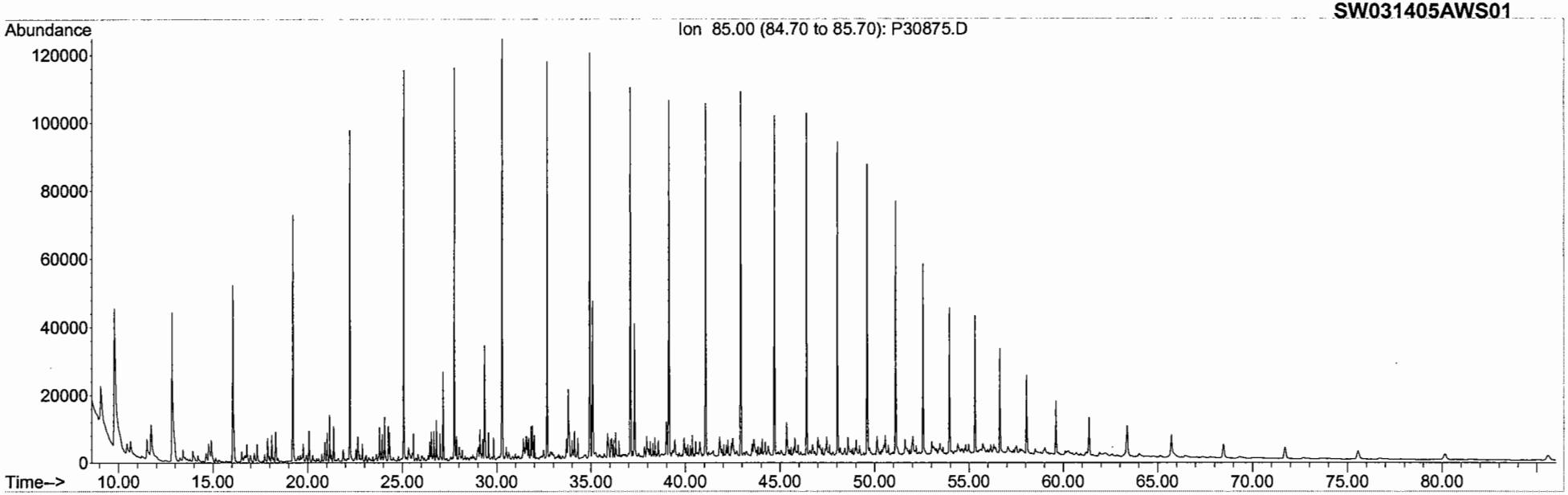
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
OFF-SD-OFF2-0006-01 Matrix Spike
0502110-01M

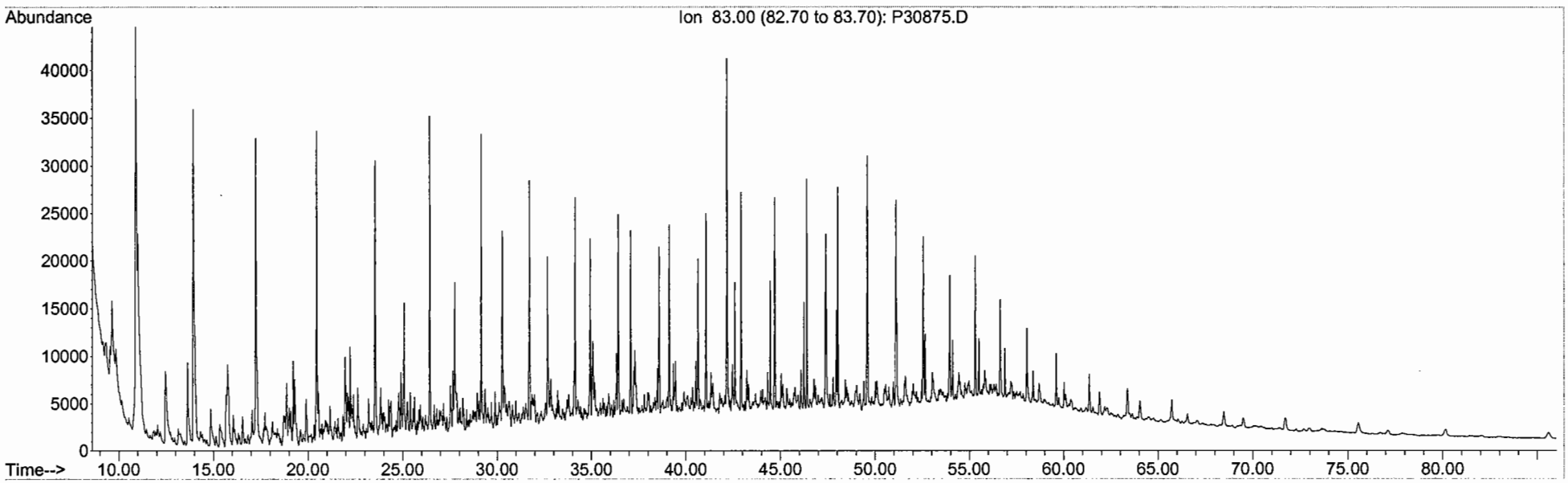




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\ICALS\P30875.D
Operator : AC
Instrument : PAH#3
Acquired : 4 Mar 2005 2:03 pm using AcqMethod PAH30216
Sample Name: SW031405AWS01
Misc Info : ANS3030401 WHGRPAA37 5.002MG/ML

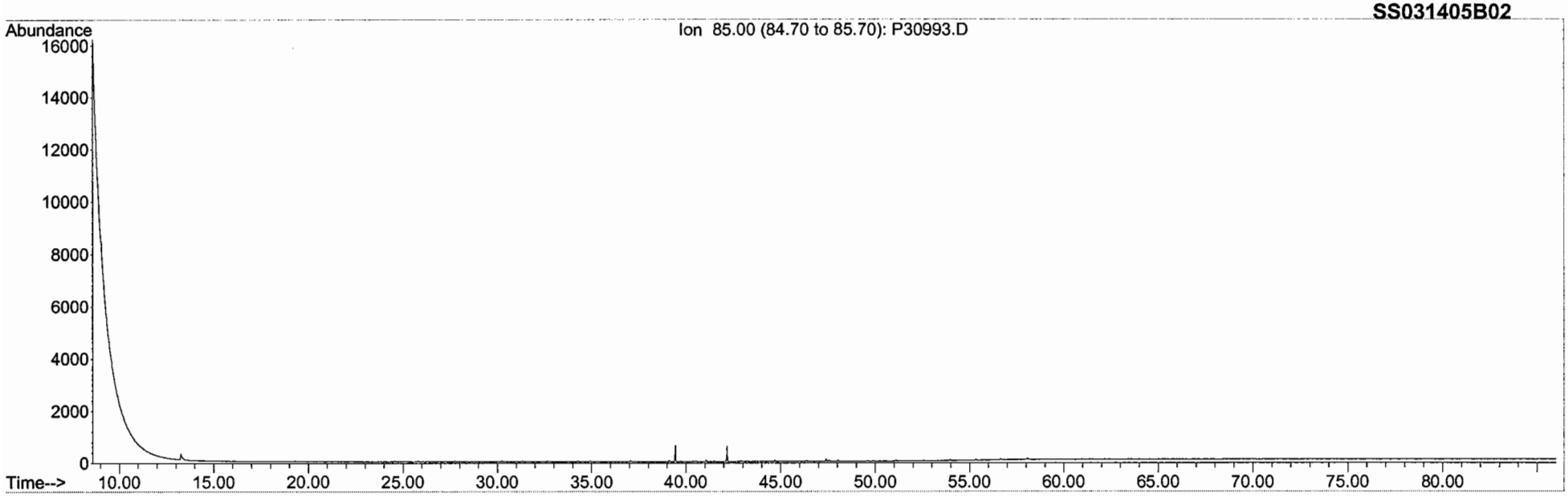
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
North Slope Crude Reference Sample
SW031405AWS01

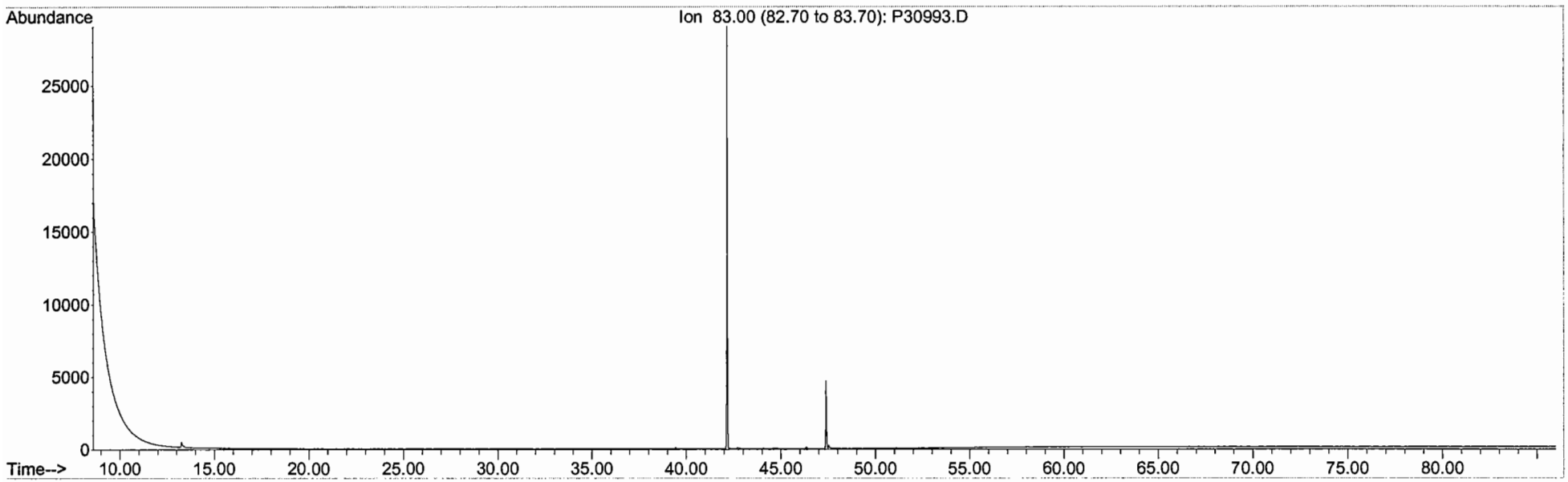




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30993.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 6:31 pm using AcqMethod PAH30302
Sample Name: SS031405B02
Misc Info : 1X 0502110SOLID REALUM

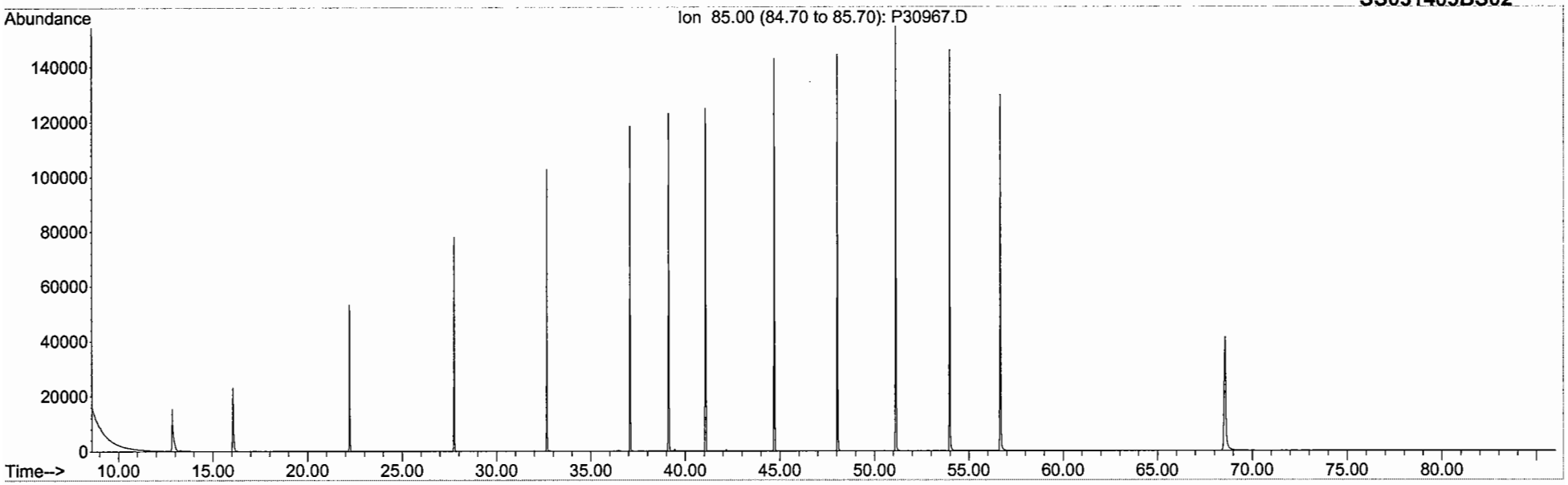
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
Procedural Blank
SS031405B02

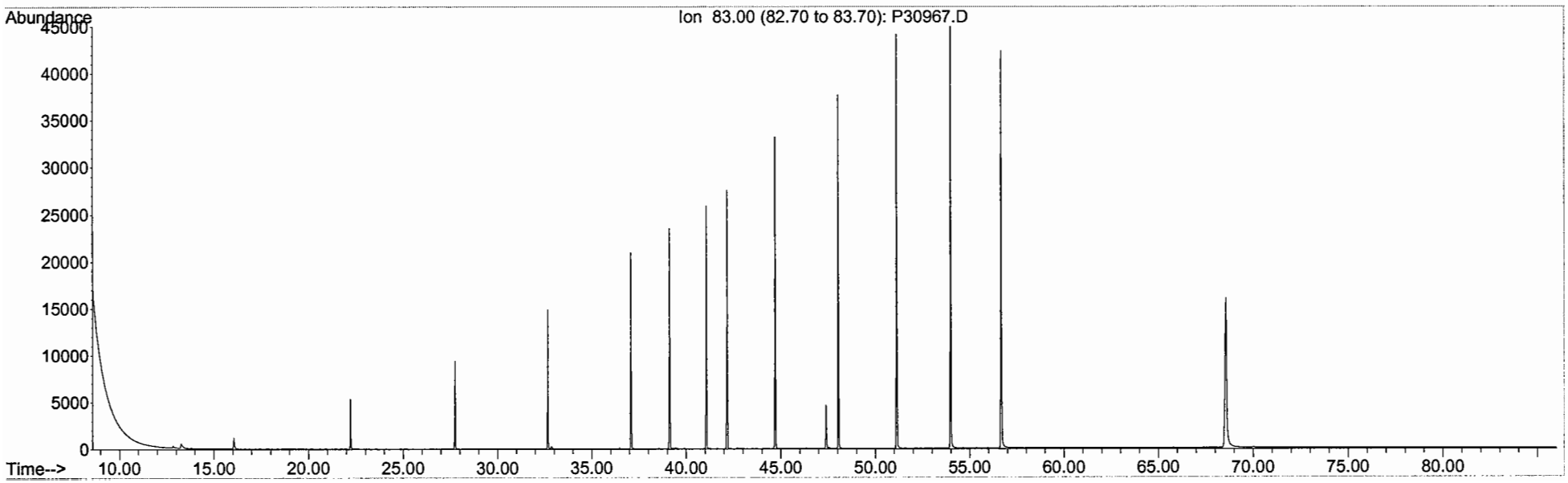




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30967.D
Operator : AC
Instrument : PAH#3
Acquired : 14 Mar 2005 7:35 pm using AcqMethod PAH30302
Sample Name: SS031405BS02
Misc Info : 1X ETR0502110

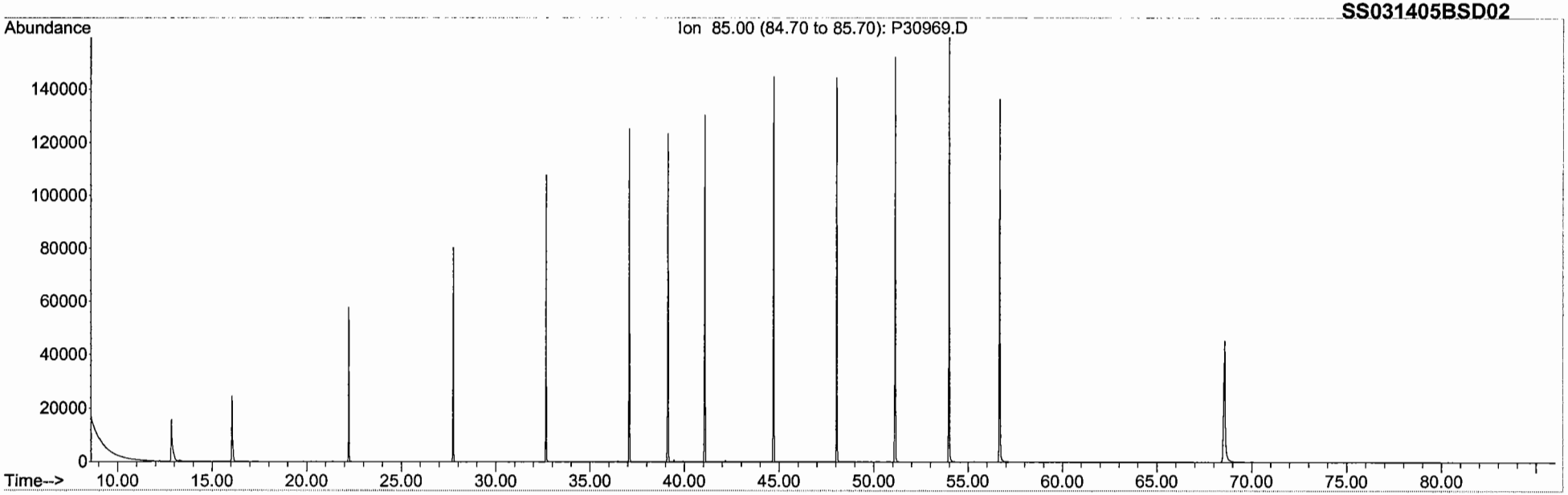
Normal Alkanes/Isoprenoids and Alkylcyclohexanes
Blank Spike
SS031405BS02

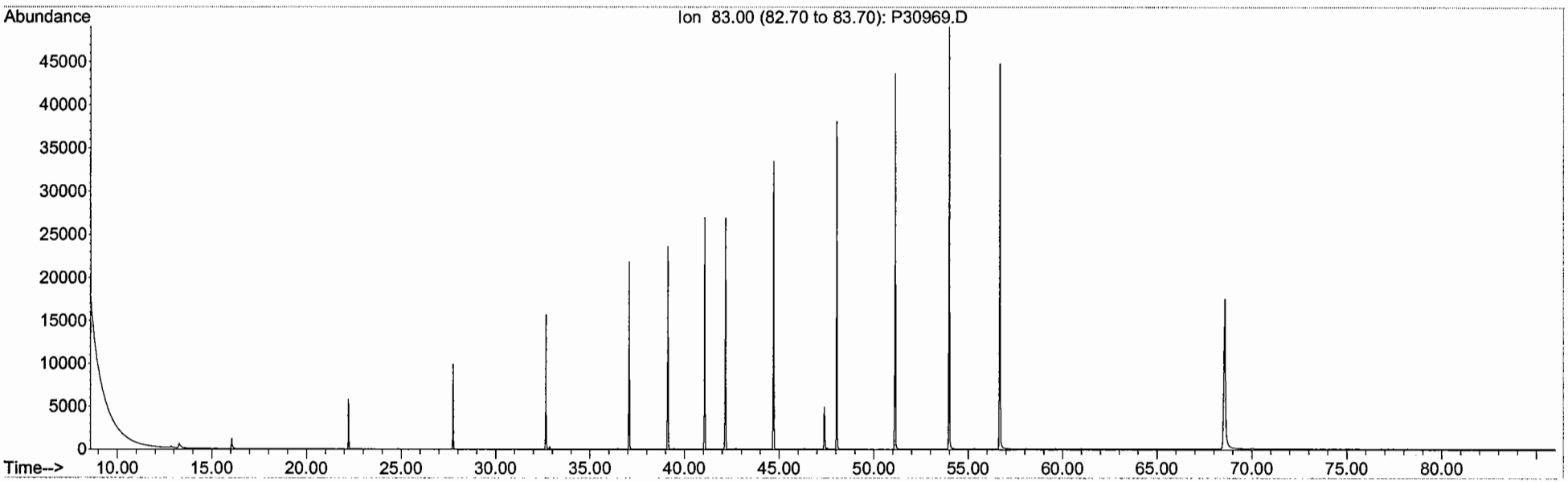




File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30969.D
Operator : AC
Instrument : PAH#3
Acquired : 14 Mar 2005 9:22 pm using AcqMethod PAH30302
Sample Name: SS031405BSD02
Misc Info : 1X ETR0502110

Normal Alkanes/Isoprenoids and Alkylcyclohexanes
Blank Spike Duplicate
SS031405BSD02

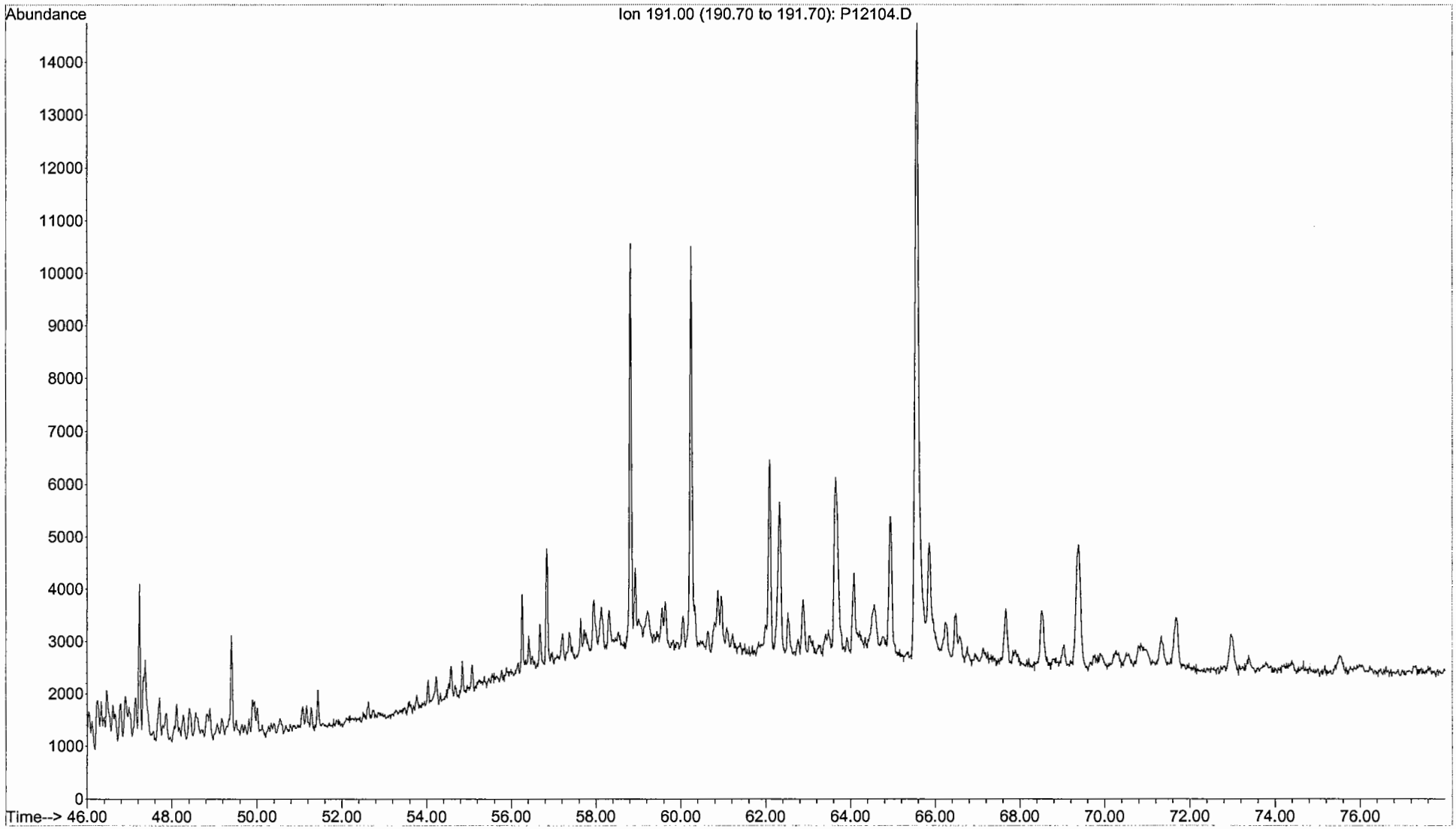




Attachment E
Triterpane Fingerprinting Results by GC/MS/SIM

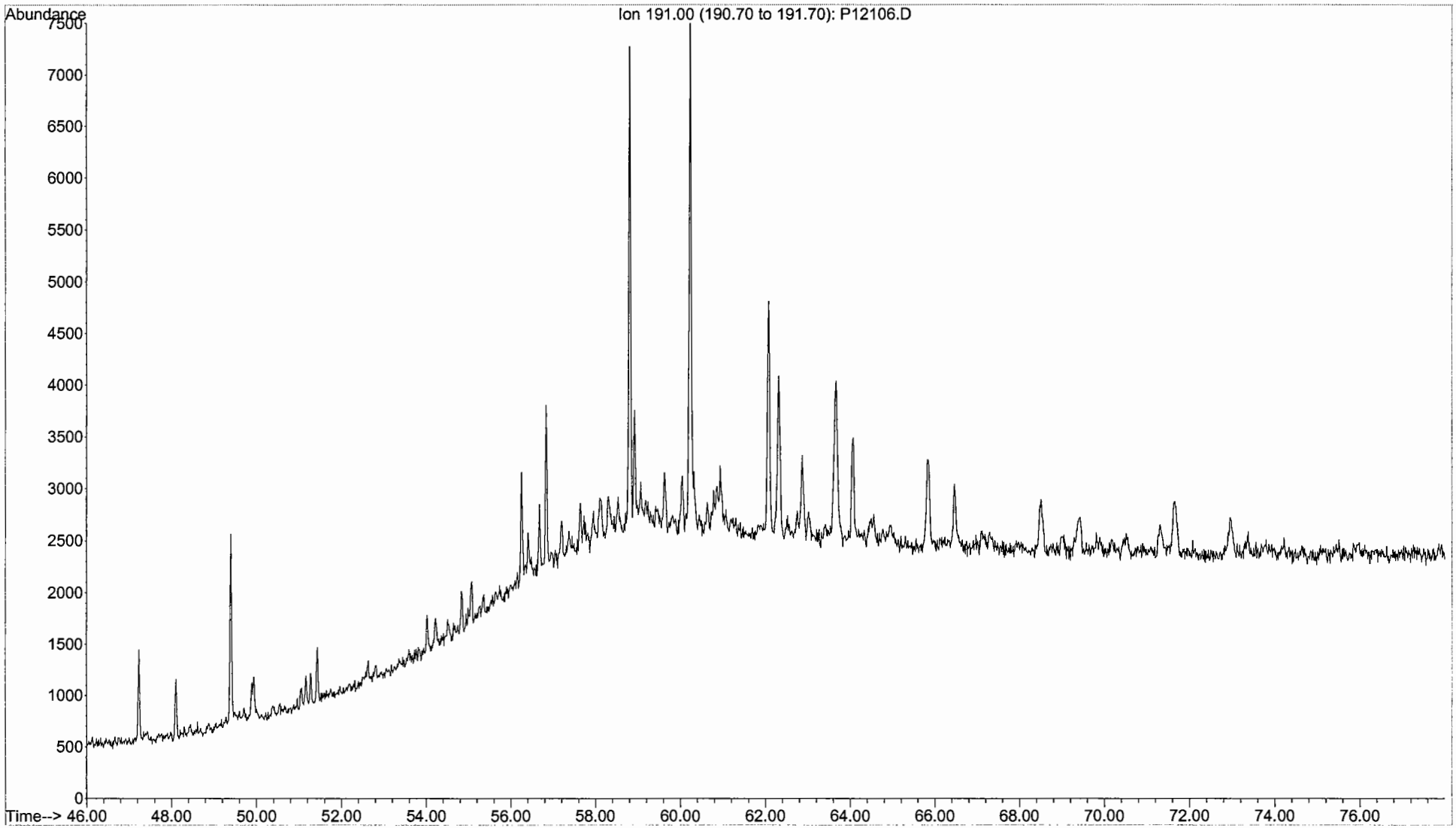
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12104.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 9:06 pm using AcqMethod PAH10216
Sample Name: 0502110-10
Misc Info : 1X

Triterpanes
OFF-SD-OTSOF075-0006-01
0502110-10



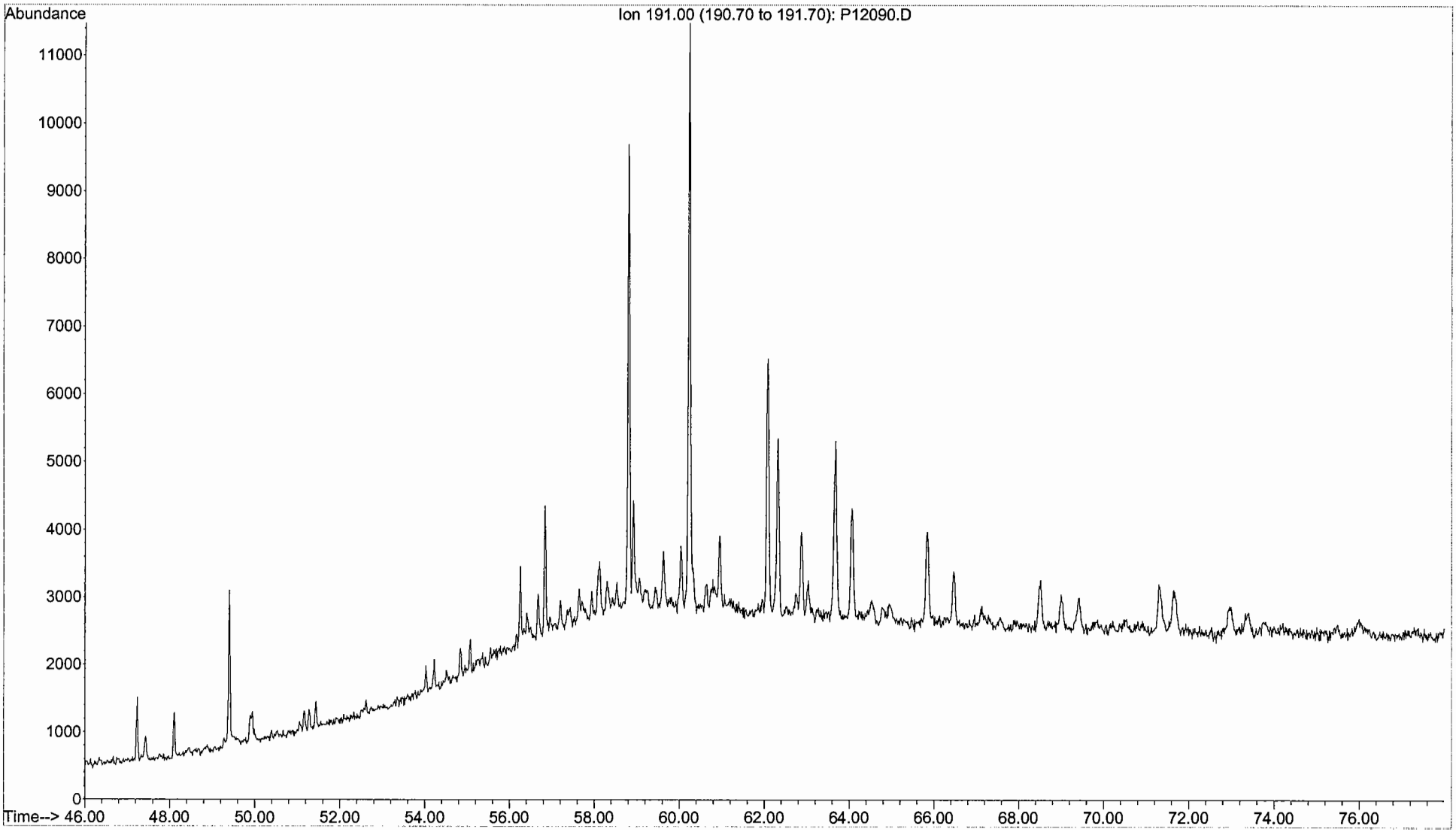
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12106.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 10:49 pm using AcqMethod PAH10216
Sample Name: 0502110-11
Misc Info : 1X

Triterpanes
OFF-SD-OTSOF075A-0006-01
0502110-11



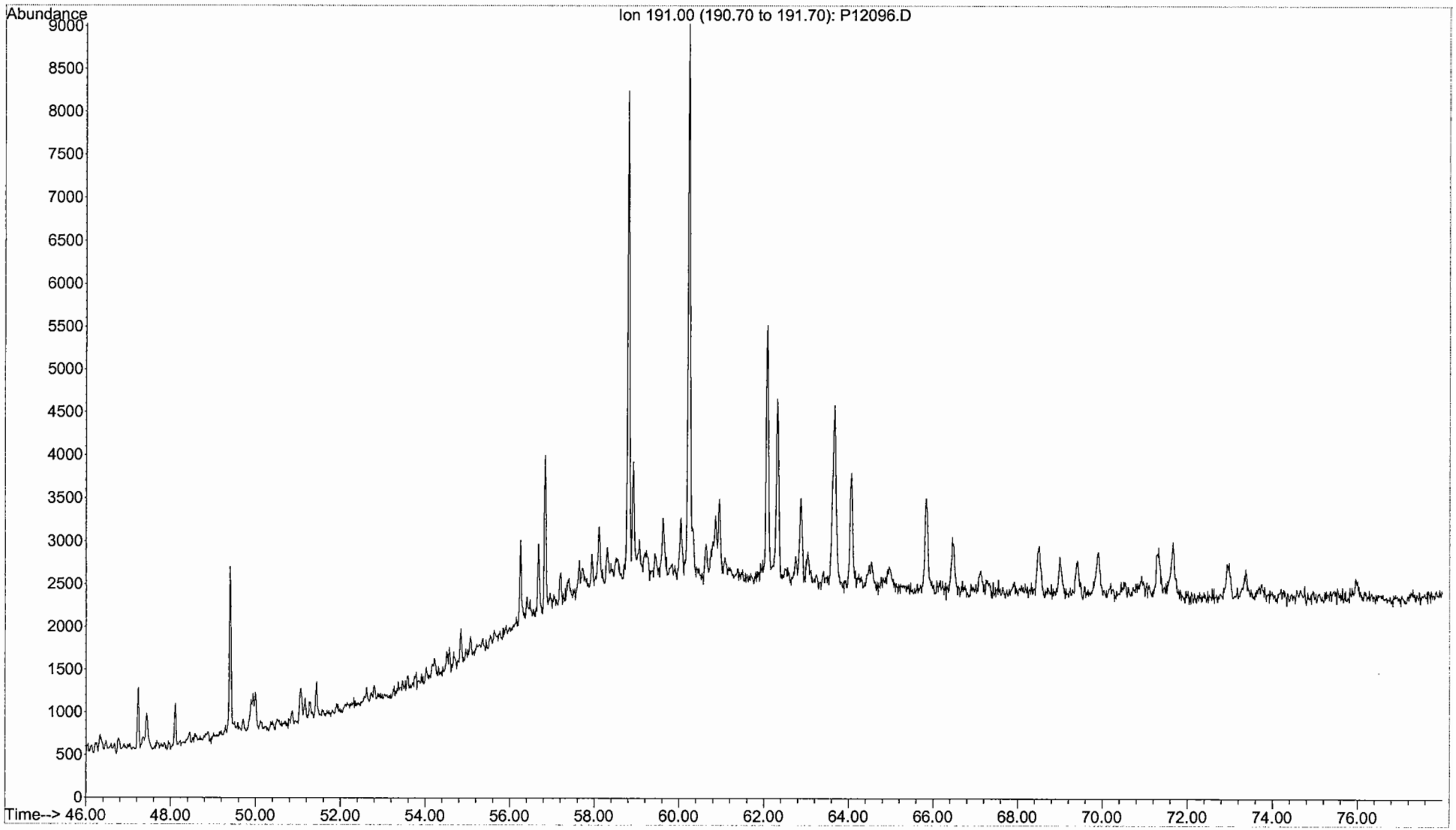
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12090.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 9:06 am using AcqMethod PAH10216
Sample Name: 0502110-05
Misc Info : 1X

Triterpanes
OFF-SD-SD5-0006-01
0502110-05



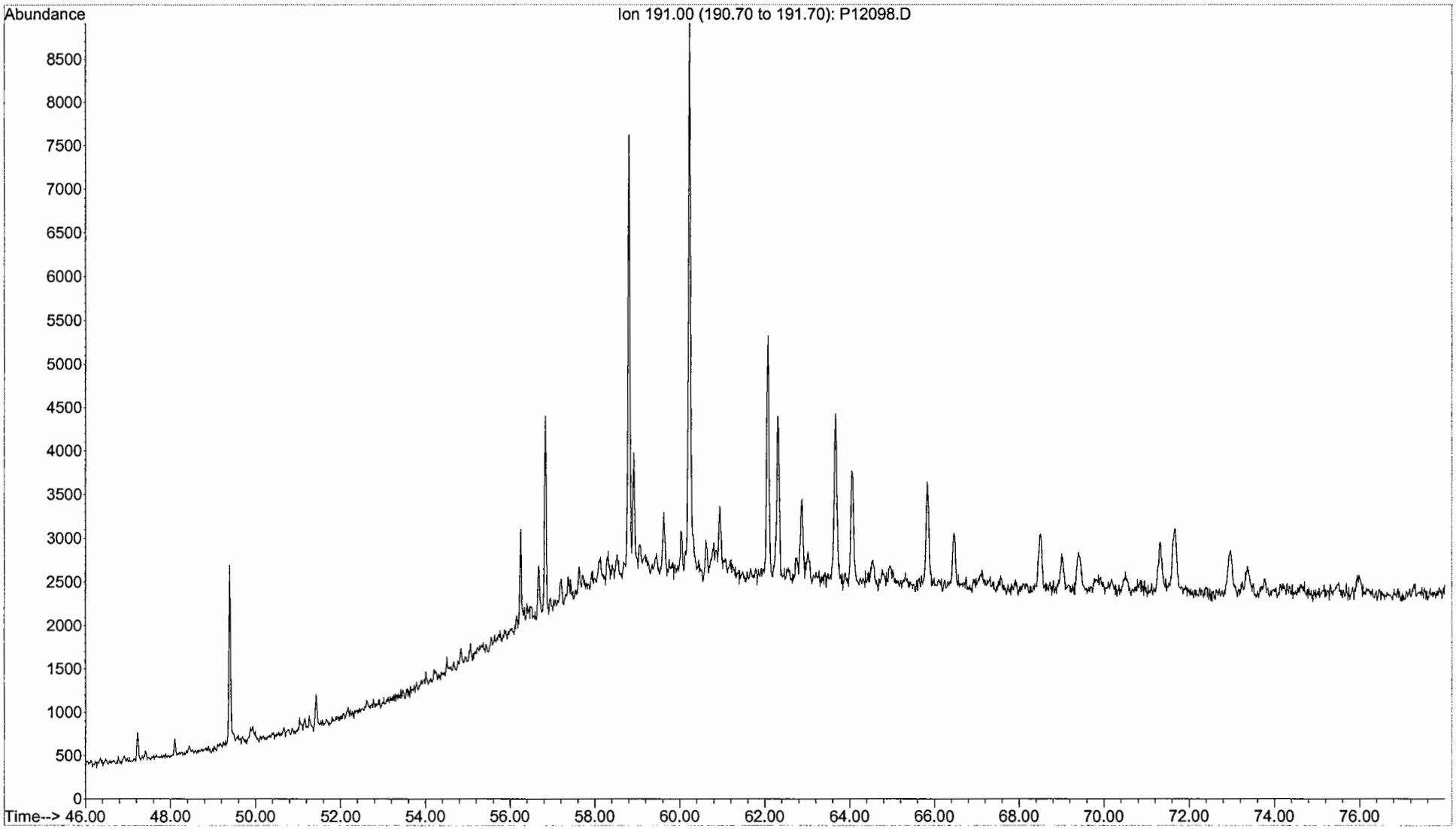
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12096.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 2:16 pm using AcqMethod PAH10216
Sample Name: 0502110-06
Misc Info : 1X

Triterpanes
OFF-SD-442-0006-01
0502110-06



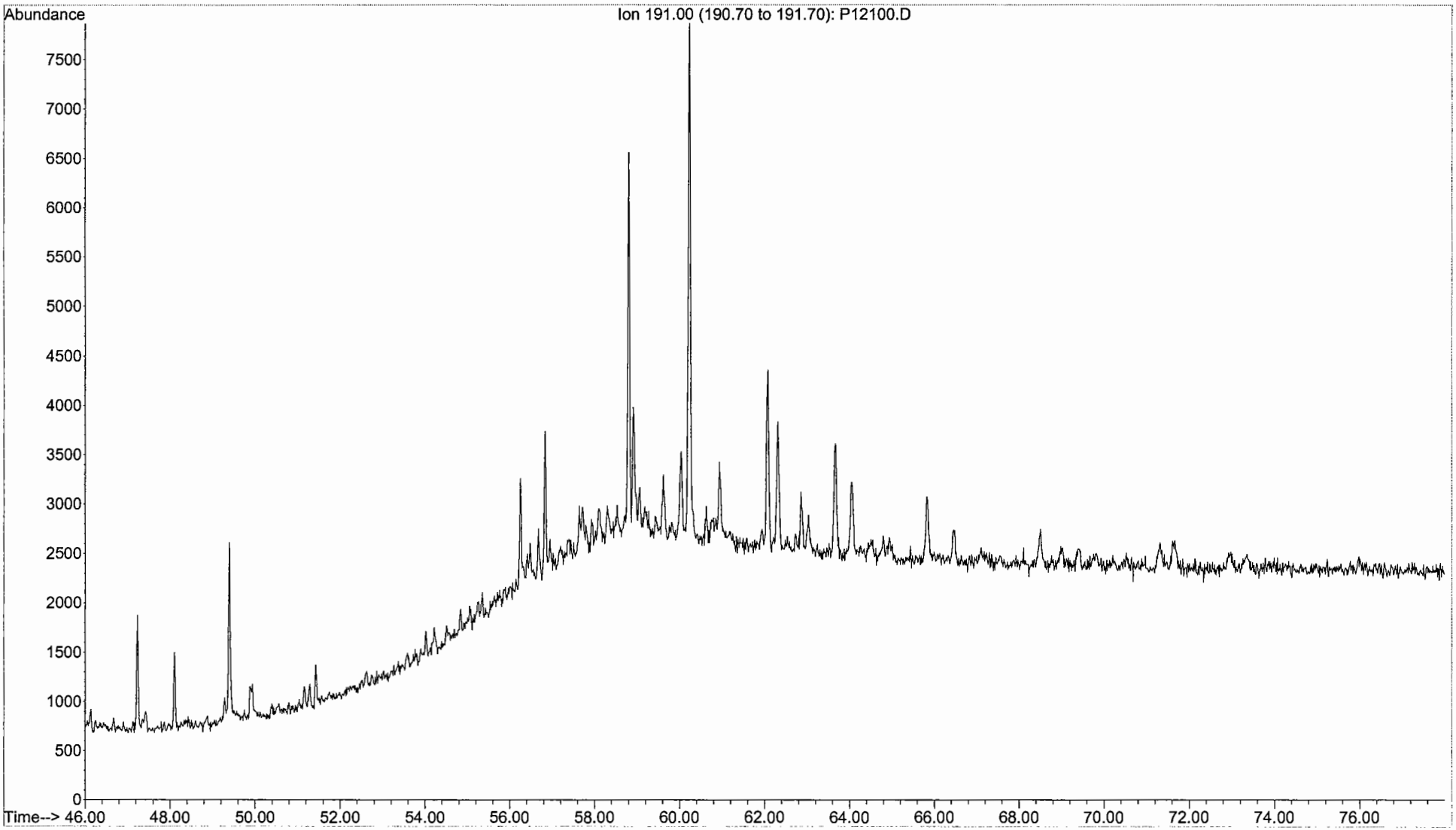
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12098.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 4:01 pm using AcqMethod PAH10216
Sample Name: 0502110-07
Misc Info : 1X

Triterpanes
OFF-SD-OFF6-0006-01
0502110-07



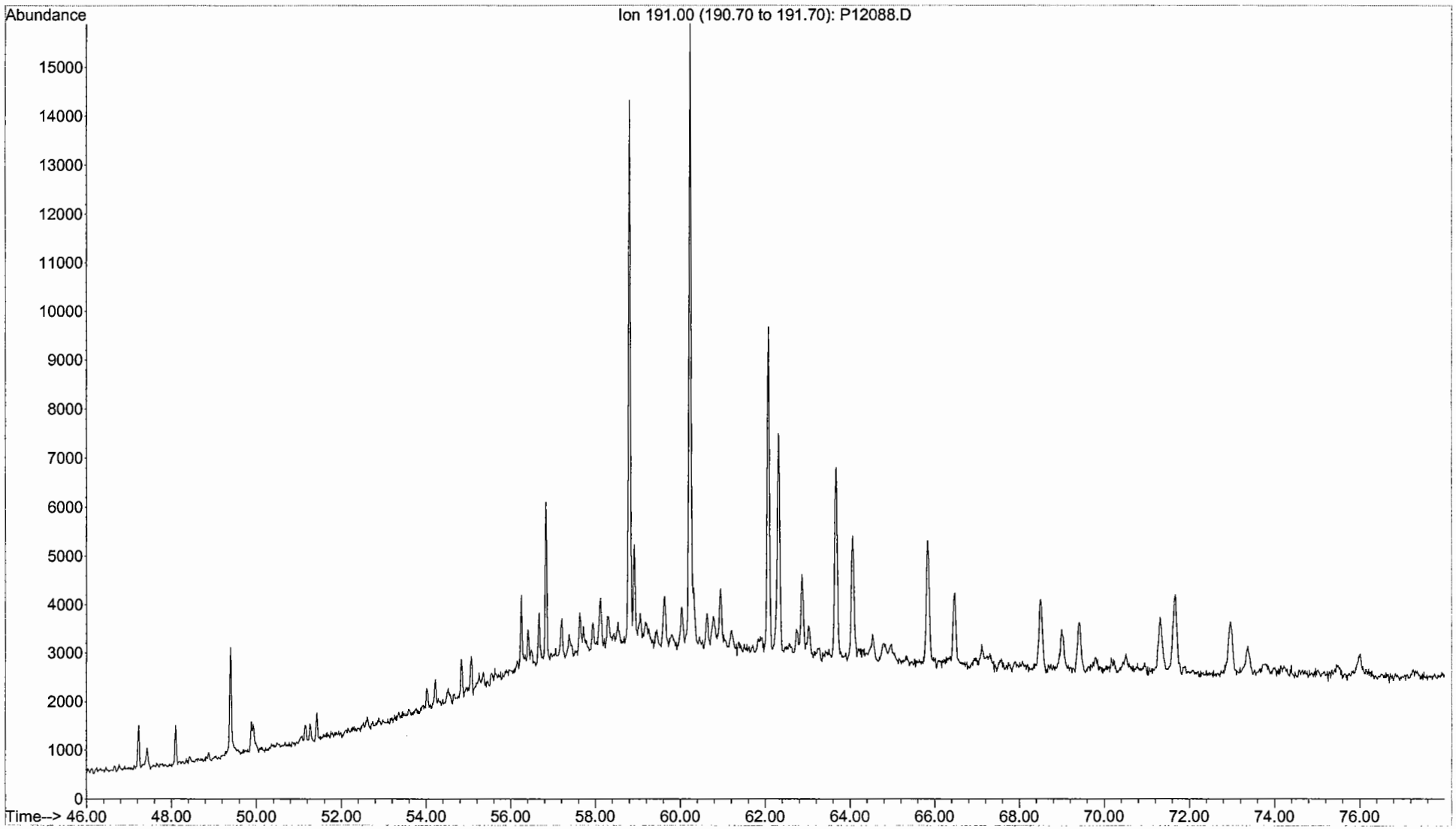
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12100.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 5:43 pm using AcqMethod PAH10216
Sample Name: 0502110-08
Misc Info : 1X

Triterpanes
OFF-SD-OFF7-0006-01
0502110-08



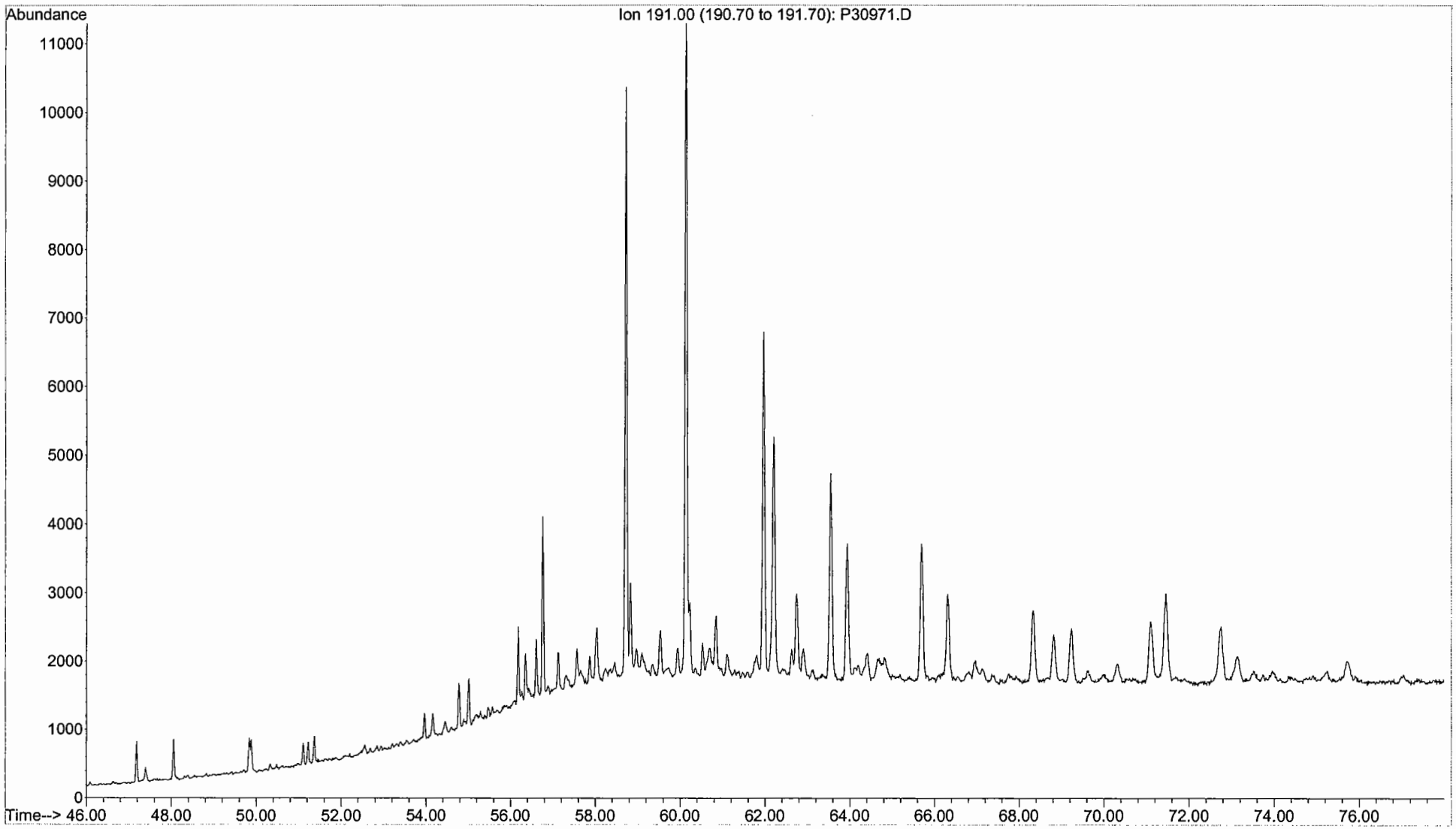
File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P12088.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 7:23 am using AcqMethod PAH10216
Sample Name: 0502110-04
Misc Info : 1X

Triterpanes
OFF-SD-414-0006-01
0502110-04



File :\\BOSTON1\FTP_USERS\BOSTON\NFEF_WHG\COASTERS HARBOR\0502110\P
... AH\P30971.D
Operator : AC
Instrument : PAH#3
Acquired : 14 Mar 2005 11:08 pm using AcqMethod PAH30302
Sample Name: 0502110-13
Misc Info : 1X

Triterpanes
OFF-SD-414-DEBRIS1
0502110-13



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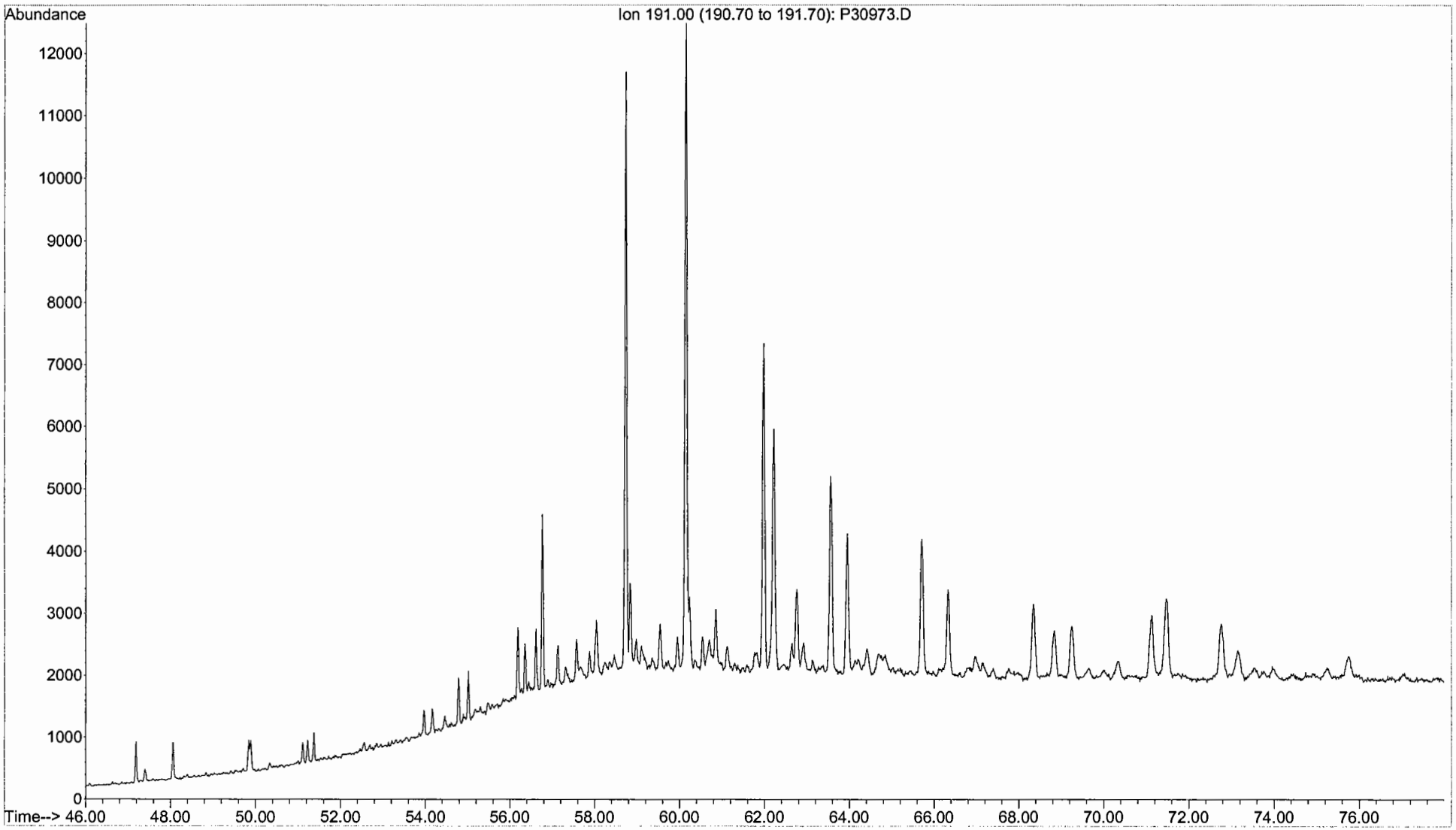
... AH\P30973.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 12:51 am using AcqMethod PAH30302
Sample Name: 0502110-13D
Misc Info : 1X

Triterpanes
OFF-SD-414-DEBRIS1 Duplicate
0502110-13D



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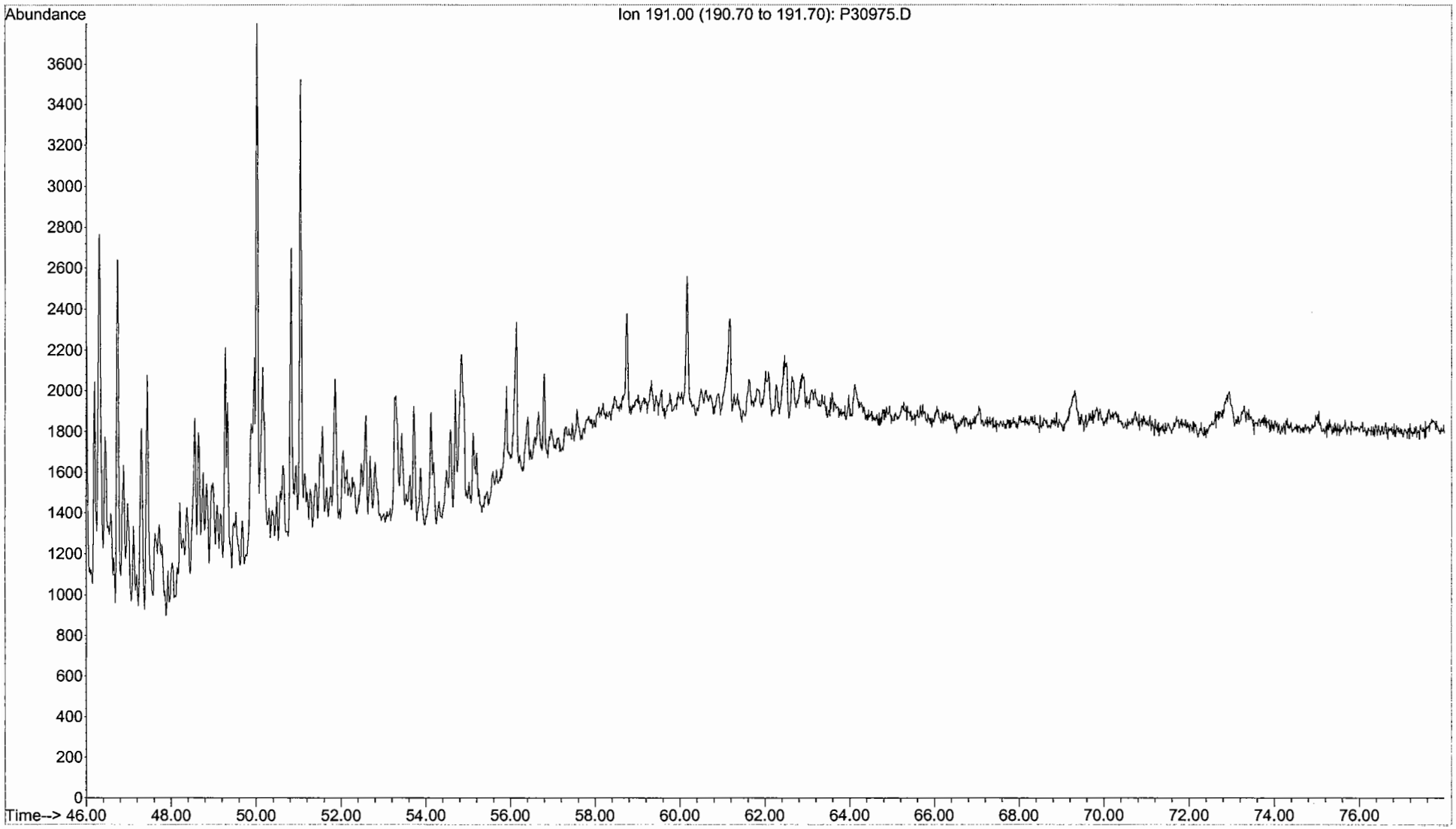
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 2:37 am using AcqMethod PAH30302
Sample Name: 0502110-14
Misc Info : 1X

Triterpanes
OFF-SD-414-DEBRIS2
0502110-14



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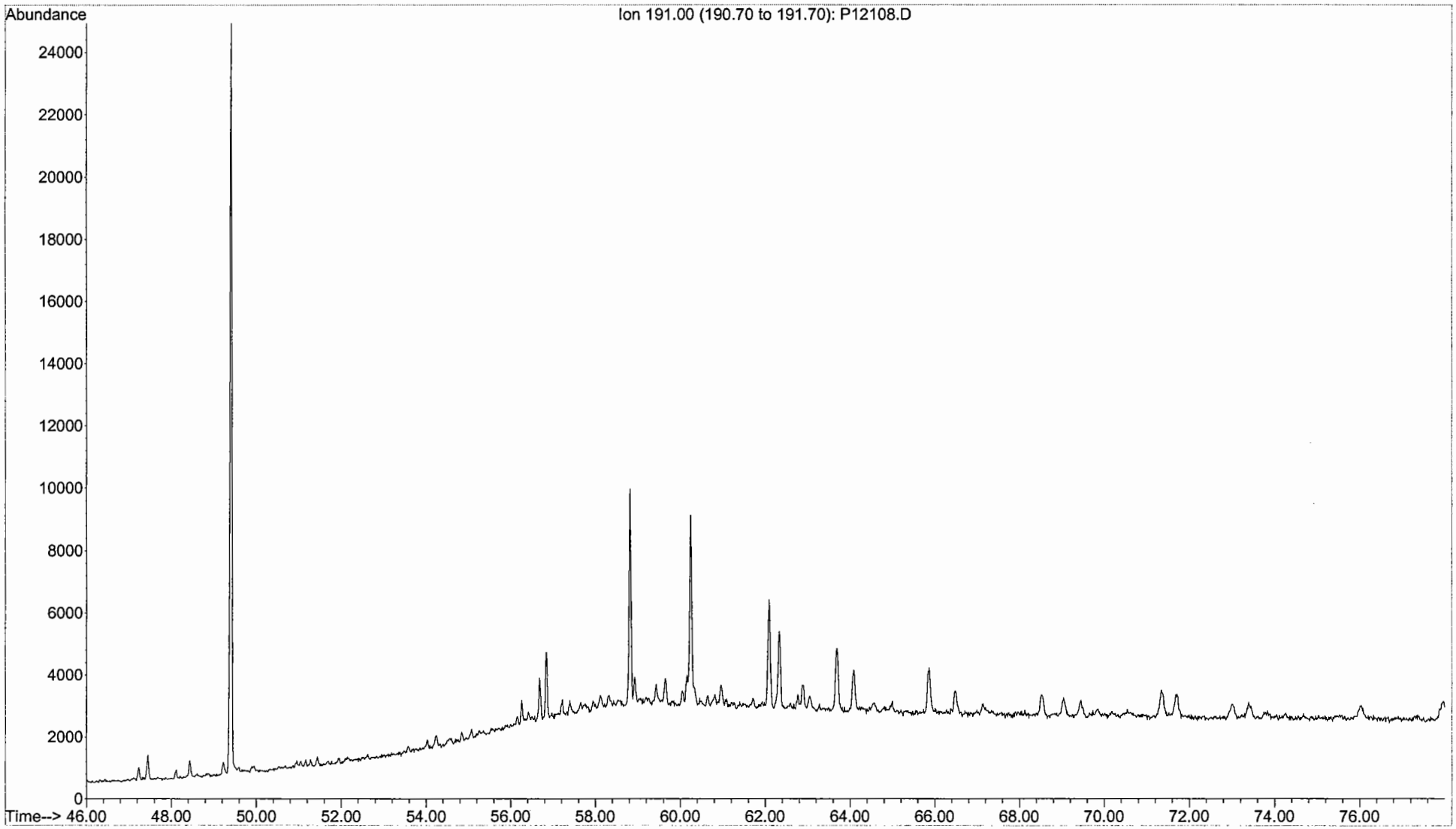
Operator : AC
Instrument : PAHINST1
Acquired : 6 Mar 2005 12:19 pm using AcqMethod PAH10216
Sample Name: 0502110-12
Misc Info : 1X

Triterpanes
OFF-SD-OTSOF093-0006-01
0502110-12



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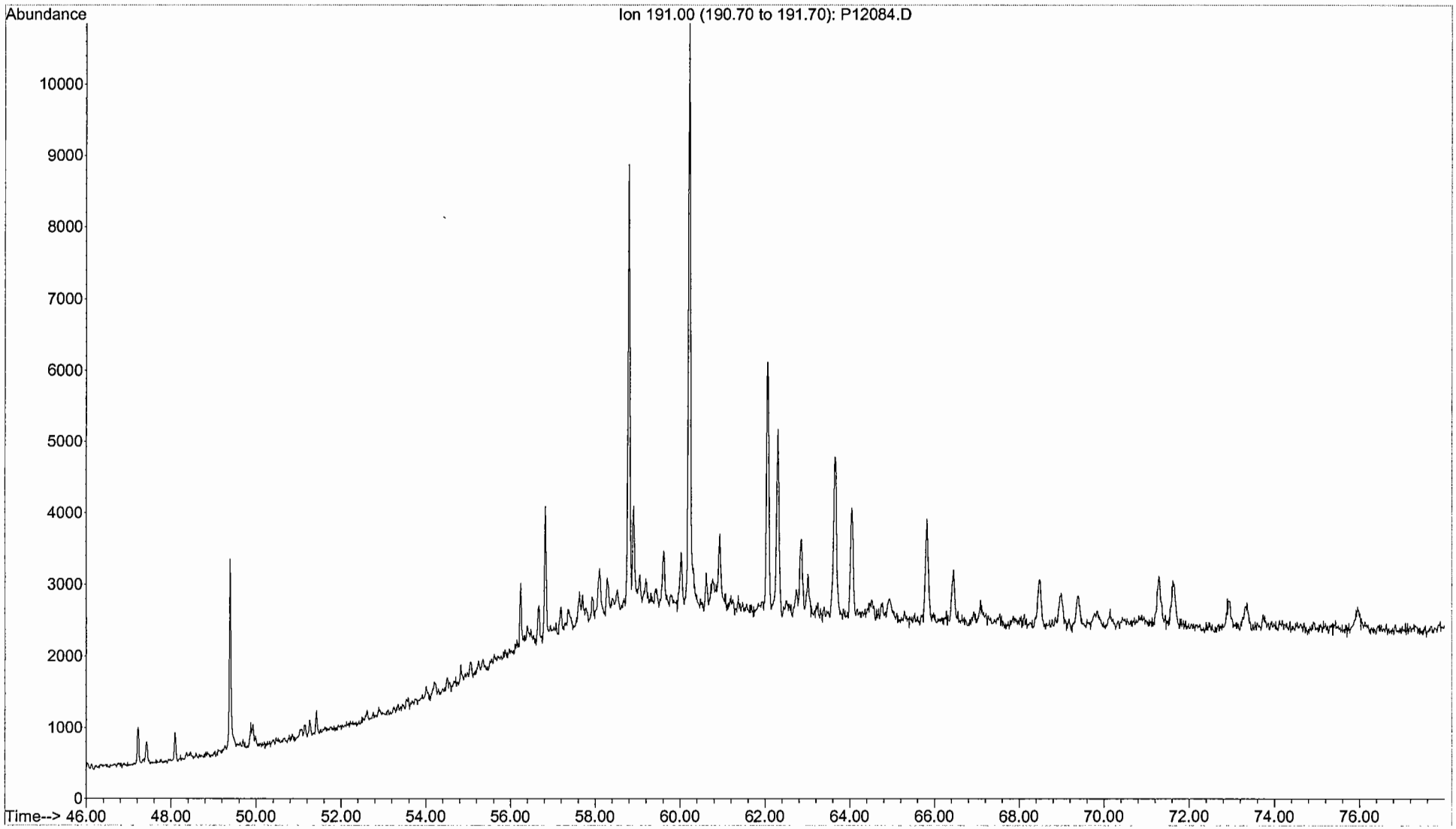
... AH\P12084.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 3:58 am using AcqMethod PAH10216
Sample Name: 0502110-02
Misc Info : 1X

Triterpanes
OFF-SD-411-0006-01
0502110-02



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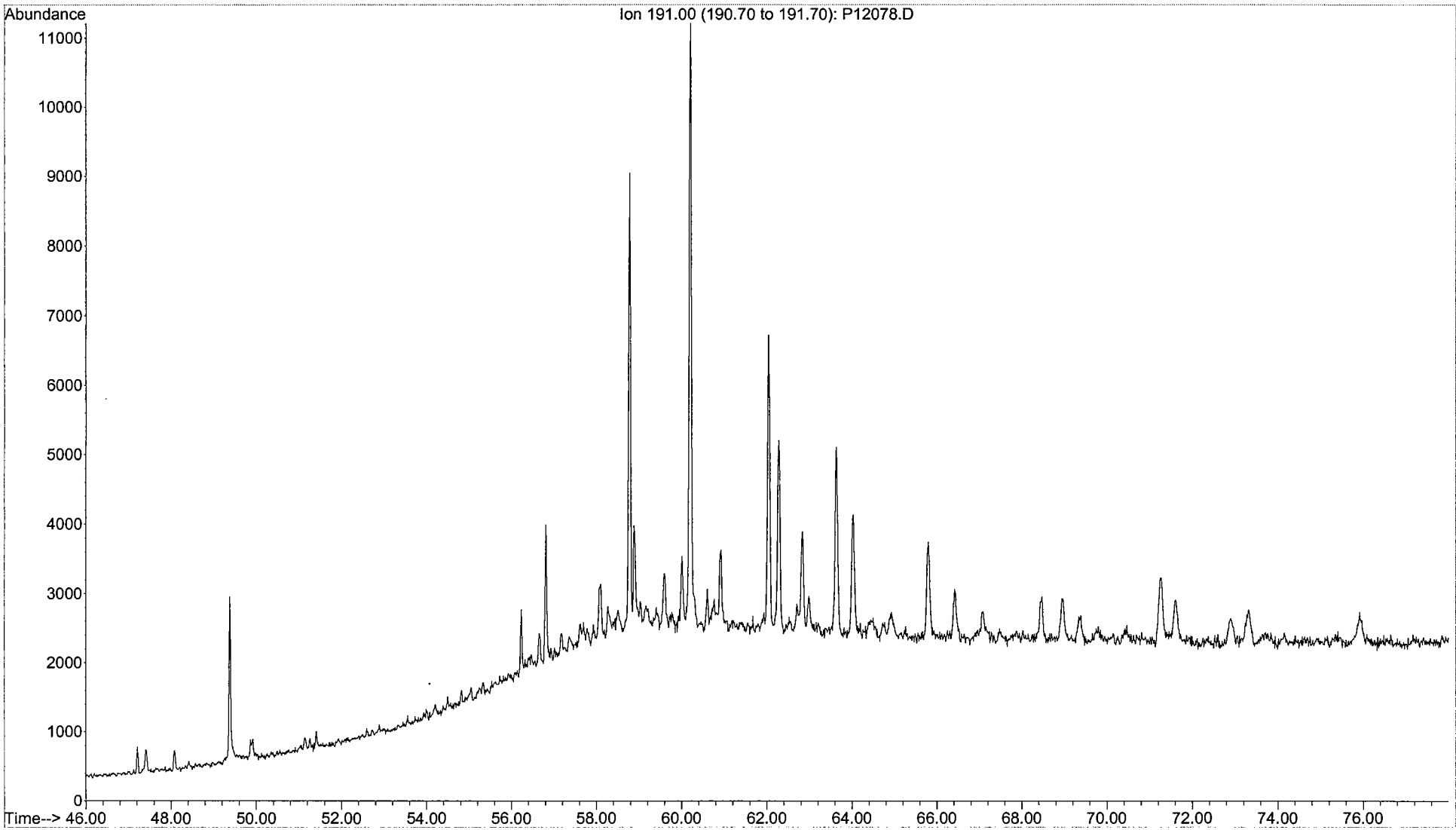
Operator : AC
Instrument : PAHINST1
Acquired : 4 Mar 2005 10:47 pm using AcqMethod PAH10216
Sample Name: 0502110-01
Misc Info : 1X

Triterpanes
OFF-SD-OFF2-0006-01
0502110-01



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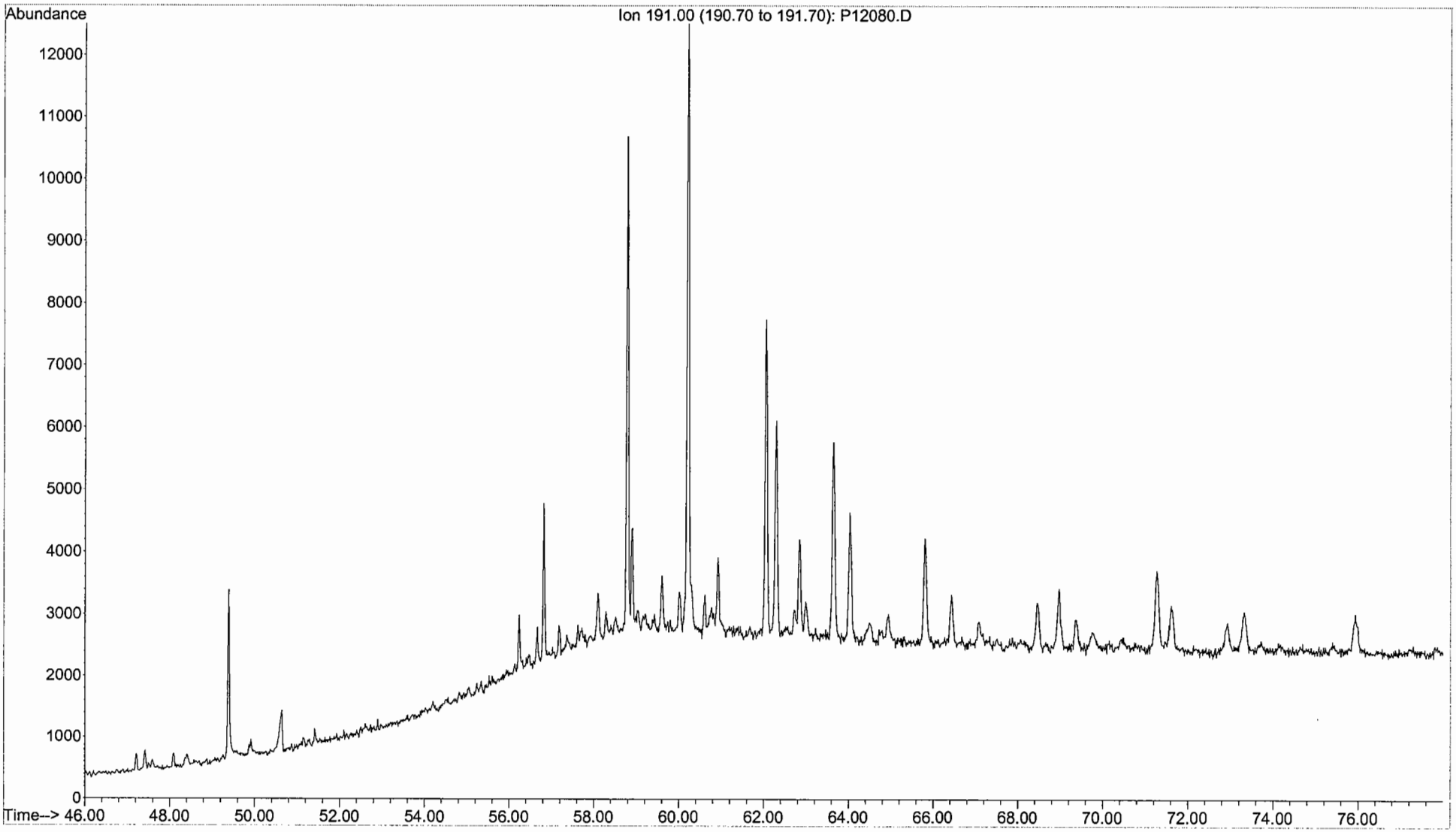
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 12:31 am using AcqMethod PAH10216
Sample Name: 0502110-01D
Misc Info : 1X

Triterpanes
OFF-SD-OFF2-0006-01 Duplicate
0502110-01D



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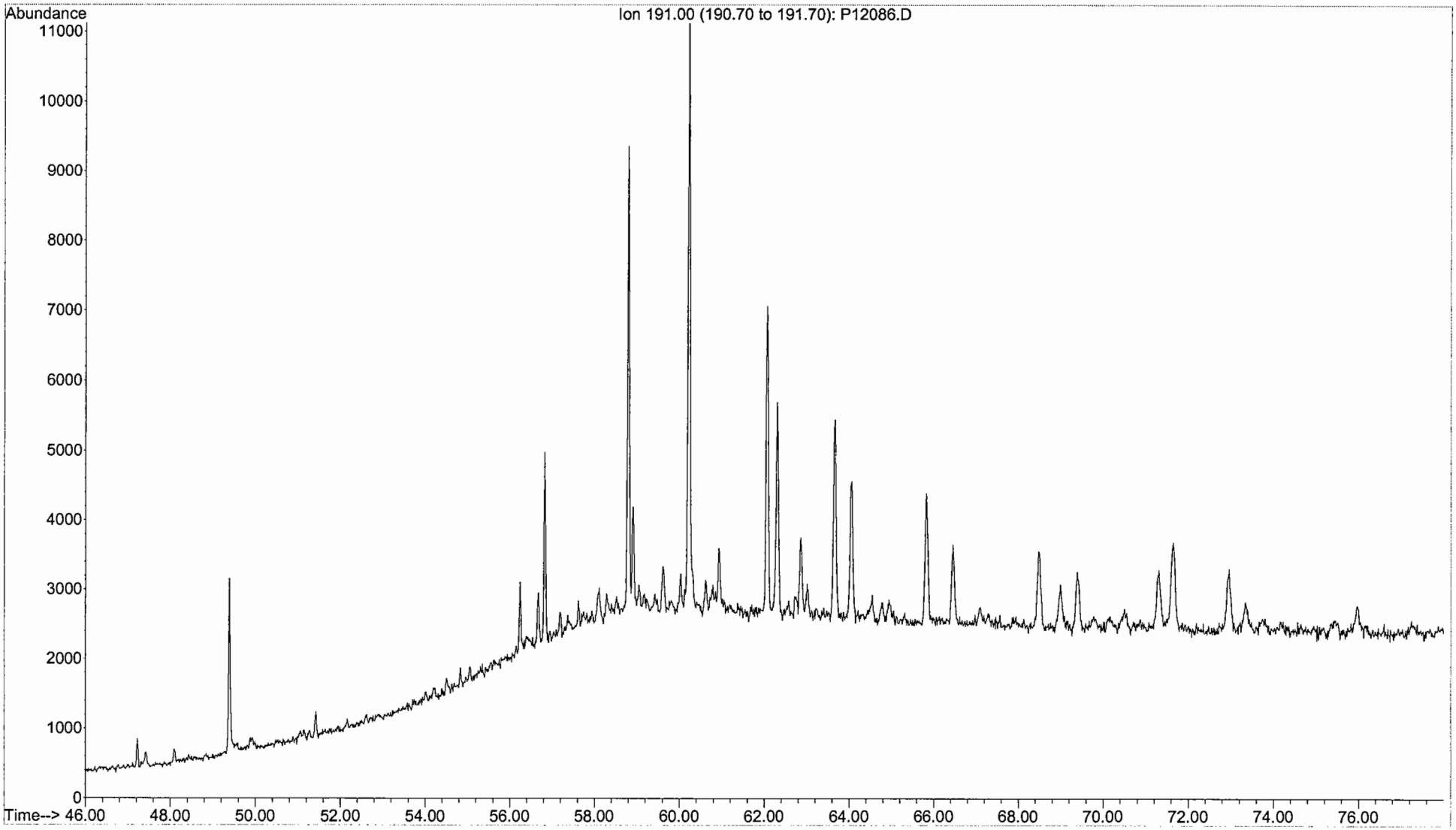
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 5:41 am using AcqMethod PAH10216
Sample Name: 0502110-03
Misc Info : 1X

Triterpanes
OFF-SD-OFF3-0006-01
0502110-03



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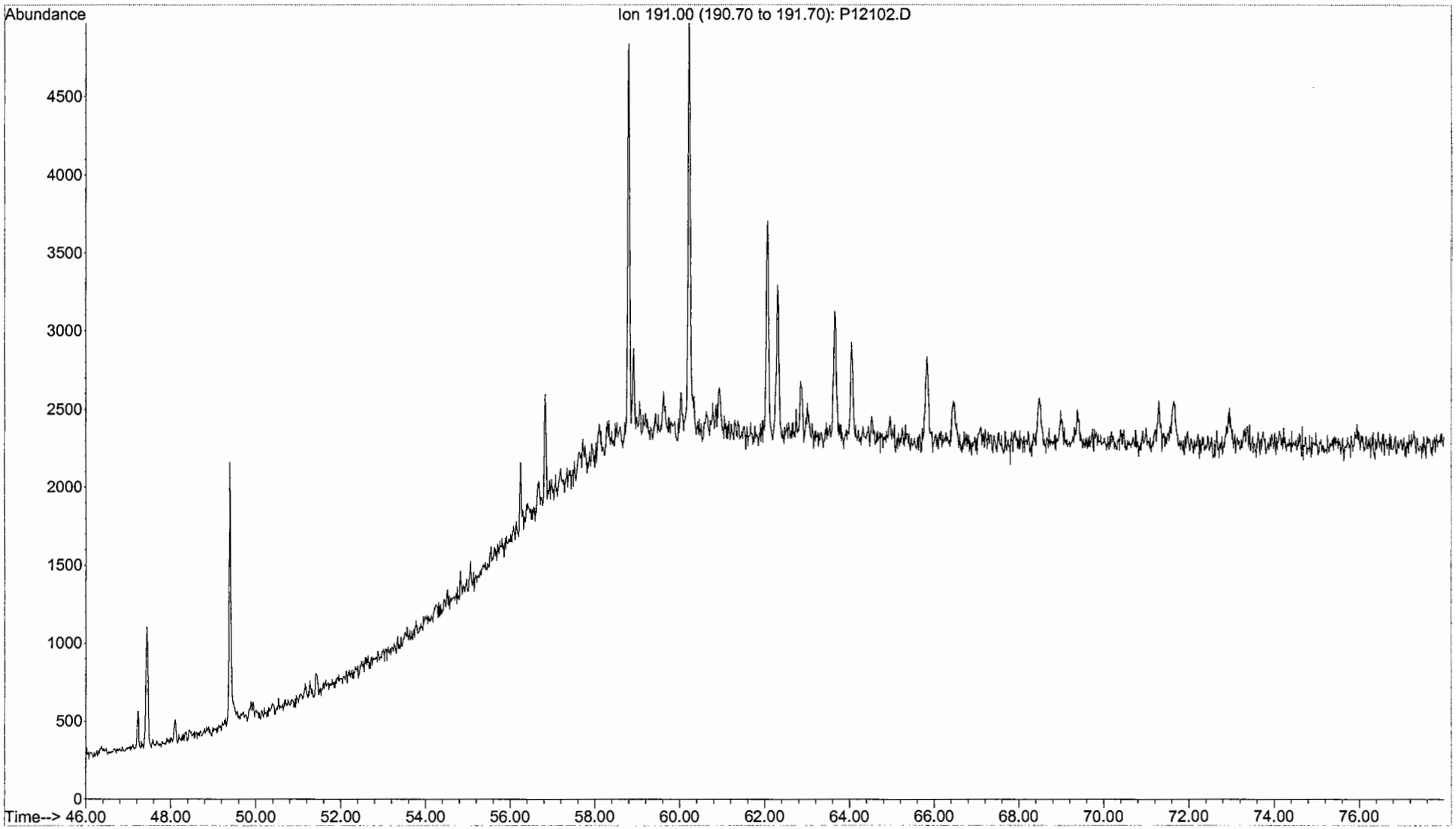
... AH\P12102.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 7:24 pm using AcqMethod PAH10216
Sample Name: 0502110-09
Misc Info : 1X

Triterpanes
OFF-SD-JPC03-0006-01
0502110-09



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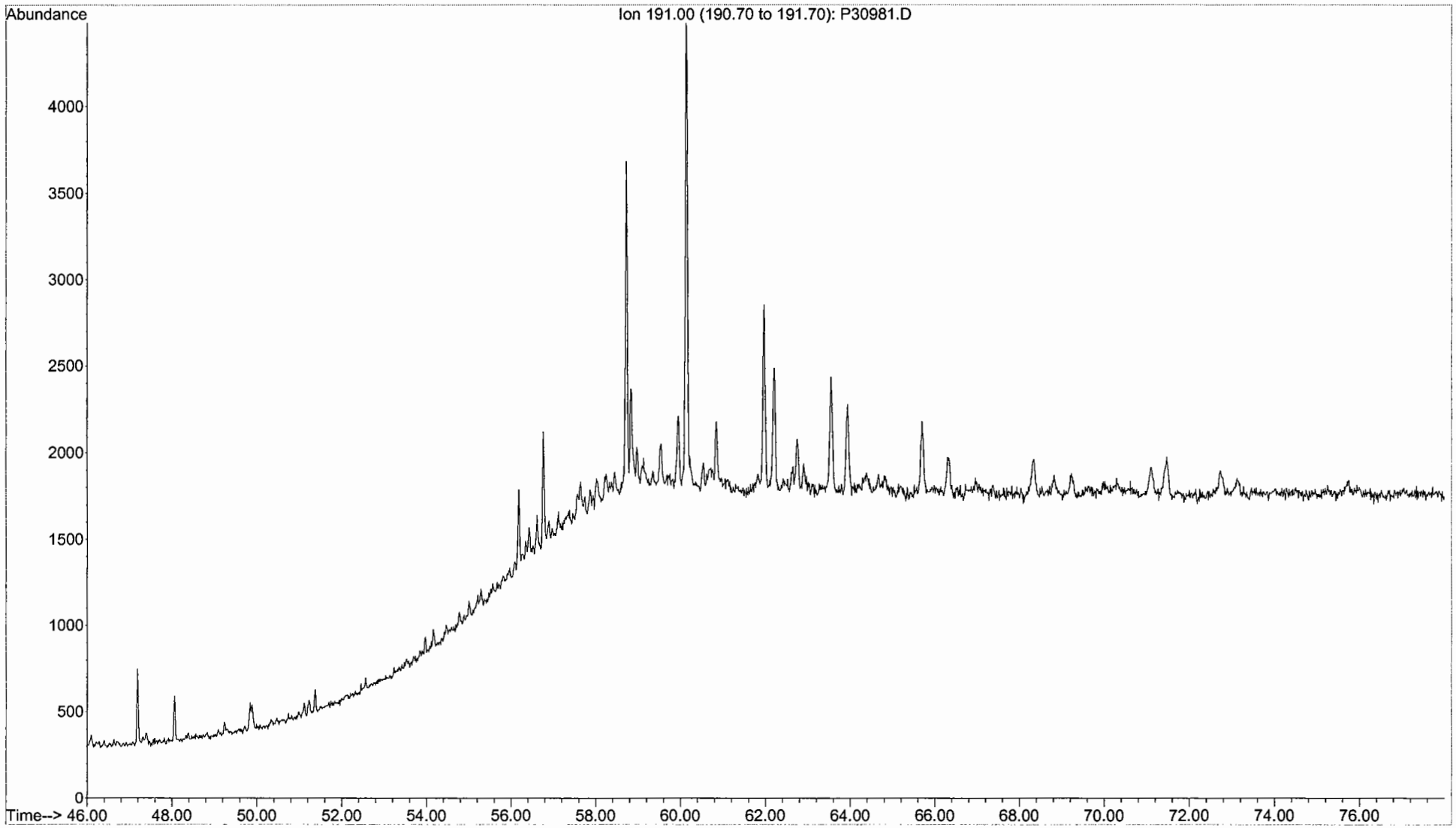
... AH\P30981.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 7:51 am using AcqMethod PAH30302
Sample Name: 0502110-15
Misc Info : 1X REALUMINA

Triterpanes
OFF-SD-DUP01-01
0502110-15



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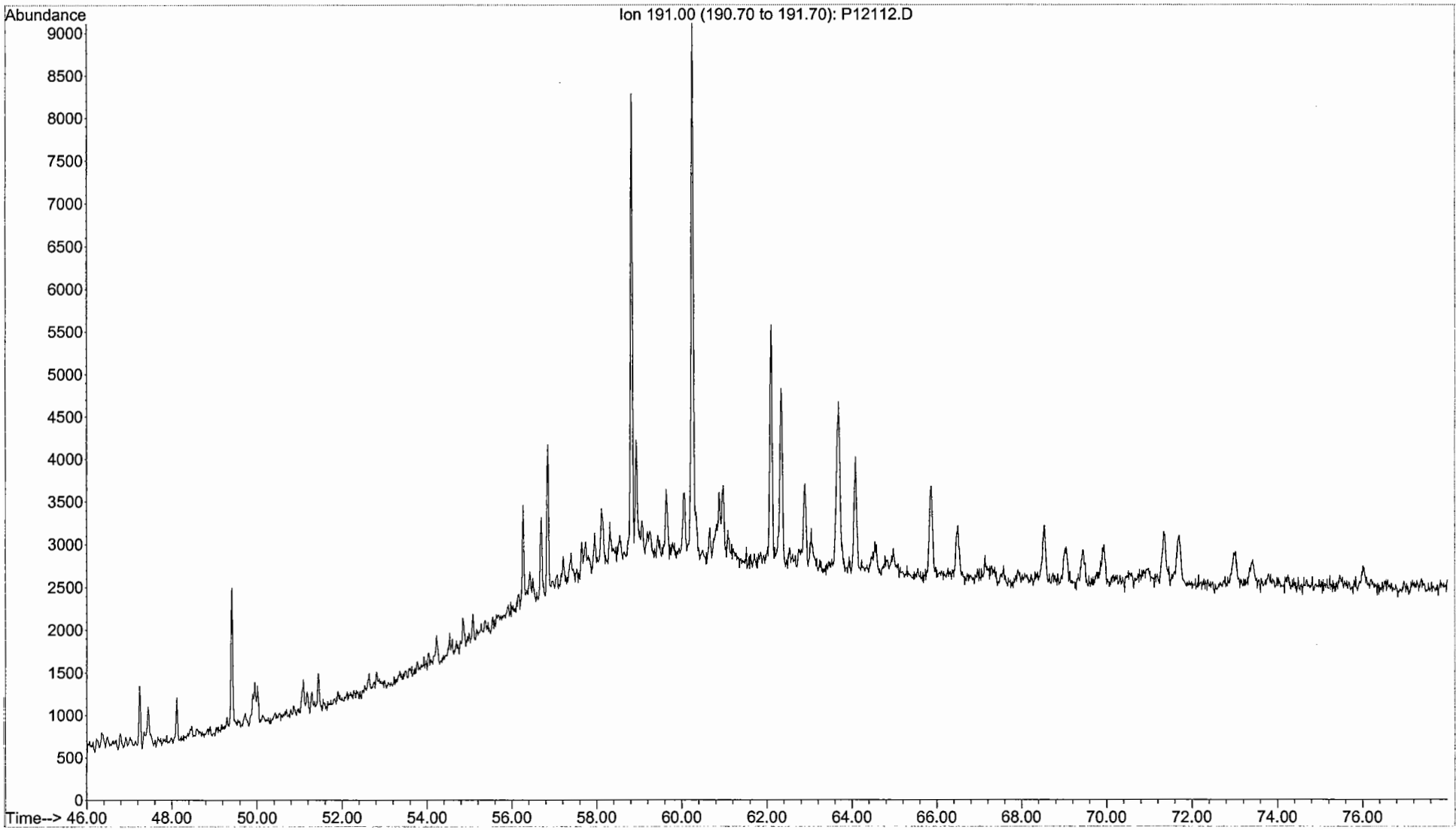
Operator : AC
Instrument : PAHINST1
Acquired : 6 Mar 2005 5:25 pm using AcqMethod PAH10216
Sample Name: 0502110-16
Misc Info : 1X

Triterpanes
OFF-SD-DUP02-01
0502110-16



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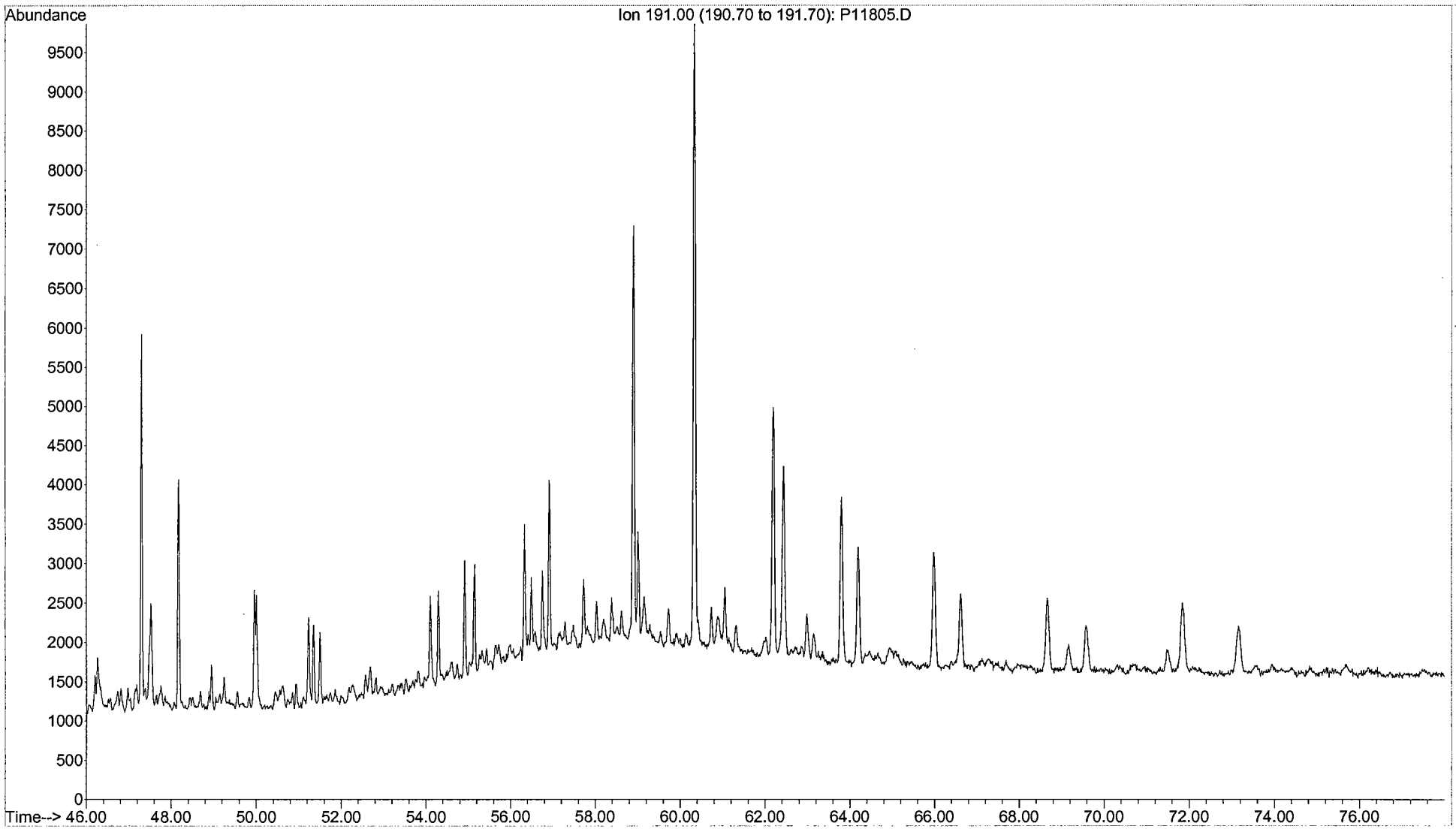
... AH\ICALS\P11805.D
Operator : AC
Instrument : PAHINST1
Acquired : 17 Feb 2005 11:07 am using AcqMethod PAH10216
Sample Name: SO021805AWS01
Misc Info : ANS1021601 AA37 5.002MG/ML

Triterpanes
North Slope Crude Reference Sample
SO021805AWS01



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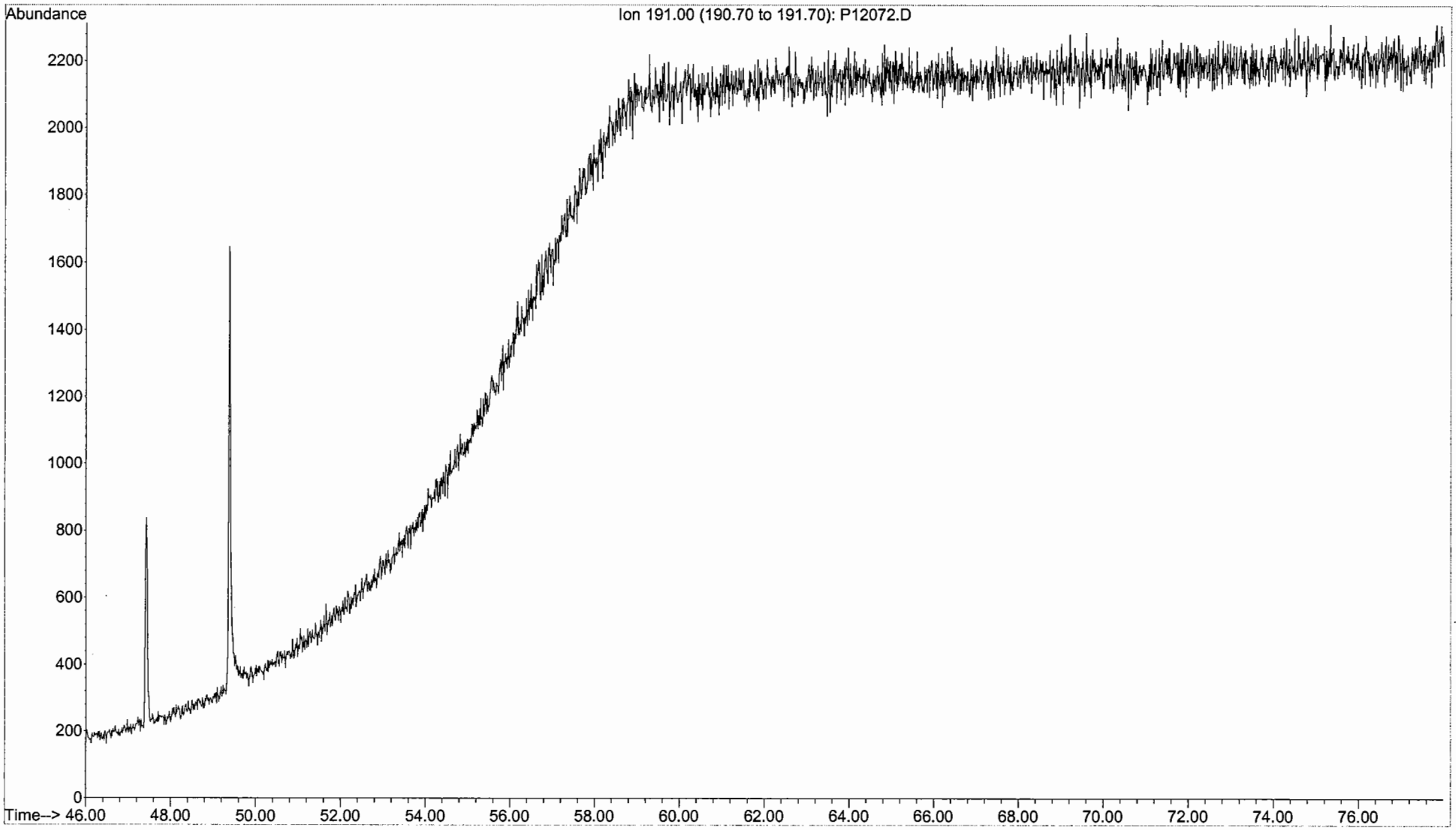
... AH\P12072.D
Operator : AC
Instrument : PAHINST1
Acquired : 4 Mar 2005 5:35 pm using AcqMethod PAH10216
Sample Name: SS030205B06
Misc Info : 1X ETR 0502110

Triterpanes
Procedural Blank
SS030205B06



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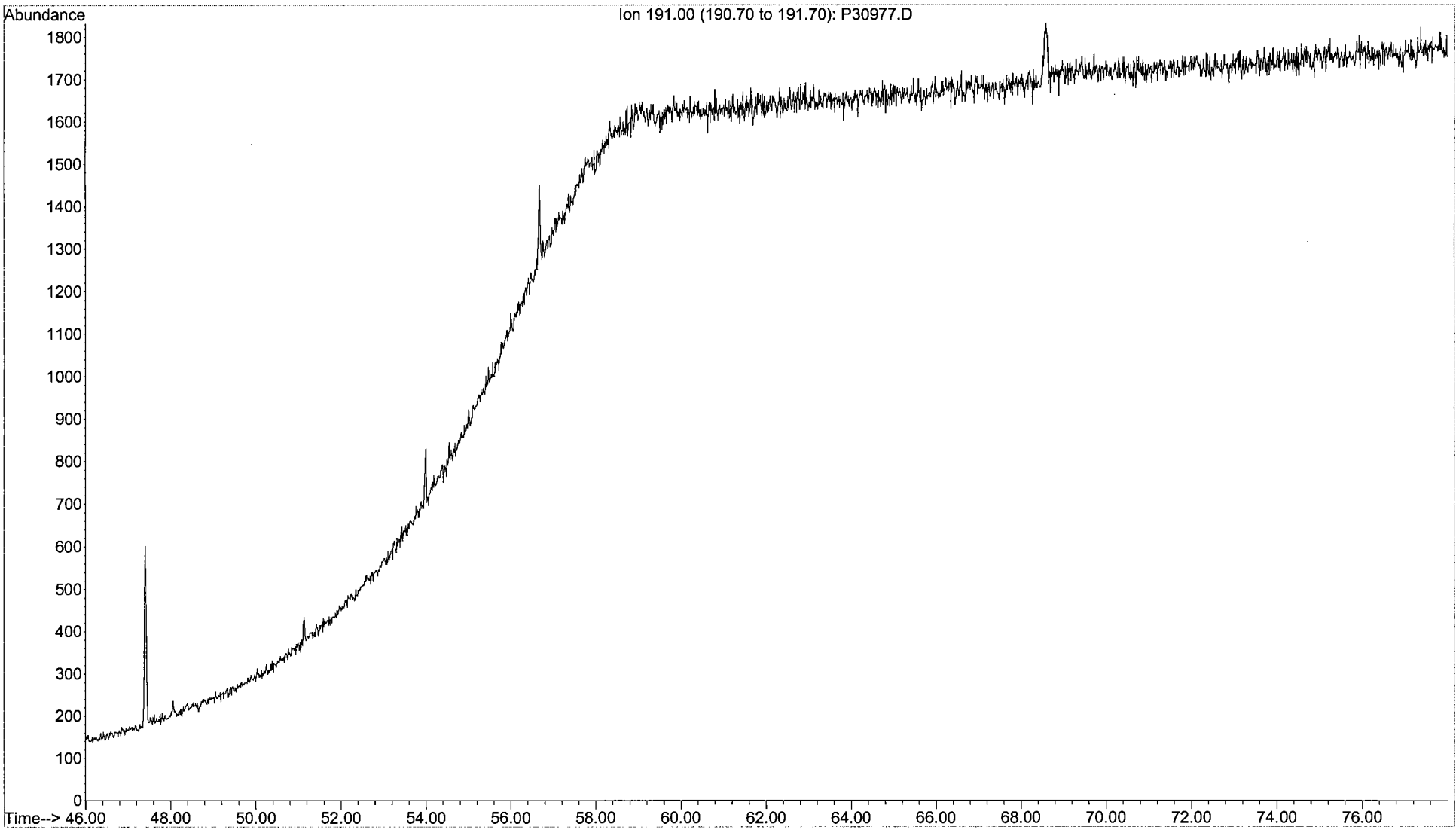
... AH\P30977.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 4:20 am using AcqMethod PAH30302
Sample Name: SS030205BS04
Misc Info : 1X REALUMINA

Triterpanes
Blank Spike
SS030205BS04



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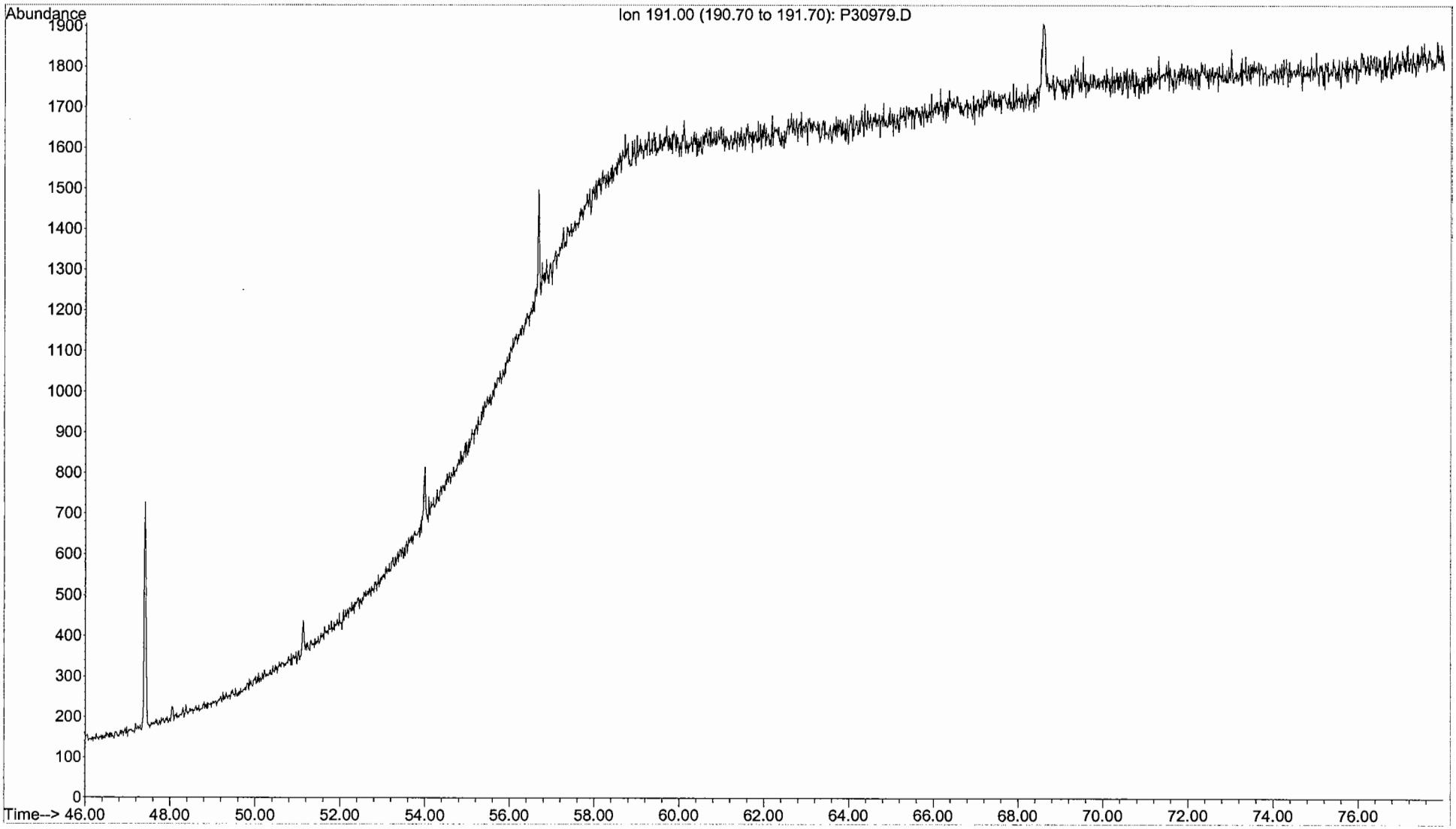
... AH\P30979.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 6:05 am using AcqMethod PAH30302
Sample Name: SS030205BSD03
Misc Info : 1X REALUMINA

Triterpanes
Blank Spike Duplicate
SS030205BSD03



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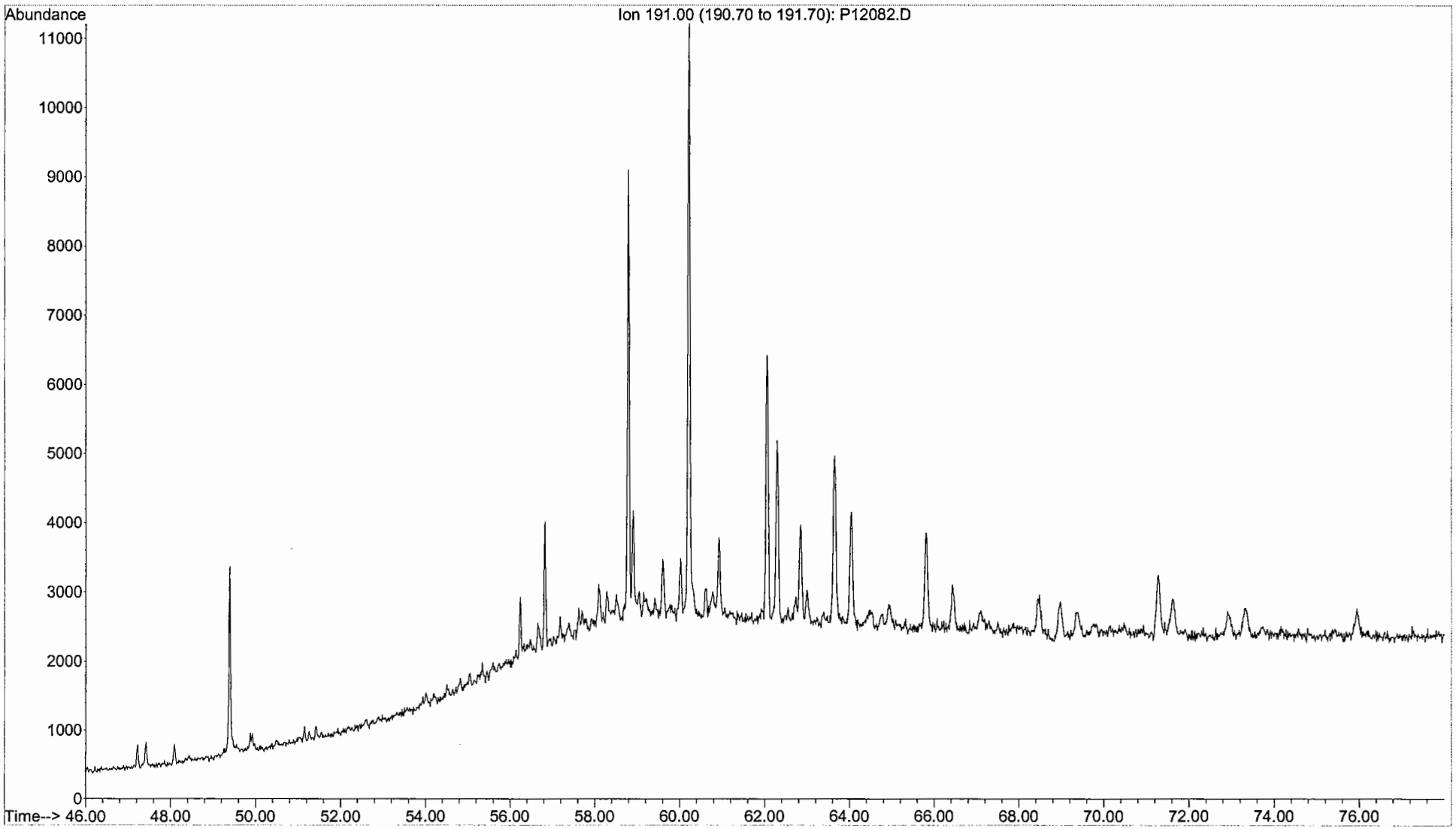
... AH\P12082.D
Operator : AC
Instrument : PAHINST1
Acquired : 5 Mar 2005 2:15 am using AcqMethod PAH10216
Sample Name: 0502110-01M
Misc Info : 1X

Triterpanes
OFF-SD-OFF2-0006-01 Matrix Spike
0502110-01M



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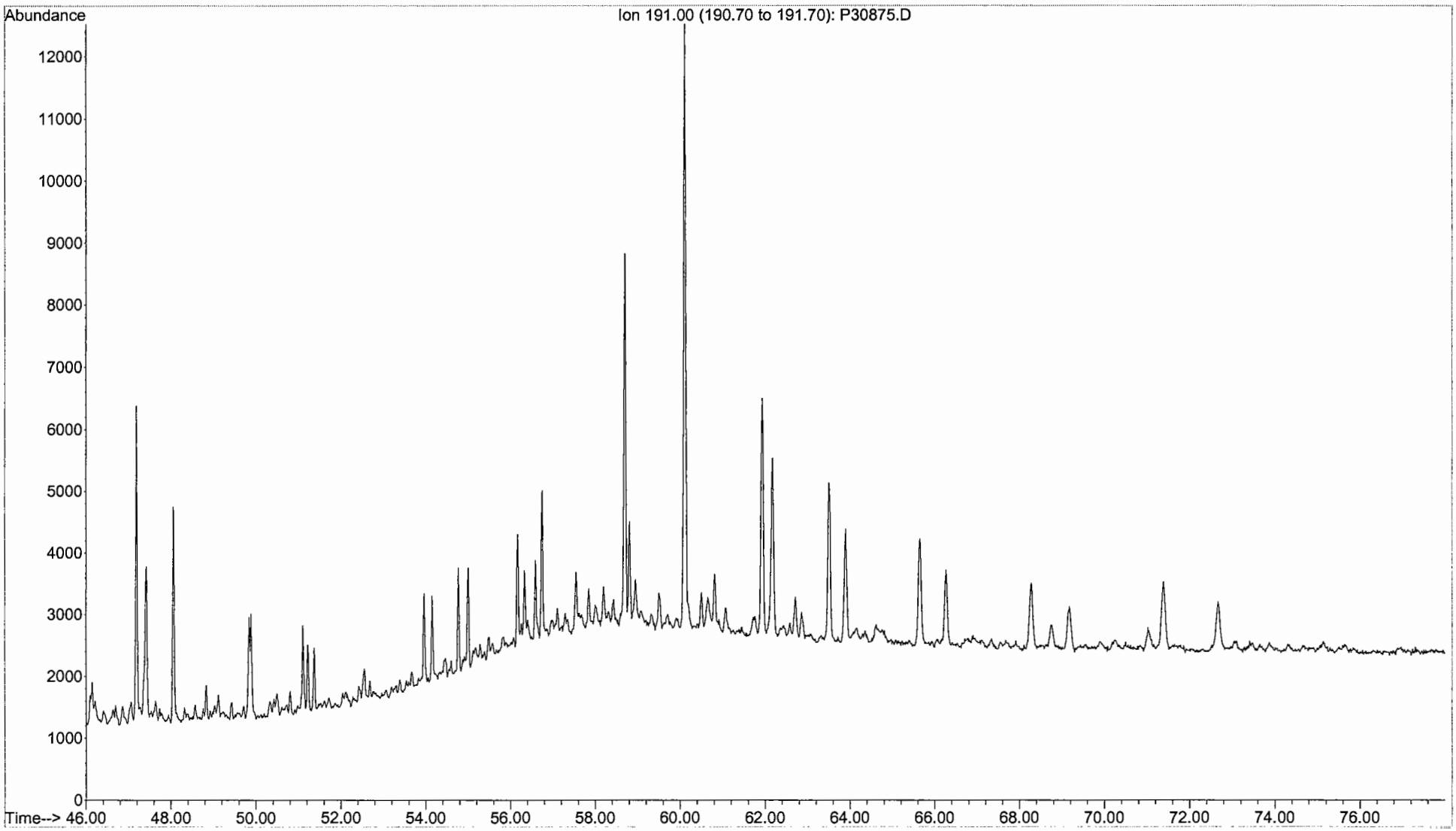
... AH\ICALS\P30875.D
Operator : AC
Instrument : PAH#3
Acquired : 4 Mar 2005 2:03 pm using AcqMethod PAH30216
Sample Name: SW031405AWS01
Misc Info : ANS3030401 WHGRPAA37 5.002MG/ML

Triterpanes
North Slope Crude Reference Sample
SW031405AWS01



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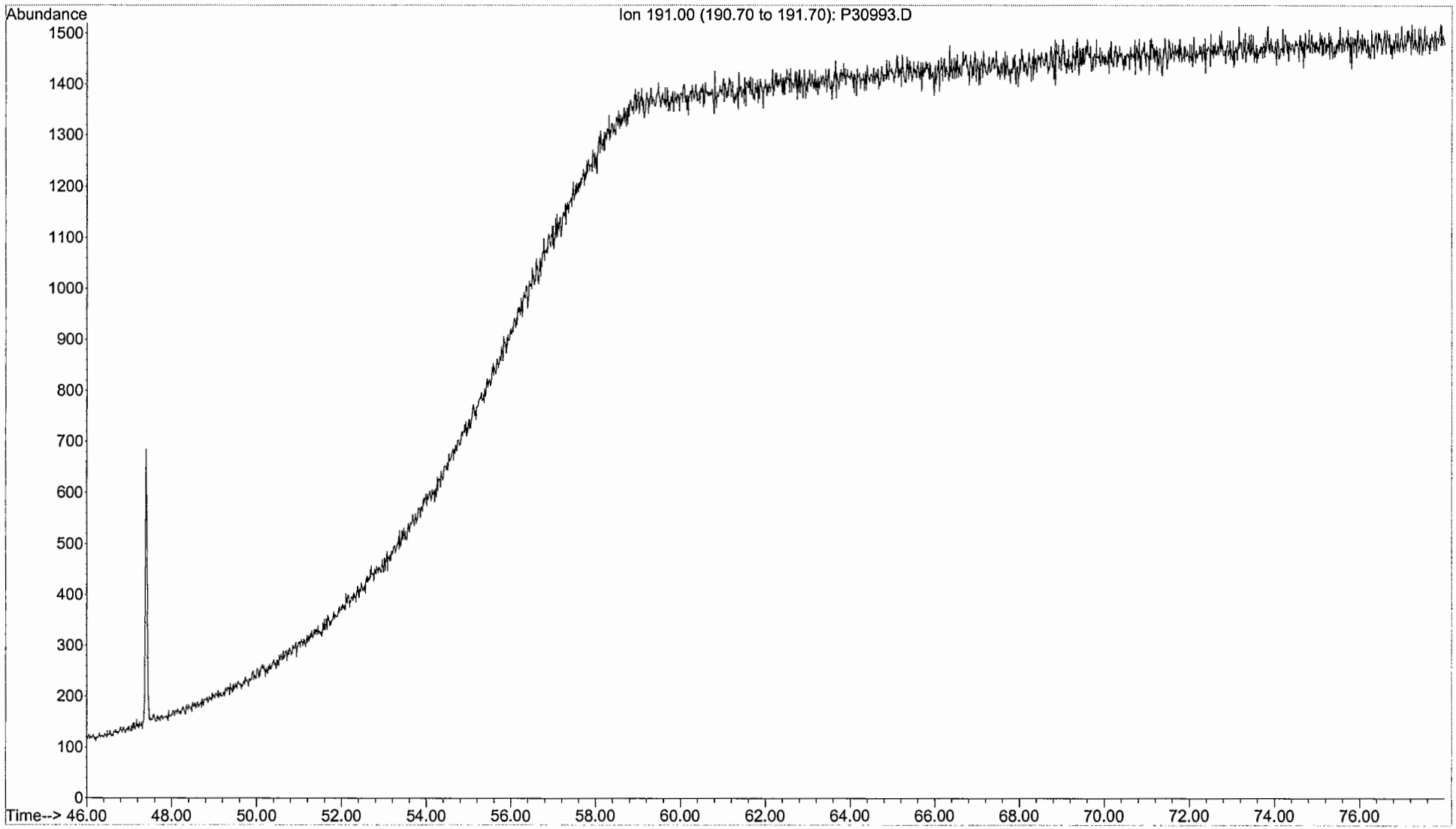
... AH\P30993.D
Operator : AC
Instrument : PAH#3
Acquired : 15 Mar 2005 6:31 pm using AcqMethod PAH30302
Sample Name: SS031405B02
Misc Info : 1X 0502110SOLID REALUM

Triterpanes
Procedural Blank
SS031405B02



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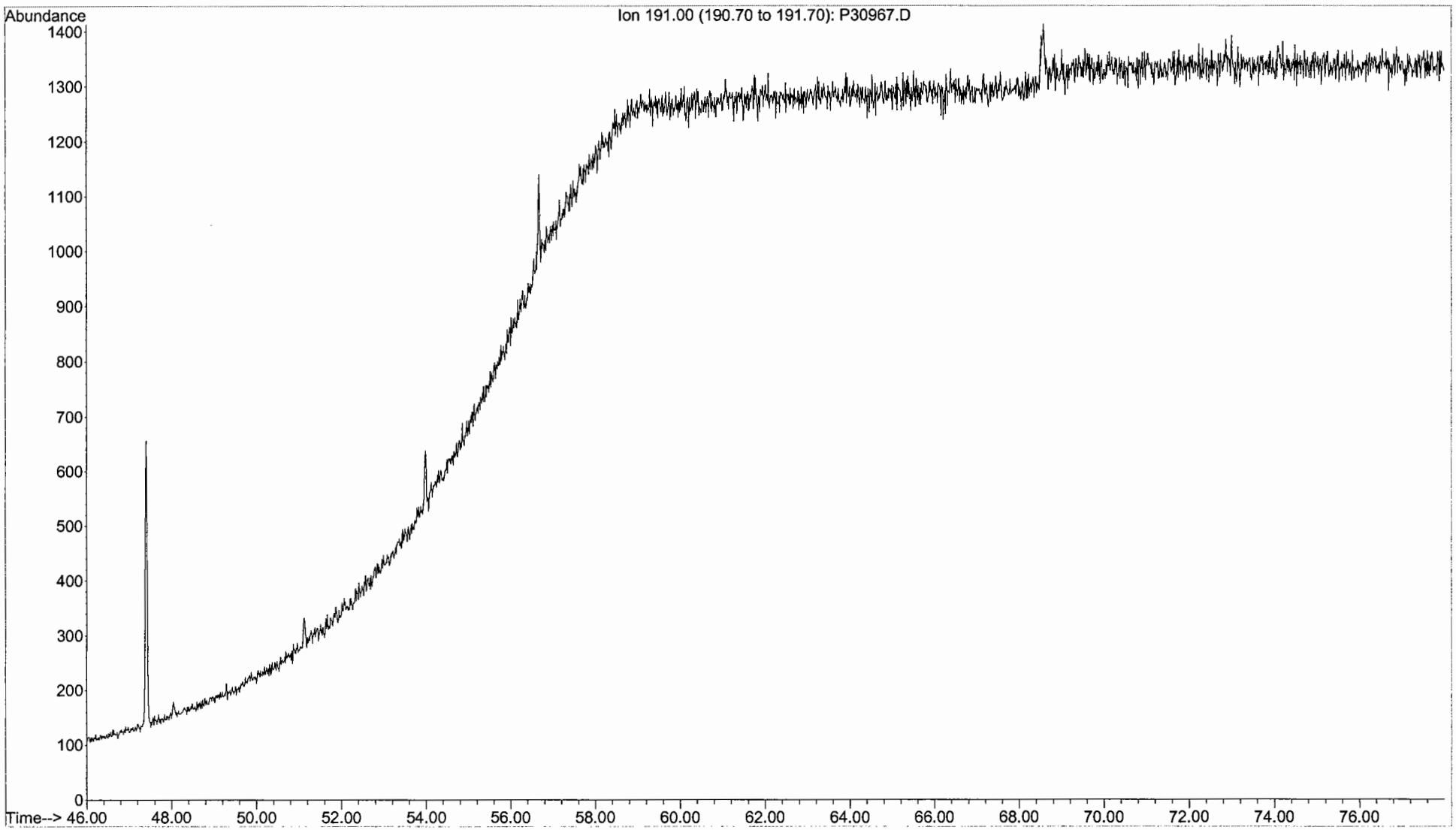
... AH\P30967.D
Operator : AC
Instrument : PAH#3
Acquired : 14 Mar 2005 7:35 pm using AcqMethod PAH30302
Sample Name: SS031405BS02
Misc Info : 1X ETR0502110

Triterpanes
Blank Spike
SS031405BS02



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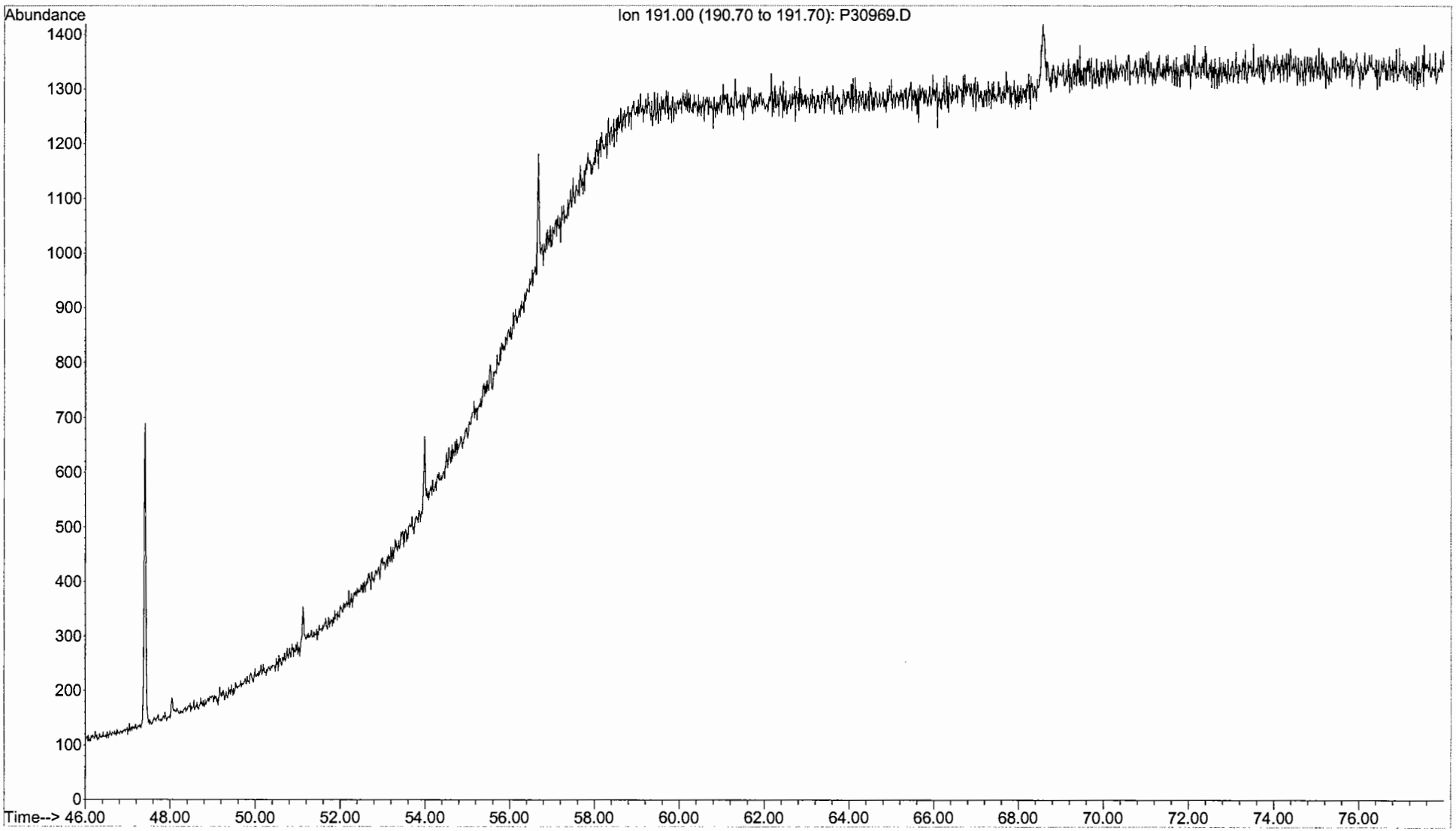
Acquired : 14 Mar 2005 9:22 pm using AcqMethod PAH30302
Sample Name: SS031405BSD02
Misc Info : 1X ETR0502110

Triterpanes
Blank Spike Duplicate
SS031405BSD02



Attachment F
Laboratory Report

Data Delivery Group: ETR0502110

Solids

TEH
PAHs
SHCs
Biomarkers

Woods Hole Group

ANALYTICAL REPORT

Prepared for:
NewFields Environmental Forensics Practice
100 Ledgewood Place, Suite 302
Rockland, MA 02370

Project: Coasters Harbor
ETR: 0502110
Report Date: April 13, 2005

Certifications and Accreditations
Massachusetts MA030
Connecticut PH-0141
New Hampshire 220602
Rhode Island 64
New Jersey MA015
Maine MA030
New York 11627
Louisiana 03090
Army Corps of Engineers
Department of the Navy
Florida E87814

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ACCREDITED IN ACCORDANCE WITH nelac

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Sample ID Cross Reference

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**

Lab Sample ID	Client Sample ID
0502110-01	OFF-SD-OFF2-0006-01
0502110-02	OFF-SD-411-0006-01
0502110-03	OFF-SD-OFF3-0006-01
0502110-04	OFF-SD-414-0006-01
0502110-05	OFF-SD-SD5-0006-01
0502110-06	OFF-SD-442-0006-01
0502110-07	OFF-SD-OFF6-0006-01
0502110-08	OFF-SD-OFF7-0006-01
0502110-09	OFF-SD-JPC03-0006-01
0502110-10	OFF-SD-OTSOF075-0006-01
0502110-11	OFF-SD-OTSOF075A-0006-01
0502110-12	OFF-SD-OTSOF093-0006-01
0502110-13	OFF-SD-414-DEBRIS1
0502110-14	OFF-SD-414-DEBRIS2
0502110-15	OFF-SD-DUP01-01
0502110-16	OFF-SD-DUP02-01

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Certificate Program Summary

Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Woods Hole Group Environmental Laboratories Project Manager or the Quality Assurance Manager.

Connecticut Department of Public Health Certificate No.: PH-0141 - *Wastewater* (General Chemistry: 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2, 405.1, 413.1, COD HACH 8000; Metals: 200.7, 245.1; Organics: 608, 624, 625). *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9056, 9060; Metals: 6010, 6020, 7041, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

Florida Department of Health Certificate No.: E87814 - Secondary NELAP Accreditation for *Wastewater* (General Chemistry: 120.1/2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, SM2320B, 335.2, 365.2, 413.1, 420.1, SM2540G, COD HACH 8000; Metals: 200.7, 204.2, 206.2, 239.2, 245.1, 270.2, 279.2; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9060, 9065; Metals: 6010, 6020, 7041, 7060, 7421, 7470, 7471, 7740, 7841; Organics: 8081, 8082, 8260, 8270).

Louisiana Department of Environmental Quality Certificate No.: 03090 - Primary NELAP Accrediting Authority for *Wastewater* (General Chemistry: 120.1/2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 405.1, 413.1, 420.1, SM2540G, COD HACH 8000; Metals: 200.7, 204.2, 206.2, 239.2, 245.1, 270.2, 279.2; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry:1010, 1311, 9010/9014, 9045, 9056, 9060; Metals: 6010, 6020, 7041, 7060, 7191, 7421, 7470, 7471, 7740, 7841; Organics: 8081, 8082, 8260, 8270).

Maine Department of Human Services Certificate No.: MA030 - *Wastewater* (General Chemistry: 120.1/2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 405.1, 413.1, 420.1, COD HACH 8000; Metals: 200.7, 239.2, 245.1, 270.2, 279.2; Organics: 608, 624).

Massachusetts Department of Environmental Protection Certificate No.: M-MA030 - *Wastewater* (General Chemistry: 120.1/2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 405.1, 413.1, 420.1, COD HACH 8000; Metals: 200.7, 239.2, 245.1, 270.2, 279.2; Organics: 608, 624).

New Hampshire Department of Environmental Services Certificate No.: 220604 - Secondary NELAP Accreditation for *Wastewater* (General Chemistry: 120.1/2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 405.1, 413.1, 420.1, COD HACH 8000, SM2540G; Metals: 200.7, 204.2, 206.2, 239.2, 245.1, 270.2, 279.2; Organics: 608, 624, 625).

New Jersey Department of Environmental Protection Certificate No.: MA015 - *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 3060, 7196, 9010/9014, 9045, 9056, 9060; Metals: 3010, 3015, 3020, 3050, 3051, 6010, 6020, 7041, 7060, 7131, 7191, 7211, 7421, 7470, 7471, 7520, 7740, 7761, 7841; Organics: 3510, 3545, 5030, 5035, 3620, 3630, 3640, 3660, 8081, 8082, 8100, 8260, 8270).

New York Department of Health Certificate No.: 11627 - Secondary NELAP Accreditation for *Wastewater* (Metals: 200.7, 204.2, 206.2, 239.2, 245.1, 270.2, 279.2; Organics: 608, 624, 625). *Solid and Hazardous Waste* (Metals: 6010, 7041, 7060, 7470, 7471, 7740; Organics: 8081, 8082, 8260, 8270).

Rhode Island Department of Health Certificate No.: 00064 - Chemistry: *Organic and Inorganic in Surface Water, Wastewater/Sewage and Soil* (Method numbers not specified with certificate.)

U.S. Army Corps of Engineers - General Chemistry: 9010/9014, 9071/418.1, 9060; Organics: 8081, 8082, 8260, 8270, 8270-SIM; Metals: 6010, 6020, 7000.

Department of the Navy - General Chemistry: 9010/9014, 9060; Organics: 8081, 8082, 8015-mod, 8260, 8270, 8270-SIM; Metals: 6010, 6020.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

CASE NARRATIVE

Woods Hole Group Environmental Laboratories

ETR: 0502110
Project: Coasters Harbor

All analyses were performed according to Woods Hole Group Environmental Laboratories' quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report meet all applicable agency and/or NELAC standards, were performed within holding time, and with appropriate quality control measures, except where noted. Blank correction of results is not performed in the laboratory for any parameter. Soil/sediment samples are reported on a dry weight basis unless otherwise noted. Tissue and sediment samples are not certifiable under the NELAC accreditation.

Alkylated Polynuclear Aromatic Hydrocarbons

Polynuclear aromatic hydrocarbons were analyzed following Woods Hole Group SOP *Analysis of Parent and Alkylated Polynuclear Aromatic Hydrocarbons and Selected Heterocyclic Compounds by Gas Chromatography/Mass Spectrometry with Selected Ion Monitoring (Revision 2.0, 06/28/02)*. Sediment samples (approximately 30g) and solid samples (approximately 10g) are spiked with surrogate compounds and extracted by *Shaker Table Extraction (Revision 0.0, 02/20/02)*. Solvent extracts are dried over sodium sulfate and concentrated to an appropriate final volume based on oil content as determined by gravimetric weighing. A pre-determined volume of the extract was alumina cleaned (*Alumina Column Cleanup of Organic Extracts, Revision 0.0, 02/21/1999*) and again concentrated to a final effective volume determined by gravimetric weight. Qualitative identifications are confirmed by analyzing standards under the same conditions used for samples, comparing mass spectra, GC retention times, and patterns generated from reference oils. Quantification is based on response factors derived from a multi-level initial calibration using internal standard techniques. Alkyl homologues are quantified using the response factor of the parent PAH compound.

1. The sediment method blank SS030205B06 contained low-level target compounds detected below the reporting limit. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 5X the concentration in the blank.

2. The solid method blank SS031405B02 contained low-level target compounds detected below the reporting limit. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 5X the concentration in the blank.

3. A possible interference peak is noted in the pattern for C3-Fluorenes at approximately 41.33 retention time minutes in all sediment samples. This peak is included in the integration for this target analyte.

4. The matrix spike on sample OFF-SD-OFF2-0006-01 (0502110-01) recovered the compounds Phenanthrene, Benzo(b)fluoranthene, Benzo(a)opyrene, and Benzo(g,h,i)perylene below the 50% QC limit at 33%, 44%, 46%, and 21% respectively. The integrations for these analytes in the native sample and the matrix spike were reviewed and found to be appropriate.

5. Samples OFF-SD-442-0006-01 (0502110-06), OFF-SD-OTSOF075-0006-01 (0502110-10), OFF-SD-414-DEBRIS2 (0502110-14), and OFF-SD-DUP02-01 (0502110-16) required dilutions due to over-calibration concentration of target compounds. The diluted analyses are only quantified for the compounds that were out of range in the un-diluted analyses.

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6. The duplicate analysis of sample OFF-SD-414-DEBRIS1 (0502110-13 and -13D) has the relative percent difference of four compounds above the 30% QC limit. The integrations for these analytes in the native sample and the duplicate were reviewed and found to be appropriate.

7. Sample OFF-SD-414-DEBRIS2 (0502110-14) recovered the surrogates Pyrene-10 and Benzo(b)Fluoranthene-d12 below the 50% QC limit at 40% and 38% respectively in the un-diluted analysis due to matrix interference from high target material. The diluted analysis exhibited acceptable recoveries for these two surrogates however, the surrogate 2-Methylnaphthalene-d10 was diluted out.

8. The solid matrix laboratory control sample (SS031405BS02) exhibited a recovery for Naphthalene at 47%, just below the 50% lower QC limit. The integration was reviewed and found to be appropriate.

9. The continuing calibration verification analyzed on 03/14/05 (C3031401) had Indeno(1,2,3-cd)pyrene and Benzo(g,h,i)perylene above the 25%D QC limit, at 27.4%D and 25.1%D respectively. These analytes were less 35%D, and represents less than 10% of the total analytes, thus analysis proceeded.

10. The continuing calibration verification analyzed on 03/18/05 (C3031801) had Indeno(1,2,3-cd)pyrene above the 25%D QC limit, at 26.9%D. This analyte was less 35%D, and represents less than 10% of the total analytes, thus analysis proceeded.

11. The North Slope Crude reference oil (SO021805AWS01) analyzed after the initial calibration on 02/16/05 had the compound Hopane (T19) outside the 65-135% limit at 141%. Please see the enclosed Form III Spike Recovery Summary for details. Note that these reference values were generated from a different laboratory.

12. The North Slope Crude reference oil (SW031405AWS01) analyzed after the initial calibration on 03/02/05 had the compound C4-Chrysenes outside the 65-135% limit at 150%. Please see the enclosed Form III Spike Recovery Summary for details. Note that these reference values were generated from a different laboratory.

Total Saturated Hydrocarbons and Total Petroleum Hydrocarbons by GC/FID

Samples for Total Petroleum Hydrocarbons were analyzed following the procedures in Woods Hole Group SOP *Total Petroleum Hydrocarbons by Gas Chromatography/Flame Ionization Detector (Revision 1.1)* Method 8100/8015mod and SOP *Addendum for Saturated Hydrocarbons, Rev. 1.0, 2004.* Samples were prepared as stated above for the PAH analysis. A portion of the final extract was aliquoted for GC/FID analysis. Extracts are analyzed by gas chromatography with flame ionization detection (FID). A multi-level initial calibration over the n-alkane range from C9-C40 was evaluated and quantified using internal standard techniques prior to sample analysis.

1. The sediment method blank SS030205B06 contained low-level range material detected above the reporting limit. Associated field sample results are flagged with "B" qualifiers if the concentration of the analyte in the sample is less than 5X the concentration in the blank.

2. The duplicate analysis of sample OFF-SD-OFF2-0006-01 (0502110-01 and -01D) has the relative percent difference above the 30% QC limit at 50%RPD. The integrations for this analyte in the native sample and the duplicate were reviewed and found to be appropriate.

3. The sediment matrix laboratory control sample (SS030205BS06) exhibited a recovery for n-Nonane (C9) at 49%, just below the 50% lower QC limit. The integration was reviewed and found to be appropriate.

The enclosed results of analyses are representative of the samples as received by the laboratory. Woods Hole Group Environmental Laboratories makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Woods Hole Group Environmental Laboratories. To the best of my knowledge, the information contained in this report is accurate and complete.

Approved by: Elizabeth Porta Title: QA manager Date: 4/13/05

Elizabeth Porta **Quality Assurance Manager**

Alkylated Polynuclear Aromatic Hydrocarbons By Selective Ion Monitoring

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/04/05	87.5	30.06	5	1	AC

Parameter	Result		Parameter	Result
Naphthalene	8.0		Fluoranthene	510
C1-Naphthalenes	4.6		Pyrene	460
C2-Naphthalenes	17		C1-Fluoranthenes/Pyrenes	180
C3-Naphthalenes	24		C2-Fluoranthenes/Pyrenes	150
C4-Naphthalenes	15		C3-Fluoranthenes/Pyrenes	74
Biphenyl	1.2	J	C4-Fluoranthenes/Pyrenes	48
Dibenzofuran	8.8		Naphthobenzothiophenes	42
Acenaphthylene	65		C1-Naphthobenzothiophenes	34
Acenaphthene	8.1		C2-Naphthobenzothiophenes	36
Fluorene	13		C3-Naphthobenzothiophenes	51
C1-Fluorenes	11		C4-Naphthobenzothiophenes	67
C2-Fluorenes	18		Benz[a]anthracene	230
C3-Fluorenes	28		Chrysene/Triphenylene	220
Anthracene	100		C1-Chrysenes	110
Phenanthrene	260		C2-Chrysenes	56
C1-Phenanthrenes/Anthracenes	150		C3-Chrysenes	71
C2-Phenanthrenes/Anthracenes	94		C4-Chrysenes	54
C3-Phenanthrenes/Anthracenes	52		Benzo[b]fluoranthene	180
C4-Phenanthrenes/Anthracenes	17		Benzo[k]fluoranthene	200
Retene	1.3	J	Benzo[a]fluoranthene	51
Dibenzothiophene	16		Benzo[e]pyrene	150
C1-Dibenzothiophenes	17		Benzo[a]pyrene	210
C2-Dibenzothiophenes	24		Perylene	65
C3-Dibenzothiophenes	22		Indeno[1,2,3-cd]pyrene	170
C4-Dibenzothiophenes	15		Dibenz[a,h]anthracene	32
Benzo(b)fluorene	0.19	U	Benzo[g,h,i]perylene	150

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	75	50-130
Pyrene-d10	95	50-130
Benzo[b]fluoranthene-d12	89	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

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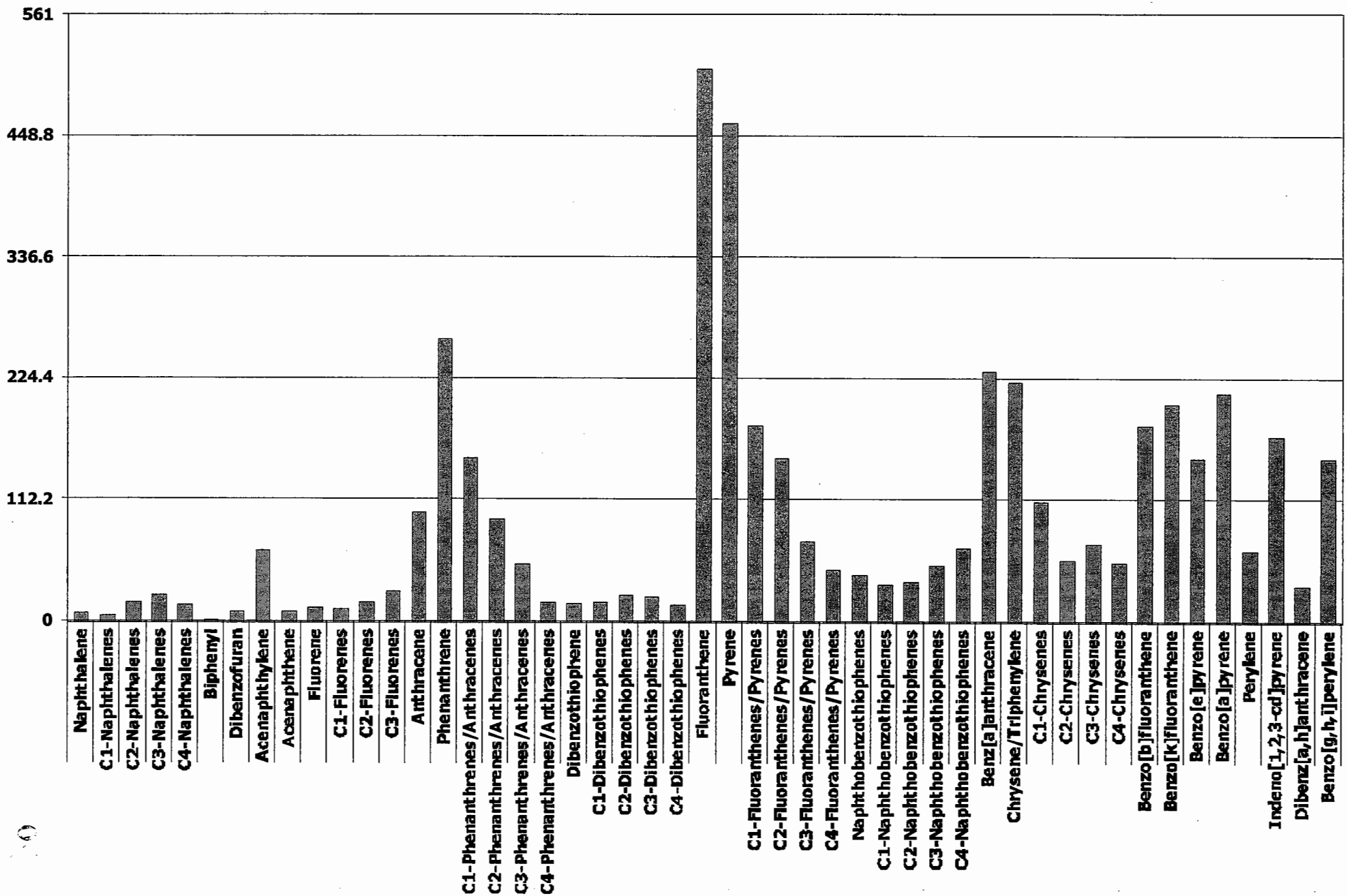
Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OFF2-0006-01** Lab ID: **0502110-01**

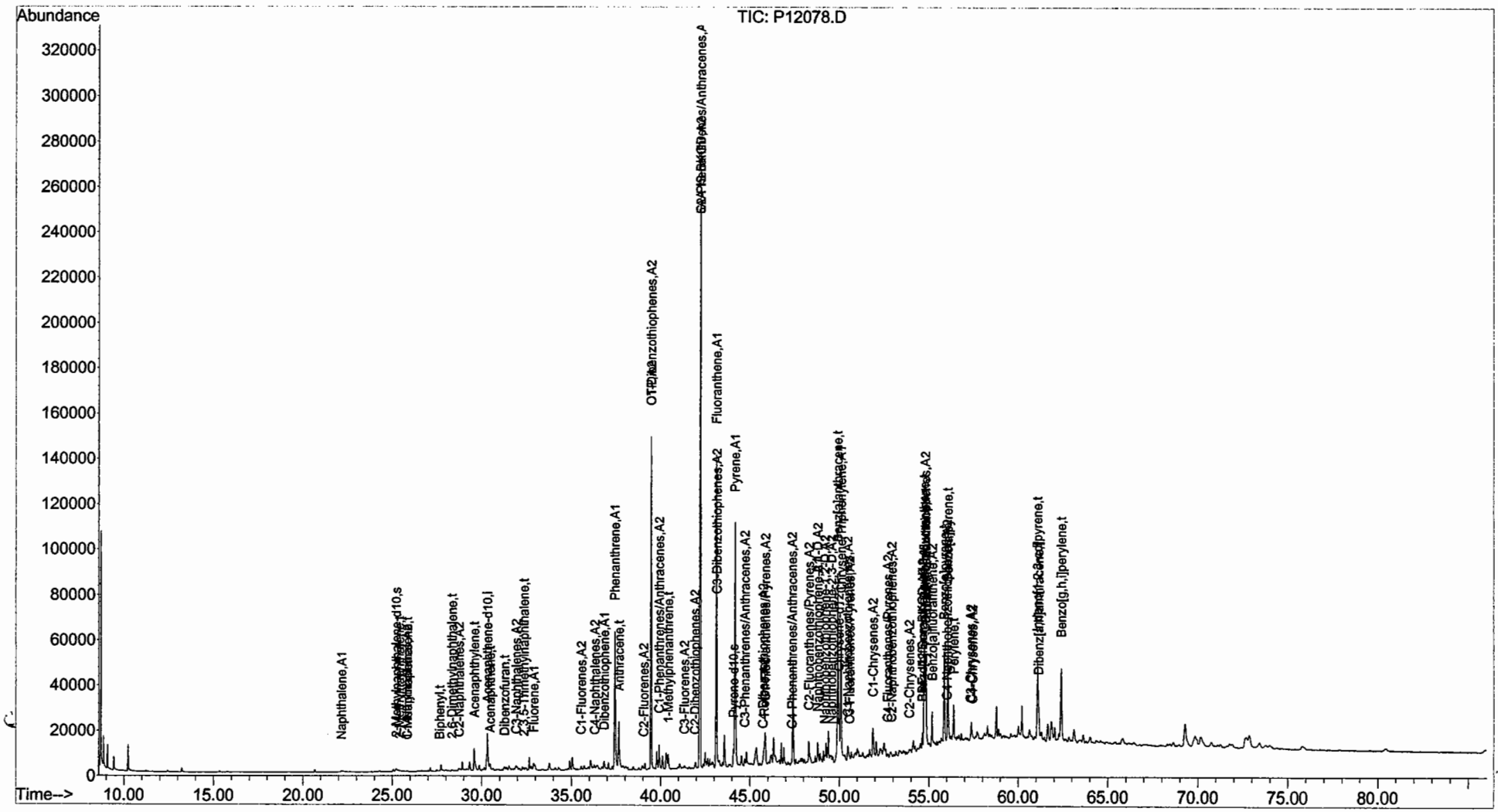
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12078.D
Acq On : 4 Mar 2005 10:47 pm
Operator : AC
Sample : 0502110-01
Misc : 1X
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 10 11:48:11 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01 D**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/05/05	87.5	30.61	5	1	AC

Parameter	Result		Parameter	Result
Naphthalene	10		Fluoranthene	620
C1-Naphthalenes	4.4		Pyrene	600
C2-Naphthalenes	14		C1-Fluoranthenes/Pyrenes	220
C3-Naphthalenes	23		C2-Fluoranthenes/Pyrenes	180
C4-Naphthalenes	14		C3-Fluoranthenes/Pyrenes	86
Biphenyl	1.3	J	C4-Fluoranthenes/Pyrenes	56
Dibenzofuran	8.3		Naphthobenzothiophenes	49
Acenaphthylene	67		C1-Naphthobenzothiophenes	38
Acenaphthene	7.0		C2-Naphthobenzothiophenes	43
Fluorene	11		C3-Naphthobenzothiophenes	57
C1-Fluorenes	12		C4-Naphthobenzothiophenes	83
C2-Fluorenes	16		Benz[a]anthracene	270
C3-Fluorenes	32		Chrysene/Triphenylene	260
Anthracene	100		C1-Chrysenes	120
Phenanthrene	250		C2-Chrysenes	61
C1-Phenanthrenes/Anthracenes	150		C3-Chrysenes	91
C2-Phenanthrenes/Anthracenes	110		C4-Chrysenes	56
C3-Phenanthrenes/Anthracenes	55		Benzo[b]fluoranthene	220
C4-Phenanthrenes/Anthracenes	19		Benzo[k]fluoranthene	220
Retene	1.1	J	Benzo[a]fluoranthene	55
Dibenzothiophene	14		Benzo[e]pyrene	170
C1-Dibenzothiophenes	19		Benzo[a]pyrene	250
C2-Dibenzothiophenes	27		Perylene	73
C3-Dibenzothiophenes	25		Indeno[1,2,3-cd]pyrene	190
C4-Dibenzothiophenes	17		Dibenz[a,h]anthracene	35
Benzo(b)fluorene	0.19	U	Benzo[g,h,i]perylene	170

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	73	50-130
Pyrene-d10	94	50-130
Benzo[b]fluoranthene-d12	85	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 08:21

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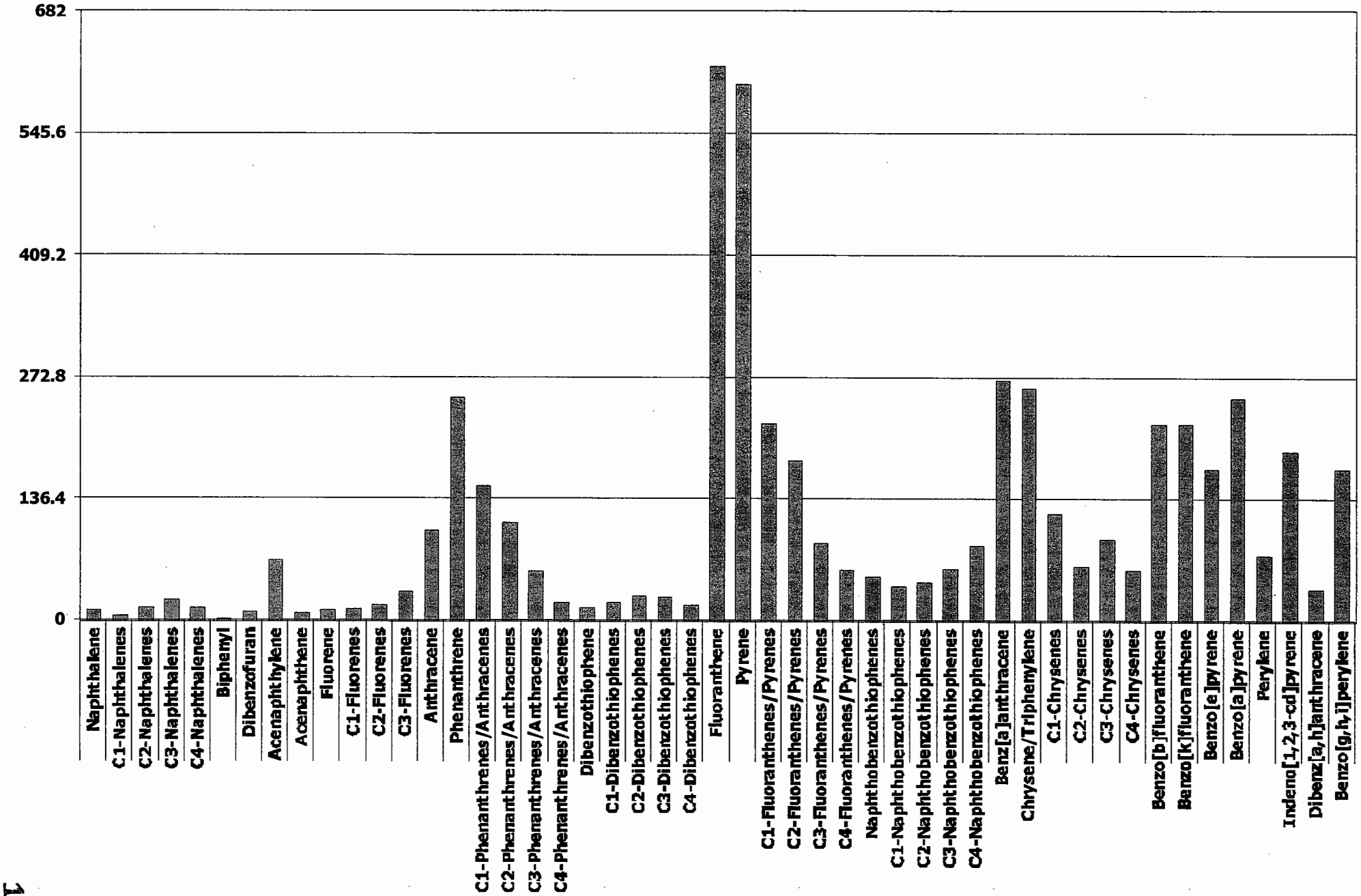
Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OFF2-0006-01** Lab ID: **0502110-01 D**

Concentration: µg/Kg



Quantitation Report (QT Reviewed)

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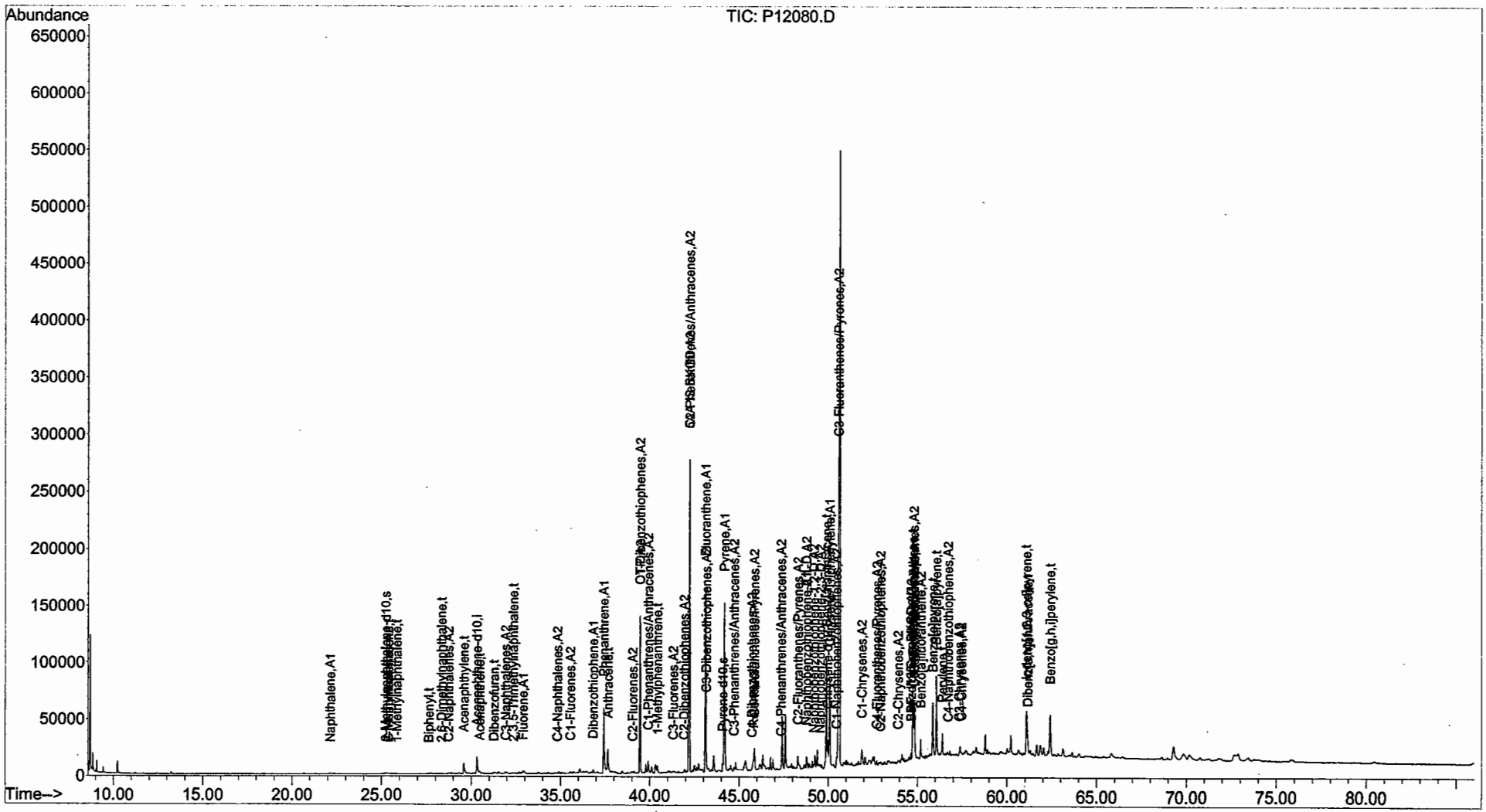
Data File : P12080.D
Acq On : 5 Mar 2005 12:31 am
Operator : AC
Sample : 0502110-01D
Misc : 1X
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 18 08:16:37 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
02/22/05	02/25/05	03/02/05	87.5	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
Naphthalene	8.0	10	25	30
C1-Naphthalenes	4.6	4.4	5	30
C2-Naphthalenes	17	14	21	30
C3-Naphthalenes	24	23	5	30
C4-Naphthalenes	15	14	7	30
Biphenyl	1.2 J	1.3 J	5	30
Dibenzofuran	8.8	8.3	6	30
Acenaphthylene	65	67	3	30
Acenaphthene	8.1	7.0	14	30
Fluorene	13	11	14	30
C1-Fluorenes	11	12	9	30
C2-Fluorenes	18	16	15	30
C3-Fluorenes	28	32	10	30
Anthracene	100	100	1	30
Phenanthrene	260	250	6	30
C1-Phenanthrenes/Anthracenes	150	150	0	30
C2-Phenanthrenes/Anthracenes	94	110	12	30
C3-Phenanthrenes/Anthracenes	52	55	5	30
C4-Phenanthrenes/Anthracenes	17	19	11	30
Retene	1.3 J	1.1 J	16	30
Dibenzothiophene	16	14	9	30
C1-Dibenzothiophenes	17	19	11	30
C2-Dibenzothiophenes	24	27	12	30
C3-Dibenzothiophenes	22	25	15	30
C4-Dibenzothiophenes	15	17	12	30
Benzo(b)fluorene	0.19 U	0.19 U	N/A	30
Fluoranthene	510	620	19	30
Pyrene	460	600	26	30
C1-Fluoranthenes/Pyrenes	180	220	19	30
C2-Fluoranthenes/Pyrenes	150	180	15	30
C3-Fluoranthenes/Pyrenes	74	86	15	30
C4-Fluoranthenes/Pyrenes	48	56	15	30
Naphthobenzothiophenes	42	49	16	30
C1-Naphthobenzothiophenes	34	38	14	30
C2-Naphthobenzothiophenes	36	43	19	30

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 08:22

Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
02/22/05	02/25/05	03/02/05	87.5	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
C3-Naphthobenzothiophenes	51	57	11	30
C4-Naphthobenzothiophenes	67	83	21	30
Benz[a]anthracene	230	270	16	30
Chrysene/Triphenylene	220	260	17	30
C1-Chrysenes	110	120	9	30
C2-Chrysenes	56	61	9	30
C3-Chrysenes	71	91	24	30
C4-Chrysenes	54	56	3	30
Benzo[b]fluoranthene	180	220	20	30
Benzo[k]fluoranthene	200	220	9	30
Benzo[a]fluoranthene	51	55	7	30
Benzo[e]pyrene	150	170	12	30
Benzo[a]pyrene	210	250	15	30
Perylene	65	73	11	30
Indeno[1,2,3-cd]pyrene	170	190	9	30
Dibenz[a,h]anthracene	32	35	8	30
Benzo[g,h,i]perylene	150	170	8	30

N/A - Not Applicable

Surrogate	% Recovery		Acceptance Range (%)
2-Methylnaphthalene-d10	75	73	50-130
Pyrene-d10	95	94	50-130
Benzo[b]fluoranthene-d12	89	85	50-130

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

03/18/05 08:22

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **See Below**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
02/22/05	02/25/05	03/02/05	87.5	AC

	0502110-01	0502110-01		
Parameter	**Sample Conc.**	**Matrix Spike Conc.**	**% Recovery**	**% Recovery Limits**
Naphthalene	8.0	43	93	50-150
Acenaphthylene	65	88	61	50-150
Acenaphthene	8.1	38	79	50-150
Fluorene	13	45	84	50-150
Anthracene	100	120	64	50-150
Phenanthrene	260	280	33[a]	50-150
Fluoranthene	510	540	73	50-150
Pyrene	460	490	68	50-150
Benz[a]anthracene	230	260	83	50-150
Chrysene/Triphenylene	220	240	56	50-150
Benzo[b]fluoranthene	180	200	44[a]	50-150
Benzo[k]fluoranthene	200	220	53	50-150
Benzo[a]pyrene	210	230	46[a]	50-150
Indeno[1,2,3-cd]pyrene	170	190	54	50-150
Dibenz[a,h]anthracene	32	57	65	50-150
Benzo[g,h,i]perylene	150	160	21[a]	50-150

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	74	50-130
Pyrene-d10	93	50-130
Benzo[b]fluoranthene-d12	83	50-130

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

03/18/05 09:45

Form I
Matrix Spike
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01 M**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/05/05	87.5	30.13	5	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	43	S	Fluoranthene	540	S
C1-Naphthalenes	23		Pyrene	490	S
C2-Naphthalenes	14		C1-Fluoranthenes/Pyrenes	170	
C3-Naphthalenes	23		C2-Fluoranthenes/Pyrenes	140	
C4-Naphthalenes	16		C3-Fluoranthenes/Pyrenes	81	
Biphenyl	1.6	J	C4-Fluoranthenes/Pyrenes	42	
Dibenzofuran	10		Naphthobenzothiophenes	40	
Acenaphthylene	88	S	C1-Naphthobenzothiophenes	32	
Acenaphthene	38	S	C2-Naphthobenzothiophenes	37	
Fluorene	45	S	C3-Naphthobenzothiophenes	50	
C1-Fluorenes	9.9		C4-Naphthobenzothiophenes	64	
C2-Fluorenes	13		Benz[a]anthracene	260	S
C3-Fluorenes	26		Chrysene/Triphenylene	240	S
Anthracene	120	S	C1-Chrysenes	100	
Phenanthrene	280	S	C2-Chrysenes	51	
C1-Phenanthrenes/Anthracenes	140		C3-Chrysenes	67	
C2-Phenanthrenes/Anthracenes	88		C4-Chrysenes	48	
C3-Phenanthrenes/Anthracenes	51		Benzo[b]fluoranthene	200	S
C4-Phenanthrenes/Anthracenes	18		Benzo[k]fluoranthene	220	S
Retene	0.90	J	Benzo[a]fluoranthene	41	
Dibenzothiophene	15		Benzo[e]pyrene	130	
C1-Dibenzothiophenes	20		Benzo[a]pyrene	230	S
C2-Dibenzothiophenes	29		Perylene	59	
C3-Dibenzothiophenes	27		Indeno[1,2,3-cd]pyrene	190	S
C4-Dibenzothiophenes	18		Dibenz[a,h]anthracene	57	S
Benzo(b)fluorene	0.19	U	Benzo[g,h,i]perylene	160	S

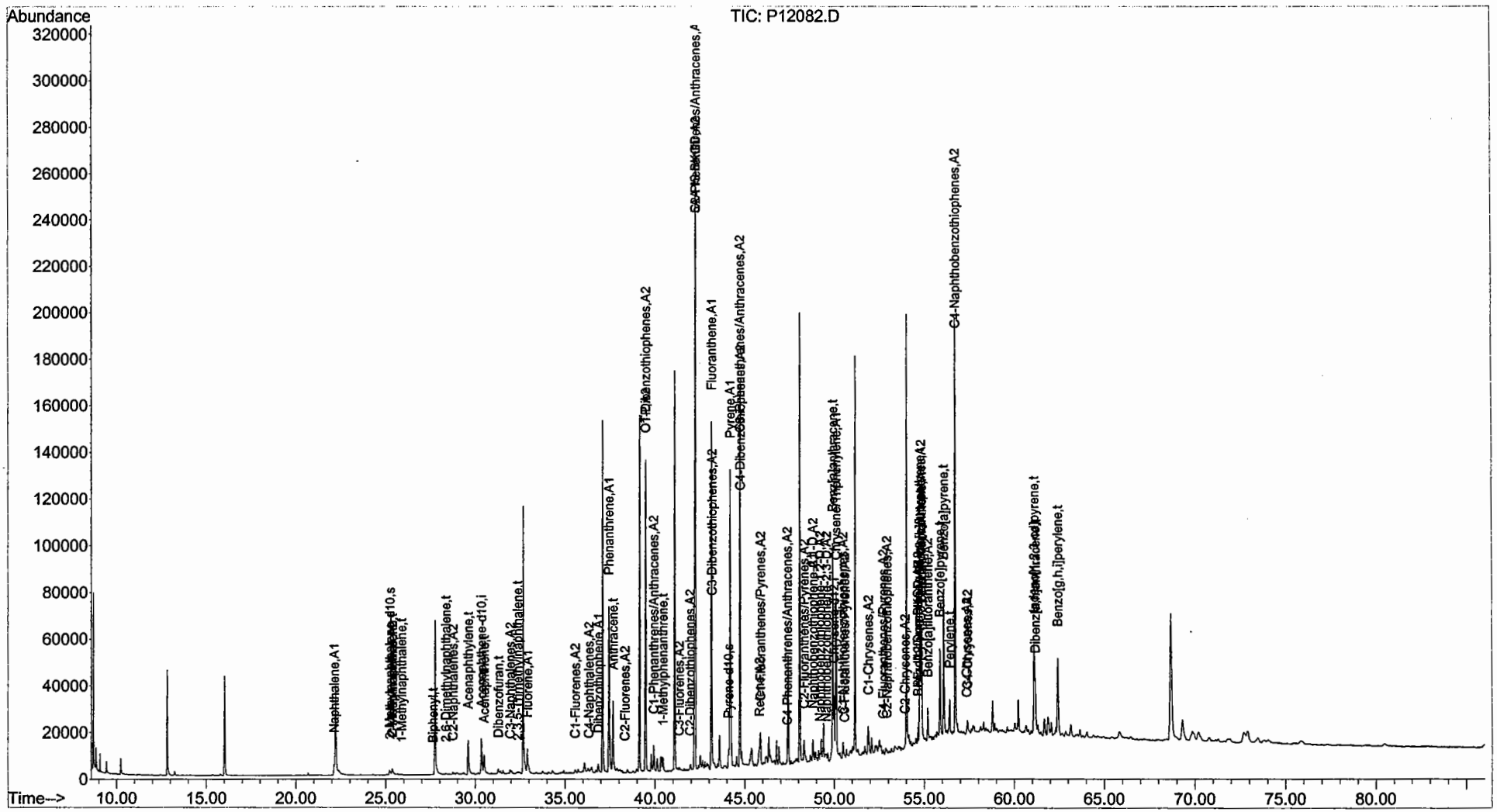
Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	74	50-130
Pyrene-d10	93	50-130
Benzo[b]fluoranthene-d12	83	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

:ation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12082.D
Acq On : 5 Mar 2005 2:15 am
Operator : AC
Sample : 0502110-01MS
Misc : 1X
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 10 11:49:09 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-411-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-02**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/05/05	79.6	30.52	5	1	AC

Parameter	Result		Parameter	Result
Naphthalene	15		Fluoranthene	1100
C1-Naphthalenes	7.3		Pyrene	950
C2-Naphthalenes	24		C1-Fluoranthenes/Pyrenes	320
C3-Naphthalenes	33		C2-Fluoranthenes/Pyrenes	260
C4-Naphthalenes	22		C3-Fluoranthenes/Pyrenes	120
Biphenyl	2.5		C4-Fluoranthenes/Pyrenes	78
Dibenzofuran	17		Naphthobenzothiophenes	94
Acenaphthylene	90		C1-Naphthobenzothiophenes	57
Acenaphthene	12		C2-Naphthobenzothiophenes	55
Fluorene	23		C3-Naphthobenzothiophenes	64
C1-Fluorenes	18		C4-Naphthobenzothiophenes	73
C2-Fluorenes	28		Benz[a]anthracene	450
C3-Fluorenes	65		Chrysene/Triphenylene	470
Anthracene	150		C1-Chrysenes	180
Phenanthrene	540		C2-Chrysenes	86
C1-Phenanthrenes/Anthracenes	260		C3-Chrysenes	110
C2-Phenanthrenes/Anthracenes	140		C4-Chrysenes	68
C3-Phenanthrenes/Anthracenes	64		Benzo[b]fluoranthene	380
C4-Phenanthrenes/Anthracenes	22		Benzo[k]fluoranthene	400
Retene	0.55	J	Benzo[a]fluoranthene	90
Dibenzothiophene	32		Benzo[e]pyrene	430
C1-Dibenzothiophenes	30		Benzo[a]pyrene	420
C2-Dibenzothiophenes	36		Perylene	120
C3-Dibenzothiophenes	28		Indeno[1,2,3-cd]pyrene	330
C4-Dibenzothiophenes	20		Dibenz[a,h]anthracene	64
Benzo(b)fluorene	0.21	U	Benzo[g,h,i]perylene	280

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	68	50-130
Pyrene-d10	91	50-130
Benzo[b]fluoranthene-d12	83	50-130

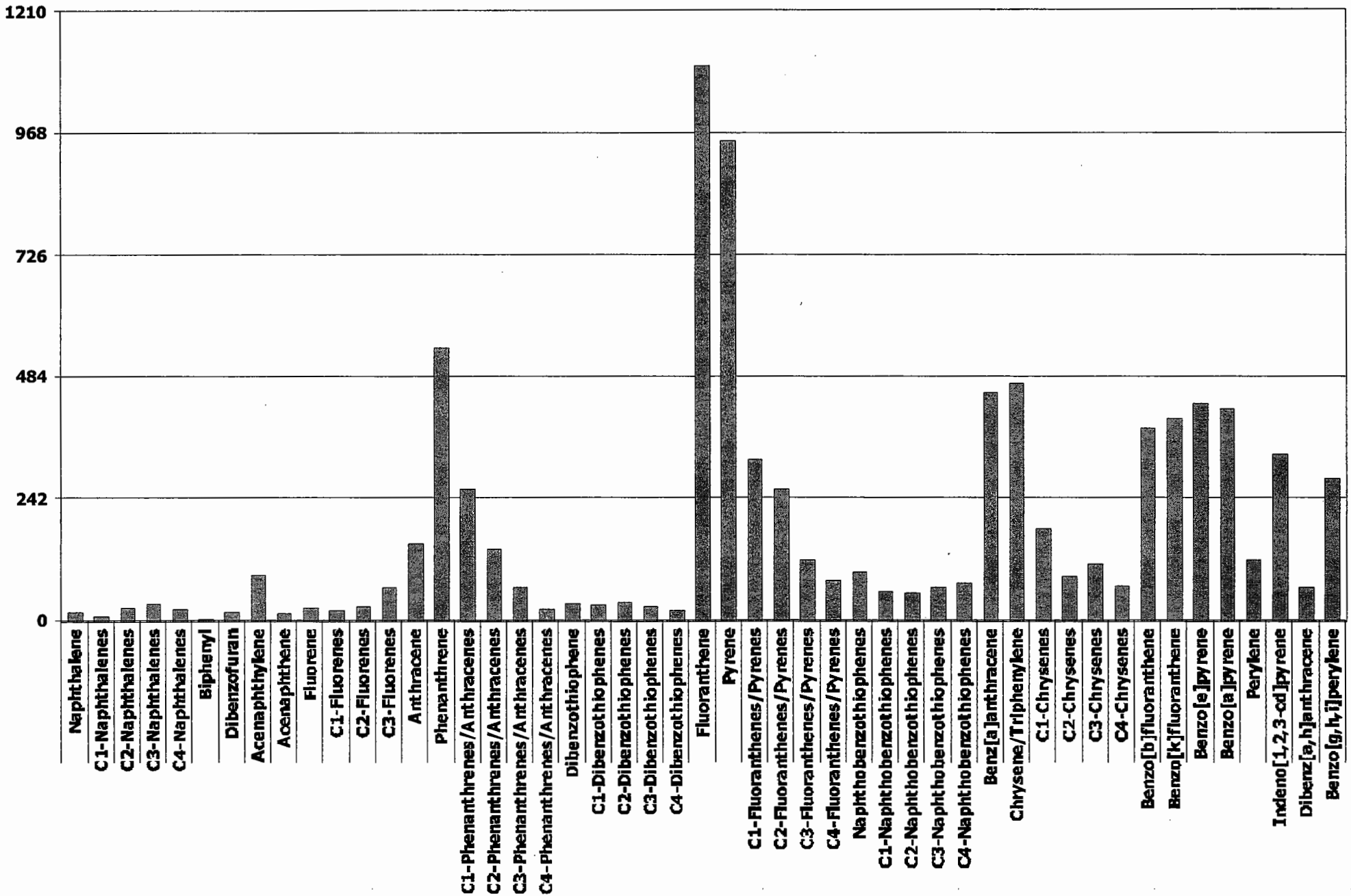
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:41

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

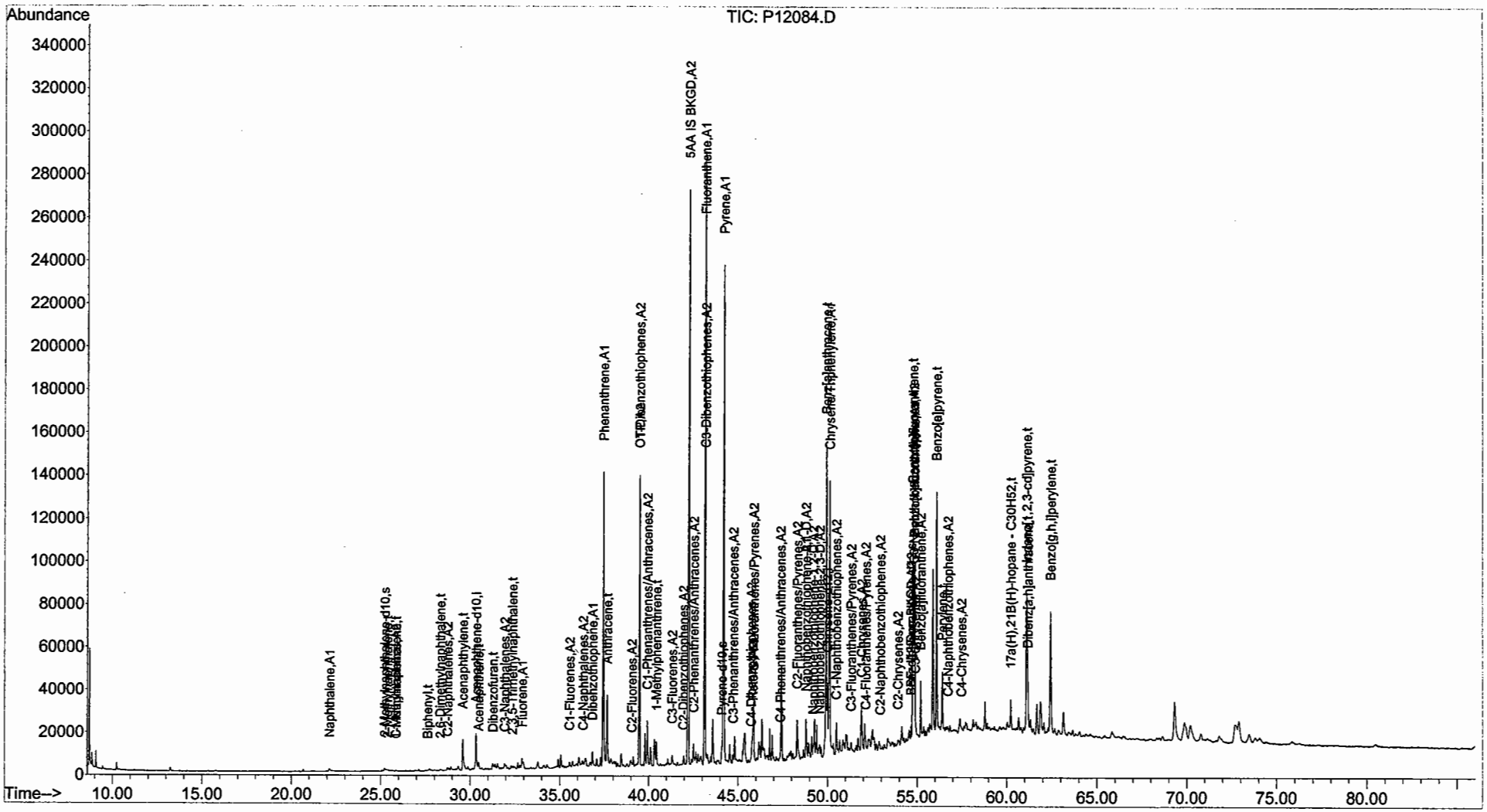
Client ID: **OFF-SD-411-0006-01** Lab ID: **0502110-02**

Concentration: µg/Kg



Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12084.D
Acq On : 5 Mar 2005 3:58 am
Operator : AC
Sample : 0502110-02
Misc : 1X
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 10 11:49:43 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF3-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-03**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/05/05	85.4	30.37	8	1	AC

Parameter	Result		Parameter	Result
Naphthalene	22		Fluoranthene	1300
C1-Naphthalenes	12		Pyrene	1200
C2-Naphthalenes	38		C1-Fluoranthenes/Pyrenes	360
C3-Naphthalenes	53		C2-Fluoranthenes/Pyrenes	330
C4-Naphthalenes	31		C3-Fluoranthenes/Pyrenes	140
Biphenyl	5.3		C4-Fluoranthenes/Pyrenes	120
Dibenzofuran	33		Naphthobenzothiophenes	98
Acenaphthylene	150		C1-Naphthobenzothiophenes	87
Acenaphthene	14		C2-Naphthobenzothiophenes	160
Fluorene	36		C3-Naphthobenzothiophenes	180
C1-Fluorenes	25		C4-Naphthobenzothiophenes	180
C2-Fluorenes	32		Benz[a]anthracene	560
C3-Fluorenes	60		Chrysene/Triphenylene	510
Anthracene	230		C1-Chrysenes	230
Phenanthrene	780		C2-Chrysenes	140
C1-Phenanthrenes/Anthracenes	360		C3-Chrysenes	160
C2-Phenanthrenes/Anthracenes	200		C4-Chrysenes	120
C3-Phenanthrenes/Anthracenes	98		Benzo[b]fluoranthene	380
C4-Phenanthrenes/Anthracenes	49		Benzo[k]fluoranthene	400
Retene	2.1	J	Benzo[a]fluoranthene	120
Dibenzothiophene	45		Benzo[e]pyrene	310
C1-Dibenzothiophenes	38		Benzo[a]pyrene	480
C2-Dibenzothiophenes	53		Perylene	140
C3-Dibenzothiophenes	63		Indeno[1,2,3-cd]pyrene	350
C4-Dibenzothiophenes	56		Dibenz[a,h]anthracene	67
Benzo(b)fluorene	0.31	U	Benzo[g,h,i]perylene	290

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	65	50-130
Pyrene-d10	92	50-130
Benzo[b]fluoranthene-d12	89	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

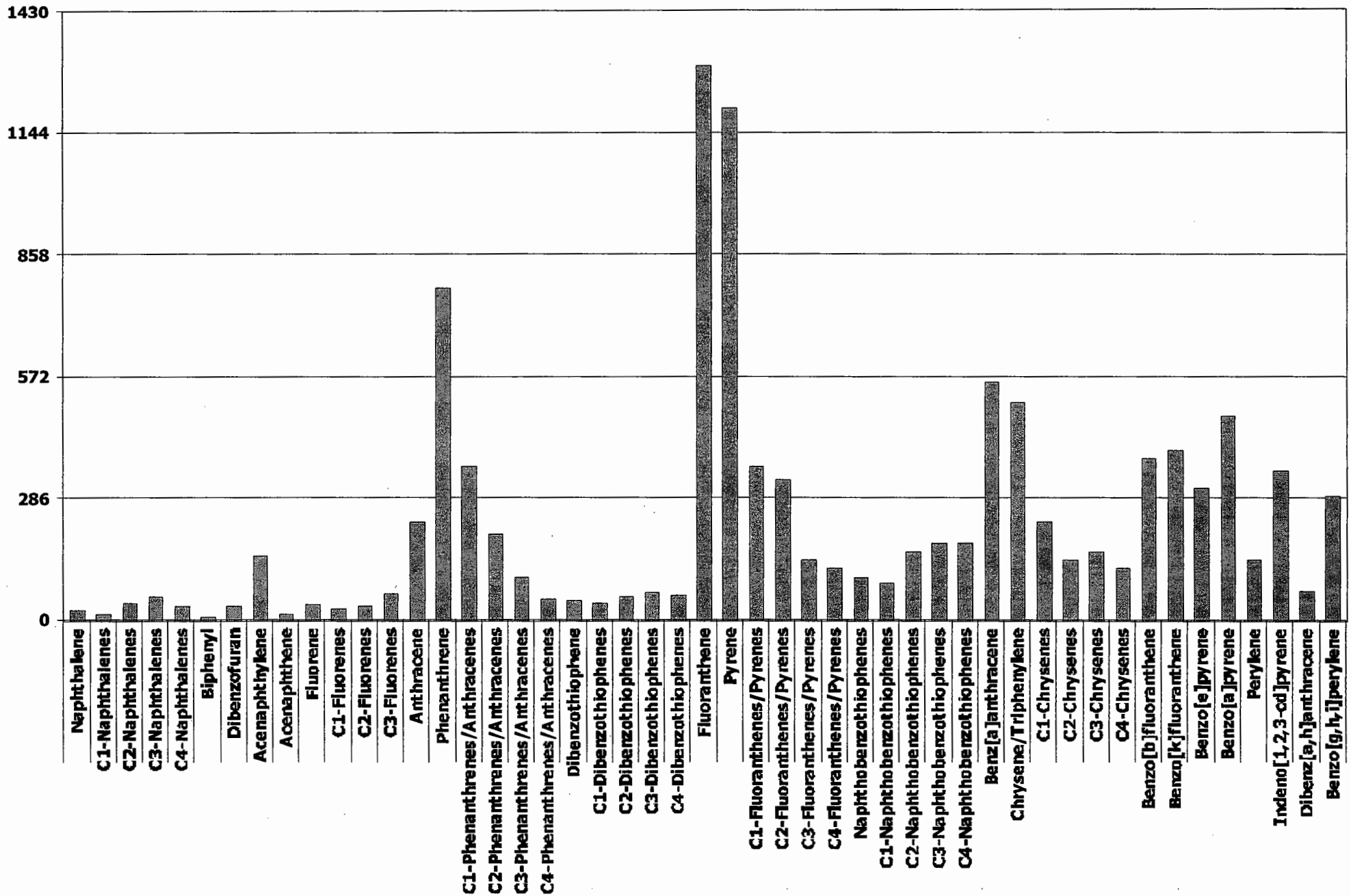
03/18/05 07:42

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OFF3-0006-01**

Lab ID: **0502110-03**

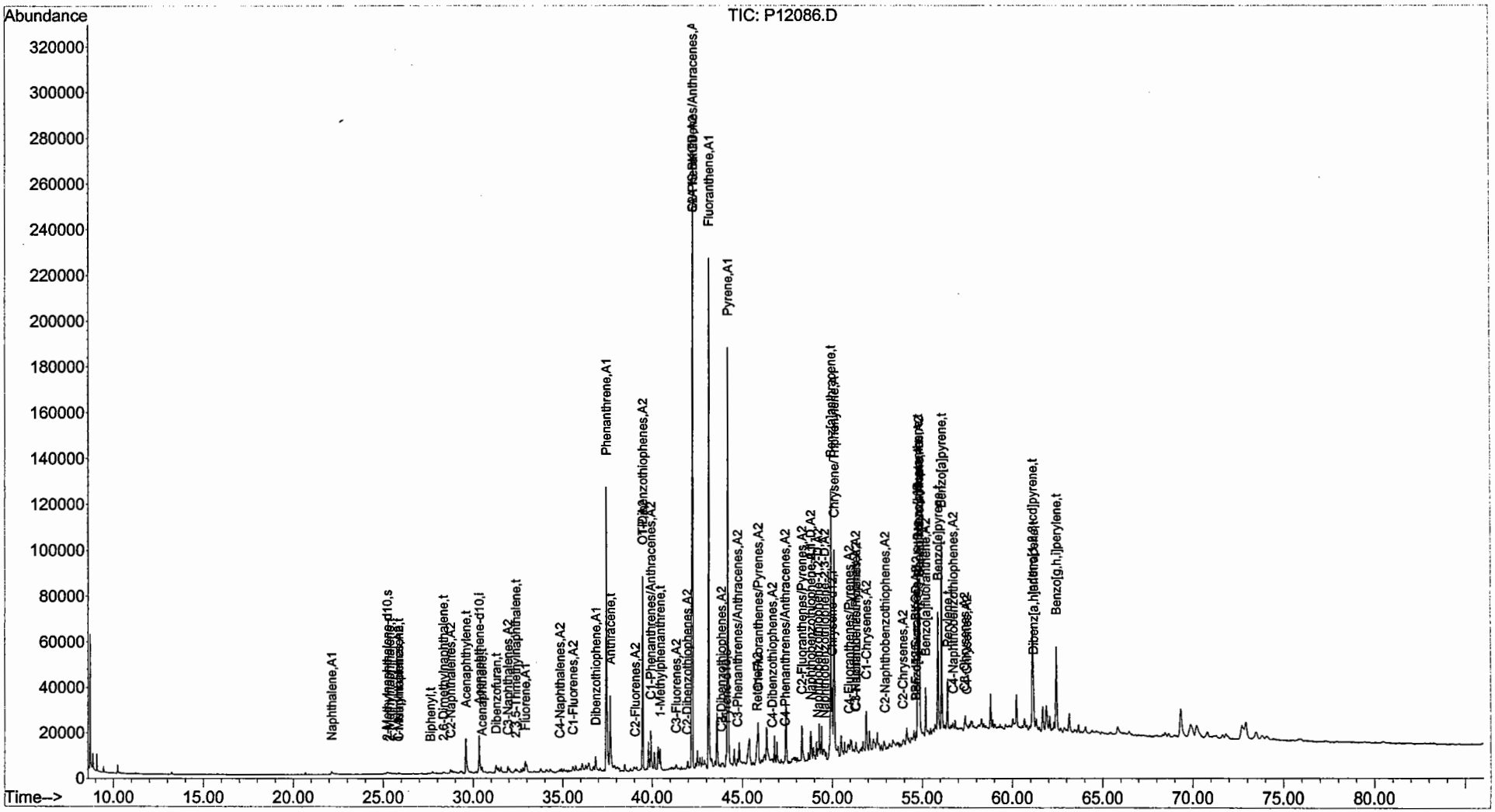
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12086.D
Acq On : 5 Mar 2005 5:41 am
Operator : AC
Sample : 0502110-03
Misc : 1X
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 10 11:46:41 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-04**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/05/05	86.8	30.19	5	1	AC

Parameter	Result	Parameter	Result
Naphthalene	22	Fluoranthene	920
C1-Naphthalenes	17	Pyrene	840
C2-Naphthalenes	44	C1-Fluoranthenes/Pyrenes	250
C3-Naphthalenes	52	C2-Fluoranthenes/Pyrenes	240
C4-Naphthalenes	33	C3-Fluoranthenes/Pyrenes	130
Biphenyl	3.3	C4-Fluoranthenes/Pyrenes	86
Dibenzofuran	32	Naphthobenzothiophenes	65
Acenaphthylene	93	C1-Naphthobenzothiophenes	58
Acenaphthene	20	C2-Naphthobenzothiophenes	94
Fluorene	36	C3-Naphthobenzothiophenes	120
C1-Fluorenes	23	C4-Naphthobenzothiophenes	120
C2-Fluorenes	31	Benz[a]anthracene	390
C3-Fluorenes	53	Chrysene/Triphenylene	360
Anthracene	190	C1-Chrysenes	160
Phenanthrene	630	C2-Chrysenes	95
C1-Phenanthrenes/Anthracenes	280	C3-Chrysenes	140
C2-Phenanthrenes/Anthracenes	160	C4-Chrysenes	75
C3-Phenanthrenes/Anthracenes	85	Benzo[b]fluoranthene	280
C4-Phenanthrenes/Anthracenes	38	Benzo[k]fluoranthene	300
Retene	0.67 J	Benzo[a]fluoranthene	81
Dibenzothiophene	38	Benzo[e]pyrene	220
C1-Dibenzothiophenes	32	Benzo[a]pyrene	330
C2-Dibenzothiophenes	34	Perylene	96
C3-Dibenzothiophenes	40	Indeno[1,2,3-cd]pyrene	250
C4-Dibenzothiophenes	37	Dibenz[a,h]anthracene	49
Benzo(b)fluorene	0.19 U	Benzo[g,h,i]perylene	200

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	74	50-130
Pyrene-d10	90	50-130
Benzo[b]fluoranthene-d12	83	50-130

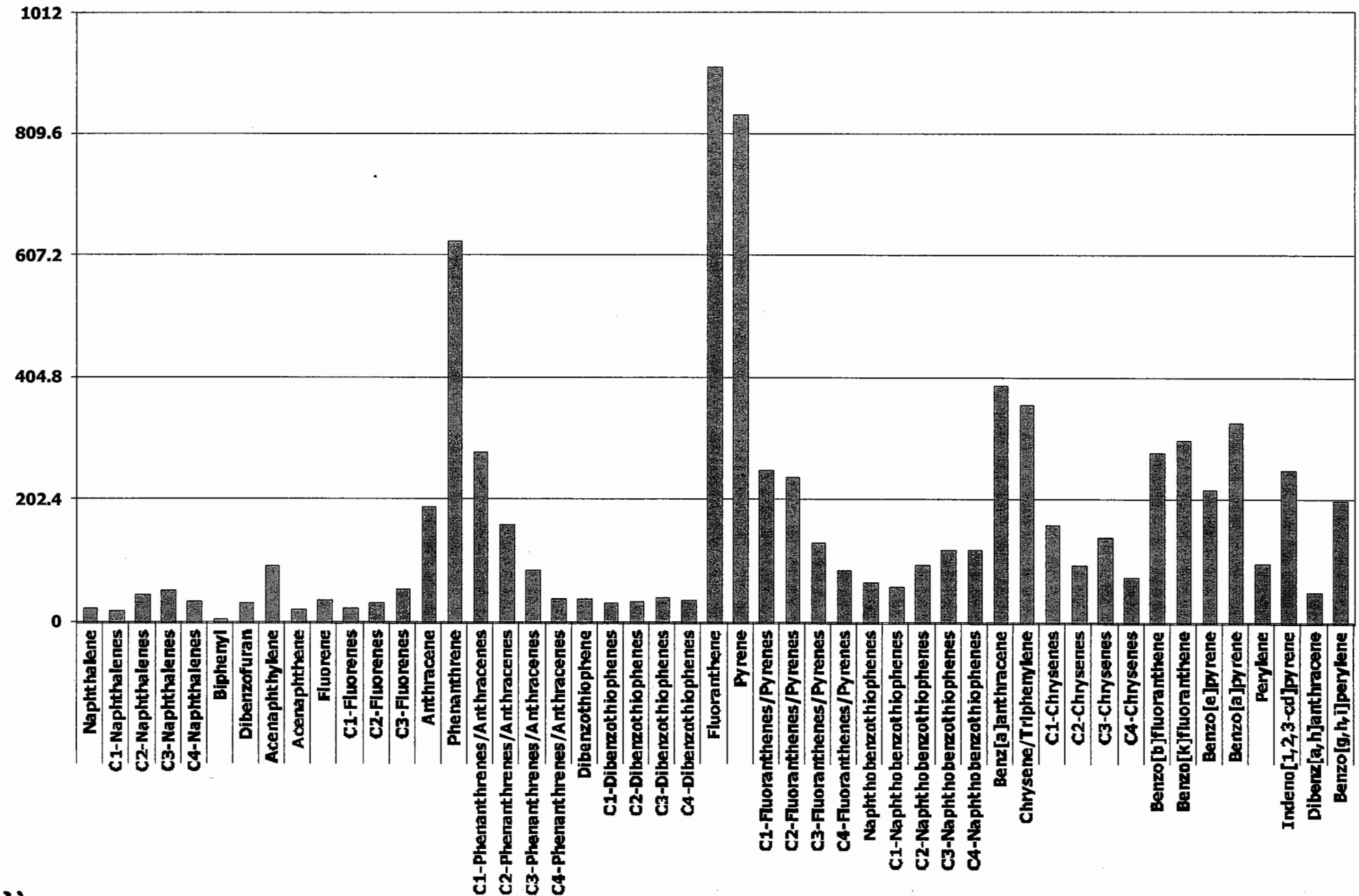
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:42

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

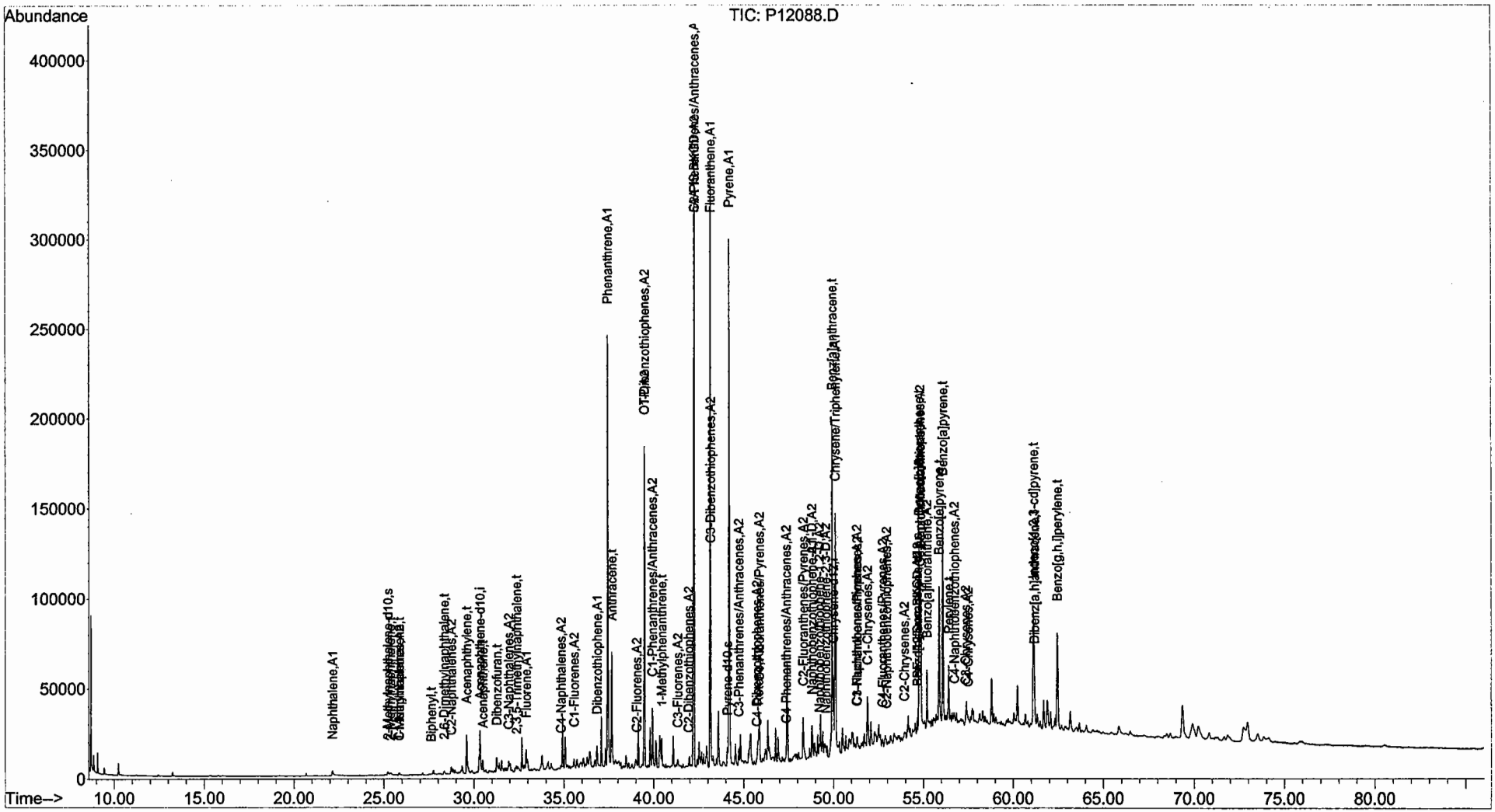
Client ID: **OFF-SD-414-0006-01** Lab ID: **0502110-04**

Concentration: µg/Kg



Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12088.D
Acq On : 5 Mar 2005 7:23 am
Operator : AC
Sample : 0502110-04
Misc : 1X
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 10 12:02:22 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-SD5-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-05**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/05/05	80.8	30.02	5	1	AC

Parameter	Result	Parameter	Result
Naphthalene	20	Fluoranthene	1200
C1-Naphthalenes	12	Pyrene	1100
C2-Naphthalenes	34	C1-Fluoranthenes/Pyrenes	330
C3-Naphthalenes	54	C2-Fluoranthenes/Pyrenes	310
C4-Naphthalenes	38	C3-Fluoranthenes/Pyrenes	140
Biphenyl	2.5	C4-Fluoranthenes/Pyrenes	90
Dibenzofuran	29	Naphthobenzothiophenes	86
Acenaphthylene	140	C1-Naphthobenzothiophenes	51
Acenaphthene	12	C2-Naphthobenzothiophenes	48
Fluorene	28	C3-Naphthobenzothiophenes	53
C1-Fluorenes	22	C4-Naphthobenzothiophenes	63
C2-Fluorenes	36	Benz[a]anthracene	530
C3-Fluorenes	54	Chrysene/Triphenylene	480
Anthracene	210	C1-Chrysenes	200
Phenanthrene	670	C2-Chrysenes	90
C1-Phenanthrenes/Anthracenes	330	C3-Chrysenes	95
C2-Phenanthrenes/Anthracenes	180	C4-Chrysenes	69
C3-Phenanthrenes/Anthracenes	81	Benzo[b]fluoranthene	420
C4-Phenanthrenes/Anthracenes	32	Benzo[k]fluoranthene	380
Retene	0.30 U	Benzo[a]fluoranthene	110
Dibenzothiophene	39	Benzo[e]pyrene	300
C1-Dibenzothiophenes	37	Benzo[a]pyrene	450
C2-Dibenzothiophenes	38	Perylene	140
C3-Dibenzothiophenes	30	Indeno[1,2,3-cd]pyrene	350
C4-Dibenzothiophenes	19	Dibenz[a,h]anthracene	67
Benzo(b)fluorene	0.21 U	Benzo[g,h,i]perylene	290

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	65	50-130
Pyrene-d10	89	50-130
Benzo[b]fluoranthene-d12	81	50-130

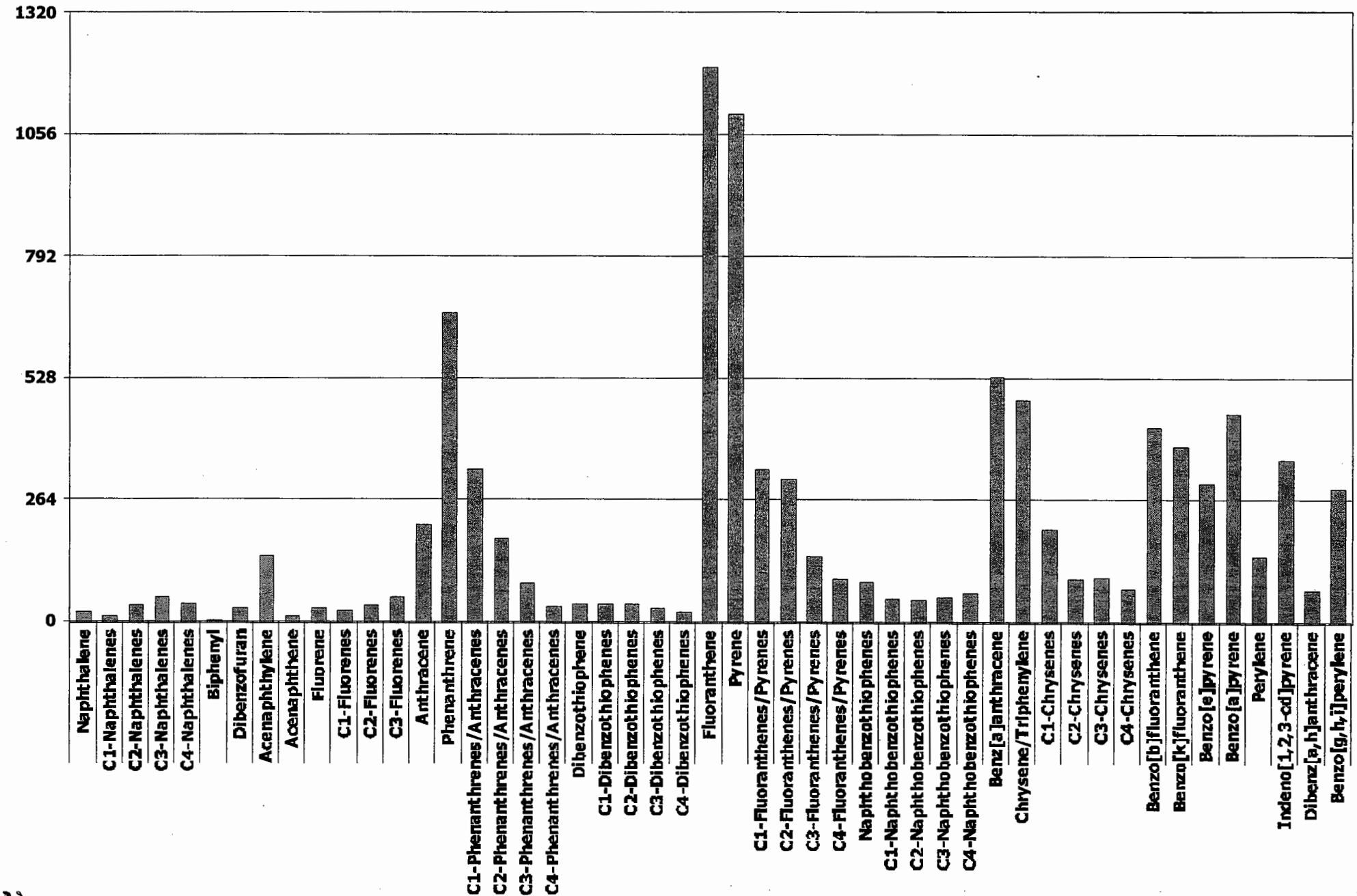
N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 08:10

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-SD5-0006-01** Lab ID: **0502110-05**

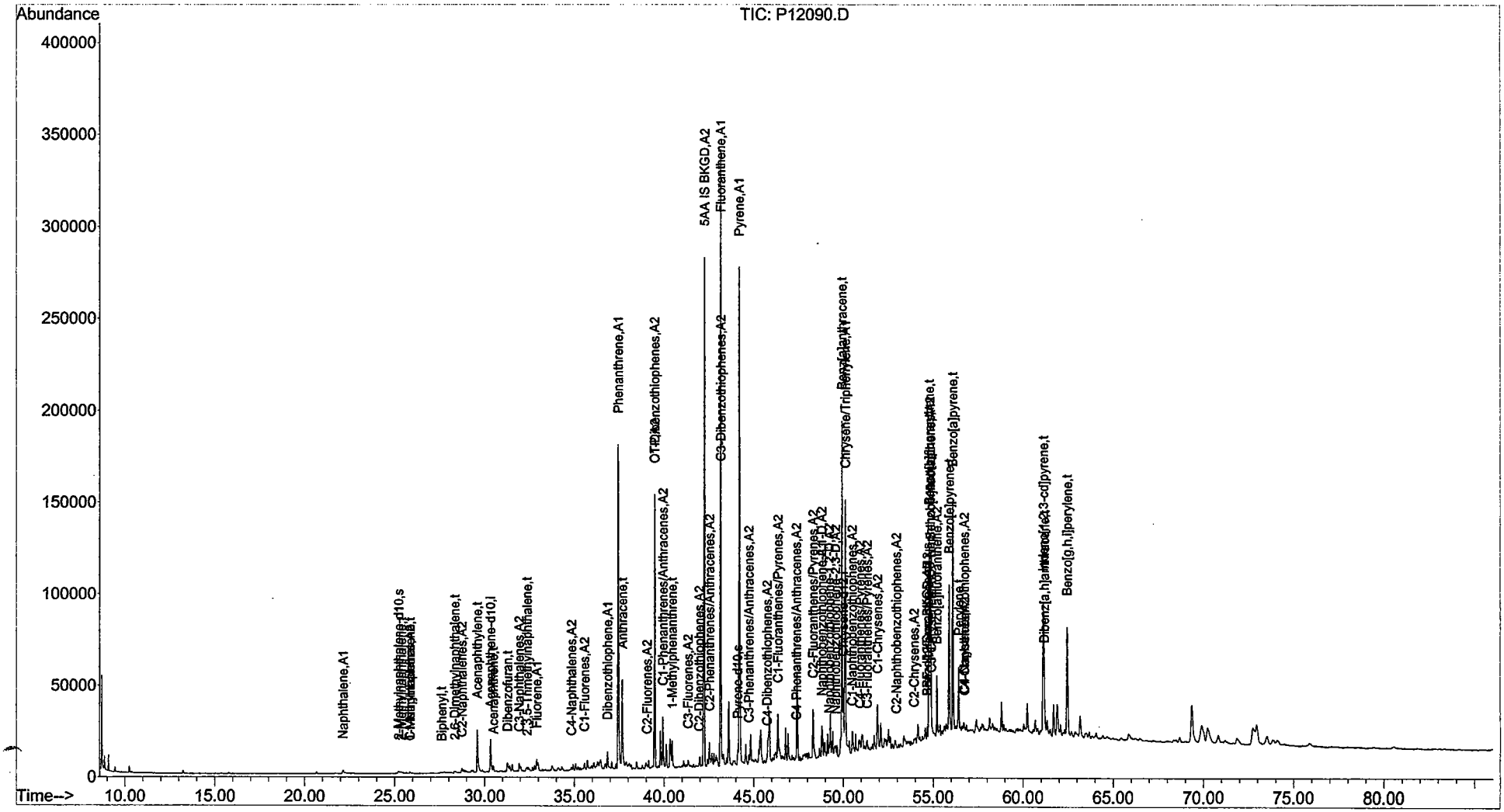
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12090.D
Acq On : 5 Mar 2005 9:06 am
Operator : AC
Sample : 0502110-05
Misc : 1X
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 18 08:06:30 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-442-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-06**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/05/05	82.7	30.54	4	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	75		Fluoranthene	3000	E
C1-Naphthalenes	31		Pyrene	2700	E
C2-Naphthalenes	73		C1-Fluoranthenes/Pyrenes	810	
C3-Naphthalenes	96		C2-Fluoranthenes/Pyrenes	660	
C4-Naphthalenes	58		C3-Fluoranthenes/Pyrenes	270	
Biphenyl	7.4		C4-Fluoranthenes/Pyrenes	140	
Dibenzofuran	72		Naphthobenzothiophenes	210	
Acenaphthylene	270		C1-Naphthobenzothiophenes	96	
Acenaphthene	99		C2-Naphthobenzothiophenes	58	
Fluorene	110		C3-Naphthobenzothiophenes	60	
C1-Fluorenes	55		C4-Naphthobenzothiophenes	45	
C2-Fluorenes	80		Benz[a]anthracene	1300	
C3-Fluorenes	110		Chrysene/Triphenylene	1200	
Anthracene	540		C1-Chrysenes	480	
Phenanthrene	1700	E	C2-Chrysenes	200	
C1-Phenanthrenes/Anthracenes	740		C3-Chrysenes	190	
C2-Phenanthrenes/Anthracenes	380		C4-Chrysenes	90	
C3-Phenanthrenes/Anthracenes	170		Benzo[b]fluoranthene	1000	
C4-Phenanthrenes/Anthracenes	41		Benzo[k]fluoranthene	1000	
Retene	1.8		Benzo[a]fluoranthene	250	
Dibenzothiophene	95		Benzo[e]pyrene	720	
C1-Dibenzothiophenes	67		Benzo[a]pyrene	1100	
C2-Dibenzothiophenes	61		Perylene	330	
C3-Dibenzothiophenes	39		Indeno[1,2,3-cd]pyrene	840	
C4-Dibenzothiophenes	22		Dibenz[a,h]anthracene	180	
Benzo(b)fluorene	0.16	U	Benzo[g,h,i]perylene	670	

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	70	50-130
Pyrene-d10	90	50-130
Benzo[b]fluoranthene-d12	85	50-130

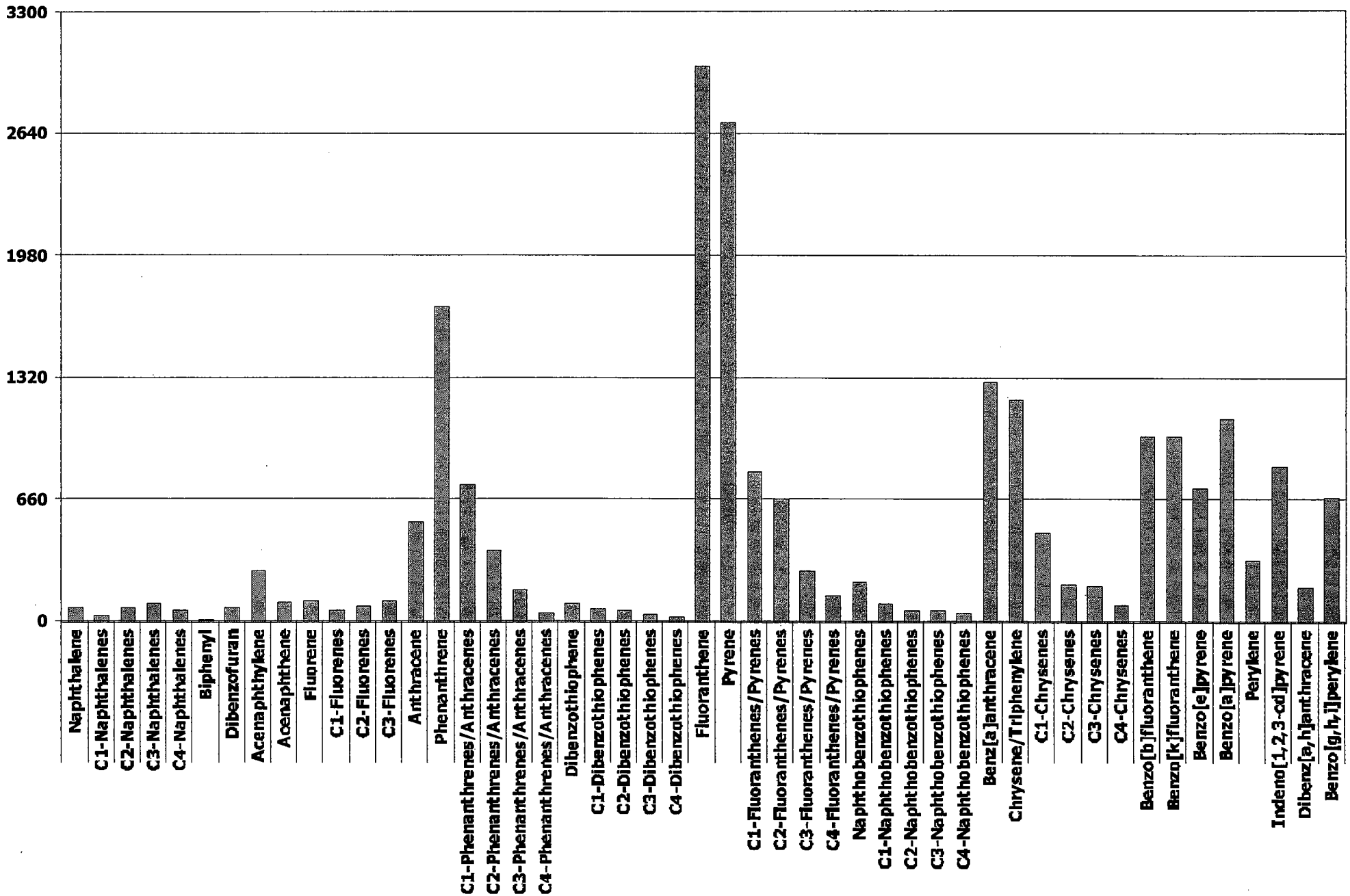
N/A - Not Applicable
E - Estimated value, exceeds the upper limit of calibration.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:43

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-442-0006-01** Lab ID: **0502110-06**

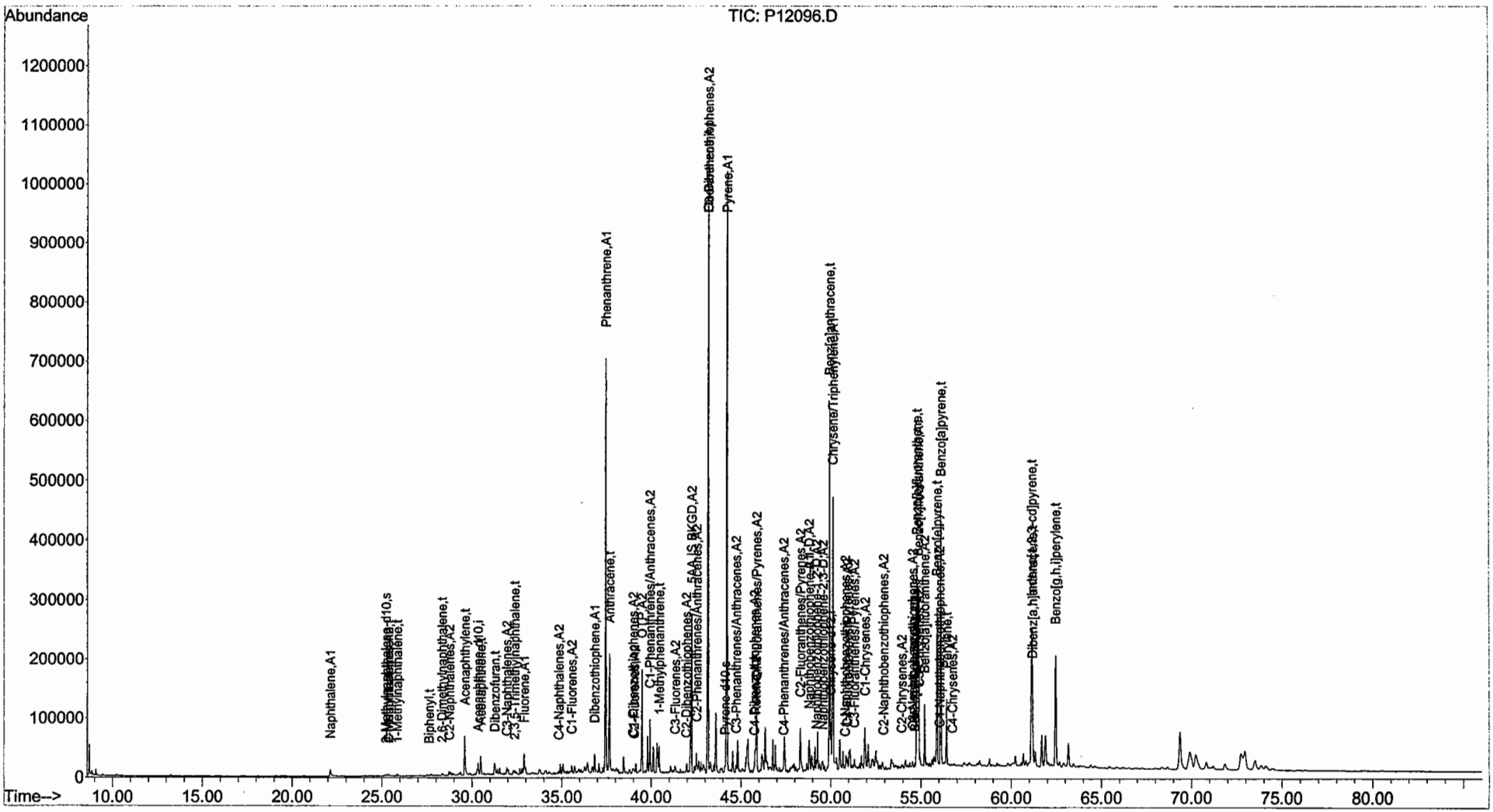
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12096.D
Acq On : 5 Mar 2005 2:16 pm
Operator : AC
Sample : 0502110-06
Misc : 1X
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 10 12:26:30 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-442-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-06E**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/07/05	82.7	30.54	4	4	AC

Parameter	Result		Parameter	Result	
Naphthalene	1.0	U	Fluoranthene	**3300**	
C1-Naphthalenes	1.0	U	Pyrene	**3000**	
C2-Naphthalenes	1.0	U	C1-Fluoranthenes/Pyrenes	0.56	U
C3-Naphthalenes	1.0	U	C2-Fluoranthenes/Pyrenes	0.56	U
C4-Naphthalenes	1.0	U	C3-Fluoranthenes/Pyrenes	0.56	U
Biphenyl	0.58	U	C4-Fluoranthenes/Pyrenes	0.56	U
Dibenzofuran	0.75	U	Naphthobenzothiophenes	0.77	U
Acenaphthylene	1.2	U	C1-Naphthobenzothiophenes	0.77	U
Acenaphthene	0.73	U	C2-Naphthobenzothiophenes	0.77	U
Fluorene	0.73	U	C3-Naphthobenzothiophenes	0.77	U
C1-Fluorenes	0.73	U	C4-Naphthobenzothiophenes	0.77	U
C2-Fluorenes	0.73	U	Benz[a]anthracene	0.99	U
C3-Fluorenes	0.73	U	Chrysene/Triphenylene	0.68	U
Anthracene	0.85	U	C1-Chrysenes	0.68	U
Phenanthrene	**1800**		C2-Chrysenes	0.68	U
C1-Phenanthrenes/Anthracenes	0.92	U	C3-Chrysenes	0.68	U
C2-Phenanthrenes/Anthracenes	0.92	U	C4-Chrysenes	0.68	U
C3-Phenanthrenes/Anthracenes	0.92	U	Benzo[b]fluoranthene	0.67	U
C4-Phenanthrenes/Anthracenes	0.92	U	Benzo[k]fluoranthene	1.3	U
Retene	0.92	U	Benzo[a]fluoranthene	1.3	U
Dibenzothiophene	0.70	U	Benzo[e]pyrene	0.87	U
C1-Dibenzothiophenes	0.70	U	Benzo[a]pyrene	0.88	U
C2-Dibenzothiophenes	0.70	U	Perylene	1.1	U
C3-Dibenzothiophenes	0.70	U	Indeno[1,2,3-cd]pyrene	1.5	U
C4-Dibenzothiophenes	0.70	U	Dibenz[a,h]anthracene	1.2	U
Benzo(b)fluorene	0.64	U	Benzo[g,h,i]perylene	1.1	U

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	67	50-130
Pyrene-d10	93	50-130
Benzo[b]fluoranthene-d12	89	50-130

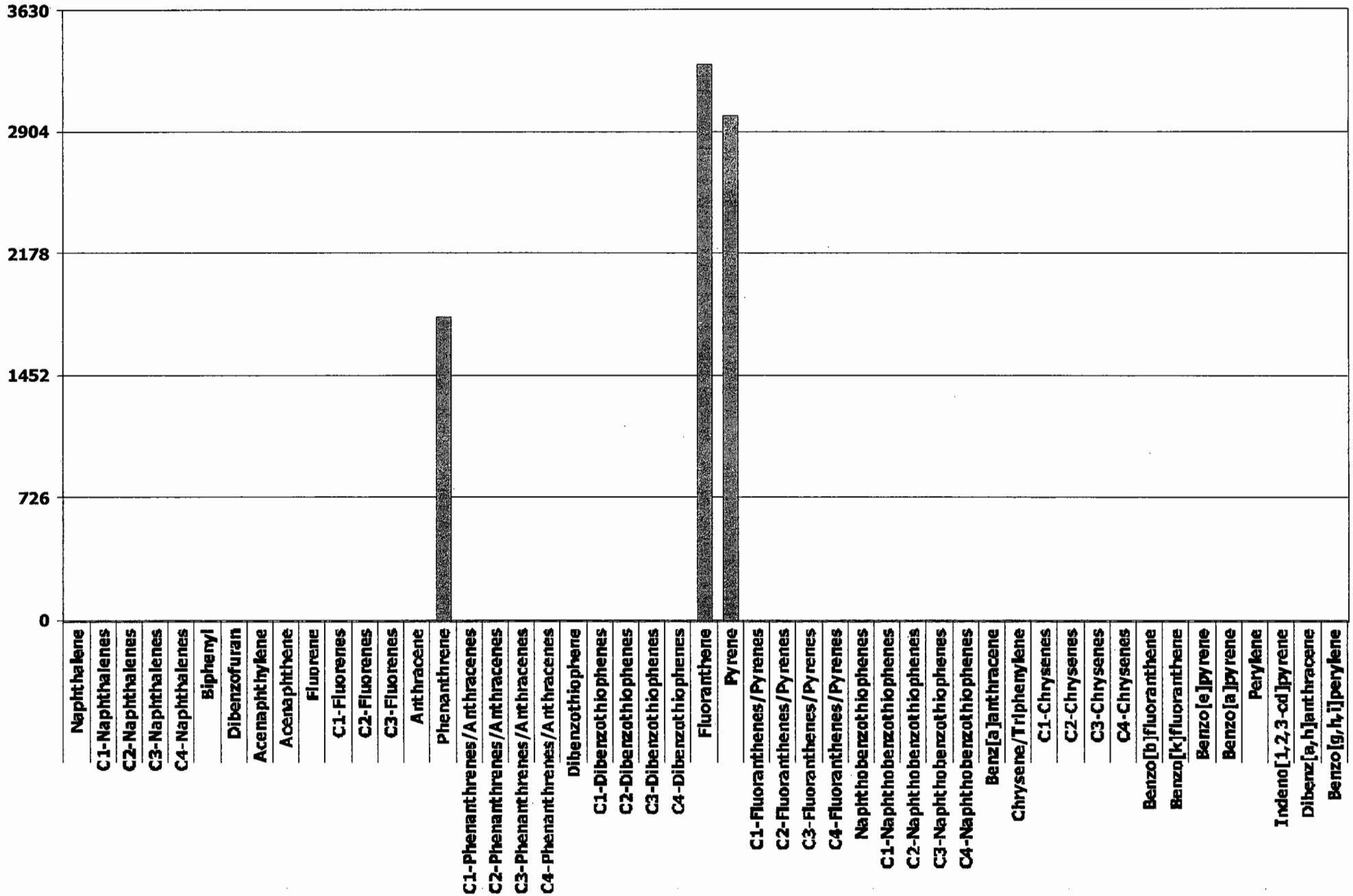
N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:45

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-442-0006-01** Lab ID: **0502110-06**

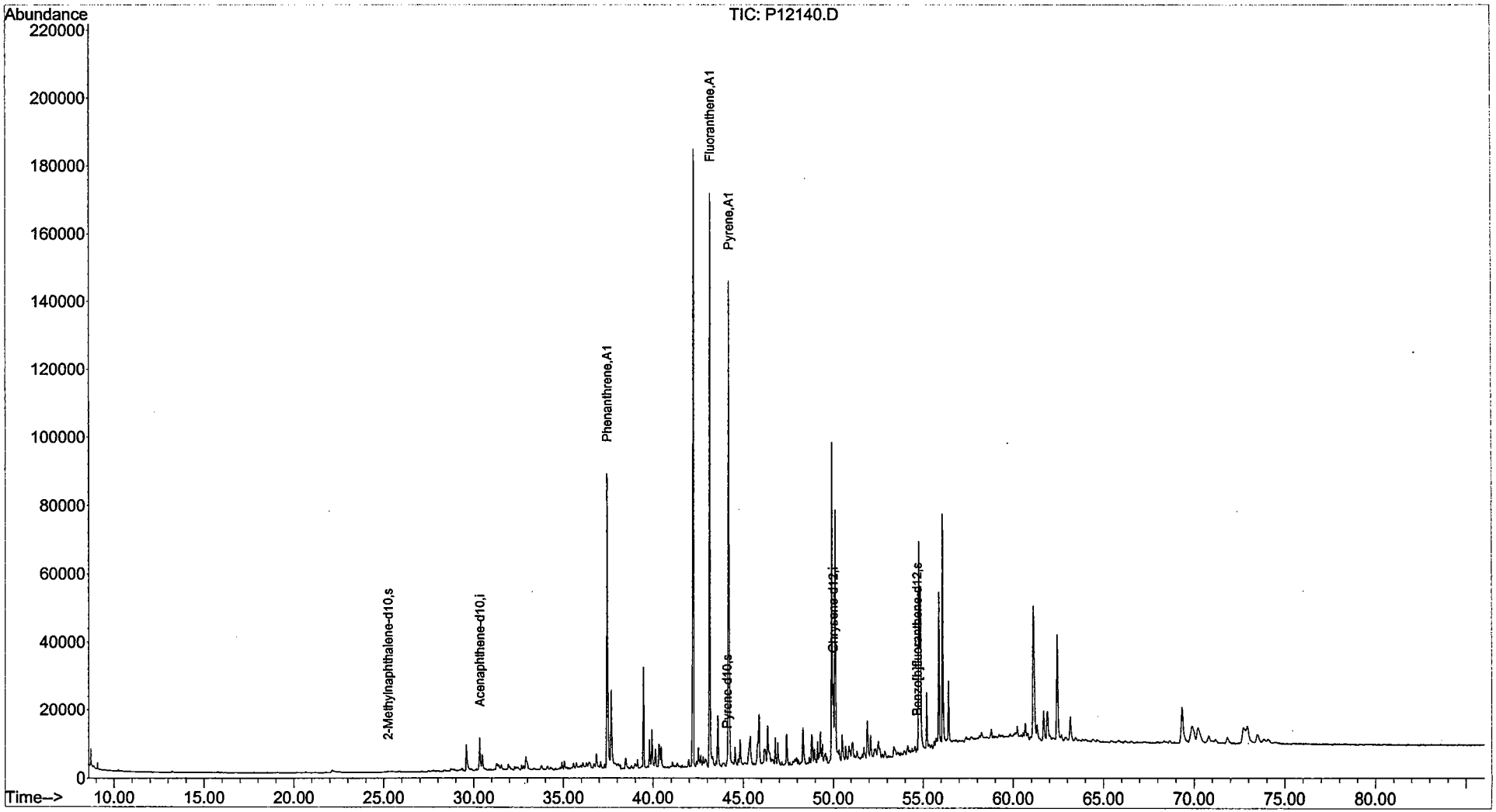
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH07\
Data File : P12140.D
Acq On : 7 Mar 2005 8:32 pm
Operator : AC
Sample : 0502110-06E
Misc : 4X
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 11 10:29:23 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF6-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-07**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/05/05	81.4	30.63	25	1	AC

Parameter	Result		Parameter	Result
Naphthalene	39		Fluoranthene	2500
C1-Naphthalenes	44		Pyrene	2600
C2-Naphthalenes	130		C1-Fluoranthenes/Pyrenes	1100
C3-Naphthalenes	160		C2-Fluoranthenes/Pyrenes	800
C4-Naphthalenes	130		C3-Fluoranthenes/Pyrenes	430
Biphenyl	8.6	J	C4-Fluoranthenes/Pyrenes	340
Dibenzofuran	45		Naphthobenzothiophenes	210
Acenaphthylene	190		C1-Naphthobenzothiophenes	270
Acenaphthene	96		C2-Naphthobenzothiophenes	450
Fluorene	88		C3-Naphthobenzothiophenes	540
C1-Fluorenes	100		C4-Naphthobenzothiophenes	530
C2-Fluorenes	140		Benz[a]anthracene	1100
C3-Fluorenes	180		Chrysene/Triphenylene	1100
Anthracene	440		C1-Chrysenes	570
Phenanthrene	1700		C2-Chrysenes	330
C1-Phenanthrenes/Anthracenes	1100		C3-Chrysenes	480
C2-Phenanthrenes/Anthracenes	580		C4-Chrysenes	330
C3-Phenanthrenes/Anthracenes	260		Benzo[b]fluoranthene	810
C4-Phenanthrenes/Anthracenes	97		Benzo[k]fluoranthene	860
Retene	4.3	J	Benzo[a]fluoranthene	210
Dibenzothiophene	110		Benzo[e]pyrene	680
C1-Dibenzothiophenes	160		Benzo[a]pyrene	990
C2-Dibenzothiophenes	200		Perylene	280
C3-Dibenzothiophenes	180		Indeno[1,2,3-cd]pyrene	710
C4-Dibenzothiophenes	160		Dibenz[a,h]anthracene	140
Benzo(b)fluorene	1.0	U	Benzo[g,h,i]perylene	620

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	66	50-130
Pyrene-d10	89	50-130
Benzo[b]fluoranthene-d12	86	50-130

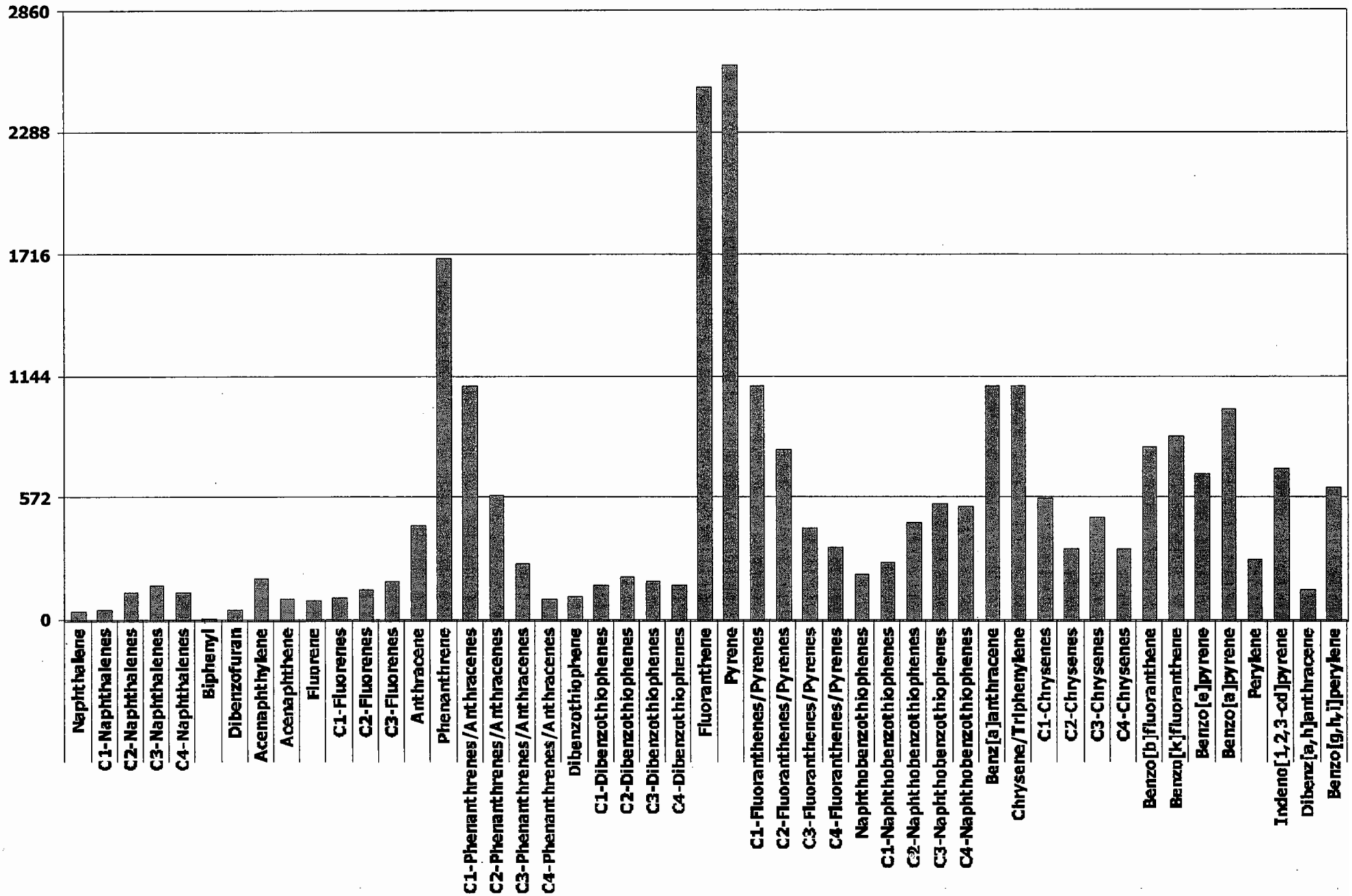
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:43

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OFF6-0006-01** Lab ID: **0502110-07**

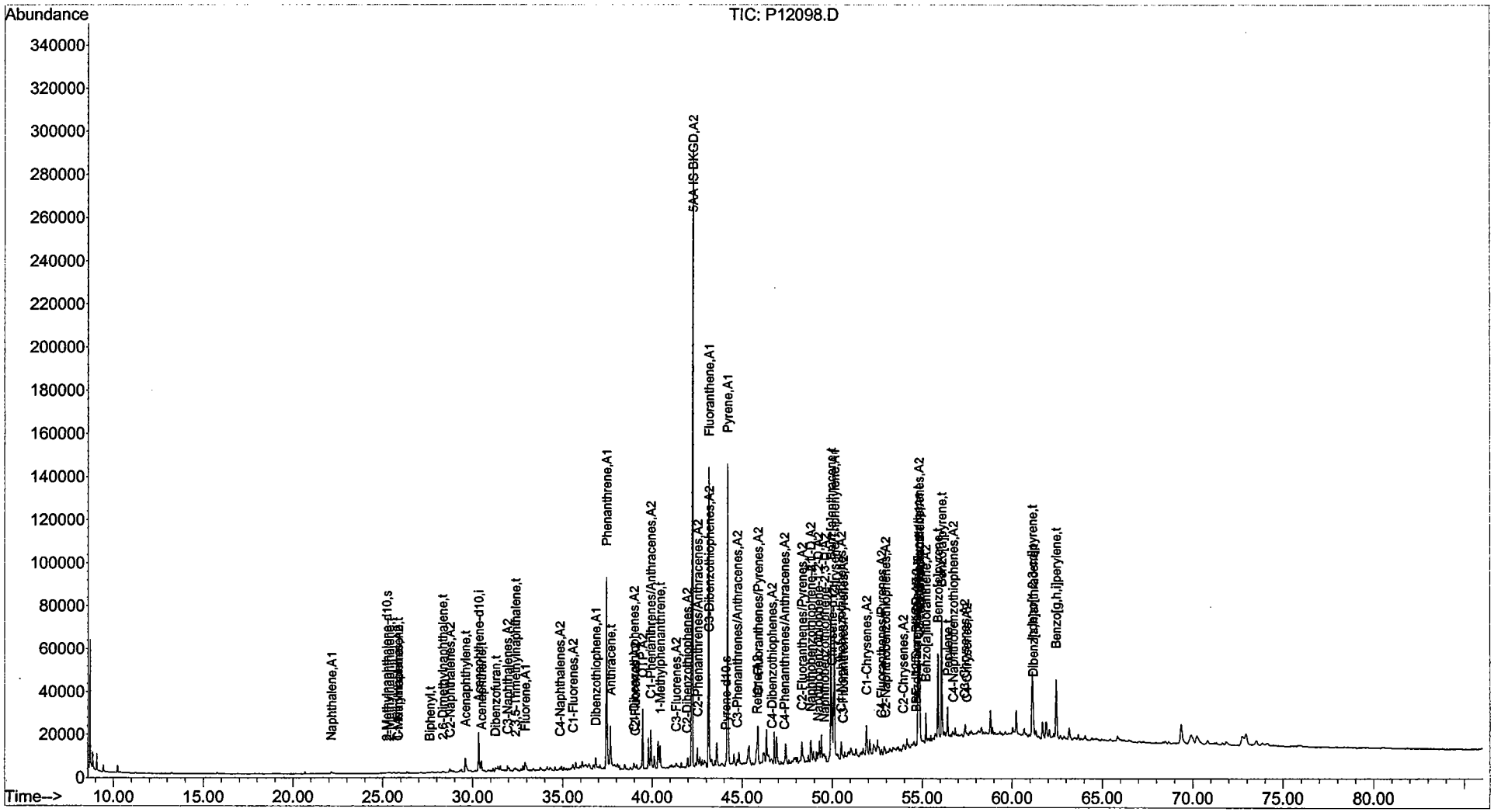
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12098.D
Acq On : 5 Mar 2005 4:01 pm
Operator : AC
Sample : 0502110-07
Misc : 1X
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 10 12:38:53 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF7-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-08**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/05/05	85.0	30.32	12.5	1	AC

Parameter	Result		Parameter	Result
Naphthalene	9.8		Fluoranthene	460
C1-Naphthalenes	25		Pyrene	580
C2-Naphthalenes	66		C1-Fluoranthenes/Pyrenes	350
C3-Naphthalenes	91		C2-Fluoranthenes/Pyrenes	250
C4-Naphthalenes	150		C3-Fluoranthenes/Pyrenes	140
Biphenyl	4.6	J	C4-Fluoranthenes/Pyrenes	91
Dibenzofuran	10		Naphthobenzothiophenes	59
Acenaphthylene	39		C1-Naphthobenzothiophenes	67
Acenaphthene	37		C2-Naphthobenzothiophenes	87
Fluorene	33		C3-Naphthobenzothiophenes	100
C1-Fluorenes	49		C4-Naphthobenzothiophenes	110
C2-Fluorenes	91		Benz[a]anthracene	260
C3-Fluorenes	140		Chrysene/Triphenylene	270
Anthracene	110		C1-Chrysenes	190
Phenanthrene	410		C2-Chrysenes	130
C1-Phenanthrenes/Anthracenes	380		C3-Chrysenes	160
C2-Phenanthrenes/Anthracenes	300		C4-Chrysenes	110
C3-Phenanthrenes/Anthracenes	190		Benzo[b]fluoranthene	200
C4-Phenanthrenes/Anthracenes	91		Benzo[k]fluoranthene	200
Retene	1.1	J	Benzo[a]fluoranthene	48
Dibenzothiophene	26		Benzo[e]pyrene	200
C1-Dibenzothiophenes	68		Benzo[a]pyrene	250
C2-Dibenzothiophenes	99		Perylene	59
C3-Dibenzothiophenes	120		Indeno[1,2,3-cd]pyrene	210
C4-Dibenzothiophenes	70		Dibenz[a,h]anthracene	40
Benzo(b)fluorene	0.49	U	Benzo[g,h,i]perylene	240

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	73	50-130
Pyrene-d10	93	50-130
Benzo[b]fluoranthene-d12	85	50-130

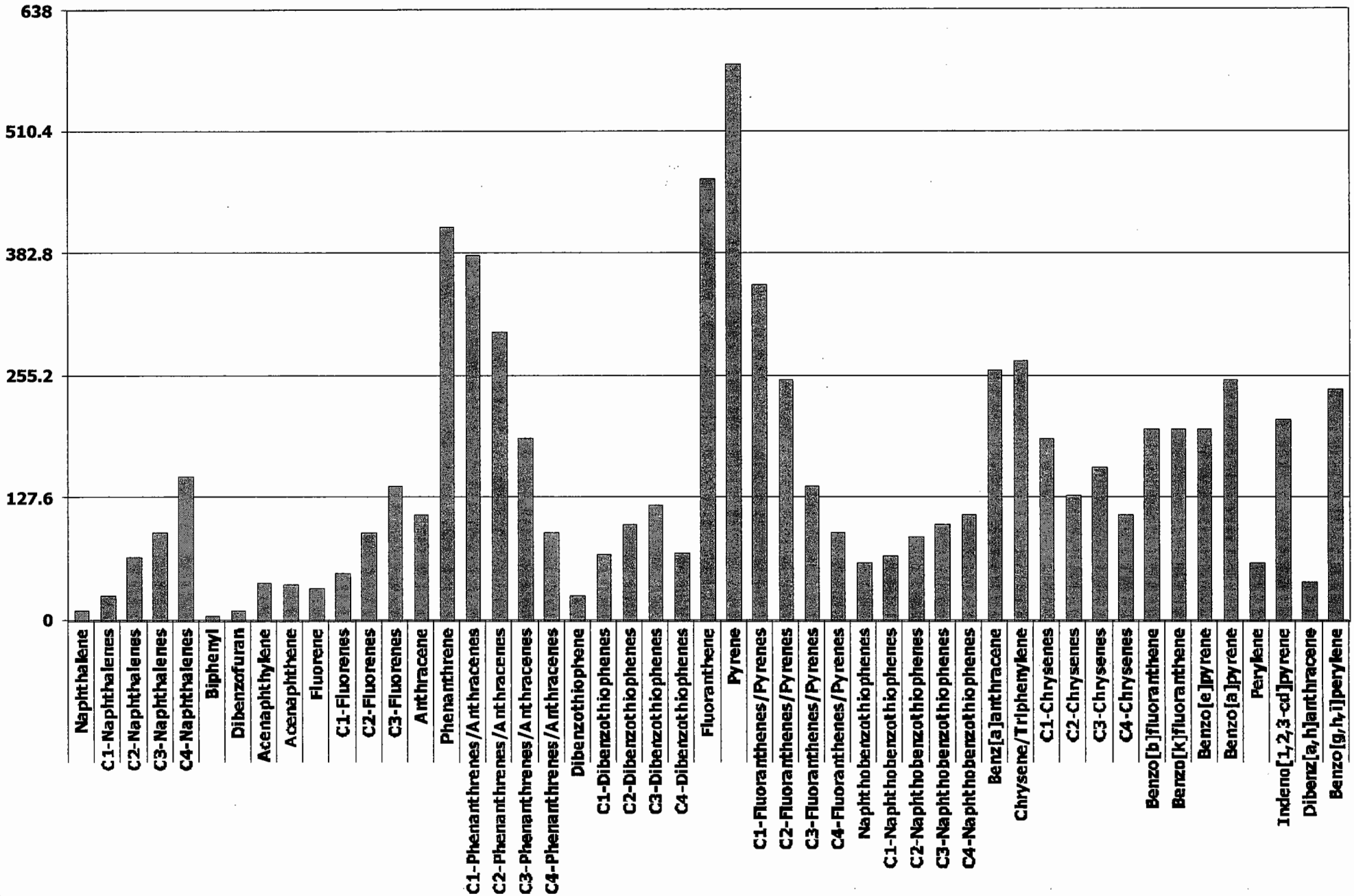
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:43

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OFF7-0006-01** Lab ID: **0502110-08**

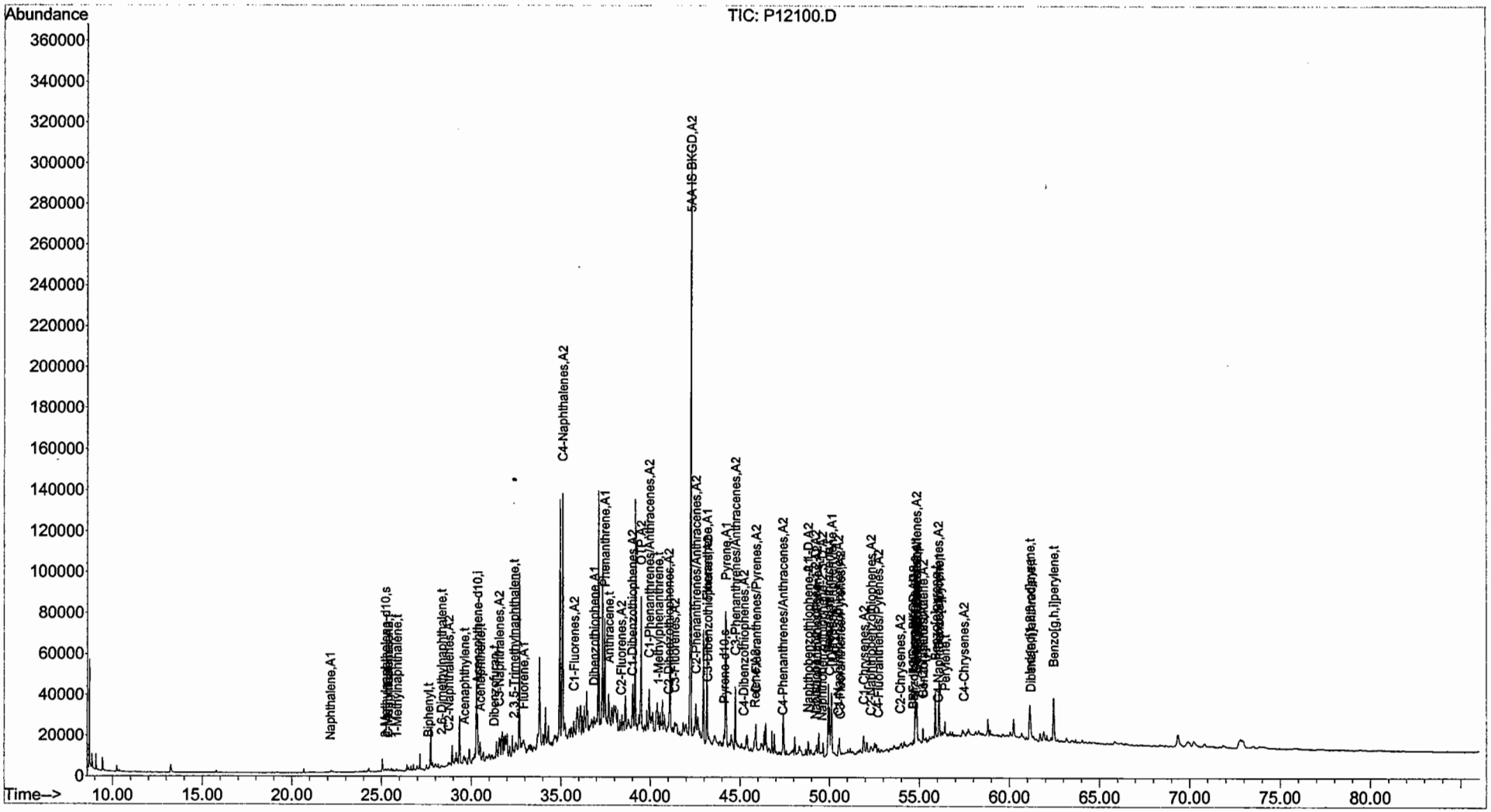
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12100.D
Acq On : 5 Mar 2005 5:43 pm
Operator : AC
Sample : 0502110-08
Misc : 1X
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 10 12:50:40 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-JPC03-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-09**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/05/05	84.4	30.66	2	1	AC

Parameter	Result		Parameter	Result
Naphthalene	**0.37**	J	Fluoranthene	**100**
C1-Naphthalenes	**0.55**	J	Pyrene	**92**
C2-Naphthalenes	**2.0**		C1-Fluoranthenes/Pyrenes	**44**
C3-Naphthalenes	**4.0**		C2-Fluoranthenes/Pyrenes	**32**
C4-Naphthalenes	**3.0**		C3-Fluoranthenes/Pyrenes	**16**
Biphenyl	**0.45**	J	C4-Fluoranthenes/Pyrenes	**11**
Dibenzofuran	**0.58**	J	Naphthobenzothiophenes	**12**
Acenaphthylene	**14**		C1-Naphthobenzothiophenes	**8.1**
Acenaphthene	**1.4**		C2-Naphthobenzothiophenes	**10**
Fluorene	**1.5**		C3-Naphthobenzothiophenes	**13**
C1-Fluorenes	**2.5**		C4-Naphthobenzothiophenes	**13**
C2-Fluorenes	**3.1**		Benz[a]anthracene	**38**
C3-Fluorenes	**8.4**		Chrysene/Triphenylene	**49**
Anthracene	**14**		C1-Chrysenes	**21**
Phenanthrene	**40**		C2-Chrysenes	**11**
C1-Phenanthrenes/Anthracenes	**31**		C3-Chrysenes	**17**
C2-Phenanthrenes/Anthracenes	**19**		C4-Chrysenes	**16**
C3-Phenanthrenes/Anthracenes	**8.0**		Benzo[b]fluoranthene	**34**
C4-Phenanthrenes/Anthracenes	**3.0**		Benzo[k]fluoranthene	**36**
Retene	0.11	U	Benzo[a]fluoranthene	**8.3**
Dibenzothiophene	**2.8**		Benzo[e]pyrene	**31**
C1-Dibenzothiophenes	**6.4**		Benzo[a]pyrene	**37**
C2-Dibenzothiophenes	**8.5**		Perylene	**8.9**
C3-Dibenzothiophenes	**6.2**		Indeno[1,2,3-cd]pyrene	**30**
C4-Dibenzothiophenes	**4.5**		Dibenz[a,h]anthracene	**5.7**
Benzo(b)fluorene	0.078	U	Benzo[g,h,i]perylene	**28**

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	50	50-130
Pyrene-d10	87	50-130
Benzo[b]fluoranthene-d12	77	50-130

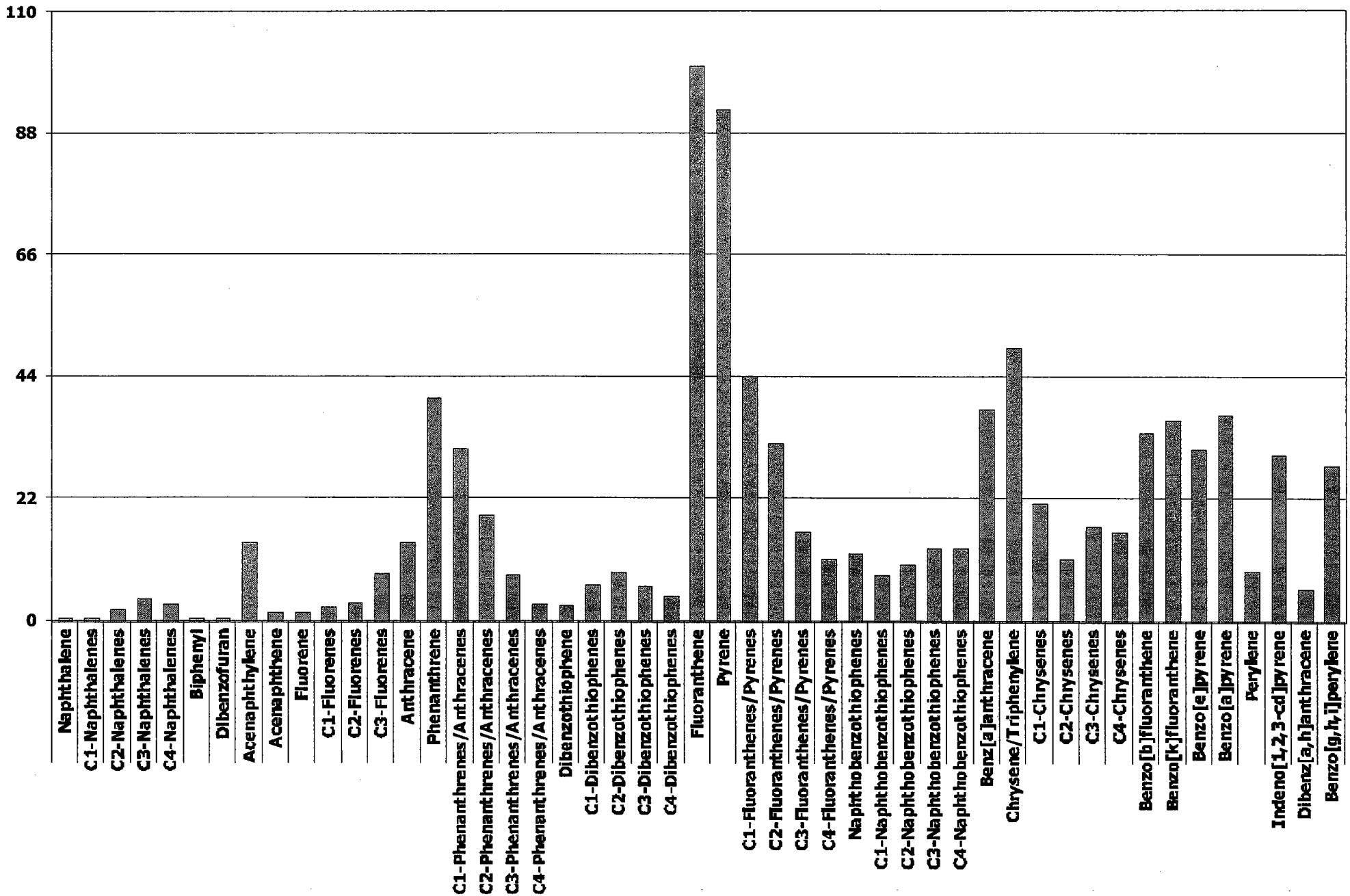
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:43

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-JPC03-0006-01** Lab ID: **0502110-09**

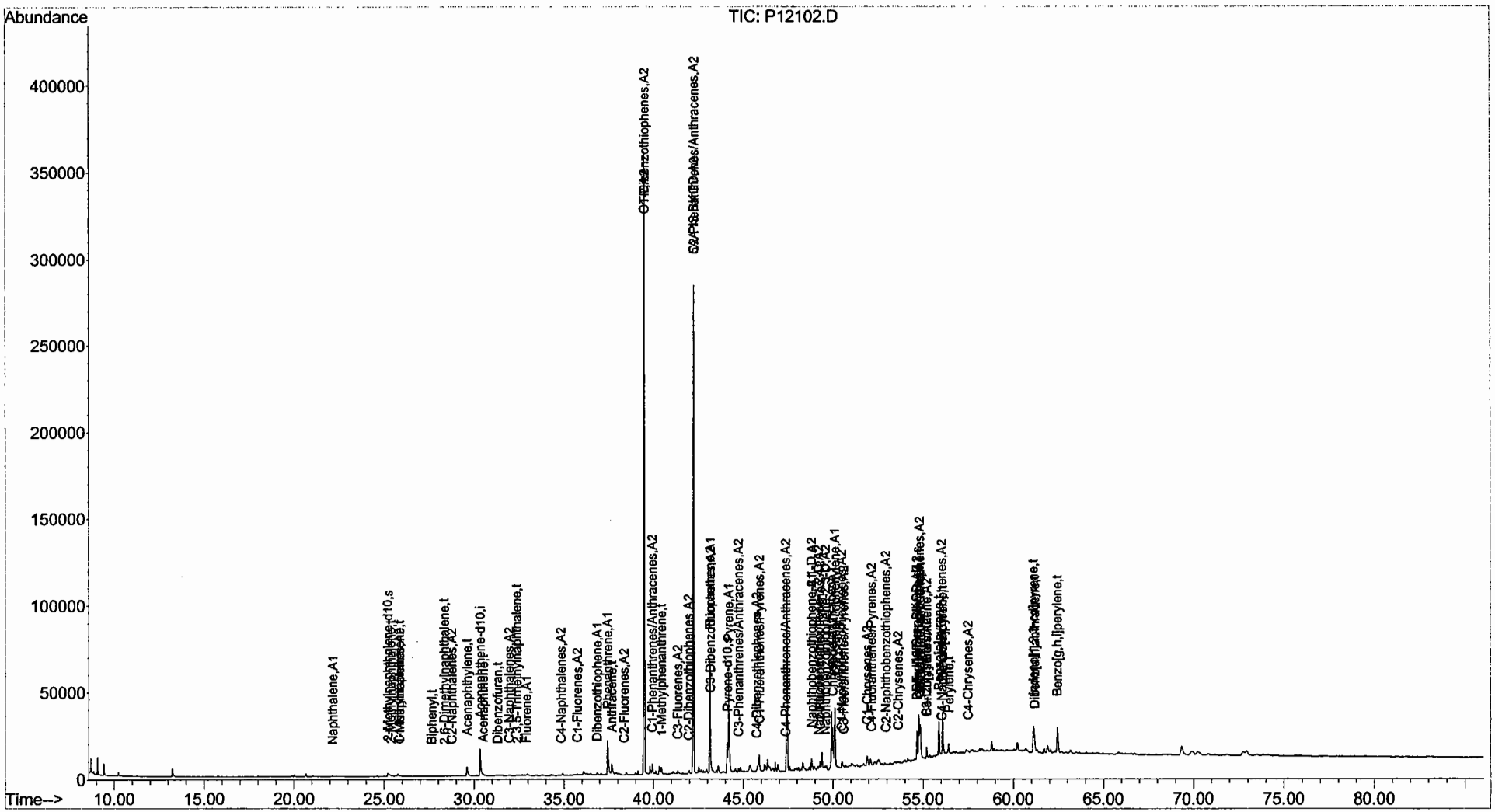
Concentration: µg/Kg



ation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12102.D
Acq On : 5 Mar 2005 7:24 pm
Operator : AC
Sample : 0502110-09
Misc : 1X
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Mar 10 13:25:06 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OTSOF075-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-10**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/05/05	74.0	30.60	5	1	AC

Parameter	Result	Parameter	Result
Naphthalene	19	Fluoranthene	4100 E
C1-Naphthalenes	14	Pyrene	3500 E
C2-Naphthalenes	28	C1-Fluoranthenes/Pyrenes	2200
C3-Naphthalenes	31	C2-Fluoranthenes/Pyrenes	3000
C4-Naphthalenes	30	C3-Fluoranthenes/Pyrenes	2000
Biphenyl	5.5	C4-Fluoranthenes/Pyrenes	1100
Dibenzofuran	53	Naphthobenzothiophenes	490
Acenaphthylene	130	C1-Naphthobenzothiophenes	450
Acenaphthene	80	C2-Naphthobenzothiophenes	530
Fluorene	100	C3-Naphthobenzothiophenes	410
C1-Fluorenes	35	C4-Naphthobenzothiophenes	270
C2-Fluorenes	94	Benz[a]anthracene	1200
C3-Fluorenes	570	Chrysene/Triphenylene	2200
Anthracene	250	C1-Chrysenes	1600
Phenanthrene	2100	C2-Chrysenes	1400
C1-Phenanthrenes/Anthracenes	600	C3-Chrysenes	1100
C2-Phenanthrenes/Anthracenes	970	C4-Chrysenes	480
C3-Phenanthrenes/Anthracenes	1900	Benzo[b]fluoranthene	1900
C4-Phenanthrenes/Anthracenes	1200	Benzo[k]fluoranthene	1300
Retene	0.32 U	Benzo[a]fluoranthene	180
Dibenzothiophene	120	Benzo[e]pyrene	1400
C1-Dibenzothiophenes	74	Benzo[a]pyrene	1400
C2-Dibenzothiophenes	200	Perylene	380
C3-Dibenzothiophenes	480	Indeno[1,2,3-cd]pyrene	1300
C4-Dibenzothiophenes	430	Dibenz[a,h]anthracene	250
Benzo(b)fluorene	120	Benzo[g,h,i]perylene	1200

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	70	50-130
Pyrene-d10	112	50-130
Benzo[b]fluoranthene-d12	88	50-130

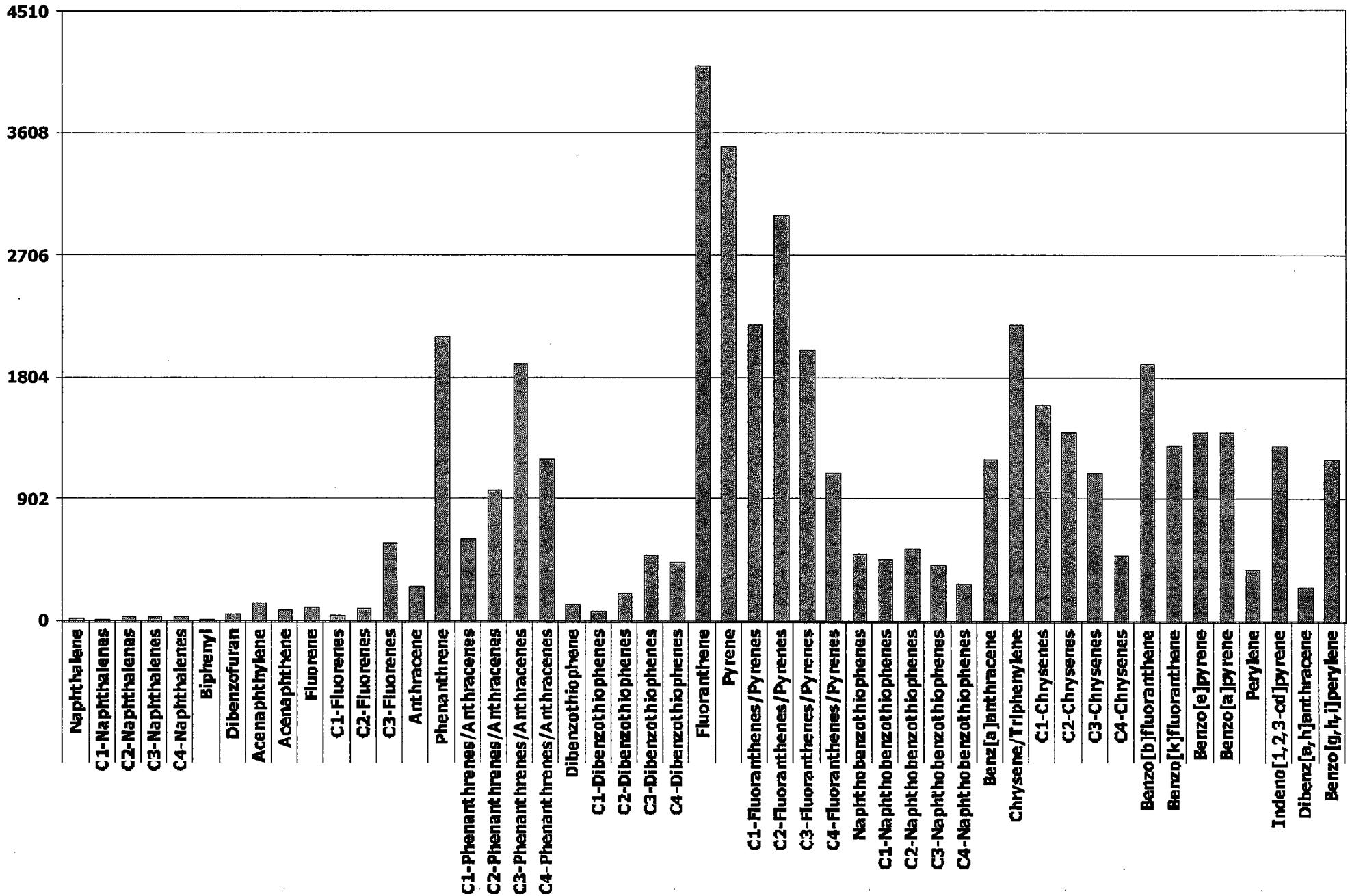
N/A - Not Applicable
E - Estimated value, exceeds the upper limit of calibration.
U - The analyte was analyzed for but not detected at the sample specific level reported.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OTSOF075-0006-01** Lab ID: **0502110-10**

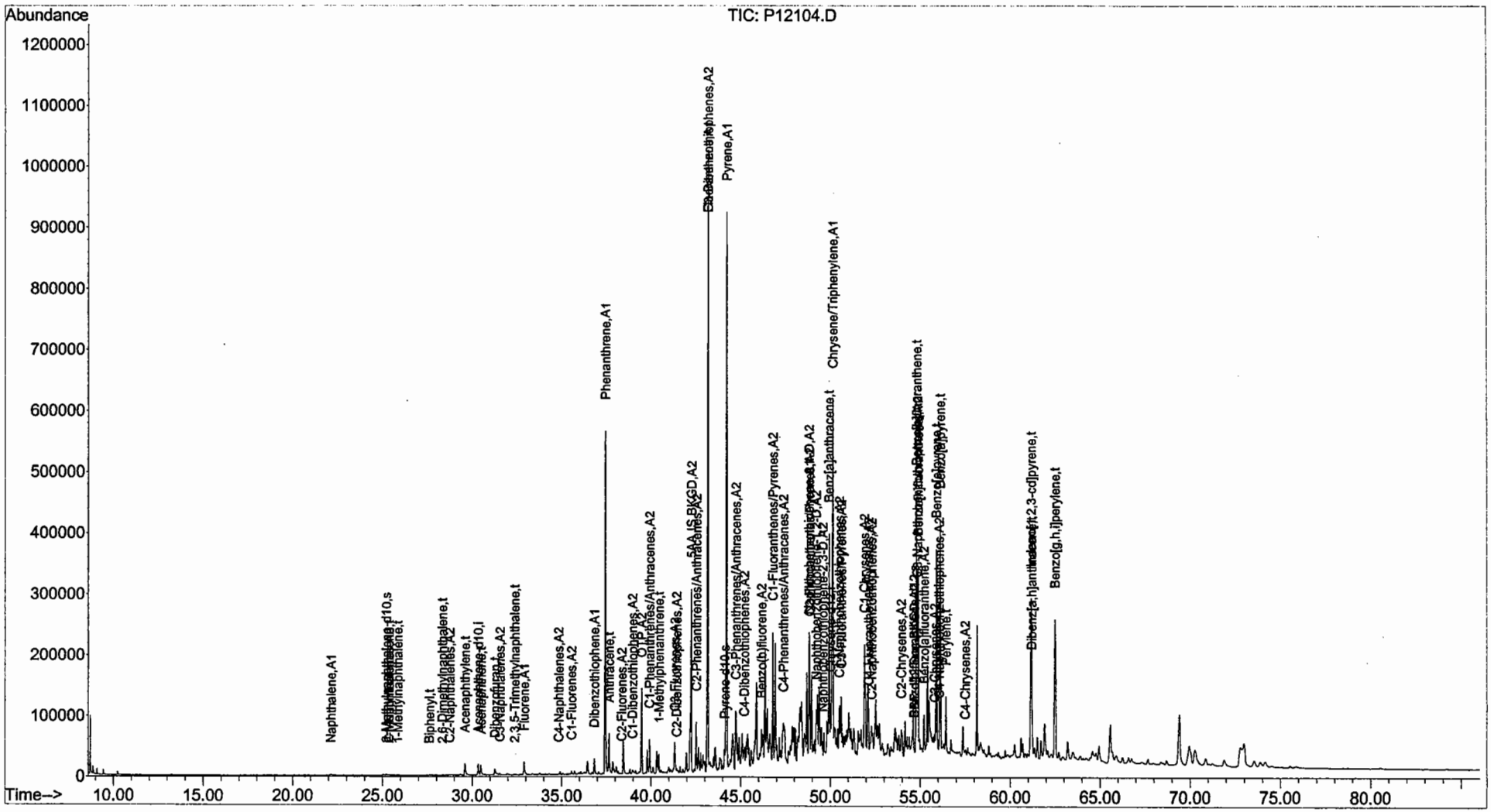
Concentration: µg/Kg



ation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12104.D
Acq On : 5 Mar 2005 9:06 pm
Operator : AC
Sample : 0502110-10
Misc : 1X
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Mar 11 07:41:17 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OTSOF075-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-10E**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/07/05	74.0	30.60	5	4	AC

Parameter	Result		Parameter	Result	
Naphthalene	1.5	U	Fluoranthene	**4600**	
C1-Naphthalenes	1.5	U	Pyrene	**3900**	
C2-Naphthalenes	1.5	U	C1-Fluoranthenes/Pyrenes	0.79	U
C3-Naphthalenes	1.5	U	C2-Fluoranthenes/Pyrenes	0.79	U
C4-Naphthalenes	1.5	U	C3-Fluoranthenes/Pyrenes	0.79	U
Biphenyl	0.80	U	C4-Fluoranthenes/Pyrenes	0.79	U
Dibenzofuran	1.0	U	Naphthobenzothiophenes	1.1	U
Acenaphthylene	1.6	U	C1-Naphthobenzothiophenes	1.1	U
Acenaphthene	1.0	U	C2-Naphthobenzothiophenes	1.1	U
Fluorene	1.0	U	C3-Naphthobenzothiophenes	1.1	U
C1-Fluorenes	1.0	U	C4-Naphthobenzothiophenes	1.1	U
C2-Fluorenes	1.0	U	Benz[a]anthracene	1.4	U
C3-Fluorenes	1.0	U	Chrysene/Triphenylene	0.95	U
Anthracene	1.2	U	C1-Chrysenes	0.95	U
Phenanthrene	1.3	U	C2-Chrysenes	0.95	U
C1-Phenanthrenes/Anthracenes	1.3	U	C3-Chrysenes	0.95	U
C2-Phenanthrenes/Anthracenes	1.3	U	C4-Chrysenes	0.95	U
C3-Phenanthrenes/Anthracenes	1.3	U	Benzo[b]fluoranthene	0.94	U
C4-Phenanthrenes/Anthracenes	1.3	U	Benzo[k]fluoranthene	1.8	U
Retene	1.3	U	Benzo[a]fluoranthene	1.8	U
Dibenzothiophene	0.98	U	Benzo[e]pyrene	1.2	U
C1-Dibenzothiophenes	0.98	U	Benzo[a]pyrene	1.2	U
C2-Dibenzothiophenes	0.98	U	Perylene	1.5	U
C3-Dibenzothiophenes	0.98	U	Indeno[1,2,3-cd]pyrene	2.1	U
C4-Dibenzothiophenes	0.98	U	Dibenz[a,h]anthracene	1.7	U
Benzo(b)fluorene	0.89	U	Benzo[g,h,i]perylene	1.6	U

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	64	50-130
Pyrene-d10	109	50-130
Benzo[b]fluoranthene-d12	94	50-130

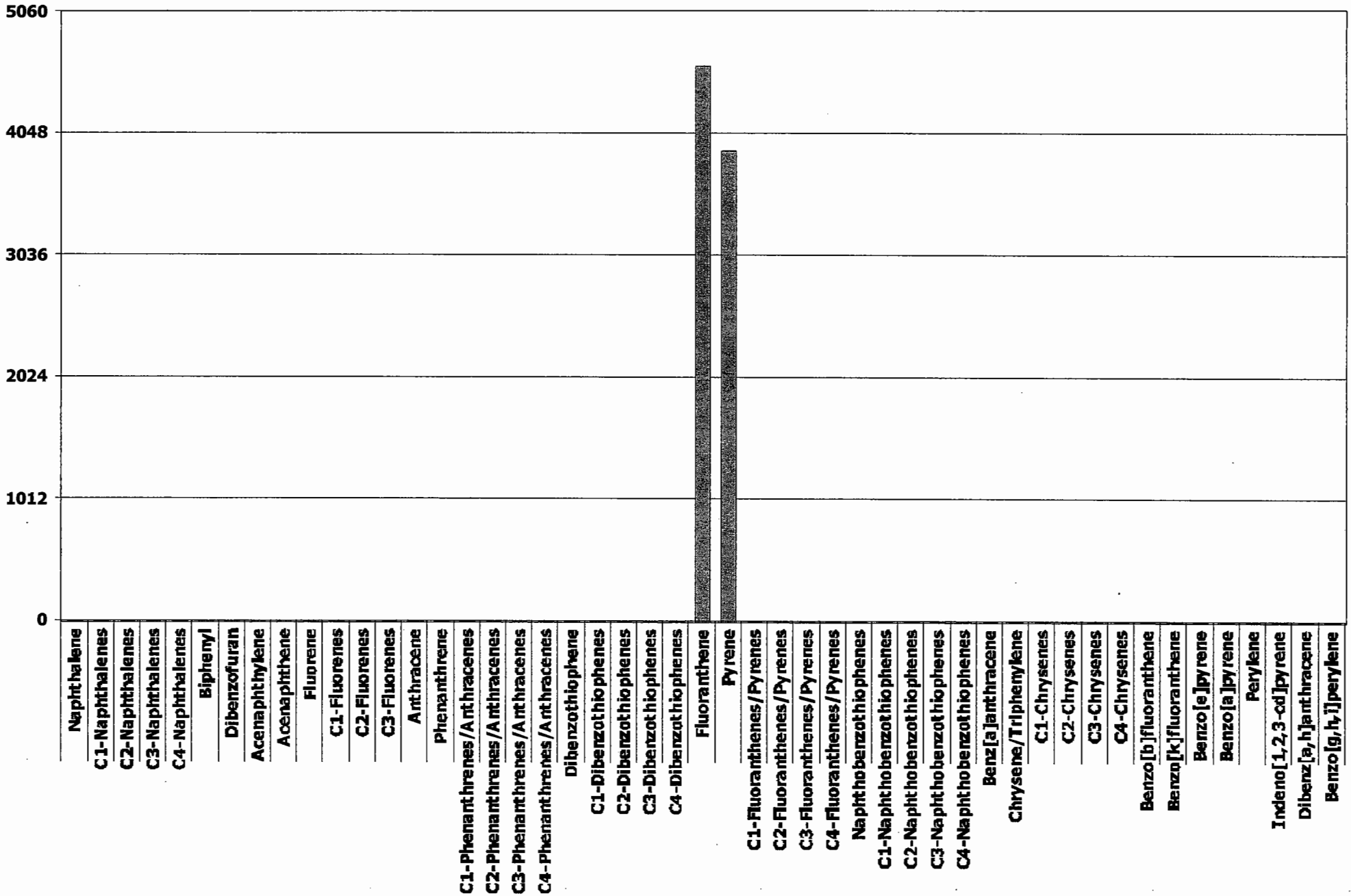
N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:45

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OTSOF075-0006-01** Lab ID: **0502110-10**

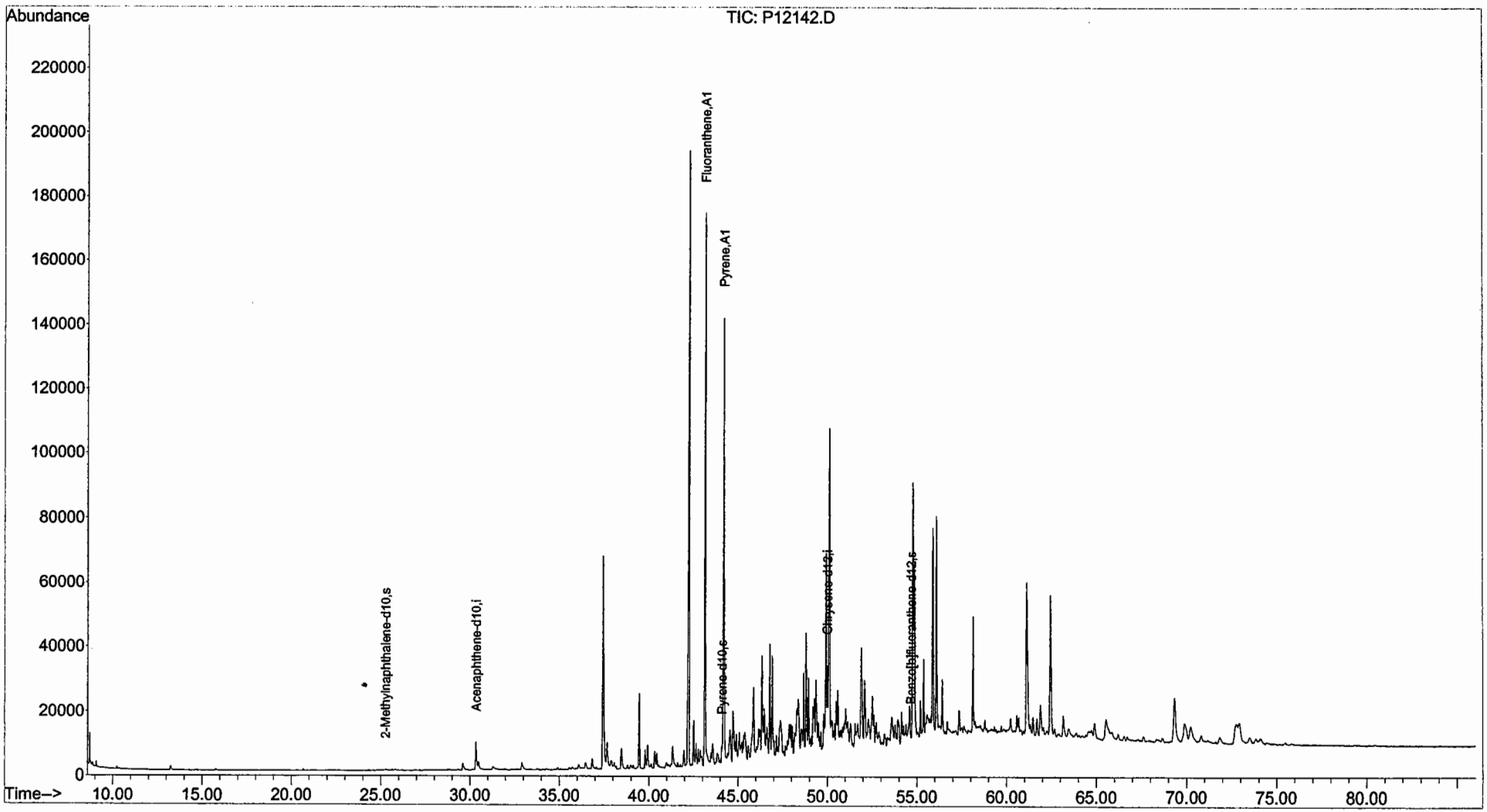
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH07\
Data File : P12142.D
Acq On : 7 Mar 2005 10:14 pm
Operator : AC
Sample : 0502110-10E
Misc : 4X
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 11 10:35:49 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OTSOF075A-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-11**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/05/05	79.7	30.69	20	1	AC

Parameter	Result		Parameter	Result
Naphthalene	21		Fluoranthene	2000
C1-Naphthalenes	27		Pyrene	1700
C2-Naphthalenes	100		C1-Fluoranthenes/Pyrenes	600
C3-Naphthalenes	600		C2-Fluoranthenes/Pyrenes	420
C4-Naphthalenes	1300		C3-Fluoranthenes/Pyrenes	210
Biphenyl	4.4	J	C4-Fluoranthenes/Pyrenes	170
Dibenzofuran	37		Naphthobenzothiophenes	200
Acenaphthylene	45		C1-Naphthobenzothiophenes	130
Acenaphthene	67		C2-Naphthobenzothiophenes	150
Fluorene	76		C3-Naphthobenzothiophenes	150
C1-Fluorenes	110		C4-Naphthobenzothiophenes	140
C2-Fluorenes	350		Benz[a]anthracene	600
C3-Fluorenes	470		Chrysene/Triphenylene	860
Anthracene	200		C1-Chrysenes	280
Phenanthrene	1200		C2-Chrysenes	150
C1-Phenanthrenes/Anthracenes	420		C3-Chrysenes	190
C2-Phenanthrenes/Anthracenes	480		C4-Chrysenes	120
C3-Phenanthrenes/Anthracenes	320		Benzo[b]fluoranthene	720
C4-Phenanthrenes/Anthracenes	130		Benzo[k]fluoranthene	630
Retene	3.6	J	Benzo[a]fluoranthene	100
Dibenzothiophene	71		Benzo[e]pyrene	540
C1-Dibenzothiophenes	130		Benzo[a]pyrene	660
C2-Dibenzothiophenes	200		Perylene	180
C3-Dibenzothiophenes	190		Indeno[1,2,3-cd]pyrene	560
C4-Dibenzothiophenes	100		Dibenz[a,h]anthracene	100
Benzo(b)fluorene	66		Benzo[g,h,i]perylene	500

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	77	50-130
Pyrene-d10	95	50-130
Benzo[b]fluoranthene-d12	82	50-130

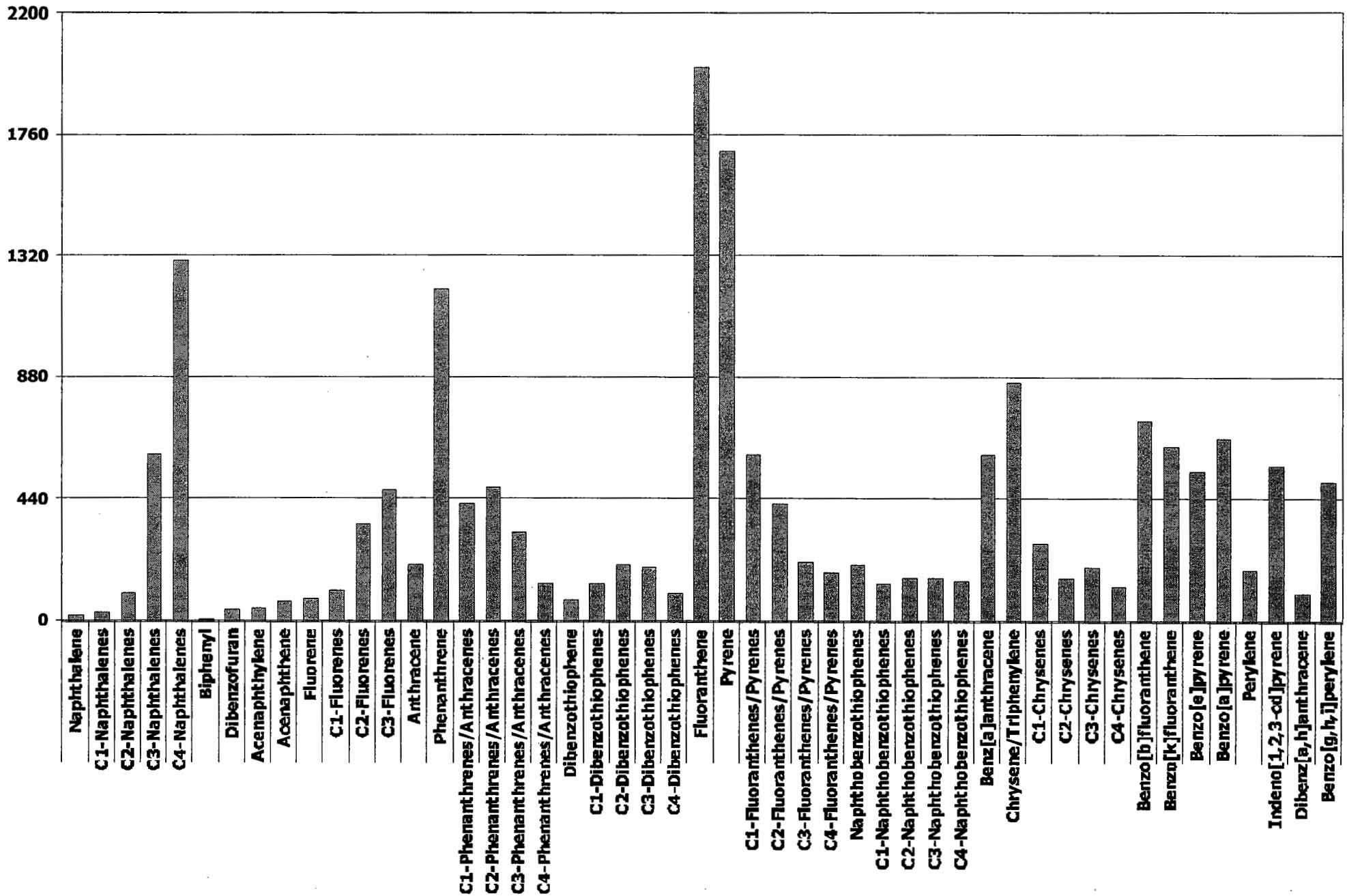
N/A - Not Applicable
J - Estimated value, below quantitation limit.

03/18/05 07:44

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OTSOF075A-0006-01** Lab ID: **0502110-11**

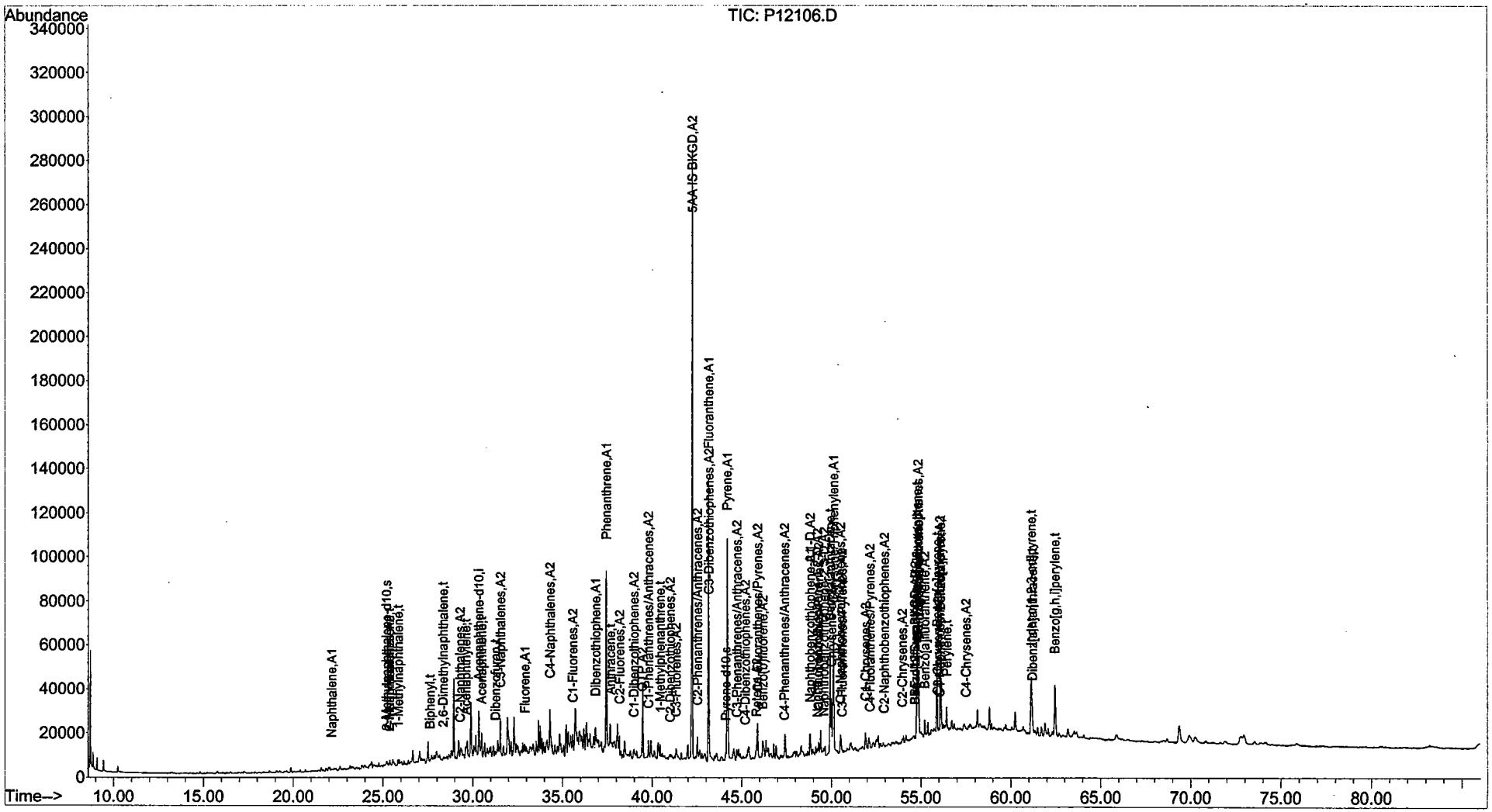
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12106.D
Acq On : 5 Mar 2005 10:49 pm
Operator : AC
Sample : 0502110-11
Misc : 1X
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Mar 11 07:59:12 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OTSOF093-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-12**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/06/05	84.1	30.30	2.5	1	AC

Parameter	Result		Parameter	Result
Naphthalene	**0.76**	J	Fluoranthene	**71**
C1-Naphthalenes	**0.83**	J	Pyrene	**66**
C2-Naphthalenes	**4.6**		C1-Fluoranthenes/Pyrenes	**35**
C3-Naphthalenes	**6.5**		C2-Fluoranthenes/Pyrenes	**40**
C4-Naphthalenes	**7.1**		C3-Fluoranthenes/Pyrenes	**34**
Biphenyl	0.089	U	C4-Fluoranthenes/Pyrenes	**27**
Dibenzofuran	**1.2**		Naphthobenzothiophenes	**14**
Acenaphthylene	**7.8**		C1-Naphthobenzothiophenes	**24**
Acenaphthene	**1.4**		C2-Naphthobenzothiophenes	**43**
Fluorene	**1.8**		C3-Naphthobenzothiophenes	**65**
C1-Fluorenes	**17**		C4-Naphthobenzothiophenes	**84**
C2-Fluorenes	**15**		Benz[a]anthracene	**26**
C3-Fluorenes	**22**		Chrysene/Triphenylene	**44**
Anthracene	**10**		C1-Chrysenes	**24**
Phenanthrene	**43**		C2-Chrysenes	**22**
C1-Phenanthrenes/Anthracenes	**34**		C3-Chrysenes	**47**
C2-Phenanthrenes/Anthracenes	**33**		C4-Chrysenes	**44**
C3-Phenanthrenes/Anthracenes	**19**		Benzo[b]fluoranthene	**36**
C4-Phenanthrenes/Anthracenes	**8.6**		Benzo[k]fluoranthene	**32**
Retene	0.14	U	Benzo[a]fluoranthene	**7.7**
Dibenzothiophene	**5.0**		Benzo[e]pyrene	**33**
C1-Dibenzothiophenes	**43**		Benzo[a]pyrene	**33**
C2-Dibenzothiophenes	**56**		Perylene	**9.9**
C3-Dibenzothiophenes	**44**		Indeno[1,2,3-cd]pyrene	**32**
C4-Dibenzothiophenes	**26**		Dibenz[a,h]anthracene	**6.3**
Benzo(b)fluorene	0.099	U	Benzo[g,h,i]perylene	**31**

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	71	50-130
Pyrene-d10	92	50-130
Benzo[b]fluoranthene-d12	87	50-130

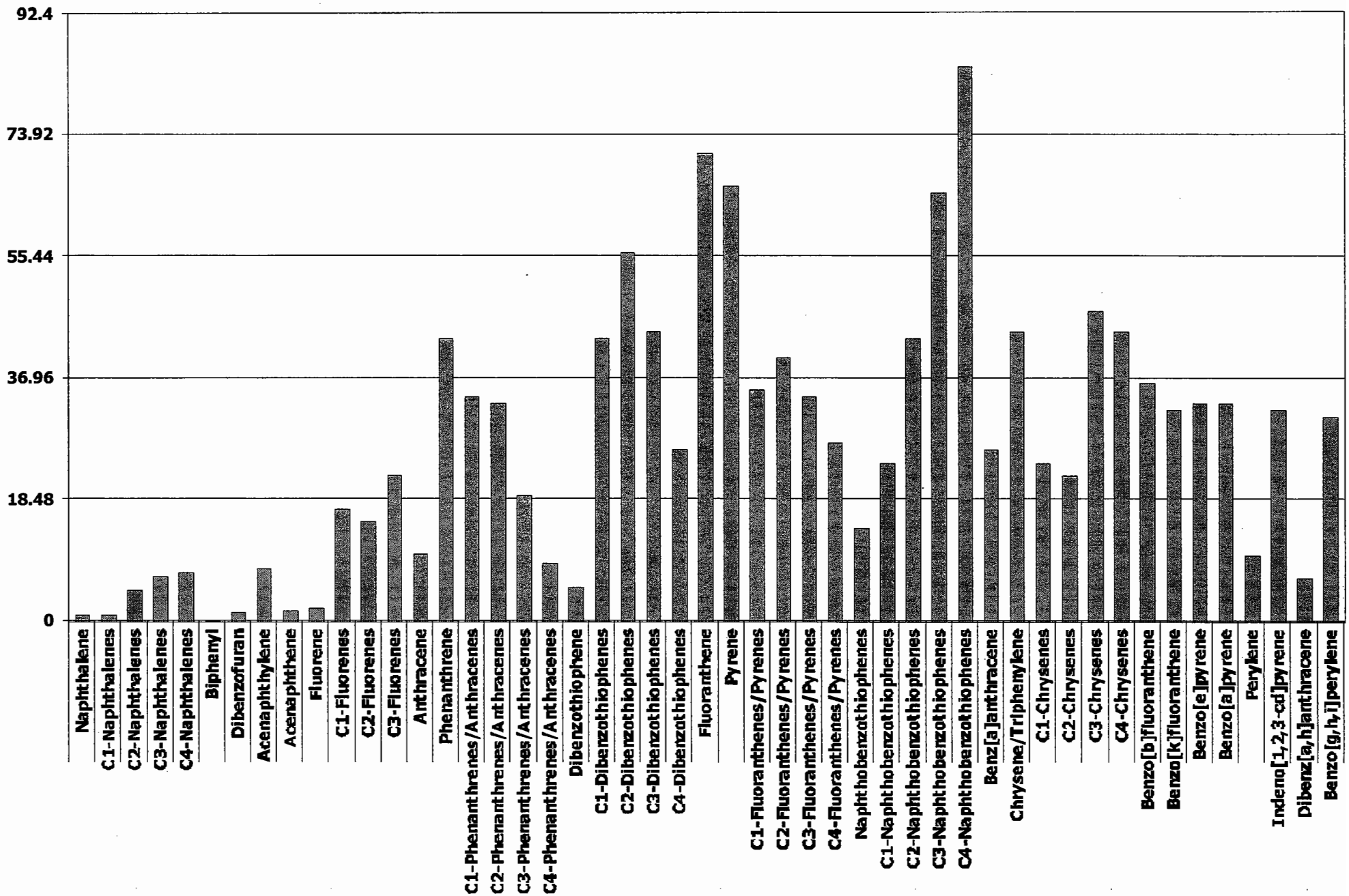
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:44

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-OTSOF093-0006-01** Lab ID: **0502110-12**

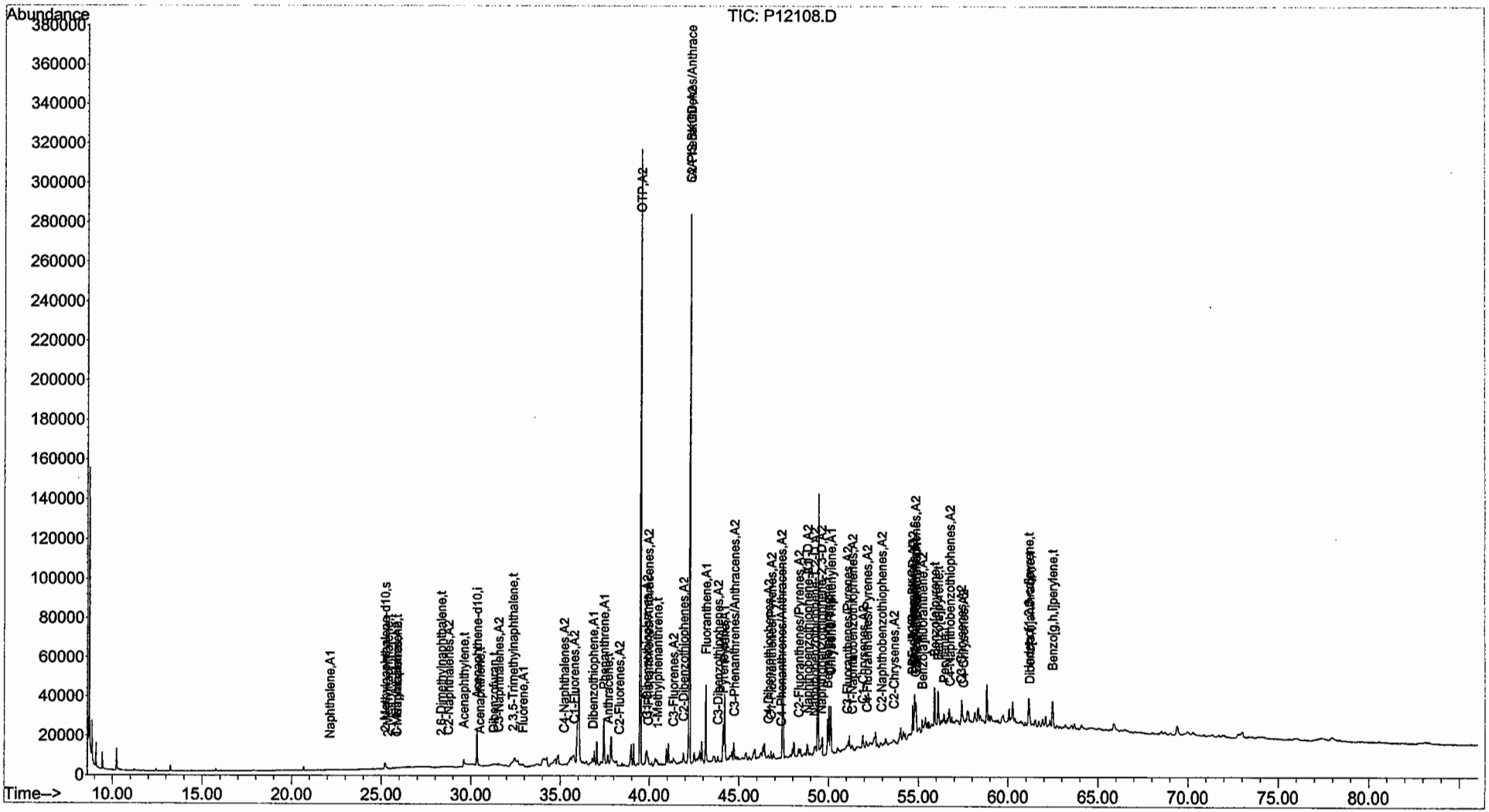
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12108.D
Acq On : 6 Mar 2005 12:19 pm
Operator : AC
Sample : 0502110-12
Misc : 1X
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Mar 11 08:24:12 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS1**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-13**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/10/05	03/14/05	98.0	10.11	50	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	**5.2**	J	Fluoranthene	**18**	J
C1-Naphthalenes	**4.5**	J	Pyrene	**210**	
C2-Naphthalenes	8.3	U	C1-Fluoranthenes/Pyrenes	**770**	
C3-Naphthalenes	8.3	U	C2-Fluoranthenes/Pyrenes	**1600**	
C4-Naphthalenes	8.3	U	C3-Fluoranthenes/Pyrenes	**2200**	
Biphenyl	4.6	U	C4-Fluoranthenes/Pyrenes	**2500**	
Dibenzofuran	6.0	U	Naphthobenzothiophenes	**95**	
Acenaphthylene	**4.2**	J	C1-Naphthobenzothiophenes	**1200**	
Acenaphthene	5.8	U	C2-Naphthobenzothiophenes	**4500**	
Fluorene	5.8	U	C3-Naphthobenzothiophenes	**6500**	
C1-Fluorenes	5.8	U	C4-Naphthobenzothiophenes	**6400**	
C2-Fluorenes	5.8	U	Benz[a]anthracene	**20**	J
C3-Fluorenes	5.8	U	Chrysene/Triphenylene	**290**	
Anthracene	**5.6**	J	C1-Chrysenes	**780**	
Phenanthrene	**20**	J	C2-Chrysenes	**2400**	
C1-Phenanthrenes/Anthracenes	**48**	J	C3-Chrysenes	**3900**	
C2-Phenanthrenes/Anthracenes	**84**		C4-Chrysenes	**2500**	
C3-Phenanthrenes/Anthracenes	**320**		Benzo[b]fluoranthene	**130**	
C4-Phenanthrenes/Anthracenes	**770**		Benzo[k]fluoranthene	**45**	J
Retene	7.3	U	Benzo[a]fluoranthene	10	U
Dibenzothiophene	5.6	U	Benzo[e]pyrene	**520**	
C1-Dibenzothiophenes	**26**	J	Benzo[a]pyrene	**140**	
C2-Dibenzothiophenes	**85**		Perylene	**56**	
C3-Dibenzothiophenes	**380**		Indeno[1,2,3-cd]pyrene	**88**	
C4-Dibenzothiophenes	**1100**		Dibenz[a,h]anthracene	**49**	J
Benzo(b)fluorene	5.1	U	Benzo[g,h,i]perylene	**220**	

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	60	50-130
Pyrene-d10	85	50-130
Benzo[b]fluoranthene-d12	77	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

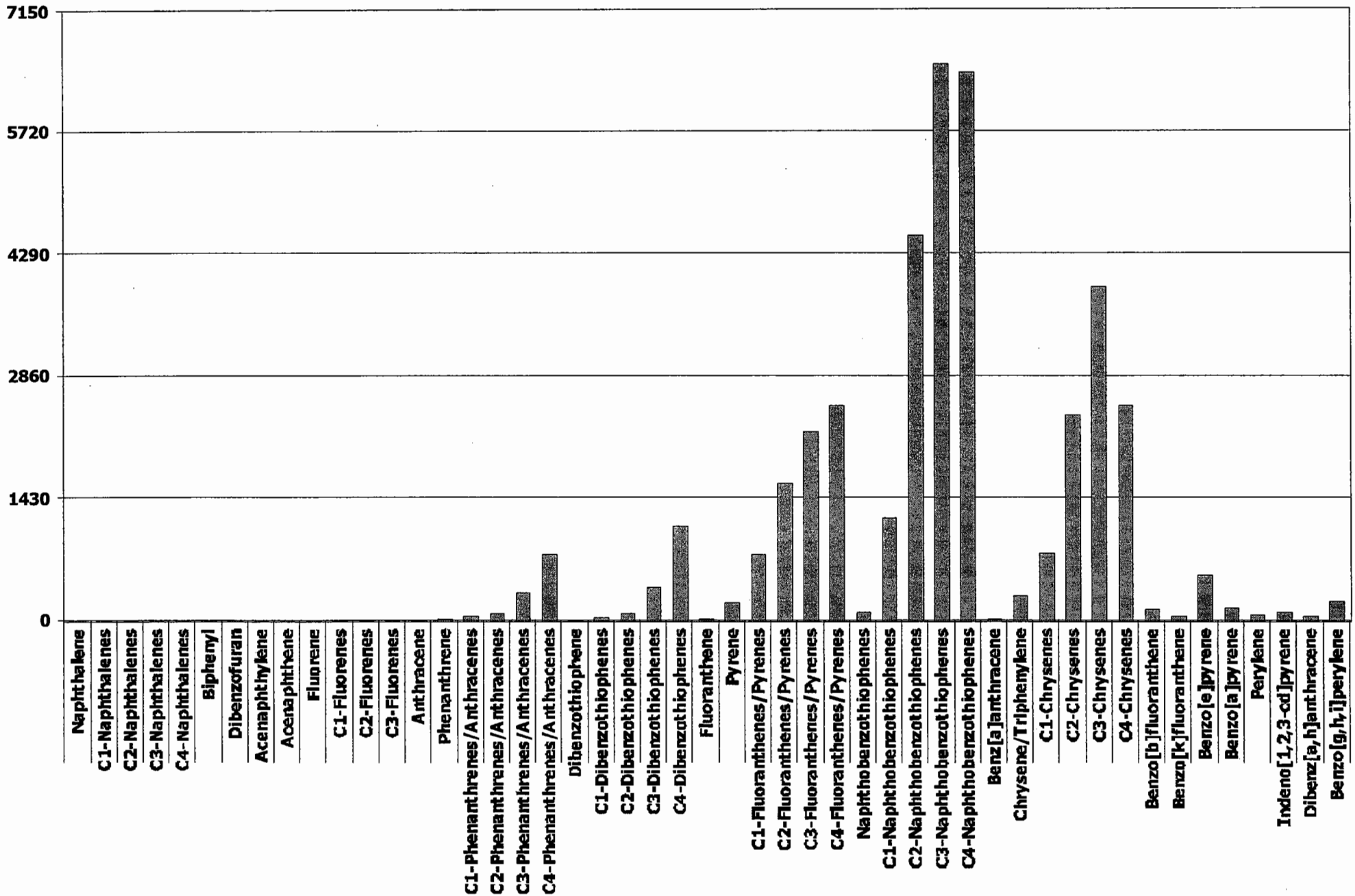
03/21/05 07:18

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-414-DEBRIS1**

Lab ID: **0502110-13**

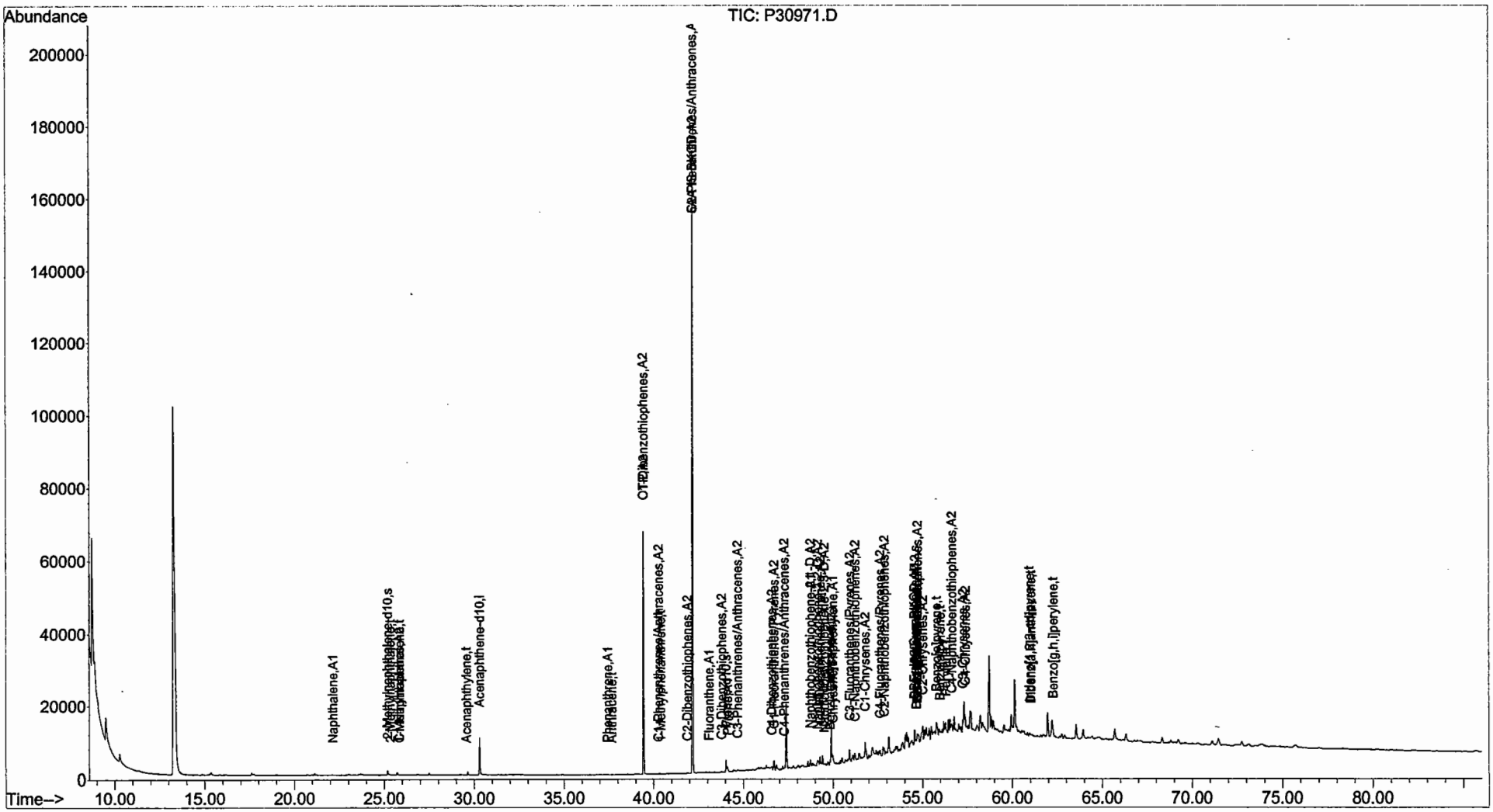
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30971.D
Acq On : 14 Mar 2005 11:08 pm
Operator : AC
Sample : 0502110-13
Misc : 1X
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 15 10:59:03 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



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Form I
Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS1**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-13 D**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/10/05	03/15/05	98.0	10.16	50	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	**5.1**	J	Fluoranthene	**26**	J
C1-Naphthalenes	**7.8**	J	Pyrene	**200**	
C2-Naphthalenes	8.3	U	C1-Fluoranthenes/Pyrenes	**770**	
C3-Naphthalenes	8.3	U	C2-Fluoranthenes/Pyrenes	**1700**	
C4-Naphthalenes	8.3	U	C3-Fluoranthenes/Pyrenes	**2200**	
Biphenyl	4.6	U	C4-Fluoranthenes/Pyrenes	**2400**	
Dibenzofuran	6.0	U	Naphthobenzothiophenes	**94**	
Acenaphthylene	**6.3**	J	C1-Naphthobenzothiophenes	**1200**	
Acenaphthene	5.8	U	C2-Naphthobenzothiophenes	**4300**	
Fluorene	5.8	U	C3-Naphthobenzothiophenes	**6700**	
C1-Fluorenes	5.8	U	C4-Naphthobenzothiophenes	**6400**	
C2-Fluorenes	5.8	U	Benz[a]anthracene	**19**	J
C3-Fluorenes	5.8	U	Chrysene/Triphenylene	**290**	
Anthracene	**9.8**	J	C1-Chrysenes	**780**	
Phenanthrene	**20**	J	C2-Chrysenes	**2400**	
C1-Phenanthrenes/Anthracenes	**53**		C3-Chrysenes	**4000**	
C2-Phenanthrenes/Anthracenes	**76**		C4-Chrysenes	**3100**	
C3-Phenanthrenes/Anthracenes	**310**		Benzo[b]fluoranthene	**140**	
C4-Phenanthrenes/Anthracenes	**840**		Benzo[k]fluoranthene	**42**	J
Retene	7.3	U	Benzo[a]fluoranthene	**17**	J
Dibenzothiophene	**8.5**	J	Benzo[e]pyrene	**510**	
C1-Dibenzothiophenes	**53**		Benzo[a]pyrene	**150**	
C2-Dibenzothiophenes	**120**		Perylene	**62**	
C3-Dibenzothiophenes	**350**		Indeno[1,2,3-cd]pyrene	**83**	
C4-Dibenzothiophenes	**920**		Dibenz[a,h]anthracene	**52**	
Benzo(b)fluorene	5.1	U	Benzo[g,h,i]perylene	**230**	

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	63	50-130
Pyrene-d10	86	50-130
Benzo[b]fluoranthene-d12	82	50-130

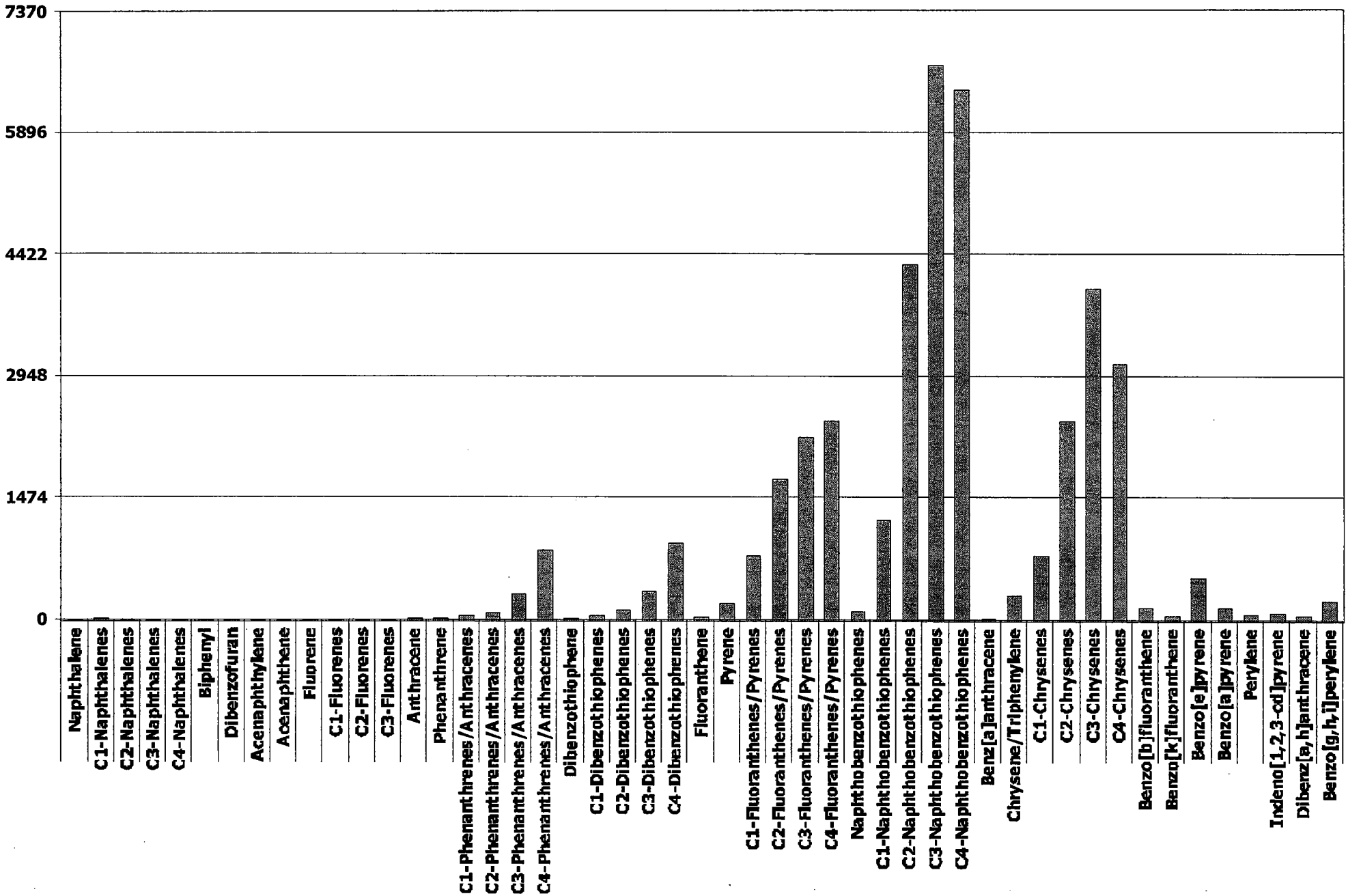
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/21/05 07:19

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-414-DEBRIS1** Lab ID: **0502110-13 D**

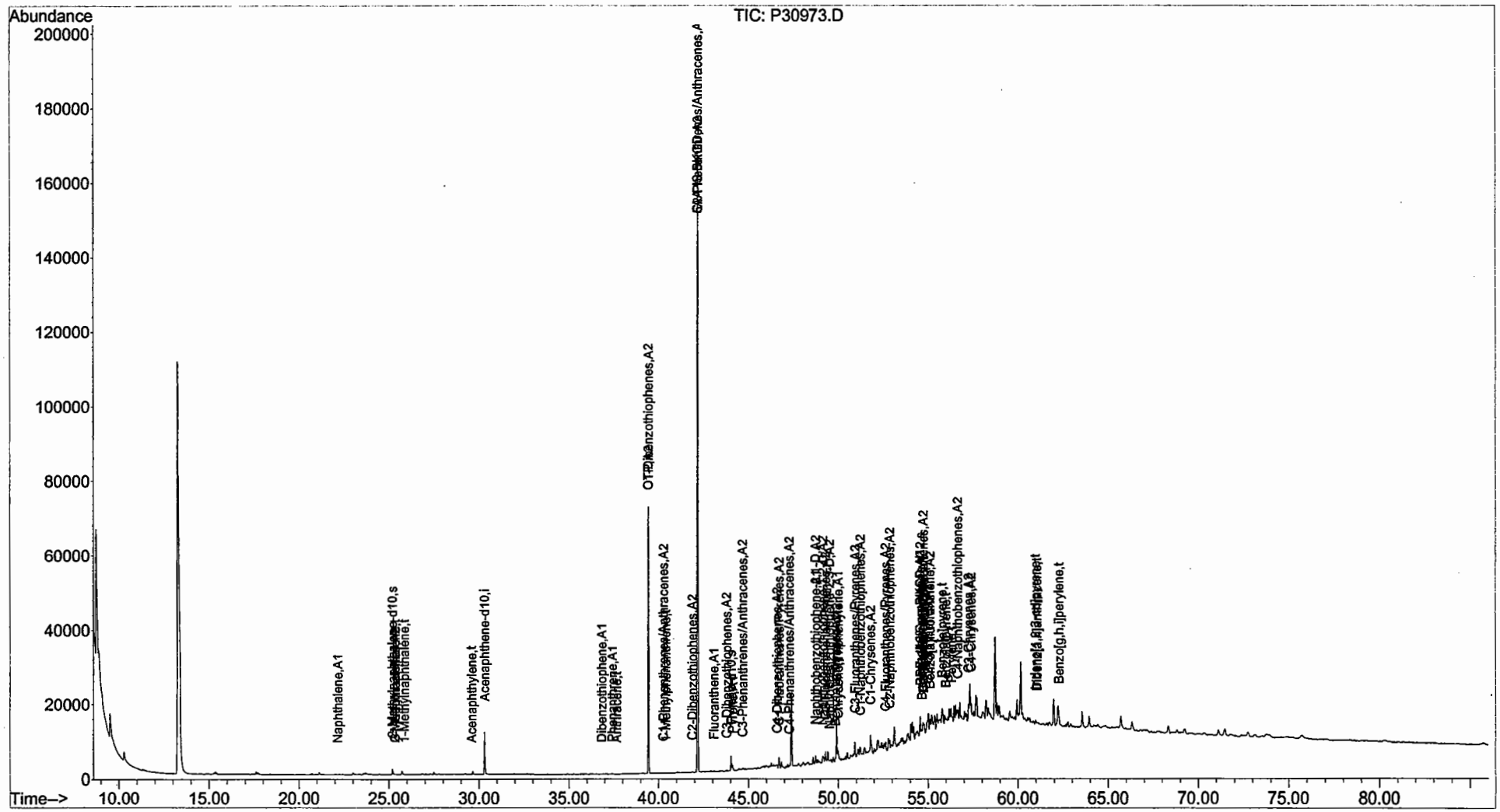
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30973.D
Acq On : 15 Mar 2005 12:51 am
Operator : AC
Sample : 0502110-13D
Misc : 1X
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Mar 17 14:18:48 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



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Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS1**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-13**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
02/23/05	02/25/05	03/10/05	98.0	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
Naphthalene	**5.2** J	**5.1** J	0	30
C1-Naphthalenes	**4.5** J	**7.8** J	53[a]	30
C2-Naphthalenes	8.3 U	8.3 U	N/A	30
C3-Naphthalenes	8.3 U	8.3 U	N/A	30
C4-Naphthalenes	8.3 U	8.3 U	N/A	30
Biphenyl	4.6 U	4.6 U	N/A	30
Dibenzofuran	6.0 U	6.0 U	N/A	30
Acenaphthylene	**4.2** J	**6.3** J	41[a]	30
Acenaphthene	5.8 U	5.8 U	N/A	30
Fluorene	5.8 U	5.8 U	N/A	30
C1-Fluorenes	5.8 U	5.8 U	N/A	30
C2-Fluorenes	5.8 U	5.8 U	N/A	30
C3-Fluorenes	5.8 U	5.8 U	N/A	30
Anthracene	**5.6** J	**9.8** J	55[a]	30
Phenanthrene	**20** J	**20** J	2	30
C1-Phenanthrenes/Anthracenes	**48** J	**53**	9	30
C2-Phenanthrenes/Anthracenes	**84**	**76**	10	30
C3-Phenanthrenes/Anthracenes	**320**	**310**	5	30
C4-Phenanthrenes/Anthracenes	**770**	**840**	9	30
Retene	7.3 U	7.3 U	N/A	30
Dibenzothiophene	5.6 U	**8.5** J	X	30
C1-Dibenzothiophenes	**26** J	**53**	68[a]	30
C2-Dibenzothiophenes	**85**	**120**	32[a]	30
C3-Dibenzothiophenes	**380**	**350**	9	30
C4-Dibenzothiophenes	**1100**	**920**	17	30
Benzo(b)fluorene	5.1 U	5.1 U	N/A	30
Fluoranthene	**18** J	**26** J	38[a]	30
Pyrene	**210**	**200**	8	30
C1-Fluoranthenes/Pyrenes	**770**	**770**	1	30
C2-Fluoranthenes/Pyrenes	**1600**	**1700**	5	30
C3-Fluoranthenes/Pyrenes	**2200**	**2200**	1	30
C4-Fluoranthenes/Pyrenes	**2500**	**2400**	0	30
Naphthobenzothiophenes	**95**	**94**	1	30
C1-Naphthobenzothiophenes	**1200**	**1200**	3	30
C2-Naphthobenzothiophenes	**4500**	**4300**	5	30

N/A - Not Applicable
X - It is not possible to calculate RPD, one result is below the detection limit, the other is above reporting limit.
[a] - Value outside of QC Limits.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/21/05 07:19

Duplicate
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS1**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-13**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
02/23/05	02/25/05	03/10/05	98.0	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
C3-Naphthobenzothiophenes	6500	6700	3	30
C4-Naphthobenzothiophenes	6400	6400	1	30
Benz[a]anthracene	20 J	19 J	5	30
Chrysene/Triphenylene	290	290	1	30
C1-Chrysenes	780	780	0	30
C2-Chrysenes	2400	2400	2	30
C3-Chrysenes	3900	4000	2	30
C4-Chrysenes	2500	3100	22	30
Benzo[b]fluoranthene	130	140	7	30
Benzo[k]fluoranthene	45 J	42 J	8	30
Benzo[a]fluoranthene	10 U	17 J	X	30
Benzo[e]pyrene	520	510	1	30
Benzo[a]pyrene	140	150	6	30
Perylene	56	62	10	30
Indeno[1,2,3-cd]pyrene	88	83	6	30
Dibenz[a,h]anthracene	49 J	52	5	30
Benzo[g,h,i]perylene	220	230	6	30

Surrogate	% Recovery		Acceptance Range (%)
2-Methylnaphthalene-d10	60	63	50-130
Pyrene-d10	85	86	50-130
Benzo[b]fluoranthene-d12	77	82	50-130

N/A - Not Applicable
X - It is not possible to calculate RPD, one result is below the detection limit, the other is above reporting limit.
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

03/21/05 07:19

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS2**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-14**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/10/05	03/15/05	94.3	10.37	50	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	86000	E	Fluoranthene	1800000	E
C1-Naphthalenes	74000	E	Pyrene	1600000	E
C2-Naphthalenes	80000		C1-Fluoranthenes/Pyrenes	390000	
C3-Naphthalenes	66000		C2-Fluoranthenes/Pyrenes	320000	
C4-Naphthalenes	28000		C3-Fluoranthenes/Pyrenes	130000	
Biphenyl	6700		C4-Fluoranthenes/Pyrenes	61000	
Dibenzofuran	130000	E	Naphthobenzothiophenes	83000	
Acenaphthylene	290000	E	C1-Naphthobenzothiophenes	39000	
Acenaphthene	35000		C2-Naphthobenzothiophenes	17000	
Fluorene	140000	E	C3-Naphthobenzothiophenes	10000	
C1-Fluorenes	44000		C4-Naphthobenzothiophenes	3500	
C2-Fluorenes	37000		Benz[a]anthracene	740000	E
C3-Fluorenes	58000		Chrysene/Triphenylene	580000	E
Anthracene	480000	E	C1-Chrysenes	200000	
Phenanthrene	1200000	E	C2-Chrysenes	93000	
C1-Phenanthrenes/Anthracenes	410000	E	C3-Chrysenes	78000	
C2-Phenanthrenes/Anthracenes	180000		C4-Chrysenes	34000	
C3-Phenanthrenes/Anthracenes	77000		Benzo[b]fluoranthene	570000	E
C4-Phenanthrenes/Anthracenes	22000		Benzo[k]fluoranthene	260000	E
Retene	7.4	U	Benzo[a]fluoranthene	100000	E
Dibenzothiophene	63000	E	Benzo[e]pyrene	280000	E
C1-Dibenzothiophenes	36000		Benzo[a]pyrene	520000	E
C2-Dibenzothiophenes	26000		Perylene	120000	E
C3-Dibenzothiophenes	15000		Indeno[1,2,3-cd]pyrene	270000	E
C4-Dibenzothiophenes	3900		Dibenz[a,h]anthracene	74000	E
Benzo(b)fluorene	5.2	U	Benzo[g,h,i]perylene	200000	E

Surrogate	% Recovery		Acceptance Range (%)
2-Methylnaphthalene-d10	52		50-130
Pyrene-d10	40	§	50-130
Benzo[b]fluoranthene-d12	38	§	50-130

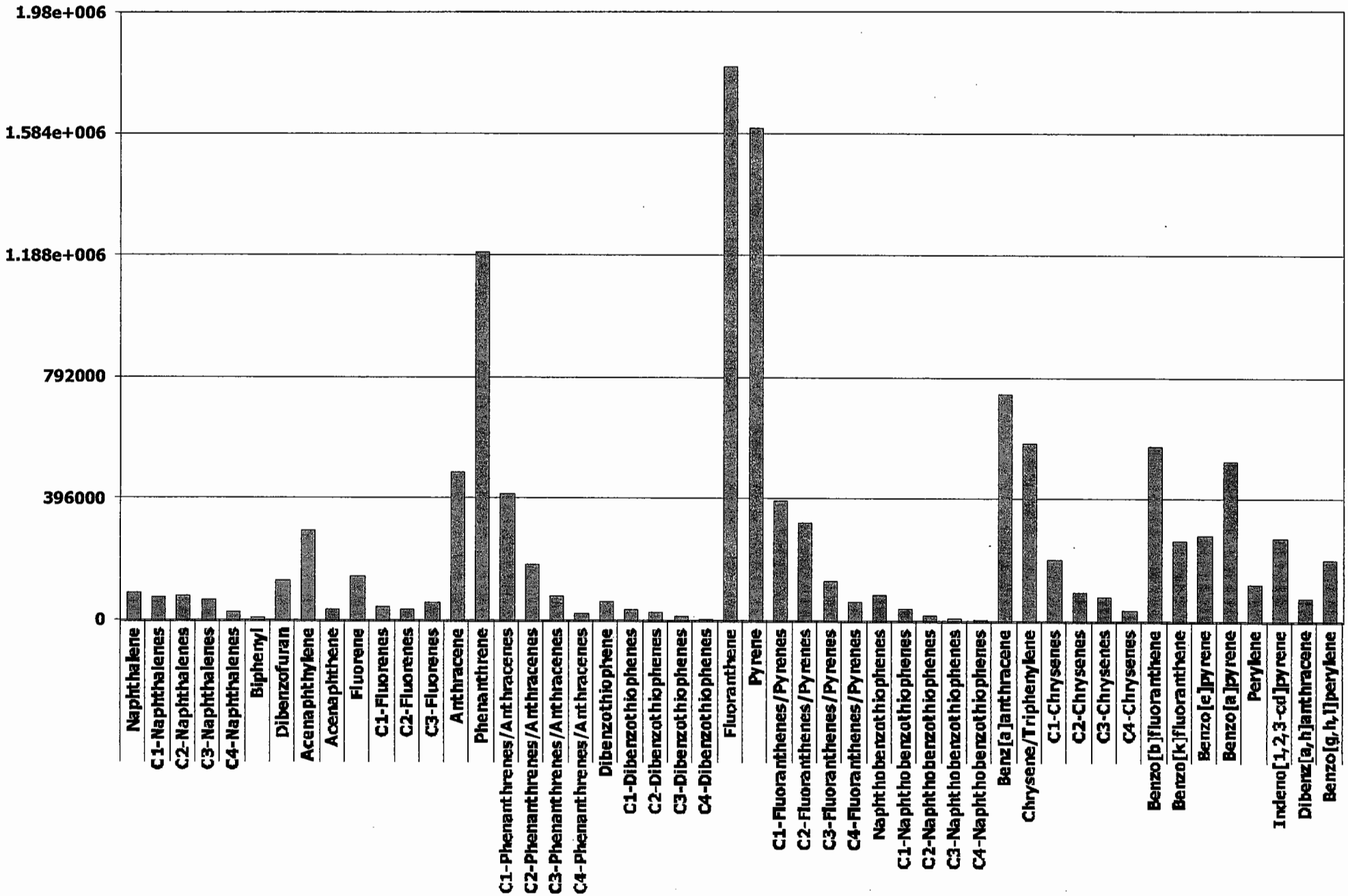
N/A - Not Applicable
§ - Surrogate value outside of acceptable range.
E - Estimated value, exceeds the upper limit of calibration.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/21/05 07:23

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-414-DEBRIS2** Lab ID: **0502110-14**

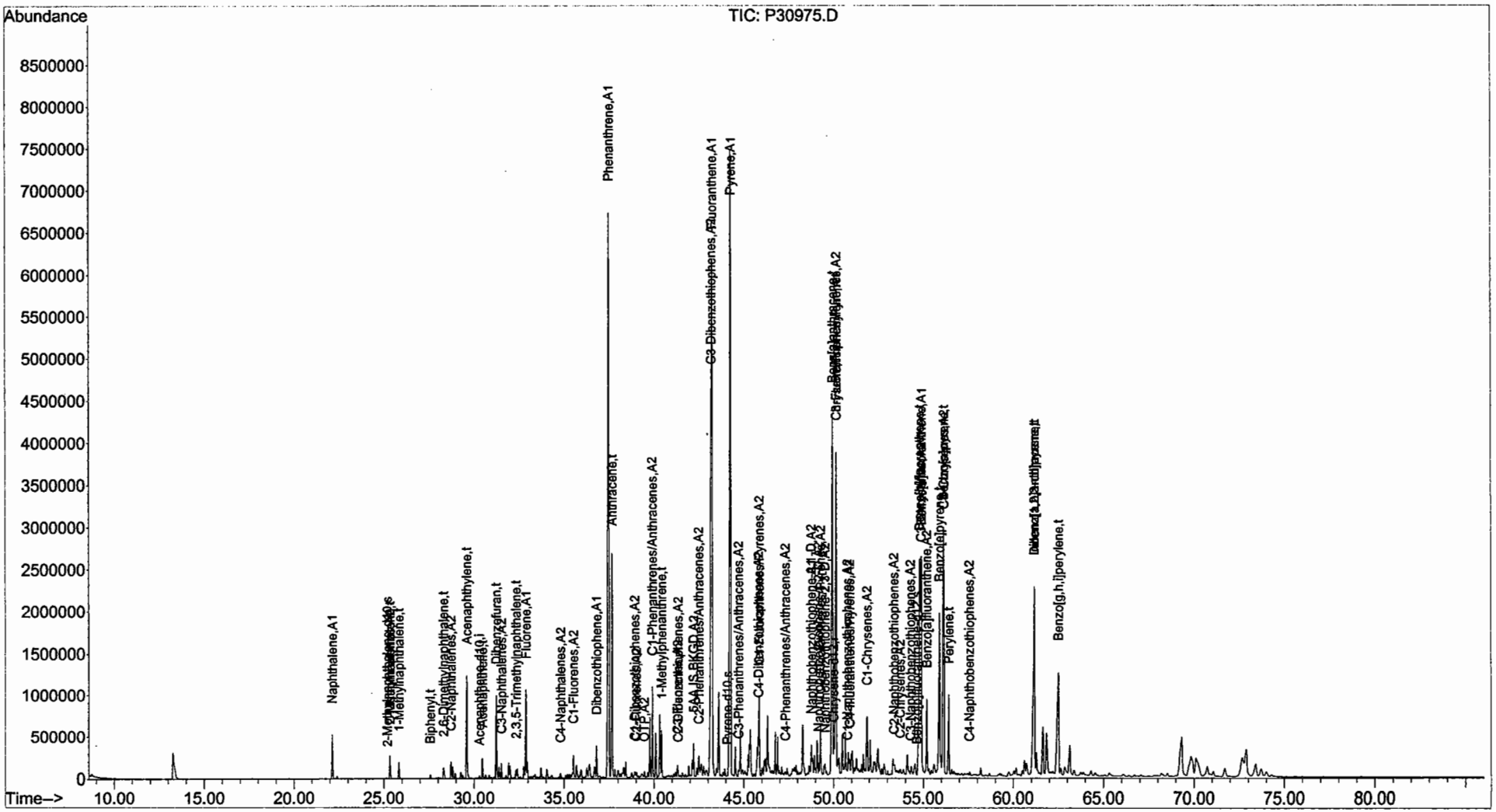
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30975.D
Acq On : 15 Mar 2005 2:37 am
Operator : AC
Sample : 0502110-14
Misc : 1X
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 18 06:45:04 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS2**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-14E**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/10/05	03/15/05	94.3	10.37	50	100	AC

Parameter	Result		Parameter	Result	
Naphthalene	**85000**		Fluoranthene	**1600000**	
C1-Naphthalenes	**75000**		Pyrene	**1300000**	
C2-Naphthalenes	840	U	C1-Fluoranthenes/Pyrenes	460	U
C3-Naphthalenes	840	U	C2-Fluoranthenes/Pyrenes	460	U
C4-Naphthalenes	840	U	C3-Fluoranthenes/Pyrenes	460	U
Biphenyl	460	U	C4-Fluoranthenes/Pyrenes	460	U
Dibenzofuran	**120000**		Naphthobenzothiophenes	620	U
Acenaphthylene	**340000**		C1-Naphthobenzothiophenes	620	U
Acenaphthene	590	U	C2-Naphthobenzothiophenes	620	U
Fluorene	**130000**		C3-Naphthobenzothiophenes	620	U
C1-Fluorenes	590	U	C4-Naphthobenzothiophenes	620	U
C2-Fluorenes	590	U	Benz[a]anthracene	**570000**	
C3-Fluorenes	590	U	Chrysene/Triphenylene	**460000**	
Anthracene	**470000**		C1-Chrysenes	550	U
Phenanthrene	**1100000**		C2-Chrysenes	550	U
C1-Phenanthrenes/Anthracenes	**420000**		C3-Chrysenes	550	U
C2-Phenanthrenes/Anthracenes	740	U	C4-Chrysenes	550	U
C3-Phenanthrenes/Anthracenes	740	U	Benzo[b]fluoranthene	**320000**	
C4-Phenanthrenes/Anthracenes	740	U	Benzo[k]fluoranthene	**350000**	
Retene	740	U	Benzo[a]fluoranthene	**95000**	
Dibenzothiophene	**68000**		Benzo[e]pyrene	**240000**	
C1-Dibenzothiophenes	570	U	Benzo[a]pyrene	**420000**	
C2-Dibenzothiophenes	570	U	Perylene	**110000**	
C3-Dibenzothiophenes	570	U	Indeno[1,2,3-cd]pyrene	**240000**	
C4-Dibenzothiophenes	570	U	Dibenz[a,h]anthracene	**50000**	
Benzo(b)fluorene	520	U	Benzo[g,h,i]perylene	**190000**	

Surrogate	% Recovery		Acceptance Range (%)
2-Methylnaphthalene-d10	DL		50-130
Pyrene-d10	62	J	50-130
Benzo[b]fluoranthene-d12	75	J	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
DL - Surrogate diluted out of sample.

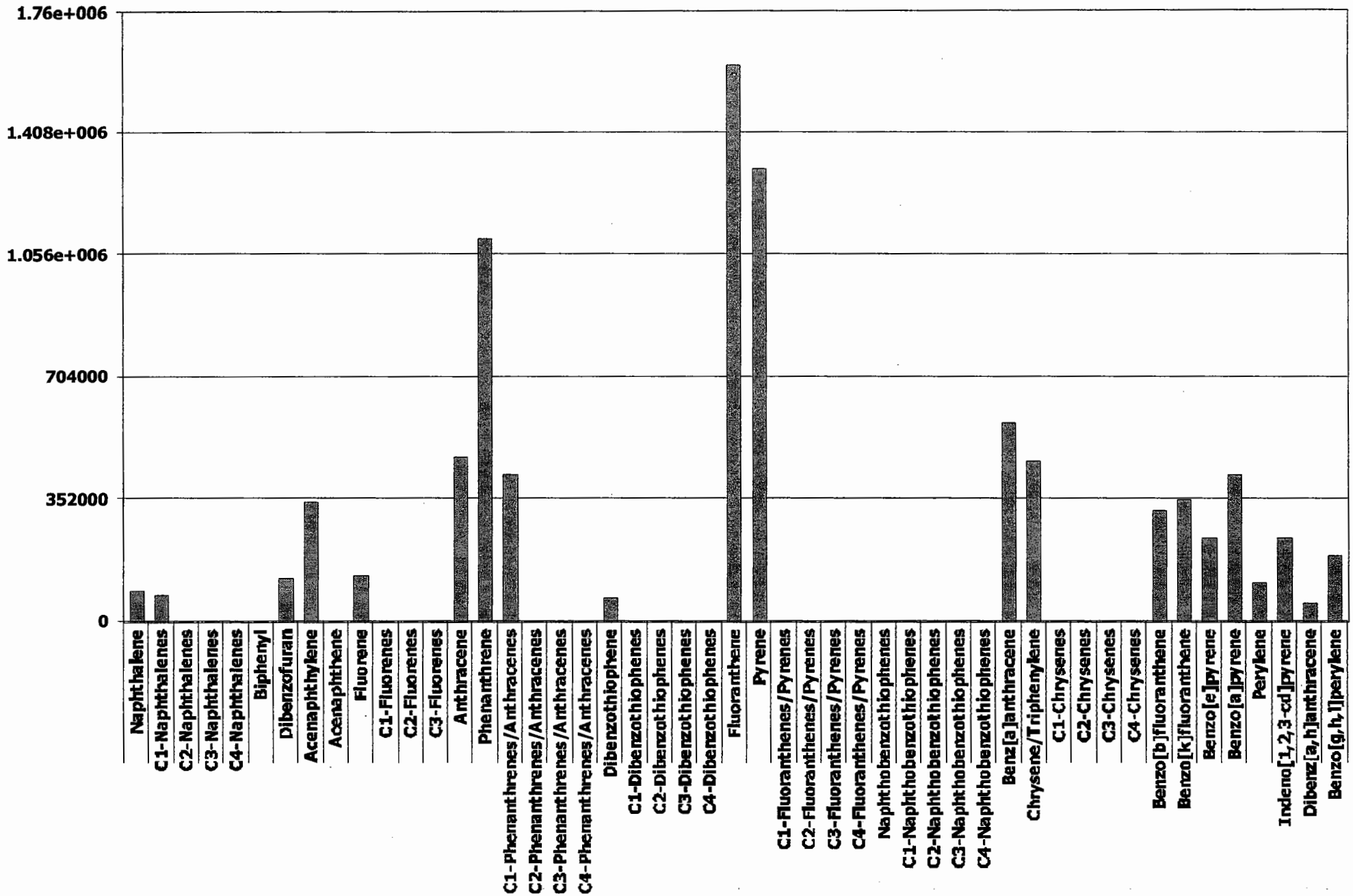
03/21/05 07:25

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-414-DEBRIS2** Lab ID: **0502110-14**

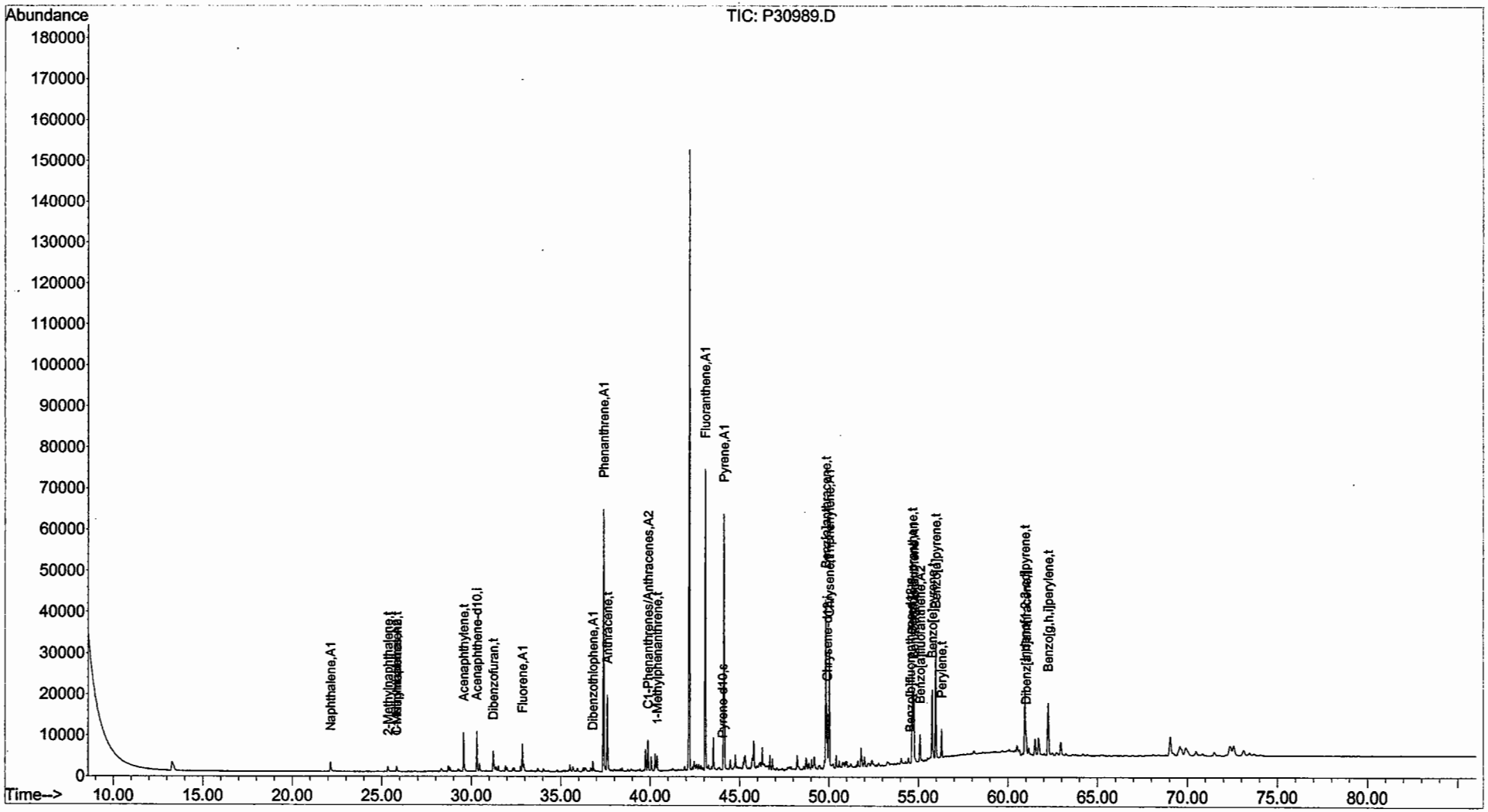
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30989.D
Acq On : 15 Mar 2005 2:58 pm
Operator : AC
Sample : 0502110-14E
Misc : 100X
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Mar 18 06:57:41 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-DUP01-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-15**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/15/05	84.1	30.81	16.67	1	AC

Parameter	Result		Parameter	Result
Naphthalene	14		Fluoranthene	720
C1-Naphthalenes	20		Pyrene	890
C2-Naphthalenes	54		C1-Fluoranthenes/Pyrenes	520
C3-Naphthalenes	100		C2-Fluoranthenes/Pyrenes	320
C4-Naphthalenes	160		C3-Fluoranthenes/Pyrenes	170
Biphenyl	3.2	J	C4-Fluoranthenes/Pyrenes	120
Dibenzofuran	12		Naphthobenzothiophenes	80
Acenaphthylene	73		C1-Naphthobenzothiophenes	92
Acenaphthene	38		C2-Naphthobenzothiophenes	110
Fluorene	31		C3-Naphthobenzothiophenes	130
C1-Fluorenes	54		C4-Naphthobenzothiophenes	150
C2-Fluorenes	110		Benz[a]anthracene	380
C3-Fluorenes	120		Chrysene/Triphenylene	380
Anthracene	180		C1-Chrysenes	250
Phenanthrene	510		C2-Chrysenes	150
C1-Phenanthrenes/Anthracenes	460		C3-Chrysenes	160
C2-Phenanthrenes/Anthracenes	360		C4-Chrysenes	140
C3-Phenanthrenes/Anthracenes	210		Benzo[b]fluoranthene	280
C4-Phenanthrenes/Anthracenes	91		Benzo[k]fluoranthene	280
Retene	0.93	U	Benzo[a]fluoranthene	62
Dibenzothiophene	29		Benzo[e]pyrene	280
C1-Dibenzothiophenes	81		Benzo[a]pyrene	350
C2-Dibenzothiophenes	120		Perylene	90
C3-Dibenzothiophenes	130		Indeno[1,2,3-cd]pyrene	250
C4-Dibenzothiophenes	68		Dibenz[a,h]anthracene	51
Benzo(b)fluorene	27		Benzo[g,h,i]perylene	260

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	62	50-130
Pyrene-d10	95	50-130
Benzo[b]fluoranthene-d12	78	50-130

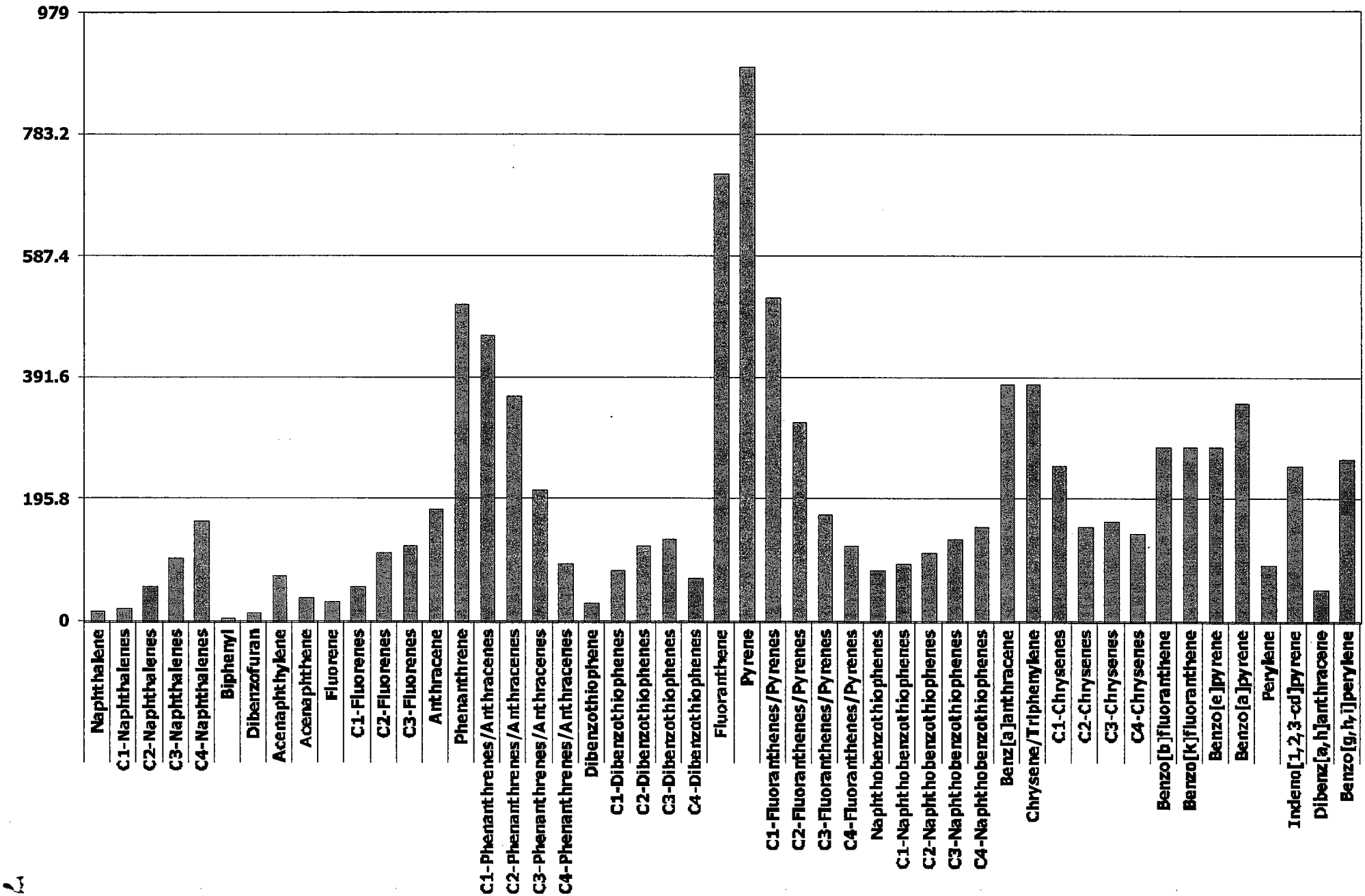
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:41

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-DUP01-01** Lab ID: **0502110-15**

Concentration: µg/Kg



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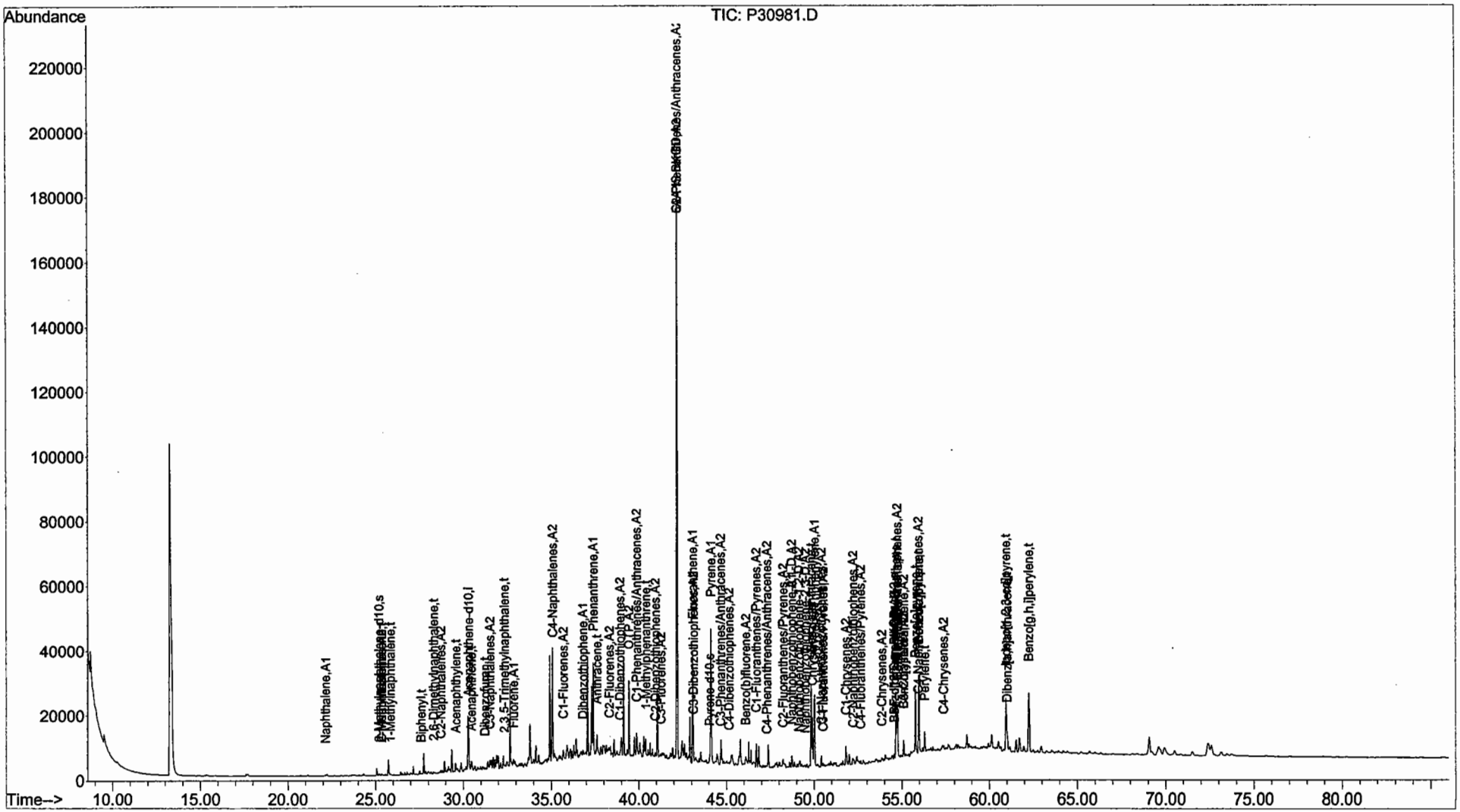
Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30981.D
Acq On : 15 Mar 2005 7:51 am
Operator : AC
Sample : 0502110-15
Misc : 1X REALUMINA
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Mar 17 12:18:16 2005
Quant Title :
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-DUP02-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-16**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/06/05	79.9	30.70	4	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	49		Fluoranthene	3200	E
C1-Naphthalenes	25		Pyrene	2900	E
C2-Naphthalenes	91		C1-Fluoranthenes/Pyrenes	840	
C3-Naphthalenes	110		C2-Fluoranthenes/Pyrenes	730	
C4-Naphthalenes	63		C3-Fluoranthenes/Pyrenes	290	
Biphenyl	6.5		C4-Fluoranthenes/Pyrenes	170	
Dibenzofuran	83		Naphthobenzothiophenes	220	
Acenaphthylene	320		C1-Naphthobenzothiophenes	110	
Acenaphthene	58		C2-Naphthobenzothiophenes	77	
Fluorene	120		C3-Naphthobenzothiophenes	72	
C1-Fluorenes	63		C4-Naphthobenzothiophenes	63	
C2-Fluorenes	84		Benz[a]anthracene	1400	
C3-Fluorenes	140		Chrysene/Triphenylene	1300	
Anthracene	610		C1-Chrysenes	490	
Phenanthrene	2000	E	C2-Chrysenes	210	
C1-Phenanthrenes/Anthracenes	840		C3-Chrysenes	200	
C2-Phenanthrenes/Anthracenes	430		C4-Chrysenes	110	
C3-Phenanthrenes/Anthracenes	180		Benzo[b]fluoranthene	1000	
C4-Phenanthrenes/Anthracenes	55		Benzo[k]fluoranthene	1000	
Retene	2.5		Benzo[a]fluoranthene	260	
Dibenzothiophene	120		Benzo[e]pyrene	730	
C1-Dibenzothiophenes	80		Benzo[a]pyrene	1200	
C2-Dibenzothiophenes	68		Perylene	340	
C3-Dibenzothiophenes	46		Indeno[1,2,3-cd]pyrene	860	
C4-Dibenzothiophenes	25		Dibenz[a,h]anthracene	180	
Benzo(b)fluorene	0.16	U	Benzo[g,h,i]perylene	690	

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	74	50-130
Pyrene-d10	91	50-130
Benzo[b]fluoranthene-d12	83	50-130

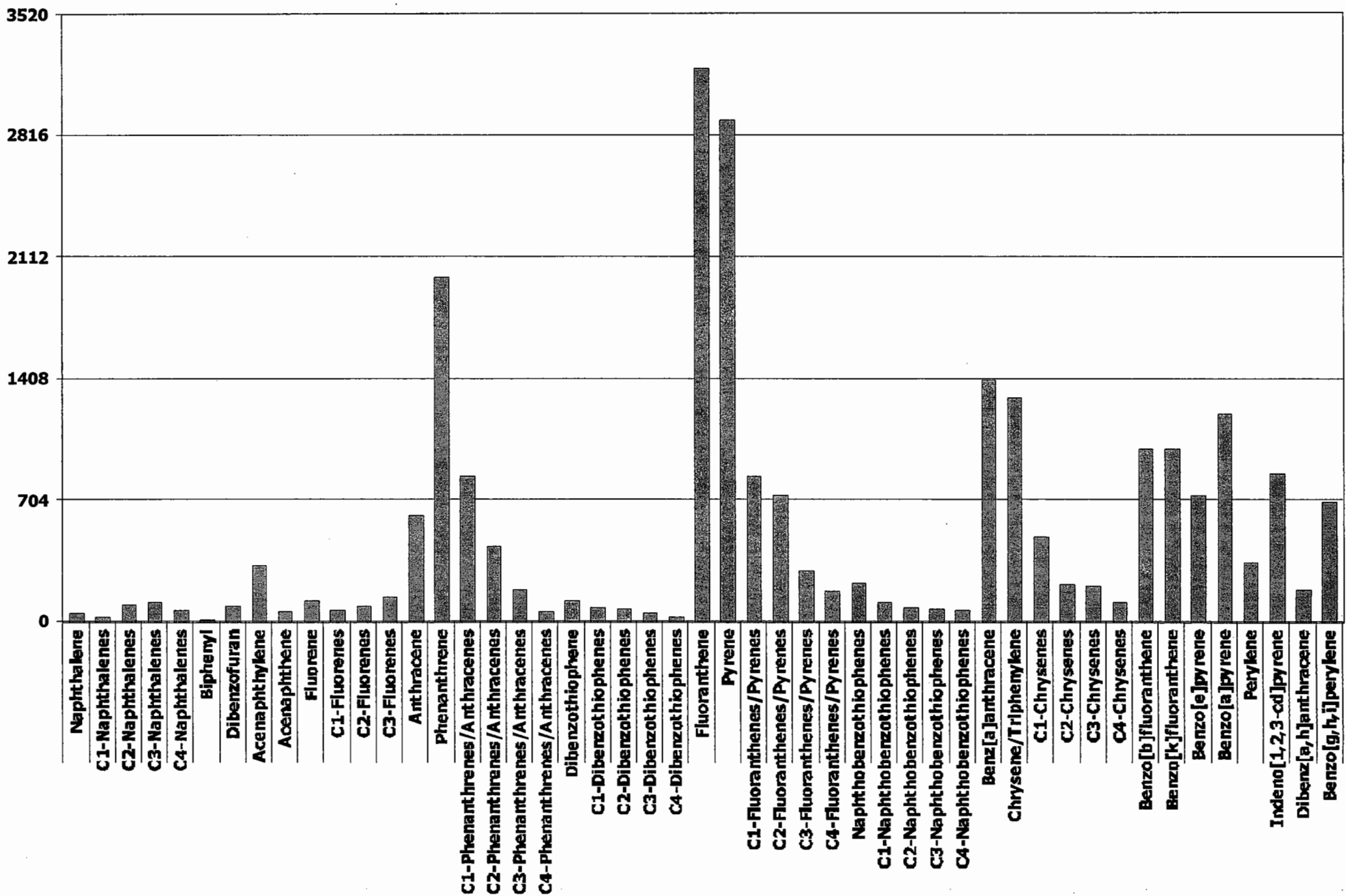
N/A - Not Applicable
E - Estimated value, exceeds the upper limit of calibration.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:44

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-DUP02-01** Lab ID: **0502110-16**

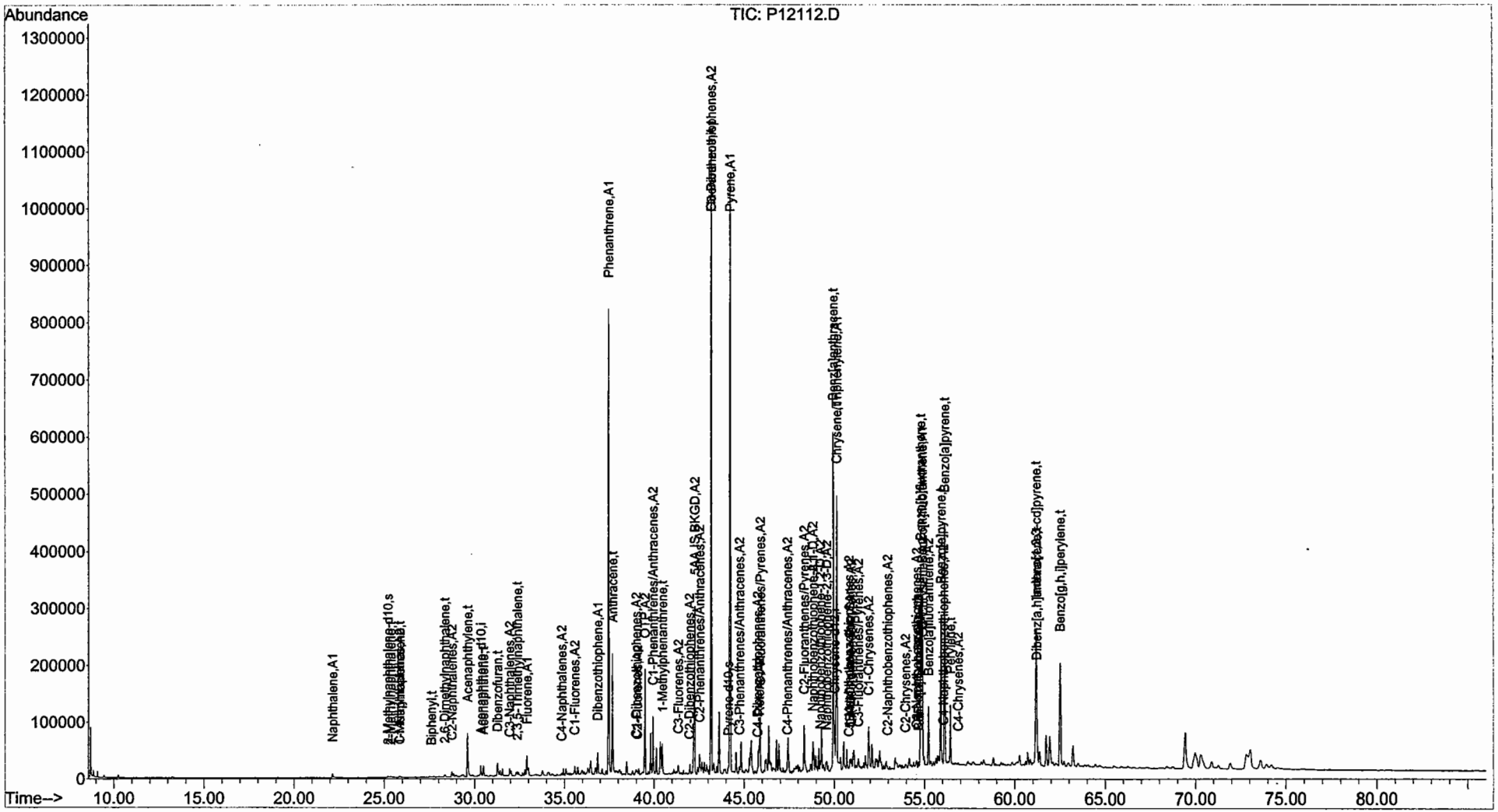
Concentration: µg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12112.D
Acq On : 6 Mar 2005 5:25 pm
Operator : AC
Sample : 0502110-16
Misc : 1X
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Mar 11 09:57:15 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-DUP02-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-16E**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/18/05	79.9	30.70	4	4	AC

Parameter	Result		Parameter	Result	
Naphthalene	1.1	U	Fluoranthene	**3200**	
C1-Naphthalenes	1.1	U	Pyrene	**2800**	
C2-Naphthalenes	1.1	U	C1-Fluoranthenes/Pyrenes	0.58	U
C3-Naphthalenes	1.1	U	C2-Fluoranthenes/Pyrenes	0.58	U
C4-Naphthalenes	1.1	U	C3-Fluoranthenes/Pyrenes	0.58	U
Biphenyl	0.59	U	C4-Fluoranthenes/Pyrenes	0.58	U
Dibenzofuran	0.78	U	Naphthobenzothiophenes	0.79	U
Acenaphthylene	1.2	U	C1-Naphthobenzothiophenes	0.79	U
Acenaphthene	0.75	U	C2-Naphthobenzothiophenes	0.79	U
Fluorene	0.75	U	C3-Naphthobenzothiophenes	0.79	U
C1-Fluorenes	0.75	U	C4-Naphthobenzothiophenes	0.79	U
C2-Fluorenes	0.75	U	Benz[a]anthracene	1.0	U
C3-Fluorenes	0.75	U	Chrysene/Triphenylene	0.70	U
Anthracene	0.87	U	C1-Chrysenes	0.70	U
Phenanthrene	**1800**		C2-Chrysenes	0.70	U
C1-Phenanthrenes/Anthracenes	0.95	U	C3-Chrysenes	0.70	U
C2-Phenanthrenes/Anthracenes	0.95	U	C4-Chrysenes	0.70	U
C3-Phenanthrenes/Anthracenes	0.95	U	Benzo[b]fluoranthene	0.69	U
C4-Phenanthrenes/Anthracenes	0.95	U	Benzo[k]fluoranthene	1.3	U
Retene	0.95	U	Benzo[a]fluoranthene	1.3	U
Dibenzothiophene	0.72	U	Benzo[e]pyrene	0.89	U
C1-Dibenzothiophenes	0.72	U	Benzo[a]pyrene	0.91	U
C2-Dibenzothiophenes	0.72	U	Perylene	1.1	U
C3-Dibenzothiophenes	0.72	U	Indeno[1,2,3-cd]pyrene	1.6	U
C4-Dibenzothiophenes	0.72	U	Dibenz[a,h]anthracene	1.2	U
Benzo(b)fluorene	0.66	U	Benzo[g,h,i]perylene	1.2	U

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	56	50-130
Pyrene-d10	94	50-130
Benzo[b]fluoranthene-d12	79	50-130

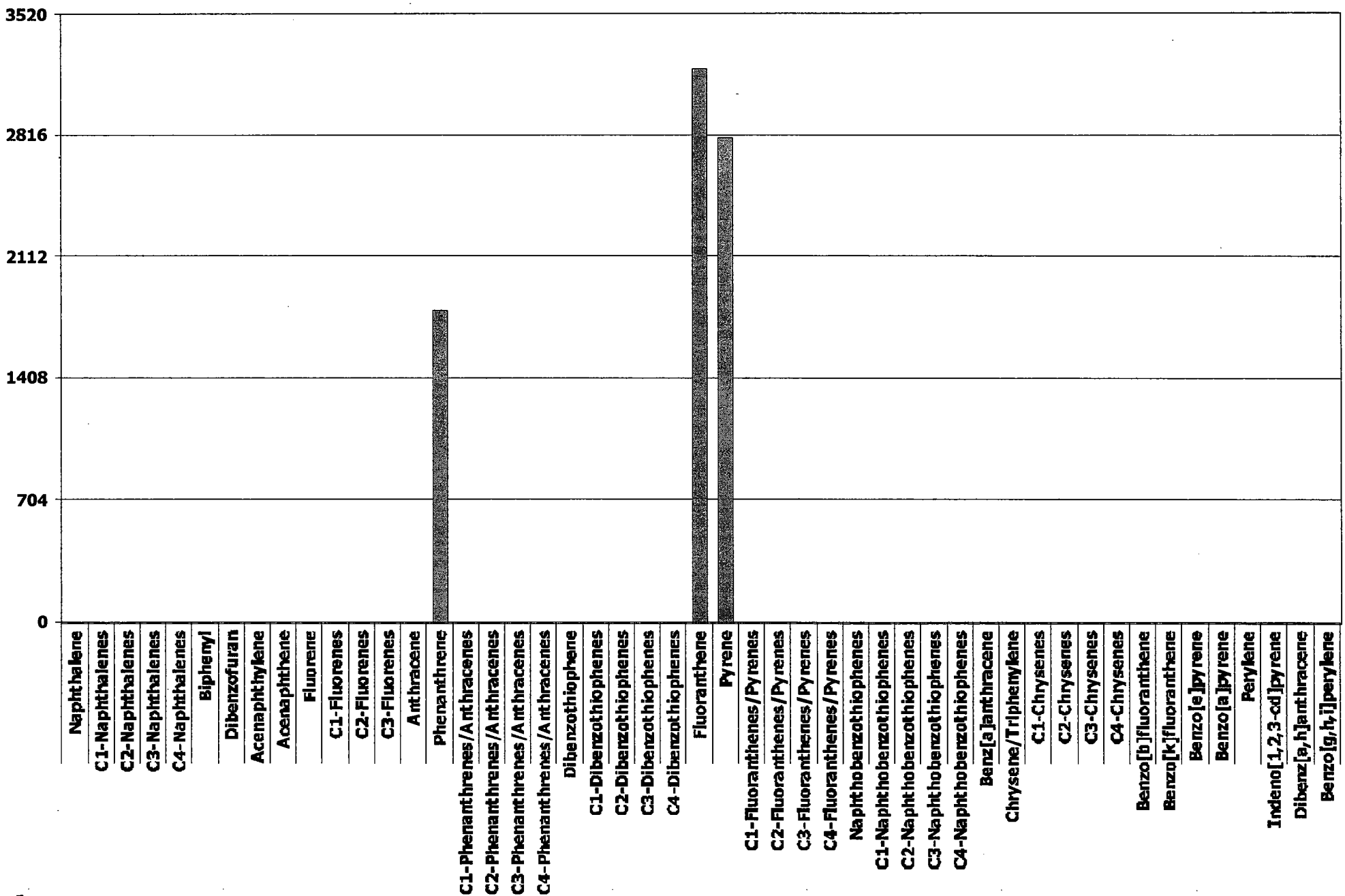
N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/21/05 07:57

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **OFF-SD-DUP02-01** Lab ID: **0502110-16**

Concentration: µg/Kg



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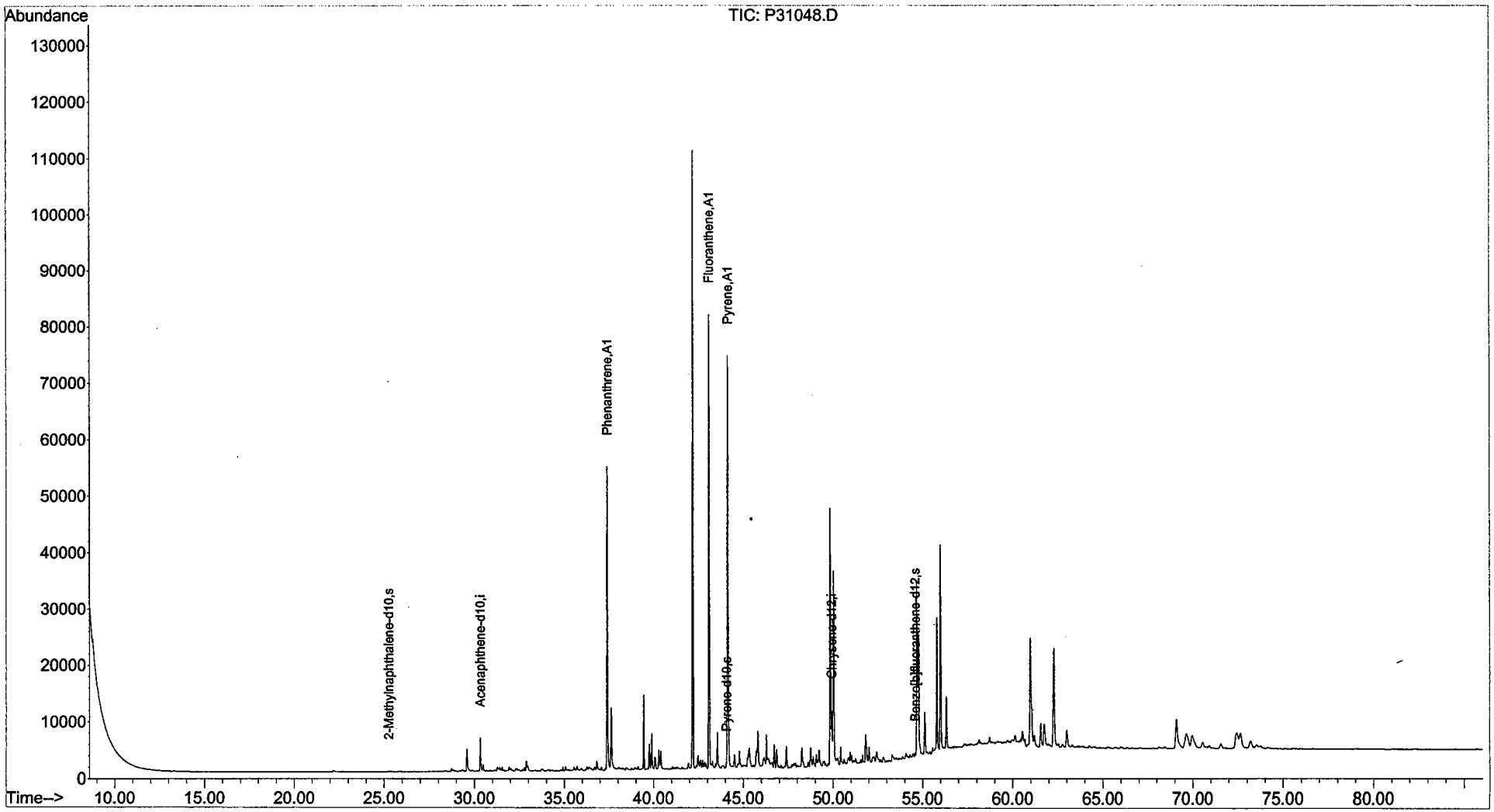
Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH18\
Data File : P31048.D
Acq On : 18 Mar 2005 4:00 pm
Operator : AC
Sample : 0502110-16-RE
Misc : 4X
ALS Vial : 97 Sample Multiplier: 1

Quant Time: Mar 21 07:54:06 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS030205B06**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/02/05	03/04/05	100	30.00	2	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	0.11	U	Fluoranthene	0.067	U
C1-Naphthalenes	0.11	U	Pyrene	0.059	U
C2-Naphthalenes	0.11	U	C1-Fluoranthenes/Pyrenes	0.059	U
C3-Naphthalenes	0.11	U	C2-Fluoranthenes/Pyrenes	0.059	U
C4-Naphthalenes	0.11	U	C3-Fluoranthenes/Pyrenes	0.059	U
Biphenyl	0.061	U	C4-Fluoranthenes/Pyrenes	0.059	U
Dibenzofuran	0.079	U	Naphthobenzothiophenes	0.081	U
Acenaphthylene	0.12	U	C1-Naphthobenzothiophenes	0.081	U
Acenaphthene	0.077	U	C2-Naphthobenzothiophenes	0.081	U
Fluorene	0.077	U	C3-Naphthobenzothiophenes	0.081	U
C1-Fluorenes	0.077	U	C4-Naphthobenzothiophenes	0.081	U
C2-Fluorenes	0.077	U	Benz[a]anthracene	0.10	U
C3-Fluorenes	0.077	U	Chrysene/Triphenylene	0.072	U
Anthracene	0.089	U	C1-Chrysenes	0.072	U
Phenanthrene	**0.23**	J	C2-Chrysenes	0.072	U
C1-Phenanthrenes/Anthracenes	0.097	U	C3-Chrysenes	0.072	U
C2-Phenanthrenes/Anthracenes	0.097	U	C4-Chrysenes	0.072	U
C3-Phenanthrenes/Anthracenes	0.097	U	Benzo[b]fluoranthene	0.071	U
C4-Phenanthrenes/Anthracenes	0.097	U	Benzo[k]fluoranthene	0.14	U
Retene	0.097	U	Benzo[a]fluoranthene	0.14	U
Dibenzothiophene	0.074	U	Benzo[e]pyrene	0.091	U
C1-Dibenzothiophenes	**0.56**	J	Benzo[a]pyrene	0.093	U
C2-Dibenzothiophenes	0.074	U	Perylene	0.12	U
C3-Dibenzothiophenes	0.074	U	Indeno[1,2,3-cd]pyrene	0.16	U
C4-Dibenzothiophenes	0.074	U	Dibenz[a,h]anthracene	0.13	U
Benzo(b)fluorene	0.067	U	Benzo[g,h,i]perylene	0.12	U

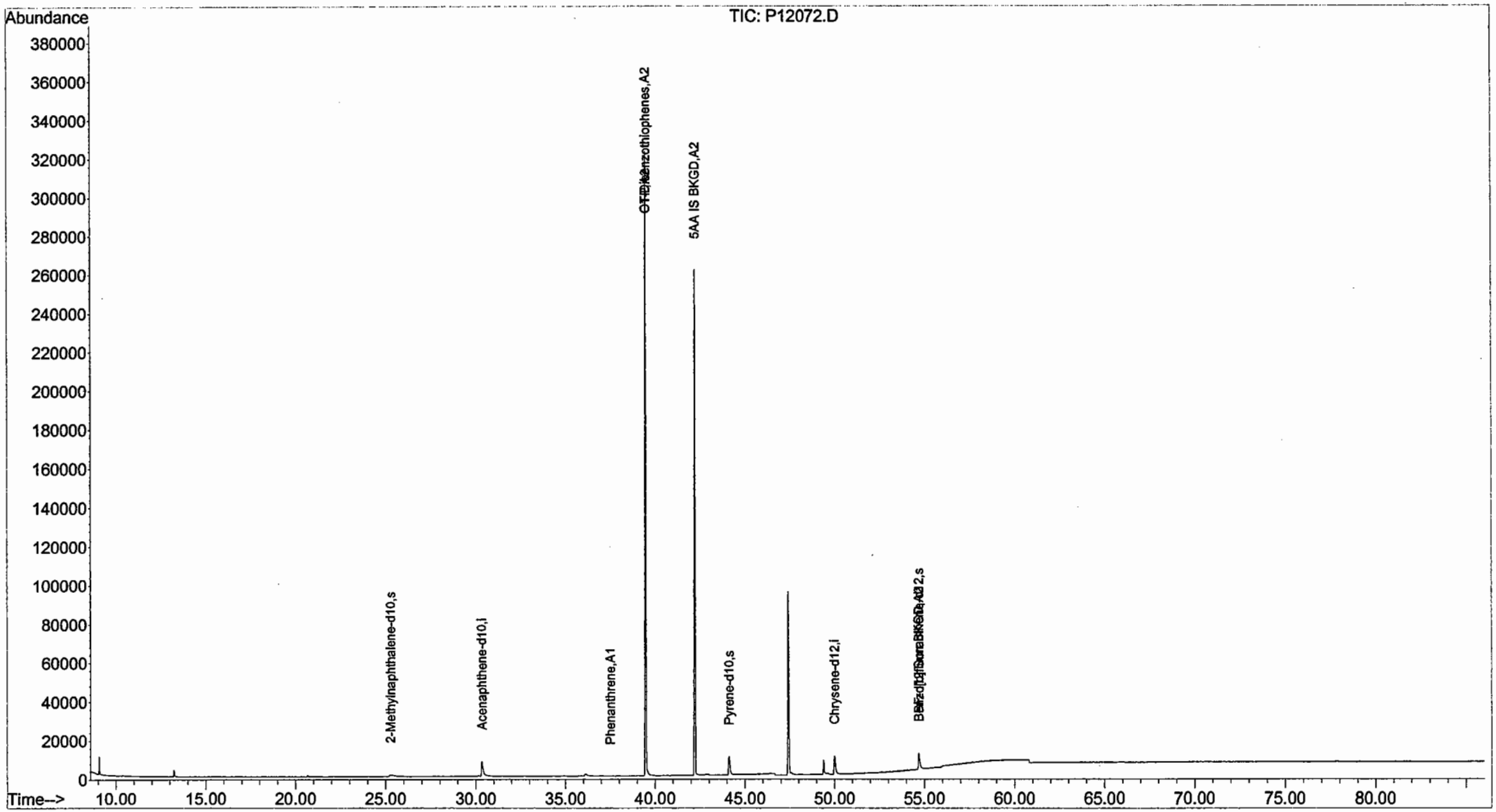
Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	58	50-130
Pyrene-d10	96	50-130
Benzo[b]fluoranthene-d12	85	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 07:40

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12072.D
Acq On : 4 Mar 2005 5:35 pm
Operator : AC
Sample : SS030205B06
Misc : 1X ETR 0502110
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Mar 10 08:52:02 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS031405B02**
Associated Blank: **N/A**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/10/05	03/15/05	100	30.00	2	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	0.11	U	Fluoranthene	0.067	U
C1-Naphthalenes	0.11	U	Pyrene	0.059	U
C2-Naphthalenes	0.11	U	C1-Fluoranthenes/Pyrenes	0.059	U
C3-Naphthalenes	0.11	U	C2-Fluoranthenes/Pyrenes	0.059	U
C4-Naphthalenes	0.11	U	C3-Fluoranthenes/Pyrenes	0.059	U
Biphenyl	0.061	U	C4-Fluoranthenes/Pyrenes	0.059	U
Dibenzofuran	0.079	U	Naphthobenzothiophenes	0.081	U
Acenaphthylene	**0.18**	J	C1-Naphthobenzothiophenes	0.081	U
Acenaphthene	0.077	U	C2-Naphthobenzothiophenes	0.081	U
Fluorene	0.077	U	C3-Naphthobenzothiophenes	0.081	U
C1-Fluorenes	0.077	U	C4-Naphthobenzothiophenes	0.081	U
C2-Fluorenes	0.077	U	Benz[a]anthracene	**0.033**	J
C3-Fluorenes	0.077	U	Chrysene/Triphenylene	**0.027**	J
Anthracene	0.089	U	C1-Chrysenes	0.072	U
Phenanthrene	**0.073**	J	C2-Chrysenes	0.072	U
C1-Phenanthrenes/Anthracenes	0.097	U	C3-Chrysenes	0.072	U
C2-Phenanthrenes/Anthracenes	0.097	U	C4-Chrysenes	0.072	U
C3-Phenanthrenes/Anthracenes	0.097	U	Benzo[b]fluoranthene	0.071	U
C4-Phenanthrenes/Anthracenes	0.097	U	Benzo[k]fluoranthene	0.14	U
Retene	0.097	U	Benzo[a]fluoranthene	0.14	U
Dibenzothiophene	0.074	U	Benzo[e]pyrene	0.091	U
C1-Dibenzothiophenes	0.074	U	Benzo[a]pyrene	0.093	U
C2-Dibenzothiophenes	0.074	U	Perylene	0.12	U
C3-Dibenzothiophenes	0.074	U	Indeno[1,2,3-cd]pyrene	0.16	U
C4-Dibenzothiophenes	0.074	U	Dibenz[a,h]anthracene	0.13	U
Benzo(b)fluorene	0.067	U	Benzo[g,h,i]perylene	0.12	U

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	59	50-130
Pyrene-d10	82	50-130
Benzo[b]fluoranthene-d12	77	50-130

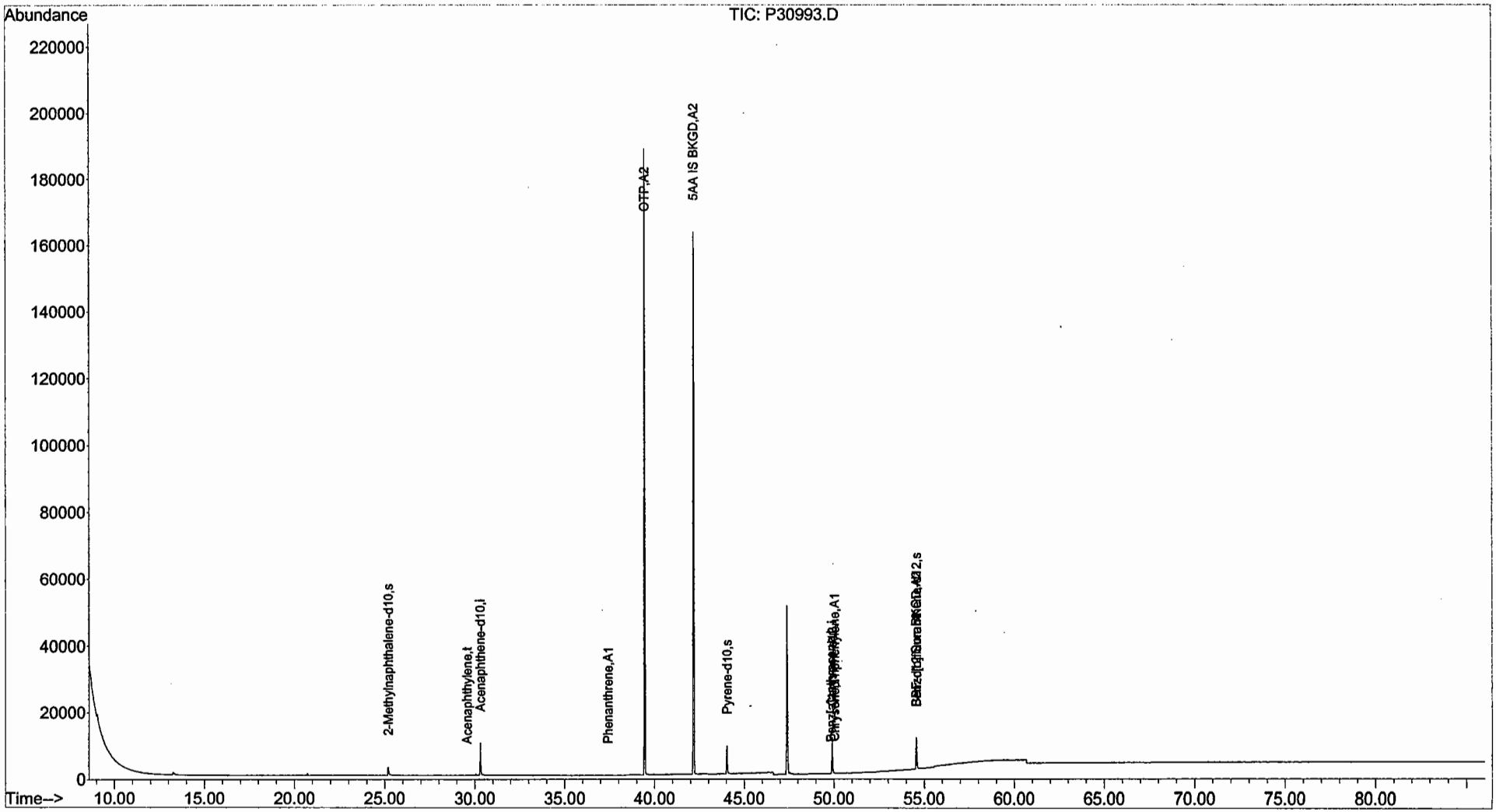
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/21/05 07:28

Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30993.D
Acq On : 15 Mar 2005 6:31 pm
Operator : AC
Sample : SS031405B02
Misc : 1X 0502110SOLID REALUM
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 17 13:29:02 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **See Below**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	03/02/05	100	AC

Lab ID: SS030205B06 SS030205BS04 SS030205BSD03

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	0.11	U	17	51	18	53	2	30	50-130
Acenaphthylene	0.12	U	32	95	28	85	12	30	50-130
Acenaphthene	0.077	U	24	72	24	73	2	30	50-130
Fluorene	0.077	U	24	72	25	74	3	30	50-130
Anthracene	0.089	U	30	89	29	86	3	30	50-130
Phenanthrene	0.23		24	71	24	73	3	30	50-130
Fluoranthene	0.067	U	26	77	26	79	3	30	50-130
Pyrene	0.059	U	27	80	28	84	5	30	50-130
Benz[a]anthracene	0.10	U	27	81	27	81	0	30	50-130
Chrysene/Triphenylene	0.072	U	24	73	25	75	3	30	50-130
Benzo[b]fluoranthene	0.071	U	23	69	24	72	4	30	50-130
Benzo[k]fluoranthene	0.14	U	24	71	24	72	3	30	50-130
Benzo[a]pyrene	0.093	U	24	73	24	73	0	30	50-130
Indeno[1,2,3-cd]pyrene	0.16	U	23	68	22	68	1	30	50-130
Dibenz[a,h]anthracene	0.13	U	22	65	22	67	3	30	50-130
Benzo[g,h,i]perylene	0.12	U	19	58	20	61	4	30	50-130

Surrogate	% Recovery		Acceptance Range (%)
2-Methylnaphthalene-d10	65	70	50-130
Pyrene-d10	80	83	50-130
Benzo[b]fluoranthene-d12	74	77	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

03/18/05 08:48

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS030205BS04**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/02/05	03/15/05	100	30.00	2.5	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	**17**	S	Fluoranthene	**26**	S
C1-Naphthalenes	**13**		Pyrene	**27**	S
C2-Naphthalenes	0.14	U	C1-Fluoranthenes/Pyrenes	**2.5**	
C3-Naphthalenes	0.14	U	C2-Fluoranthenes/Pyrenes	**1.2**	
C4-Naphthalenes	0.14	U	C3-Fluoranthenes/Pyrenes	0.074	U
Biphenyl	0.076	U	C4-Fluoranthenes/Pyrenes	0.074	U
Dibenzofuran	0.099	U	Naphthobenzothiophenes	**0.096**	J
Acenaphthylene	**32**	S	C1-Naphthobenzothiophenes	0.10	U
Acenaphthene	**24**	S	C2-Naphthobenzothiophenes	0.10	U
Fluorene	**24**	S	C3-Naphthobenzothiophenes	0.10	U
C1-Fluorenes	0.096	U	C4-Naphthobenzothiophenes	0.10	U
C2-Fluorenes	0.096	U	Benz[a]anthracene	**27**	S
C3-Fluorenes	0.096	U	Chrysene/Triphenylene	**24**	S
Anthracene	**30**	S	C1-Chrysenes	0.090	U
Phenanthrene	**24**	S	C2-Chrysenes	0.090	U
C1-Phenanthrenes/Anthracenes	**0.90**		C3-Chrysenes	0.090	U
C2-Phenanthrenes/Anthracenes	0.12	U	C4-Chrysenes	0.090	U
C3-Phenanthrenes/Anthracenes	**1.3**		Benzo[b]fluoranthene	**23**	S
C4-Phenanthrenes/Anthracenes	0.12	U	Benzo[k]fluoranthene	**24**	S
Retene	0.12	U	Benzo[a]fluoranthene	0.17	U
Dibenzothiophene	**0.41**	J	Benzo[e]pyrene	0.11	U
C1-Dibenzothiophenes	0.093	U	Benzo[a]pyrene	**24**	S
C2-Dibenzothiophenes	**1.1**		Perylene	0.15	U
C3-Dibenzothiophenes	**0.91**		Indeno[1,2,3-cd]pyrene	**23**	S
C4-Dibenzothiophenes	0.093	U	Dibenz[a,h]anthracene	**22**	S
Benzo(b)fluorene	0.084	U	Benzo[g,h,i]perylene	**19**	S

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	65	50-130
Pyrene-d10	80	50-130
Benzo[b]fluoranthene-d12	74	50-130

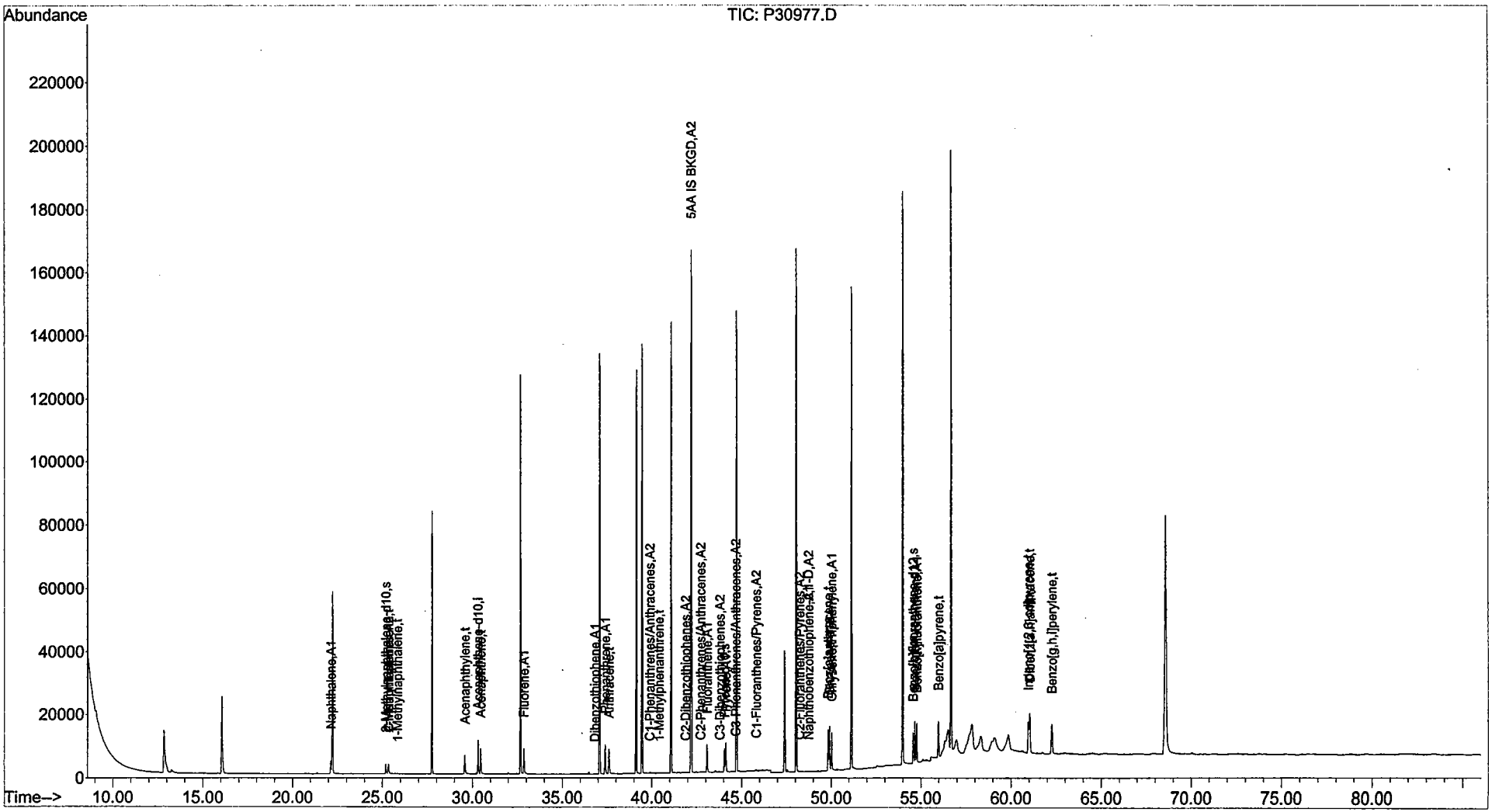
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

03/18/05 07:41

ation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30977.D
Acq On : 15 Mar 2005 4:20 am
Operator : AC
Sample : SS030205BS04
Misc : 1X REALUMINA
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 17 12:24:57 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



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Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS030205BSD03**
Associated Blank: **SS030205B06**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/02/05	03/15/05	100	30.00	2	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	**18**	S	Fluoranthene	**26**	S
C1-Naphthalenes	**14**		Pyrene	**28**	S
C2-Naphthalenes	0.11	U	C1-Fluoranthenes/Pyrenes	**1.8**	
C3-Naphthalenes	0.11	U	C2-Fluoranthenes/Pyrenes	**0.71**	
C4-Naphthalenes	0.11	U	C3-Fluoranthenes/Pyrenes	0.059	U
Biphenyl	0.061	U	C4-Fluoranthenes/Pyrenes	0.059	U
Dibenzofuran	0.079	U	Naphthobenzothiophenes	0.081	U
Acenaphthylene	**28**	S	C1-Naphthobenzothiophenes	0.081	U
Acenaphthene	**24**	S	C2-Naphthobenzothiophenes	0.081	U
Fluorene	**25**	S	C3-Naphthobenzothiophenes	0.081	U
C1-Fluorenes	0.077	U	C4-Naphthobenzothiophenes	0.081	U
C2-Fluorenes	0.077	U	Benz[a]anthracene	**27**	S
C3-Fluorenes	0.077	U	Chrysene/Triphenylene	**25**	S
Anthracene	**29**	S	C1-Chrysenes	0.072	U
Phenanthrene	**24**	S	C2-Chrysenes	0.072	U
C1-Phenanthrenes/Anthracenes	**1.1**		C3-Chrysenes	0.072	U
C2-Phenanthrenes/Anthracenes	0.097	U	C4-Chrysenes	0.072	U
C3-Phenanthrenes/Anthracenes	**3.2**		Benzo[b]fluoranthene	**24**	S
C4-Phenanthrenes/Anthracenes	**1.5**		Benzo[k]fluoranthene	**24**	S
Retene	0.097	U	Benzo[a]fluoranthene	0.14	U
Dibenzothiophene	**0.35**	J	Benzo[e]pyrene	0.091	U
C1-Dibenzothiophenes	0.074	U	Benzo[a]pyrene	**24**	S
C2-Dibenzothiophenes	**1.4**		Perylene	0.12	U
C3-Dibenzothiophenes	**1.1**		Indeno[1,2,3-cd]pyrene	**22**	S
C4-Dibenzothiophenes	0.074	U	Dibenz[a,h]anthracene	**22**	S
Benzo(b)fluorene	0.067	U	Benzo[g,h,i]perylene	**20**	S

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	70	50-130
Pyrene-d10	83	50-130
Benzo[b]fluoranthene-d12	77	50-130

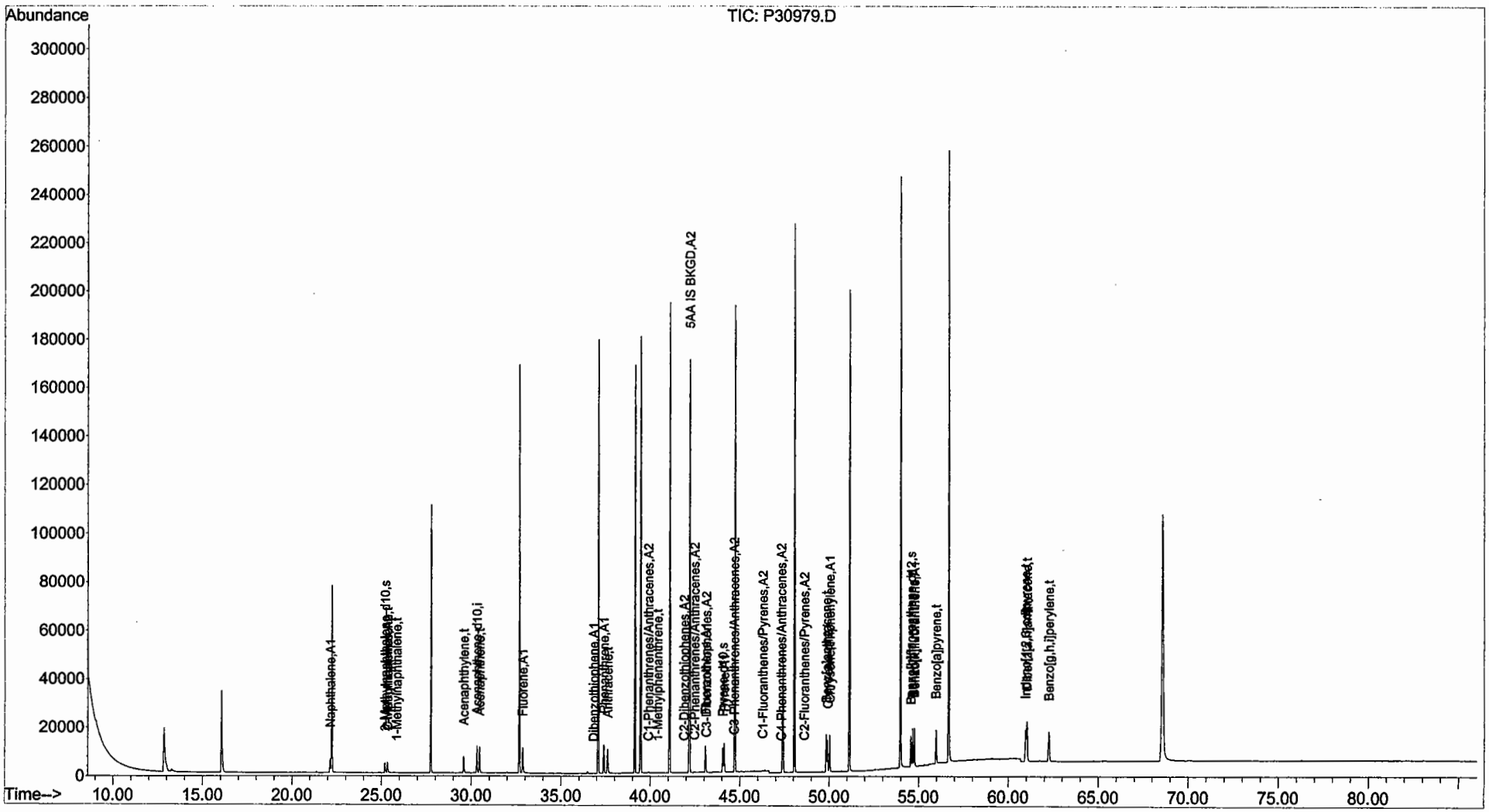
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

03/18/05 07:41

Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30979.D
Acq On : 15 Mar 2005 6:05 am
Operator : AC
Sample : SS030205BSD03
Misc : 1X REALUMINA
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Mar 17 12:04:02 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **See Below**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	03/10/05	100	AC

Lab ID: SS031405B02 SS031405BS02 SS031405BSD02

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
Naphthalene	0.11	U	16	47[a]	17	50	7	30	50-130
Acenaphthylene	0.18		24	74	26	79	8	30	50-130
Acenaphthene	0.077	U	24	73	25	76	4	30	50-130
Fluorene	0.077	U	24	71	25	75	5	30	50-130
Anthracene	0.089	U	28	85	28	85	0	30	50-130
Phenanthrene	0.073		24	71	25	75	5	30	50-130
Fluoranthene	0.067	U	26	78	27	81	4	30	50-130
Pyrene	0.059	U	27	82	29	87	5	30	50-130
Benz[a]anthracene	0.033		25	74	25	76	2	30	50-130
Chrysene/Triphenylene	0.027		26	77	26	78	2	30	50-130
Benzo[b]fluoranthene	0.071	U	22	66	22	67	2	30	50-130
Benzo[k]fluoranthene	0.14	U	24	73	25	76	4	30	50-130
Benzo[a]pyrene	0.093	U	22	65	22	66	3	30	50-130
Indeno[1,2,3-cd]pyrene	0.16	U	17	51	17	52	2	30	50-130
Dibenz[a,h]anthracene	0.13	U	19	56	19	57	1	30	50-130
Benzo[g,h,i]perylene	0.12	U	18	55	19	56	2	30	50-130

Surrogate	% Recovery		Acceptance Range (%)
2-Methylnaphthalene-d10	69	74	50-130
Pyrene-d10	87	89	50-130
Benzo[b]fluoranthene-d12	80	81	50-130

N/A - Not Applicable
[a] - Value outside of QC Limits.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

03/21/05 07:31

Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS031405BS02**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/10/05	03/14/05	100	30.00	2	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	**16**	S	Fluoranthene	**26**	S
C1-Naphthalenes	**14**		Pyrene	**27**	S
C2-Naphthalenes	0.11	U	C1-Fluoranthenes/Pyrenes	0.059	U
C3-Naphthalenes	0.11	U	C2-Fluoranthenes/Pyrenes	0.059	U
C4-Naphthalenes	0.11	U	C3-Fluoranthenes/Pyrenes	0.059	U
Biphenyl	0.061	U	C4-Fluoranthenes/Pyrenes	0.059	U
Dibenzofuran	0.079	U	Naphthobenzothiophenes	0.081	U
Acenaphthylene	**24**	S	C1-Naphthobenzothiophenes	0.081	U
Acenaphthene	**24**	S	C2-Naphthobenzothiophenes	0.081	U
Fluorene	**24**	S	C3-Naphthobenzothiophenes	0.081	U
C1-Fluorenes	0.077	U	C4-Naphthobenzothiophenes	0.081	U
C2-Fluorenes	0.077	U	Benz[a]anthracene	**25**	S
C3-Fluorenes	0.077	U	Chrysene/Triphenylene	**26**	S
Anthracene	**28**	S	C1-Chrysenes	0.072	U
Phenanthrene	**24**	S	C2-Chrysenes	0.072	U
C1-Phenanthrenes/Anthracenes	0.097	U	C3-Chrysenes	0.072	U
C2-Phenanthrenes/Anthracenes	0.097	U	C4-Chrysenes	0.072	U
C3-Phenanthrenes/Anthracenes	0.097	U	Benzo[b]fluoranthene	**22**	S
C4-Phenanthrenes/Anthracenes	0.097	U	Benzo[k]fluoranthene	**24**	S
Retene	0.097	U	Benzo[a]fluoranthene	0.14	U
Dibenzothiophene	**0.19**	J	Benzo[e]pyrene	0.091	U
C1-Dibenzothiophenes	0.074	U	Benzo[a]pyrene	**22**	S
C2-Dibenzothiophenes	0.074	U	Perylene	0.12	U
C3-Dibenzothiophenes	0.074	U	Indeno[1,2,3-cd]pyrene	**17**	S
C4-Dibenzothiophenes	0.074	U	Dibenz[a,h]anthracene	**19**	S
Benzo(b)fluorene	0.067	U	Benzo[g,h,i]perylene	**18**	S

Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	69	50-130
Pyrene-d10	87	50-130
Benzo[b]fluoranthene-d12	80	50-130

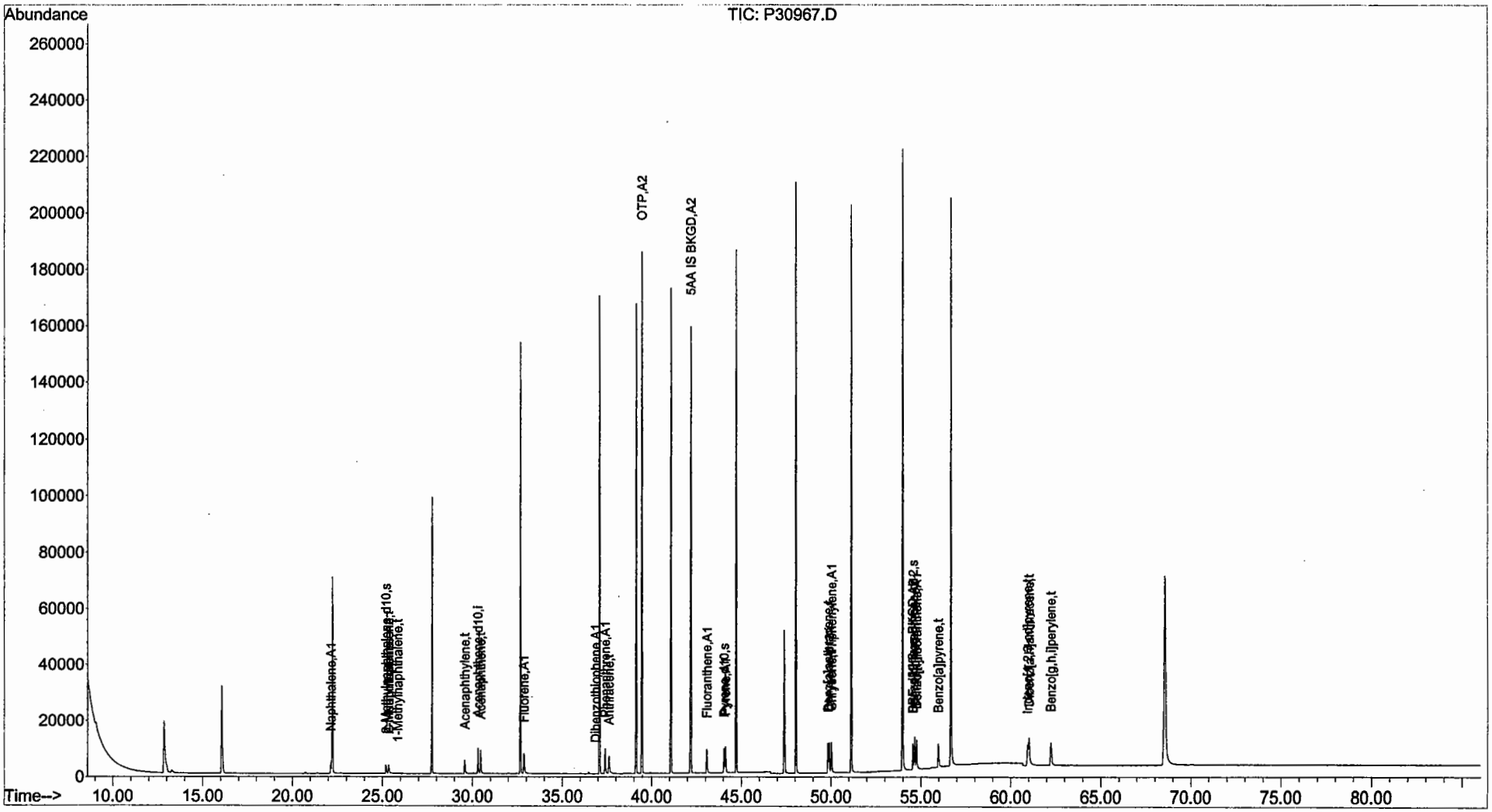
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

03/21/05 07:29

:ation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30967.D
Acq On : 14 Mar 2005 7:35 pm
Operator : AC
Sample : SS031405BS02
Misc : 1X ETR0502110
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 17 13:41:32 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



Form I
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS031405BSD02**
Associated Blank: **SS031405B02**
Concentration Units: **µg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/10/05	03/14/05	100	30.00	2	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	**17**	S	Fluoranthene	**27**	S
C1-Naphthalenes	**14**		Pyrene	**29**	S
C2-Naphthalenes	0.11	U	C1-Fluoranthenes/Pyrenes	0.059	U
C3-Naphthalenes	0.11	U	C2-Fluoranthenes/Pyrenes	0.059	U
C4-Naphthalenes	0.11	U	C3-Fluoranthenes/Pyrenes	0.059	U
Biphenyl	0.061	U	C4-Fluoranthenes/Pyrenes	0.059	U
Dibenzofuran	0.079	U	Naphthobenzothiophenes	0.081	U
Acenaphthylene	**26**	S	C1-Naphthobenzothiophenes	0.081	U
Acenaphthene	**25**	S	C2-Naphthobenzothiophenes	0.081	U
Fluorene	**25**	S	C3-Naphthobenzothiophenes	0.081	U
C1-Fluorenes	0.077	U	C4-Naphthobenzothiophenes	0.081	U
C2-Fluorenes	0.077	U	Benz[a]anthracene	**25**	S
C3-Fluorenes	0.077	U	Chrysene/Triphenylene	**26**	S
Anthracene	**28**	S	C1-Chrysenes	0.072	U
Phenanthrene	**25**	S	C2-Chrysenes	0.072	U
C1-Phenanthrenes/Anthracenes	0.097	U	C3-Chrysenes	0.072	U
C2-Phenanthrenes/Anthracenes	0.097	U	C4-Chrysenes	0.072	U
C3-Phenanthrenes/Anthracenes	0.097	U	Benzo[b]fluoranthene	**22**	S
C4-Phenanthrenes/Anthracenes	0.097	U	Benzo[k]fluoranthene	**25**	S
Retene	0.097	U	Benzo[a]fluoranthene	0.14	U
Dibenzothiophene	**0.19**	J	Benzo[e]pyrene	0.091	U
C1-Dibenzothiophenes	0.074	U	Benzo[a]pyrene	**22**	S
C2-Dibenzothiophenes	0.074	U	Perylene	0.12	U
C3-Dibenzothiophenes	0.074	U	Indeno[1,2,3-cd]pyrene	**17**	S
C4-Dibenzothiophenes	0.074	U	Dibenz[a,h]anthracene	**19**	S
Benzo(b)fluorene	0.067	U	Benzo[g,h,i]perylene	**19**	S

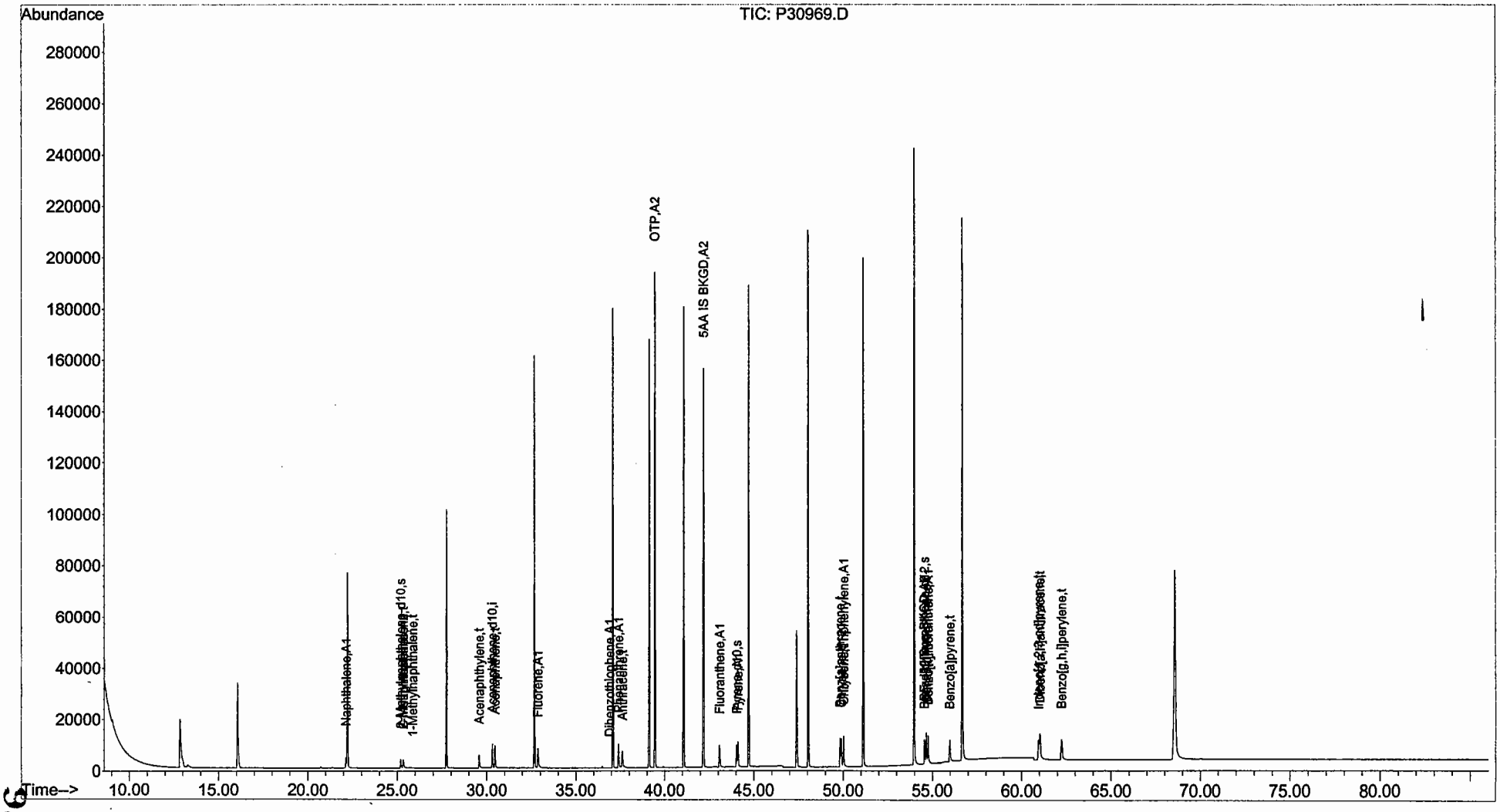
Surrogate	% Recovery	Acceptance Range (%)
2-Methylnaphthalene-d10	74	50-130
Pyrene-d10	89	50-130
Benzo[b]fluoranthene-d12	81	50-130

N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.
S - Spike compound.

03/21/05 07:30

Data Path : O:\ORGANICS\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30969.D
Acq On : 14 Mar 2005 9:22 pm
Operator : AC
Sample : SS031405BSD02
Misc : 1X ETR0502110
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Mar 17 13:54:51 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SO021805AWS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Naphthalene	714.43	770	108	65-135
C1-Naphthalenes	1534.53	1600	103	65-135
C2-Naphthalenes	1897.27	2000	103	65-135
C3-Naphthalenes	1436.53	1400	101	65-135
C4-Naphthalenes	773.42	820	106	65-135
Biphenyl	216.49	200	92	65-135
Acenaphthene	15.55	14	90	65-135
Fluorene	87.56	80	91	65-135
C1-Fluorenes	219.89	210	97	65-135
C2-Fluorenes	341.2	320	95	65-135
C3-Fluorenes	299.61	300	102	65-135
Phenanthrene	272.58	260	94	65-135
C1-Phenanthrenes/Anthracenes	564.81	550	98	65-135
C2-Phenanthrenes/Anthracenes	660.43	600	91	65-135
C3-Phenanthrenes/Anthracenes	448.76	430	96	65-135
C4-Phenanthrenes/Anthracenes	175.88	160	90	65-135
Dibenzothiophene	218.8	210	96	65-135
C1-Dibenzothiophenes	434.54	390	89	65-135
C2-Dibenzothiophenes	551.44	520	94	65-135
C3-Dibenzothiophenes	460.96	450	97	65-135
C4-Dibenzothiophenes	236.77	240	102	65-135
Fluoranthene	4.26	3.9	91	65-135
Pyrene	15.56	12	75	65-135
C1-Fluoranthenes/Pyrenes	78.43	69	88	65-135
C2-Fluoranthenes/Pyrenes	132.93	120	88	65-135
C3-Fluoranthenes/Pyrenes	111.33	130	119	65-135
Chrysene/Triphenylene	50.99	55	108	65-135
C1-Chrysenes	81.69	94	116	65-135
C2-Chrysenes	95.93	110	118	65-135
C3-Chrysenes	89.87	120	129	65-135
C4-Chrysenes	51.86	70	135	65-135
Benzo[b]fluoranthene	6.54	6.4	99	65-135
Benzo[e]pyrene	12.88	14	105	65-135

03/18/05 09:49

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SO021805AWS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Dibenz[a,h]anthracene	1.02	0.99	97	65-135
Benzo[g,h,i]perylene	3.35	4.1	122	65-135
Hopane (T19)	118.8	170	141[a]	65-135

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

03/18/05 09:49

Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SO021805AWS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	02/17/05	100	0.05	10	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	770		Fluoranthene	3.9	
C1-Naphthalenes	1600		Pyrene	12	
C2-Naphthalenes	2000		C1-Fluoranthenes/Pyrenes	69	
C3-Naphthalenes	1400		C2-Fluoranthenes/Pyrenes	120	
C4-Naphthalenes	820		C3-Fluoranthenes/Pyrenes	130	
Biphenyl	200		C4-Fluoranthenes/Pyrenes	100	
Dibenzofuran	60		Naphthobenzothiophenes	51	
Acenaphthylene	7.7		C1-Naphthobenzothiophenes	140	
Acenaphthene	14		C2-Naphthobenzothiophenes	170	
Fluorene	80		C3-Naphthobenzothiophenes	130	
C1-Fluorenes	210		C4-Naphthobenzothiophenes	85	
C2-Fluorenes	320		Benz[a]anthracene	4.2	
C3-Fluorenes	300		Chrysene/Triphenylene	55	
Anthracene	6.7		C1-Chrysenes	94	
Phenanthrene	260		C2-Chrysenes	110	
C1-Phenanthrenes/Anthracenes	550		C3-Chrysenes	120	
C2-Phenanthrenes/Anthracenes	600		C4-Chrysenes	70	
C3-Phenanthrenes/Anthracenes	430		Benzo[b]fluoranthene	6.4	
C4-Phenanthrenes/Anthracenes	160		Benzo[k]fluoranthene	0.81	J
Retene	0.29	U	Benzo[a]fluoranthene	0.41	U
Dibenzothiophene	210		Benzo[e]pyrene	14	
C1-Dibenzothiophenes	390		Benzo[a]pyrene	2.6	
C2-Dibenzothiophenes	520		Perylene	1.3	J
C3-Dibenzothiophenes	450		Indeno[1,2,3-cd]pyrene	0.79	J
C4-Dibenzothiophenes	240		Dibenz[a,h]anthracene	0.99	J
Benzo(b)fluorene	0.20	U	Benzo[g,h,i]perylene	4.1	

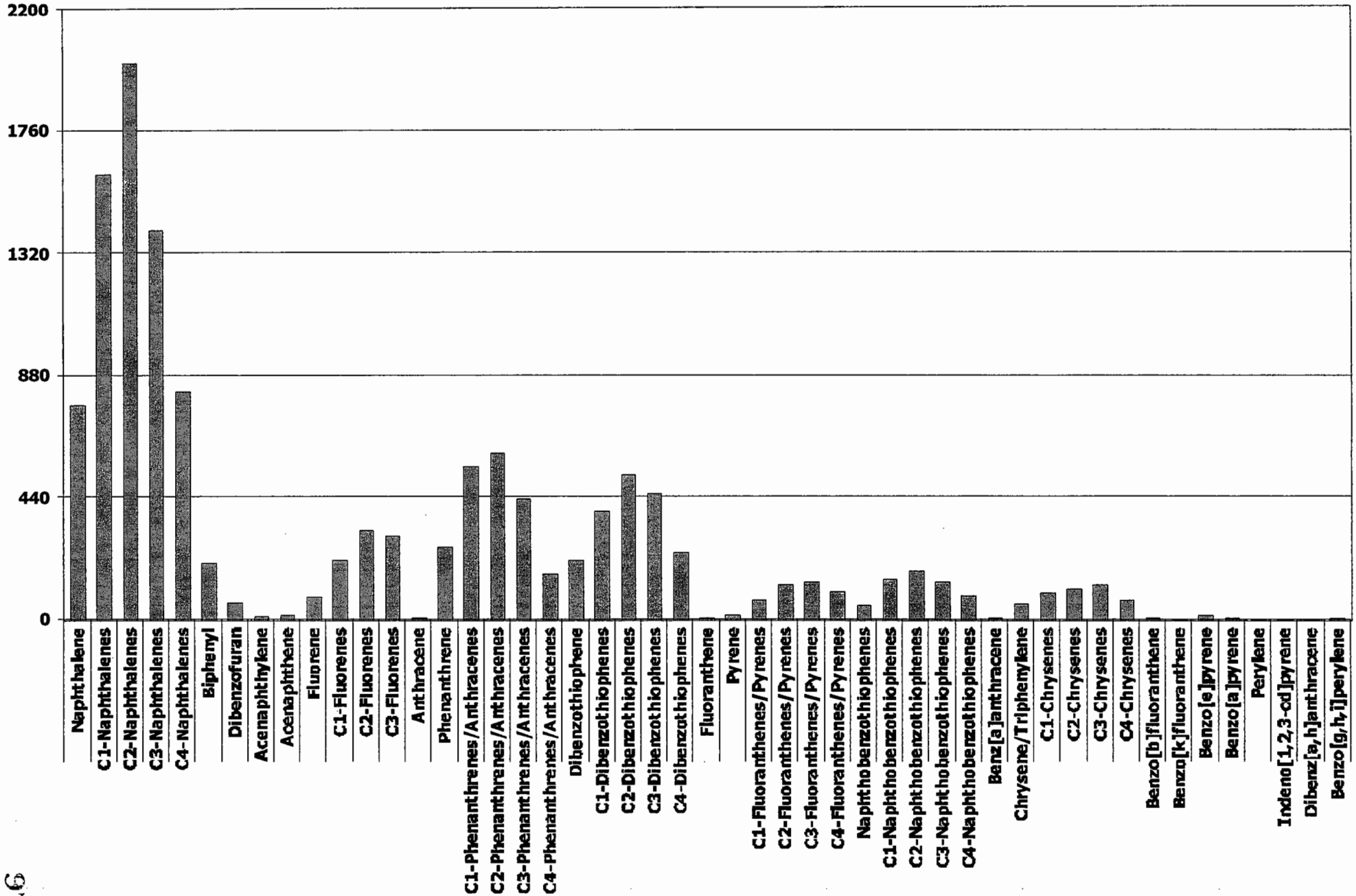
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

03/18/05 09:49

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **Alaska North Slope Crude** Lab ID: **SO021805AWS0**

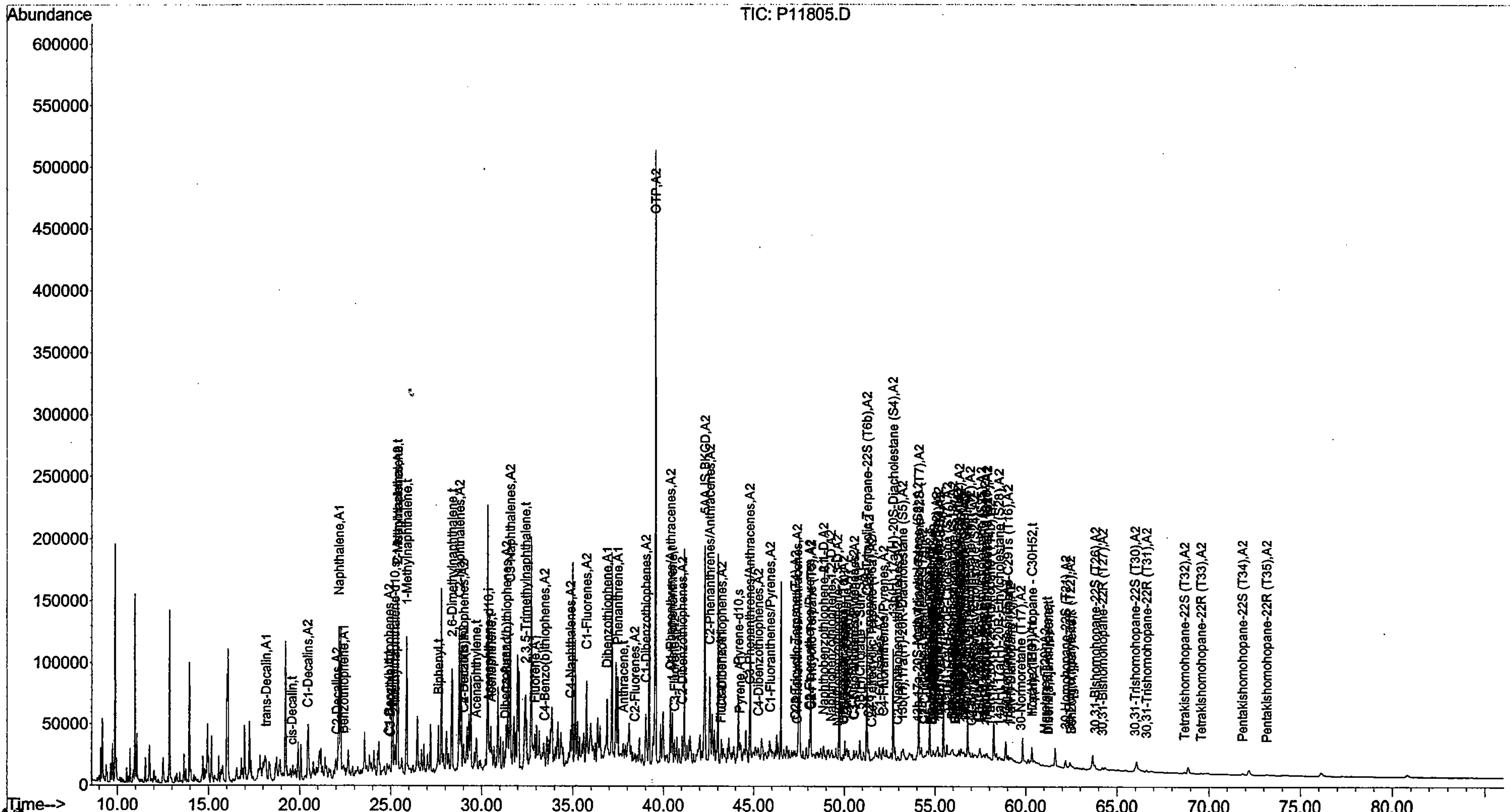
Concentration: mg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\ORGANICS\DATA\PAH1\FEBRUARY2005\FEB16\
Data File : P11805.D
Acq On : 17 Feb 2005 11:07 am
Operator : AC
Sample : SO021805AWS01
Misc : ANS1021601 AA37 5.002MG/ML
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 18 09:11:14 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Feb 17 13:19:28 2005
Response via : Initial Calibration



Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SW031405AWS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Naphthalene	714.43	610	85	65-135
C1-Naphthalenes	1534.53	1300	87	65-135
C2-Naphthalenes	1897.27	1700	89	65-135
C3-Naphthalenes	1436.53	1300	91	65-135
C4-Naphthalenes	773.42	750	97	65-135
Biphenyl	216.49	180	84	65-135
Acenaphthene	15.55	15	95	65-135
Fluorene	87.56	73	83	65-135
C1-Fluorenes	219.89	210	96	65-135
C2-Fluorenes	341.2	340	100	65-135
C3-Fluorenes	299.61	300	102	65-135
Phenanthrene	272.58	260	94	65-135
C1-Phenanthrenes/Anthracenes	564.81	560	99	65-135
C2-Phenanthrenes/Anthracenes	660.43	630	96	65-135
C3-Phenanthrenes/Anthracenes	448.76	480	108	65-135
C4-Phenanthrenes/Anthracenes	175.88	180	105	65-135
Dibenzothiophene	218.8	210	97	65-135
C1-Dibenzothiophenes	434.54	420	97	65-135
C2-Dibenzothiophenes	551.44	600	108	65-135
C3-Dibenzothiophenes	460.96	540	118	65-135
C4-Dibenzothiophenes	236.77	290	124	65-135
Fluoranthene	4.26	3.7	86	65-135
Pyrene	15.56	13	86	65-135
C1-Fluoranthenes/Pyrenes	78.43	81	104	65-135
C2-Fluoranthenes/Pyrenes	132.93	140	104	65-135
C3-Fluoranthenes/Pyrenes	111.33	150	132	65-135
Chrysene/Triphenylene	50.99	49	97	65-135
C1-Chrysenes	81.69	92	112	65-135
C2-Chrysenes	95.93	120	130	65-135
C3-Chrysenes	89.87	120	133	65-135
C4-Chrysenes	51.86	78	150[a]	65-135
Benzo[b]fluoranthene	6.54	5.7	87	65-135
Benzo[e]pyrene	12.88	12	91	65-135

Form III
Spike Recovery Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SW031405AWS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	N/A	100	AC

Parameter	True Conc.	Conc.	% Recovery	% Recovery Limits
Dibenz[a,h]anthracene	1.02	0.88	86	65-135
Benzo[g,h,i]perylene	3.35	3.2	96	65-135
Hopane (T19)	118.8	140	115	65-135

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

03/18/05 09:50

Form I
Alaska North Slope Crude
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SW031405AWS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/04/05	100	0.05	10	1	AC

Parameter	Result		Parameter	Result	
Naphthalene	610		Fluoranthene	3.7	
C1-Naphthalenes	1300		Pyrene	13	
C2-Naphthalenes	1700		C1-Fluoranthenes/Pyrenes	81	
C3-Naphthalenes	1300		C2-Fluoranthenes/Pyrenes	140	
C4-Naphthalenes	750		C3-Fluoranthenes/Pyrenes	150	
Biphenyl	180		C4-Fluoranthenes/Pyrenes	120	
Dibenzofuran	58		Naphthobenzothiophenes	55	
Acenaphthylene	7.8		C1-Naphthobenzothiophenes	150	
Acenaphthene	15		C2-Naphthobenzothiophenes	210	
Fluorene	73		C3-Naphthobenzothiophenes	170	
C1-Fluorenes	210		C4-Naphthobenzothiophenes	120	
C2-Fluorenes	340		Benz[a]anthracene	4.3	
C3-Fluorenes	300		Chrysene/Triphenylene	49	
Anthracene	3.7		C1-Chrysenes	92	
Phenanthrene	260		C2-Chrysenes	120	
C1-Phenanthrenes/Anthracenes	560		C3-Chrysenes	120	
C2-Phenanthrenes/Anthracenes	630		C4-Chrysenes	78	
C3-Phenanthrenes/Anthracenes	480		Benzo[b]fluoranthene	5.7	
C4-Phenanthrenes/Anthracenes	180		Benzo[k]fluoranthene	0.43	J
Retene	0.29	U	Benzo[a]fluoranthene	0.39	J
Dibenzothiophene	210		Benzo[e]pyrene	12	
C1-Dibenzothiophenes	420		Benzo[a]pyrene	2.8	
C2-Dibenzothiophenes	600		Perylene	1.3	J
C3-Dibenzothiophenes	540		Indeno[1,2,3-cd]pyrene	0.56	J
C4-Dibenzothiophenes	290		Dibenz[a,h]anthracene	0.88	J
Benzo(b)fluorene	0.20	U	Benzo[g,h,i]perylene	3.2	

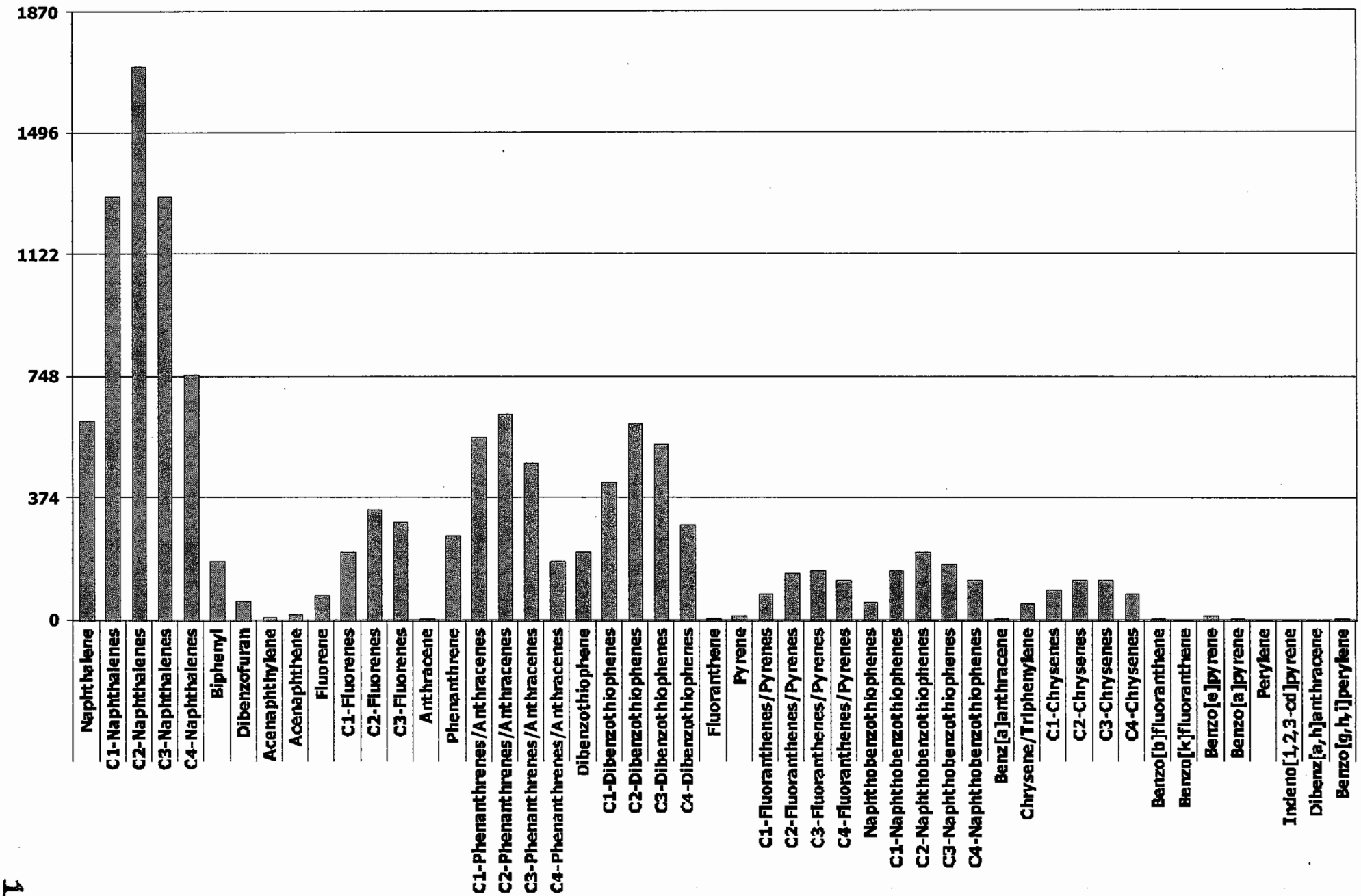
N/A - Not Applicable
J - Estimated value, below quantitation limit.
U - The analyte was analyzed for but not detected at the sample specific level reported.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Alkylated Polynuclear Aromatic Hydrocarbons Distributions

Client ID: **Alaska North Slope Crude** Lab ID: **SW031405AWS0**

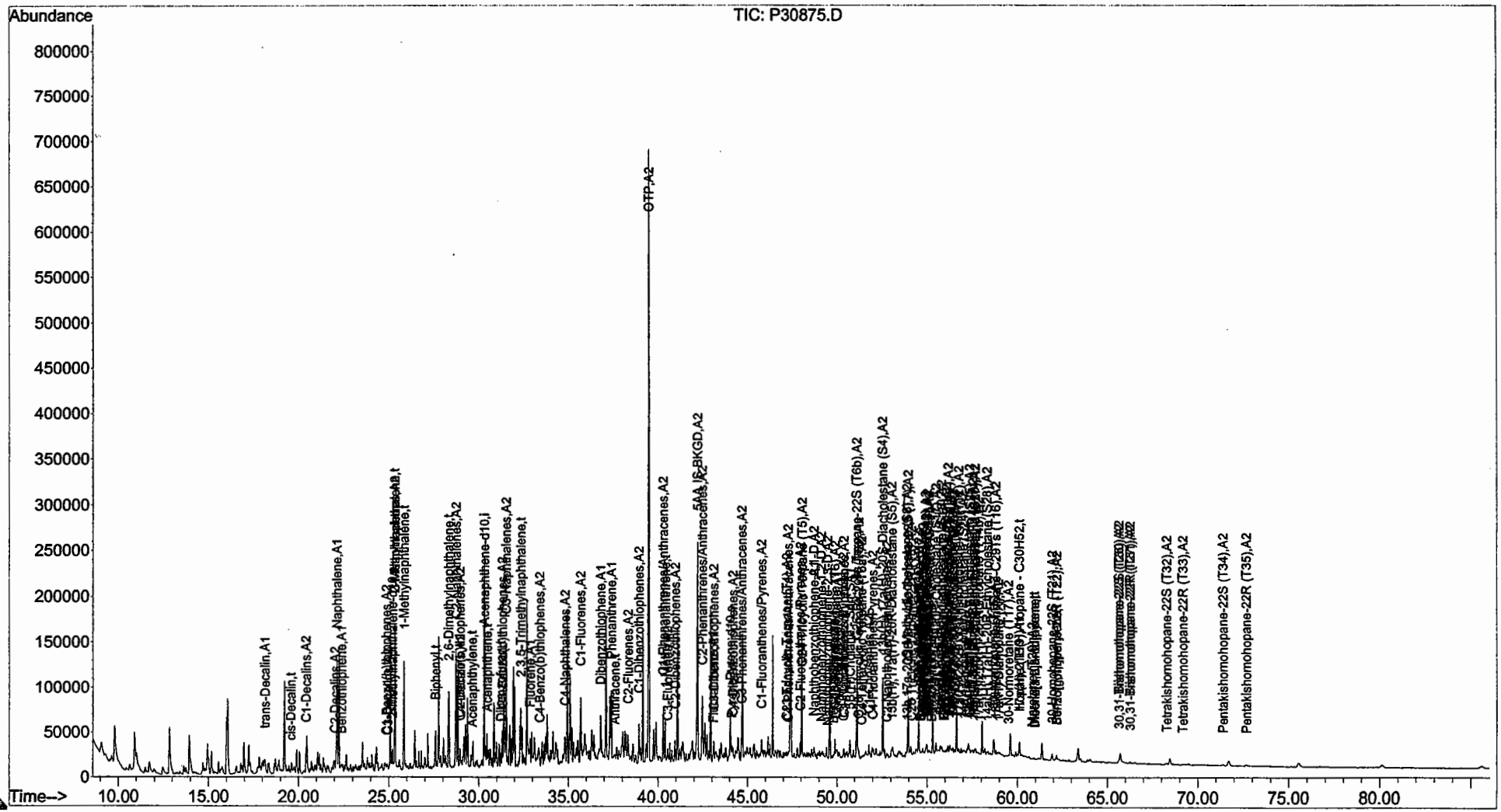
Concentration: mg/Kg



Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH02\
Data File : P30875.D
Acq On : 4 Mar 2005 2:03 pm
Operator : AC
Sample : SW031405AWS01
Misc : ANS3030401 WHGRPAA37 5.002MG/ML
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 14 13:00:24 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration



Supporting Quality Control Results

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS030205B06**
Date Analyzed: **03/04/05 17:35**

Client ID	Lab ID	Date/Time Analyzed
OFF-SD-OFF2-0006-01	0502110-01	03/04/05 22:47
OFF-SD-OFF2-0006-01	0502110-01 D	03/05/05 00:31
OFF-SD-OFF2-0006-01	0502110-01 M	03/05/05 02:15
OFF-SD-411-0006-01	0502110-02	03/05/05 03:58
OFF-SD-OFF3-0006-01	0502110-03	03/05/05 05:41
OFF-SD-414-0006-01	0502110-04	03/05/05 07:23
OFF-SD-SD5-0006-01	0502110-05	03/05/05 09:06
OFF-SD-442-0006-01	0502110-06	03/05/05 14:16
OFF-SD-OFF6-0006-01	0502110-07	03/05/05 16:01
OFF-SD-OFF7-0006-01	0502110-08	03/05/05 17:43
OFF-SD-JPC03-0006-01	0502110-09	03/05/05 19:24
OFF-SD-OTSOF075-0006-01	0502110-10	03/05/05 21:06
OFF-SD-OTSOF075A-0006-01	0502110-11	03/05/05 22:49
OFF-SD-OTSOF093-0006-01	0502110-12	03/06/05 12:19
OFF-SD-DUP02-01	0502110-16	03/06/05 17:25
OFF-SD-442-0006-01	0502110-06E	03/07/05 20:32
OFF-SD-OTSOF075-0006-01	0502110-10E	03/07/05 22:14
LCS	SS030205BS04	03/15/05 04:20
LCSD	SS030205BSD03	03/15/05 06:05
OFF-SD-DUP01-01	0502110-15	03/15/05 07:51
OFF-SD-DUP02-01	0502110-16E	03/18/05 16:00

N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form IV
Method Blank Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS031405B02**
Date Analyzed: **03/15/05 18:31**

Client ID	Lab ID	Date/Time Analyzed
LCS	SS031405BS02	03/14/05 19:35
LCSD	SS031405BSD02	03/14/05 21:22
OFF-SD-414-DEBRIS1	0502110-13	03/14/05 23:08
OFF-SD-414-DEBRIS1	0502110-13 D	03/15/05 00:51
OFF-SD-414-DEBRIS2	0502110-14	03/15/05 02:37
OFF-SD-414-DEBRIS2	0502110-14E	03/15/05 14:58

N/A - Not Applicable

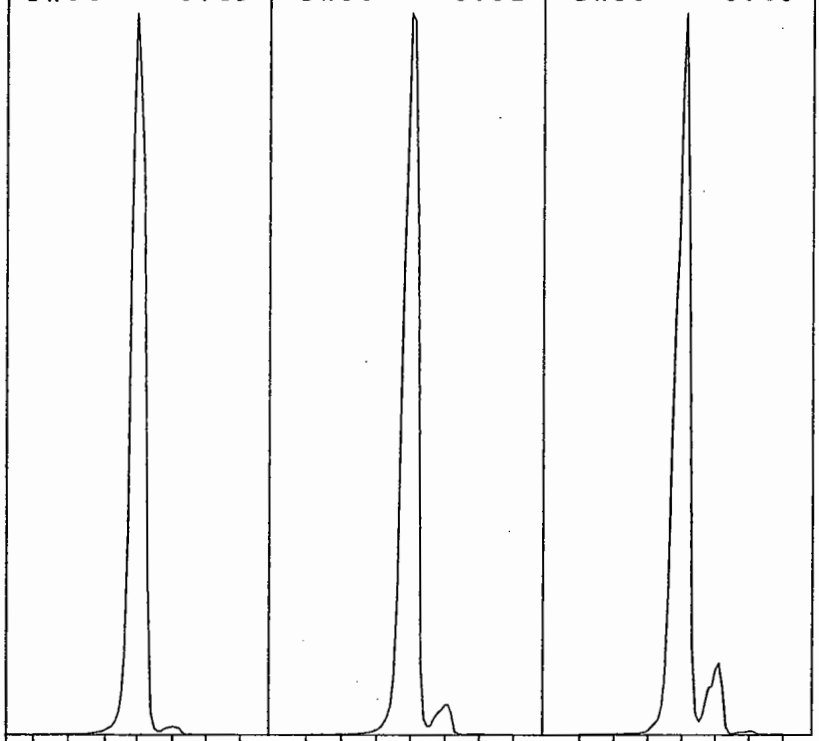
375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

5973

Wed Feb 16 17:35:21 2005 Instrument: PAHINST1

C:\MSDCHEM\1\5973N\PBTBA.U

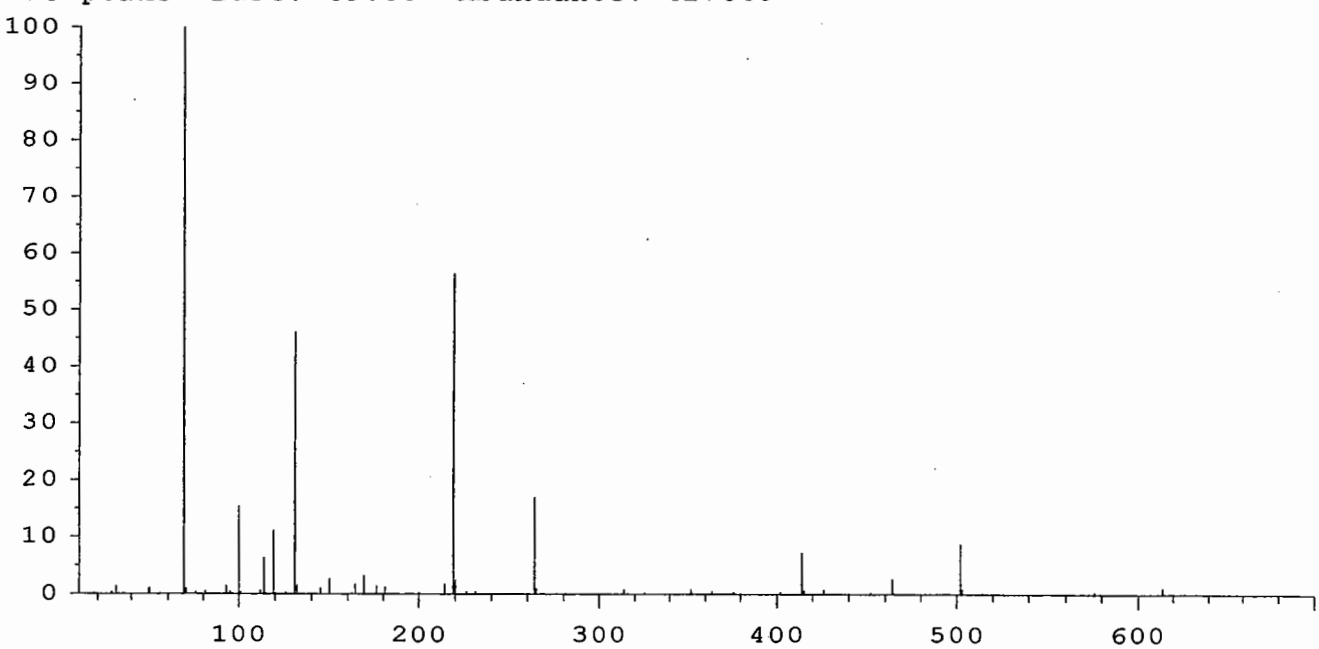
Mass	69.00	Mass	219.00	Mass	502.10
Ab	503337	Ab	283378	Ab	47156
Pw50	0.49	Pw50	0.51	Pw50	0.48



Ion Pol	POS	MassGain	-24
		MassOffs	-11
Emission	34.6	AmuGain	1940
ElEnrgy	69.9	AmuOffs	136
Filament	1	Wid219	-0.015
		DC Pol	NEG
Repeller	34.81		
IonFcus	90.2	HEDEnab	ON
EntLens	0.0	EMVolts	1294
EntOffs	VAR		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10
Zones:			
MS Source	230	Foreline	50
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10

136 peaks Base: 69.00 Abundance: 427648



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	427648	100.00	70.00	4485	1.05
219.00	241216	56.41	220.00	10619	4.40
502.00	37656	8.81	503.00	3778	10.03

TARGET MASS:	50	69	131	219	414	502
DYNAMIC ENT OFFSET:	15.1	14.8	13.8	15.1	17.6	20.3
TARGET ABUND(%):	1.0	100.0	45.0	55.0	7.0	8.0
ACTUAL TUNE ABUND(%):	1.0	100.0	46.2	56.4	7.3	8.8

Response Factor Report PAHINST1

Method Path : O:\ORGANICS\METHODS\PAH1\FEB05\
Method File : PAH10216.M
Title : Decalins & Alkylated PAH's
Last Update : Wed Mar 02 09:10:02 2005
Response Via : Initial Calibration

ICAL worked up 2-17-05 MS

Calibration Files
10 =P11791.D 25 =P11793.D 100 =P11795.D
500 =P11797.D 1250=P11799.D 5000=P11801.D 10,000=P11803

		Compound	10	25	100	500	1250	5000	Avg	%RSD
1)	i	Acenaphthene-d10				ISTD				
2)	t	Decalin	0.404	0.346	0.385	0.383	0.377	0.369	0.377	4.61
3)	A1	trans-Decalin	0.426	0.442	0.400	0.415	0.427	0.419	0.422	3.07
4)	t	cis-Decalin	0.386	0.342	0.314	0.316	0.325	0.318	0.333	7.67
5)	A2	C1-Decalins	0.426	0.442	0.400	0.415	0.427	0.419	0.422	3.07
6)	A2	C2-Decalins	0.426	0.442	0.400	0.415	0.427	0.419	0.422	3.07
7)	A2	C3-Decalins	0.426	0.442	0.400	0.415	0.427	0.419	0.422	3.07
8)	A2	C4-Decalins	0.426	0.442	0.400	0.415	0.427	0.419	0.422	3.07
9)	A1	Naphthalene	1.656	1.836	1.792	1.943	2.074	2.043	1.927	9.03
10)	A2	C1-Naphthalenes	1.656	1.836	1.792	1.943	2.074	2.043	1.927	9.03
11)	A2	C2-Naphthalenes	1.656	1.836	1.792	1.943	2.074	2.043	1.927	9.03
12)	A2	C3-Naphthalenes	1.656	1.836	1.792	1.943	2.074	2.043	1.927	9.03
13)	A2	C4-Naphthalenes	1.656	1.836	1.792	1.943	2.074	2.043	1.927	9.03
14)	s	2-Methylnaphthale	0.865	0.942	1.027	1.136	1.207	1.192	1.092	13.87
15)	t	2-Methylnaphthale	1.111	1.063	1.126	1.179	1.335	1.339	1.225	11.32
16)	t	1-Methylnaphthale	0.913	1.119	1.084	1.075	1.202	1.203	1.126	10.74
17)	A1	Benzothiophene	1.380	1.582	1.602	1.701	1.778	1.745	1.659	9.17
18)	A2	C1-Benzo(b)thioph	1.380	1.582	1.602	1.701	1.778	1.745	1.659	9.17
19)	A2	C2-Benzo(b)thioph	1.380	1.582	1.602	1.701	1.778	1.745	1.659	9.17
20)	A2	C3-Benzo(b)thioph	1.380	1.582	1.602	1.701	1.778	1.745	1.659	9.17
21)	A2	C4-Benzo(b)thioph	1.380	1.582	1.602	1.701	1.778	1.745	1.659	9.17
22)	t	Biphenyl	1.467	1.554	1.496	1.605	1.725	1.695	1.620	7.58
23)	t	2,6-Dimethylnapht	1.054	1.075	1.028	1.093	1.188	1.182	1.127	7.78
24)	t	Dibenzofuran	1.751	1.872	1.740	1.834	1.985	1.929	1.883	6.47
25)	t	Acenaphthylene	1.974	1.920	1.937	2.063	2.179	2.155	2.077	6.99
26)	t	Acenaphthene	1.279	1.294	1.197	1.273	1.332	1.299	1.295	4.59
27)	t	2,3,5-Trimethylna	1.084	0.976	0.939	1.050	1.140	1.144	1.081	9.45
28)	A1	Fluorene	1.036	1.285	1.277	1.367	1.476	1.443	1.351	12.91
29)	A2	C1-Fluorenes	1.036	1.285	1.277	1.367	1.476	1.443	1.351	12.91
30)	A2	C2-Fluorenes	1.036	1.285	1.277	1.367	1.476	1.443	1.351	12.91
31)	A2	C3-Fluorenes	1.036	1.285	1.277	1.367	1.476	1.443	1.351	12.91
32)	A1	Dibenzothiophene	1.743	1.665	1.843	2.088	2.241	2.242	2.031	13.89
33)	A2	OTP	1.743	1.665	1.843	2.088	2.241	2.242	2.031	13.89
34)	A2	C1-Dibenzothiophe	1.743	1.665	1.843	2.088	2.241	2.242	2.031	13.89
35)	A2	C2-Dibenzothiophe	1.743	1.665	1.843	2.088	2.241	2.242	2.031	13.89
36)	A2	C3-Dibenzothiophe	1.743	1.665	1.843	2.088	2.241	2.242	2.031	13.89
37)	A2	C4-Dibenzothiophe	1.743	1.665	1.843	2.088	2.241	2.242	2.031	13.89
38)	A1	Phenanthrene	2.004	2.105	1.679	1.927	2.075	2.111	2.026	9.30
39)	A2	C1-Phenanthrenes/	2.004	2.105	1.679	1.927	2.075	2.111	2.026	9.30
40)	A2	C2-Phenanthrenes/	2.004	2.105	1.679	1.927	2.075	2.111	2.026	9.30
41)	A2	5AA IS BKGD	2.004	2.105	1.679	1.927	2.075	2.111	2.026	9.30
42)	A2	C3-Phenanthrenes/	2.004	2.105	1.679	1.927	2.075	2.111	2.026	9.30
43)	A2	C4-Phenanthrenes/	2.004	2.105	1.679	1.927	2.075	2.111	2.026	9.30
44)	A2	Retene	2.004	2.105	1.679	1.927	2.075	2.111	2.026	9.30
45)	t	Anthracene	1.796	2.037	1.792	2.012	2.178	2.162	2.036	9.24
46)	t	Carbazole	1.741	1.406		1.902	1.886		1.815	14.84
47)	t	1-Methylphenanthr	1.264	1.266	1.217	1.459	1.554	1.624	1.447	14.09
48)	A1	Fluoranthene	2.200	2.178	2.143	2.415	2.587	2.640	2.428	11.04
49)	A2	Benzo(b)fluorene	2.200	2.178	2.143	2.415	2.587	2.640	2.428	11.04
50)	s	Pyrene-d10	1.500	1.655	1.577	1.804	1.936	2.002	1.806	13.50
51)	A1	Pyrene	2.232	2.114	2.029	2.309	2.502	2.532	2.348	10.52
52)	A2	C1-Fluoranthenes/	2.232	2.114	2.029	2.309	2.502	2.532	2.348	10.52
53)	A2	C2-Fluoranthenes/	2.232	2.114	2.029	2.309	2.502	2.532	2.348	10.52
54)	A2	C3-Fluoranthenes/	2.232	2.114	2.029	2.309	2.502	2.532	2.348	10.52
55)	A2	C4-Fluoranthenes/	2.232	2.114	2.029	2.309	2.502	2.532	2.348	10.52
56)	A1	Naphthobenzothiop	2.388	2.164	2.035	2.195	2.405	2.469	2.333	9.27
57)	A2	Naphthobenzothiop	2.388	2.164	2.035	2.195	2.405	2.469	2.333	9.27
58)	A2	Naphthobenzothiop	2.388	2.164	2.035	2.195	2.405	2.469	2.333	9.27

Carbazole added 3-2-05 MS

Response Factor Report PAHINST1

Method Path : O:\ORGANICS\METHODS\PAH1\FEB05\
Method File : PAH10216.M
Title : Decalins & Alkylated PAH's
Last Update : Thu Feb 17 13:19:28 2005
Response Via : Initial Calibration

Calibration Files
10 =P11791.D 25 =P11793.D 100 =P11795.D
500 =P11797.D 1250=P11799.D 5000=P11801.D

		Compound	10	25	100	500	1250	5000	Avg	%RSD
59)	A2	Naphthobenzothiop	2.388	2.164	2.035	2.195	2.405	2.469	2.333	9.27
60)	A2	C1-Naphthobenzoth	2.388	2.164	2.035	2.195	2.405	2.469	2.333	9.27
61)	A2	C2-Naphthobenzoth	2.388	2.164	2.035	2.195	2.405	2.469	2.333	9.27
62)	A2	C3-Naphthobenzoth	2.388	2.164	2.035	2.195	2.405	2.469	2.333	9.27
63)	A2	C4-Naphthobenzoth	2.388	2.164	2.035	2.195	2.405	2.469	2.333	9.27
64)	i	Chrysene-d12	----------ISTD----------							
65)	t	Benz[a]anthracene	1.377	1.194	1.148	1.219	1.342	1.359	1.301	8.88
66)	t	Chrysene	1.274	1.212	1.173	1.232	1.327	1.291	1.269	5.44
67)	A1	Chrysene/Tripheny	1.274	1.212	1.175	1.232	1.327	1.291	1.270	5.46
68)	A2	C1-Chrysenes	1.274	1.212	1.175	1.232	1.327	1.291	1.270	5.46
69)	A2	C2-Chrysenes	1.274	1.212	1.175	1.232	1.327	1.291	1.270	5.46
70)	A2	BBF-d12 Surr BKGD	1.274	1.212	1.175	1.232	1.327	1.291	1.270	5.46
71)	A2	C3-Chrysenes	1.274	1.212	1.175	1.232	1.327	1.291	1.270	5.46
72)	A2	C4-Chrysenes	1.274	1.212	1.175	1.232	1.327	1.291	1.270	5.46
73)	s	Benzo[b]fluoranth	0.945	1.101	1.032	1.103	1.174	1.176	1.114	9.46
74)	t	Benzo[b]fluoranth	1.208	1.234	1.213	1.308	1.405	1.421	1.332	9.37
75)	A1	Benzo[k]fluoranth	1.338	1.423	1.356	1.396	1.509	1.423	1.422	4.76
76)	A2	Benzo[a]fluoranth	1.338	1.423	1.356	1.396	1.509	1.423	1.422	4.76
77)	t	Benzo[e]pyrene	1.420	1.252	1.197	1.218	1.304	1.279	1.290	6.14
78)	t	Benzo[a]pyrene	1.425	1.266	1.206	1.260	1.351	1.313	1.318	6.13
79)	t	Perylene	1.338	1.211	1.193	1.230	1.296	1.265	1.271	5.06
80)	t	Indeno[1,2,3-cd]p	1.341	1.109	1.178	1.103	1.263	1.279	1.245	10.02
81)	t	Dibenz[a,h]anthra	1.288	1.184	1.275	1.305	1.386	1.332	1.316	6.26
82)	t	Benzo[g,h,i]peryl	1.471	1.344	1.296	1.283	1.356	1.303	1.351	4.97
83)	t	17a(H),21B(H)-hop	0.593	0.546	0.490	0.394	0.488	0.396	0.475	16.19
84)	A1	Hopane (T19)	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
85)	A2	C23 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
86)	A2	C24 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
87)	A2	C25 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
88)	A2	C24 Tetracyclic T	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
89)	A2	C26 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
90)	A2	C26 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
91)	A2	C28 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
92)	A2	C28 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
93)	A2	C29 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
94)	A2	C29 Tricyclic Ter	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
95)	A2	18a-22,29,30-Tris	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
96)	A2	17a(H)-22,29,30-T	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
97)	A2	17a/b,21b/a 28,30	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
98)	A2	17a(H),21b(H)-25-	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
99)	A2	30-Norhopane (T15	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
100)	A2	18a(H)-30-Norneoh	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
101)	A2	17a(H)-Diahopane	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
102)	A2	30-Normoretane (T	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
103)	A2	18a(H)&18b(H)-Ole	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
104)	A2	Moretane (T20)	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
105)	A2	30-Homohopane-22S	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
106)	A2	30-Homohopane-22R	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
107)	A2	30,31-Bishomohopa	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
108)	A2	30,31-Bishomohopa	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
109)	A2	30,31-Trishomohop	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
110)	A2	30,31-Trishomohop	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
111)	A2	Tetrakishomohopan	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
112)	A2	Tetrakishomohopan	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
113)	A2	Pentakishomohopan	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
114)	A2	Pentakishomohopan	0.601	0.546	0.490	0.394	0.488	0.396	0.476	16.59
115)	SA1	5B(H)Cholane - Su	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
116)	A2	13b(H),17a(H)-20S	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46

2nd Review on 2/18/05

Response Factor Report PAHINST1

Method Path : O:\ORGANICS\METHODS\PAH1\FEB05\
Method File : PAH10216.M
Title : Decalins & Alkylated PAH's
Last Update : Thu Feb 17 13:19:28 2005
Response Via : Initial Calibration

Calibration Files
10 =P11791.D 25 =P11793.D 100 =P11795.D
500 =P11797.D 1250=P11799.D 5000=P11801.D

	Compound	10	25	100	500	1250	5000	Avg	%RSD
117) A2	13b(H),17a(H)-20R	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
118) A2	13b,17a-20S-Methy	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
119) A2	14a(H),17a(H)-20S	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
120) A2	14a(H),17a(H)-20R	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
121) A2	13b,17a-20R-Ethyl	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
122) A2	13a,17b-20S-Ethyl	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
123) A2	14a,17a-20S-Methy	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
124) A2	14a,17a-20R-Methy	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
125) A2	14a(H),17a(H)-20S	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
126) A2	14a(H),17a(H)-20R	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
127) A2	14b(H),17b(H)-20R	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
128) A2	14b(H),17b(H)-20S	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
129) A2	14b,17b-20R-Methy	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
130) A2	14b,17b-20S-Methy	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
131) A2	14b(H),17b(H)-20R	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46
132) A2	14b(H),17b(H)-20S	0.244	0.204	0.203	0.208	0.224	0.222	0.220	7.46

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data Path : O:\ORGANICS\DATA\PAH1\FEBRUARY2005\FEB16\
Data File : P11815.D
Acq On : 17 Feb 2005 7:43 pm
Operator : AC
Sample : Q1021601
Misc : SW083104A
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 18 08:32:33 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Feb 17 13:19:28 2005
Response via : Initial Calibration

MS 21B05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	95	-0.01
2	t	Decalin	0.377	0.000#	100.0#	0#	-18.16#
3	A1	trans-Decalin	0.422	0.000#	100.0#	0#	-18.16#
4	t	cis-Decalin	0.333	0.000#	100.0#	0#	-19.58#
5	A2	C1-Decalins	0.422	0.000#	100.0#	0#	-20.45#
6	A2	C2-Decalins	0.422	0.000#	100.0#	0#	-22.03#
7	A2	C3-Decalins	0.422	0.000#	100.0#	0#	-24.98#
8	A2	C4-Decalins	0.422	0.000#	100.0#	0#	-29.01#
9	A1	Naphthalene	1.927	1.765	8.4	87	0.00
10	A2	C1-Naphthalenes	1.927	0.000#	100.0#	0#	-25.39#
11	A2	C2-Naphthalenes	1.927	0.000#	100.0#	0#	-28.78#
12	A2	C3-Naphthalenes	1.927	0.000#	100.0#	0#	-32.50#
13	A2	C4-Naphthalenes	1.927	0.000#	100.0#	0#	-34.89#
14	s	2-Methylnaphthalene-d10	1.092	1.154	-5.7	97	-0.04
15	t	2-Methylnaphthalene	1.225	1.062	13.3	86	-0.04
16	t	1-Methylnaphthalene	1.126	1.027	8.8	91	-0.02
17	A1	Benzothiophene	1.659	0.000#	100.0#	0#	-22.42#
18	A2	C1-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-24.91#
19	A2	C2-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-29.02#
20	A2	C3-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-31.37#
21	A2	C4-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-33.47#
22	t	Biphenyl	1.620	1.508	6.9	90	0.01
23	t	2,6-Dimethylnaphthalene	1.127	1.032	8.4	90	-0.01
24	t	Dibenzofuran	1.883	1.717	8.8	89	-0.05
25	t	Acenaphthylene	2.077	1.806	13.0	84	-0.01
26	t	Acenaphthene	1.295	1.196	7.6	90	-0.01
27	t	2,3,5-Trimethylnaphthalene	1.081	1.008	6.8	92	-0.02
28	A1	Fluorene	1.351	1.264	6.4	88	0.01
29	A2	C1-Fluorenes	1.351	0.000#	100.0#	0#	-35.77#
30	A2	C2-Fluorenes	1.351	0.000#	100.0#	0#	-38.39#
31	A2	C3-Fluorenes	1.351	0.000#	100.0#	0#	-40.60#
32	A1	Dibenzothiophene	2.031	0.017#	~~99.2#~~	~~1#~~	~~0.00~~ N/A
33	A2	OTP	2.031	0.000#	100.0#	0#	-39.57#
34	A2	C1-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-39.01#
35	A2	C2-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-41.04#
36	A2	C3-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-43.22#
37	A2	C4-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-44.29#
38	A1	Phenanthrene	2.026	1.795	11.4	89	-0.04
39	A2	C1-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-40.38#
40	A2	C2-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-42.57#
41	A2	5AA IS BKGD	2.026	0.000#	100.0#	0#	-42.31#
42	A2	C3-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-44.78#
43	A2	C4-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-47.40#
44	A2	Retene	2.026	0.000#	100.0#	0#	-45.90#
45	t	Anthracene	2.036	1.921	5.6	91	-0.04
46	t	Carbazole	0.000	0.000#	0.0	0#	-38.38#
47	t	1-Methylphenanthrene	1.447	1.357	6.2	89	-0.02
48	A1	Fluoranthene	2.428	2.233	8.0	88	-0.04
49	A2	Benzo(b)fluorene	2.428	0.000#	100.0#	0#	-46.22#
50	s	Pyrene-d10	1.806	1.854	-2.7	98	-0.02
51	A1	Pyrene	2.348	2.279	2.9	94	-0.02

Evaluate Continuing Calibration Report

Data Path : O:\ORGANICS\DATA\PAH1\FEBRUARY2005\FEB16\
Data File : P11815.D
Acq On : 17 Feb 2005 7:43 pm
Operator : AC
Sample : Q1021601
Misc : SW083104A
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 18 08:32:33 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Feb 17 13:19:28 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	A2	C1-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-45.92#
53	A2	C2-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-48.08#
54	A2	C3-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-50.52#
55	A2	C4-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-52.15#
56	A1	Naphthobenzothiophene	2.333	0.000#	100.0#	0#	-48.86#
57	A2	Naphthobenzothiophene-2,1-D	2.333	0.000#	100.0#	0#	-48.86#
58	A2	Naphthobenzothiophene-1,2-D	2.333	0.000#	100.0#	0#	-49.27#
59	A2	Naphthobenzothiophene-2,3-D	2.333	0.000#	100.0#	0#	-49.63#
60	A2	C1-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-50.54#
61	A2	C2-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-52.95#
62	A2	C3-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-54.88#
63	A2	C4-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-56.11#
64	i	Chrysene-d12	1.000	1.000	0.0	93	-0.01
65	t	Benz[a]anthracene	1.301	1.217	6.5	92	-0.01
66	t	Chrysene	1.269	1.230	3.1	92	-0.01
67	A1	Chrysene/Triphenylene	1.270	1.230	3.1	92	-0.01
68	A2	C1-Chrysenes	1.270	0.000#	100.0#	0#	-51.94#
69	A2	C2-Chrysenes	1.270	0.000#	100.0#	0#	-55.17#
70	A2	BBF-d12 Surr BKGD	1.270	0.000#	100.0#	0#	-54.72#
71	A2	C3-Chrysenes	1.270	0.000#	100.0#	0#	-57.42#
72	A2	C4-Chrysenes	1.270	0.000#	100.0#	0#	-57.56#
73	s	Benzo[b]fluoranthene-d12	1.114	1.139	-2.2	96	-0.04
74	t	Benzo[b]fluoranthene	1.332	1.258	5.6	89	-0.04
75	A1	Benzo[k]fluoranthene	1.422	1.335	6.1	89	-0.04
76	A2	Benzo[a]fluoranthene	1.422	0.000#	100.0#	0#	-55.24#
77	t	Benzo[e]pyrene	1.290	1.180	8.5	90	-0.02
78	t	Benzo[a]pyrene	1.318	1.231	6.6	91	-0.04
79	t	Perylene	1.271	1.212	4.6	91	-0.02
80	t	Indeno[1,2,3-cd]pyrene	1.245	1.096	12.0	92	-0.04
81	t	Dibenz[a,h]anthracene	1.316	1.247	5.2	89	-0.04
82	t	Benzo[g,h,i]perylene	1.351	1.231	8.9	89	-0.04
83	t	17a(H),21B(H)-hopane - C30H	0.475	0.000#	100.0#	0#	-60.34#
84	A1	Hopane (T19)	0.476	0.000#	100.0#	0#	-60.34#
85	A2	C23 Tricyclic Terpane (T4)	0.476	0.000#	100.0#	0#	-47.31#
86	A2	C24 Tricyclic Terpane (T5)	0.476	0.000#	100.0#	0#	-48.19#
87	A2	C25 Tricyclic Terpane (T6)	0.476	0.000#	100.0#	0#	-50.02#
88	A2	C24 Tetracyclic Terpane (T6	0.476	0.000#	100.0#	0#	-51.52#
89	A2	C26 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-51.25#
90	A2	C26 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-51.36#
91	A2	C28 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.11#
92	A2	C28 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-54.31#
93	A2	C29 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.93#
94	A2	C29 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-55.17#
95	A2	18a-22,29,30-Trisnorneohopa	0.476	0.000#	100.0#	0#	-56.34#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.476	0.000#	100.0#	0#	-56.92#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.476	0.000#	100.0#	0#	-57.74#
98	A2	17a(H),21b(H)-25-Norhopane	0.476	0.000#	100.0#	0#	-58.05#
99	A2	30-Norhopane (T15)	0.476	0.004#	~~99.2#~~	~~1#~~	~~-0.05~~ NA
100	A2	18a(H)-30-Norneohopane-C29T	0.476	0.009#	~~98.1#~~	~~2#~~	~~-0.16~~ NA
101	A2	17a(H)-Diahopane (X)	0.476	0.000#	100.0#	0#	-59.17#

Evaluate Continuing Calibration Report

Data Path : O:\ORGANICS\DATA\PAH1\FEBRUARY2005\FEB16\
Data File : P11815.D
Acq On : 17 Feb 2005 7:43 pm
Operator : AC
Sample : Q1021601
Misc : SW083104A
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 18 08:32:33 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Feb 17 13:19:28 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
L02	A2	30-Normoretane (T17)	0.476	0.000#	100.0#	0#	-59.75#
L03	A2	18a(H)&18b(H)-Oleananes (T1	0.476	0.000#	100.0#	0#	-60.16#
L04	A2	Moretane (T20)	0.476	0.000#	100.0#	0#	-61.08#
L05	A2	30-Homohopane-22S (T21)	0.476	0.000#	100.0#	0#	-62.21#
L06	A2	30-Homohopane-22R (T22)	0.476	0.000#	100.0#	0#	-62.45#
L07	A2	30,31-Bishomohopane-22S (T2	0.476	0.000#	100.0#	0#	-63.83#
L08	A2	30,31-Bishomohopane-22R (T2	0.476	0.000#	100.0#	0#	-64.22#
L09	A2	30,31-Trishomohopane-22S (T	0.476	0.000#	100.0#	0#	-66.02#
L10	A2	30,31-Trishomohopane-22R (T	0.476	0.000#	100.0#	0#	-66.64#
L11	A2	Tetrakishomohopane-22S (T32	0.476	0.000#	100.0#	0#	-68.69#
L12	A2	Tetrakishomohopane-22R (T33	0.476	0.000#	100.0#	0#	-69.61#
L13	A2	Pentakishomohopane-22S (T34	0.476	0.000#	100.0#	0#	-71.89#
L14	A2	Pentakishomohopane-22R (T35	0.476	0.000#	100.0#	0#	-73.19#
L15	SA1	5B(H)Cholane - Surr	0.220	0.226	-2.7	101	0.00
L16	A2	13b(H),17a(H)-20S-Diacholes	0.220	0.000#	100.0#	0#	-52.70#
L17	A2	13b(H),17a(H)-20R-Diacholes	0.220	0.000#	100.0#	0#	-53.21#
L18	A2	13b,17a-20S-Methyldiacholes	0.220	0.000#	100.0#	0#	-54.05#
L19	A2	14a(H),17a(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.08#
L20	A2	14a(H),17a(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.66#
L21	A2	13b,17a-20R-Ethyldiacholest	0.220	0.000#	100.0#	0#	-55.97#
L22	A2	13a,17b-20S-Ethyldiacholest	0.220	0.000#	100.0#	0#	-56.26#
L23	A2	14a,17a-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.43#
L24	A2	14a,17a-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-57.18#
L25	A2	14a(H),17a(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.56#
L26	A2	14a(H),17a(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-58.54#
L27	A2	14b(H),17b(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.18#
L28	A2	14b(H),17b(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.28#
L29	A2	14b,17b-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-56.60#
L30	A2	14b,17b-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.69#
L31	A2	14b(H),17b(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-57.83#
L32	A2	14b(H),17b(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.88#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

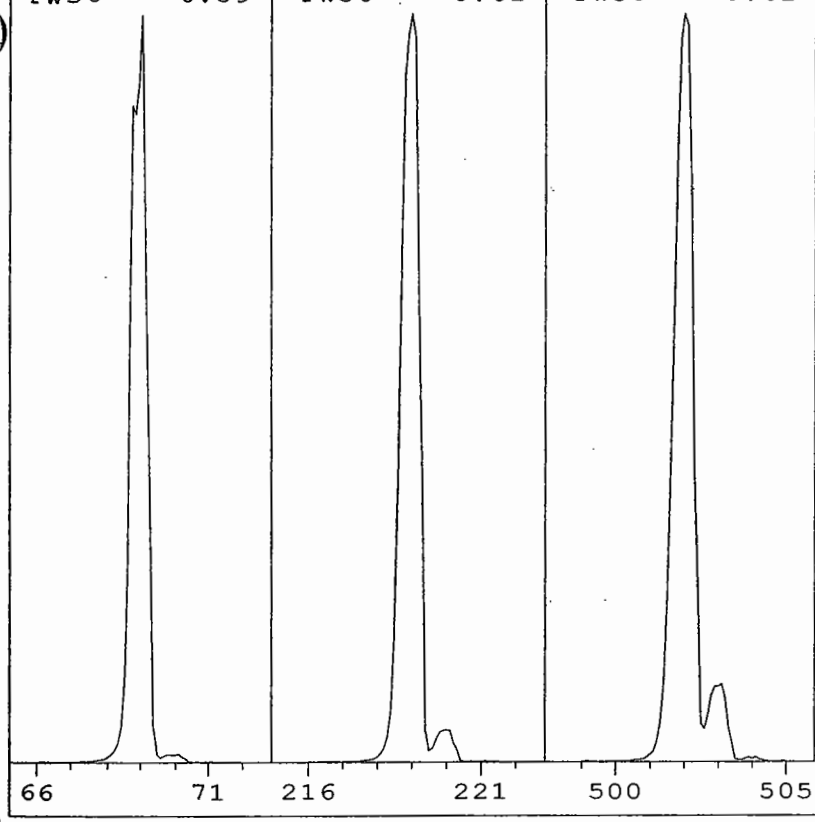
5973

Wed Mar 02 09:47:21 2005
C:\MSDCHEM\4\5973N\PFTBA.U

Instrument: PAH#3

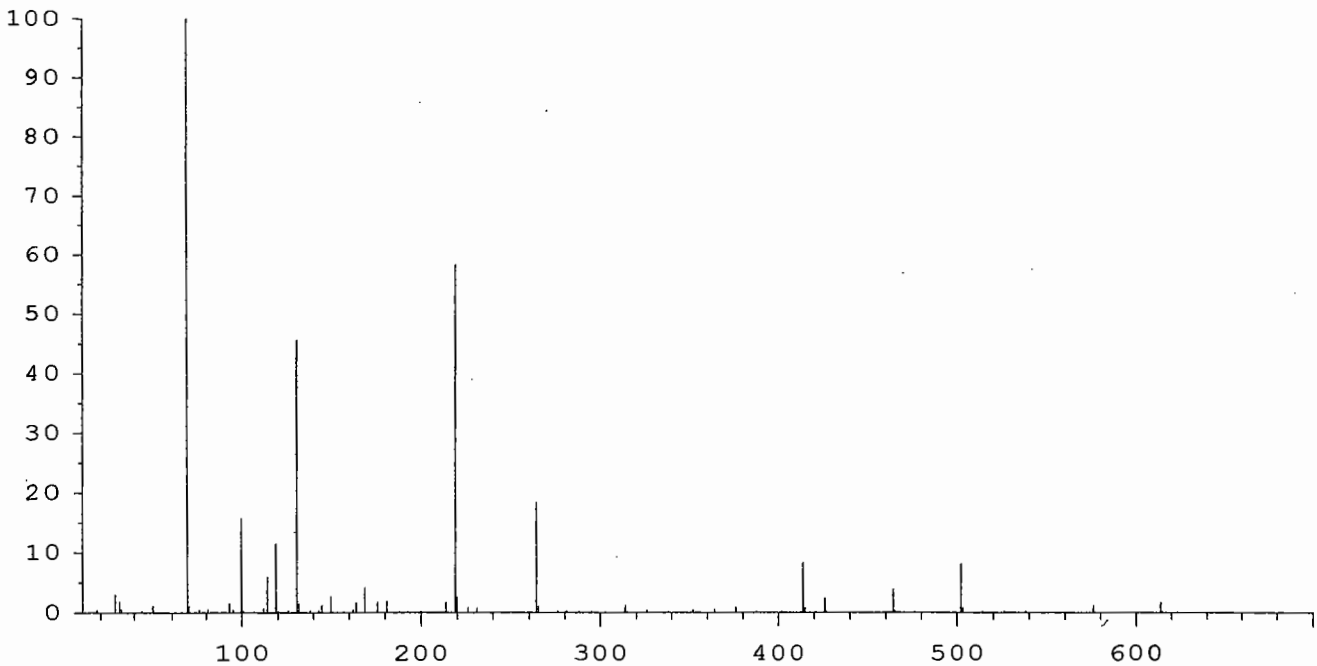
3/2/05

Mass	69.10	Mass	219.00	Mass	502.00
Ab	437416	Ab	242436	Ab	32852
Pw50	0.59	Pw50	0.61	Pw50	0.62



Ion Pol	POS	MassGain	67
		MassOffs	-12
Emission	34.6	AmuGain	2440
ElEnrgy	69.9	AmuOffs	127
Filament	1	Wid219	-0.035
		DC Pol	POS
Repeller	34.81		
IonFcus	90.2	HEDEnab	ON
EntLens	14.0	EMVolts	1529
EntOffs	19.07		
		Samples	8
PFTBA	OPEN	Averages	3
		Stepsize	0.10
Zones:			
MS Source	230	Foreline	47
MS Quad	150		

Scan: 10.00 - 700.00 Samples: 8 Thresh: 100 Step: 0.10
159 peaks Base: 69.00 Abundance: 385216



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	385216	100.00	69.90	4289	1.11
219.00	224448	58.27	219.90	10051	4.48
502.00	31072	8.07 ok.	503.00	3230	10.40

Response Factor Report PAH#3

Method Path : O:\ORGANICS\METHODS\PAH3\MARCH05\
Method File : PAH30302.M
Title : Decalins & Alkylated PAH's
Last Update : Thu Mar 03 13:41:16 2005
Response Via : Initial Calibration

Calibration Files
10 =P30855.D 25 =P30863.D 100 =P30857.D
500 =P30858.D 1250=P30859.D 5000=P30860.D

CMG 3/4/05

		Compound	10	25	100	500	1250	5000	Avg	%RSD
1)	i	Acenaphthene-d10	----------ISTD----------							
2)	t	Decalin	0.493	0.483	0.382	0.384	0.434	0.417	0.432	10.07
3)	A1	trans-Decalin	0.457	0.470	0.453	0.436	0.496	0.475	0.469	4.61
4)	t	cis-Decalin	0.324	0.356	0.330	0.331	0.371	0.360	0.349	5.77
5)	A2	C1-Decalins	0.457	0.470	0.453	0.436	0.496	0.475	0.469	4.61
6)	A2	C2-Decalins	0.457	0.470	0.453	0.436	0.496	0.475	0.469	4.61
7)	A2	C3-Decalins	0.457	0.470	0.453	0.436	0.496	0.475	0.469	4.61
8)	A2	C4-Decalins	0.457	0.470	0.453	0.436	0.496	0.475	0.469	4.61
9)	A1	Naphthalene	2.445	1.926	2.018	1.982	2.229	2.147	2.148	8.68
10)	A2	C1-Naphthalenes	2.445	1.926	2.018	1.982	2.229	2.147	2.148	8.68
11)	A2	C2-Naphthalenes	2.445	1.926	2.018	1.982	2.229	2.147	2.148	8.68
12)	A2	C3-Naphthalenes	2.445	1.926	2.018	1.982	2.229	2.147	2.148	8.68
13)	A2	C4-Naphthalenes	2.445	1.926	2.018	1.982	2.229	2.147	2.148	8.68
14)	s	2-Methylnaphthale	0.926	1.034	1.048	1.102	1.240	1.224	1.128	12.32
15)	t	2-Methylnaphthale	1.301	1.209	1.250	1.284	1.466	1.441	1.359	9.66
16)	t	1-Methylnaphthale	1.306	1.174	1.176	1.195	1.345	1.317	1.276	7.42
17)	A1	Benzothiophene	1.450	1.407	1.451	1.468	1.653	1.608	1.537	8.00
18)	A2	C1-Benzo(b)thioph	1.450	1.407	1.451	1.468	1.653	1.608	1.537	8.00
19)	A2	C2-Benzo(b)thioph	1.450	1.407	1.451	1.468	1.653	1.608	1.537	8.00
20)	A2	C3-Benzo(b)thioph	1.450	1.407	1.451	1.468	1.653	1.608	1.537	8.00
21)	A2	C4-Benzo(b)thioph	1.450	1.407	1.451	1.468	1.653	1.608	1.537	8.00
22)	t	Biphenyl	1.823	1.480	1.556	1.582	1.825	1.782	1.713	10.11
23)	t	2,6-Dimethylnapht	1.181	1.072	1.051	1.106	1.253	1.262	1.188	10.24
24)	t	Dibenzofuran	1.575	1.581	1.565	1.717	1.973	1.964	1.791	13.41
25)	t	Acenaphthylene	1.563	1.446	1.246	1.578	1.509	1.979	1.641	19.51
26)	t	Acenaphthene	1.250	1.181	1.143	1.205	1.331	1.338	1,272	8.53
27)	t	2,3,5-Trimethylna	1.010	1.016	0.989	1.063	1.183	1.220	1.117	11.85
28)	A1	Fluorene	1.324	1.305	1.248	1.358	1.526	1.568	1.436	12.08
29)	A2	C1-Fluorenes	1.324	1.305	1.248	1.358	1.526	1.568	1.436	12.08
30)	A2	C2-Fluorenes	1.324	1.305	1.248	1.358	1.526	1.568	1.436	12.08
31)	A2	C3-Fluorenes	1.324	1.305	1.248	1.358	1.526	1.568	1.436	12.08
32)	A1	Dibenzothiophene	1.750	1.688	1.707	1.869	2.114	2.141	1.941	12.84
33)	A2	OTP	1.750	1.688	1.707	1.869	2.114	2.141	1.941	12.84
34)	A2	C1-Dibenzothiophe	1.750	1.688	1.707	1.869	2.114	2.141	1.941	12.84
35)	A2	C2-Dibenzothiophe	1.750	1.688	1.707	1.869	2.114	2.141	1.941	12.84
36)	A2	C3-Dibenzothiophe	1.750	1.688	1.707	1.869	2.114	2.141	1.941	12.84
37)	A2	C4-Dibenzothiophe	1.750	1.688	1.707	1.869	2.114	2.141	1.941	12.84
38)	A1	Phenanthrene	2.412	1.916	1.834	2.023	2.259	2.308	2.177	11.65
39)	A2	C1-Phenanthrenes/	2.412	1.916	1.834	2.023	2.259	2.308	2.177	11.65
40)	A2	C2-Phenanthrenes/	2.412	1.916	1.834	2.023	2.259	2.308	2.177	11.65
41)	A2	5AA IS BKGD	2.412	1.916	1.834	2.023	2.259	2.308	2.177	11.65
42)	A2	C3-Phenanthrenes/	2.412	1.916	1.834	2.023	2.259	2.308	2.177	11.65
43)	A2	C4-Phenanthrenes/	2.412	1.916	1.834	2.023	2.259	2.308	2.177	11.65
44)	A2	Retene	2.412	1.916	1.834	2.023	2.259	2.308	2.177	11.65
45)	t	Anthracene	1.452	1.268	1.150	1.641	1.743	2.188	1.688	26.97
46)	t	Carbazole							~~0.000#~~	~~-1.00~~
47)	t	1-Methylphenanthr	1.397	1.324	1.277	1.482	1.626	1.755	1.536	14.93
48)	A1	Fluoranthene	2.141	2.054	1.839	2.359	2.534	2.777	2.379	16.83
49)	A2	Benzo(b)fluorene	2.141	2.054	1.839	2.359	2.534	2.777	2.379	16.83
50)	s	Pyrene-d10	1.495	1.669	1.472	1.809	1.949	2.136	1.827	16.72
51)	A1	Pyrene	2.123	2.073	1.933	2.335	2.557	2.697	2.369	14.69
52)	A2	C1-Fluoranthenes/	2.123	2.073	1.933	2.335	2.557	2.697	2.369	14.69
53)	A2	C2-Fluoranthenes/	2.123	2.073	1.933	2.335	2.557	2.697	2.369	14.69
54)	A2	C3-Fluoranthenes/	2.123	2.073	1.933	2.335	2.557	2.697	2.369	14.69
55)	A2	C4-Fluoranthenes/	2.123	2.073	1.933	2.335	2.557	2.697	2.369	14.69
56)	A1	Naphthobenzothiop	2.114	2.225	2.011	2.292	2.537	2.675	2.391	13.25
57)	A2	Naphthobenzothiop	2.114	2.225	2.011	2.292	2.537	2.675	2.391	13.25
58)	A2	Naphthobenzothiop	2.114	2.225	2.011	2.292	2.537	2.675	2.391	13.25

Response Factor Report PAH#3

Method Path : O:\ORGANICS\METHODS\PAH3\MARCH05\
Method File : PAH30302.M
Title : Decalins & Alkylated PAH's
Last Update : Thu Mar 03 13:41:16 2005
Response Via : Initial Calibration

Calibration Files
10 =P30855.D 25 =P30863.D 100 =P30857.D
500 =P30858.D 1250=P30859.D 5000=P30860.D

		Compound	10	25	100	500	1250	5000	Avg	%RSD
59)	A2	Naphthobenzothiop	2.114	2.225	2.011	2.292	2.537	2.675	2.391	13.25
60)	A2	C1-Naphthobenzoth	2.114	2.225	2.011	2.292	2.537	2.675	2.391	13.25
61)	A2	C2-Naphthobenzoth	2.114	2.225	2.011	2.292	2.537	2.675	2.391	13.25
62)	A2	C3-Naphthobenzoth	2.114	2.225	2.011	2.292	2.537	2.675	2.391	13.25
63)	A2	C4-Naphthobenzoth	2.114	2.225	2.011	2.292	2.537	2.675	2.391	13.25
64)	i	Chrysene-d12				----------ISTD----------				
65)	t	Benz[a]anthracene	1.103	1.201	0.944	1.218	1.247	1.417	1.240	16.01
66)	t	Chrysene	1.269	1.248	1.188	1.324	1.418	1.398	1.340	8.78
67)	A1	Chrysene/Tripheny	1.269	1.252	1.188	1.324	1.418	1.398	1.340	8.74
68)	A2	C1-Chrysenes	1.269	1.252	1.188	1.324	1.418	1.398	1.340	8.74
69)	A2	C2-Chrysenes	1.269	1.252	1.188	1.324	1.418	1.398	1.340	8.74
70)	A2	BBF-d12 Surr BKGD	1.269	1.252	1.188	1.324	1.418	1.398	1.340	8.74
71)	A2	C3-Chrysenes	1.269	1.252	1.188	1.324	1.418	1.398	1.340	8.74
72)	A2	C4-Chrysenes	1.269	1.252	1.188	1.324	1.418	1.398	1.340	8.74
73)	s	Benzo[b]fluoranth	1.015	1.264	1.062	1.188	1.324	1.251	1.215	11.36
74)	t	Benzo[b]fluoranth	1.505	1.621	1.450	1.519	1.736	1.665	1.627	9.49
75)	A1	Benzo[k]fluoranth	1.525	1.641	1.363	1.565	1.769	1.679	1.630	10.17
76)	A2	Benzo[a]fluoranth	1.525	1.641	1.363	1.565	1.769	1.679	1.630	10.17
77)	t	Benzo[e]pyrene	1.510	1.623	1.413	1.444	1.686	1.519	1.557	7.41
78)	t	Benzo[a]pyrene	1.368	1.615	1.182	1.393	1.601	1.548	1.496	12.94
79)	t	Perylene	1.452	1.592	1.180	1.391	1.620	1.511	1.496	11.93
80)	t	Indeno[1,2,3-cd]p	1.803	1.849	1.583	1.840	2.248	1.858	1.908	12.03
81)	t	Dibenz[a,h]anthra	1.627	1.789	1.670	1.943	2.333	1.851	1.917	13.82
82)	t	Benzo[g,h,i]peryl	2.287	2.085	1.836	2.023	2.341	1.821	2.076	9.71
83)	t	17a(H),21B(H)-hop	0.586	0.678	0.569	0.492	0.723	0.467	0.579	16.16
84)	A1	Hopane (T19)	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
85)	A2	C23 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
86)	A2	C24 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
87)	A2	C25 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
88)	A2	C24 Tetracyclic T	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
89)	A2	C26 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
90)	A2	C26 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
91)	A2	C28 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
92)	A2	C28 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
93)	A2	C29 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
94)	A2	C29 Tricyclic Ter	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
95)	A2	18a-22,29,30-Tris	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
96)	A2	17a(H)-22,29,30-T	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
97)	A2	17a/b,21b/a 28,30	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
98)	A2	17a(H),21b(H)-25-	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
99)	A2	30-Norhopane (T15	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
100)	A2	18a(H)-30-Norneoh	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
101)	A2	17a(H)-Diahopane	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
102)	A2	30-Normoretane (T	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
103)	A2	18a(H)&18b(H)-Ole	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
104)	A2	Moretane (T20)	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
105)	A2	30-Homohopane-22S	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
106)	A2	30-Homohopane-22R	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
107)	A2	30,31-Bishomohopa	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
108)	A2	30,31-Bishomohopa	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
109)	A2	30,31-Trishomohop	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
110)	A2	30,31-Trishomohop	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
111)	A2	Tetrakishomohopan	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
112)	A2	Tetrakishomohopan	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
113)	A2	Pentakishomohopan	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
114)	A2	Pentakishomohopan	0.586	0.678	0.568	0.492	0.723	0.467	0.579	16.17
115)	SA1	5B(H)Cholane - Su	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
116)	A2	13b(H),17a(H)-20S	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71

Response Factor Report PAH#3

Method Path : O:\ORGANICS\METHODS\PAH3\MARCH05\
Method File : PAH30302.M
Title : Decalins & Alkylated PAH's
Last Update : Thu Mar 03 13:41:16 2005
Response Via : Initial Calibration

Calibration Files
10 =P30855.D 25 =P30863.D 100 =P30857.D
500 =P30858.D 1250=P30859.D 5000=P30860.D

	Compound	10	25	100	500	1250	5000	Avg	%RSD
117) A2	13b(H),17a(H)-20R	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
118) A2	13b,17a-20S-Methy	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
119) A2	14a(H),17a(H)-20S	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
120) A2	14a(H),17a(H)-20R	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
121) A2	13b,17a-20R-Ethyl	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
122) A2	13a,17b-20S-Ethyl	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
123) A2	14a,17a-20S-Methy	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
124) A2	14a,17a-20R-Methy	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
125) A2	14a(H),17a(H)-20S	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
126) A2	14a(H),17a(H)-20R	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
127) A2	14b(H),17b(H)-20R	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
128) A2	14b(H),17b(H)-20S	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
129) A2	14b,17b-20R-Methy	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
130) A2	14b,17b-20S-Methy	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
131) A2	14b(H),17b(H)-20R	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71
132) A2	14b(H),17b(H)-20S	0.219	0.218	0.201	0.212	0.224	0.233	0.224	8.71

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH02\
Data File : P30864.D
Acq On : 3 Mar 2005 1:18 pm
Operator : AC
Sample : Q3030201
Misc : SW083104A 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 04 10:17:31 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

CMS 3-4-05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	90	-0.01
2	t	Decalin	0.432	0.000#	100.0#	0#	-18.15#
3	A1	trans-Decalin	0.469	0.000#	100.0#	0#	-18.15#
4	t	cis-Decalin	0.349	0.000#	100.0#	0#	-19.57#
5	A2	C1-Decalins	0.469	0.000#	100.0#	0#	-19.89#
6	A2	C2-Decalins	0.469	0.000#	100.0#	0#	-22.01#
7	A2	C3-Decalins	0.469	0.000#	100.0#	0#	-24.94#
8	A2	C4-Decalins	0.469	0.000#	100.0#	0#	-28.96#
9	A1	Naphthalene	2.148	1.847	14.0	84	-0.01
10	A2	C1-Naphthalenes	2.148	0.000#	100.0#	0#	-25.34#
11	A2	C2-Naphthalenes	2.148	0.000#	100.0#	0#	-28.72#
12	A2	C3-Naphthalenes	2.148	0.000#	100.0#	0#	-31.51#
13	A2	C4-Naphthalenes	2.148	0.000#	100.0#	0#	-34.80#
14	s	2-Methylnaphthalene-d10	1.128	1.142	-1.2	93	-0.01
15	t	2-Methylnaphthalene	1.359	1.190	12.4	84	-0.01
16	t	1-Methylnaphthalene	1.276	1.175	7.9	89	-0.01
17	A1	Benzothiophene	1.537	0.000#	100.0#	0#	-22.38#
18	A2	C1-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-24.86#
19	A2	C2-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-28.94#
20	A2	C3-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-31.30#
21	A2	C4-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-33.82#
22	t	Biphenyl	1.713	1.516	11.5	86	0.00
23	t	2,6-Dimethylnaphthalene	1.188	1.080	9.1	88	-0.01
24	t	Dibenzofuran	1.791	1.662	7.2	87	0.00
25	t	Acenaphthylene	1.641	1.538	6.3	88	-0.01
26	t	Acenaphthene	1.272	1.187	6.7	89	-0.01
27	t	2,3,5-Trimethylnaphthalene	1.117	1.062	4.9	90	0.00
28	A1	Fluorene	1.436	1.318	8.2	87	-0.01
29	A2	C1-Fluorenes	1.436	0.000#	100.0#	0#	-35.68#
30	A2	C2-Fluorenes	1.436	0.000#	100.0#	0#	-38.31#
31	A2	C3-Fluorenes	1.436	0.000#	100.0#	0#	-40.51#
32	A1	Dibenzothiophene	1.941	0.015#	~~99.2#~~	~~1#~~	~~0.00~~ N/A
33	A2	OTP	1.941	0.000#	100.0#	0#	-39.47#
34	A2	C1-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-38.91#
35	A2	C2-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-40.93#
36	A2	C3-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-43.09#
37	A2	C4-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-44.18#
38	A1	Phenanthrene	2.177	1.992	8.5	89	-0.01
39	A2	C1-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-40.28#
40	A2	C2-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-42.44#
41	A2	5AA IS BKGD	2.177	0.000#	100.0#	0#	-42.20#
42	A2	C3-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-44.65#
43	A2	C4-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-47.26#
44	A2	Retene	2.177	0.000#	100.0#	0#	-46.00#
45	t	Anthracene	1.688	1.661	1.6	91	-0.01
46	t	Carbazole	0.000	0.000#	0.0	0#	-46.36#
47	t	1-Methylphenanthrene	1.536	1.474	4.0	90	0.00
48	A1	Fluoranthene	2.379	2.285	4.0	87	-0.01
49	A2	Benzo(b)fluorene	2.379	0.000#	100.0#	0#	-46.09#
50	s	Pyrene-d10	1.827	1.921	-5.1	96	-0.01
51	A1	Pyrene	2.369	2.370	-0.0	92	0.00

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH02\
Data File : P30864.D
Acq On : 3 Mar 2005 1:18 pm
Operator : AC
Sample : Q3030201
Misc : SW083104A 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 04 10:17:31 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	A2	C1-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-45.79#
53	A2	C2-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-47.94#
54	A2	C3-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-50.37#
55	A2	C4-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-51.99#
56	A1	Naphthobenzothiophene	2.391	0.000#	100.0#	0#	-48.71#
57	A2	Naphthobenzothiophene-2,1-D	2.391	0.000#	100.0#	0#	-48.71#
58	A2	Naphthobenzothiophene-1,2-D	2.391	0.000#	100.0#	0#	-49.11#
59	A2	Naphthobenzothiophene-2,3-D	2.391	0.000#	100.0#	0#	-49.47#
60	A2	C1-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-50.38#
61	A2	C2-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-52.79#
62	A2	C3-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-54.69#
63	A2	C4-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-55.92#
64	i	Chrysene-d12	1.000	1.000	0.0	93	0.00
65	t	Benz[a]anthracene	1.240	1.199	3.3	92	-0.01
66	t	Chrysene	1.340	1.266	5.5	89	-0.01
67	A1	Chrysene/Triphenylene	1.340	1.266	5.5	89	-0.01
68	A2	C1-Chrysenes	1.340	0.000#	100.0#	0#	-51.78#
69	A2	C2-Chrysenes	1.340	0.000#	100.0#	0#	-54.25#
70	A2	BBF-d12 Surr BKGD	1.340	0.000#	100.0#	0#	-54.55#
71	A2	C3-Chrysenes	1.340	0.000#	100.0#	0#	-57.22#
72	A2	C4-Chrysenes	1.340	0.000#	100.0#	0#	-56.83#
73	s	Benzo[b]fluoranthene-d12	1.215	1.207	0.7	95	-0.01
74	t	Benzo[b]fluoranthene	1.627	1.442	11.4	88	-0.01
75	A1	Benzo[k]fluoranthene	1.630	1.483	9.0	88	-0.01
76	A2	Benzo[a]fluoranthene	1.630	0.000#	100.0#	0#	-55.25#
77	t	Benzo[e]pyrene	1.557	1.399	10.1	90	-0.01
78	t	Benzo[a]pyrene	1.496	1.337	10.6	90	-0.01
79	t	Perylene	1.496	1.374	8.2	92	-0.01
80	t	Indeno[1,2,3-cd]pyrene	1.908	1.648	13.6	84	-0.01
81	t	Dibenz[a,h]anthracene	1.917	1.676	12.6	80	-0.01
82	t	Benzo[g,h,i]perylene	2.076	1.721	17.1	79	-0.01
83	t	17a(H),21B(H)-hopane - C30H	0.579	0.000#	100.0#	0#	-60.12#
84	A1	Hopane (T19)	0.579	0.000#	100.0#	0#	-60.12#
85	A2	C23 Tricyclic Terpane (T4)	0.579	0.000#	100.0#	0#	-47.20#
86	A2	C24 Tricyclic Terpane (T5)	0.579	0.000#	100.0#	0#	-48.07#
87	A2	C25 Tricyclic Terpane (T6)	0.579	0.000#	100.0#	0#	-49.89#
88	A2	C24 Tetracyclic Terpane (T6	0.579	0.000#	100.0#	0#	-51.37#
89	A2	C26 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-51.11#
90	A2	C26 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-51.23#
91	A2	C28 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-53.96#
92	A2	C28 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-54.16#
93	A2	C29 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-54.77#
94	A2	C29 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-55.00#
95	A2	18a-22,29,30-Trisnorneohopa	0.579	0.000#	100.0#	0#	-56.17#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.579	0.000#	100.0#	0#	-56.75#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.579	0.000#	100.0#	0#	-57.56#
98	A2	17a(H),21b(H)-25-Norhopane	0.579	0.000#	100.0#	0#	-57.85#
99	A2	30-Norhopane (T15)	0.579	0.000#	100.0#	0#	-58.71#
100	A2	18a(H)-30-Norneohopane-C29T	0.579	0.000#	100.0#	0#	-58.82#
101	A2	17a(H)-Diahopane (X)	0.579	0.000#	100.0#	0#	-58.96#

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH02\
Data File : P30864.D
Acq On : 3 Mar 2005 1:18 pm
Operator : AC
Sample : Q3030201
Misc : SW083104A 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 04 10:17:31 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
102	A2	30-Normoretane (T17)	0.579	0.000#	100.0#	0#	-59.51#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.579	0.000#	100.0#	0#	-59.91#
104	A2	Moretane (T20)	0.579	0.000#	100.0#	0#	-60.83#
105	A2	30-Homohopane-22S (T21)	0.579	0.000#	100.0#	0#	-61.94#
106	A2	30-Homohopane-22R (T22)	0.579	0.000#	100.0#	0#	-62.18#
107	A2	30,31-Bishomohopane-22S (T2	0.579	0.000#	100.0#	0#	-65.66#
108	A2	30,31-Bishomohopane-22R (T2	0.579	0.000#	100.0#	0#	-66.28#
109	A2	30,31-Trishomohopane-22S (T	0.579	0.000#	100.0#	0#	-65.66#
110	A2	30,31-Trishomohopane-22R (T	0.579	0.000#	100.0#	0#	-66.28#
111	A2	Tetrakishomohopane-22S (T32	0.579	0.000#	100.0#	0#	-68.30#
112	A2	Tetrakishomohopane-22R (T33	0.579	0.000#	100.0#	0#	-69.18#
113	A2	Pentakishomohopane-22S (T34	0.579	0.000#	100.0#	0#	-71.41#
114	A2	Pentakishomohopane-22R (T35	0.579	0.000#	100.0#	0#	-72.68#
115	SA1	5B(H)Cholane - Surr	0.224	0.224	0.0	99	0.00
116	A2	13b(H),17a(H)-20S-Diacholes	0.224	0.000#	100.0#	0#	-52.56#
117	A2	13b(H),17a(H)-20R-Diacholes	0.224	0.000#	100.0#	0#	-53.07#
118	A2	13b,17a-20S-Methyldiacholes	0.224	0.000#	100.0#	0#	-53.90#
119	A2	14a(H),17a(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-54.93#
120	A2	14a(H),17a(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.50#
121	A2	13b,17a-20R-Ethyldiacholest	0.224	0.000#	100.0#	0#	-55.81#
122	A2	13a,17b-20S-Ethyldiacholest	0.224	0.000#	100.0#	0#	-56.09#
123	A2	14a,17a-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.27#
124	A2	14a,17a-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-57.01#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.37#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-58.32#
127	A2	14b(H),17b(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.02#
128	A2	14b(H),17b(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-55.12#
129	A2	14b,17b-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-56.44#
130	A2	14b,17b-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.53#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-57.63#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.69#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12068.D
Acq On : 4 Mar 2005 12:27 pm
Operator : AC
Sample : C1030401
Misc : WHGRPAA37 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 09:30:28 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

MJ 3/7/05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	118	-0.06
2	t	Decalin	0.377	0.361	4.2	111	-0.06
3	A1	trans-Decalin	0.422	0.404	4.3	115	-0.06
4	t	cis-Decalin	0.333	0.302	9.3	113	-0.05
5	A2	C1-Decalins	0.422	0.000#	100.0#	0#	-20.45#
6	A2	C2-Decalins	0.422	0.000#	100.0#	0#	-22.03#
7	A2	C3-Decalins	0.422	0.000#	100.0#	0#	-24.98#
8	A2	C4-Decalins	0.422	0.000#	100.0#	0#	-29.01#
9	A1	Naphthalene	1.927	1.723	10.6	105	-0.04
10	A2	C1-Naphthalenes	1.927	0.000#	100.0#	0#	-25.39#
11	A2	C2-Naphthalenes	1.927	0.000#	100.0#	0#	-28.78#
12	A2	C3-Naphthalenes	1.927	0.000#	100.0#	0#	-32.50#
13	A2	C4-Naphthalenes	1.927	0.000#	100.0#	0#	-34.89#
14	s	2-Methylnaphthalene-d10	1.092	1.072	1.8	111	-0.07
15	t	2-Methylnaphthalene	1.225	1.191	2.8	119	-0.06
16	t	1-Methylnaphthalene	1.126	1.061	5.8	116	-0.06
17	A1	Benzothiophene	1.659	1.549	6.6	107	-0.05
18	A2	C1-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-24.91#
19	A2	C2-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-29.02#
20	A2	C3-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-31.37#
21	A2	C4-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-33.47#
22	t	Biphenyl	1.620	1.633	-0.8	120	-0.02
23	t	2,6-Dimethylnaphthalene	1.127	1.069	5.1	115	-0.05
24	t	Dibenzofuran	1.883	1.865	1.0	120	-0.07
25	t	Acenaphthylene	2.077	2.165	-4.2	124	-0.05
26	t	Acenaphthene	1.295	1.312	-1.3	122	-0.06
27	t	2,3,5-Trimethylnaphthalene	1.081	1.114	-3.1	125	-0.07
28	A1	Fluorene	1.351	1.426	-5.6	123	-0.02
29	A2	C1-Fluorenes	1.351	0.000#	100.0#	0#	-35.77#
30	A2	C2-Fluorenes	1.351	0.000#	100.0#	0#	-38.39#
31	A2	C3-Fluorenes	1.351	0.000#	100.0#	0#	-40.60#
32	A1	Dibenzothiophene	2.031	2.226	-9.6	126	-0.04
33	A2	OTP	2.031	0.000#	100.0#	0#	-39.57#
34	A2	C1-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-39.01#
35	A2	C2-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-41.04#
36	A2	C3-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-43.22#
37	A2	C4-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-44.29#
38	A1	Phenanthrene	2.026	2.037	-0.5	125	-0.07
39	A2	C1-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-40.38#
40	A2	C2-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-42.57#
41	A2	5AA IS BKGD	2.026	0.000#	100.0#	0#	-42.31#
42	A2	C3-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-44.78#
43	A2	C4-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-47.40#
44	A2	Retene	2.026	0.000#	100.0#	0#	-45.90#
45	t	Anthracene	2.036	2.198	-8.0	129	-0.07
46	t	Carbazole	1.815	0.000#	100.0#	0#	-38.38#
47	t	1-Methylphenanthrene	1.447	1.399	3.3	113	-0.06
48	A1	Fluoranthene	2.428	2.579	-6.2	126	-0.07
49	A2	Benzo(b)fluorene	2.428	0.000#	100.0#	0#	-46.22#
50	s	Pyrene-d10	1.806	1.816	-0.6	119	-0.07
51	A1	Pyrene	2.348	2.383	-1.5	122	-0.07

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12068.D
Acq On : 4 Mar 2005 12:27 pm
Operator : AC
Sample : C1030401
Misc : WHGRPAA37 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 09:30:28 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	A2	C1-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-45.92#
53	A2	C2-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-48.08#
54	A2	C3-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-50.52#
55	A2	C4-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-52.15#
56	A1	Naphthobenzothiophene	2.333	2.228	4.5	120	-0.06
57	A2	Naphthobenzothiophene-2,1-D	2.333	2.316	0.7	124	-0.06
58	A2	Naphthobenzothiophene-1,2-D	2.333	0.000#	100.0#	0#	-49.27#
59	A2	Naphthobenzothiophene-2,3-D	2.333	0.000#	100.0#	0#	-49.63#
60	A2	C1-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-50.54#
61	A2	C2-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-52.95#
62	A2	C3-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-54.88#
63	A2	C4-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-56.11#
64	i	Chrysene-d12	1.000	1.000	0.0	109	-0.06
65	t	Benz[a]anthracene	1.301	1.331	-2.3	119	-0.05
66	t	Chrysene	1.269	1.413	-11.3	125	-0.05
67	A1	Chrysene/Triphenylene	1.270	1.413	-11.3	125	-0.05
68	A2	C1-Chrysenes	1.270	0.000#	100.0#	0#	-51.94#
69	A2	C2-Chrysenes	1.270	0.000#	100.0#	0#	-55.17#
70	A2	BBF-d12 Surr BKGD	1.270	0.000#	100.0#	0#	-54.72#
71	A2	C3-Chrysenes	1.270	0.000#	100.0#	0#	-57.42#
72	A2	C4-Chrysenes	1.270	0.000#	100.0#	0#	-57.56#
73	s	Benzo[b]fluoranthene-d12	1.114	1.139	-2.2	112	-0.09
74	t	Benzo[b]fluoranthene	1.332	1.349	-1.3	112	-0.07
75	A1	Benzo[k]fluoranthene	1.422	1.627	-14.4	127	-0.07
76	A2	Benzo[a]fluoranthene	1.422	0.000#	100.0#	0#	-55.24#
77	t	Benzo[e]pyrene	1.290	1.320	-2.3	118	-0.07
78	t	Benzo[a]pyrene	1.318	1.347	-2.2	116	-0.07
79	t	Perylene	1.271	1.343	-5.7	119	-0.07
80	t	Indeno[1,2,3-cd]pyrene	1.245	1.285	-3.2	127	-0.09
81	t	Dibenz[a,h]anthracene	1.316	1.452	-10.3	121	-0.10
82	t	Benzo[g,h,i]perylene	1.351	1.426	-5.6	121	-0.10
83	t	17a(H),21B(H)-hopane - C30H	0.475	0.483	-1.7	133	-0.14
84	A1	Hopane (T19)	0.476	0.483	-1.5	133	-0.14
85	A2	C23 Tricyclic Terpane (T4)	0.476	0.000#	100.0#	0#	-47.31#
86	A2	C24 Tricyclic Terpane (T5)	0.476	0.000#	100.0#	0#	-48.19#
87	A2	C25 Tricyclic Terpane (T6)	0.476	0.000#	100.0#	0#	-50.02#
88	A2	C24 Tetracyclic Terpane (T6	0.476	0.000#	100.0#	0#	-51.52#
89	A2	C26 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-51.25#
90	A2	C26 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-51.36#
91	A2	C28 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.11#
92	A2	C28 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-54.31#
93	A2	C29 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.93#
94	A2	C29 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-55.17#
95	A2	18a-22,29,30-Trisnorneohopa	0.476	0.000#	100.0#	0#	-56.34#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.476	0.000#	100.0#	0#	-56.92#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.476	0.000#	100.0#	0#	-57.74#
98	A2	17a(H),21b(H)-25-Norhopane	0.476	0.000#	100.0#	0#	-58.05#
99	A2	30-Norhopane (T15)	0.476	0.000#	100.0#	0#	-58.92#
100	A2	18a(H)-30-Norneohopane-C29T	0.476	0.000#	100.0#	0#	-59.03#
101	A2	17a(H)-Diahopane (X)	0.476	0.000#	100.0#	0#	-59.17#

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Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12068.D
Acq On : 4 Mar 2005 12:27 pm
Operator : AC
Sample : C1030401
Misc : WHGRPAA37 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 07 09:30:28 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
102	A2	30-Normoretane (T17)	0.476	0.000#	100.0#	0#	-59.75#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.476	0.000#	100.0#	0#	-60.16#
104	A2	Moretane (T20)	0.476	0.000#	100.0#	0#	-61.08#
105	A2	30-Homohopane-22S (T21)	0.476	0.000#	100.0#	0#	-62.21#
106	A2	30-Homohopane-22R (T22)	0.476	0.000#	100.0#	0#	-62.45#
107	A2	30,31-Bishomohopane-22S (T2	0.476	0.000#	100.0#	0#	-63.83#
108	A2	30,31-Bishomohopane-22R (T2	0.476	0.000#	100.0#	0#	-64.22#
109	A2	30,31-Trishomohopane-22S (T	0.476	0.000#	100.0#	0#	-66.02#
110	A2	30,31-Trishomohopane-22R (T	0.476	0.000#	100.0#	0#	-66.64#
111	A2	Tetrakishomohopane-22S (T32	0.476	0.000#	100.0#	0#	-68.69#
112	A2	Tetrakishomohopane-22R (T33	0.476	0.000#	100.0#	0#	-69.61#
113	A2	Pentakishomohopane-22S (T34	0.476	0.000#	100.0#	0#	-71.89#
114	A2	Pentakishomohopane-22R (T35	0.476	0.000#	100.0#	0#	-73.19#
115	SA1	5B(H)Cholane - Surr	0.220	0.244	-10.9	128	-0.07
116	A2	13b(H),17a(H)-20S-Diacholes	0.220	0.000#	100.0#	0#	-52.70#
117	A2	13b(H),17a(H)-20R-Diacholes	0.220	0.000#	100.0#	0#	-53.21#
118	A2	13b,17a-20S-Methyldiacholes	0.220	0.000#	100.0#	0#	-54.05#
119	A2	14a(H),17a(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.08#
120	A2	14a(H),17a(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.66#
121	A2	13b,17a-20R-Ethyldiacholest	0.220	0.000#	100.0#	0#	-55.97#
122	A2	13a,17b-20S-Ethyldiacholest	0.220	0.000#	100.0#	0#	-56.26#
123	A2	14a,17a-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.43#
124	A2	14a,17a-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-57.18#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.56#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-58.54#
127	A2	14b(H),17b(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.18#
128	A2	14b(H),17b(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.28#
129	A2	14b,17b-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-56.60#
130	A2	14b,17b-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.69#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-57.83#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.88#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12092.D
Acq On : 5 Mar 2005 10:50 am
Operator : AC
Sample : C1030402
Misc : WHGRPAA37 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 07 09:43:55 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

MS 3/7/05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	111	-0.04
2	t	Decalin	0.377	0.352	6.6	102	-0.05
3	A1	trans-Decalin	0.422	0.406	3.8	108	-0.05
4	t	cis-Decalin	0.333	0.306	8.1	107	-0.04
5	A2	C1-Decalins	0.422	0.000#	100.0#	0#	-20.45#
6	A2	C2-Decalins	0.422	0.000#	100.0#	0#	-22.03#
7	A2	C3-Decalins	0.422	0.000#	100.0#	0#	-24.98#
8	A2	C4-Decalins	0.422	0.000#	100.0#	0#	-29.01#
9	A1	Naphthalene	1.927	1.726	10.4	98	-0.02
10	A2	C1-Naphthalenes	1.927	0.000#	100.0#	0#	-25.39#
11	A2	C2-Naphthalenes	1.927	0.000#	100.0#	0#	-28.78#
12	A2	C3-Naphthalenes	1.927	0.000#	100.0#	0#	-32.50#
13	A2	C4-Naphthalenes	1.927	0.000#	100.0#	0#	-34.89#
14	s	2-Methylnaphthalene-d10	1.092	1.093	-0.1	107	-0.06
15	t	2-Methylnaphthalene	1.225	1.205	1.6	113	-0.05
16	t	1-Methylnaphthalene	1.126	1.070	5.0	110	-0.04
17	A1	Benzothiophene	1.659	1.562	5.8	102	-0.02
18	A2	C1-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-24.91#
19	A2	C2-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-29.02#
20	A2	C3-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-31.37#
21	A2	C4-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-33.47#
22	t	Biphenyl	1.620	1.618	0.1	112	-0.01
23	t	2,6-Dimethylnaphthalene	1.127	1.084	3.8	110	-0.04
24	t	Dibenzofuran	1.883	1.861	1.2	112	-0.06
25	t	Acenaphthylene	2.077	2.225	-7.1	120	-0.04
26	t	Acenaphthene	1.295	1.331	-2.8	116	-0.05
27	t	2,3,5-Trimethylnaphthalene	1.081	1.111	-2.8	117	-0.06
28	A1	Fluorene	1.351	1.450	-7.3	118	-0.01
29	A2	C1-Fluorenes	1.351	0.000#	100.0#	0#	-35.77#
30	A2	C2-Fluorenes	1.351	0.000#	100.0#	0#	-38.39#
31	A2	C3-Fluorenes	1.351	0.000#	100.0#	0#	-40.60#
32	A1	Dibenzothiophene	2.031	2.295	-13.0	122	-0.02
33	A2	OTP	2.031	0.000#	100.0#	0#	-39.57#
34	A2	C1-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-39.01#
35	A2	C2-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-41.04#
36	A2	C3-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-43.22#
37	A2	C4-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-44.29#
38	A1	Phenanthrene	2.026	2.003	1.1	115	-0.06
39	A2	C1-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-40.38#
40	A2	C2-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-42.57#
41	A2	5AA IS BKGD	2.026	0.000#	100.0#	0#	-42.31#
42	A2	C3-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-44.78#
43	A2	C4-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-47.40#
44	A2	Retene	2.026	0.000#	100.0#	0#	-45.90#
45	t	Anthracene	2.036	2.155	-5.8	119	-0.06
46	t	Carbazole	1.815	0.000#	100.0#	0#	-38.38#
47	t	1-Methylphenanthrene	1.447	1.466	-1.3	111	-0.05
48	A1	Fluoranthene	2.428	2.629	-8.3	121	-0.06
49	A2	Benzo(b)fluorene	2.428	0.000#	100.0#	0#	-46.22#
50	s	Pyrene-d10	1.806	1.872	-3.7	115	-0.05
51	A1	Pyrene	2.348	2.470	-5.2	119	-0.06

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12092.D
Acq On : 5 Mar 2005 10:50 am
Operator : AC
Sample : C1030402
Misc : WHGRPAA37 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 07 09:43:55 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	A2	C1-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-45.92#
53	A2	C2-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-48.08#
54	A2	C3-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-50.52#
55	A2	C4-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-52.15#
56	A1	Naphthobenzothiophene	2.333	2.382	-2.1	120	-0.04
57	A2	Naphthobenzothiophene-2,1-D	2.333	2.407	-3.2	122	-0.04
58	A2	Naphthobenzothiophene-1,2-D	2.333	0.000#	100.0#	0#	-49.27#
59	A2	Naphthobenzothiophene-2,3-D	2.333	0.000#	100.0#	0#	-49.63#
60	A2	C1-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-50.54#
61	A2	C2-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-52.95#
62	A2	C3-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-54.88#
63	A2	C4-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-56.11#
64	i	Chrysene-d12	1.000	1.000	0.0	103	-0.04
65	t	Benz[a]anthracene	1.301	1.403	-7.8	118	-0.04
66	t	Chrysene	1.269	1.439	-13.4	120	-0.04
67	A1	Chrysene/Triphenylene	1.270	1.439	-13.3	120	-0.04
68	A2	C1-Chrysenes	1.270	0.000#	100.0#	0#	-51.94#
69	A2	C2-Chrysenes	1.270	0.000#	100.0#	0#	-55.17#
70	A2	BBF-d12 Surr BKGD	1.270	0.000#	100.0#	0#	-54.72#
71	A2	C3-Chrysenes	1.270	0.000#	100.0#	0#	-57.42#
72	A2	C4-Chrysenes	1.270	0.000#	100.0#	0#	-57.56#
73	s	Benzo[b]fluoranthene-d12	1.114	1.079	3.1	101	-0.07
74	t	Benzo[b]fluoranthene	1.332	1.300	2.4	102	-0.06
75	A1	Benzo[k]fluoranthene	1.422	1.642	-15.5	121	-0.06
76	A2	Benzo[a]fluoranthene	1.422	0.000#	100.0#	0#	-55.24#
77	t	Benzo[e]pyrene	1.290	1.279	0.9	108	-0.06
78	t	Benzo[a]pyrene	1.318	1.333	-1.1	109	-0.06
79	t	Perylene	1.271	1.307	-2.8	109	-0.05
80	t	Indeno[1,2,3-cd]pyrene	1.245	1.221	1.9	114	-0.06
81	t	Dibenz[a,h]anthracene	1.316	1.445	-9.8	114	-0.07
82	t	Benzo[g,h,i]perylene	1.351	1.391	-3.0	111	-0.06
83	t	17a(H),21B(H)-hopane - C30H	0.475	0.442	6.9	115	-0.11
84	A1	Hopane (T19)	0.476	0.442	7.1	115	-0.11
85	A2	C23 Tricyclic Terpane (T4)	0.476	0.000#	100.0#	0#	-47.31#
86	A2	C24 Tricyclic Terpane (T5)	0.476	0.000#	100.0#	0#	-48.19#
87	A2	C25 Tricyclic Terpane (T6)	0.476	0.000#	100.0#	0#	-50.02#
88	A2	C24 Tetracyclic Terpane (T6	0.476	0.000#	100.0#	0#	-51.52#
89	A2	C26 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-51.25#
90	A2	C26 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-51.36#
91	A2	C28 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.11#
92	A2	C28 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-54.31#
93	A2	C29 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.93#
94	A2	C29 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-55.17#
95	A2	18a-22,29,30-Trisnorneohopa	0.476	0.000#	100.0#	0#	-56.34#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.476	0.000#	100.0#	0#	-56.92#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.476	0.000#	100.0#	0#	-57.74#
98	A2	17a(H),21b(H)-25-Norhopane	0.476	0.000#	100.0#	0#	-58.05#
99	A2	30-Norhopane (T15)	0.476	0.000#	100.0#	0#	-58.92#
100	A2	18a(H)-30-Norneohopane-C29T	0.476	0.000#	100.0#	0#	-59.03#
101	A2	17a(H)-Diahopane (X)	0.476	0.000#	100.0#	0#	-59.17#

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12092.D
Acq On : 5 Mar 2005 10:50 am
Operator : AC
Sample : C1030402
Misc : WHGRPAA37 500NG/ML
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Mar 07 09:43:55 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
L02	A2	30-Normoretane (T17)	0.476	0.000#	100.0#	0#	-59.75#
L03	A2	18a(H)&18b(H)-Oleananes (T1	0.476	0.000#	100.0#	0#	-60.16#
L04	A2	Moretane (T20)	0.476	0.000#	100.0#	0#	-61.08#
L05	A2	30-Homohopane-22S (T21)	0.476	0.000#	100.0#	0#	-62.21#
L06	A2	30-Homohopane-22R (T22)	0.476	0.000#	100.0#	0#	-62.45#
L07	A2	30,31-Bishomohopane-22S (T2	0.476	0.000#	100.0#	0#	-63.83#
L08	A2	30,31-Bishomohopane-22R (T2	0.476	0.000#	100.0#	0#	-64.22#
L09	A2	30,31-Trishomohopane-22S (T	0.476	0.000#	100.0#	0#	-66.02#
L10	A2	30,31-Trishomohopane-22R (T	0.476	0.000#	100.0#	0#	-66.64#
L11	A2	Tetrakishomohopane-22S (T32	0.476	0.000#	100.0#	0#	-68.69#
L12	A2	Tetrakishomohopane-22R (T33	0.476	0.000#	100.0#	0#	-69.61#
L13	A2	Pentakishomohopane-22S (T34	0.476	0.000#	100.0#	0#	-71.89#
L14	A2	Pentakishomohopane-22R (T35	0.476	0.000#	100.0#	0#	-73.19#
L15	SA1	5B(H)Cholane - Surr	0.220	0.242	-10.0	120	-0.06
L16	A2	13b(H),17a(H)-20S-Diacholes	0.220	0.000#	100.0#	0#	-52.70#
L17	A2	13b(H),17a(H)-20R-Diacholes	0.220	0.000#	100.0#	0#	-53.21#
L18	A2	13b,17a-20S-Methyldiacholes	0.220	0.000#	100.0#	0#	-54.05#
L19	A2	14a(H),17a(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.08#
L20	A2	14a(H),17a(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.66#
L21	A2	13b,17a-20R-Ethyldiacholest	0.220	0.000#	100.0#	0#	-55.97#
L22	A2	13a,17b-20S-Ethyldiacholest	0.220	0.000#	100.0#	0#	-56.26#
L23	A2	14a,17a-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.43#
L24	A2	14a,17a-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-57.18#
L25	A2	14a(H),17a(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.56#
L26	A2	14a(H),17a(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-58.54#
L27	A2	14b(H),17b(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.18#
L28	A2	14b(H),17b(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.28#
L29	A2	14b,17b-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-56.60#
L30	A2	14b,17b-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.69#
L31	A2	14b(H),17b(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-57.83#
L32	A2	14b(H),17b(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.88#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12108B.D
Acq On : 6 Mar 2005 2:01 pm
Operator : AC
Sample : C1030403
Misc : WHGRPAA37 500NG/ML
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 17 13:13:15 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

ans 3/17/05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	107	-0.04
2	t	Decalin	0.377	0.372	1.3	104	-0.05
3	A1	trans-Decalin	0.422	0.419	0.7	108	-0.05
4	t	cis-Decalin	0.333	0.317	4.8	107	-0.04
5	A2	C1-Decalins	0.422	0.000#	100.0#	0#	-20.45#
6	A2	C2-Decalins	0.422	0.000#	100.0#	0#	-22.03#
7	A2	C3-Decalins	0.422	0.000#	100.0#	0#	-24.98#
8	A2	C4-Decalins	0.422	0.000#	100.0#	0#	-29.01#
9	A1	Naphthalene	1.927	1.805	6.3	99	-0.02
10	A2	C1-Naphthalenes	1.927	0.000#	100.0#	0#	-25.39#
11	A2	C2-Naphthalenes	1.927	0.000#	100.0#	0#	-28.78#
12	A2	C3-Naphthalenes	1.927	0.000#	100.0#	0#	-32.50#
13	A2	C4-Naphthalenes	1.927	0.000#	100.0#	0#	-34.89#
14	s	2-Methylnaphthalene-d10	1.092	1.111	-1.7	105	-0.06
15	t	2-Methylnaphthalene	1.225	1.278	-4.3	116	-0.05
16	t	1-Methylnaphthalene	1.126	1.239	-10.0	123	-0.05
17	A1	Benzothiophene	1.659	1.636	1.4	103	-0.02
18	A2	C1-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-24.91#
19	A2	C2-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-29.02#
20	A2	C3-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-31.37#
21	A2	C4-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-33.47#
22	t	Biphenyl	1.620	1.677	-3.5	112	-0.01
23	t	2,6-Dimethylnaphthalene	1.127	1.093	3.0	107	-0.04
24	t	Dibenzofuran	1.883	1.912	-1.5	112	-0.06
25	t	Acenaphthylene	2.077	2.269	-9.2	118	-0.04
26	t	Acenaphthene	1.295	1.370	-5.8	115	-0.04
27	t	2,3,5-Trimethylnaphthalene	1.081	1.134	-4.9	116	-0.06
28	A1	Fluorene	1.351	1.465	-8.4	115	-0.01
29	A2	C1-Fluorenes	1.351	0.000#	100.0#	0#	-35.77#
30	A2	C2-Fluorenes	1.351	0.000#	100.0#	0#	-38.39#
31	A2	C3-Fluorenes	1.351	0.000#	100.0#	0#	-40.60#
32	A1	Dibenzothiophene	2.031	2.364	-16.4	121	-0.02
33	A2	OTP	2.031	0.000#	100.0#	0#	-39.57#
34	A2	C1-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-39.01#
35	A2	C2-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-41.04#
36	A2	C3-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-43.22#
37	A2	C4-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-44.29#
38	A1	Phenanthrene	2.026	2.028	-0.1	113	-0.06
39	A2	C1-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-40.38#
40	A2	C2-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-42.57#
41	A2	5AA IS BKGD	2.026	0.000#	100.0#	0#	-42.31#
42	A2	C3-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-44.78#
43	A2	C4-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-47.40#
44	A2	Retene	2.026	0.000#	100.0#	0#	-45.90#
45	t	Anthracene	2.036	2.256	-10.8	120	-0.06
46	t	Carbazole	1.815	0.000#	100.0#	0#	-38.38#
47	t	1-Methylphenanthrene	1.447	1.476	-2.0	108	-0.05
48	A1	Fluoranthene	2.428	2.714	-11.8	120	-0.05
49	A2	Benzo(b)fluorene	2.428	0.000#	100.0#	0#	-46.22#
50	s	Pyrene-d10	1.806	1.886	-4.4	112	-0.05
51	A1	Pyrene	2.348	2.509	-6.9	116	-0.05

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12108B.D
Acq On : 6 Mar 2005 2:01 pm
Operator : AC
Sample : C1030403
Misc : WHGRPAA37 500NG/ML
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 17 13:13:15 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	A2	C1-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-45.92#
53	A2	C2-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-48.08#
54	A2	C3-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-50.52#
55	A2	C4-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-52.15#
56	A1	Naphthobenzothiophene	2.333	2.513	-7.7	123	-0.04
57	A2	Naphthobenzothiophene-2,1-D	2.333	2.497	-7.0	122	-0.04
58	A2	Naphthobenzothiophene-1,2-D	2.333	0.000#	100.0#	0#	-49.27#
59	A2	Naphthobenzothiophene-2,3-D	2.333	0.000#	100.0#	0#	-49.63#
60	A2	C1-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-50.54#
61	A2	C2-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-52.95#
62	A2	C3-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-54.88#
63	A2	C4-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-56.11#
64	i	Chrysene-d12	1.000	1.000	0.0	101	-0.02
65	t	Benz[a]anthracene	1.301	1.385	-6.5	114	-0.02
66	t	Chrysene	1.269	1.431	-12.8	117	-0.02
67	A1	Chrysene/Triphenylene	1.270	1.431	-12.7	117	-0.02
68	A2	C1-Chrysenes	1.270	0.000#	100.0#	0#	-51.94#
69	A2	C2-Chrysenes	1.270	0.000#	100.0#	0#	-55.17#
70	A2	BBF-d12 Surr BKGD	1.270	0.000#	100.0#	0#	-54.72#
71	A2	C3-Chrysenes	1.270	0.000#	100.0#	0#	-57.42#
72	A2	C4-Chrysenes	1.270	0.000#	100.0#	0#	-57.56#
73	s	Benzo[b]fluoranthene-d12	1.114	1.065	4.4	97	-0.06
74	t	Benzo[b]fluoranthene	1.332	1.323	0.7	102	-0.05
75	A1	Benzo[k]fluoranthene	1.422	1.565	-10.1	113	-0.05
76	A2	Benzo[a]fluoranthene	1.422	0.000#	100.0#	0#	-55.24#
77	t	Benzo[e]pyrene	1.290	1.281	0.7	106	-0.05
78	t	Benzo[a]pyrene	1.318	1.393	-5.7	111	-0.05
79	t	Perylene	1.271	1.315	-3.5	108	-0.04
80	t	Indeno[1,2,3-cd]pyrene	1.245	1.302	-4.6	119	-0.04
81	t	Dibenz[a,h]anthracene	1.316	1.425	-8.3	110	-0.06
82	t	Benzo[g,h,i]perylene	1.351	1.379	-2.1	108	-0.04
83	t	17a(H),21B(H)-hopane - C30H	0.475	0.438	7.8	112	-0.10
84	A1	Hopane (T19)	0.476	0.438	8.0	112	-0.10
85	A2	C23 Tricyclic Terpane (T4)	0.476	0.000#	100.0#	0#	-47.31#
86	A2	C24 Tricyclic Terpane (T5)	0.476	0.000#	100.0#	0#	-48.19#
87	A2	C25 Tricyclic Terpane (T6)	0.476	0.000#	100.0#	0#	-50.02#
88	A2	C24 Tetracyclic Terpane (T6	0.476	0.000#	100.0#	0#	-51.52#
89	A2	C26 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-51.25#
90	A2	C26 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-51.36#
91	A2	C28 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.11#
92	A2	C28 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-54.31#
93	A2	C29 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.93#
94	A2	C29 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-55.17#
95	A2	18a-22,29,30-Trisnorneohopa	0.476	0.000#	100.0#	0#	-56.34#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.476	0.000#	100.0#	0#	-56.92#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.476	0.000#	100.0#	0#	-57.74#
98	A2	17a(H),21b(H)-25-Norhopane	0.476	0.000#	100.0#	0#	-58.05#
99	A2	30-Norhopane (T15)	0.476	0.000#	100.0#	0#	-58.92#
100	A2	18a(H)-30-Norneohopane-C29T	0.476	0.000#	100.0#	0#	-59.03#
101	A2	17a(H)-Diahopane (X)	0.476	0.000#	100.0#	0#	-59.17#

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12108B.D
Acq On : 6 Mar 2005 2:01 pm
Operator : AC
Sample : C1030403
Misc : WHGRPAA37 500NG/ML
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 17 13:13:15 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
102	A2	30-Normoretane (T17)	0.476	0.000#	100.0#	0#	-59.75#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.476	0.000#	100.0#	0#	-60.16#
104	A2	Moretane (T20)	0.476	0.000#	100.0#	0#	-61.08#
105	A2	30-Homohopane-22S (T21)	0.476	0.000#	100.0#	0#	-62.21#
106	A2	30-Homohopane-22R (T22)	0.476	0.000#	100.0#	0#	-62.45#
107	A2	30,31-Bishomohopane-22S (T2	0.476	0.000#	100.0#	0#	-63.83#
108	A2	30,31-Bishomohopane-22R (T2	0.476	0.000#	100.0#	0#	-64.22#
109	A2	30,31-Trishomohopane-22S (T	0.476	0.000#	100.0#	0#	-66.02#
110	A2	30,31-Trishomohopane-22R (T	0.476	0.000#	100.0#	0#	-66.64#
111	A2	Tetrakishomohopane-22S (T32	0.476	0.000#	100.0#	0#	-68.69#
112	A2	Tetrakishomohopane-22R (T33	0.476	0.000#	100.0#	0#	-69.61#
113	A2	Pentakishomohopane-22S (T34	0.476	0.000#	100.0#	0#	-71.89#
114	A2	Pentakishomohopane-22R (T35	0.476	0.000#	100.0#	0#	-73.19#
115	SA1	5B(H)Cholane - Surr	0.220	0.239	-8.6	116	-0.06
116	A2	13b(H),17a(H)-20S-Diacholes	0.220	0.000#	100.0#	0#	-52.70#
117	A2	13b(H),17a(H)-20R-Diacholes	0.220	0.000#	100.0#	0#	-53.21#
118	A2	13b,17a-20S-Methyldiacholes	0.220	0.000#	100.0#	0#	-54.05#
119	A2	14a(H),17a(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.08#
120	A2	14a(H),17a(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.66#
121	A2	13b,17a-20R-Ethyldiacholest	0.220	0.000#	100.0#	0#	-55.97#
122	A2	13a,17b-20S-Ethyldiacholest	0.220	0.000#	100.0#	0#	-56.26#
123	A2	14a,17a-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.43#
124	A2	14a,17a-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-57.18#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.56#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-58.54#
127	A2	14b(H),17b(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.18#
128	A2	14b(H),17b(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.28#
129	A2	14b,17b-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-56.60#
130	A2	14b,17b-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.69#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-57.83#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.88#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12114.D
Acq On : 6 Mar 2005 7:08 pm
Operator : AC
Sample : C1030404
Misc : WHGRPAA37 500NG/ML
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 07 09:53:05 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

MS 3-7-05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	102	-0.04
2	t	Decalin	0.377	0.369	2.1	98	-0.05
3	A1	trans-Decalin	0.422	0.411	2.6	101	-0.05
4	t	cis-Decalin	0.333	0.310	6.9	100	-0.04
5	A2	C1-Decalins	0.422	0.000#	100.0#	0#	-20.45#
6	A2	C2-Decalins	0.422	0.000#	100.0#	0#	-22.03#
7	A2	C3-Decalins	0.422	0.000#	100.0#	0#	-24.98#
8	A2	C4-Decalins	0.422	0.000#	100.0#	0#	-29.01#
9	A1	Naphthalene	1.927	1.781	7.6	94	-0.02
10	A2	C1-Naphthalenes	1.927	0.000#	100.0#	0#	-25.39#
11	A2	C2-Naphthalenes	1.927	0.000#	100.0#	0#	-28.78#
12	A2	C3-Naphthalenes	1.927	0.000#	100.0#	0#	-32.50#
13	A2	C4-Naphthalenes	1.927	0.000#	100.0#	0#	-34.89#
14	s	2-Methylnaphthalene-d10	1.092	1.083	0.8	97	-0.06
15	t	2-Methylnaphthalene	1.225	1.253	-2.3	108	-0.05
16	t	1-Methylnaphthalene	1.126	1.100	2.3	104	-0.04
17	A1	Benzothiophene	1.659	1.646	0.8	99	-0.02
18	A2	C1-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-24.91#
19	A2	C2-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-29.02#
20	A2	C3-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-31.37#
21	A2	C4-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-33.47#
22	t	Biphenyl	1.620	1.687	-4.1	107	-0.01
23	t	2,6-Dimethylnaphthalene	1.127	1.096	2.8	102	-0.04
24	t	Dibenzofuran	1.883	1.919	-1.9	107	-0.06
25	t	Acenaphthylene	2.077	2.299	-10.7	114	-0.04
26	t	Acenaphthene	1.295	1.364	-5.3	109	-0.04
27	t	2,3,5-Trimethylnaphthalene	1.081	1.132	-4.7	110	-0.06
28	A1	Fluorene	1.351	1.473	-9.0	110	-0.01
29	A2	C1-Fluorenes	1.351	0.000#	100.0#	0#	-35.77#
30	A2	C2-Fluorenes	1.351	0.000#	100.0#	0#	-38.39#
31	A2	C3-Fluorenes	1.351	0.000#	100.0#	0#	-40.60#
32	A1	Dibenzothiophene	2.031	2.359	-16.1	115	-0.01
33	A2	OTP	2.031	0.000#	100.0#	0#	-39.57#
34	A2	C1-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-39.01#
35	A2	C2-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-41.04#
36	A2	C3-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-43.22#
37	A2	C4-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-44.29#
38	A1	Phenanthrene	2.026	2.081	-2.7	110	-0.06
39	A2	C1-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-40.38#
40	A2	C2-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-42.57#
41	A2	5AA IS BKGD	2.026	0.000#	100.0#	0#	-42.31#
42	A2	C3-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-44.78#
43	A2	C4-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-47.40#
44	A2	Retene	2.026	0.000#	100.0#	0#	-45.90#
45	t	Anthracene	2.036	2.125	-4.4	108	-0.05
46	t	Carbazole	1.815	0.000#	100.0#	0#	-38.38#
47	t	1-Methylphenanthrene	1.447	1.488	-2.8	104	-0.05
48	A1	Fluoranthene	2.428	2.663	-9.7	113	-0.05
49	A2	Benzo(b)fluorene	2.428	0.000#	100.0#	0#	-46.22#
50	s	Pyrene-d10	1.806	1.884	-4.3	107	-0.05
51	A1	Pyrene	2.348	2.527	-7.6	112	-0.05

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12114.D
Acq On : 6 Mar 2005 7:08 pm
Operator : AC
Sample : C1030404
Misc : WHGRPAA37 500NG/ML
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 07 09:53:05 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
52	A2	C1-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-45.92#
53	A2	C2-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-48.08#
54	A2	C3-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-50.52#
55	A2	C4-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-52.15#
56	A1	Naphthobenzothiophene	2.333	2.454	-5.2	114	-0.04
57	A2	Naphthobenzothiophene-2,1-D	2.333	2.457	-5.3	114	-0.04
58	A2	Naphthobenzothiophene-1,2-D	2.333	0.000#	100.0#	0#	-49.27#
59	A2	Naphthobenzothiophene-2,3-D	2.333	0.000#	100.0#	0#	-49.63#
60	A2	C1-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-50.54#
61	A2	C2-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-52.95#
62	A2	C3-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-54.88#
63	A2	C4-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-56.11#
64	i	Chrysene-d12	1.000	1.000	0.0	95	-0.04
65	t	Benz[a]anthracene	1.301	1.435	-10.3	112	-0.02
66	t	Chrysene	1.269	1.472	-16.0	113	-0.02
67	A1	Chrysene/Triphenylene	1.270	1.472	-15.9	113	-0.02
68	A2	C1-Chrysenes	1.270	0.000#	100.0#	0#	-51.94#
69	A2	C2-Chrysenes	1.270	0.000#	100.0#	0#	-55.17#
70	A2	BBF-d12 Surr BKGD	1.270	0.000#	100.0#	0#	-54.72#
71	A2	C3-Chrysenes	1.270	0.000#	100.0#	0#	-57.42#
72	A2	C4-Chrysenes	1.270	0.000#	100.0#	0#	-57.56#
73	s	Benzo[b]fluoranthene-d12	1.114	1.122	-0.7	97	-0.06
74	t	Benzo[b]fluoranthene	1.332	1.390	-4.4	101	-0.05
75	A1	Benzo[k]fluoranthene	1.422	1.646	-15.8	112	-0.05
76	A2	Benzo[a]fluoranthene	1.422	0.000#	100.0#	0#	-55.24#
77	t	Benzo[e]pyrene	1.290	1.328	-2.9	104	-0.05
78	t	Benzo[a]pyrene	1.318	1.401	-6.3	106	-0.05
79	t	Perylene	1.271	1.357	-6.8	105	-0.04
80	t	Indeno[1,2,3-cd]pyrene	1.245	1.168	6.2	101	-0.04
81	t	Dibenz[a,h]anthracene	1.316	1.519	-15.4	111	-0.06
82	t	Benzo[g,h,i]perylene	1.351	1.454	-7.6	108	-0.04
83	t	17a(H),21B(H)-hopane - C30H	0.475	0.466	1.9	112	-0.10
84	A1	Hopane (T19)	0.476	0.466	2.1	112	-0.10
85	A2	C23 Tricyclic Terpane (T4)	0.476	0.000#	100.0#	0#	-47.31#
86	A2	C24 Tricyclic Terpane (T5)	0.476	0.000#	100.0#	0#	-48.19#
87	A2	C25 Tricyclic Terpane (T6)	0.476	0.000#	100.0#	0#	-50.02#
88	A2	C24 Tetracyclic Terpane (T6	0.476	0.000#	100.0#	0#	-51.52#
89	A2	C26 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-51.25#
90	A2	C26 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-51.36#
91	A2	C28 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.11#
92	A2	C28 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-54.31#
93	A2	C29 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.93#
94	A2	C29 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-55.17#
95	A2	18a-22,29,30-Trisnorneohopa	0.476	0.000#	100.0#	0#	-56.34#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.476	0.000#	100.0#	0#	-56.92#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.476	0.000#	100.0#	0#	-57.74#
98	A2	17a(H),21b(H)-25-Norhopane	0.476	0.000#	100.0#	0#	-58.05#
99	A2	30-Norhopane (T15)	0.476	0.000#	100.0#	0#	-58.92#
100	A2	18a(H)-30-Norneohopane-C29T	0.476	0.000#	100.0#	0#	-59.03#
101	A2	17a(H)-Diahopane (X)	0.476	0.000#	100.0#	0#	-59.17#

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH04\
Data File : P12114.D
Acq On : 6 Mar 2005 7:08 pm
Operator : AC
Sample : C1030404
Misc : WHGRPAA37 500NG/ML
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Mar 07 09:53:05 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
102	A2	30-Normoretane (T17)	0.476	0.000#	100.0#	0#	-59.75#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.476	0.000#	100.0#	0#	-60.16#
104	A2	Moretane (T20)	0.476	0.000#	100.0#	0#	-61.08#
105	A2	30-Homohopane-22S (T21)	0.476	0.000#	100.0#	0#	-62.21#
106	A2	30-Homohopane-22R (T22)	0.476	0.000#	100.0#	0#	-62.45#
107	A2	30,31-Bishomohopane-22S (T2	0.476	0.000#	100.0#	0#	-63.83#
108	A2	30,31-Bishomohopane-22R (T2	0.476	0.000#	100.0#	0#	-64.22#
109	A2	30,31-Trishomohopane-22S (T	0.476	0.000#	100.0#	0#	-66.02#
110	A2	30,31-Trishomohopane-22R (T	0.476	0.000#	100.0#	0#	-66.64#
111	A2	Tetrakishomohopane-22S (T32	0.476	0.000#	100.0#	0#	-68.69#
112	A2	Tetrakishomohopane-22R (T33	0.476	0.000#	100.0#	0#	-69.61#
113	A2	Pentakishomohopane-22S (T34	0.476	0.000#	100.0#	0#	-71.89#
114	A2	Pentakishomohopane-22R (T35	0.476	0.000#	100.0#	0#	-73.19#
115	SA1	5B(H)Cholane - Surr	0.220	0.240	-9.1	110	-0.06
116	A2	13b(H),17a(H)-20S-Diacholes	0.220	0.000#	100.0#	0#	-52.70#
117	A2	13b(H),17a(H)-20R-Diacholes	0.220	0.000#	100.0#	0#	-53.21#
118	A2	13b,17a-20S-Methyldiacholes	0.220	0.000#	100.0#	0#	-54.05#
119	A2	14a(H),17a(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.08#
120	A2	14a(H),17a(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.66#
121	A2	13b,17a-20R-Ethyldiacholest	0.220	0.000#	100.0#	0#	-55.97#
122	A2	13a,17b-20S-Ethyldiacholest	0.220	0.000#	100.0#	0#	-56.26#
123	A2	14a,17a-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.43#
124	A2	14a,17a-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-57.18#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.56#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-58.54#
127	A2	14b(H),17b(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.18#
128	A2	14b(H),17b(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.28#
129	A2	14b,17b-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-56.60#
130	A2	14b,17b-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.69#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-57.83#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.88#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

132

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH07\
Data File : P12130.D
Acq On : 7 Mar 2005 10:40 am
Operator : AC
Sample : C1030701
Misc : WHGRPAA38 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

3/8/05

Quant Time: Mar 08 09:04:52 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	88	-0.05
2	t	Decalin	0.377	0.358	5.0	83	-0.06
3	A1	trans-Decalin	0.422	0.404	4.3	86	-0.06
4	t	cis-Decalin	0.333	0.301	9.6	84	-0.05
5	A2	C1-Decalins	0.422	0.000#	100.0#	0#	-20.45#
6	A2	C2-Decalins	0.422	0.000#	100.0#	0#	-22.03#
7	A2	C3-Decalins	0.422	0.000#	100.0#	0#	-24.98#
8	A2	C4-Decalins	0.422	0.000#	100.0#	0#	-29.01#
9	A1	Naphthalene	1.927	1.769	8.2	80	-0.04
10	A2	C1-Naphthalenes	1.927	0.000#	100.0#	0#	-25.39#
11	A2	C2-Naphthalenes	1.927	0.000#	100.0#	0#	-28.78#
12	A2	C3-Naphthalenes	1.927	0.000#	100.0#	0#	-32.50#
13	A2	C4-Naphthalenes	1.927	0.000#	100.0#	0#	-34.89#
14	s	2-Methylnaphthalene-d10	1.092	1.072	1.8	83	-0.07
15	t	2-Methylnaphthalene	1.225	1.261	-2.9	94	-0.06
16	t	1-Methylnaphthalene	1.126	1.205	-7.0	99	-0.06
17	A1	Benzothiophene	1.659	1.629	1.8	85	-0.04
18	A2	C1-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-24.91#
19	A2	C2-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-29.02#
20	A2	C3-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-31.37#
21	A2	C4-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-33.47#
22	t	Biphenyl	1.620	1.684	-4.0	93	-0.02
23	t	2,6-Dimethylnaphthalene	1.127	1.165	-3.4	94	-0.05
24	t	Dibenzofuran	1.883	1.981	-5.2	95	-0.07
25	t	Acenaphthylene	2.077	2.295	-10.5	98	-0.05
26	t	Acenaphthene	1.295	1.378	-6.4	96	-0.05
27	t	2,3,5-Trimethylnaphthalene	1.081	1.161	-7.4	98	-0.07
28	A1	Fluorene	1.351	1.450	-7.3	94	-0.02
29	A2	C1-Fluorenes	1.351	0.000#	100.0#	0#	-35.77#
30	A2	C2-Fluorenes	1.351	0.000#	100.0#	0#	-38.39#
31	A2	C3-Fluorenes	1.351	0.000#	100.0#	0#	-40.60#
32	A1	Dibenzothiophene	2.031	2.444	-20.3	103	-0.04
33	A2	OTP	2.031	0.000#	100.0#	0#	-39.57#
34	A2	C1-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-39.01#
35	A2	C2-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-41.04#
36	A2	C3-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-43.22#
37	A2	C4-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-44.29#
38	A1	Phenanthrene	2.026	2.202	-8.7	101	-0.07
39	A2	C1-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-40.38#
40	A2	C2-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-42.57#
41	A2	5AA IS BKGD	2.026	0.000#	100.0#	0#	-42.31#
42	A2	C3-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-44.78#
43	A2	C4-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-47.40#
44	A2	Retene	2.026	0.000#	100.0#	0#	-45.90#
45	t	Anthracene	2.036	1.758	13.7	77	-0.07
46	t	Carbazole	1.815	0.000#	100.0#	0#	-38.38#
47	t	1-Methylphenanthrene	1.447	1.530	-5.7	93	-0.06
48	A1	Fluoranthene	2.428	2.801	-15.4	102	-0.06
49	A2	Benzo(b)fluorene	2.428	0.000#	100.0#	0#	-46.22#
50	s	Pyrene-d10	1.806	1.877	-3.9	92	-0.06

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Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH07\
Data File : P12130.D
Acq On : 7 Mar 2005 10:40 am
Operator : AC
Sample : C1030701
Misc : WHGRPAA38 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 08 09:04:52 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	A1	Pyrene	2.348	2.571	-9.5	98	-0.06
52	A2	C1-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-45.92#
53	A2	C2-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-48.08#
54	A2	C3-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-50.52#
55	A2	C4-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-52.15#
56	A1	Naphthobenzothiophene	2.333	2.654	-13.8	107	-0.05
57	A2	Naphthobenzothiophene-2,1-D	2.333	2.584	-10.8	104	-0.05
58	A2	Naphthobenzothiophene-1,2-D	2.333	0.000#	100.0#	0#	-49.27#
59	A2	Naphthobenzothiophene-2,3-D	2.333	0.000#	100.0#	0#	-49.63#
60	A2	C1-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-50.54#
61	A2	C2-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-52.95#
62	A2	C3-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-54.88#
63	A2	C4-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-56.11#
64	i	Chrysene-d12	1.000	1.000	0.0	83	-0.05
65	t	Benz[a]anthracene	1.301	1.422	-9.3	97	-0.05
66	t	Chrysene	1.269	1.464	-15.4	99	-0.04
67	A1	Chrysene/Triphenylene	1.270	1.464	-15.3	99	-0.04
68	A2	C1-Chrysenes	1.270	0.000#	100.0#	0#	-51.94#
69	A2	C2-Chrysenes	1.270	0.000#	100.0#	0#	-55.17#
70	A2	BBF-d12 Surr BKGD	1.270	0.000#	100.0#	0#	-54.72#
71	A2	C3-Chrysenes	1.270	0.000#	100.0#	0#	-57.42#
72	A2	C4-Chrysenes	1.270	0.000#	100.0#	0#	-57.56#
73	s	Benzo[b]fluoranthene-d12	1.114	1.118	-0.4	85	-0.07
74	t	Benzo[b]fluoranthene	1.332	1.407	-5.6	90	-0.06
75	A1	Benzo[k]fluoranthene	1.422	1.654	-16.3	99	-0.06
76	A2	Benzo[a]fluoranthene	1.422	0.000#	100.0#	0#	-55.24#
77	t	Benzo[e]pyrene	1.290	1.389	-7.7	95	-0.06
78	t	Benzo[a]pyrene	1.318	1.445	-9.6	96	-0.06
79	t	Perylene	1.271	1.445	-13.7	98	-0.05
80	t	Indeno[1,2,3-cd]pyrene	1.245	1.273	-2.2	96	-0.06
81	t	Dibenz[a,h]anthracene	1.316	1.557	-18.3	100	-0.09
82	t	Benzo[g,h,i]perylene	1.351	1.504	-11.3	98	-0.06
83	t	17a(H),21B(H)-hopane - C30H	0.475	0.496	-4.4	105	-0.12
84	A1	Hopane (T19)	0.476	0.496	-4.2	105	-0.12
85	A2	C23 Tricyclic Terpane (T4)	0.476	0.000#	100.0#	0#	-47.31#
86	A2	C24 Tricyclic Terpane (T5)	0.476	0.000#	100.0#	0#	-48.19#
87	A2	C25 Tricyclic Terpane (T6)	0.476	0.000#	100.0#	0#	-50.02#
88	A2	C24 Tetracyclic Terpane (T6	0.476	0.000#	100.0#	0#	-51.52#
89	A2	C26 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-51.25#
90	A2	C26 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-51.36#
91	A2	C28 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.11#
92	A2	C28 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-54.31#
93	A2	C29 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.93#
94	A2	C29 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-55.17#
95	A2	18a-22,29,30-Trisnorneohopa	0.476	0.000#	100.0#	0#	-56.34#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.476	0.000#	100.0#	0#	-56.92#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.476	0.000#	100.0#	0#	-57.74#
98	A2	17a(H),21b(H)-25-Norhopane	0.476	0.000#	100.0#	0#	-58.05#
99	A2	30-Norhopane (T15)	0.476	0.000#	100.0#	0#	-58.92#

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH07\
Data File : P12130.D
Acq On : 7 Mar 2005 10:40 am
Operator : AC
Sample : C1030701
Misc : WHGRPAA38 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 08 09:04:52 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	A2	18a(H)-30-Norneohopane-C29T	0.476	0.000#	100.0#	0#	-59.03#
101	A2	17a(H)-Diahopane (X)	0.476	0.000#	100.0#	0#	-59.17#
102	A2	30-Normoretane (T17)	0.476	0.000#	100.0#	0#	-59.75#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.476	0.000#	100.0#	0#	-60.16#
104	A2	Moretane (T20)	0.476	0.000#	100.0#	0#	-61.08#
105	A2	30-Homohopane-22S (T21)	0.476	0.000#	100.0#	0#	-62.21#
106	A2	30-Homohopane-22R (T22)	0.476	0.000#	100.0#	0#	-62.45#
107	A2	30,31-Bishomohopane-22S (T2	0.476	0.000#	100.0#	0#	-63.83#
108	A2	30,31-Bishomohopane-22R (T2	0.476	0.000#	100.0#	0#	-64.22#
109	A2	30,31-Trishomohopane-22S (T	0.476	0.000#	100.0#	0#	-66.02#
110	A2	30,31-Trishomohopane-22R (T	0.476	0.000#	100.0#	0#	-66.64#
111	A2	Tetrakishomohopane-22S (T32	0.476	0.000#	100.0#	0#	-68.69#
112	A2	Tetrakishomohopane-22R (T33	0.476	0.000#	100.0#	0#	-69.61#
113	A2	Pentakishomohopane-22S (T34	0.476	0.000#	100.0#	0#	-71.89#
114	A2	Pentakishomohopane-22R (T35	0.476	0.000#	100.0#	0#	-73.19#
115	SA1	5B(H)Cholane - Surr	0.220	0.239	-8.6	96	-0.07
116	A2	13b(H),17a(H)-20S-Diacholes	0.220	0.000#	100.0#	0#	-52.70#
117	A2	13b(H),17a(H)-20R-Diacholes	0.220	0.000#	100.0#	0#	-53.21#
118	A2	13b,17a-20S-Methyldiacholes	0.220	0.000#	100.0#	0#	-54.05#
119	A2	14a(H),17a(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.08#
120	A2	14a(H),17a(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.66#
121	A2	13b,17a-20R-Ethyldiacholest	0.220	0.000#	100.0#	0#	-55.97#
122	A2	13a,17b-20S-Ethyldiacholest	0.220	0.000#	100.0#	0#	-56.26#
123	A2	14a,17a-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.43#
124	A2	14a,17a-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-57.18#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.56#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-58.54#
127	A2	14b(H),17b(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.18#
128	A2	14b(H),17b(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.28#
129	A2	14b,17b-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-56.60#
130	A2	14b,17b-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.69#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-57.83#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.88#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH07\
Data File : P12144.D
Acq On : 7 Mar 2005 11:57 pm
Operator : AC
Sample : C1030702
Misc : DCM
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 08 09:14:25 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

3/8/05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	88	-0.05
2	t	Decalin	0.377	0.355	5.8	81	-0.06
3	A1	trans-Decalin	0.422	0.406	3.8	86	-0.06
4	t	cis-Decalin	0.333	0.298	10.5	83	-0.05
5	A2	C1-Decalins	0.422	0.000#	100.0#	0#	-20.45#
6	A2	C2-Decalins	0.422	0.000#	100.0#	0#	-22.03#
7	A2	C3-Decalins	0.422	0.000#	100.0#	0#	-24.98#
8	A2	C4-Decalins	0.422	0.000#	100.0#	0#	-29.01#
9	A1	Naphthalene	1.927	1.759	8.7	79	-0.02
10	A2	C1-Naphthalenes	1.927	0.000#	100.0#	0#	-25.39#
11	A2	C2-Naphthalenes	1.927	0.000#	100.0#	0#	-28.78#
12	A2	C3-Naphthalenes	1.927	0.000#	100.0#	0#	-32.50#
13	A2	C4-Naphthalenes	1.927	0.000#	100.0#	0#	-34.89#
14	s	2-Methylnaphthalene-d10	1.092	1.063	2.7	82	-0.06
15	t	2-Methylnaphthalene	1.225	1.257	-2.6	93	-0.05
16	t	1-Methylnaphthalene	1.126	1.270	-12.8	103	-0.05
17	A1	Benzothiophene	1.659	1.623	2.2	84	-0.02
18	A2	C1-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-24.91#
19	A2	C2-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-29.02#
20	A2	C3-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-31.37#
21	A2	C4-Benzo(b)thiophenes	1.659	0.000#	100.0#	0#	-33.47#
22	t	Biphenyl	1.620	1.409	13.0	77	-0.01
23	t	2,6-Dimethylnaphthalene	1.127	1.078	4.3	86	-0.04
24	t	Dibenzofuran	1.883	1.924	-2.2	92	-0.06
25	t	Acenaphthylene	2.077	2.321	-11.7	99	-0.05
26	t	Acenaphthene	1.295	1.378	-6.4	95	-0.05
27	t	2,3,5-Trimethylnaphthalene	1.081	1.129	-4.4	94	-0.06
28	A1	Fluorene	1.351	1.495	-10.7	96	-0.01
29	A2	C1-Fluorenes	1.351	0.000#	100.0#	0#	-35.77#
30	A2	C2-Fluorenes	1.351	0.000#	100.0#	0#	-38.39#
31	A2	C3-Fluorenes	1.351	0.000#	100.0#	0#	-40.60#
32	A1	Dibenzothiophene	2.031	2.398	-18.1	101	-0.02
33	A2	OTP	2.031	0.000#	100.0#	0#	-39.57#
34	A2	C1-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-39.01#
35	A2	C2-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-41.04#
36	A2	C3-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-43.22#
37	A2	C4-Dibenzothiophenes	2.031	0.000#	100.0#	0#	-44.29#
38	A1	Phenanthrene	2.026	1.811	10.6	82	-0.06
39	A2	C1-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-40.38#
40	A2	C2-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-42.57#
41	A2	5AA IS BKGD	2.026	0.000#	100.0#	0#	-42.31#
42	A2	C3-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-44.78#
43	A2	C4-Phenanthrenes/Anthracene	2.026	0.000#	100.0#	0#	-47.40#
44	A2	Retene	2.026	0.000#	100.0#	0#	-45.90#
45	t	Anthracene	2.036	2.022	0.7	88	-0.05
46	t	Carbazole	1.815	0.000#	100.0#	0#	-38.38#
47	t	1-Methylphenanthrene	1.447	1.570	-8.5	94	-0.05
48	A1	Fluoranthene	2.428	2.899	-19.4	105	-0.06
49	A2	Benzo(b)fluorene	2.428	0.000#	100.0#	0#	-46.22#
50	s	Pyrene-d10	1.806	1.922	-6.4	93	-0.06

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH07\
Data File : P12144.D
Acq On : 7 Mar 2005 11:57 pm
Operator : AC
Sample : C1030702
Misc : DCM
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 08 09:14:25 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	A1	Pyrene	2.348	2.813	-19.8	107	-0.06
52	A2	C1-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-45.92#
53	A2	C2-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-48.08#
54	A2	C3-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-50.52#
55	A2	C4-Fluoranthenes/Pyrenes	2.348	0.000#	100.0#	0#	-52.15#
56	A1	Naphthobenzothiophene	2.333	2.578	-10.5	103	-0.05
57	A2	Naphthobenzothiophene-2,1-D	2.333	2.791	-19.6	111	-0.05
58	A2	Naphthobenzothiophene-1,2-D	2.333	0.000#	100.0#	0#	-49.27#
59	A2	Naphthobenzothiophene-2,3-D	2.333	0.000#	100.0#	0#	-49.63#
60	A2	C1-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-50.54#
61	A2	C2-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-52.95#
62	A2	C3-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-54.88#
63	A2	C4-Naphthobenzothiophenes	2.333	0.000#	100.0#	0#	-56.11#
64	i	Chrysene-d12	1.000	1.000	0.0	87	-0.05
65	t	Benz[a]anthracene	1.301	1.406	-8.1	100	-0.05
66	t	Chrysene	1.269	1.443	-13.7	102	-0.04
67	A1	Chrysene/Triphenylene	1.270	1.443	-13.6	102	-0.04
68	A2	C1-Chrysenes	1.270	0.000#	100.0#	0#	-51.94#
69	A2	C2-Chrysenes	1.270	0.000#	100.0#	0#	-55.17#
70	A2	BBF-d12 Surr BKGD	1.270	0.000#	100.0#	0#	-54.72#
71	A2	C3-Chrysenes	1.270	0.000#	100.0#	0#	-57.42#
72	A2	C4-Chrysenes	1.270	0.000#	100.0#	0#	-57.56#
73	s	Benzo[b]fluoranthene-d12	1.114	1.144	-2.7	90	-0.07
74	t	Benzo[b]fluoranthene	1.332	1.414	-6.2	94	-0.06
75	A1	Benzo[k]fluoranthene	1.422	1.716	-20.7	107	-0.06
76	A2	Benzo[a]fluoranthene	1.422	0.000#	100.0#	0#	-55.24#
77	t	Benzo[e]pyrene	1.290	1.404	-8.8	100	-0.06
78	t	Benzo[a]pyrene	1.318	1.447	-9.8	100	-0.06
79	t	Perylene	1.271	1.487	-17.0	105	-0.06
80	t	Indeno[1,2,3-cd]pyrene	1.245	1.202	3.5	95	-0.06
81	t	Dibenz[a,h]anthracene	1.316	1.633	-24.1	109	-0.07
82	t	Benzo[g,h,i]perylene	1.351	1.583	-17.2	107	-0.06
83	t	17a(H),21B(H)-hopane - C30H	0.475	0.512	-7.8	113	-0.14
84	A1	Hopane (T19)	0.476	0.512	-7.6	113	-0.14
85	A2	C23 Tricyclic Terpane (T4)	0.476	0.000#	100.0#	0#	-47.31#
86	A2	C24 Tricyclic Terpane (T5)	0.476	0.000#	100.0#	0#	-48.19#
87	A2	C25 Tricyclic Terpane (T6)	0.476	0.000#	100.0#	0#	-50.02#
88	A2	C24 Tetracyclic Terpane (T6	0.476	0.000#	100.0#	0#	-51.52#
89	A2	C26 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-51.25#
90	A2	C26 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-51.36#
91	A2	C28 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.11#
92	A2	C28 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-54.31#
93	A2	C29 Tricyclic Terpane-22S (	0.476	0.000#	100.0#	0#	-54.93#
94	A2	C29 Tricyclic Terpane-22R (	0.476	0.000#	100.0#	0#	-55.17#
95	A2	18a-22,29,30-Trisnorneohopa	0.476	0.000#	100.0#	0#	-56.34#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.476	0.000#	100.0#	0#	-56.92#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.476	0.000#	100.0#	0#	-57.74#
98	A2	17a(H),21b(H)-25-Norhopane	0.476	0.000#	100.0#	0#	-58.05#
99	A2	30-Norhopane (T15)	0.476	0.000#	100.0#	0#	-58.92#

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH1\MARCH2005\MARCH07\
Data File : P12144.D
Acq On : 7 Mar 2005 11:57 pm
Operator : AC
Sample : C1030702
Misc : DCM
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Mar 08 09:14:25 2005
Quant Method : O:\ORGANICS\METHODS\PAH1\FEB05\PAH10216.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Wed Mar 02 09:10:02 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	A2	18a(H)-30-Norneohopane-C29T	0.476	0.000#	100.0#	0#	-59.03#
101	A2	17a(H)-Diahopane (X)	0.476	0.000#	100.0#	0#	-59.17#
102	A2	30-Normoretane (T17)	0.476	0.000#	100.0#	0#	-59.75#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.476	0.000#	100.0#	0#	-60.16#
104	A2	Moretane (T20)	0.476	0.000#	100.0#	0#	-61.08#
105	A2	30-Homohopane-22S (T21)	0.476	0.000#	100.0#	0#	-62.21#
106	A2	30-Homohopane-22R (T22)	0.476	0.000#	100.0#	0#	-62.45#
107	A2	30,31-Bishomohopane-22S (T2	0.476	0.000#	100.0#	0#	-63.83#
108	A2	30,31-Bishomohopane-22R (T2	0.476	0.000#	100.0#	0#	-64.22#
109	A2	30,31-Trishomohopane-22S (T	0.476	0.000#	100.0#	0#	-66.02#
110	A2	30,31-Trishomohopane-22R (T	0.476	0.000#	100.0#	0#	-66.64#
111	A2	Tetrakishomohopane-22S (T32	0.476	0.000#	100.0#	0#	-68.69#
112	A2	Tetrakishomohopane-22R (T33	0.476	0.000#	100.0#	0#	-69.61#
113	A2	Pentakishomohopane-22S (T34	0.476	0.000#	100.0#	0#	-71.89#
114	A2	Pentakishomohopane-22R (T35	0.476	0.000#	100.0#	0#	-73.19#
115	SA1	5B(H)Cholane - Surr	0.220	0.238	-8.2	100	-0.07
116	A2	13b(H),17a(H)-20S-Diacholes	0.220	0.000#	100.0#	0#	-52.70#
117	A2	13b(H),17a(H)-20R-Diacholes	0.220	0.000#	100.0#	0#	-53.21#
118	A2	13b,17a-20S-Methyldiacholes	0.220	0.000#	100.0#	0#	-54.05#
119	A2	14a(H),17a(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.08#
120	A2	14a(H),17a(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.66#
121	A2	13b,17a-20R-Ethyldiacholest	0.220	0.000#	100.0#	0#	-55.97#
122	A2	13a,17b-20S-Ethyldiacholest	0.220	0.000#	100.0#	0#	-56.26#
123	A2	14a,17a-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.43#
124	A2	14a,17a-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-57.18#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.56#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-58.54#
127	A2	14b(H),17b(H)-20R-Cholestan	0.220	0.000#	100.0#	0#	-55.18#
128	A2	14b(H),17b(H)-20S-Cholestan	0.220	0.000#	100.0#	0#	-55.28#
129	A2	14b,17b-20R-Methylcholestan	0.220	0.000#	100.0#	0#	-56.60#
130	A2	14b,17b-20S-Methylcholestan	0.220	0.000#	100.0#	0#	-56.69#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.220	0.000#	100.0#	0#	-57.83#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.220	0.000#	100.0#	0#	-57.88#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30961.D
Acq On : 14 Mar 2005 1:19 pm
Operator : AC
Sample : C3031401
Misc : WHGRPAA38 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 15 08:09:25 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

MS 3/15/05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	51	-0.01
2	t	Decalin	0.432	0.330	23.6	44	-0.01
3	A1	trans-Decalin	0.469	0.379	19.2	44	-0.01
4	t	cis-Decalin	0.349	0.285	18.3	44	-0.01
5	A2	C1-Decalins	0.469	0.000#	100.0#	0#	-19.89#
6	A2	C2-Decalins	0.469	0.000#	100.0#	0#	-22.01#
7	A2	C3-Decalins	0.469	0.000#	100.0#	0#	-24.94#
8	A2	C4-Decalins	0.469	0.000#	100.0#	0#	-28.96#
9	A1	Naphthalene	2.148	1.814	15.5	47	-0.01
10	A2	C1-Naphthalenes	2.148	0.000#	100.0#	0#	-25.34#
11	A2	C2-Naphthalenes	2.148	0.000#	100.0#	0#	-28.72#
12	A2	C3-Naphthalenes	2.148	0.000#	100.0#	0#	-31.51#
13	A2	C4-Naphthalenes	2.148	0.000#	100.0#	0#	-34.80#
14	s	2-Methylnaphthalene-d10	1.128	1.057	6.3	49	-0.01
15	t	2-Methylnaphthalene	1.359	1.218	10.4	48	-0.01
16	t	1-Methylnaphthalene	1.276	1.130	11.4	48	-0.01
17	A1	Benzothiophene	1.537	1.402	8.8	49	0.00
18	A2	C1-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-24.86#
19	A2	C2-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-28.94#
20	A2	C3-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-31.30#
21	A2	C4-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-33.82#
22	t	Biphenyl	1.713	1.543	9.9	50	0.00
23	t	2,6-Dimethylnaphthalene	1.188	1.097	7.7	51	-0.01
24	t	Dibenzofuran	1.791	1.790	0.1	53	0.00
25	t	Acenaphthylene	1.641	1.847	-12.6	60	-0.01
26	t	Acenaphthene	1.272	1.246	2.0	53	-0.01
27	t	2,3,5-Trimethylnaphthalene	1.117	1.140	-2.1	55	0.00
28	A1	Fluorene	1.436	1.464	-1.9	55	-0.01
29	A2	C1-Fluorenes	1.436	0.000#	100.0#	0#	-35.68#
30	A2	C2-Fluorenes	1.436	0.000#	100.0#	0#	-38.31#
31	A2	C3-Fluorenes	1.436	0.000#	100.0#	0#	-40.51#
32	A1	Dibenzothiophene	1.941	2.066	-6.4	56	0.00
33	A2	OTP	1.941	0.000#	100.0#	0#	-39.47#
34	A2	C1-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-38.91#
35	A2	C2-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-40.93#
36	A2	C3-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-43.09#
37	A2	C4-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-44.18#
38	A1	Phenanthrene	2.177	2.238	-2.8	57	0.00
39	A2	C1-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-40.28#
40	A2	C2-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-42.44#
41	A2	5AA IS BKGD	2.177	0.000#	100.0#	0#	-42.20#
42	A2	C3-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-44.65#
43	A2	C4-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-47.26#
44	A2	Retene	2.177	0.000#	100.0#	0#	-46.00#
45	t	Anthracene	1.688	2.060	-22.0	64	0.00
46	t	Carbazole	0.000	0.000#	0.0	0#	-46.36#
47	t	1-Methylphenanthrene	1.536	1.657	-7.9	57	0.00
48	A1	Fluoranthene	2.379	2.671	-12.3	58	0.00
49	A2	Benzo(b)fluorene	2.379	0.000#	100.0#	0#	-46.09#
50	s	Pyrene-d10	1.827	2.080	-13.8	59	0.00

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30961.D
Acq On : 14 Mar 2005 1:19 pm
Operator : AC
Sample : C3031401
Misc : WHGRPAA38 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 15 08:09:25 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	A1	Pyrene	2.369	2.629	-11.0	58	0.00
52	A2	C1-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-45.79#
53	A2	C2-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-47.94#
54	A2	C3-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-50.37#
55	A2	C4-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-51.99#
56	A1	Naphthobenzothiophene	2.391	2.514	-5.1	56	0.01
57	A2	Naphthobenzothiophene-2,1-D	2.391	2.488	-4.1	55	0.01
58	A2	Naphthobenzothiophene-1,2-D	2.391	0.000#	100.0#	0#	-49.11#
59	A2	Naphthobenzothiophene-2,3-D	2.391	0.000#	100.0#	0#	-49.47#
60	A2	C1-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-50.38#
61	A2	C2-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-52.79#
62	A2	C3-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-54.69#
63	A2	C4-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-55.92#
64	i	Chrysene-d12	1.000	1.000	0.0	56	0.01
65	t	Benz[a]anthracene	1.240	1.288	-3.9	60	0.01
66	t	Chrysene	1.340	1.334	0.4	57	0.01
67	A1	Chrysene/Triphenylene	1.340	1.306	2.5	56	0.01
68	A2	C1-Chrysenes	1.340	0.000#	100.0#	0#	-51.78#
69	A2	C2-Chrysenes	1.340	0.000#	100.0#	0#	-54.25#
70	A2	BBF-d12 Surr BKGD	1.340	0.000#	100.0#	0#	-54.55#
71	A2	C3-Chrysenes	1.340	0.000#	100.0#	0#	-57.22#
72	A2	C4-Chrysenes	1.340	0.000#	100.0#	0#	-56.83#
73	s	Benzo[b]fluoranthene-d12	1.215	1.176	3.2	56	0.02
74	t	Benzo[b]fluoranthene	1.627	1.463	10.1	54	0.01
75	A1	Benzo[k]fluoranthene	1.630	1.529	6.2	55	0.02
76	A2	Benzo[a]fluoranthene	1.630	0.000#	100.0#	0#	-55.25#
77	t	Benzo[e]pyrene	1.557	1.384	11.1	54	0.02
78	t	Benzo[a]pyrene	1.496	1.407	5.9	57	0.02
79	t	Perylene	1.496	1.357	9.3	55	0.04
80	t	Indeno[1,2,3-cd]pyrene	1.908	1.386	27.4	42	0.06
81	t	Dibenz[a,h]anthracene	1.917	1.495	22.0	43	0.05
82	t	Benzo[g,h,i]perylene	2.076	1.554	25.1	43	0.06
83	t	17a(H),21B(H)-hopane - C30H	0.579	0.475	18.0	54	0.02
84	A1	Hopane (T19)	0.579	0.475	18.0	54	0.02
85	A2	C23 Tricyclic Terpane (T4)	0.579	0.000#	100.0#	0#	-47.20#
86	A2	C24 Tricyclic Terpane (T5)	0.579	0.000#	100.0#	0#	-48.07#
87	A2	C25 Tricyclic Terpane (T6)	0.579	0.000#	100.0#	0#	-49.89#
88	A2	C24 Tetracyclic Terpane (T6	0.579	0.000#	100.0#	0#	-51.37#
89	A2	C26 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-51.11#
90	A2	C26 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-51.23#
91	A2	C28 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-53.96#
92	A2	C28 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-54.16#
93	A2	C29 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-54.77#
94	A2	C29 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-55.00#
95	A2	18a-22,29,30-Trisnorneohopa	0.579	0.000#	100.0#	0#	-56.17#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.579	0.000#	100.0#	0#	-56.75#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.579	0.000#	100.0#	0#	-57.56#
98	A2	17a(H),21b(H)-25-Norhopane	0.579	0.000#	100.0#	0#	-57.85#
99	A2	30-Norhopane (T15)	0.579	0.000#	100.0#	0#	-58.71#

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Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30961.D
Acq On : 14 Mar 2005 1:19 pm
Operator : AC
Sample : C3031401
Misc : WHGRPAA38 500NG/ML
ALS Vial : 1 Sample Multiplier: 1

Quant Time: Mar 15 08:09:25 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	A2	18a(H)-30-Norneohopane-C29T	0.579	0.000#	100.0#	0#	-58.82#
101	A2	17a(H)-Diahopane (X)	0.579	0.000#	100.0#	0#	-58.96#
102	A2	30-Normoretane (T17)	0.579	0.000#	100.0#	0#	-59.51#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.579	0.000#	100.0#	0#	-59.91#
104	A2	Moretane (T20)	0.579	0.000#	100.0#	0#	-60.83#
105	A2	30-Homohopane-22S (T21)	0.579	0.000#	100.0#	0#	-61.94#
106	A2	30-Homohopane-22R (T22)	0.579	0.000#	100.0#	0#	-62.18#
107	A2	30,31-Bishomohopane-22S (T2	0.579	0.000#	100.0#	0#	-65.66#
108	A2	30,31-Bishomohopane-22R (T2	0.579	0.000#	100.0#	0#	-66.28#
109	A2	30,31-Trishomohopane-22S (T	0.579	0.000#	100.0#	0#	-65.66#
110	A2	30,31-Trishomohopane-22R (T	0.579	0.000#	100.0#	0#	-66.28#
111	A2	Tetrakishomohopane-22S (T32	0.579	0.000#	100.0#	0#	-68.30#
112	A2	Tetrakishomohopane-22R (T33	0.579	0.000#	100.0#	0#	-69.18#
113	A2	Pentakishomohopane-22S (T34	0.579	0.000#	100.0#	0#	-71.41#
114	A2	Pentakishomohopane-22R (T35	0.579	0.000#	100.0#	0#	-72.68#
115	SA1	5B(H)Cholane - Surr	0.224	0.235	-4.9	63	0.01
116	A2	13b(H),17a(H)-20S-Diacholes	0.224	0.000#	100.0#	0#	-52.56#
117	A2	13b(H),17a(H)-20R-Diacholes	0.224	0.000#	100.0#	0#	-53.07#
118	A2	13b,17a-20S-Methyldiacholes	0.224	0.000#	100.0#	0#	-53.90#
119	A2	14a(H),17a(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-54.93#
120	A2	14a(H),17a(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.50#
121	A2	13b,17a-20R-Ethyldiacholest	0.224	0.000#	100.0#	0#	-55.81#
122	A2	13a,17b-20S-Ethyldiacholest	0.224	0.000#	100.0#	0#	-56.09#
123	A2	14a,17a-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.27#
124	A2	14a,17a-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-57.01#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.37#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-58.32#
127	A2	14b(H),17b(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.02#
128	A2	14b(H),17b(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-55.12#
129	A2	14b,17b-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-56.44#
130	A2	14b,17b-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.53#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-57.63#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.69#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30983.D
Acq On : 15 Mar 2005 9:34 am
Operator : AC
Sample : C3031402
Misc : WHGRPAA38 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

3/15/05

Quant Time: Mar 15 17:31:13 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	60	-0.01
2	t	Decalin	0.432	0.350	19.0	55	-0.01
3	A1	trans-Decalin	0.469	0.382	18.6	53	-0.01
4	t	cis-Decalin	0.349	0.283	18.9	52	-0.01
5	A2	C1-Decalins	0.469	0.000#	100.0#	0#	-19.89#
6	A2	C2-Decalins	0.469	0.000#	100.0#	0#	-22.01#
7	A2	C3-Decalins	0.469	0.000#	100.0#	0#	-24.94#
8	A2	C4-Decalins	0.469	0.000#	100.0#	0#	-28.96#
9	A1	Naphthalene	2.148	1.772	17.5	54	0.00
10	A2	C1-Naphthalenes	2.148	0.000#	100.0#	0#	-25.34#
11	A2	C2-Naphthalenes	2.148	0.000#	100.0#	0#	-28.72#
12	A2	C3-Naphthalenes	2.148	0.000#	100.0#	0#	-31.51#
13	A2	C4-Naphthalenes	2.148	0.000#	100.0#	0#	-34.80#
14	s	2-Methylnaphthalene-d10	1.128	1.051	6.8	58	0.00
15	t	2-Methylnaphthalene	1.359	1.194	12.1	56	-0.01
16	t	1-Methylnaphthalene	1.276	1.132	11.3	57	-0.01
17	A1	Benzothiophene	1.537	1.367	11.1	56	0.00
18	A2	C1-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-24.86#
19	A2	C2-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-28.94#
20	A2	C3-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-31.30#
21	A2	C4-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-33.82#
22	t	Biphenyl	1.713	1.458	14.9	56	0.00
23	t	2,6-Dimethylnaphthalene	1.188	1.079	9.2	59	-0.01
24	t	Dibenzofuran	1.791	1.686	5.9	59	0.00
25	t	Acenaphthylene	1.641	1.981	-20.7	76	-0.01
26	t	Acenaphthene	1.272	1.262	0.8	63	-0.01
27	t	2,3,5-Trimethylnaphthalene	1.117	1.124	-0.6	64	0.00
28	A1	Fluorene	1.436	1.445	-0.6	64	-0.01
29	A2	C1-Fluorenes	1.436	0.000#	100.0#	0#	-35.68#
30	A2	C2-Fluorenes	1.436	0.000#	100.0#	0#	-38.31#
31	A2	C3-Fluorenes	1.436	0.000#	100.0#	0#	-40.51#
32	A1	Dibenzothiophene	1.941	1.955	-0.7	63	0.00
33	A2	OTP	1.941	0.000#	100.0#	0#	-39.47#
34	A2	C1-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-38.91#
35	A2	C2-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-40.93#
36	A2	C3-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-43.09#
37	A2	C4-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-44.18#
38	A1	Phenanthrene	2.177	2.095	3.8	63	0.00
39	A2	C1-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-40.28#
40	A2	C2-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-42.44#
41	A2	5AA IS BKGD	2.177	0.000#	100.0#	0#	-42.20#
42	A2	C3-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-44.65#
43	A2	C4-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-47.26#
44	A2	Retene	2.177	0.000#	100.0#	0#	-46.00#
45	t	Anthracene	1.688	1.891	-12.0	70	0.00
46	t	Carbazole	0.000	0.000#	0.0	0#	-46.36#
47	t	1-Methylphenanthrene	1.536	1.556	-1.3	63	0.00
48	A1	Fluoranthene	2.379	2.561	-7.7	66	0.00
49	A2	Benzo(b)fluorene	2.379	0.000#	100.0#	0#	-46.09#
50	s	Pyrene-d10	1.827	1.969	-7.8	66	0.00

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Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30983.D
Acq On : 15 Mar 2005 9:34 am
Operator : AC
Sample : C3031402
Misc : WHGRPAA38 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 15 17:31:13 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	A1	Pyrene	2.369	2.482	-4.8	64	0.01
52	A2	C1-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-45.79#
53	A2	C2-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-47.94#
54	A2	C3-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-50.37#
55	A2	C4-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-51.99#
56	A1	Naphthobenzothiophene	2.391	2.387	0.2	63	0.01
57	A2	Naphthobenzothiophene-2,1-D	2.391	2.431	-1.7	64	0.01
58	A2	Naphthobenzothiophene-1,2-D	2.391	0.000#	100.0#	0#	-49.11#
59	A2	Naphthobenzothiophene-2,3-D	2.391	0.000#	100.0#	0#	-49.47#
60	A2	C1-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-50.38#
61	A2	C2-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-52.79#
62	A2	C3-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-54.69#
63	A2	C4-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-55.92#
64	i	Chrysene-d12	1.000	1.000	0.0	63	0.01
65	t	Benz[a]anthracene	1.240	1.331	-7.3	69	0.00
66	t	Chrysene	1.340	1.288	3.9	61	0.01
67	A1	Chrysene/Triphenylene	1.340	1.278	4.6	61	0.01
68	A2	C1-Chrysenes	1.340	0.000#	100.0#	0#	-51.78#
69	A2	C2-Chrysenes	1.340	0.000#	100.0#	0#	-54.25#
70	A2	BBF-d12 Surr BKGD	1.340	0.000#	100.0#	0#	-54.55#
71	A2	C3-Chrysenes	1.340	0.000#	100.0#	0#	-57.22#
72	A2	C4-Chrysenes	1.340	0.000#	100.0#	0#	-56.83#
73	s	Benzo[b]fluoranthene-d12	1.215	1.201	1.2	64	0.02
74	t	Benzo[b]fluoranthene	1.627	1.525	6.3	63	0.01
75	A1	Benzo[k]fluoranthene	1.630	1.576	3.3	63	0.02
76	A2	Benzo[a]fluoranthene	1.630	0.000#	100.0#	0#	-55.25#
77	t	Benzo[e]pyrene	1.557	1.402	10.0	61	0.02
78	t	Benzo[a]pyrene	1.496	1.462	2.3	66	0.02
79	t	Perylene	1.496	1.417	5.3	64	0.04
80	t	Indeno[1,2,3-cd]pyrene	1.908	1.740	8.8	59	0.06
81	t	Dibenz[a,h]anthracene	1.917	1.749	8.8	57	0.05
82	t	Benzo[g,h,i]perylene	2.076	1.675	19.3	52	0.06
83	t	17a(H),21B(H)-hopane - C30H	0.579	0.485	16.2	62	0.01
84	A1	Hopane (T19)	0.579	0.485	16.2	62	0.01
85	A2	C23 Tricyclic Terpane (T4)	0.579	0.000#	100.0#	0#	-47.20#
86	A2	C24 Tricyclic Terpane (T5)	0.579	0.000#	100.0#	0#	-48.07#
87	A2	C25 Tricyclic Terpane (T6)	0.579	0.000#	100.0#	0#	-49.89#
88	A2	C24 Tetracyclic Terpane (T6	0.579	0.000#	100.0#	0#	-51.37#
89	A2	C26 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-51.11#
90	A2	C26 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-51.23#
91	A2	C28 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-53.96#
92	A2	C28 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-54.16#
93	A2	C29 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-54.77#
94	A2	C29 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-55.00#
95	A2	18a-22,29,30-Trisnorneohopa	0.579	0.000#	100.0#	0#	-56.17#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.579	0.000#	100.0#	0#	-56.75#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.579	0.000#	100.0#	0#	-57.56#
98	A2	17a(H),21b(H)-25-Norhopane	0.579	0.000#	100.0#	0#	-57.85#
99	A2	30-Norhopane (T15)	0.579	0.000#	100.0#	0#	-58.71#

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30983.D
Acq On : 15 Mar 2005 9:34 am
Operator : AC
Sample : C3031402
Misc : WHGRPAA38 500NG/ML
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Mar 15 17:31:13 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	A2	18a(H)-30-Norneohopane-C29T	0.579	0.000#	100.0#	0#	-58.82#
101	A2	17a(H)-Diahopane (X)	0.579	0.000#	100.0#	0#	-58.96#
102	A2	30-Normoretane (T17)	0.579	0.000#	100.0#	0#	-59.51#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.579	0.000#	100.0#	0#	-59.91#
104	A2	Moretane (T20)	0.579	0.000#	100.0#	0#	-60.83#
105	A2	30-Homohopane-22S (T21)	0.579	0.000#	100.0#	0#	-61.94#
106	A2	30-Homohopane-22R (T22)	0.579	0.000#	100.0#	0#	-62.18#
107	A2	30,31-Bishomohopane-22S (T2	0.579	0.000#	100.0#	0#	-65.66#
108	A2	30,31-Bishomohopane-22R (T2	0.579	0.000#	100.0#	0#	-66.28#
109	A2	30,31-Trishomohopane-22S (T	0.579	0.000#	100.0#	0#	-65.66#
110	A2	30,31-Trishomohopane-22R (T	0.579	0.000#	100.0#	0#	-66.28#
111	A2	Tetrakishomohopane-22S (T32	0.579	0.000#	100.0#	0#	-68.30#
112	A2	Tetrakishomohopane-22R (T33	0.579	0.000#	100.0#	0#	-69.18#
113	A2	Pentakishomohopane-22S (T34	0.579	0.000#	100.0#	0#	-71.41#
114	A2	Pentakishomohopane-22R (T35	0.579	0.000#	100.0#	0#	-72.68#
115	SA1	5B(H)Cholane - Surr	0.224	0.240	-7.1	71	0.00
116	A2	13b(H),17a(H)-20S-Diacholes	0.224	0.000#	100.0#	0#	-52.56#
117	A2	13b(H),17a(H)-20R-Diacholes	0.224	0.000#	100.0#	0#	-53.07#
118	A2	13b,17a-20S-Methyldiacholes	0.224	0.000#	100.0#	0#	-53.90#
119	A2	14a(H),17a(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-54.93#
120	A2	14a(H),17a(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.50#
121	A2	13b,17a-20R-Ethyldiacholest	0.224	0.000#	100.0#	0#	-55.81#
122	A2	13a,17b-20S-Ethyldiacholest	0.224	0.000#	100.0#	0#	-56.09#
123	A2	14a,17a-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.27#
124	A2	14a,17a-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-57.01#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.37#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-58.32#
127	A2	14b(H),17b(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.02#
128	A2	14b(H),17b(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-55.12#
129	A2	14b,17b-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-56.44#
130	A2	14b,17b-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.53#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-57.63#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.69#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30995.D
Acq On : 15 Mar 2005 8:17 pm
Operator : AC
Sample : C3031403
Misc : WHGRPAA38 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 16 06:58:34 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

MG 3-16-05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	56	-0.01
2	t	Decalin	0.432	0.335	22.5	49	-0.01
3	A1	trans-Decalin	0.469	0.371	20.9	48	-0.01
4	t	cis-Decalin	0.349	0.281	19.5	48	-0.01
5	A2	C1-Decalins	0.469	0.000#	100.0#	0#	-19.89#
6	A2	C2-Decalins	0.469	0.000#	100.0#	0#	-22.01#
7	A2	C3-Decalins	0.469	0.000#	100.0#	0#	-24.94#
8	A2	C4-Decalins	0.469	0.000#	100.0#	0#	-28.96#
9	A1	Naphthalene	2.148	1.736	19.2	49	0.00
10	A2	C1-Naphthalenes	2.148	0.000#	100.0#	0#	-25.34#
11	A2	C2-Naphthalenes	2.148	0.000#	100.0#	0#	-28.72#
12	A2	C3-Naphthalenes	2.148	0.000#	100.0#	0#	-31.51#
13	A2	C4-Naphthalenes	2.148	0.000#	100.0#	0#	-34.80#
14	s	2-Methylnaphthalene-d10	1.128	1.024	9.2	52	0.00
15	t	2-Methylnaphthalene	1.359	1.167	14.1	51	-0.01
16	t	1-Methylnaphthalene	1.276	1.105	13.4	52	-0.01
17	A1	Benzothiophene	1.537	1.325	13.8	51	0.00
18	A2	C1-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-24.86#
19	A2	C2-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-28.94#
20	A2	C3-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-31.30#
21	A2	C4-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-33.82#
22	t	Biphenyl	1.713	1.408	17.8	50	0.00
23	t	2,6-Dimethylnaphthalene	1.188	1.045	12.0	53	-0.01
24	t	Dibenzofuran	1.791	1.677	6.4	55	0.00
25	t	Acenaphthylene	1.641	1.941	-18.3	69	-0.01
26	t	Acenaphthene	1.272	1.272	0.0	59	-0.01
27	t	2,3,5-Trimethylnaphthalene	1.117	1.120	-0.3	59	-0.01
28	A1	Fluorene	1.436	1.441	-0.3	59	-0.01
29	A2	C1-Fluorenes	1.436	0.000#	100.0#	0#	-35.68#
30	A2	C2-Fluorenes	1.436	0.000#	100.0#	0#	-38.31#
31	A2	C3-Fluorenes	1.436	0.000#	100.0#	0#	-40.51#
32	A1	Dibenzothiophene	1.941	1.979	-2.0	59	0.00
33	A2	OTP	1.941	0.000#	100.0#	0#	-39.47#
34	A2	C1-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-38.91#
35	A2	C2-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-40.93#
36	A2	C3-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-43.09#
37	A2	C4-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-44.18#
38	A1	Phenanthrene	2.177	2.112	3.0	59	-0.01
39	A2	C1-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-40.28#
40	A2	C2-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-42.44#
41	A2	5AA IS BKGD	2.177	0.000#	100.0#	0#	-42.20#
42	A2	C3-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-44.65#
43	A2	C4-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-47.26#
44	A2	Retene	2.177	0.000#	100.0#	0#	-46.00#
45	t	Anthracene	1.688	2.057	-21.9	70	0.00
46	t	Carbazole	0.000	0.000#	0.0	0#	-46.36#
47	t	1-Methylphenanthrene	1.536	1.603	-4.4	61	0.00
48	A1	Fluoranthene	2.379	2.563	-7.7	61	-0.01
49	A2	Benzo(b)fluorene	2.379	0.000#	100.0#	0#	-46.09#
50	s	Pyrene-d10	1.827	1.988	-8.8	62	0.00

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30995.D
Acq On : 15 Mar 2005 8:17 pm
Operator : AC
Sample : C3031403
Misc : WHGRPAA38 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 16 06:58:34 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	A1	Pyrene	2.369	2.524	-6.5	61	0.00
52	A2	C1-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-45.79#
53	A2	C2-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-47.94#
54	A2	C3-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-50.37#
55	A2	C4-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-51.99#
56	A1	Naphthobenzothiophene	2.391	2.351	1.7	58	0.01
57	A2	Naphthobenzothiophene-2,1-D	2.391	2.409	-0.8	59	0.01
58	A2	Naphthobenzothiophene-1,2-D	2.391	0.000#	100.0#	0#	-49.11#
59	A2	Naphthobenzothiophene-2,3-D	2.391	0.000#	100.0#	0#	-49.47#
60	A2	C1-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-50.38#
61	A2	C2-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-52.79#
62	A2	C3-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-54.69#
63	A2	C4-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-55.92#
64	i	Chrysene-d12	1.000	1.000	0.0	60	0.01
65	t	Benz[a]anthracene	1.240	1.266	-2.1	62	0.00
66	t	Chrysene	1.340	1.301	2.9	59	0.00
67	A1	Chrysene/Triphenylene	1.340	1.312	2.1	59	0.00
68	A2	C1-Chrysenes	1.340	0.000#	100.0#	0#	-51.78#
69	A2	C2-Chrysenes	1.340	0.000#	100.0#	0#	-54.25#
70	A2	BBF-d12 Surr BKGD	1.340	0.000#	100.0#	0#	-54.55#
71	A2	C3-Chrysenes	1.340	0.000#	100.0#	0#	-57.22#
72	A2	C4-Chrysenes	1.340	0.000#	100.0#	0#	-56.83#
73	s	Benzo[b]fluoranthene-d12	1.215	1.150	5.3	58	0.01
74	t	Benzo[b]fluoranthene	1.627	1.469	9.7	58	0.01
75	A1	Benzo[k]fluoranthene	1.630	1.507	7.5	57	0.02
76	A2	Benzo[a]fluoranthene	1.630	0.000#	100.0#	0#	-55.25#
77	t	Benzo[e]pyrene	1.557	1.354	13.0	56	0.02
78	t	Benzo[a]pyrene	1.496	1.358	9.2	58	0.02
79	t	Perylene	1.496	1.345	10.1	58	0.02
80	t	Indeno[1,2,3-cd]pyrene	1.908	1.579	17.2	51	0.05
81	t	Dibenz[a,h]anthracene	1.917	1.581	17.5	49	0.05
82	t	Benzo[g,h,i]perylene	2.076	1.569	24.4	46	0.05
83	t	17a(H),21B(H)-hopane - C30H	0.579	0.443	23.5	54	0.00
84	A1	Hopane (T19)	0.579	0.443	23.5	54	0.00
85	A2	C23 Tricyclic Terpane (T4)	0.579	0.000#	100.0#	0#	-47.20#
86	A2	C24 Tricyclic Terpane (T5)	0.579	0.000#	100.0#	0#	-48.07#
87	A2	C25 Tricyclic Terpane (T6)	0.579	0.000#	100.0#	0#	-49.89#
88	A2	C24 Tetracyclic Terpane (T6	0.579	0.000#	100.0#	0#	-51.37#
89	A2	C26 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-51.11#
90	A2	C26 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-51.23#
91	A2	C28 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-53.96#
92	A2	C28 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-54.16#
93	A2	C29 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-54.77#
94	A2	C29 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-55.00#
95	A2	18a-22,29,30-Trisnorneohopa	0.579	0.000#	100.0#	0#	-56.17#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.579	0.000#	100.0#	0#	-56.75#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.579	0.000#	100.0#	0#	-57.56#
98	A2	17a(H),21b(H)-25-Norhopane	0.579	0.000#	100.0#	0#	-57.85#
99	A2	30-Norhopane (T15)	0.579	0.000#	100.0#	0#	-58.71#

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Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14\
Data File : P30995.D
Acq On : 15 Mar 2005 8:17 pm
Operator : AC
Sample : C3031403
Misc : WHGRPAA38 500NG/ML
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Mar 16 06:58:34 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	A2	18a(H)-30-Norneohopane-C29T	0.579	0.000#	100.0#	0#	-58.82#
101	A2	17a(H)-Diahopane (X)	0.579	0.000#	100.0#	0#	-58.96#
102	A2	30-Normoretane (T17)	0.579	0.000#	100.0#	0#	-59.51#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.579	0.000#	100.0#	0#	-59.91#
104	A2	Moretane (T20)	0.579	0.000#	100.0#	0#	-60.83#
105	A2	30-Homohopane-22S (T21)	0.579	0.000#	100.0#	0#	-61.94#
106	A2	30-Homohopane-22R (T22)	0.579	0.000#	100.0#	0#	-62.18#
107	A2	30,31-Bishomohopane-22S (T2	0.579	0.000#	100.0#	0#	-65.66#
108	A2	30,31-Bishomohopane-22R (T2	0.579	0.000#	100.0#	0#	-66.28#
109	A2	30,31-Trishomohopane-22S (T	0.579	0.000#	100.0#	0#	-65.66#
110	A2	30,31-Trishomohopane-22R (T	0.579	0.000#	100.0#	0#	-66.28#
111	A2	Tetrakishomohopane-22S (T32	0.579	0.000#	100.0#	0#	-68.30#
112	A2	Tetrakishomohopane-22R (T33	0.579	0.000#	100.0#	0#	-69.18#
113	A2	Pentakishomohopane-22S (T34	0.579	0.000#	100.0#	0#	-71.41#
114	A2	Pentakishomohopane-22R (T35	0.579	0.000#	100.0#	0#	-72.68#
115	SA1	5B(H)Cholane - Surr	0.224	0.229	-2.2	65	0.00
116	A2	13b(H),17a(H)-20S-Diacholes	0.224	0.000#	100.0#	0#	-52.56#
117	A2	13b(H),17a(H)-20R-Diacholes	0.224	0.000#	100.0#	0#	-53.07#
118	A2	13b,17a-20S-Methyldiacholes	0.224	0.000#	100.0#	0#	-53.90#
119	A2	14a(H),17a(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-54.93#
120	A2	14a(H),17a(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.50#
121	A2	13b,17a-20R-Ethyldiacholest	0.224	0.000#	100.0#	0#	-55.81#
122	A2	13a,17b-20S-Ethyldiacholest	0.224	0.000#	100.0#	0#	-56.09#
123	A2	14a,17a-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.27#
124	A2	14a,17a-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-57.01#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.37#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-58.32#
127	A2	14b(H),17b(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.02#
128	A2	14b(H),17b(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-55.12#
129	A2	14b,17b-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-56.44#
130	A2	14b,17b-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.53#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-57.63#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.69#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH18\
Data File : P31047.D
Acq On : 18 Mar 2005 2:13 pm
Operator : AC
Sample : C3031801
Misc : WHGRPAA38 500NG/ML
ALS Vial : 96 Sample Multiplier: 1

Quant Time: Mar 18 15:51:51 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	39	0.00
2	t	Decalin	0.432	0.354	18.1	36	0.00
3	A1	trans-Decalin	0.469	0.410	12.6	36	0.00
4	t	cis-Decalin	0.349	0.306	12.3	36	0.00
5	A2	C1-Decalins	0.469	0.000#	100.0#	0#	-19.89#
6	A2	C2-Decalins	0.469	0.000#	100.0#	0#	-22.01#
7	A2	C3-Decalins	0.469	0.000#	100.0#	0#	-24.94#
8	A2	C4-Decalins	0.469	0.000#	100.0#	0#	-28.96#
9	A1	Naphthalene	2.148	1.733	19.3	34	0.01
10	A2	C1-Naphthalenes	2.148	0.000#	100.0#	0#	-25.34#
11	A2	C2-Naphthalenes	2.148	0.000#	100.0#	0#	-28.72#
12	A2	C3-Naphthalenes	2.148	0.000#	100.0#	0#	-31.51#
13	A2	C4-Naphthalenes	2.148	0.000#	100.0#	0#	-34.80#
14	s	2-Methylnaphthalene-d10	1.128	0.944	16.3	33	0.01
15	t	2-Methylnaphthalene	1.359	1.174	13.6	35	0.01
16	t	1-Methylnaphthalene	1.276	1.125	11.8	36	0.01
17	A1	Benzothiophene	1.537	1.291	16.0	34	0.02
18	A2	C1-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-24.86#
19	A2	C2-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-28.94#
20	A2	C3-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-31.30#
21	A2	C4-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-33.82#
22	t	Biphenyl	1.713	1.431	16.5	35	0.02
23	t	2,6-Dimethylnaphthalene	1.188	1.049	11.7	37	0.01
24	t	Dibenzofuran	1.791	1.661	7.3	37	0.02
25	t	Acenaphthylene	1.641	1.788	-9.0	44	0.01
26	t	Acenaphthene	1.272	1.242	2.4	40	0.00
27	t	2,3,5-Trimethylnaphthalene	1.117	1.113	0.4	41	0.01
28	A1	Fluorene	1.436	1.356	5.6	39	0.01
29	A2	C1-Fluorenes	1.436	0.000#	100.0#	0#	-35.68#
30	A2	C2-Fluorenes	1.436	0.000#	100.0#	0#	-38.31#
31	A2	C3-Fluorenes	1.436	0.000#	100.0#	0#	-40.51#
32	A1	Dibenzothiophene	1.941	1.881	3.1	39	0.02
33	A2	OTP	1.941	0.000#	100.0#	0#	-39.47#
34	A2	C1-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-38.91#
35	A2	C2-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-40.93#
36	A2	C3-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-43.09#
37	A2	C4-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-44.18#
38	A1	Phenanthrene	2.177	1.962	9.9	38	0.01
39	A2	C1-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-40.28#
40	A2	C2-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-42.44#
41	A2	5AA IS BKGD	2.177	0.000#	100.0#	0#	-42.20#
42	A2	C3-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-44.65#
43	A2	C4-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-47.26#
44	A2	Retene	2.177	0.000#	100.0#	0#	-46.00#
45	t	Anthracene	1.688	1.417	16.1	33	0.02
46	t	Carbazole	0.000	0.000#	0.0	0#	-46.36#
47	t	1-Methylphenanthrene	1.536	1.443	6.1	38	0.02
48	A1	Fluoranthene	2.379	2.495	-4.9	41	0.01
49	A2	Benzo(b)fluorene	2.379	0.000#	100.0#	0#	-46.09#
50	s	Pyrene-d10	1.827	1.998	-9.4	43	0.01

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Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH18\
Data File : P31047.D
Acq On : 18 Mar 2005 2:13 pm
Operator : AC
Sample : C3031801
Misc : WHGRPAA38 500NG/ML
ALS Vial : 96 Sample Multiplier: 1

Quant Time: Mar 18 15:51:51 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	A1	Pyrene	2.369	2.499	-5.5	41	0.01
52	A2	C1-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-45.79#
53	A2	C2-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-47.94#
54	A2	C3-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-50.37#
55	A2	C4-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-51.99#
56	A1	Naphthobenzothiophene	2.391	2.087	12.7	35	0.02
57	A2	Naphthobenzothiophene-2,1-D	2.391	2.352	1.6	40	0.02
58	A2	Naphthobenzothiophene-1,2-D	2.391	0.000#	100.0#	0#	-49.11#
59	A2	Naphthobenzothiophene-2,3-D	2.391	0.000#	100.0#	0#	-49.47#
60	A2	C1-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-50.38#
61	A2	C2-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-52.79#
62	A2	C3-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-54.69#
63	A2	C4-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-55.92#
64	i	Chrysene-d12	1.000	1.000	0.0	41	0.04
65	t	Benz[a]anthracene	1.240	1.125	9.3	38	0.02
66	t	Chrysene	1.340	1.303	2.8	40	0.02
67	A1	Chrysene/Triphenylene	1.340	1.280	4.5	40	0.02
68	A2	C1-Chrysenes	1.340	0.000#	100.0#	0#	-51.78#
69	A2	C2-Chrysenes	1.340	0.000#	100.0#	0#	-54.25#
70	A2	BBF-d12 Surr BKGD	1.340	0.000#	100.0#	0#	-54.55#
71	A2	C3-Chrysenes	1.340	0.000#	100.0#	0#	-57.22#
72	A2	C4-Chrysenes	1.340	0.000#	100.0#	0#	-56.83#
73	s	Benzo[b]fluoranthene-d12	1.215	1.154	5.0	40	0.04
74	t	Benzo[b]fluoranthene	1.627	1.395	14.3	38	0.04
75	A1	Benzo[k]fluoranthene	1.630	1.513	7.2	40	0.05
76	A2	Benzo[a]fluoranthene	1.630	0.000#	100.0#	0#	-55.25#
77	t	Benzo[e]pyrene	1.557	1.341	13.9	38	0.04
78	t	Benzo[a]pyrene	1.496	1.234	17.5	36	0.05
79	t	Perylene	1.496	1.284	14.2	38	0.05
80	t	Indeno[1,2,3-cd]pyrene	1.908	1.394	26.9	31	0.09
81	t	Dibenz[a,h]anthracene	1.917	1.463	23.7	31	0.07
82	t	Benzo[g,h,i]perylene	2.076	1.559	24.9	32	0.09
83	t	17a(H),21B(H)-hopane - C30H	0.579	0.440	24.0	37	0.01
84	A1	Hopane (T19)	0.579	0.440	24.0	37	0.01
85	A2	C23 Tricyclic Terpane (T4)	0.579	0.000#	100.0#	0#	-47.20#
86	A2	C24 Tricyclic Terpane (T5)	0.579	0.000#	100.0#	0#	-48.07#
87	A2	C25 Tricyclic Terpane (T6)	0.579	0.000#	100.0#	0#	-49.89#
88	A2	C24 Tetracyclic Terpane (T6	0.579	0.000#	100.0#	0#	-51.37#
89	A2	C26 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-51.11#
90	A2	C26 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-51.23#
91	A2	C28 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-53.96#
92	A2	C28 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-54.16#
93	A2	C29 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-54.77#
94	A2	C29 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-55.00#
95	A2	18a-22,29,30-Trisnorneohopa	0.579	0.000#	100.0#	0#	-56.17#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.579	0.000#	100.0#	0#	-56.75#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.579	0.000#	100.0#	0#	-57.56#
98	A2	17a(H),21b(H)-25-Norhopane	0.579	0.000#	100.0#	0#	-57.85#
99	A2	30-Norhopane (T15)	0.579	0.000#	100.0#	0#	-58.71#

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Evaluate Continuing Calibration Report

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH18\
Data File : P31047.D
Acq On : 18 Mar 2005 2:13 pm
Operator : AC
Sample : C3031801
Misc : WHGRPAA38 500NG/ML
ALS Vial : 96 Sample Multiplier: 1

Quant Time: Mar 18 15:51:51 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	A2	18a(H)-30-Norneohopane-C29T	0.579	0.000#	100.0#	0#	-58.82#
101	A2	17a(H)-Diahopane (X)	0.579	0.000#	100.0#	0#	-58.96#
102	A2	30-Normoretane (T17)	0.579	0.000#	100.0#	0#	-59.51#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.579	0.000#	100.0#	0#	-59.91#
104	A2	Moretane (T20)	0.579	0.000#	100.0#	0#	-60.83#
105	A2	30-Homohopane-22S (T21)	0.579	0.000#	100.0#	0#	-61.94#
106	A2	30-Homohopane-22R (T22)	0.579	0.000#	100.0#	0#	-62.18#
107	A2	30,31-Bishomohopane-22S (T2	0.579	0.000#	100.0#	0#	-65.66#
108	A2	30,31-Bishomohopane-22R (T2	0.579	0.000#	100.0#	0#	-66.28#
109	A2	30,31-Trishomohopane-22S (T	0.579	0.000#	100.0#	0#	-65.66#
110	A2	30,31-Trishomohopane-22R (T	0.579	0.000#	100.0#	0#	-66.28#
111	A2	Tetrakishomohopane-22S (T32	0.579	0.000#	100.0#	0#	-68.30#
112	A2	Tetrakishomohopane-22R (T33	0.579	0.000#	100.0#	0#	-69.18#
113	A2	Pentakishomohopane-22S (T34	0.579	0.000#	100.0#	0#	-71.41#
114	A2	Pentakishomohopane-22R (T35	0.579	0.000#	100.0#	0#	-72.68#
115	SA1	5B(H)Cholane - Surr	0.224	0.229	-2.2	44	0.00
116	A2	13b(H),17a(H)-20S-Diacholes	0.224	0.000#	100.0#	0#	-52.56#
117	A2	13b(H),17a(H)-20R-Diacholes	0.224	0.000#	100.0#	0#	-53.07#
118	A2	13b,17a-20S-Methyldiacholes	0.224	0.000#	100.0#	0#	-53.90#
119	A2	14a(H),17a(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-54.93#
120	A2	14a(H),17a(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.50#
121	A2	13b,17a-20R-Ethyldiacholest	0.224	0.000#	100.0#	0#	-55.81#
122	A2	13a,17b-20S-Ethyldiacholest	0.224	0.000#	100.0#	0#	-56.09#
123	A2	14a,17a-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.27#
124	A2	14a,17a-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-57.01#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.37#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-58.32#
127	A2	14b(H),17b(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.02#
128	A2	14b(H),17b(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-55.12#
129	A2	14b,17b-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-56.44#
130	A2	14b,17b-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.53#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-57.63#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.69#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : C:\MSDChem\4\DATA\MARCH05\MARCH18\
Data File : P31049.D
Acq On : 18 Mar 2005 6:18 pm
Operator : AC
Sample : C3031802
Misc : WHGRPAA38 500NG/ML
ALS Vial : 98 Sample Multiplier: 1

Quant Time: Mar 21 06:44:43 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

MS 3-21-05

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	i	Acenaphthene-d10	1.000	1.000	0.0	40	0.00
2	t	Decalin	0.432	0.351	18.8	37	-0.01
3	A1	trans-Decalin	0.469	0.394	16.0	37	-0.01
4	t	cis-Decalin	0.349	0.299	14.3	37	0.00
5	A2	C1-Decalins	0.469	0.000#	100.0#	0#	-19.89#
6	A2	C2-Decalins	0.469	0.000#	100.0#	0#	-22.01#
7	A2	C3-Decalins	0.469	0.000#	100.0#	0#	-24.94#
8	A2	C4-Decalins	0.469	0.000#	100.0#	0#	-28.96#
9	A1	Naphthalene	2.148	1.813	15.6	37	0.01
10	A2	C1-Naphthalenes	2.148	0.000#	100.0#	0#	-25.34#
11	A2	C2-Naphthalenes	2.148	0.000#	100.0#	0#	-28.72#
12	A2	C3-Naphthalenes	2.148	0.000#	100.0#	0#	-31.51#
13	A2	C4-Naphthalenes	2.148	0.000#	100.0#	0#	-34.80#
14	s	2-Methylnaphthalene-d10	1.128	0.962	14.7	35	0.01
15	t	2-Methylnaphthalene	1.359	1.082	20.4	34	0.01
16	t	1-Methylnaphthalene	1.276	1.066	16.5	36	0.00
17	A1	Benzothiophene	1.537	1.343	12.6	37	0.02
18	A2	C1-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-24.86#
19	A2	C2-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-28.94#
20	A2	C3-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-31.30#
21	A2	C4-Benzo(b)thiophenes	1.537	0.000#	100.0#	0#	-33.82#
22	t	Biphenyl	1.713	1.462	14.7	37	0.01
23	t	2,6-Dimethylnaphthalene	1.188	1.067	10.2	39	0.00
24	t	Dibenzofuran	1.791	1.643	8.3	39	0.02
25	t	Acenaphthylene	1.641	1.843	-12.3	47	0.01
26	t	Acenaphthene	1.272	1.265	0.6	42	0.00
27	t	2,3,5-Trimethylnaphthalene	1.117	1.089	2.5	41	0.00
28	A1	Fluorene	1.436	1.362	5.2	41	0.00
29	A2	C1-Fluorenes	1.436	0.000#	100.0#	0#	-35.68#
30	A2	C2-Fluorenes	1.436	0.000#	100.0#	0#	-38.31#
31	A2	C3-Fluorenes	1.436	0.000#	100.0#	0#	-40.51#
32	A1	Dibenzothiophene	1.941	1.860	4.2	40	0.02
33	A2	OTP	1.941	0.000#	100.0#	0#	-39.47#
34	A2	C1-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-38.91#
35	A2	C2-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-40.93#
36	A2	C3-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-43.09#
37	A2	C4-Dibenzothiophenes	1.941	0.000#	100.0#	0#	-44.18#
38	A1	Phenanthrene	2.177	1.999	8.2	40	0.01
39	A2	C1-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-40.28#
40	A2	C2-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-42.44#
41	A2	5AA IS BKGD	2.177	0.000#	100.0#	0#	-42.20#
42	A2	C3-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-44.65#
43	A2	C4-Phenanthrenes/Anthracene	2.177	0.000#	100.0#	0#	-47.26#
44	A2	Retene	2.177	0.000#	100.0#	0#	-46.00#
45	t	Anthracene	1.688	1.893	-12.1	47	0.02
46	t	Carbazole	0.000	0.000#	0.0	0#	-46.36#
47	t	1-Methylphenanthrene	1.536	1.559	-1.5	43	0.02
48	A1	Fluoranthene	2.379	2.573	-8.2	44	0.01
49	A2	Benzo(b)fluorene	2.379	0.000#	100.0#	0#	-46.09#
50	s	Pyrene-d10	1.827	1.985	-8.6	44	0.01

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Evaluate Continuing Calibration Report

Data Path : C:\MSDChem\4\DATA\MARCH05\MARCH18\
Data File : P31049.D
Acq On : 18 Mar 2005 6:18 pm
Operator : AC
Sample : C3031802
Misc : WHGRPAA38 500NG/ML
ALS Vial : 98 Sample Multiplier: 1

Quant Time: Mar 21 06:44:43 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
51	A1	Pyrene	2.369	2.454	-3.6	43	0.02
52	A2	C1-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-45.79#
53	A2	C2-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-47.94#
54	A2	C3-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-50.37#
55	A2	C4-Fluoranthenes/Pyrenes	2.369	0.000#	100.0#	0#	-51.99#
56	A1	Naphthobenzothiophene	2.391	2.374	0.7	42	0.02
57	A2	Naphthobenzothiophene-2,1-D	2.391	2.384	0.3	42	0.02
58	A2	Naphthobenzothiophene-1,2-D	2.391	0.000#	100.0#	0#	-49.11#
59	A2	Naphthobenzothiophene-2,3-D	2.391	0.000#	100.0#	0#	-49.47#
60	A2	C1-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-50.38#
61	A2	C2-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-52.79#
62	A2	C3-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-54.69#
63	A2	C4-Naphthobenzothiophenes	2.391	0.000#	100.0#	0#	-55.92#
64	i	Chrysene-d12	1.000	1.000	0.0	43	0.04
65	t	Benz[a]anthracene	1.240	1.220	1.6	43	0.02
66	t	Chrysene	1.340	1.340	0.0	43	0.02
67	A1	Chrysene/Triphenylene	1.340	1.340	0.0	43	0.02
68	A2	C1-Chrysenes	1.340	0.000#	100.0#	0#	-51.78#
69	A2	C2-Chrysenes	1.340	0.000#	100.0#	0#	-54.25#
70	A2	BBF-d12 Surr BKGD	1.340	0.000#	100.0#	0#	-54.55#
71	A2	C3-Chrysenes	1.340	0.000#	100.0#	0#	-57.22#
72	A2	C4-Chrysenes	1.340	0.000#	100.0#	0#	-56.83#
73	s	Benzo[b]fluoranthene-d12	1.215	1.163	4.3	42	0.04
74	t	Benzo[b]fluoranthene	1.627	1.430	12.1	40	0.04
75	A1	Benzo[k]fluoranthene	1.630	1.533	6.0	42	0.05
76	A2	Benzo[a]fluoranthene	1.630	0.000#	100.0#	0#	-55.25#
77	t	Benzo[e]pyrene	1.557	1.377	11.6	41	0.04
78	t	Benzo[a]pyrene	1.496	1.396	6.7	43	0.05
79	t	Perylene	1.496	1.355	9.4	41	0.05
80	t	Indeno[1,2,3-cd]pyrene	1.908	1.549	18.8	36	0.09
81	t	Dibenz[a,h]anthracene	1.917	1.547	19.3	34	0.07
82	t	Benzo[g,h,i]perylene	2.076	1.610	22.4	34	0.10
83	t	17a(H),21B(H)-hopane - C30H	0.579	0.454	21.6	39	0.01
84	A1	Hopane (T19)	0.579	0.454	21.6	39	0.01
85	A2	C23 Tricyclic Terpane (T4)	0.579	0.000#	100.0#	0#	-47.20#
86	A2	C24 Tricyclic Terpane (T5)	0.579	0.000#	100.0#	0#	-48.07#
87	A2	C25 Tricyclic Terpane (T6)	0.579	0.000#	100.0#	0#	-49.89#
88	A2	C24 Tetracyclic Terpane (T6	0.579	0.000#	100.0#	0#	-51.37#
89	A2	C26 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-51.11#
90	A2	C26 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-51.23#
91	A2	C28 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-53.96#
92	A2	C28 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-54.16#
93	A2	C29 Tricyclic Terpane-22S (	0.579	0.000#	100.0#	0#	-54.77#
94	A2	C29 Tricyclic Terpane-22R (	0.579	0.000#	100.0#	0#	-55.00#
95	A2	18a-22,29,30-Trisnorneohopa	0.579	0.000#	100.0#	0#	-56.17#
96	A2	17a(H)-22,29,30-Trisnorhopa	0.579	0.000#	100.0#	0#	-56.75#
97	A2	17a/b,21b/a 28,30-Bisnorhop	0.579	0.000#	100.0#	0#	-57.56#
98	A2	17a(H),21b(H)-25-Norhopane	0.579	0.000#	100.0#	0#	-57.85#
99	A2	30-Norhopane (T15)	0.579	0.000#	100.0#	0#	-58.71#

Evaluate Continuing Calibration Report

Data Path : C:\MSDChem\4\DATA\MARCH05\MARCH18\
Data File : P31049.D
Acq On : 18 Mar 2005 6:18 pm
Operator : AC
Sample : C3031802
Misc : WHGRPAA38 500NG/ML
ALS Vial : 98 Sample Multiplier: 1

Quant Time: Mar 21 06:44:43 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\PAH30302.M
Quant Title : Decalins & Alkylated PAH's
QLast Update : Thu Mar 03 13:41:16 2005
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 10% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
100	A2	18a(H)-30-Norneohopane-C29T	0.579	0.000#	100.0#	0#	-58.82#
101	A2	17a(H)-Diahopane (X)	0.579	0.000#	100.0#	0#	-58.96#
102	A2	30-Normoretane (T17)	0.579	0.000#	100.0#	0#	-59.51#
103	A2	18a(H)&18b(H)-Oleananes (T1	0.579	0.000#	100.0#	0#	-59.91#
104	A2	Moretane (T20)	0.579	0.000#	100.0#	0#	-60.83#
105	A2	30-Homohopane-22S (T21)	0.579	0.000#	100.0#	0#	-61.94#
106	A2	30-Homohopane-22R (T22)	0.579	0.000#	100.0#	0#	-62.18#
107	A2	30,31-Bishomohopane-22S (T2	0.579	0.000#	100.0#	0#	-65.66#
108	A2	30,31-Bishomohopane-22R (T2	0.579	0.000#	100.0#	0#	-66.28#
109	A2	30,31-Trishomohopane-22S (T	0.579	0.000#	100.0#	0#	-65.66#
110	A2	30,31-Trishomohopane-22R (T	0.579	0.000#	100.0#	0#	-66.28#
111	A2	Tetrakishomohopane-22S (T32	0.579	0.000#	100.0#	0#	-68.30#
112	A2	Tetrakishomohopane-22R (T33	0.579	0.000#	100.0#	0#	-69.18#
113	A2	Pentakishomohopane-22S (T34	0.579	0.000#	100.0#	0#	-71.41#
114	A2	Pentakishomohopane-22R (T35	0.579	0.000#	100.0#	0#	-72.68#
115	SA1	5B(H)Cholane - Surr	0.224	0.236	-5.4	47	0.00
116	A2	13b(H),17a(H)-20S-Diacholes	0.224	0.000#	100.0#	0#	-52.56#
117	A2	13b(H),17a(H)-20R-Diacholes	0.224	0.000#	100.0#	0#	-53.07#
118	A2	13b,17a-20S-Methyldiacholes	0.224	0.000#	100.0#	0#	-53.90#
119	A2	14a(H),17a(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-54.93#
120	A2	14a(H),17a(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.50#
121	A2	13b,17a-20R-Ethyldiacholest	0.224	0.000#	100.0#	0#	-55.81#
122	A2	13a,17b-20S-Ethyldiacholest	0.224	0.000#	100.0#	0#	-56.09#
123	A2	14a,17a-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.27#
124	A2	14a,17a-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-57.01#
125	A2	14a(H),17a(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.37#
126	A2	14a(H),17a(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-58.32#
127	A2	14b(H),17b(H)-20R-Cholestan	0.224	0.000#	100.0#	0#	-55.02#
128	A2	14b(H),17b(H)-20S-Cholestan	0.224	0.000#	100.0#	0#	-55.12#
129	A2	14b,17b-20R-Methylcholestan	0.224	0.000#	100.0#	0#	-56.44#
130	A2	14b,17b-20S-Methylcholestan	0.224	0.000#	100.0#	0#	-56.53#
131	A2	14b(H),17b(H)-20R-Ethylchol	0.224	0.000#	100.0#	0#	-57.63#
132	A2	14b(H),17b(H)-20S-Ethylchol	0.224	0.000#	100.0#	0#	-57.69#

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**
Lab ID: **C1030401**

Case: **N/A** SDG: **N/A**

		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**
Standard:		26334	30.32	44884	49.99
Upper Limit:		52668	30.82	89768	50.49
Lower Limit:		13167	29.82	22442	49.49
Client ID	**Lab ID**				
Blank	SS030205B06	22926	30.33	42284	49.99
OFF-SD-OFF2-0006-01	0502110-01	28226	30.32	49411	49.96
OFF-SD-OFF2-0006-01	0502110-01 D	27041	30.32	48314	49.96
OFF-SD-OFF2-0006-01	0502110-01 M	28674	30.33	49658	49.97
OFF-SD-411-0006-01	0502110-02	28662	30.33	49230	49.97
OFF-SD-OFF3-0006-01	0502110-03	28377	30.33	48457	49.99
OFF-SD-414-0006-01	0502110-04	35825	30.33	60541	49.99
OFF-SD-SD5-0006-01	0502110-05	29932	30.33	50921	49.99
CCV	C1030402	24753	30.34	42394	50.01

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**
Lab ID: **C1030402**

Case: **N/A** SDG: **N/A**

		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**
Standard:		24753	30.34	42394	50.01
Upper Limit:		49506	30.84	84788	50.51
Lower Limit:		12376	29.84	21197	49.51
Client ID	**Lab ID**				
OFF-SD-442-0006-01	0502110-06	29271	30.33	50237	49.99
OFF-SD-OFF6-0006-01	0502110-07	30632	30.33	53121	49.99
OFF-SD-OFF7-0006-01	0502110-08	30705	30.33	52045	49.99
OFF-SD-JPC03-0006-01	0502110-09	28952	30.33	50701	49.99
OFF-SD-OTSOF075-0006-01	0502110-10	28727	30.33	47765	50.00
OFF-SD-OTSOF075A-0006-01	0502110-11	28674	30.33	47564	50.00
OFF-SD-OTSOF093-0006-01	0502110-12	29266	30.33	49956	50.01
CCV	C1030403	23910	30.34	41550	50.02

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

03/21/05 08:06

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Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**
Lab ID: **C1030403**

Case: **N/A** SDG: **N/A**

		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**
Standard:		23910	30.34	41550	50.02
Upper Limit:		47820	30.84	83100	50.52
Lower Limit:		11955	29.84	20775	49.52
Client ID	**Lab ID**				
OFF-SD-DUP02-01	0502110-16	29199	30.34	50181	50.01
CCV	C1030404	22799	30.34	39176	50.01

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**
Lab ID: **C1030701**

Case: **N/A** SDG: **N/A**

		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**
Standard:		19716	30.33	34447	50.00
Upper Limit:		39432	30.83	68894	50.50
Lower Limit:		9858	29.83	17224	49.50
Client ID	**Lab ID**				
OFF-SD-442-0006-01	0502110-06E	18296	30.33	33690	49.99
OFF-SD-OTSOF075-0006-0	0502110-10E	18391	30.33	34725	49.99
CCV	C1030702	19559	30.33	35910	50.00

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**
Lab ID: **C3031401**

Case: **N/A** SDG: **N/A**

		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**
Standard:		11217	30.31	22642	49.90
Upper Limit:		22434	30.81	45284	50.40
Lower Limit:		5608	29.81	11321	49.40
Client ID	**Lab ID**				
LCS	SS031405BS02	12407	30.31	24128	49.90
LCSD	SS031405BSD02	12467	30.31	24668	49.90
OFF-SD-414-DEBRIS1	0502110-13	13247	30.31	26888	49.90
OFF-SD-414-DEBRIS1	0502110-13 D	14765	30.31	29010	49.90
OFF-SD-414-DEBRIS2	0502110-14	17646	30.31	32617	50.00
LCS	SS030205BS04	14427	30.31	29325	49.91
LCSD	SS030205BSD03	14460	30.31	29178	49.91
OFF-SD-DUP01-01	0502110-15	15303	30.31	31585	49.90
CCV	C3031402	13254	30.31	25268	49.90

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**
Lab ID: **C3031402**

Case: **N/A** SDG: **N/A**

		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**
Standard:		13254	30.31	25268	49.90
Upper Limit:		26508	30.81	50536	50.40
Lower Limit:		6627	29.81	12634	49.40
Client ID	**Lab ID**				
OFF-SD-414-DEBRIS2	0502110-14E	12447	30.31	24878	49.90
Blank	SS031405B02	13103	30.31	24901	49.90
CCV	C3031403	12312	30.31	23998	49.90

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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Form VIII
Internal Standard Summary
Alkylated Polynuclear Aromatic Hydrocarbons

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**
Lab ID: **C3031801**

Case: **N/A** SDG: **N/A**

		Acenaphthene-d10		Chrysene-d12	
		Area	**RT**	**Area**	**RT**
Standard:		8500	30.32	16543	49.92
Upper Limit:		17000	30.82	33086	50.42
Lower Limit:		4250	29.82	8272	49.42
Client ID	**Lab ID**				
OFF-SD-DUP02-01	0502110-16E	8413	30.32	17949	49.91
CCV	C3031802	8878	30.32	17127	49.92

N/A - Not Applicable

Area Upper Limit = +100% of internal standard.
Area Lower Limit = -50% of internal standard.
RT = Retention Time.
RT Upper Limit = +0.5 minutes of internal standard RT.
RT Lower Limit = -0.5 minutes of internal standard RT.

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Woods Hole Group Environmental Laboratories
Batch Prep Report

03/02/2005 0502110ST - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount	Final Volume	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume	Vialed By	Vialed Date	Cell Number
0502110-01	D	Shaker	RPR	3/2/05	3/4/05		30.61	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-01	M	Shaker	RPR	3/2/05	3/4/05		30.13	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-01	SAM	Shaker	RPR	3/2/05	3/4/05		30.06	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-02	SAM	Shaker	RPR	3/2/05	3/4/05		30.52	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-03	SAM	Shaker	RPR	3/2/05	3/4/05		30.37	8	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-04	SAM	Shaker	RPR	3/2/05	3/4/05		30.19	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-05	SAM	Shaker	RPR	3/2/05	3/4/05		30.02	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-06	SAM	Shaker	RPR	3/2/05	3/4/05		30.54	4	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-07	SAM	Shaker	RPR	3/2/05	3/4/05		30.63	25	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-08	SAM	Shaker	RPR	3/2/05	3/4/05		30.32	12.5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-09	SAM	Shaker	RPR	3/2/05	3/4/05		30.66	2	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-10	SAM	Shaker	RPR	3/2/05	3/4/05		30.6	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-11	SAM	Shaker	RPR	3/2/05	3/4/05		30.69	20	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-12	SAM	Shaker	RPR	3/2/05	3/4/05		30.3	2.5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-15	SAM	Shaker	RPR	3/2/05	3/14/05		30.81	16.67	False	RPR	3/3/05	KD Flask	0.15	MAL	3/14/05	
0502110-16	SAM	Shaker	RPR	3/2/05	3/4/05		30.7	4	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
SS030205B06	B	Shaker	RPR	3/2/05	3/4/05		30	2	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
SS030205BS04	BS	Shaker	RPR	3/2/05	3/14/05		30	2.5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/14/05	
SS030205BSD03	BSD	Shaker	RPR	3/2/05	3/14/05		30	2	False	RPR	3/3/05	KD Flask	0.15	MAL	3/14/05	

Woods Hole Group Environmental Laboratories
Batch Prep Report

03/02/2005 0502110ST - OP NEWFIE

Lab ID	Notes
0502110-01	1st Prep
0502110-01	1st Prep
0502110-01	1st Prep
0502110-02	1st Prep
0502110-03	1st Prep
0502110-04	1st Prep
0502110-05	1st Prep
0502110-06	1st Prep
0502110-07	1st Prep
0502110-08	1st Prep
0502110-09	1st Prep
0502110-10	1st Prep
0502110-11	1st Prep
0502110-12	1st Prep
0502110-15	1st Prep: Archive portion was alumina cleaned and sent to analysis
0502110-16	1st Prep
SS030205B06	1st Prep: This sample was blown down very low.
SS030205BS04	1st Prep: After 100ul was taken from the archive portion for analysis the portion was alumina cleaned, 400ul was cleaned for a FV of 2.5
SS030205BSD03	1st Prep: Archive portion was alumina cleaned and sent to analysis

Woods Hole Group Environmental Laboratories
Batch Weight Report
03/02/2005

Lab ID	QC Type	0502110ST - Sample
0502110-01	D	30.61
0502110-01	SAM	30.06
0502110-01M	OP NEWFIE	30.13
0502110-01M	OP SHC	30.13
0502110-02	SAM	30.52
0502110-03	SAM	30.37
0502110-04	SAM	30.19
0502110-05	SAM	30.02
0502110-06	SAM	30.54
0502110-07	SAM	30.63
0502110-08	SAM	30.32
0502110-09	SAM	30.66
0502110-10	SAM	30.6
0502110-11	SAM	30.69
0502110-12	SAM	30.3
0502110-15	SAM	30.81
0502110-16	SAM	30.7
SS030205B06	B	30
SS030205BS04BS	OP NEWFIE	30
SS030205BS04BS	OP SHC	30
SS030205BSD03BSD	OP NEWFIE	30
SS030205BSD03BSD	OP SHC	30

METHYLENE CHLORIDE A52E20 (tank) A44E26(bottle)
ACETONE: Y10E42 HEXANE: A51E71

COPPER: A49597 SULFURIC ACID: 3102114

GLASS WOOL: 4303309989 SODIUM SULFATE: A45580

DIATEMACEOUS EARTH: 33604

Woods Hole Group Environmental Laboratories
Batch Prep Spike Report

03/02/2005 0502110ST - OP NEWFIE Analyst: RPR Witness: KLA

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
0502110-01	D	WHGRPAA28	100	µl						
0502110-01	M	WHGRPAA28	100	µl	WHGRPAA52	100	µl			
0502110-01	SAM	WHGRPAA28	100	µl						
0502110-02	SAM	WHGRPAA28	100	µl						
0502110-03	SAM	WHGRPAA28	100	µl						
0502110-04	SAM	WHGRPAA28	100	µl						
0502110-05	SAM	WHGRPAA28	100	µl						
0502110-06	SAM	WHGRPAA28	100	µl						
0502110-07	SAM	WHGRPAA28	100	µl						
0502110-08	SAM	WHGRPAA28	100	µl						
0502110-09	SAM	WHGRPAA28	100	µl						
0502110-10	SAM	WHGRPAA28	100	µl						
0502110-11	SAM	WHGRPAA28	100	µl						
0502110-12	SAM	WHGRPAA28	100	µl						
0502110-15	SAM	WHGRPAA28	100	µl						
0502110-16	SAM	WHGRPAA28	100	µl						
SS030205B06	B	WHGRPAA28	100	µl						
SS030205BS04	BS	WHGRPAA28	100	µl	WHGRPAA52	100	µl			
SS030205BSD03	BSD	WHGRPAA28	100	µl	WHGRPAA52	100	µl			

Test: ALK-PAH/SHC

Standard Type: *Surrogate* / *LCS* / *MS-MSD*

LFB / *Other* _____

ID# WHGRPAA28
Conc. PAH @ 100ug/ml / SHC @ 50 ug/ml

Test: ALK-PAH/SHC

Standard Type: *Surrogate* / *LCS* / *MS-MSD*

LFB / *Other* _____

ID# WHGRPAA52
Conc. PAH @ 100 ug/ml / SHC @ 50 ug/ml

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Woods Hole Group Environmental Laboratories
Batch Clean Up Report

03/02/2005 0502110ST - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Prefraction ation Volume	Fractionation Amount	Fractionation Factor	Transfer Volume	
0502110-01	D	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15	
0502110-01	M	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15	
0502110-01	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15	
0502110-02	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15	
0502110-03	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	1.25	0	0.15	
0502110-04	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15	
0502110-05	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15	
0502110-06	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2.5	0	0.15	
0502110-07	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	0.4	0	0.15	
0502110-08	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	0.8	0	0.15	
0502110-09	SAM	3610	MP	3/3/05				MAL	3/4/05	False	2	1	0	0.15	
0502110-10	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15	
0502110-11	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	0.5	0	0.15	
0502110-12	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	4	0	0.15	
0502110-15	SAM	3610	MP	3/3/05				MAL	3/4/05 ~~3/4/05~~	False	10	0.6	0	0.15	re-cleaned 4/13/05
0502110-16	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2.5	0	0.15	
SS030205B06	B	3610	MP	3/3/05				MAL	3/4/05	False	1	0.5	0	0.15	
SS030205BS04	BS	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.4	0	0.15	
SS030205BSD03	BSD	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.5	0	0.15	

Woods Hole Group Environmental Laboratories
Batch Clean Up Report

03/02/2005 0502110ST - OP NEWFIE

Lab ID	Notes
0502110-01	This sample was copper cleaned
0502110-01	This sample was copper cleaned
0502110-01	This sample was copper cleaned
0502110-02	This sample was copper cleaned
0502110-03	This sample was copper cleaned
0502110-04	This sample was copper cleaned
0502110-05	This sample was copper cleaned
0502110-06	This sample was copper cleaned
0502110-07	This sample was copper cleaned
0502110-08	This sample was copper cleaned
0502110-09	This sample was copper cleaned
0502110-10	This sample was copper cleaned
0502110-11	This sample was copper cleaned
0502110-12	This sample was copper cleaned
0502110-15	This sample was copper cleaned
0502110-16	This sample was copper cleaned
SS030205B06	This sample was copper cleaned
SS030205BS04	This sample was copper cleaned
SS030205BSD03	This sample was copper cleaned

Gravimetric Determination For Column

Analyst: MAL
Date: 3/4/05

BATCH: 0502110ST

Entered by: MAL
Verified by: MAL

ETR #	Sample #	QC (MB, LCS, D)	Final Volume of Extract (ul)	Aliquot Removed #1 (ul)	Aliquot Removed #2 (ul)	Aliquot Weight #1 (mg)	Aliquot Weight #2 (mg)	Total Extract Oil Weight (mg)	Volume Removed For Column (ul)	Oil to Column (mg)	Dilution Factor	QC (%R, RPD)
		LCS	10000	50	NA	0.230	NA	46.00	NA	NA	NA	92%
0502110	1		10000	50	NA	0.252	NA	50.40	2000	10.08	5.00	
0502110	1	D	10000	50	NA	0.328	NA	65.60	2000	13.12	5.00	26%
0502110	1	MS	10000	50	NA	0.191	NA	38.20	2000	7.64	5.00	
0502110	2		10000	50	NA	0.200	NA	40.00	2000	8.00	5.00	
0502110	3		10000	50	NA	0.341	NA	68.20	1250	8.53	8.00	
0502110	4		10000	50	NA	0.222	NA	44.40	2000	8.88	5.00	
0502110	5		10000	50	NA	0.223	NA	44.60	2000	8.92	5.00	
0502110	6		10000	50	NA	0.175	NA	35.00	2500	8.75	4.00	
0502110	7		10000	50	NA	1.142	NA	228.40	400	9.14	25.00	
0502110	8		10000	50	NA	0.536	NA	107.20	800	8.58	12.50	
0502110	9		2000	50	NA	0.103	NA	4.12	1000	2.06	2.00	
0502110	10		10000	50	NA	0.218	NA	43.60	2000	8.72	5.00	
0502110	11		10000	50	NA	0.926	NA	185.20	500	9.26	20.00	
0502110	12		10000	50	NA	0.119	NA	23.80	4000	9.52	2.50	
0502110	15		10000	50	NA	0.737	NA	147.40	600	8.84	16.67	
0502110	16		10000	50	NA	0.168	NA	33.60	2500	8.40	4.00	

Total Extract Oil Weight (mg) = (Final Volume of Extract / Aliquot Removed) * Aliquot Weight
Sample Weight (mg/mL) = 20 * Aliquot Weight (mg)
LCS TV = 5 mg/mL

Oil to Column = Total Extract Oil Weight (mg) / Dilution Factor
Dilution Factor = Final Volumne of Extract (ul) / Volume Removed For Column (ul)

TEMPLATE: GravimetricT.XLT
Duplicates should agree within +/- 10%.

Gravimetric Determination For Column

Analyst: MAL
Date: 3/4/05

BATCH: 0502110ST

Entered by: MAL
Verified by:

ETR #	Sample #	QC (MB, LCS, D)	Final Volume of Extract (ul)	Aliquot Removed #1 (ul)	Aliquot Removed #2 (ul)	Aliquot Weight #1 (mg)	Aliquot Weight #2 (mg)	Total Extract Oil Weight (mg)	Volume Removed For Column (ul)	Oil to Column (mg)	Dilution Factor	QC (%R, RPD)
		LCS	10000	50	NA	0.230	NA		NA	NA	NA	0%
0502110	1		10000	50	NA	0.252	NA					
0502110	1	D	10000	50	NA	0.328	NA					#VALUE!
0502110	1	MS	10000	50	NA	0.191	NA					
0502110	2		10000	50	NA	0.200	NA					
0502110	3		10000	50	NA	0.341	NA					
0502110	4		10000	50	NA	0.222	NA					
0502110	5		10000	50	NA	0.223	NA					
0502110	6		10000	50	NA	0.175	NA					
0502110	7		10000	50	NA	1.142	NA					
0502110	8		10000	50	NA	0.536	NA					
0502110	9		2000	50	NA	0.103	NA					
0502110	10		10000	50	NA	0.218	NA					
0502110	11		10000	50	NA	0.926	NA					
0502110	12		10000	50	NA	0.119	NA					
~~0502110~~	~~13~~		~~10000~~	~~50~~	~~NA~~		~~NA~~					
~~0502110~~	~~14~~		~~10000~~	~~50~~	~~NA~~		~~NA~~					
0502110	15		10000	50	NA	0.737	NA					
0502110	16		10000	50	NA	0.168	NA					

Total Extract Oil Weight (mg) = (Final Volume of Extract / Aliquot Removed) * Aliquot Weight
Sample Weight (mg/mL) = 20 * Aliquot Weight (mg)
LCS TV = 5 mg/mL

Oil to Column = Total Extract Oil Weight (mg) / Dilution Factor
Dilution Factor = Final Volumne of Extract (ul) / Volume Removed For Column (ul)

TEMPLATE: GravimetricT.XLT
Duplicates should agree within +/- 10%.

Woods Hole Group Internal Std Tracking Form

Project Name: Coasters Harbor
ETR: 0502110ST

Lab ID	Extract Vol (uL)	Standard ID and Vial #	Vol IS Added (uL)	Pre-Injection Vol (uL)[1]	Final Volume Equivalent	Spiked By	Aliquot 1 Removed (uL)	Aliquot 2 Removed (uL)	Date
0502110-01	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-01D	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-01MS	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-02	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-03	900	WHGRPAA31 #3	100	1000	8	MAL	150	150	3/4/05
0502110-04	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-05	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-06	900	WHGRPAA31 #3	100	1000	4	MAL	150	150	3/4/05
0502110-07	900	WHGRPAA31 #3	100	1000	25	MAL	150	150	3/4/05
0502110-08	900	WHGRPAA31 #3	100	1000	12.5	MAL	150	150	3/4/05
0502110-09	900	WHGRPAA31 #3	100	1000	2	MAL	150	150	3/4/05
0502110-10	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-11	900	WHGRPAA31 #3	100	1000	20	MAL	150	150	3/4/05
0502110-12	900	WHGRPAA31 #3	100	1000	2.5	MAL	150	150	3/4/05
0502110-15	900	WHGRPAA31 #3	100	1000	16.67	MAL	150	150	3/14/05
0502110-16	900	WHGRPAA31 #3	100	1000	4	MAL	150	150	3/4/05
SS030205B06	900	WHGRPAA31 #3	100	1000	2	MAL	150	150	3/4/05
SS030205BS04	900	WHGRPAA31 #3	100	1000	2.5	MAL	150	150	3/14/05
SS030205BSD03	900	WHGRPAA31 #3	100	1000	2	MAL	150	150	3/14/05

[1] Includes Internal Std

PAH 1

Forensic Dilution Sheet

Project Name: Newfields
Project
ETR # : 0502110
Matrix : Soils
Analysis Type : GC/MS

Relinquished By:
Date: 3/7/05 10:26 AM

Received By:
Date: 3/7/05

Sample ID	Init. Sample Vol (uL) *Measured*	Init. Sample Vol (uL) *Adjusted*	Aliquot removed from Initial Sample Volume	Final Volume for GC Analysis (ul)	Diluted Sample ID	Dilution Spiked With: STD ID/ul AMT	Date/ Initials	Dilution of Conc.	Total Dilution of Amount
0502110-10	700	700	250	1000	0502110-10E	WHGRPAA31 75UL		4	4
" -06	700	700	250	1000	" 06E	↓		4	4
-16	500	550	250	1000	16E	↓	MH/3/18/5	4	4

* added 3/18/05 CM.

SS030205BS04 Rerun (pyrene high)
0502110-15 Rerun (high IS)

Dilution Calculations Validated by: MS
Date: 3-8-05

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Woods Hole Group Environmental Laboratories
Batch Prep Report

03/14/2005 0502110SOLID - OP NEWFIE

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount	Final Volume	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume	Vialed By	Vialed Date	Cell Number
0502110-13	D	Shaker	MAL	3/10/05	3/14/05		10.16	50	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
0502110-13	SAM	Shaker	MAL	3/10/05	3/14/05		10.11	50	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
0502110-14	SAM	Shaker	MAL	3/10/05	3/14/05		10.37	50	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
SS031405B02	B	Shaker	MAL	3/10/05	3/14/05		30	2	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
SS031405BS02	BS	Shaker	MAL	3/10/05	3/14/05		30	2	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
SS031405BSD02	BSD	Shaker	MAL	3/10/05	3/14/05		30	2	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	

Woods Hole Group Environmental Laboratories
Batch Prep Report

03/14/2005 0502110SOLID - OP NEWFIE

Lab ID	Notes
0502110-13	1st Prep
0502110-13	1st Prep
0502110-14	1st Prep
SS031405B02	1st Prep
SS031405BS02	1st Prep
SS031405BSD02	1st Prep

Woods Hole Group Environmental Laboratories
Batch Weight Report
03/14/2005

Lab ID	QC Type	0502110SOLID - Sample
0502110-13	D	10.16
0502110-13	SAM	10.11
0502110-14	SAM	10.37
SS031405B02	B	30
SS031405BS02BS	OP NEWFIE	30
SS031405BS02BS	OP SHC	30
SS031405BSD02BSD	OP NEWFIE	30
SS031405BSD02BSD	OP SHC	30

METHYLENE CHLORIDE A52E20 (tank) A44E26(bottle)
ACETONE: Y10E42 HEXANE: A51E71

COPPER: A49597 SULFURIC ACID: 3102114

GLASS WOOL: 4303309989 SODIUM SULFATE: A45580

DIATEMACEOUS EARTH: 33604

Woods Hole Group Environmental Laboratories
Batch Prep Spike Report

03/14/2005 0502110SOLID - OP NEWFIE Analyst: MAL Witness: RPR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
0502110-13	D	WHGRPAA56	100	µl						
0502110-13	SAM	WHGRPAA56	100	µl						
0502110-14	SAM	WHGRPAA56	100	µl						
SS031405B02	B	WHGRPAA28	100	µl						
SS031405BS02	BS	WHGRPAA28	100	µl	WHGRPAA52	100	µl			
SS031405BSD02	BSD	WHGRPAA28	100	µl	WHGRPAA52	100	µl			

Test: AIKPAH/SHC

Standard Type: Surrogate / LCS / MS-MSD

LFB / Other High

ID# WHGRPAA56

Conc. 100ug/ml / 5mg/ml

Test: AIKPAH/SHC

Standard Type: Surrogate / LCS / MS-MSD

LFB / Other Low

ID# WHGRPAA28

Conc. 10ug/ml / 500ug/ml

Test: AIKPAH/SHC

Standard Type: Surrogate / LCS / MS-MSD

LFB / Other

ID# WHGRPAA52

Conc. 10ug/ml / 500ug/ml

Woods Hole Group Environmental Laboratories
Batch Clean Up Report

03/14/2005 0502110SOLID - OP NEWFIE

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Prefractionation Volume	Fractionation Amount	Fractionation Factor	Transfer Volume
0502110-13	D	3610	MAL	3/11/05				MAL	3/14/05	False	25	0.5	0	0.15
0502110-13	SAM	3610	MAL	3/11/05				MAL	3/14/05	False	25	0.5	0	0.15
0502110-14	SAM	3610	MAL	3/11/05				MAL	3/14/05	False	25	0.5	0	0.15
SS031405B02	B	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.5	0	0.15
SS031405BS02	BS	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.5	0	0.15
SS031405BSD02	BSD	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.5	0	0.15

Woods Hole Group Environmental Laboratories
Batch Clean Up Report

03/14/2005 0502110SOLID - OP NEWFIE

Lab ID	Notes
0502110-13	This sample was copper cleaned
0502110-13	This sample was copper cleaned
0502110-14	This sample was copper cleaned
SS031405B02	This sample was copper cleaned
SS031405BS02	This sample was copper cleaned
SS031405BSD02	This sample was copper cleaned

Gravimetric Determination For Column

Analyst: MAL
Date: 3/11/05

BATCH: 0502110SOLID

Entered by: MAL
Verified by: MAL

ETR #	Sample #	QC (MB, LCS, D)	Final Volume of Extract (ul)	Aliquot Removed #1 (ul)	Aliquot Removed #2 (ul)	Aliquot Weight #1 (mg)	Aliquot Weight #2 (mg)	Total Extract Oil Weight (mg)	Volume Removed For Column (ul)	Oil to Column (mg)	Dilution Factor	QC (%R, RPD)
		LCS	10000	50	NA	0.241	NA	48.20	NA	NA	NA	96%
0502110	13		25000	50	NA	0.996	NA	498.00	500	9.96	50.00	
0502110	13	D	25000	50	NA	1.031	NA	515.50	500	10.31	50.00	3%
0502110	14		25000	50	NA	0.965	NA	482.50	500	9.65	50.00	

Total Extract Oil Weight (mg) = (Final Volume of Extract / Aliquot Removed) * Aliquot Weight
Sample Weight (mg/mL) = 20 * Aliquot Weight (mg)
LCS TV = 5 mg/mL

Oil to Column = Total Extract Oil Weight (mg) / Dilution Factor
Dilution Factor = Final Volumne of Extract (ul) / Volume Removed For Column (ul)

TEMPLATE: GravimetricT.XLT
Duplicates should agree within +/- 10%.

Gravimetric Determination For Column

Analyst: MAL
Date: 3/11/05

BATCH: 0502113SOLID

Entered by: MAL
Verified by: MAL

ETR #	Sample #	QC (MB, LCS, D)	Final Volume of Extract (ul)	Aliquot Removed #1 (ul)	Aliquot Removed #2 (ul)	Aliquot Weight #1 (mg)	Aliquot Weight #2 (mg)	Total Extract Oil Weight (mg)	Volume Removed For Column (ul)	Oil to Column (mg)	Dilution Factor	QC (%R, RPD)
		LCS	10000	50	NA	0.241	NA		NA	NA	NA	0%
0502113	13		10000	50	NA	0.996	NA					
0502113	13	D	10000	50	NA	1.031	NA					#VALUE!
0502113	14		10000	50	NA	0.965	NA					

Total Extract Oil Weight (mg) = (Final Volume of Extract / Aliquot Removed) * Aliquot Weight
Sample Weight (mg/mL) = 20 * Aliquot Weight (mg)
LCS TV = 5 mg/mL

Oil to Column = Total Extract Oil Weight (mg) / Dilution Factor
Dilution Factor = Final Volumne of Extract (ul) / Volume Removed For Column (ul)

TEMPLATE: GravimetricT.XLT
Duplicates should agree within +/- 10%.

Woods Hole Group Internal Std Tracking Form

Project Name: Coasters Harbor
ETR: 0502110Solid

Lab ID	Extract Vol (uL)	Standard ID and Vial #	Vol IS Added (uL)	Pre-Injection Vol (uL)[1]	Final Volume Equivalent	Spiked By	Aliquot 1 Removed (uL)	Aliquot 2 Removed (uL)	Date
0502110-13	900	WHGRPAA31 4of5	100	1000	50	MAL	150	150	3/1/05
0502110-13D	900	WHGRPAA31 4of5	100	1000	50	MAL	150	150	3/1/05
0502110-14	900	WHGRPAA31 4of5	100	1000	50	MAL	150	150	3/1/05
SS031405B02	900	WHGRPAA31 4of5	100	1000	2	MAL	150	150	3/1/05
SS031405BS02	900	WHGRPAA31 4of5	100	1000	2	MAL	150	150	3/1/05
SS031405BSD02	900	WHGRPAA31 4of5	100	1000	2	MAL	150	150	3/1/05

[1] Includes Internal Std

Forensic Dilution Sheet

Project Name: Newfields
Project
ETR # : 0502110
Matrix : Soils
Analysis Type : GC/MS

Relinquished By: MS
Date: 03/15/05

Received By: CM
Date: 4/12/05

Dilution made 3/15/05

Sample ID	Init. Sample Vol (uL) *Measured*	Init. Sample Vol (uL) *Adjusted*	Aliquot removed from Initial Sample Volume	Final Volume for GC Analysis (ul)	Diluted Sample ID	Dilution Spiked With: STD ID/ul AMT	Date/ Initials	Dilution of Conc.	Total Dilution of Amount
0502110-14	700	700	10	1000	0502110-14E	WHGRPAA31 99UL		100	100

Dilution Calculations Validated by: CM
Date: 4/12/05

Sequence Name: C:\MSDChem\1\sequence\FEB05\S1021601.S
Comment:
Operator: AC
Data Path: C:\MSDCHEM\1\DATA\FEB05\FEB16\

Top	Pre-Seq Cmd:	
Instrument Control	Pre-Seq Cmd:	
Data Analysis	Pre-Seq Cmd:	
	Post-Seq Cmd:	
Instrument Control	Post-Seq Cmd:	
Data Analysis	Post-Seq Cmd:	

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line	Sample Name/Misc Info				
1)	DualTwr				
2)	SepGC1				
3)	RearSamp	51	P11786	PAH10216	C1021601-AFID
4)	Sample	1	P11787	PAH10216	PRIME
5)	RearSamp	56	P11787A	PAH10216	DCM
6)	Sample	1	P11787B	PAH10216	PRIME
7)	RearSamp	52	P11788	PAH10216	SA1021601-AFID
8)	Sample	2	P11789	PAH10216	DCM
9)	RearSamp	53	P11790	PAH10216	SFF1021601
10)	Sample	3	P11791	PAH10216	I1021601
11)	RearSamp	54	P11792	PAH10216	LAN1021601-AFID
12)	Sample	4	P11793	PAH10216	I1021602
13)	RearSamp	55	P11794	PAH10216	ANS1021601-AFID
14)	Sample	5	P11795	PAH10216	I1021603
15)	RearSamp	56	P11796	PAH10216	DCM-AFID
16)	Sample	6	P11797	PAH10216	I1021604
17)	RearSamp	56	P11798	PAH10216	DCM-AFID
18)	Sample	7	P11799	PAH10216	I1021605
19)	RearSamp	56	P11800	PAH10216	DCM-AFID
20)	Sample	8	P11801	PAH10216	I1021606
21)	RearSamp	56	P11802	PAH10216	DCM-AFID
22)	Sample	9	P11803	PAH10216	I1021607
23)	RearSamp	56	P11804	PAH10216	DCM-AFID
24)	Sample	10	P11805	PAH10216	ANS1021601
25)	RearSamp	56	P11806	PAH10216	DCM-AFID
26)	Sample	11	P11807	PAH10216	SA1021601
27)	RearSamp	56	P11808	PAH10216	DCM-AFID
28)	Sample	12	P11809	PAH10216	SFF1021601
29)	RearSamp	56	P11810	PAH10216	DCM-AFID
30)	Sample	13	P11811	PAH10216	LAN1021601
31)	RearSamp	56	P11812	PAH10216	DCM-AFID
32)	Sample	14	P11813	PAH10216	DCM
33)	RearSamp	56	P11814	PAH10216	DCM-AFID
34)	Sample	15	P11815	PAH10216	Q1021601
35)	RearSamp	57	P11816	PAH10216	C1021602-AFID
36)	Sample	16	P11817	PAH10216	C1021601
37)					

Sequence Name: C:\MSDChem\1\sequence\MARCH05\S1030401.S
Comment:
Operator: AC
Data Path: C:\MSDCHEM\1\DATA\MARCH05\MARCH04\

Top Pre-Seq Cmd:
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Post-Seq Cmd:
Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

3/4/05.

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Seq Con't

Line				Sample Name/Misc Info
1)	DualTwr			
2)	SepGC1			
3)	RearSamp	51	P12067	PAH10216 C1030401-AFID
4)	Sample	1	P12068	PAH10216 C1030401
5)	RearSamp	52	P12069	PAH10216 DCM
6)	Sample	2	P12070	PAH10216 DCM
7)	RearSamp	53	P12071	PAH10216 SS030205B06-AFID
8)	Sample	3	P12072	PAH10216 SS030205B06
9)	RearSamp	54	P12073	PAH10216 SS030205BS04-AFID
10)	Sample	4	P12074	PAH10216 SS030205BS04
11)	RearSamp	55	P12075	PAH10216 SS030205BSD03-AFID
12)	Sample	5	P12076	PAH10216 SS030205BSD03
13)	RearSamp	56	P12077	PAH10216 0502110-01-AFID
14)	Sample	6	P12078	PAH10216 0502110-01
15)	RearSamp	57	P12079	PAH10216 0502110-01D-AFID
16)	Sample	7	P12080	PAH10216 0502110-01D
17)	RearSamp	58	P12081	PAH10216 0502110-01MS-AFID
18)	Sample	8	P12082	PAH10216 0502110-01MS
19)	RearSamp	59	P12083	PAH10216 0502110-02-AFID
20)	Sample	9	P12084	PAH10216 0502110-02
21)	RearSamp	60	P12085	PAH10216 0502110-03-AFID
22)	Sample	10	P12086	PAH10216 0502110-03
23)	RearSamp	61	P12087	PAH10216 0502110-04-AFID
24)	Sample	11	P12088	PAH10216 0502110-04
25)	RearSamp	62	P12089	PAH10216 0502110-05-AFID
26)	Sample	12	P12090	PAH10216 0502110-05
27)	RearSamp	63	P12091	PAH10216 C1030402-AFID PASS
28)	Sample	13	P12092	PAH10216 C1030402 PASS
29)	RearSamp	64	P12093	PAH10216 DCM-AFID
30)	Sample	14	P12094	PAH10216 DCM
31)	RearSamp	65	P12095	PAH10216 0502110-06-AFID
32)	Sample	15	P12096	PAH10216 0502110-06
33)	RearSamp	66	P12097	PAH10216 0502110-07-AFID
34)	Sample	16	P12098	PAH10216 0502110-07
35)	RearSamp	67	P12099	PAH10216 0502110-08-AFID
36)	Sample	17	P12100	PAH10216 0502110-08
37)	RearSamp	68	P12101	PAH10216 0502110-09-AFID
38)	Sample	18	P12102	PAH10216 0502110-09
39)	RearSamp	69	P12103	PAH10216 0502110-10-AFID
40)	Sample	19	P12104	PAH10216 0502110-10
41)	RearSamp	70	P12105	PAH10216 0502110-11-AFID
42)	Sample	20	P12106	PAH10216 0502110-11 ← Run Stopped. /Restarted 3/7/05 12:00 pm
43)	RearSamp	71	P12107	PAH10216 0502110-12-AFID

2nd

Sequence Name: C:\MSDCHEM\1\SEQUENCE\MARCH05\S1030401.S

	Line Type	Vial	DataFile	Method	Sample Name
44)	Sample	21	P12108	PAH10216	0502110-12
45)	RearSamp	74	P12108A	PAH10216	C1030403-AFID PASS
46)	Sample	24	P12108B	PAH10216	C1030403 PASS
	RearSamp	72	P12109	PAH10216	0502110-15-AFID
	Sample	22	P12110	PAH10216	0502110-15
49)	RearSamp	73	P12111	PAH10216	0502110-16-AFID
50)	Sample	23	P12112	PAH10216	0502110-16
51)	RearSamp	74	P12113	PAH10216	C1030404-AFID PASS
52)	Sample	24	P12114	PAH10216	C1030404 PASS
53)	RearSamp	75	P12115	PAH10216	ANS1030401-AFID
54)	Sample	25	P12116	PAH10216	ANS1030401
55)	RearSamp	76	P12117	PAH10216	SA1030401-AFID
56)	Sample	26	P12118	PAH10216	SA1030401
57)	RearSamp	77	P12119	PAH10216	SFF1030401-AFID
58)	Sample	27	P12120	PAH10216	SFF1030401
59)	RearSamp	78	P12121	PAH10216	LA1030401-AFID
60)	Sample	28	P12122	PAH10216	LA1030401
61)	RearSamp	79	P12123	PAH10216	DCM
62)	Sample	29	P12124	PAH10216	DCM
63)	RearSamp	80	P12125	PAH10216	C1030405-AFID PASS
64)	Sample	30	P12126	PAH10216	C1030405 PASS
65)	RearSamp	81	P12127	PAH10216	aLUMINA cHECK A – Re-run Averages
66)	Sample	30	P12128	PAH10216	test

Sequence Name: C:\MSDChem\1\sequence\MARCH05\S1030701.S
Comment:
Operator: AC
Data Path: C:\MSDCHEM\1\DATA\MARCH05\MARCH07\

Top Pre-Seq Cmd:
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Post-Seq Cmd:
Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

3/8/05

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info	
1)	DualTwr			
2)	SepGC1			
3)	RearSamp	51	P12129	PAH10216 C1030701-AFID
4)	Sample	1	P12130	PAH10216 C1030701 PASS
5)	RearSamp	52	P12131	PAH10216 DCM
6)	Sample	2	P12132	PAH10216 DCM
7)	RearSamp	53	P12133	PAH10216 aLUMINA A
8)	Sample	3	P12134	PAH10216 DCM
9)	RearSamp	52	P12135	PAH10216 DCM-AFID
10)	Sample	4	P12136	PAH10216 SS030205BS04
11)	RearSamp	52	P12137	PAH10216 DCM-AFID
12)	Sample	5	P12138	PAH10216 0502110-15
13)	RearSamp	52	P12139	PAH10216 DCM-AFID
14)	Sample	6	P12140	PAH10216 0502110-06E
15)	RearSamp	52	P12141	PAH10216 DCM-AFID
16)	Sample	7	P12142	PAH10216 0502110-10E
17)	RearSamp	52	P12143	PAH10216 DCM-AFID
18)	Sample	8	P12144	PAH10216 C1030702 PASS.

Sequence Name: C:\MSDChem\4\sequence\S3030201.S
Comment: PAH CALIBRATION
Operator: AC
Data Path: C:\MSDCHEM\4\DATA\MARCH05\MARCH02\

Top Pre-Seq Cmd:
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Post-Seq Cmd:
Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

3/3/05

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

	Line		Sample Name/Misc Info		
1)	Sample	2	P30853	PAH30302	PRIME
2)	Sample	3	P30854	PAH30302	DCM
3)	Sample	4	P30855	PAH30302	I3030201
4)	Sample	5	P30856	PAH30302	I3030202
5)	Sample	6	P30857	PAH30302	I3030203
6)	Sample	7	P30858	PAH30302	I3030204
7)	Sample	8	P30859	PAH30302	I3030205
8)	Sample	9	P30860	PAH30302	I3030206
9)	Sample	10	P30861	PAH30302	I3030207 - Autosampler (Syringe error) restarted
10)	Sample	11	P30862	PAH30302	ANS3030201
11)	Sample	12	P30863	PAH30302	I3030208 - Reruns of 25 ug/mL. re-run vial # 10
12)	Sample	13	P30864	PAH30302	Q3030201 - ICC
13)	Pause				
14)	Sample	14	P30865	PB30225	DCM - Change to Pb Run. - S3030202.S.
15)	Sample	15	P30866	PB30225	C3030301
16)	Sample	16	P30867	PB30225	DCM
17)	Sample	17	P30868	PB30225	SO030205B11
18)	Sample	18	P30869	PB30225	SO030205L02
19)	Sample	19	P30870	PB30225	0503002-01
20)	Sample	20	P30871	PB30225	0503002-01D
21)	Sample	21	P30872	PB30225	C3030302

Sequence Name: C:\MSDChem\4\sequence\S3031401.S
Comment:
Operator: AC
Data Path: C:\MSDCHEM\4\DATA\MARCH05\MARCH14\

Top Pre-Seq Cmd:
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Top Post-Seq Cmd:
Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

3/16/05.

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info	
1)	DualTwr			
2)	SepGC1			
3)	RearSamp	51	P30960	PAH30302 C3031401-AFID PASS
4)	Sample	1	P30961	PAH30302 C3031401 PASS
5)	RearSamp	52	P30962	PAH30302 DCM
6)	Sample	2	P30963	PAH30302 DCM
7)	RearSamp	53	P30964	PAH30302 SS031405B02-AFID
8)	Sample	3	P30965	PAH30302 SS031405B02
9)	RearSamp	54	P30966	PAH30302 SS031405BS02-AFID
10)	Sample	4	P30967	PAH30302 SS031405BS02
11)	RearSamp	55	P30968	PAH30302 SS031405BSD02-AFID
12)	Sample	5	P30969	PAH30302 SS031405BSD02
13)	RearSamp	56	P30970	PAH30302 0502110-13-AFID
14)	Sample	6	P30971	PAH30302 0502110-13
15)	RearSamp	57	P30972	PAH30302 0502110-13D-AFID
16)	Sample	7	P30973	PAH30302 0502110-13D
17)	RearSamp	58	P30974	PAH30302 0502110-14-AFID
18)	Sample	8	P30975	PAH30302 0502110-14
19)	RearSamp	59	P30976	PAH30302 DCM
20)	Sample	9	P30977	PAH30302 SS030205BS04* Reeluma.
21)	RearSamp	60	P30978	PAH30302 DCM
22)	Sample	10	P30979	PAH30302 SS030205BSD03
23)	RearSamp	61	P30980	PAH30302 DCM
24)	Sample	11	P30981	PAH30302 0502110-15*
25)	RearSamp	62	P30982	PAH30302 C3031402-AFID PASS
26)	Sample	12	P30983	PAH30302 C3031402 PASS
27)	RearSamp	63	P30984	PAH30302 TS030705BS03-AFID
28)	Sample	13	P30985	PAH30302 DCM
29)	RearSamp	64	P30986	PAH30302 DCM-AFID
30)	Sample	13	P30987	PAH30302 DCM
31)	RearSamp	65	P30988	PAH30302 SS030205B06-AFID
32)	Sample	14	P30989	PAH30302 0502110-14E
33)	RearSamp	66	P30990	PAH30302 SS030205BS04-AFID
34)	Sample	15	P30991	PAH30302 DCM
35)	RearSamp	67	P30992	PAH30302 SS030205BSD03-AFID
36)	Sample	16	P30993	PAH30302 SS031405B02
37)	RearSamp	68	P30994	PAH30302 0502110-01-AFID
38)	Sample	17	P30995	PAH30302 C3031403 PASS
39)	RearSamp	69	P30996	PAH30302 0502110-01D-AFID PASS
40)	Sample	15	P30997	PAH30302 DCM
41)	RearSamp	70	P30998	PAH30302 0502110-01MS-AFID
42)	Sample	15	P30999	PAH30302 DCM
43)	RearSamp	71	P31000	PAH30302 0502110-02-AFID

Sequence Name: C:\MSDChem\4\sequence\S3031401.S

	Line Type	Vial	DataFile	Method	Sample Name
44)	Sample	15	P31001	PAH30302	DCM
45)	RearSamp	72	P31002	PAH30302	0502110-03-AFID
	Sample	15	P31003	PAH30302	DCM
	RearSamp	73	P31004	PAH30302	0502110-04-AFID
48)	Sample	15	P31005	PAH30302	DCM
49)	RearSamp	74	P31006	PAH30302	0502110-05-AFID
50)	Sample	15	P31007	PAH30302	DCM
51)	RearSamp	75	P31008	PAH30302	C3031403-AFID PASS.
52)	Sample	15	P31009	PAH30302	DCM
53)	RearSamp	76	P31010	PAH30302	DCM
54)	Sample	15	P31011	PAH30302	DCM
55)	RearSamp	77	P31012	PAH30302	SS031405B02 - 052110 REALUMIA.
56)	Sample	15	P31013	PAH30302	DCM
57)	RearSamp	78	P31014	PAH30302	0502110-06-AFID
58)	Sample	100	P31015	PAH30302	DCM
59)	RearSamp	79	P31016	PAH30302	0502110-07-AFID
60)	Sample	100	P31017	PAH30302	DCM
61)	RearSamp	80	P31018	PAH30302	0502110-08-AFID
62)	Sample	100	P31019	PAH30302	DCM
63)	RearSamp	81	P31020	PAH30302	0502110-09-AFID
64)	Sample	100	P31021	PAH30302	DCM
65)	RearSamp	82	P31022	PAH30302	0502110-10-AFID
66)	Sample	100	P31023	PAH30302	DCM
67)	RearSamp	83	P31024	PAH30302	0502110-11-AFID
68)	Sample	99	P31025	PAH30302	PRIME
69)	RearSamp	84	P31026	PAH30302	0502110-12-AFID
70)	Sample	99	P31027	PAH30302	PRIME
71)	RearSamp	85	P31028	PAH30302	0502110-15-AFID
72)	Sample	99	P31029	PAH30302	PRIME
73)	RearSamp	86	P31030	PAH30302	0502110-16-AFID
74)	Sample	98	P31031	PAH30302	C3031404 PASS.
75)	RearSamp	87	P31032	PAH30302	C3031404-AFID PASS
	Sample	100	P31033	PAH30302	DCM

END OF SEQUENCE.

```
   Sequence Name: C:\MSDChem\4\sequence\S3031801.S
         Comment:
        Operator: AC
       Data Path: C:\MSDCHEM\4\DATA\MARCH05\MARCH18\
Top                    Pre-Seq Cmd:
Instrument Control     Pre-Seq Cmd:
Data Analysis          Pre-Seq Cmd:

Top                   Post-Seq Cmd:
Instrument Control    Post-Seq Cmd:
Data Analysis         Post-Seq Cmd:

   Method Sections To Run      On A Barcode Mismatch
    (X) Full Method              (X) Inject Anyway
    ( ) Reprocessing Only        ( ) Don't Inject

   ----------------------------------------------------------------------
   Line                     Sample Name/Misc Info
 1)  Sample        96  P31047   PAH30302 C3031801
 2)  Sample        97  P31048   PAH30302 0502110-16E
 3)  Sample         1  P31048A  EX30309  DCM
 4)  Sample        98  P31049   PAH30302 C3031802
 5)  Sample         1  P31050   EX30309  DCM1
 6)  Sample         2  P31051   EX30309  DCM2
 7)  Sample         3  P31052   EX30309  C3031803
 8)  Sample         4  P31053   EX30309  DCM3
 9)  Sample         5  P31054   EX30309  LAB DCM
10)  Sample         6  P31055   EX30309  EXXON TISS BLK 1
11)  Sample         7  P31056   EX30309  EXXON TISS BLK 2
12)  Sample         8  P31057   EX30309  C3031804
```

TOTAL PETROLEUM HYDROCARBON (TPH)

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/15/05	87.5	30.06	5	1	AC

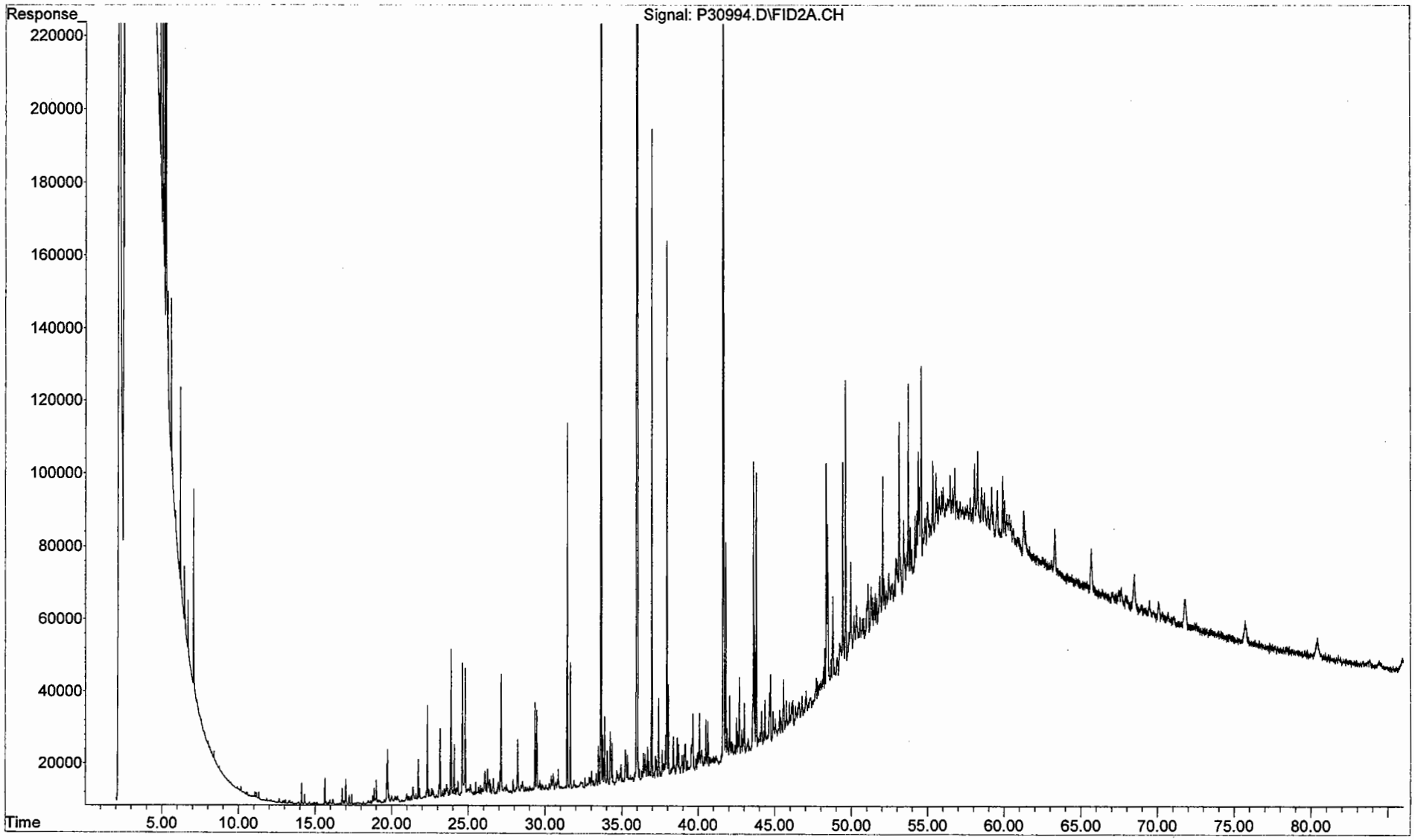
Parameter	Result
Total Petroleum Hydrocarbons	160

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	88	50-130
d50-Tetracosane	83	50-130

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30994.D
Operator : AC
Acquired : 15 Mar 2005 8:17 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-01-AFID
Misc Info : 1X RERUN
Vial Number: 68



Form I
Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01 D**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/15/05	87.5	30.61	5	1	AC

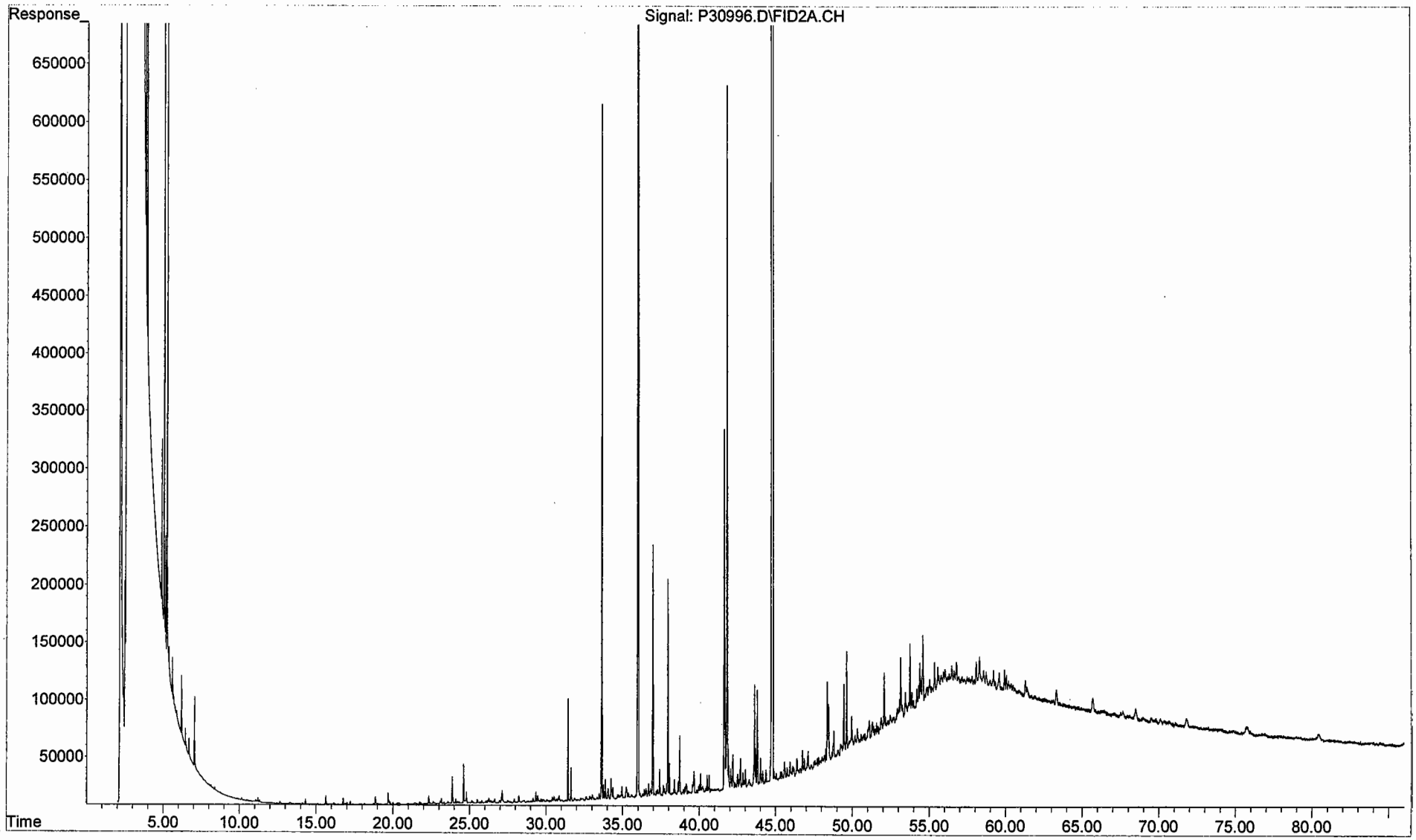
Parameter	Result
Total Petroleum Hydrocarbons	270

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	50-130
d50-Tetracosane	81	50-130

03/21/05 07:41

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30996.D
Operator : AC
Acquired : 15 Mar 2005 10:04 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-01D-AFID
Misc Info : 1X RERUN
Vial Number: 69



Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
02/22/05	02/25/05	03/02/05	87.5	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
Total Petroleum Hydrocarbons	**160**	**270**	50[a]	30

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	88	86	50-130
d50-Tetracosane	83	81	50-130

N/A - Not Applicable
[a] - Value outside of QC Limits.

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **See Below**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
02/22/05	02/25/05	03/02/05	87.5	AC

	0502110-01		0502110-01		
Parameter	**Sample Conc.**		**Matrix Spike Conc.**	**% Recovery**	**% Recovery Limits**
n-Nonane (C9)	0.19	U	1.1	57	50-150
n-Decane (C10)	0.19	U	1.2	66	50-150
n-Dodecane (C12)	0.19	U	1.4	73	50-150
n-Tetradecane (C14)	0.19	U	1.5	78	50-150
n-Hexadecane (C16)	0.19	U	1.7	89	50-150
n-Octadecane (C18)	0.19	U	2.0	106	50-150
n-Nonadecane (C19)	0.19	U	1.8	93	50-150
n-Eicosane (C20)	0.19	U	1.8	94	50-150
n-Docosane (C22)	0.19	U	1.8	93	50-150
n-Tetracosane (C24)	0.19	U	1.7	91	50-150
n-Hexacosane (C26)	0.19	U	1.8	94	50-150
n-Octacosane (C28)	0.19	U	1.8	92	50-150
n-Triacontane (C30)	0.19	U	1.7	91	50-150
n-Hexatriacontane (C36)	0.19	U	1.7	88	50-150

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	87	50-130
d50-Tetracosane	82	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

03/21/05 09:45

Form I
Matrix Spike
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF2-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-01 M**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/15/05	87.5	30.13	5	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**250**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	87	50-130
d50-Tetracosane	82	50-130

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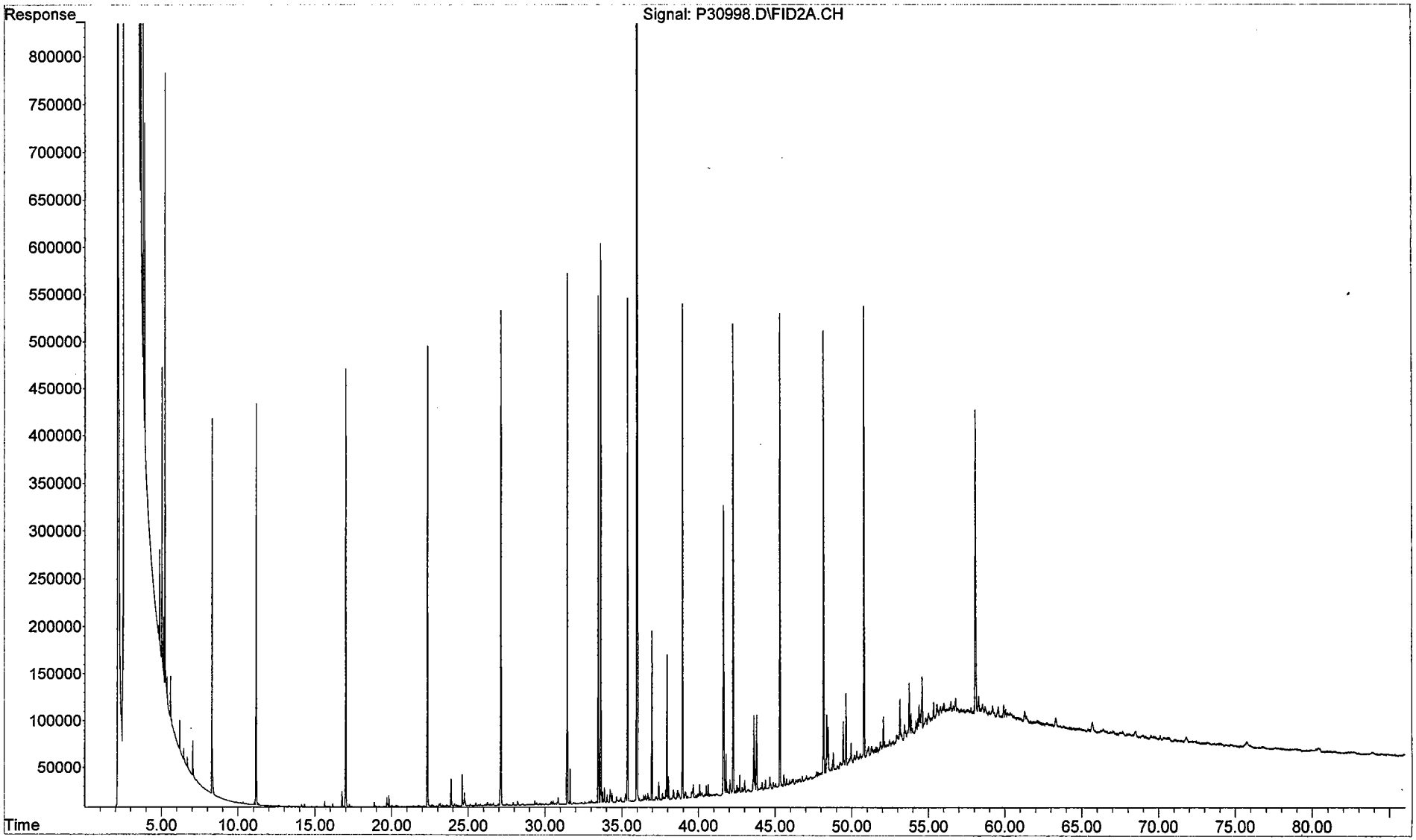
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30998.D
Operator : AC
Acquired : 15 Mar 2005 11:49 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-01M-AFID
Misc Info : 1X RERUN
Vial Number: 70



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-411-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-02**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/16/05	79.6	30.52	5	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**280**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	50-130
d50-Tetracosane	81	50-130

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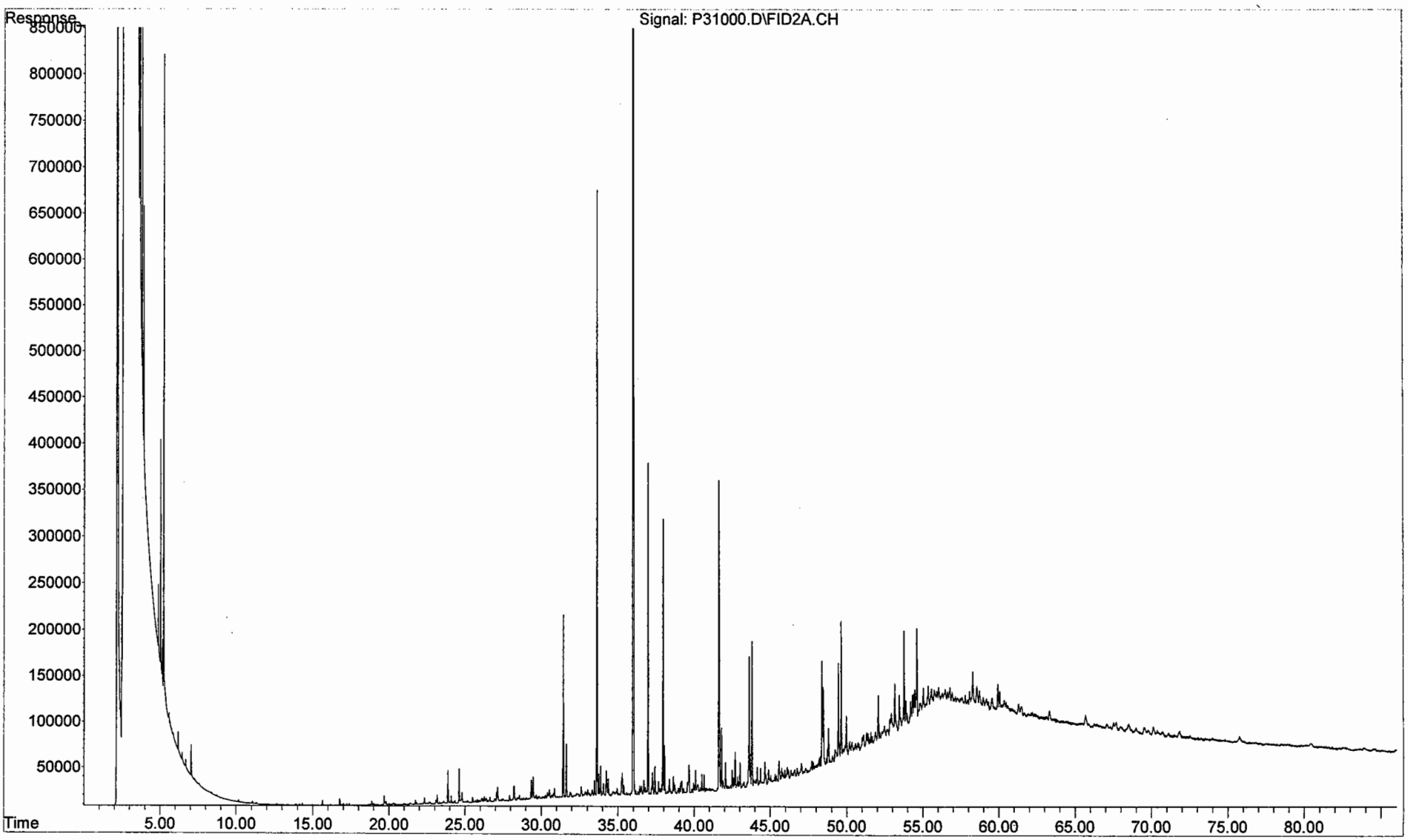
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31000.D
Operator : AC
Acquired : 16 Mar 2005 1:35 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-02-AFID
Misc Info : 1X RERUN
Vial Number: 71



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF3-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-03**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/16/05	85.4	30.37	8	1	AC

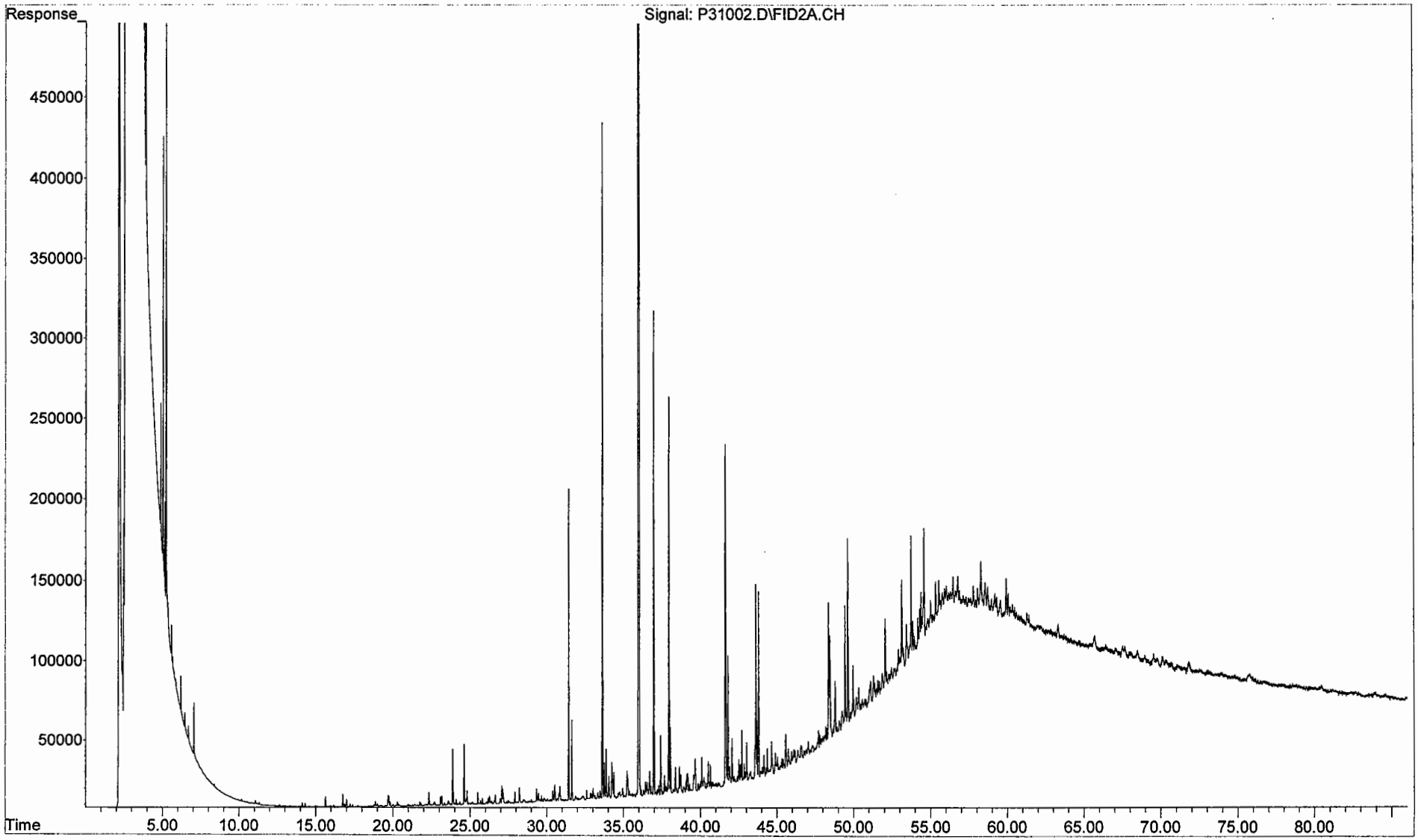
Parameter	Result
Total Petroleum Hydrocarbons	**420**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	50-130
d50-Tetracosane	82	50-130

03/21/05 07:42

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31002.D
Operator : AC
Acquired : 16 Mar 2005 3:19 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-03-AFID
Misc Info : 1X RERUN
Vial Number: 72



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-04**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/16/05	86.8	30.19	5	1	AC

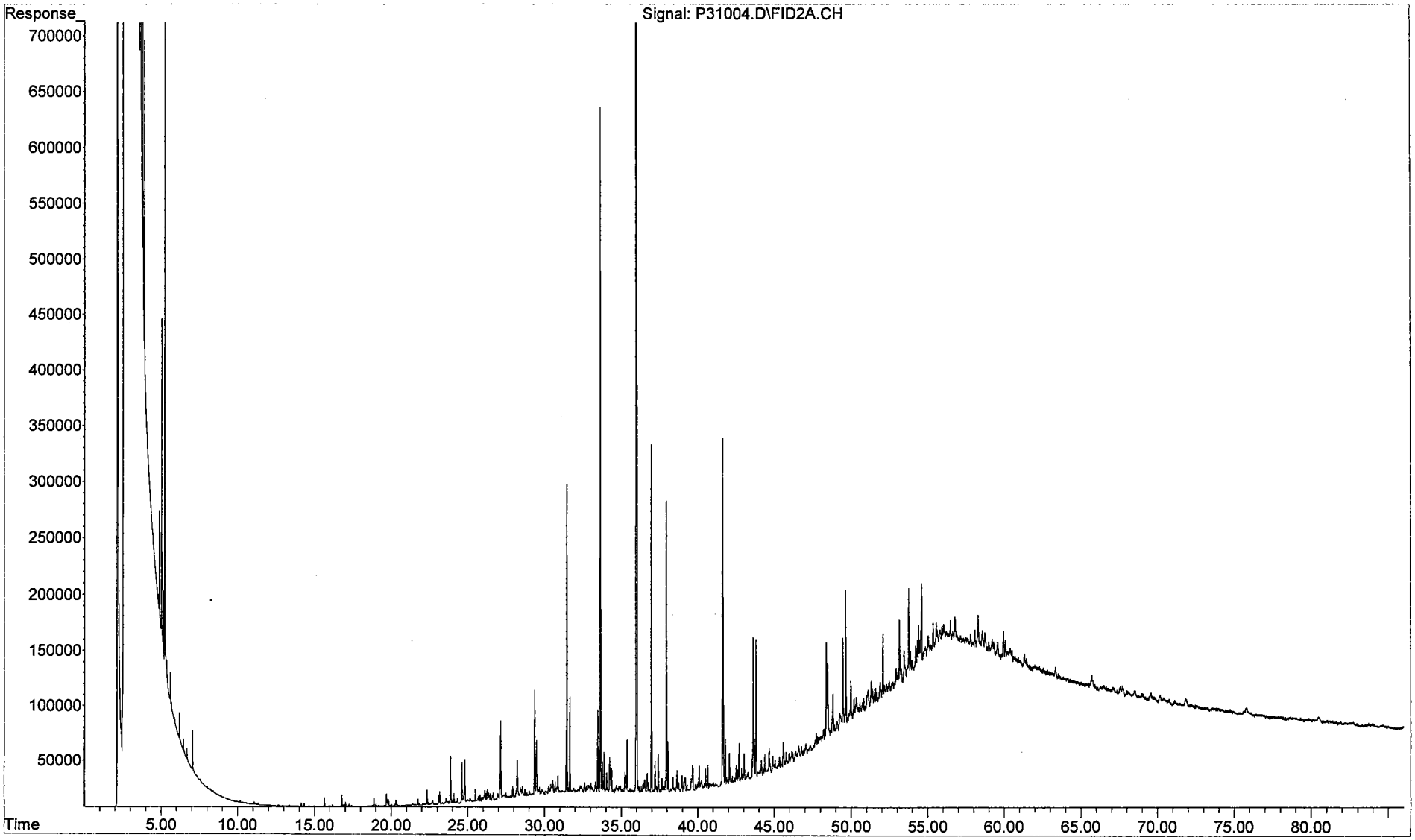
Parameter	Result
Total Petroleum Hydrocarbons	**340**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	50-130
d50-Tetracosane	82	50-130

03/21/05 07:42

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31004.D
Operator : AC
Acquired : 16 Mar 2005 5:04 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-04-AFID
Misc Info : 1X RERUN
Vial Number: 73



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-SD5-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-05**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/16/05	80.8	30.02	5	1	AC

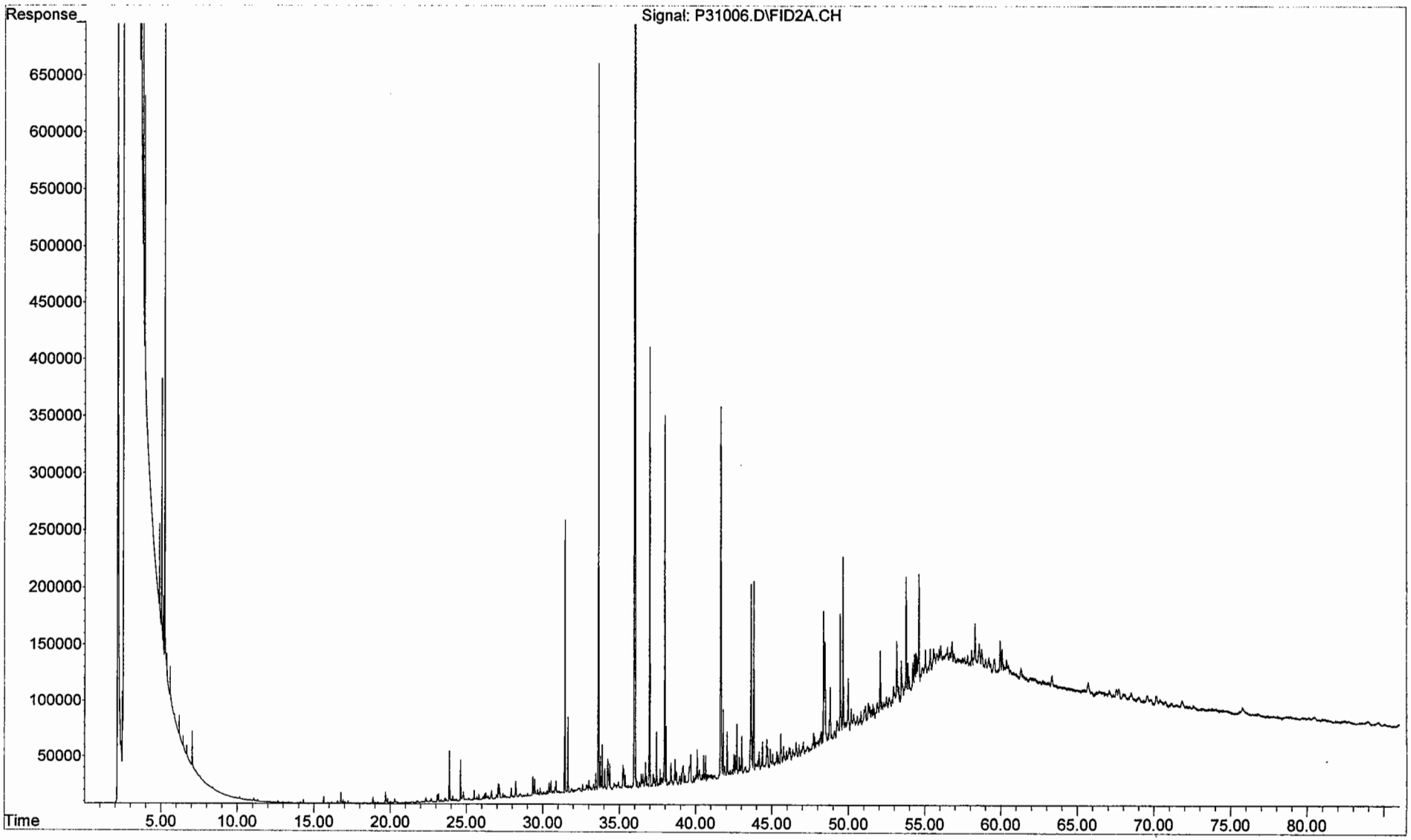
Parameter	Result
Total Petroleum Hydrocarbons	320

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	50-130
d50-Tetracosane	80	50-130

03/21/05 07:42

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31006.D
Operator : AC
Acquired : 16 Mar 2005 6:47 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-05-AFID
Misc Info : 1X RERUN
Vial Number: 74



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-442-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-06**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/16/05	82.7	30.54	4	1	AC

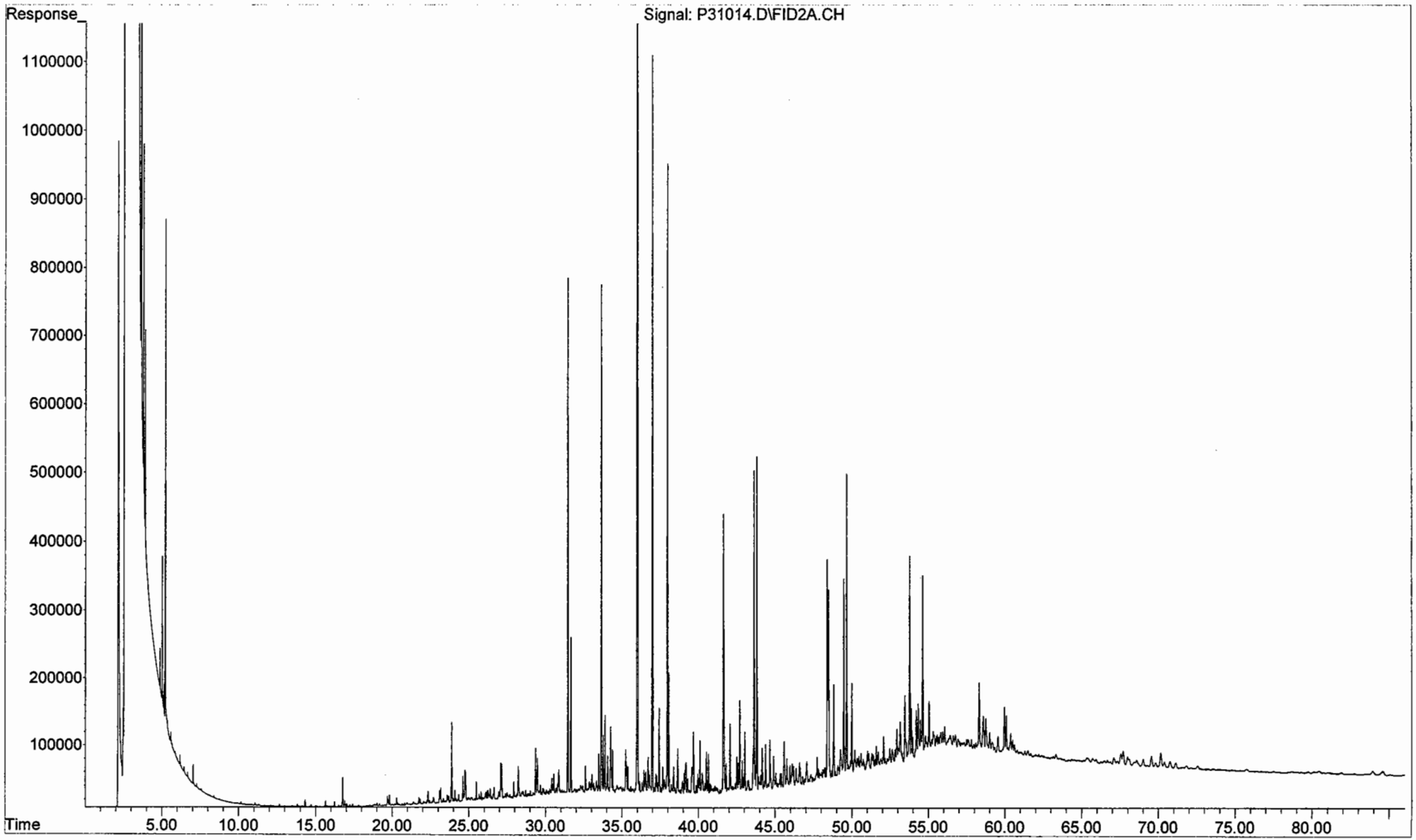
Parameter	Result
Total Petroleum Hydrocarbons	**230**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	87	50-130
d50-Tetracosane	83	50-130

03/21/05 07:42

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31014.D
Operator : AC
Acquired : 16 Mar 2005 1:52 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-06-AFID
Misc Info : 1X RERUN
Vial Number: 78



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF6-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-07**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/16/05	81.4	30.63	25	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**1100**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	50-130
d50-Tetracosane	85	50-130

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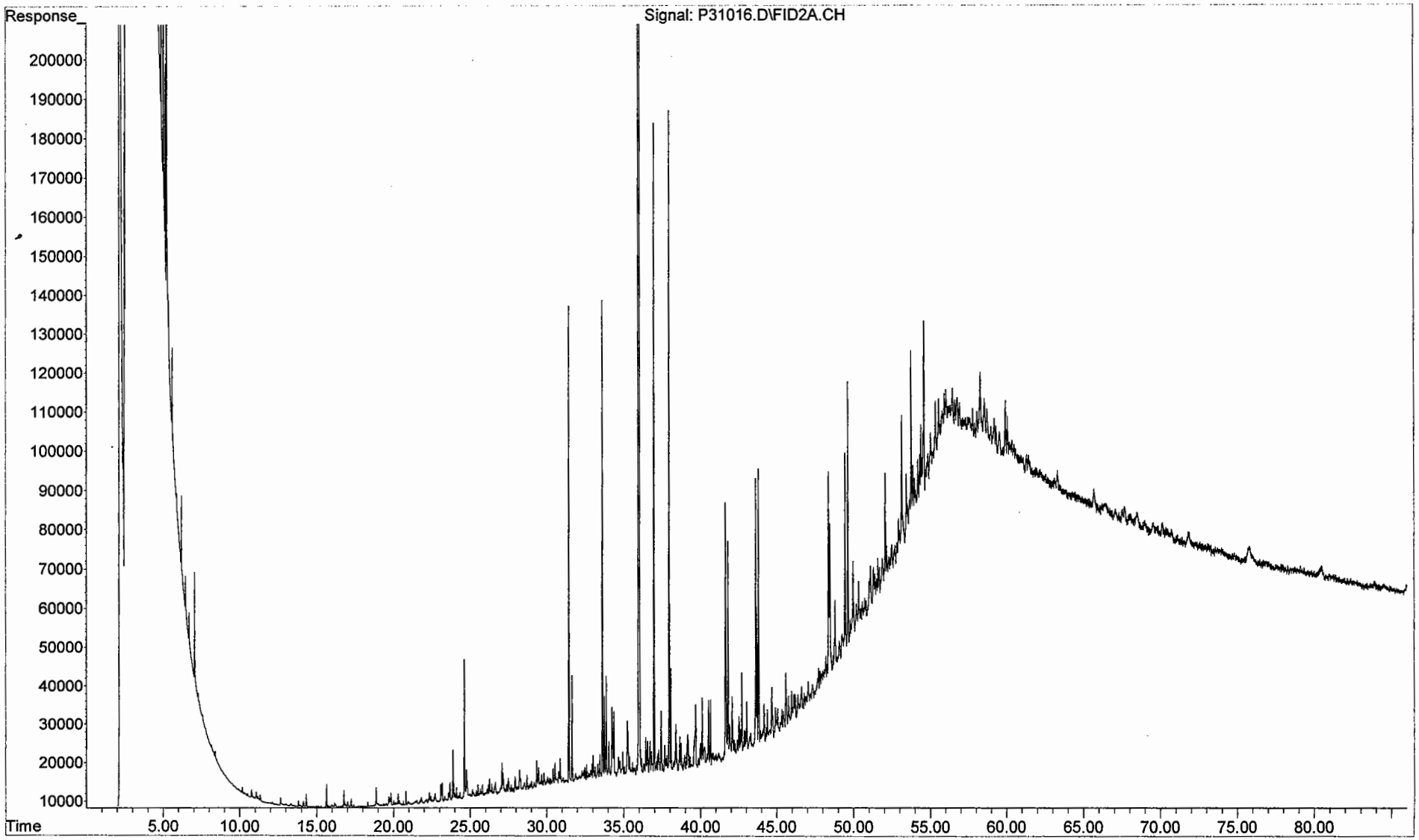
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31016.D
Operator : AC
Acquired : 16 Mar 2005 3:39 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-07-AFID
Misc Info : 1X RERUN
Vial Number: 79



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OFF7-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-08**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/16/05	85.0	30.32	12.5	1	AC

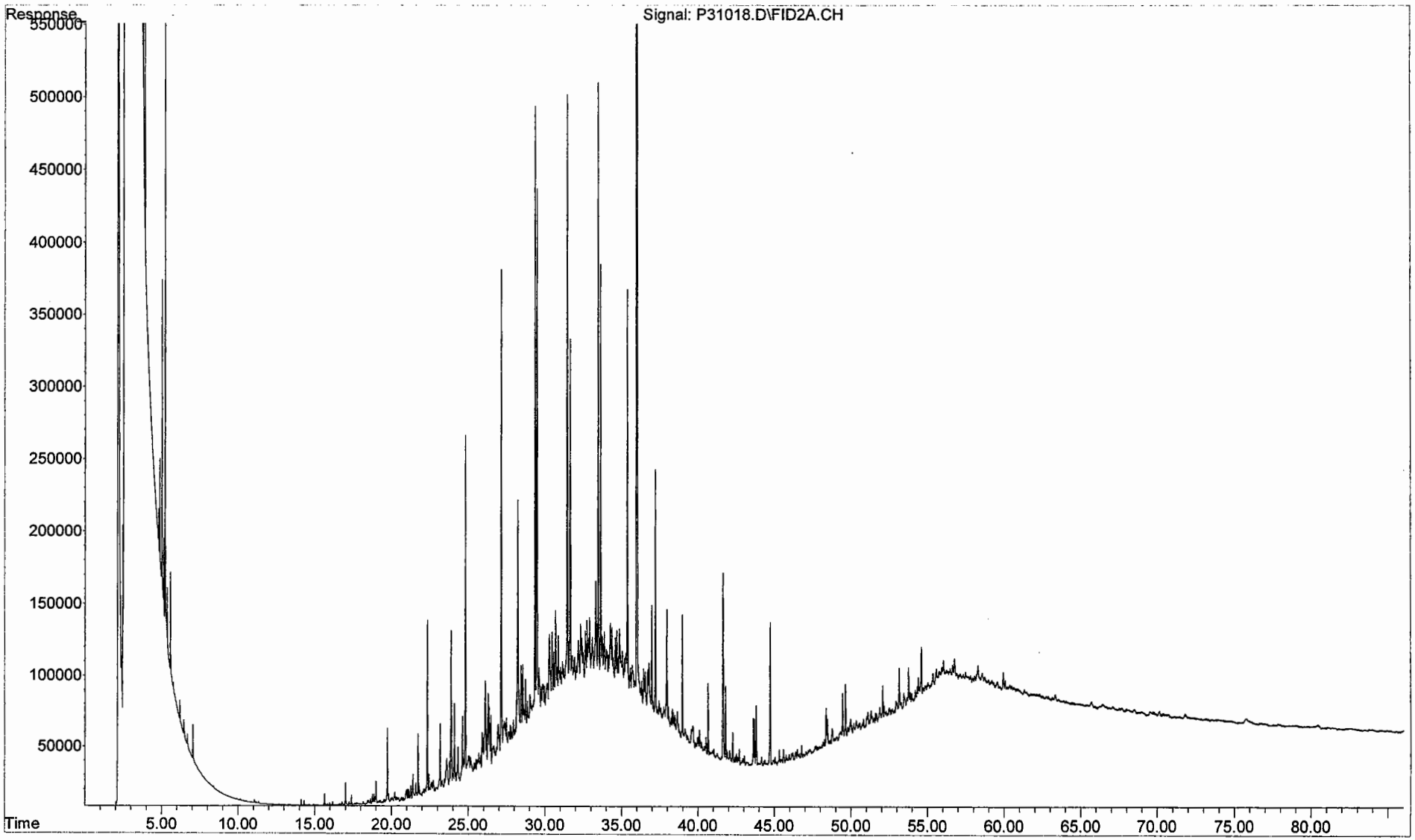
Parameter	Result
Total Petroleum Hydrocarbons	**780**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	98	50-130
d50-Tetracosane	84	50-130

03/21/05 07:43

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31018.D
Operator : AC
Acquired : 16 Mar 2005 5:27 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-08-AFID
Misc Info : 1X RERUN
Vial Number: 80



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-JPC03-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-09**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/16/05	84.4	30.66	2	1	AC

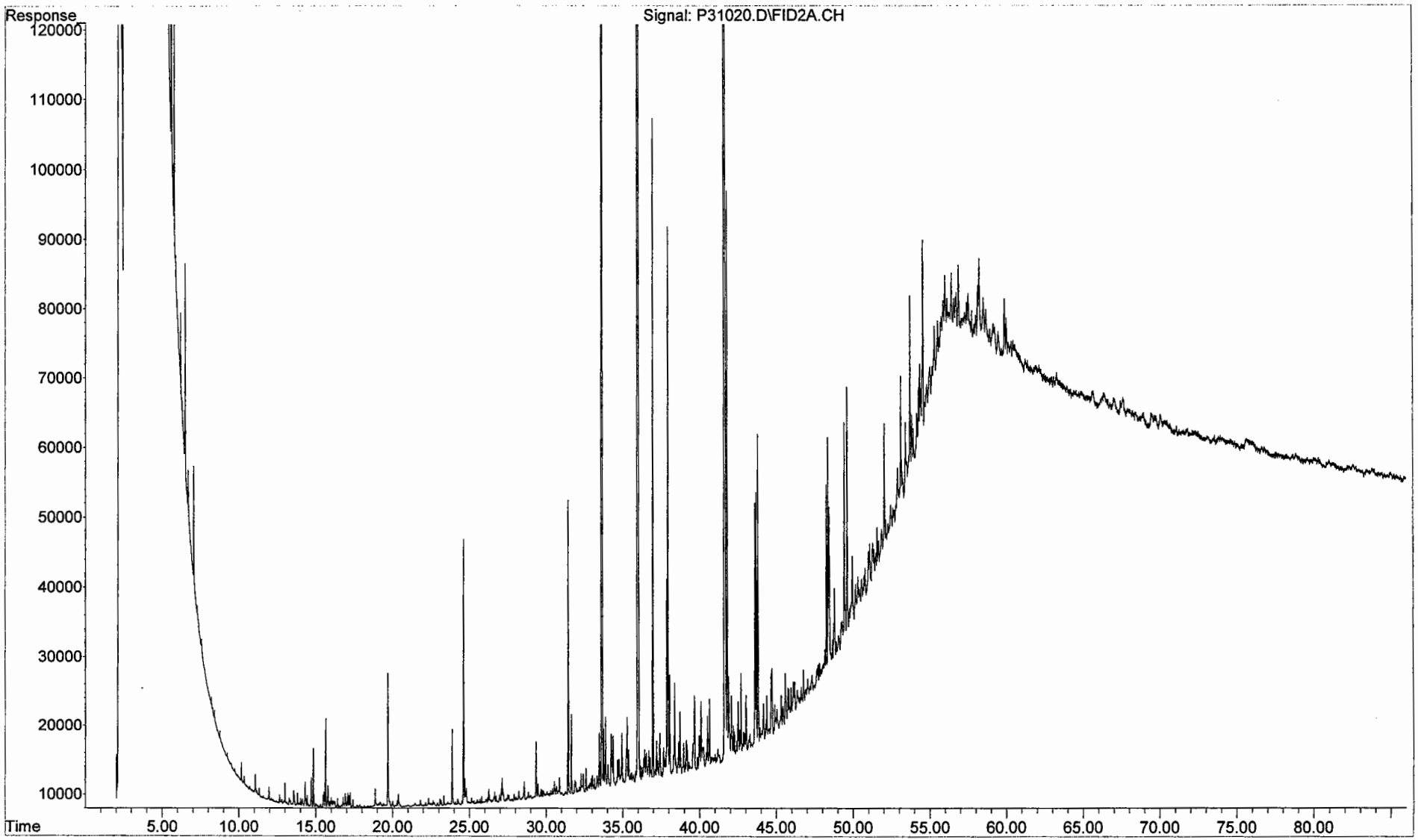
Parameter	Result
Total Petroleum Hydrocarbons	**51**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	79	50-130
d50-Tetracosane	75	50-130

03/21/05 07:43

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31020.D
Operator : AC
Acquired : 16 Mar 2005 7:11 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-09-AFID
Misc Info : 1X RERUN
Vial Number: 81



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OTSOF075-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-10**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/16/05	74.0	30.60	5	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**520**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	88	50-130
d50-Tetracosane	98	50-130

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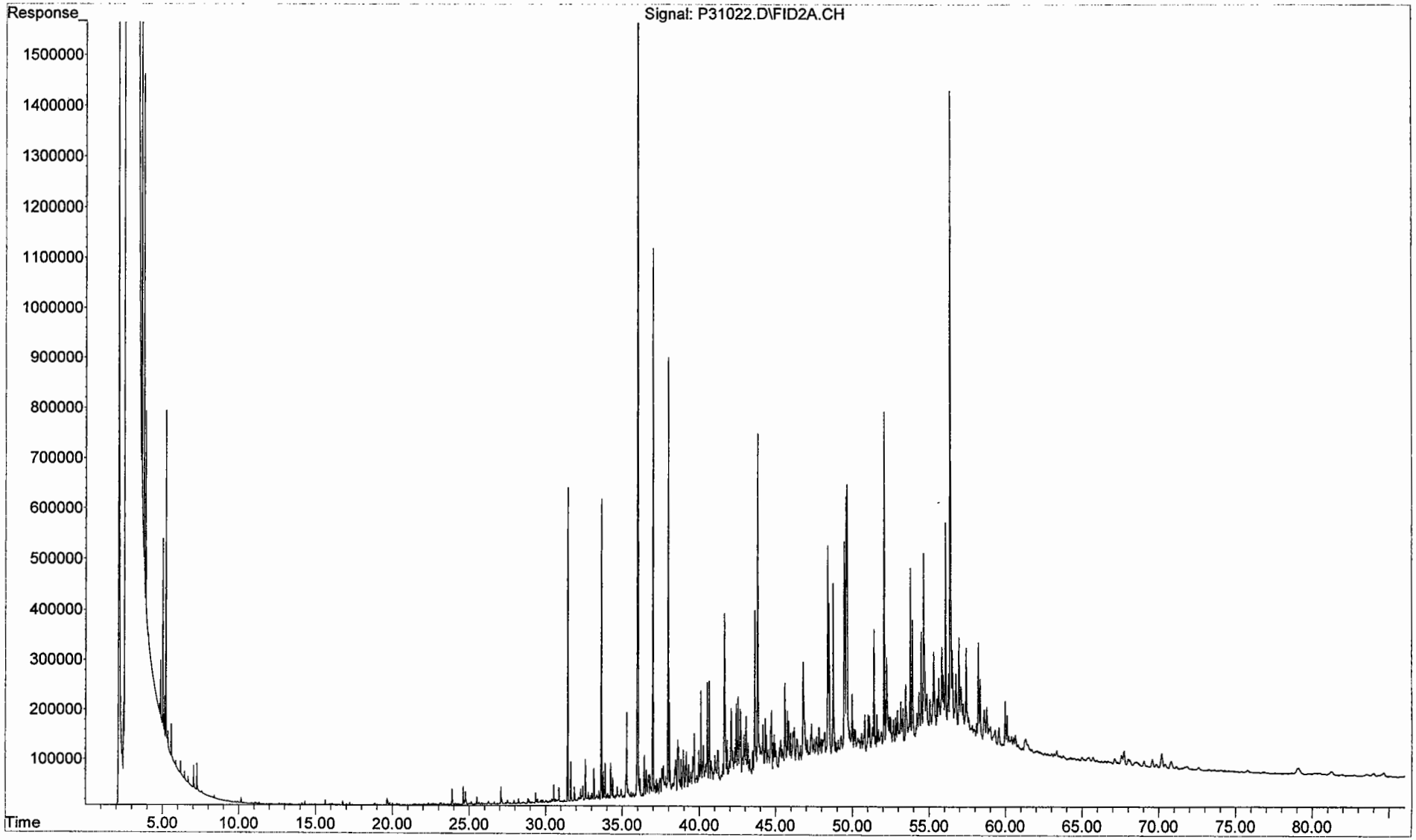
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31022.D
Operator : AC
Acquired : 16 Mar 2005 8:58 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-10-AFID
Misc Info : 1X RERUN
Vial Number: 82



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OTSOF075A-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-11**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/16/05	79.7	30.69	20	1	AC

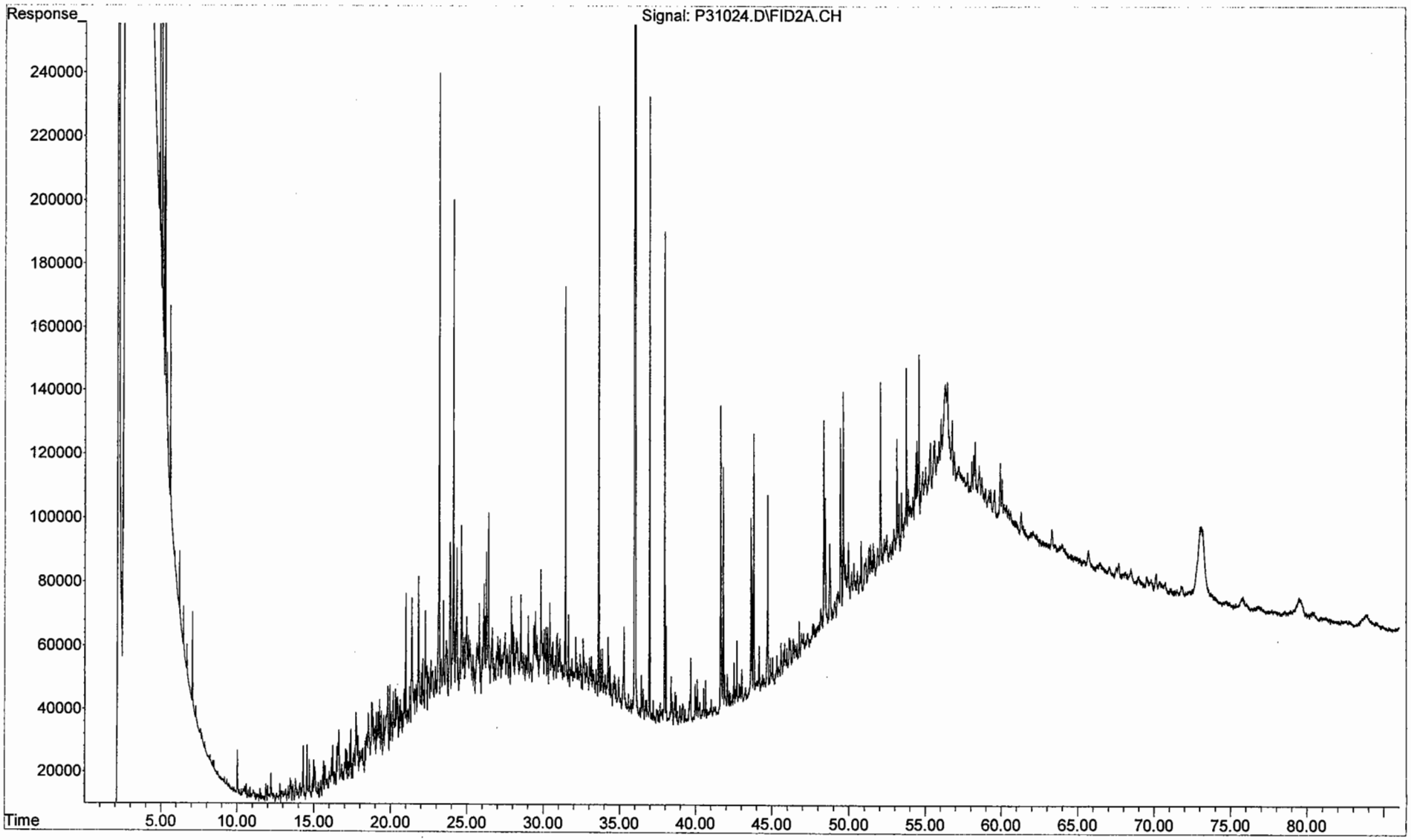
Parameter	Result
Total Petroleum Hydrocarbons	**1100**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	87	50-130
d50-Tetracosane	83	50-130

03/21/05 07:44

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31024.D
Operator : AC
Acquired : 16 Mar 2005 10:42 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-11-AFID
Misc Info : 1X RERUN
Vial Number: 83



217

Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-OTSOF093-0006-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-12**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/17/05	84.1	30.30	2.5	1	AC

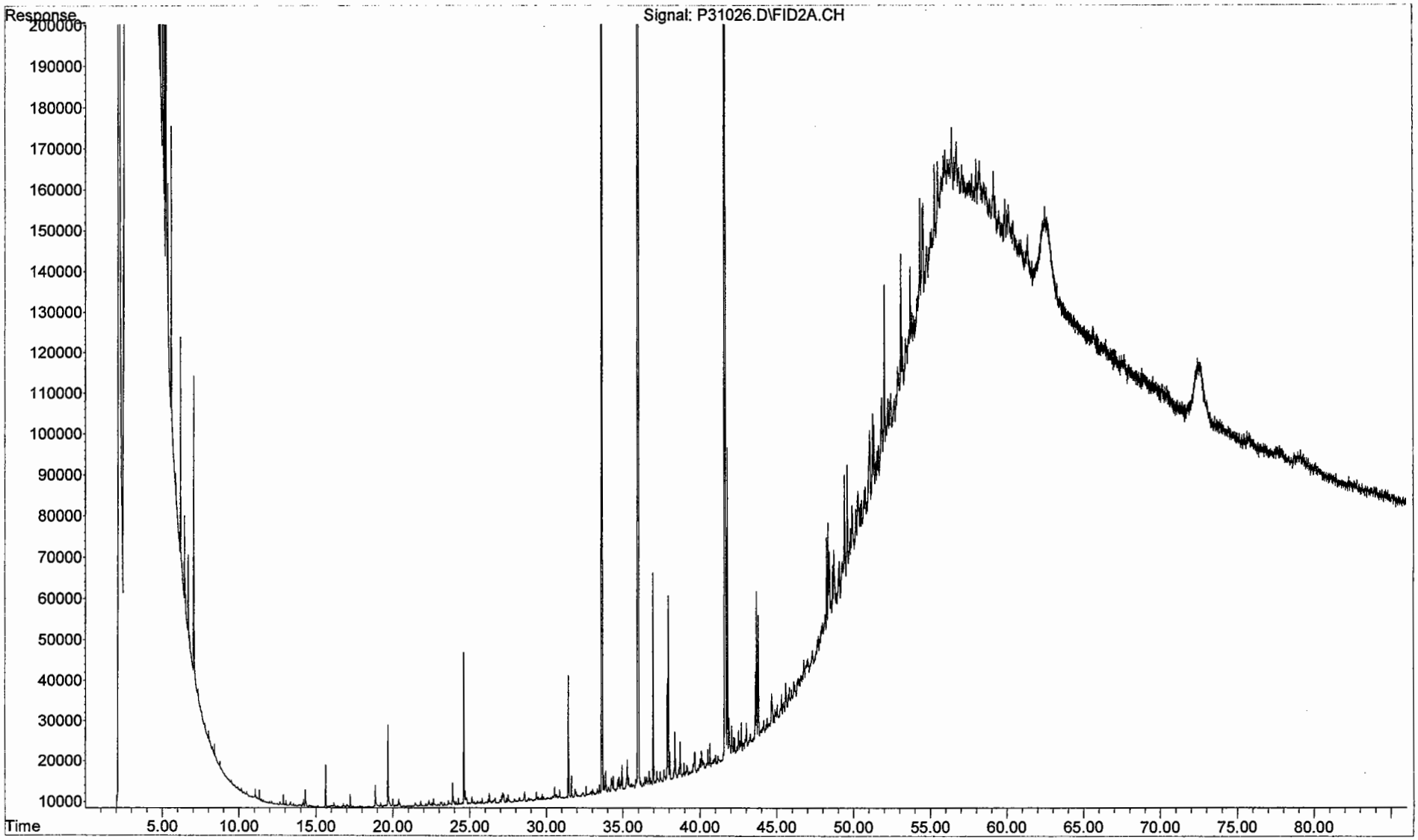
Parameter	Result
Total Petroleum Hydrocarbons	**140**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	50-130
d50-Tetracosane	82	50-130

03/21/05 07:44

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31026.D
Operator : AC
Acquired : 17 Mar 2005 12:25 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-12-AFID
Misc Info : 1X RERUN
Vial Number: 84



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS1**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-13**
Associated Blank: **SS031405B02**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/10/05	03/14/05	98.0	10.11	50	1	AC

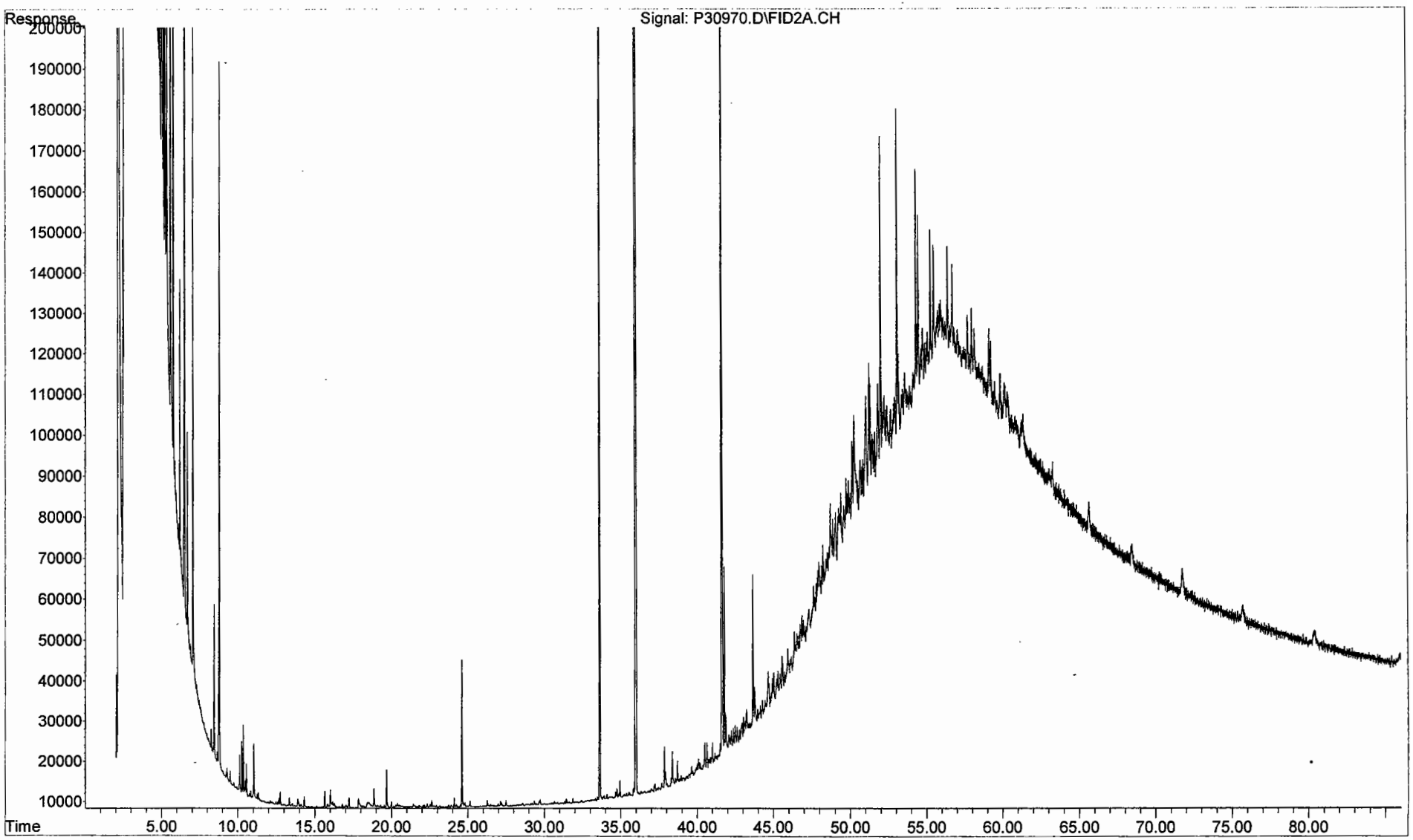
Parameter	Result
Total Petroleum Hydrocarbons	**5100**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	73	50-130
d50-Tetracosane	69	50-130

03/21/05 07:31

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30970.D
Operator : AC
Acquired : 14 Mar 2005 11:08 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-13-AFID
Misc Info : 1X
Vial Number: 56



Form I
Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS1**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-13 D**
Associated Blank: **SS031405B02**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/10/05	03/15/05	98.0	10.16	50	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**6300**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	76	50-130
d50-Tetracosane	71	50-130

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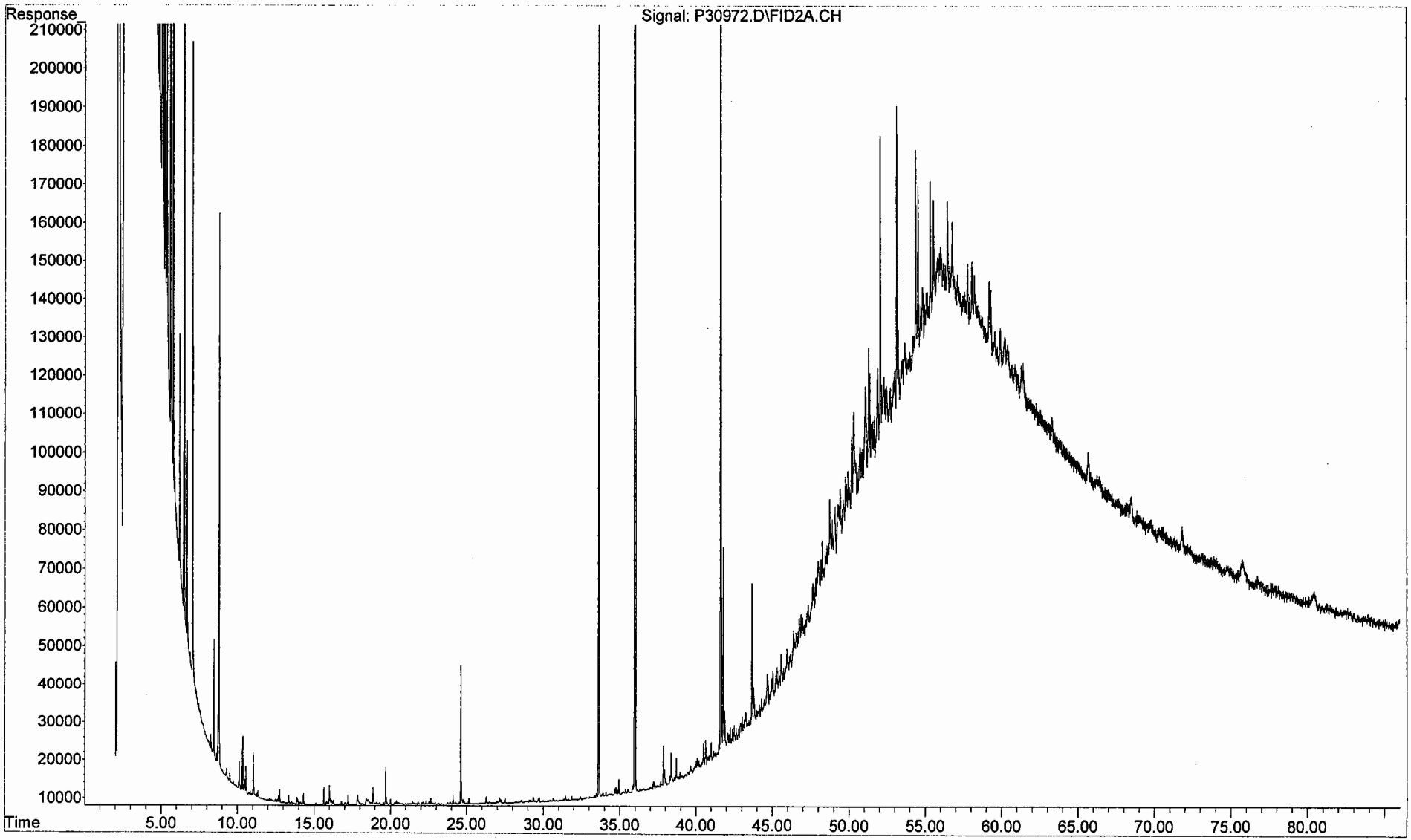
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30972.D
Operator : AC
Acquired : 15 Mar 2005 12:51 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-13D-AFID
Misc Info : 1X
Vial Number: 57



Duplicate
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS1**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-13**
Associated Blank: **SS031405B02**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
02/23/05	02/25/05	03/10/05	98.0	AC

Parameter	Sample Result	Duplicate Result	RPD	RPD Limit
Total Petroleum Hydrocarbons	**5100**	**6300**	20	30

N/A - Not Applicable

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	73	76	50-130
d50-Tetracosane	69	71	50-130

Concentrations reported as calculated values, which includes rounding for significant figures. RPD values are reported based on the unrounded calculated result.

03/21/05 07:31

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Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-414-DEBRIS2**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-14**
Associated Blank: **SS031405B02**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/10/05	03/15/05	94.3	10.37	50	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**30000**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	74	50-130
d50-Tetracosane	118	50-130

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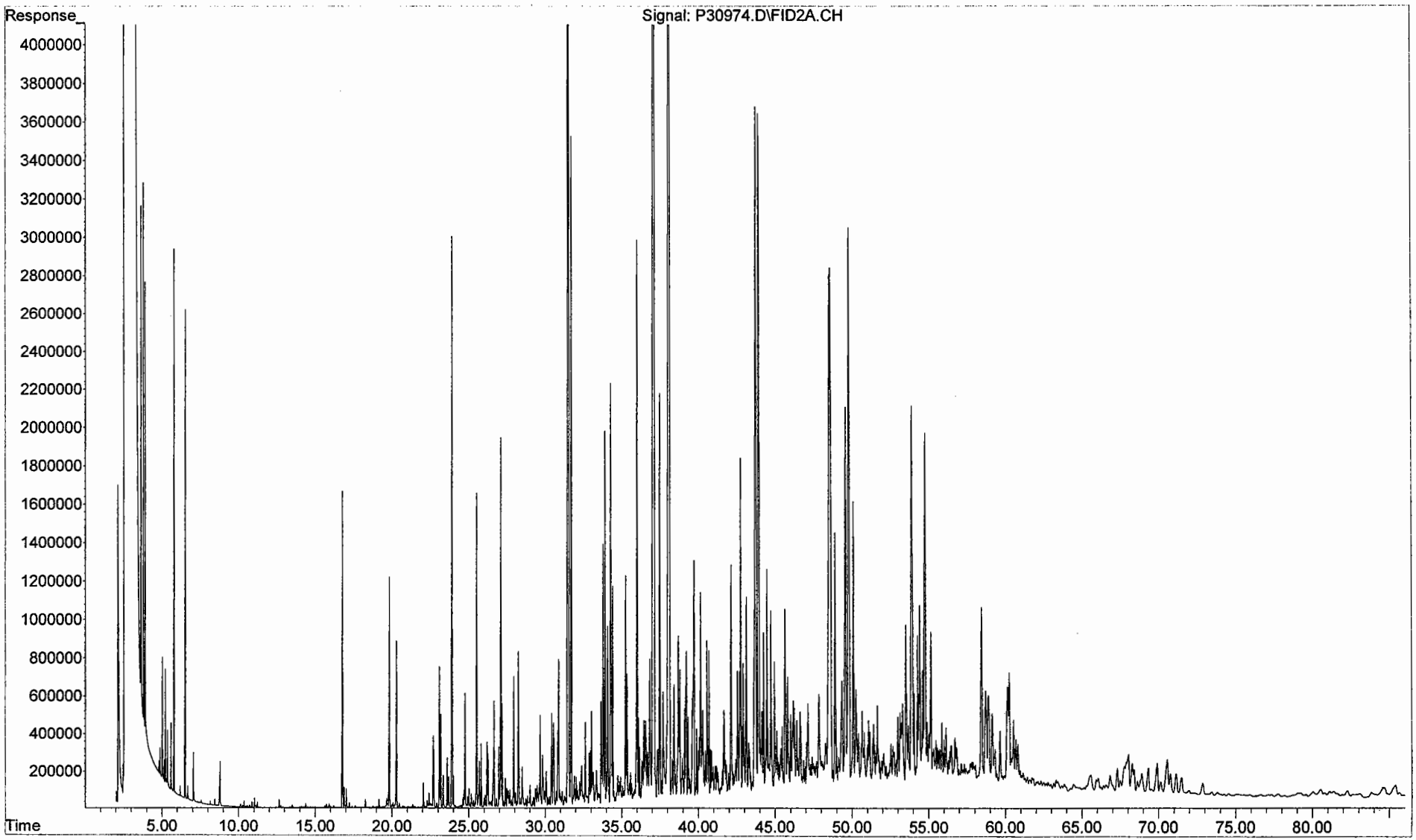
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30974.D
Operator : AC
Acquired : 15 Mar 2005 2:37 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-14-AFID
Misc Info : 1X
Vial Number: 58



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-DUP01-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-15**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/22/05	02/25/05	03/02/05	03/17/05	84.1	30.81	16.67	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**830**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	85	50-130
d50-Tetracosane	75	50-130

03/21/05 07:44

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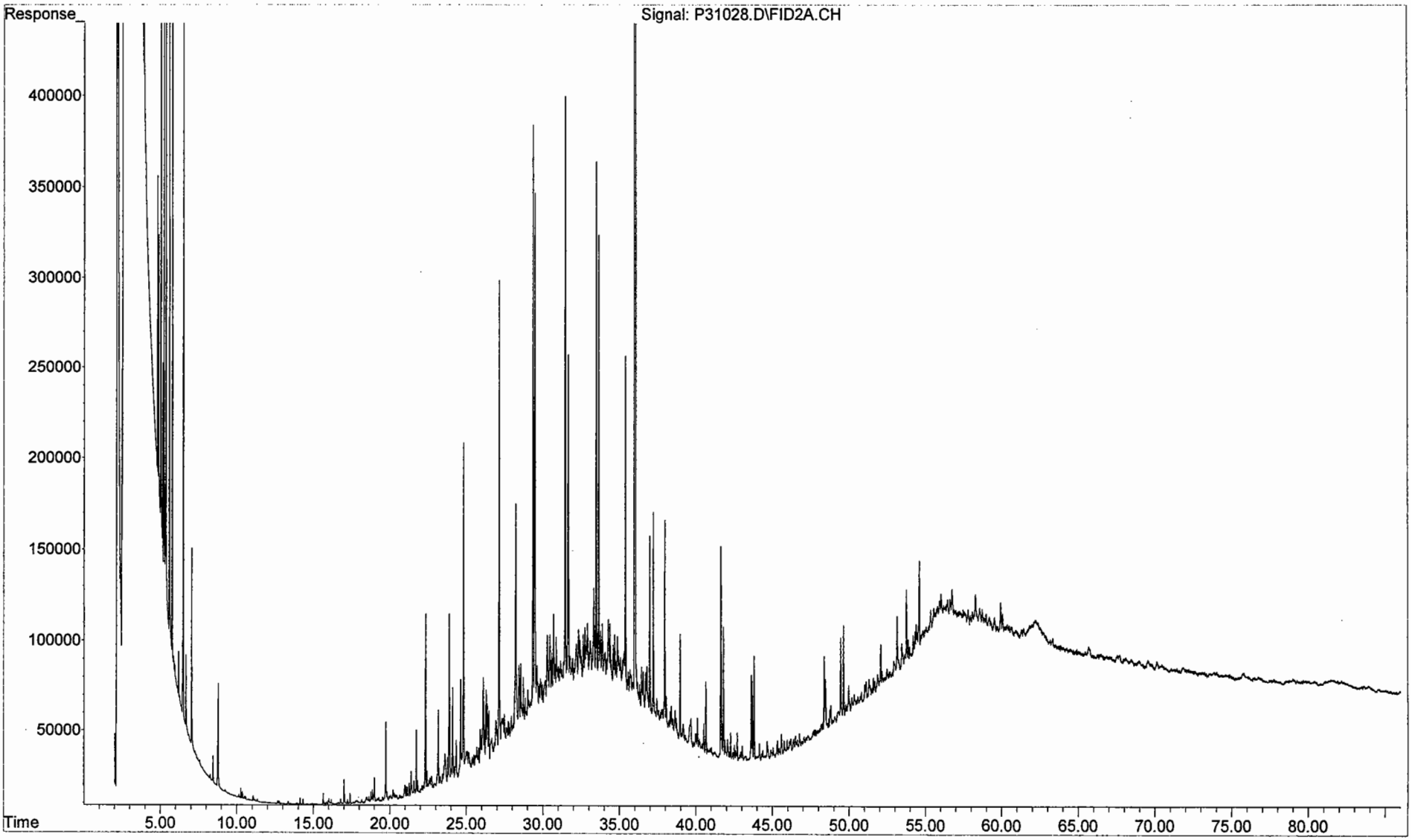
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31028.D
Operator : AC
Acquired : 17 Mar 2005 2:08 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-15-AFID
Misc Info : 1X RERUN
Vial Number: 85



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **OFF-SD-DUP02-01**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **0502110-16**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
02/23/05	02/25/05	03/02/05	03/17/05	79.9	30.70	4	1	AC

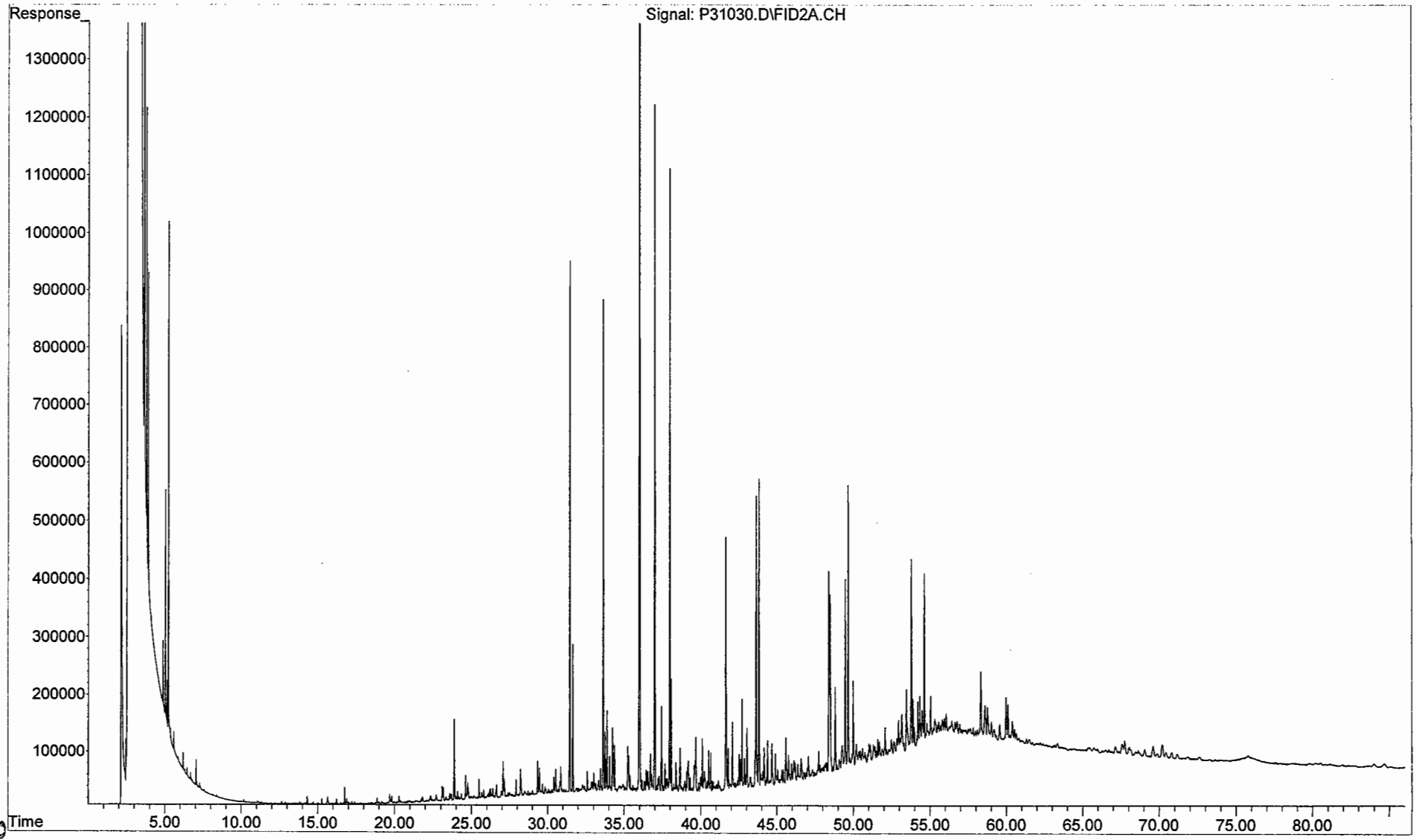
Parameter	Result
Total Petroleum Hydrocarbons	**280**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	86	50-130
d50-Tetracosane	83	50-130

03/21/05 07:44

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31030.D
Operator : AC
Acquired : 17 Mar 2005 3:52 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: 0502110-16-AFID
Misc Info : 1X RERUN
Vial Number: 86



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS030205B06**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/02/05	03/15/05	100	30.00	2	1	AC

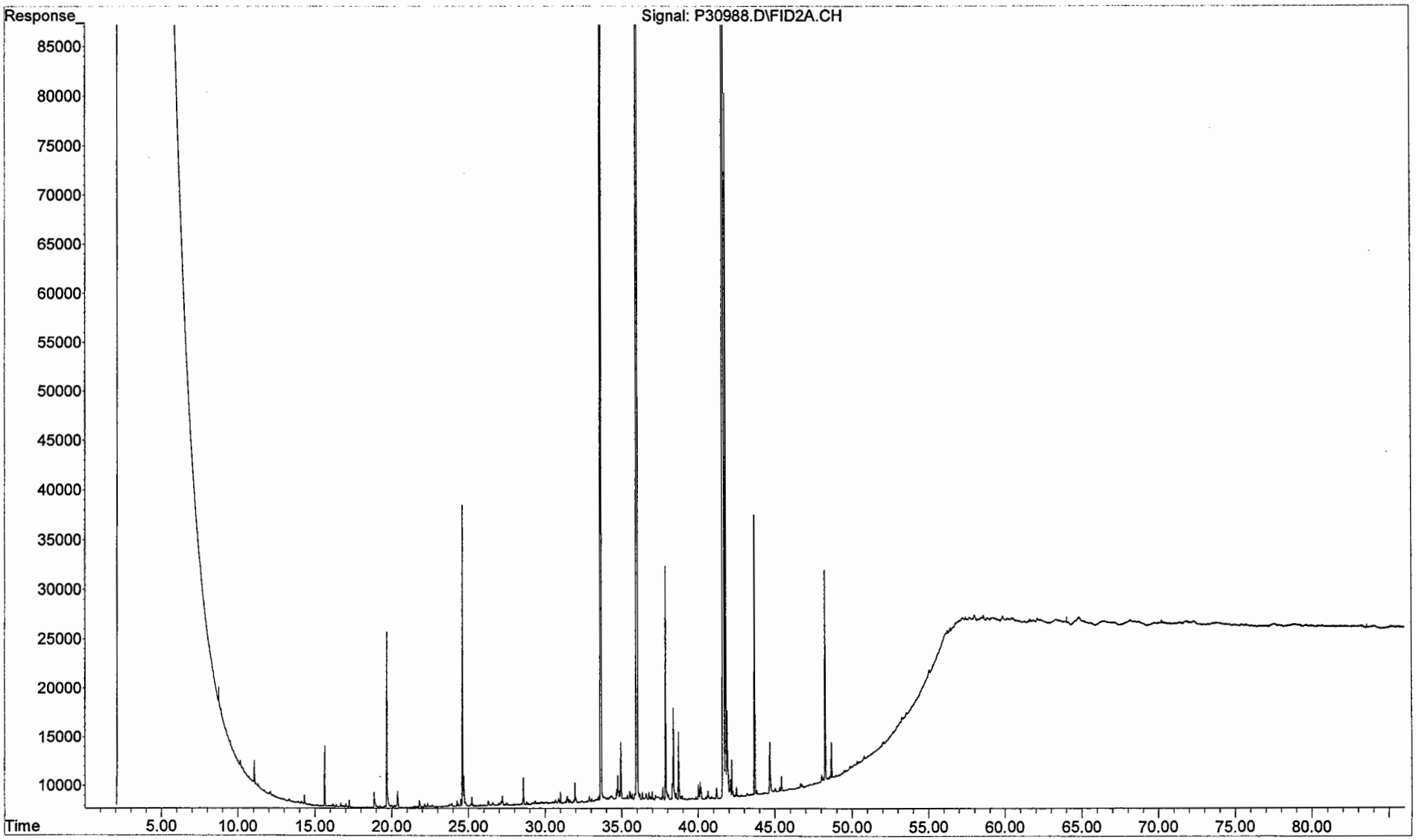
Parameter	Result
Total Petroleum Hydrocarbons	5.9

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	80	50-130
d50-Tetracosane	78	50-130

03/21/05 07:48

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30988.D
Operator : AC
Acquired : 15 Mar 2005 2:58 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: SS030205B06
Misc Info : 1X RERUN
Vial Number: 65



Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **See Below**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	03/02/05	100	AC

Lab ID: SS030205B06 SS030205BS04 SS030205BSD03

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
n-Nonane (C9)	0.067	U	0.82	49[a]	0.84	50	2	30	50-130
n-Decane (C10)	0.067	U	1.0	63	1.1	65	2	30	50-130
n-Dodecane (C12)	0.067	U	1.2	71	1.2	73	3	30	50-130
n-Tetradecane (C14)	0.067	U	1.2	73	1.3	75	3	30	50-130
n-Hexadecane (C16)	0.067	U	1.2	75	1.3	78	3	30	50-130
n-Octadecane (C18)	0.067	U	1.3	77	1.3	79	3	30	50-130
n-Nonadecane (C19)	0.067	U	1.3	77	1.3	80	3	30	50-130
n-Eicosane (C20)	0.067	U	1.3	79	1.4	82	4	30	50-130
n-Docosane (C22)	0.067	U	1.3	77	1.3	80	4	30	50-130
n-Tetracosane (C24)	0.067	U	1.3	77	1.3	80	4	30	50-130
n-Hexacosane (C26)	0.067	U	1.3	78	1.4	81	4	30	50-130
n-Octacosane (C28)	0.067	U	1.3	77	1.3	80	4	30	50-130
n-Triacontane (C30)	0.067	U	1.3	76	1.3	79	4	30	50-130
n-Hexatriacontane (C36)	0.067	U	1.3	75	1.3	79	5	30	50-130

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	72	75	50-130
d50-Tetracosane	69	72	50-130

N/A - Not Applicable
[a] - Value outside of QC Limits.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

03/21/05 11:37

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Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS030205BS04**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/02/05	03/15/05	100	30.00	2.5	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	23

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	72	50-130
d50-Tetracosane	69	50-130

03/21/05 07:48

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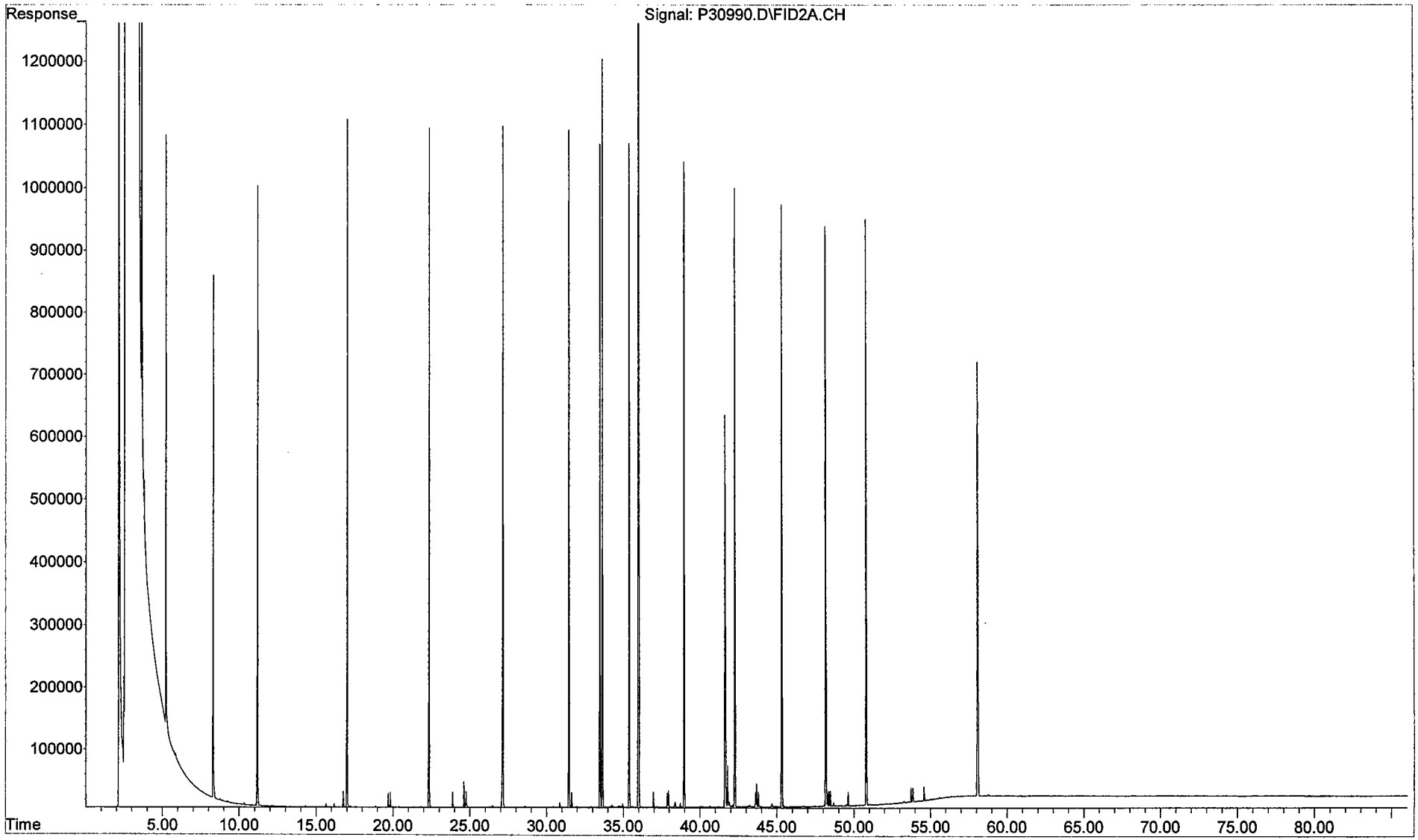
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30990.D
Operator : AC
Acquired : 15 Mar 2005 4:45 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: SS030205BS04-AFID
Misc Info : 1X RERUN
Vial Number: 66



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Sediment**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS030205BSD03**
Associated Blank: **SS030205B06**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/02/05	03/15/05	100	30.00	2	1	AC

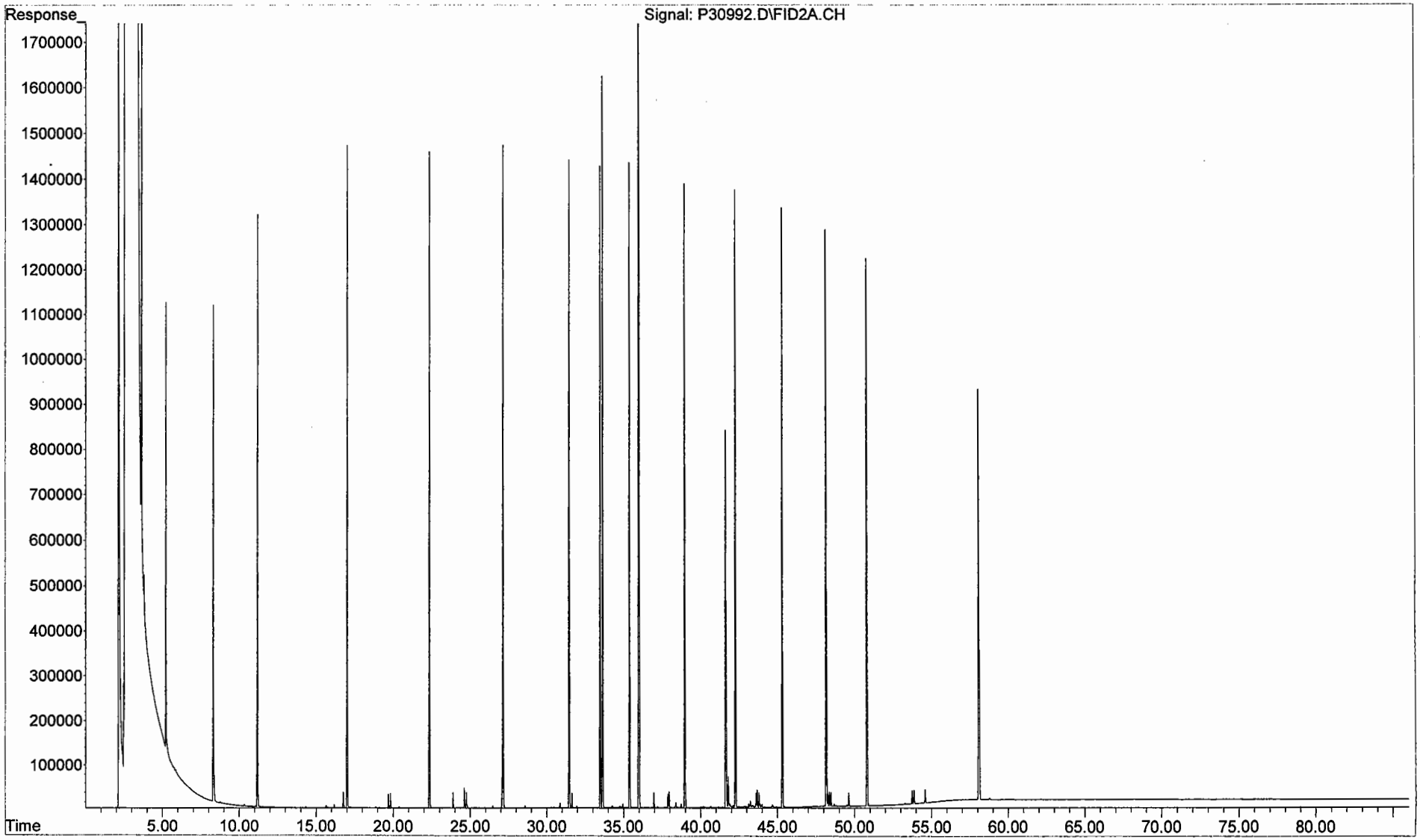
Parameter	Result
Total Petroleum Hydrocarbons	**22**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	75	50-130
d50-Tetracosane	72	50-130

03/21/05 07:48

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30992.D
Operator : AC
Acquired : 15 Mar 2005 6:31 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: SS030205BSD03-AFID
Misc Info : 1X RERUN
Vial Number: 67



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Blank**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS031405B02**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/10/05	03/16/05	100	30.00	2	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	2.2 U

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	75	50-130
d50-Tetracosane	72	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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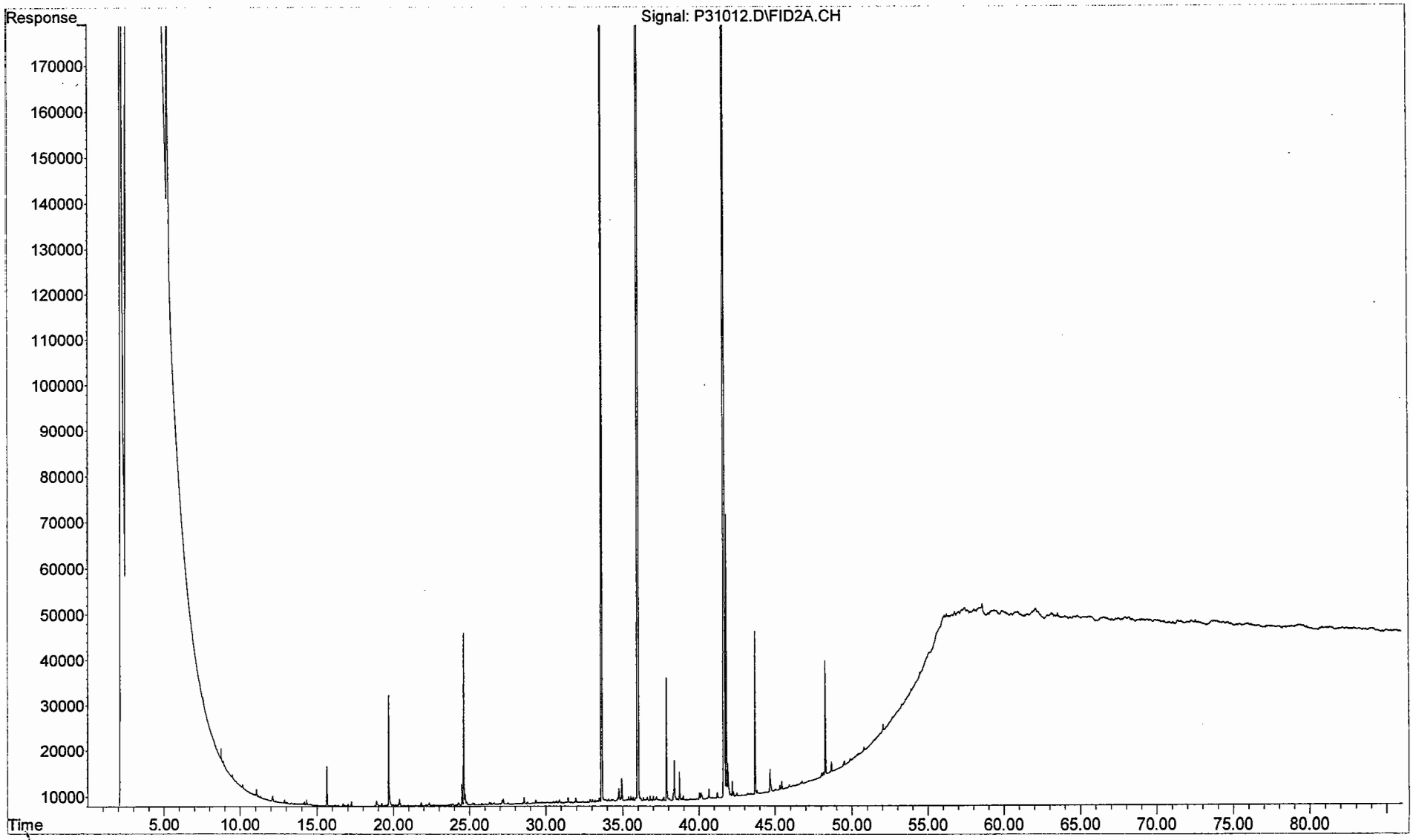
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31012.D
Operator : AC
Acquired : 16 Mar 2005 12:07 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: SS031405B02
Misc Info : 1X ETR0502110 REALUM
Vial Number: 77



Form III
Spike Recovery Summary
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **See Below**
Associated Blank: **SS031405B02**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Percent Solid	Analyst
N/A	N/A	03/10/05	100	AC

Lab ID: SS031405B02 SS031405BS02 SS031405BSD02

Parameter	Blank Conc.		LCS Conc.	LCS % Recovery	LCSD Conc.	LCSD % Recovery	% RPD	RPD Limit	% Recovery Limits
n-Nonane (C9)	0.067	U	1.0	60	1.0	61	2	30	50-130
n-Decane (C10)	0.067	U	1.2	70	1.2	72	3	30	50-130
n-Dodecane (C12)	0.067	U	1.2	75	1.3	78	4	30	50-130
n-Tetradecane (C14)	0.067	U	1.3	76	1.3	79	4	30	50-130
n-Hexadecane (C16)	0.067	U	1.3	79	1.4	82	4	30	50-130
n-Octadecane (C18)	0.067	U	1.3	80	1.4	83	4	30	50-130
n-Nonadecane (C19)	0.067	U	1.4	81	1.4	84	4	30	50-130
n-Eicosane (C20)	0.067	U	1.4	82	1.4	85	3	30	50-130
n-Docosane (C22)	0.067	U	1.3	80	1.4	83	3	30	50-130
n-Tetracosane (C24)	0.067	U	1.3	80	1.4	83	3	30	50-130
n-Hexacosane (C26)	0.067	U	1.4	81	1.4	84	3	30	50-130
n-Octacosane (C28)	0.067	U	1.3	80	1.4	83	3	30	50-130
n-Triacontane (C30)	0.067	U	1.3	80	1.4	82	3	30	50-130
n-Hexatriacontane (C36)	0.067	U	1.3	79	1.4	82	3	30	50-130

Surrogate	% Recovery		Acceptance Range (%)
ortho-Terphenyl	79	81	50-130
d50-Tetracosane	75	77	50-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Concentrations reported as calculated values, which includes rounding for significant figures. Percent recoveries and RPD values are calculated from the unrounded result.

03/21/05 07:3

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Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS031405BS02**
Associated Blank: **SS031405B02**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/10/05	03/14/05	100	30.00	2	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**18**

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	79	50-130
d50-Tetracosane	75	50-130

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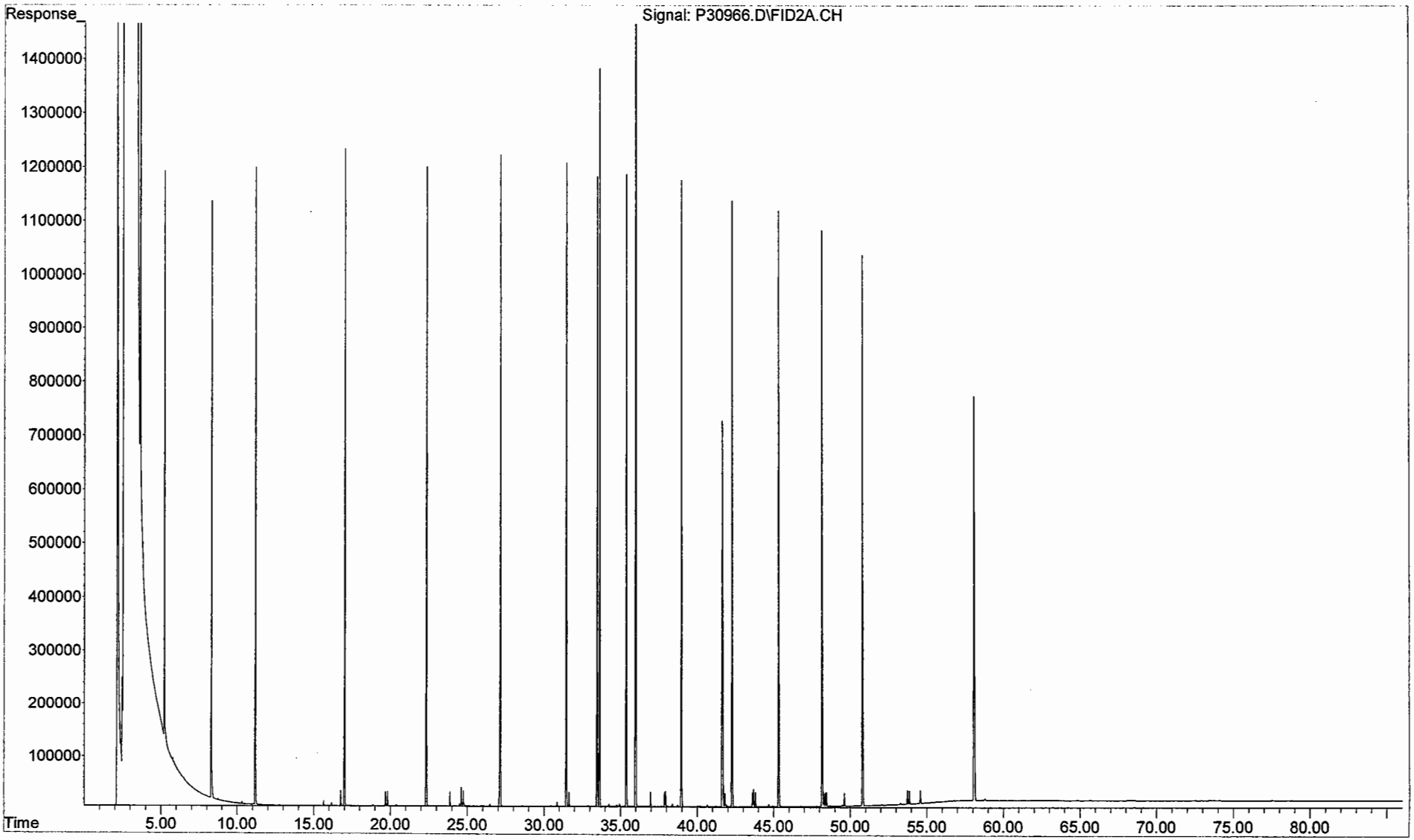
File :O:\ORGANICS\DATA\PAH3\MARCH2005\MARCH14.SEC\P30966.D
Operator : AC
Acquired : 14 Mar 2005 7:35 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: SS031405BS02-AFID
Misc Info : 1X ETR0502110
Vial Number: 54



Form I
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Laboratory Control Sample Dup**
Case: **N/A** SDG: **N/A**
Matrix: **Solid**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS031405BSD02**
Associated Blank: **SS031405B02**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	03/10/05	03/14/05	100	30.00	2	1	AC

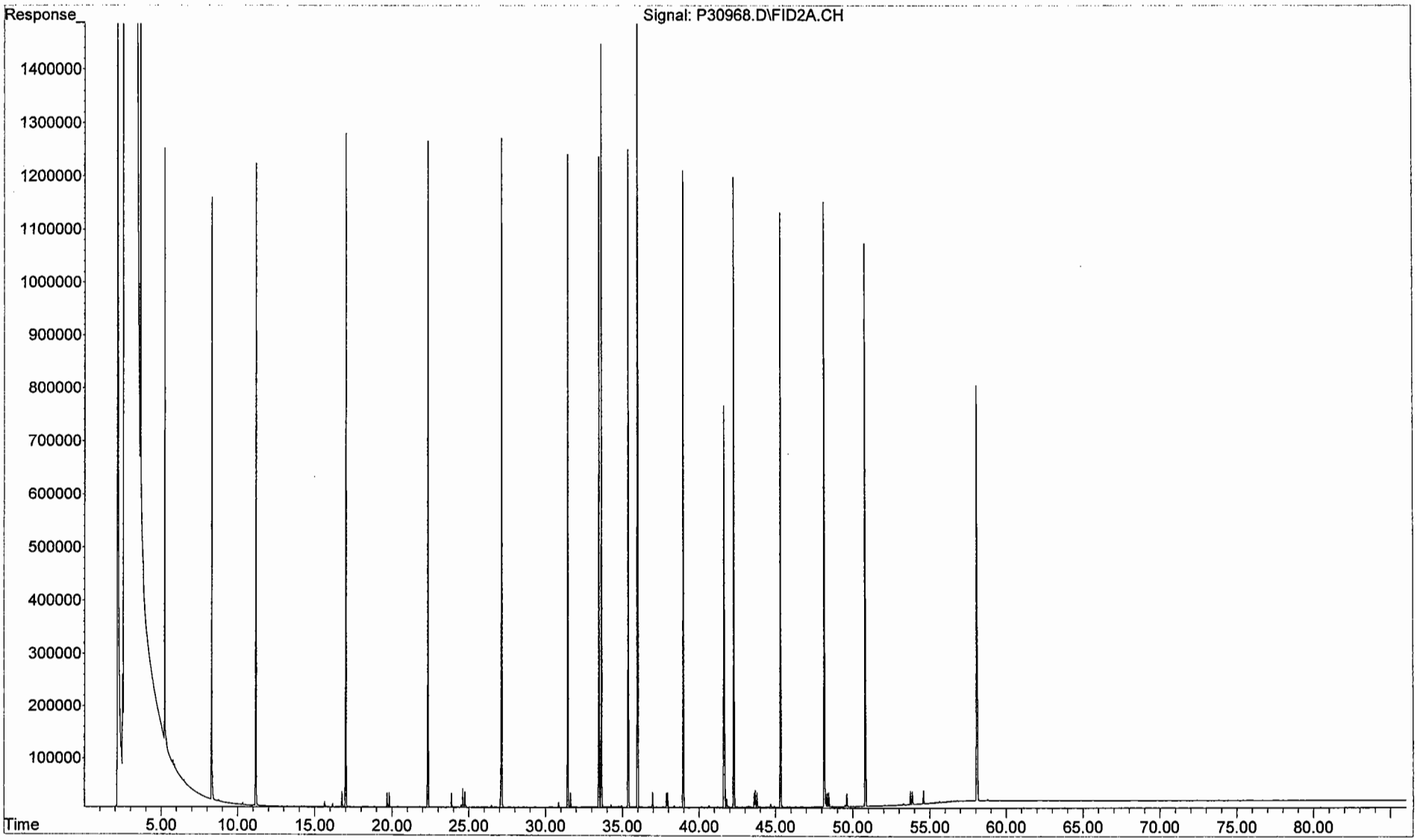
Parameter	Result
Total Petroleum Hydrocarbons	19

N/A - Not Applicable

Surrogate	% Recovery	Acceptance Range (%)
ortho-Terphenyl	81	50-130
d50-Tetracosane	77	50-130

03/21/05 07:33

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30968.D
Operator : AC
Acquired : 14 Mar 2005 9:22 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: SS031405BSD02-AFID
Misc Info : 1X ETR0502110
Vial Number: 55



Form I
Alaska North Slope Crude
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**
Client ID: **Alaska North Slope Crude**
Case: **N/A** SDG: **N/A**
Matrix: **Oil**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **TW031505AWS01**
Associated Blank: **N/A**
Concentration Units: **mg/Kg**

Date Collected	Date Received	Date Extracted	Date Analyzed	Percent Solid	Sample Amount (g)	Final Volume (ml)	Dilution Factor	Analyst
N/A	N/A	N/A	03/11/05	100	0.05	10	1	AC

Parameter	Result
Total Petroleum Hydrocarbons	**650000**

N/A - Not Applicable

03/21/05 12:42

Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH11.SEC\
Data File : P30914.D
Signal(s) : FID2A.CH
Acq On : 11 Mar 2005 3:53 pm
Operator : AC
Sample : TW031505AWS01
Misc : 1X WHGRPAA37 5.002MG/ML
ALS Vial : 53 Sample Multiplier: 1

Integration File: events.e
Quant Time: Mar 15 09:59:20 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\HC30307.M
Quant Title :
QLast Update : Fri Mar 11 11:21:02 2005
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1.0 ul
Signal Phase :
Signal Info :

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	36.03	63140580	50.000 ug/mLm
	System Monitoring Compounds			
19) s	ortho-terpheny1	33.68	70920096	51.205 ug/mLm
Spiked Amount	50.000 Range	50 - 130	Recovery =	102.41%
24) s	d50-Tetracosane	41.68	58264255	48.881 ug/mLm
Spiked Amount	50.000 Range	50 - 130	Recovery =	97.76%
	Target Compounds			
2) t	n-Octane (C8)	5.81	30198549	28.848 ug/mLm
3) t	n-Nonane (C9)	8.30	28457823	24.562 ug/mLm
4) t	n-Decane (C10)	11.18	27617403	23.853 ug/mLm
5) t	n-Undecane (C11)	14.14	27826316	24.009 ug/mLm
6) t	n-Dodecane (C12)	17.01	26314245	22.393 ug/mLm
7) t	n-Tridecane (C13)	19.76	26818130	22.738 ug/mLm
8) t	1380	21.76f	5448684	4.584 ug/mLm
9) t	n-Tetradecane (C14)	22.36	25488153	21.442 ug/mLm
10) t	1470	23.89f	9246037	7.766 ug/mLm
11) t	n-Pentadecane (C15)	24.83	23872476	20.051 ug/mLm
12) t	n-Hexadecane (C16)	27.16	23645550	19.804 ug/mLm
13) t	1650	28.24	7271523	6.054 ug/mLm
14) t	n-Heptadecane (C17)	29.37	20664286	17.204 ug/mLm
15) t	Pristane	29.49	14091548	12.259 ug/mLm
16) t	n-Octadecane (C18)	31.48	19616657	16.264 ug/mLm
17) t	Phytane	31.66	8977046	7.539 ug/mLm
18) t	n-Nonadecane (C19)	33.49	17278612	14.509 ug/mLm
20) t	n-Eicosane (C20)	35.41	16782820	14.199 ug/mLm
21) t	n-Heneicosane (C21)	37.24	14825983	12.161 ug/mLm
22) t	n-Docosane (C22)	38.99	14323519	11.882 ug/mLm
23) t	n-Tricosane (C23)	40.67	13340250	10.974 ug/mLm
25) t	n-Tetracosane (C24)	42.29	12519969	10.267 ug/mLm
26) t	n-Pentacosane (C25)	43.84	11589870	9.476 ug/mLm
27) t	n-Hexacosane (C26)	45.35	10558253	8.763 ug/mLm
28) t	n-Heptacosane (C27)	46.79	7915715	6.574 ug/mLm
29) t	n-Octacosane (C28)	48.18	5930961	4.869 ug/mLm
30) t	n-Nonacosane (C29)	49.53	4855355	3.900 ug/mLm
31) t	n-Triacontane (C30)	50.83	4217256	3.437 ug/mLm
32) t	n-Hentriacontane (C31)	52.09	4489588	3.770 ug/mLm
33) t	n-Dotriacontane (C32)	53.31	2962916	2.464 ug/mLm
34) t	n-Tritriacontane (C33)	54.50	1892211	1.557 ug/mLm
35) t	n-tetratriacontane (C34)	55.65	2200423	1.787 ug/mLm
36) t	n-Pentatriacontane (C35)	56.81	2332482	1.978 ug/mLm
37) t	n-Hexatriacontane (C36)	58.11	1637228	1.354 ug/mLm
38) t	n-Heptatriacontane (C37)	59.60	1480259	1.193 ug/mLm
39) t	n-Octatriacontane (C38)	61.33	1522507	1.256 ug/mLm
40) t	n-Nonatriacontane (C39)	63.34	1053098	0.888 ug/mLm

Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH11.SEC\
Data File : P30914.D
Signal(s) : FID2A.CH
Acq On : 11 Mar 2005 3:53 pm
Operator : AC
Sample : TW031505AWS01
Misc : 1X WHGRPAA37 5.002MG/ML
ALS Vial : 53 Sample Multiplier: 1

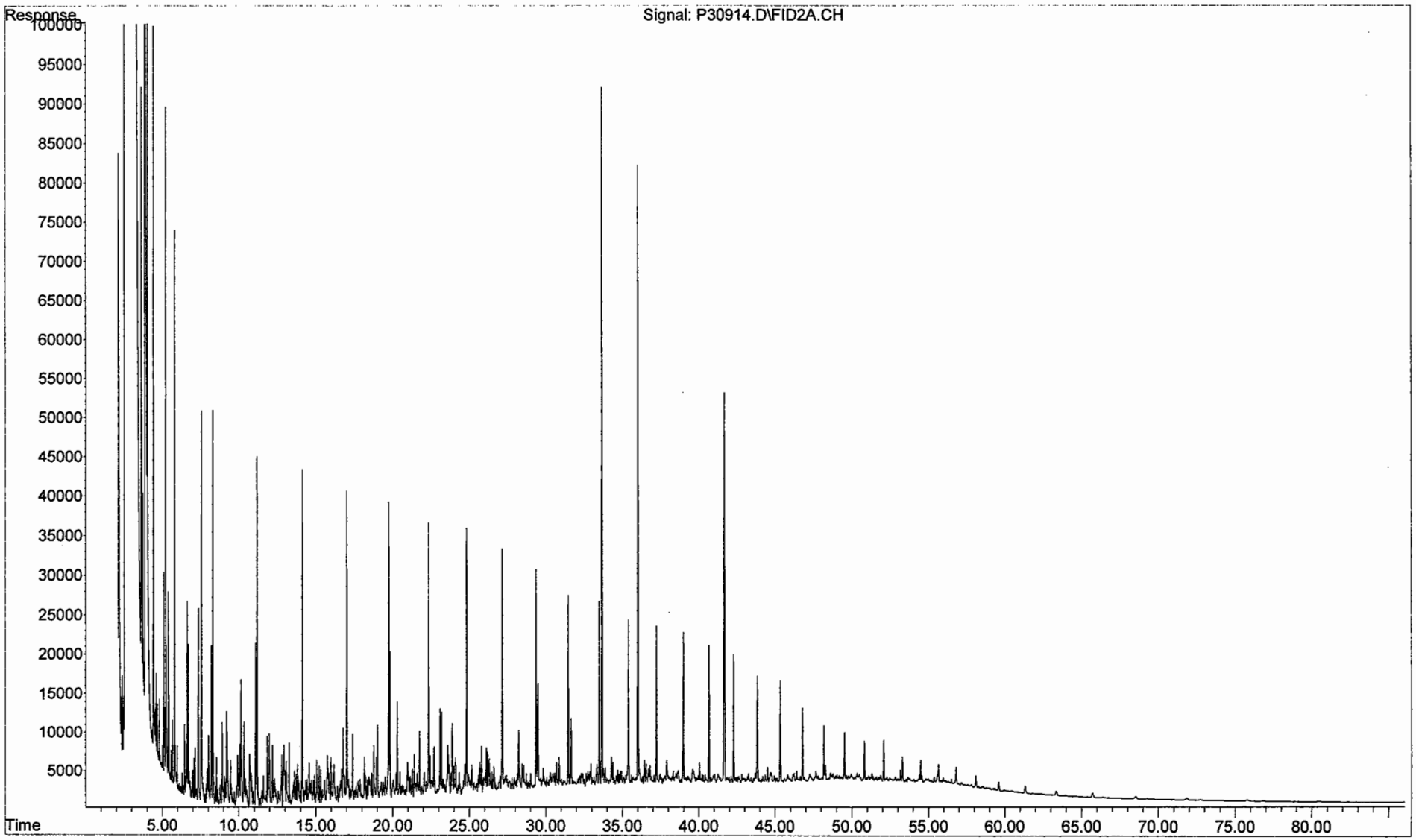
Integration File: events.e
Quant Time: Mar 15 09:59:20 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\HC30307.M
Quant Title :
QLast Update : Fri Mar 11 11:21:02 2005
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 1.0 ul
Signal Phase :
Signal Info :

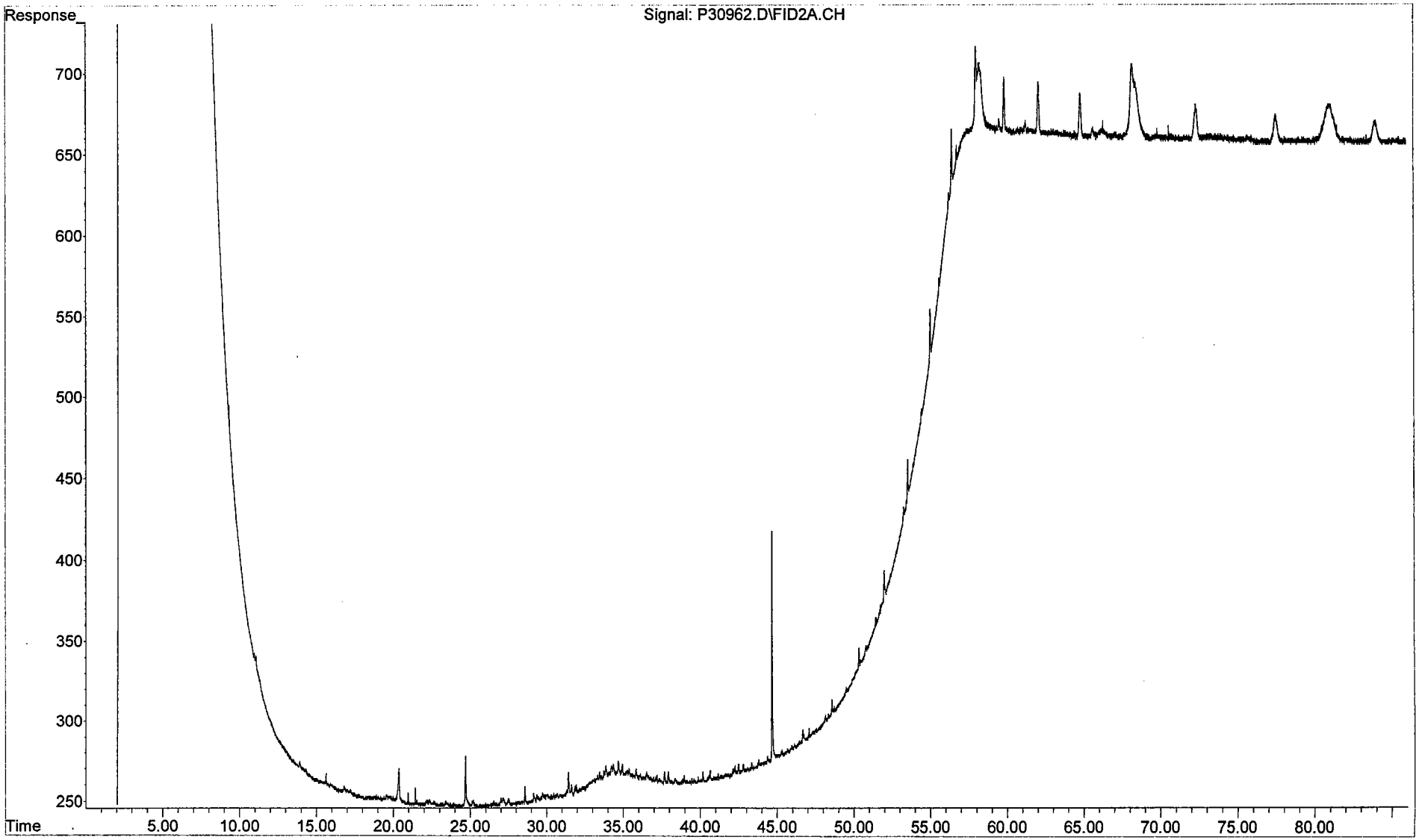
		Compound	R.T.	Response	Conc	Units
41)	t	n-Tetracontane (C40)	65.72	1358358	1.146	ug/mLm
42)	h	C9-C40 Total Petroleum Hyd	45.12	4336926393	3616.612	ug/mL
43)	h	Total Resolved Hydrocarbon	47.62	3620646393	3019.298	ug/L
44)	h	C10-C28 DRO	29.70	2780235722	2318.470	ug/mL

(f)=RT Delta > 1/2 Window (m)=manual int.

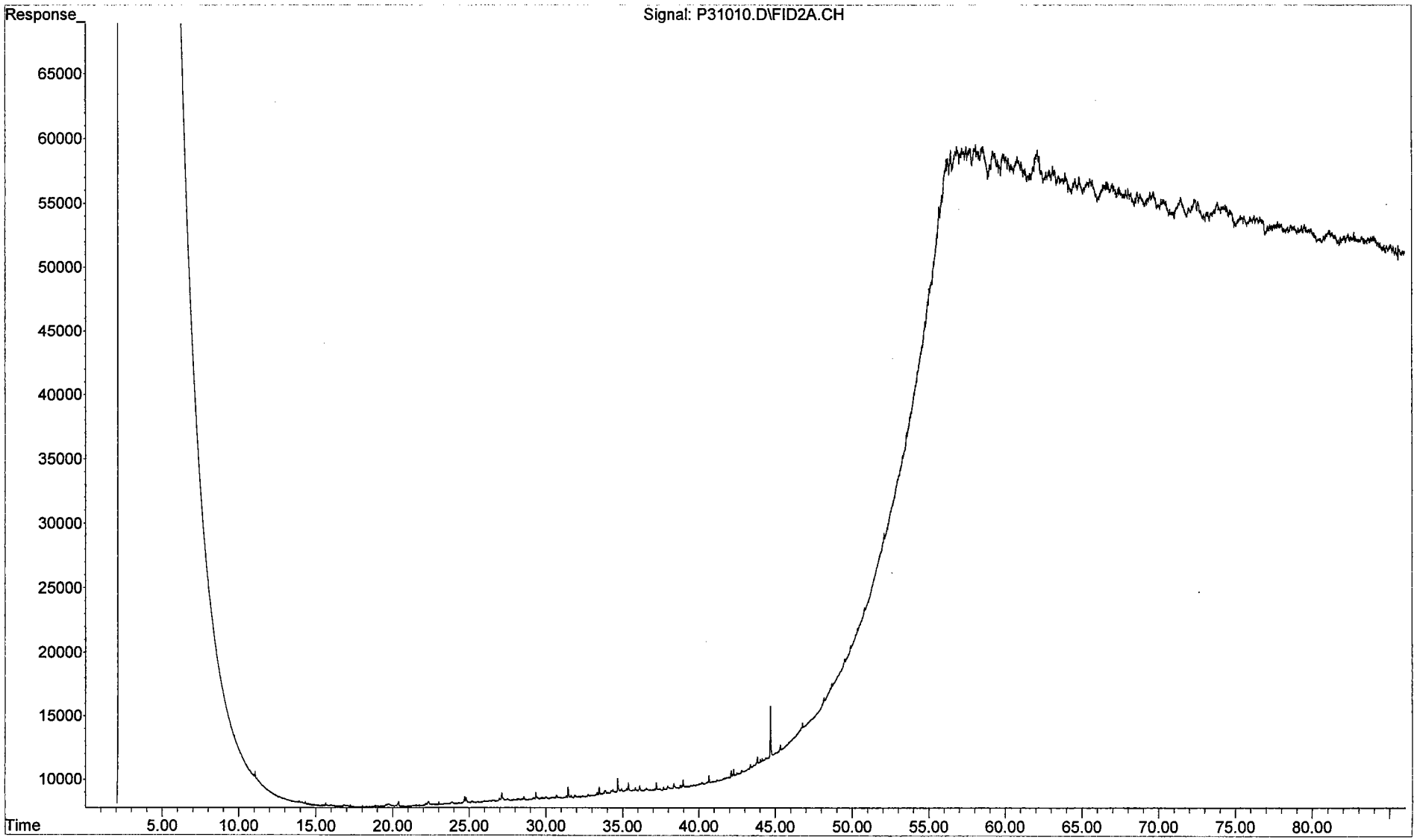
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH11.SEC\P30914.D
Operator : AC
Acquired : 11 Mar 2005 3:53 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: TW031505AWS01
Misc Info : 1X WHGRPAA37 5.002MG/ML
Vial Number: 53



File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30962.D
Operator : AC
Acquired : 14 Mar 2005 3:06 pm using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: IB3031401
Misc Info : DCM
Vial Number: 52



File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31010.D
Operator : AC
Acquired : 16 Mar 2005 10:20 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: IB3031601
Misc Info : DCM
Vial Number: 76



Supporting Quality Control Results

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS030205B06**
Date Analyzed: **03/15/05 14:58**

Client ID	Lab ID	Date/Time Analyzed
LCS	SS030205BS04	03/15/05 16:45
LCSD	SS030205BSD03	03/15/05 18:31
OFF-SD-OFF2-0006-01	0502110-01	03/15/05 20:17
OFF-SD-OFF2-0006-01	0502110-01 D	03/15/05 22:04
OFF-SD-OFF2-0006-01	0502110-01 M	03/15/05 23:49
OFF-SD-411-0006-01	0502110-02	03/16/05 01:35
OFF-SD-OFF3-0006-01	0502110-03	03/16/05 03:19
OFF-SD-414-0006-01	0502110-04	03/16/05 05:04
OFF-SD-SD5-0006-01	0502110-05	03/16/05 06:47
OFF-SD-442-0006-01	0502110-06	03/16/05 13:52
OFF-SD-OFF6-0006-01	0502110-07	03/16/05 15:39
OFF-SD-OFF7-0006-01	0502110-08	03/16/05 17:27
OFF-SD-JPC03-0006-01	0502110-09	03/16/05 19:11
OFF-SD-OTSOF075-0006-01	0502110-10	03/16/05 20:58
OFF-SD-OTSOF075A-0006-01	0502110-11	03/16/05 22:42
OFF-SD-OTSOF093-0006-01	0502110-12	03/17/05 00:25
OFF-SD-DUP01-01	0502110-15	03/17/05 02:08
OFF-SD-DUP02-01	0502110-16	03/17/05 03:52

N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Form IV
Method Blank Summary
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**

Case: **N/A** SDG: **N/A**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **SS031405B02**
Date Analyzed: **03/16/05 12:07**

Client ID	Lab ID	Date/Time Analyzed
LCS	SS031405BS02	03/14/05 19:35
LCSD	SS031405BSD02	03/14/05 21:22
OFF-SD-414-DEBRIS1	0502110-13	03/14/05 23:08
OFF-SD-414-DEBRIS1	0502110-13 D	03/15/05 00:51
OFF-SD-414-DEBRIS2	0502110-14	03/15/05 02:37

N/A - Not Applicable

375 Paramount Drive, Suite 2, Raynham, Massachusetts 02767, (508) 822-9300, Fax (508) 822-3288, whale@whgrp.com

Response Factor Report PAH#3

Method Path : O:\ORGANICS\METHODS\PAH3\MARCH05\
Method File : HC30307.M
Title :
Last Update : Tue Mar 08 12:02:27 2005
Response Via : Initial Calibration

3/8/05

Calibration Files
1 =P30881.D 10 =P30882.D 50 =P30883.D
100 =P30884.D 200 =P30885.D

		Compound	1	10	50	100	200	Avg	%RSD
1)	I	5-alpha-androstane	----------ISTD----------						
2)	t	n-Octane (C8)	0.741	0.828	0.858	0.859	0.859	0.829	6.15
3)	t	n-Nonane (C9)	0.947	0.935	0.922	0.892	0.893	0.917	2.68
4)	t	n-Decane (C10)	0.908	0.915	0.939	0.913	0.910	0.917	1.37
5)	t	n-Undecane (C11)	0.910	0.918	0.939	0.913	0.908	0.918	1.38
6)	t	n-Dodecane (C12)	0.922	0.932	0.952	0.927	0.920	0.931	1.38
7)	t	n-Tridecane (C13)	0.928	0.936	0.954	0.930	0.922	0.934	1.32
8)	t	1380	0.937	0.942	0.961	0.937	0.929	0.941	1.28
9)	t	n-Tetradecane (C14)	0.937	0.942	0.961	0.937	0.929	0.941	1.28
10)	t	1470	0.939	0.943	0.963	0.939	0.930	0.943	1.27
11)	t	n-Pentadecane (C15)	0.939	0.943	0.963	0.939	0.930	0.943	1.27
12)	t	n-Hexadecane (C16)	0.943	0.943	0.966	0.943	0.933	0.945	1.31
13)	t	1650	0.952	0.945	0.972	0.948	0.939	0.951	1.30
14)	t	n-Heptadecane (C17)	0.952	0.945	0.972	0.948	0.939	0.951	1.30
15)	t	Pristane	0.909	0.906	0.931	0.908	0.898	0.910	1.35
16)	t	n-Octadecane (C18)	0.967	0.945	0.973	0.950	0.940	0.955	1.49
17)	t	Phytane	0.942	0.935	0.965	0.941	0.931	0.943	1.40
18)	t	n-Nonadecane (C19)	0.940	0.934	0.966	0.942	0.933	0.943	1.43
19)	s	ortho-terphenyl	1.107	1.203	1.080	1.058	1.036	1.097	5.93
20)	t	n-Eicosane (C20)	0.933	0.926	0.960	0.935	0.926	0.936	1.48
21)	t	n-Heneicosane (C21)	0.962	0.955	0.990	0.965	0.955	0.965	1.49
22)	t	n-Docosane (C22)	0.959	0.943	0.977	0.951	0.942	0.955	1.51
23)	t	n-Tricosane (C23)	0.972	0.950	0.983	0.959	0.949	0.963	1.56
24)	s	d50-Tetracosane	0.975	1.052	0.858	0.927	0.907	0.944	7.80
25)	t	n-Tetracosane (C24)	0.964	0.956	0.990	0.964	0.954	0.966	1.50
26)	t	n-Pentacosane (C25)	0.991	0.954	0.987	0.961	0.950	0.969	1.97
27)	t	n-Hexacosane (C26)	0.957	0.942	0.978	0.952	0.942	0.954	1.53
28)	t	n-Heptacosane (C27)	0.963	0.940	0.975	0.949	0.939	0.953	1.62
29)	t	n-Octacosane (C28)	0.971	0.953	0.988	0.961	0.950	0.965	1.58
30)	t	n-Nonacosane (C29)	0.991	0.973	1.010	0.983	0.972	0.986	1.59
31)	t	n-Triacontane (C30)	0.981	0.960	0.994	0.968	0.956	0.972	1.60
32)	t	n-Hentriacontane (C31	0.959	0.931	0.963	0.937	0.926	0.943	1.76
33)	t	n-Dotriacontane (C32)	0.974	0.941	0.970	0.944	0.931	0.952	1.98
34)	t	n-Tritriacontane (C33	0.970	0.956	0.984	0.958	0.944	0.962	1.60
35)	t	n-tetratriacontane (C	0.988	0.970	0.995	0.969	0.954	0.975	1.68
36)	t	n-Pentatriacontane (C	0.947	0.929	0.953	0.926	0.913	0.934	1.73
37)	t	n-Hexatriacontane (C3	0.974	0.955	0.977	0.949	0.935	0.958	1.84
38)	t	n-Heptatriacontane (C	0.989	0.983	1.006	0.976	0.960	0.983	1.70
39)	t	n-Octatriacontane (C3	0.961	0.961	0.984	0.954	0.938	0.960	1.73
40)	t	n-Nonatriacontane (C3	0.939	0.942	0.964	0.932	0.917	0.939	1.81
41)	t	n-Tetracontane (C40)	0.939	0.942	0.964	0.932	0.917	0.939	1.81
42)	h	C9-C40 Total Petroleu	0.954	0.944	0.971	0.945	0.935	0.950	1.44
43)	h	Total Resolved Hydroc	0.954	0.944	0.971	0.945	0.935	0.950	1.44
44)	h	C10-C28 DRO	0.954	0.944	0.971	0.945	0.935	0.950	1.44

(#) = Out of Range

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FID TPH RF CALULATION

	L5	L4	L3	L2	L1
Method ID	HC30307.M	HC30307.M	HC30307.M	HC30307.M	HC30307.M
Date	Tue Mar 08 11:03:02 2005	Tue Mar 08 11:01:18 2005	Tue Mar 08 11:04:25 2005	Tue Mar 08 11:08:52 2005	Tue Mar 08 11:10:38 2005
File ID	P30885.D	P30884.D	P30883.D	P30882.D	P30881.D
n-Octane (C8)	248817299	134699040	55375539	11219653	1040986
n-Nonane (C9)	258213917	139929946	59463703	12092240	1129987
n-Decane (C10)	263103418	143179037	60570852	12424628	1278002
n-Undecane (C11)	262507410	143298452	60605241	12493368	1279029
n-Dodecane (C12)	266832525	145429476	61314563	12616029	1295653
n-Tridecane (C13)	266721929	145914815	61557896	12701144	1302273
n-Tetradecane (C14)	268574720	147092360	62007198	12792640	1318869
n-Pentadecane (C15)	269661246	147368805	62109457	12801973	1318943
n-Hexadecane (C16)	269692527	147909516	62328002	12811184	1324931
n-Heptadecane (C17)	271584311	148766876	62691348	12866559	1306982
Pristane	259567443	142423998	60050296	12602841	1277524
n-Octadecane (C18)	271883270	149085547	62759035	12837079	1266458
Phytane	269325046	147664570	62271535	12701375	1323348
n-Nonadecane (C19)	269812517	147857226	62331974	12577761	1320880
n-Eicosane (C20)	267756186	146719875	61908592	12574068	1311557
n-Heneicosane (C21)	276184146	151878487	63878584	12970247	1352024
n-Docosane (C22)	272392240	149270878	63039860	12806109	1347764
n-Tricosane (C23)	274421564	150398154	63448290	12894758	1366406
n-Tetracosane (C24)	275932292	151300724	63884012	12975735	1364591
n-Pentacosane (C25)	274849604	150716885	63674557	12949611	1392580
n-Hexacosane (C26)	272453774	149366171	63078319	12792354	1344287
n-Heptacosane (C27)	271641783	148943809	62918290	12769851	1353924
n-Octacosane (C28)	274834795	150747686	63715938	12930667	1364644
n-Nonacosane (C29)	281129453	154309204	65193659	13212602	1391092
n-Triacontane (C30)	276480896	151880626	64101010	13038206	1378564
n-Hentriacontane (C31)	267665533	147084978	62120127	12647261	1346828
n-Dotriacontane (C32)	269337213	148174413	62682043	12782713	1369215
n-Tritriacontane (C33)	272872489	150254418	63494871	12977340	1362892
n-tetratriacontane (C34)	275930008	151964371	64242444	13163174	1387808
n-Pentatriacontane (C35)	263964221	145363381	61453524	12615195	1390880
n-Hexatriacontane (C36)	270304676	148899374	63033104	12964804	1363926
n-Heptatriacontane (C37)	277705792	153137437	64896423	13044445	1389246
n-Octatriacontane (C38)	271347185	149610540	63497213	13047458	1350375
n-Tetracontane (C40)	265313962	146168535	62192644	12796613	1319881

	L5	L4	L3	L2	L1
C8-C40 Total Petroleum Hydrocarbons	270359002	148927857	63621565	12917172	1346331
Total Resolved Hydrocarbons	270359002	148927857	63621565	12917172	1346331
C10-C28 RF	270359002	148927857	63621565	12917172	1346331

Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH07\
Data File : P30887.D
Signal(s) : FID2A.CH
Acq On : 08 Mar 2005 7:24 am
Operator : AC
Sample : Q3030701
Misc : WHGRPAA25
ALS Vial : 59 Sample Multiplier: 1

Integration File: AUTOINT1.E
Quant Time: Mar 08 11:22:26 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\HC30307.M
Quant Title :
QLast Update : Tue Mar 08 11:12:30 2005
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm

	Compound	R.T.	Response	Conc Units
	Internal Standards			
1) I	5-alpha-androstane	36.03	65511581	50.000 ug/mL
	System Monitoring Compounds			
19) s	ortho-terphenyl	33.68	75106557	52.265 ug/mL
Spiked Amount	50.000 Range	50 - 130	Recovery	= 104.53%
24) s	d50-Tetracosane	41.68	66164928	53.500 ug/mL
Spiked Amount	50.000 Range	50 - 130	Recovery	= 107.00%
	Target Compounds			
3) t	n-Nonane (C9)	8.31	60419086	50.260 ug/mL
4) t	n-Decane (C10)	11.19	61591109	51.270 ug/mL
6) t	n-Dodecane (C12)	17.03	62742337	51.460 ug/mL
9) t	n-Tetradecane (C14)	22.38	63144273	51.197 ug/mL
12) t	n-Hexadecane (C16)	27.18	64494945	52.062 ug/mL
16) t	n-Octadecane (C18)	31.50	63876464	51.044 ug/mL
18) t	n-Nonadecane (C19)	33.51	64623581	52.301 ug/mL
20) t	n-Eicosane (C20)	35.43	65180076	53.148 ug/mL
22) t	n-Docosane (C22)	39.02	65003007	51.973 ug/mL
25) t	n-Tetracosane (C24)	42.32	65392892	51.684 ug/mL
27) t	n-Hexacosane (C26)	45.37	65697936	52.553 ug/mL
29) t	n-Octacosane (C28)	48.22	65577098	51.889 ug/mL
31) t	n-Triacontane (C30)	50.87	65629415	51.551 ug/mL
37) t	n-Hexatriacontane (C36)	58.16	65496490	52.187 ug/mL

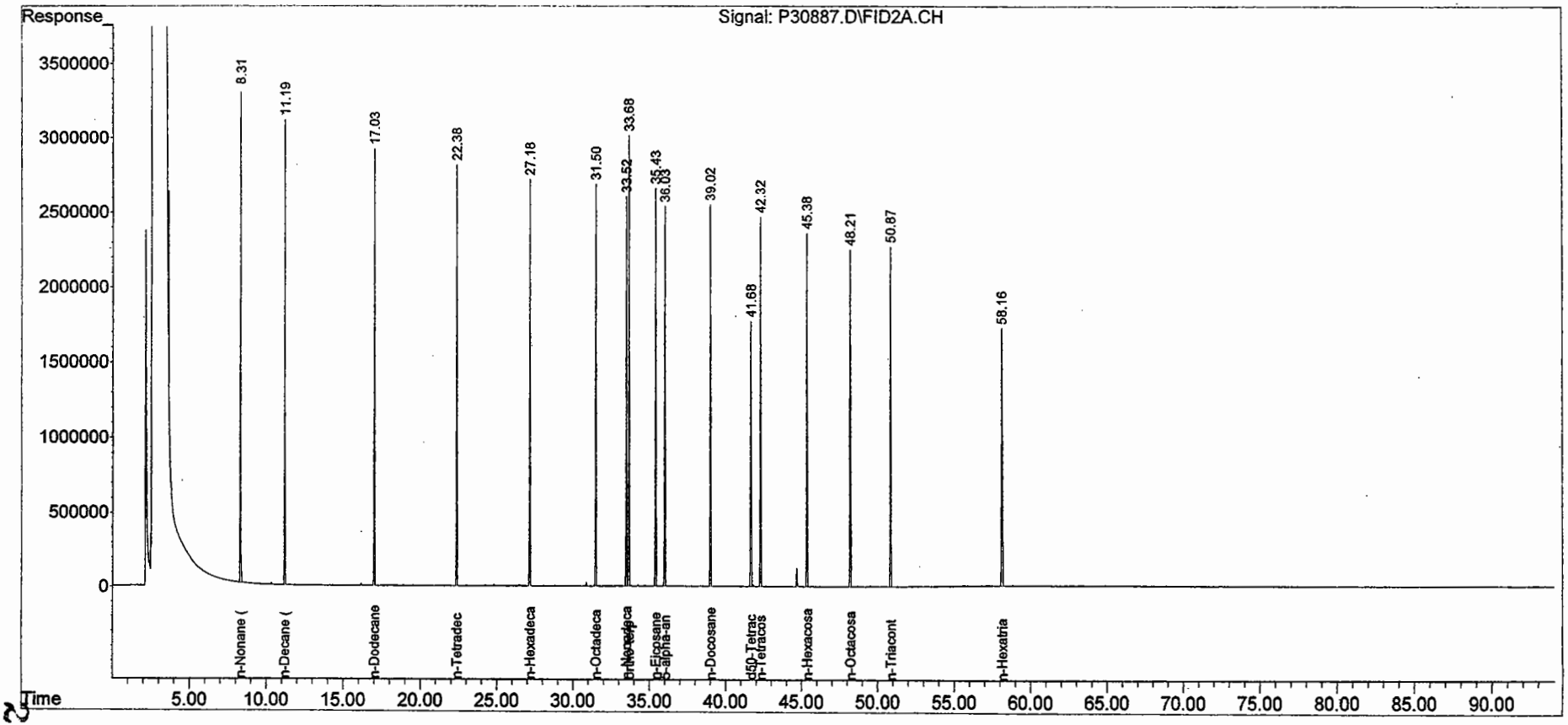
(f)=RT Delta > 1/2 Window (m)=manual int.

Quantitation Report (QT Reviewed)

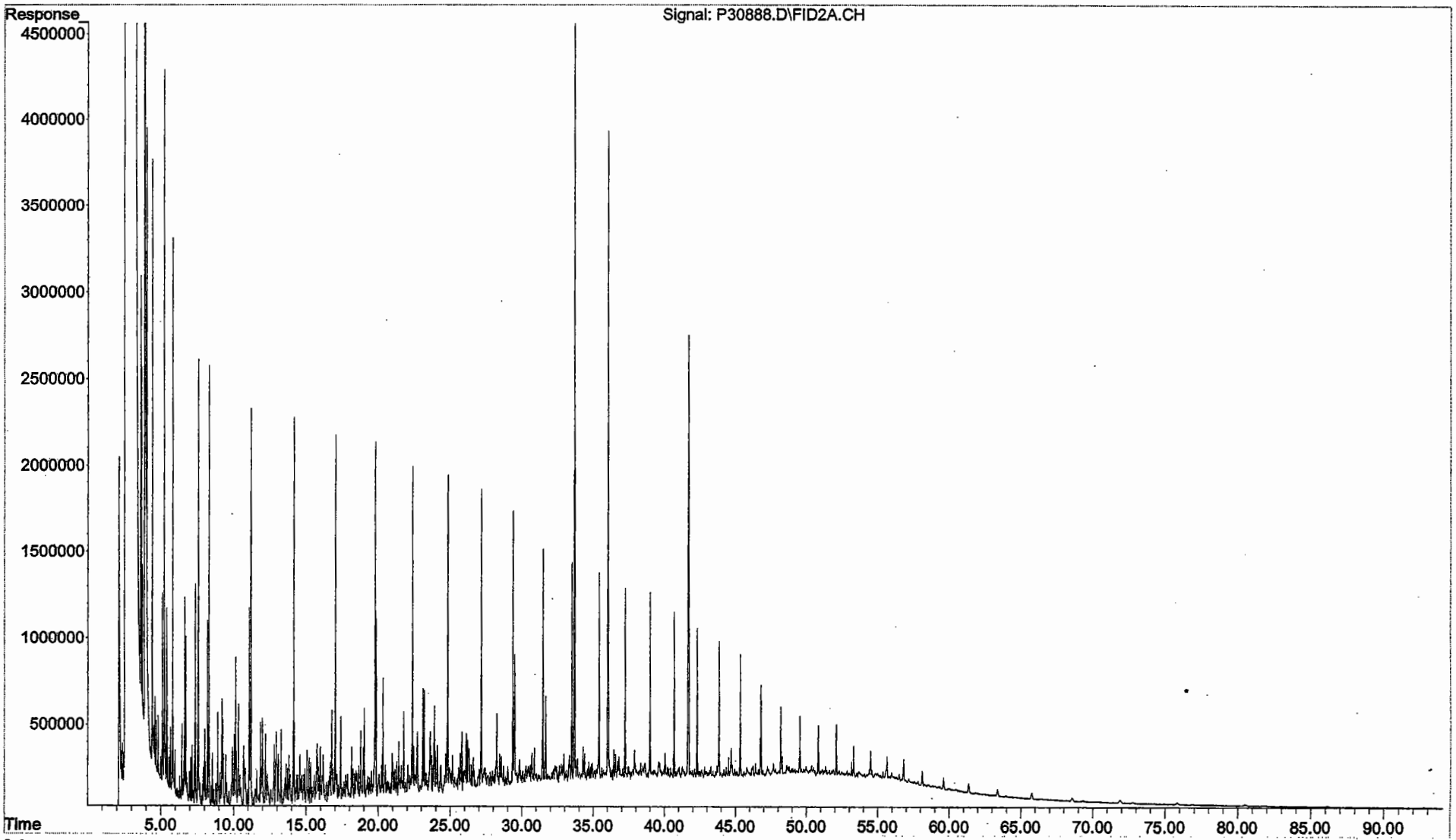
Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH07\
Data File : P30887.D
Signal(s) : FID2A.CH
Acq On : 08 Mar 2005 7:24 am
Operator : AC
Sample : Q3030701
Misc : WHGRPAA25
ALS Vial : 59 Sample Multiplier: 1

Integration File: AUTOINT1.E
Quant Time: Mar 08 11:22:26 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\HC30307.M
Quant Title :
QLast Update : Tue Mar 08 11:12:30 2005
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm



File :O:\Organics\DATA\PAH3\MARCH2005\MARCH07\P30888.D
Operator : AC
Acquired : 08 Mar 2005 9:18 am using AcqMethod HC30307.M
Instrument : PAH#3
Sample Name: ANS3030701
Misc Info : WHGRPAA37 5.002MG/ML
Vial Number: 60



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Form VII
Calibration Verification
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **C3031401**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
n-Nonane (C9)	50.00	49.84	0.3	25
n-Decane (C10)	50.00	50.80	1.6	25
n-Undecane (C11)	50.00	50.90	1.8	25
n-Dodecane (C12)	50.00	51.04	2.1	25
n-Tridecane (C13)	50.00	51.08	2.2	25
n-Tetradecane (C14)	50.00	51.17	2.3	25
n-Pentadecane (C15)	50.00	51.21	2.4	25
n-Hexadecane (C16)	50.00	51.46	2.9	25
n-Heptadecane (C17)	50.00	51.37	2.7	25
Pristane	50.00	51.43	2.9	25
n-Octadecane (C18)	50.00	51.28	2.6	25
Phytane	50.00	51.47	2.9	25
n-Nonadecane (C19)	50.00	51.72	3.4	25
n-Eicosane (C20)	50.00	51.67	3.3	25
n-Heneicosane (C21)	50.00	51.69	3.4	25
n-Docosane (C22)	50.00	51.56	3.1	25
n-Tricosane (C23)	50.00	51.42	2.8	25
n-Tetracosane (C24)	50.00	51.64	3.3	25
n-Pentacosane (C25)	50.00	51.27	2.5	25
n-Hexacosane (C26)	50.00	51.60	3.2	25
n-Heptacosane (C27)	50.00	51.47	2.9	25
n-Octacosane (C28)	50.00	51.53	3.1	25
n-Nonacosane (C29)	50.00	51.57	3.1	25
n-Triacontane (C30)	50.00	51.51	3.0	25
n-Hentriacontane (C31)	50.00	51.53	3.1	25
n-Dotriacontane (C32)	50.00	51.33	2.7	25
n-Tritriacontane (C33)	50.00	51.46	2.9	25
n-Tetratriacontane (C34)	50.00	51.39	2.8	25
n-Pentatriacontane (C35)	50.00	51.39	2.8	25
n-Hexatriacontane (C36)	50.00	51.56	3.1	25
n-Heptatriacontane (C37)	50.00	51.48	3.0	25
n-Octatriacontane (C38)	50.00	51.58	3.2	25
n-Tetracontane (C40)	50.00	51.64	3.3	25
ortho-Terphenyl	50.00	49.63	0.7	25
d50-Tetracosane	50.00	45.73	8.5	25

Area Response Ratio C30 to C20	Ratio
(Area C30/Area C20)	1.03

N/A - Not Applicable

03/18/05 13:48

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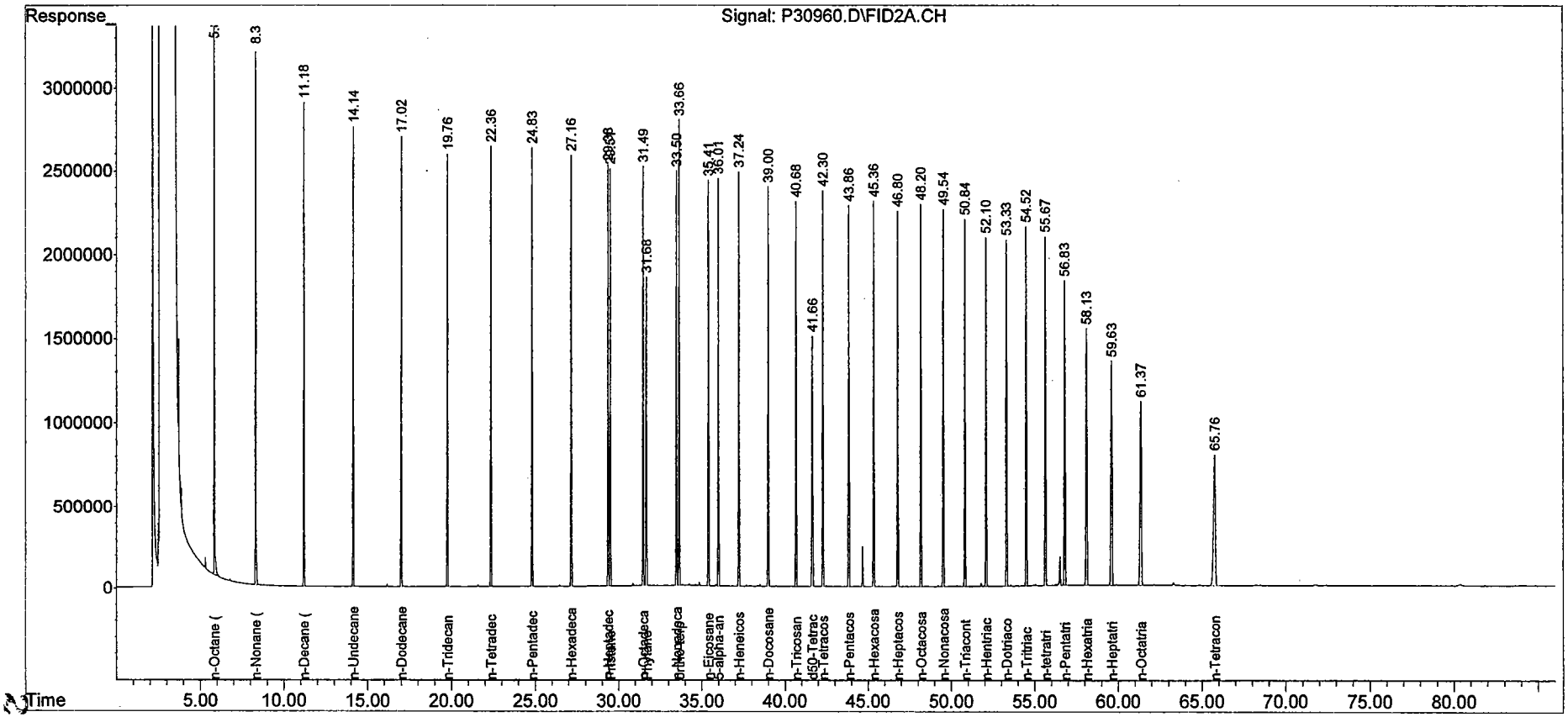
Quantitation Report (QT Reviewed)

Data Path : O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\
Data File : P30960.D
Signal(s) : FID2A.CH
Acq On : 14 Mar 2005 1:19 pm
Operator : AC
Sample : C3031401-AFID
Misc : WHGRPAA50 50UG/ML
ALS Vial : 51 Sample Multiplier: 1

Integration File: AUTOINT1.E
Quant Time: Mar 15 09:37:33 2005
Quant Method : O:\ORGANICS\METHODS\PAH3\MARCH05\HC30307.M
Quant Title :
QLast Update : Fri Mar 11 11:21:02 2005
Response via : Initial Calibration
Integrator: ChemStation 6890 Scale Mode: Large solvent peaks clipped

Volume Inj. : 1.0
Signal Phase : Rtx-5MS
Signal Info : 0.25mm



Form VII
Calibration Verification
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **C3031402**

Case: **N/A** SDG: **N/A**

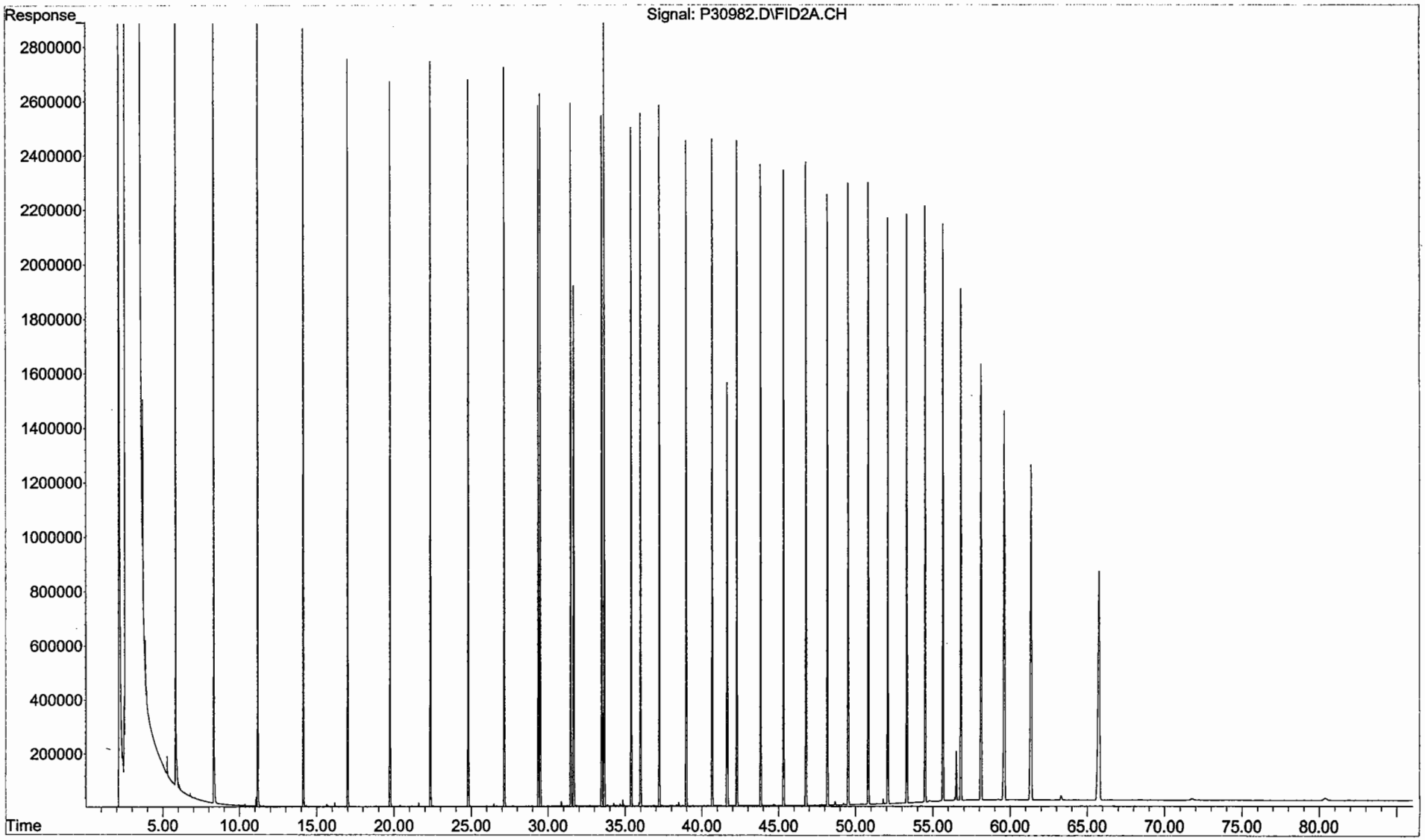
Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
n-Nonane (C9)	50.00	49.87	0.3	25
n-Decane (C10)	50.00	50.98	2.0	25
n-Undecane (C11)	50.00	51.14	2.3	25
n-Dodecane (C12)	50.00	51.25	2.5	25
n-Tridecane (C13)	50.00	51.25	2.5	25
n-Tetradecane (C14)	50.00	51.27	2.5	25
n-Pentadecane (C15)	50.00	51.33	2.7	25
n-Hexadecane (C16)	50.00	51.57	3.1	25
n-Heptadecane (C17)	50.00	51.46	2.9	25
Pristane	50.00	51.52	3.0	25
n-Octadecane (C18)	50.00	51.37	2.7	25
Phytane	50.00	51.55	3.1	25
n-Nonadecane (C19)	50.00	51.63	3.3	25
n-Eicosane (C20)	50.00	51.69	3.4	25
n-Heneicosane (C21)	50.00	51.70	3.4	25
n-Docosane (C22)	50.00	51.57	3.1	25
n-Tricosane (C23)	50.00	51.45	2.9	25
n-Tetracosane (C24)	50.00	51.67	3.3	25
n-Pentacosane (C25)	50.00	51.33	2.7	25
n-Hexacosane (C26)	50.00	51.66	3.3	25
n-Heptacosane (C27)	50.00	51.55	3.1	25
n-Octacosane (C28)	50.00	51.61	3.2	25
n-Nonacosane (C29)	50.00	51.67	3.3	25
n-Triacontane (C30)	50.00	51.60	3.2	25
n-Hentriacontane (C31)	50.00	51.49	3.0	25
n-Dotriacontane (C32)	50.00	51.36	2.7	25
n-Tritriacontane (C33)	50.00	51.59	3.2	25
n-Tetratriacontane (C34)	50.00	51.57	3.1	25
n-Pentatriacontane (C35)	50.00	51.50	3.0	25
n-Hexatriacontane (C36)	50.00	51.50	3.0	25
n-Heptatriacontane (C37)	50.00	51.72	3.4	25
n-Octatriacontane (C38)	50.00	51.80	3.6	25
n-Tetracontane (C40)	50.00	51.94	3.9	25
ortho-Terphenyl	50.00	49.68	0.6	25
d50-Tetracosane	50.00	45.81	8.4	25

Area Response Ratio C30 to C20	Ratio
(Area C30/Area C20)	1.04

N/A - Not Applicable

03/18/05 13:48 261

File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P30982.D
Operator : AC
Acquired : 15 Mar 2005 9:34 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: C3031402-AFID
Misc Info : WHGRPAA50 50UG/ML
Vial Number: 62



Form VII
Calibration Verification
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice**
Project: **Coasters Harbor**

Lab Code: **MA00030**
ETR: **0502110**
Lab ID: **C3031403**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
n-Nonane (C9)	50.00	49.59	0.8	25
n-Decane (C10)	50.00	51.05	2.1	25
n-Undecane (C11)	50.00	51.27	2.5	25
n-Dodecane (C12)	50.00	51.37	2.7	25
n-Tridecane (C13)	50.00	51.35	2.7	25
n-Tetradecane (C14)	50.00	51.35	2.7	25
n-Pentadecane (C15)	50.00	51.40	2.8	25
n-Hexadecane (C16)	50.00	51.63	3.3	25
n-Heptadecane (C17)	50.00	51.50	3.0	25
Pristane	50.00	51.57	3.1	25
n-Octadecane (C18)	50.00	51.43	2.9	25
Phytane	50.00	51.58	3.2	25
n-Nonadecane (C19)	50.00	51.69	3.4	25
n-Eicosane (C20)	50.00	51.75	3.5	25
n-Heneicosane (C21)	50.00	51.78	3.6	25
n-Docosane (C22)	50.00	51.60	3.2	25
n-Tricosane (C23)	50.00	51.49	3.0	25
n-Tetracosane (C24)	50.00	51.71	3.4	25
n-Pentacosane (C25)	50.00	51.37	2.7	25
n-Hexacosane (C26)	50.00	51.71	3.4	25
n-Heptacosane (C27)	50.00	51.59	3.2	25
n-Octacosane (C28)	50.00	51.64	3.3	25
n-Nonacosane (C29)	50.00	51.69	3.4	25
n-Triacontane (C30)	50.00	51.62	3.2	25
n-Hentriacontane (C31)	50.00	51.63	3.3	25
n-Dotriacontane (C32)	50.00	51.47	2.9	25
n-Tritriacontane (C33)	50.00	51.72	3.4	25
n-Tetratriacontane (C34)	50.00	51.68	3.4	25
n-Pentatriacontane (C35)	50.00	51.70	3.4	25
n-Hexatriacontane (C36)	50.00	51.58	3.2	25
n-Heptatriacontane (C37)	50.00	51.76	3.5	25
n-Octatriacontane (C38)	50.00	51.85	3.7	25
n-Tetracontane (C40)	50.00	52.29	4.6	25
ortho-Terphenyl	50.00	49.71	0.6	25
d50-Tetracosane	50.00	45.85	8.3	25

Area Response Ratio C30 to C20	Ratio
(Area C30/Area C20)	1.04

N/A - Not Applicable

03/18/05 13:48

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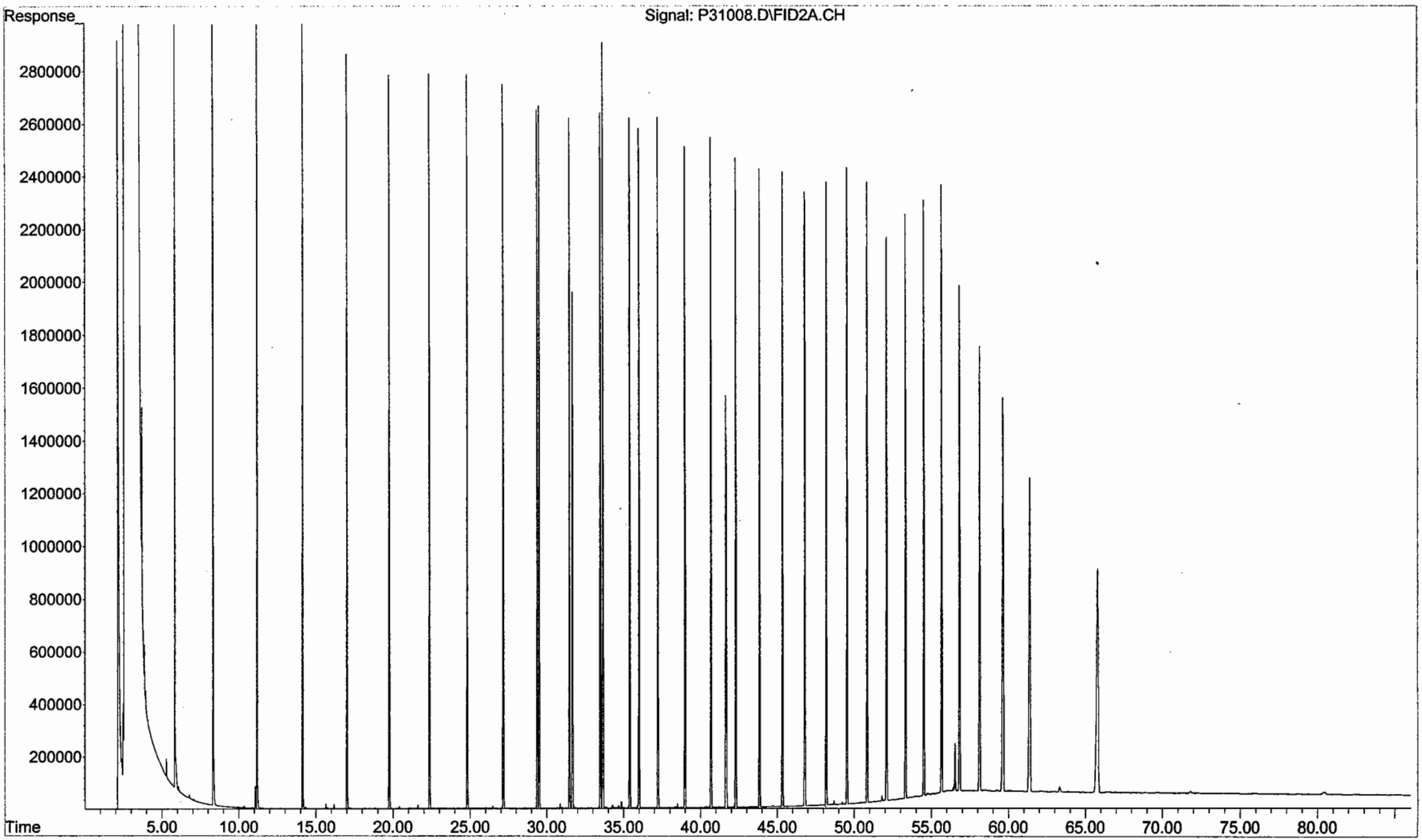
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31008.D
Operator : AC
Acquired : 16 Mar 2005 8:33 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: C3031403-AFID
Misc Info : WHGRPAA50 50UG/ML
Vial Number: 75



Form VII
Calibration Verification
Total Saturated Hydrocarbons by GC/FID

Client: **NewFields Environmental Forensics Practice** Lab Code: **MA00030**
Project: **Coasters Harbor** ETR: **0502110**
Lab ID: **C3031404**

Case: **N/A** SDG: **N/A**

Parameter	Ave. RF	CCV RF	Percent Deviation	Deviation Limit
n-Nonane (C9)	50.00	49.52	1.0	25
n-Decane (C10)	50.00	51.09	2.2	25
n-Undecane (C11)	50.00	51.33	2.7	25
n-Dodecane (C12)	50.00	51.40	2.8	25
n-Tridecane (C13)	50.00	51.39	2.8	25
n-Tetradecane (C14)	50.00	51.36	2.7	25
n-Pentadecane (C15)	50.00	51.36	2.7	25
n-Hexadecane (C16)	50.00	51.60	3.2	25
n-Heptadecane (C17)	50.00	51.48	3.0	25
Pristane	50.00	51.55	3.1	25
n-Octadecane (C18)	50.00	51.41	2.8	25
Phytane	50.00	51.56	3.1	25
n-Nonadecane (C19)	50.00	51.69	3.4	25
n-Eicosane (C20)	50.00	51.75	3.5	25
n-Heneicosane (C21)	50.00	51.81	3.6	25
n-Docosane (C22)	50.00	51.62	3.2	25
n-Tricosane (C23)	50.00	51.52	3.0	25
n-Tetracosane (C24)	50.00	51.74	3.5	25
n-Pentacosane (C25)	50.00	51.41	2.8	25
n-Hexacosane (C26)	50.00	51.72	3.4	25
n-Heptacosane (C27)	50.00	51.61	3.2	25
n-Octacosane (C28)	50.00	51.68	3.4	25
n-Nonacosane (C29)	50.00	51.70	3.4	25
n-Triacontane (C30)	50.00	51.62	3.2	25
n-Hentriacontane (C31)	50.00	51.59	3.2	25
n-Dotriacontane (C32)	50.00	51.44	2.9	25
n-Tritriacontane (C33)	50.00	51.73	3.5	25
n-Tetratriacontane (C34)	50.00	51.75	3.5	25
n-Pentatriacontane (C35)	50.00	51.70	3.4	25
n-Hexatriacontane (C36)	50.00	51.65	3.3	25
n-Heptatriacontane (C37)	50.00	51.82	3.6	25
n-Octatriacontane (C38)	50.00	51.98	4.0	25
n-Tetracontane (C40)	50.00	52.37	4.7	25
ortho-Terphenyl	50.00	49.70	0.6	25
d50-Tetracosane	50.00	45.86	8.3	25

Area Response Ratio C30 to C20	Ratio
(Area C30/Area C20)	1.04

N/A - Not Applicable

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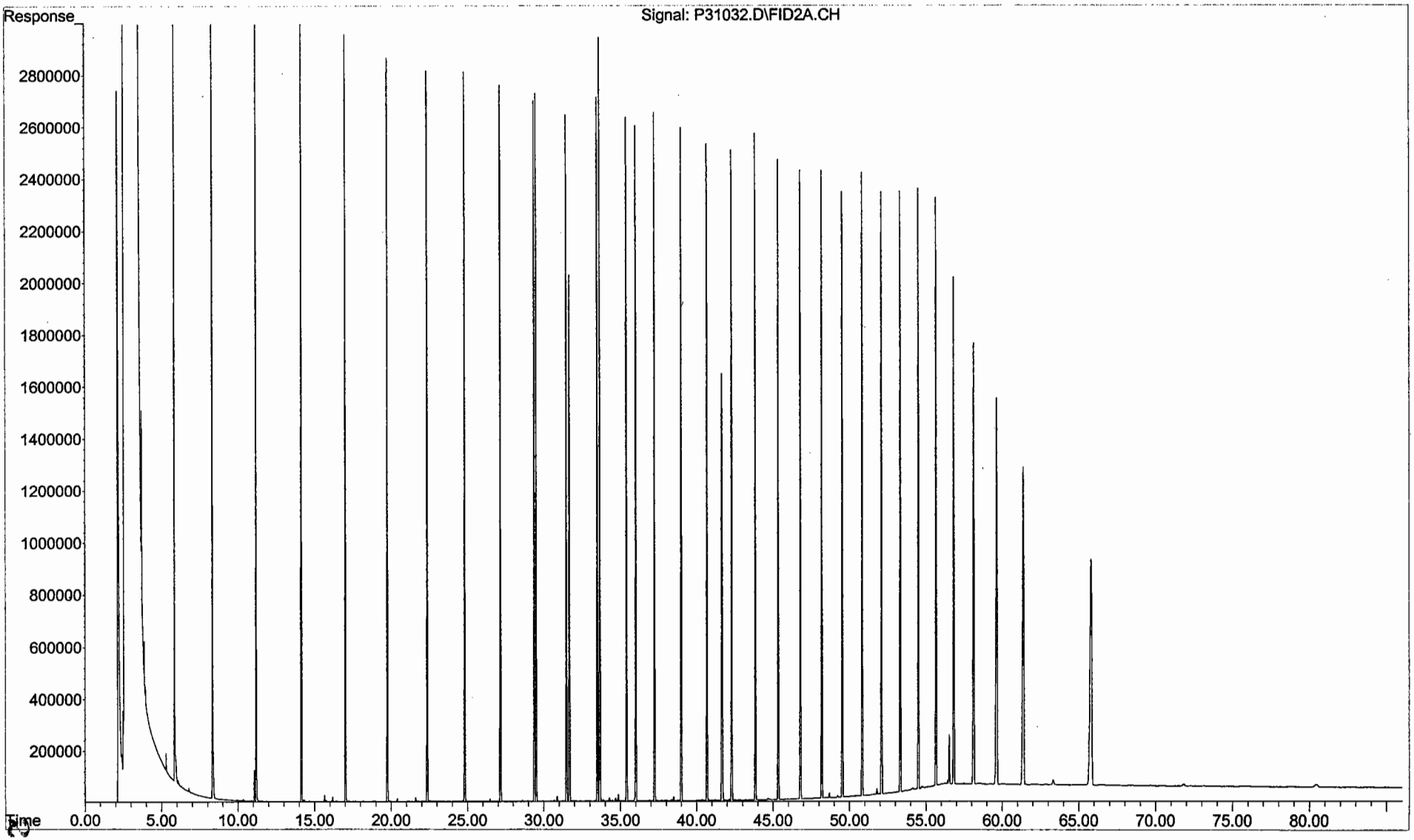
File :O:\Organics\DATA\PAH3\MARCH2005\MARCH14.SEC\P31032.D
Operator : AC
Acquired : 17 Mar 2005 5:36 am using AcqMethod PAH30302.M
Instrument : PAH#3
Sample Name: C3031404-AFID
Misc Info : WHGRPAA 50 50UG/ML
Vial Number: 87



Woods Hole Group Environmental Laboratories
Batch Prep Report
03/02/2005 0502110ST - OP SHC

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount	Final Volume	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume	Vialed By	Vialed Date	Cell Number
0502110-01	D	Shaker	RPR	3/2/05	3/4/05		30.61	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-01	M	Shaker	RPR	3/2/05	3/4/05		30.13	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-01	SAM	Shaker	RPR	3/2/05	3/4/05		30.06	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-02	SAM	Shaker	RPR	3/2/05	3/4/05		30.52	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-03	SAM	Shaker	RPR	3/2/05	3/4/05		30.37	8	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-04	SAM	Shaker	RPR	3/2/05	3/4/05		30.19	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-05	SAM	Shaker	RPR	3/2/05	3/4/05		30.02	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-06	SAM	Shaker	RPR	3/2/05	3/4/05		30.54	4	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-07	SAM	Shaker	RPR	3/2/05	3/4/05		30.63	25	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-08	SAM	Shaker	RPR	3/2/05	3/4/05		30.32	12.5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-09	SAM	Shaker	RPR	3/2/05	3/4/05		30.66	2	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-10	SAM	Shaker	RPR	3/2/05	3/4/05		30.6	5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-11	SAM	Shaker	RPR	3/2/05	3/4/05		30.69	20	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-12	SAM	Shaker	RPR	3/2/05	3/4/05		30.3	2.5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
0502110-15	SAM	Shaker	RPR	3/2/05	3/14/05		30.81	16.67	False	RPR	3/3/05	KD Flask	0.15	MAL	3/14/05	
0502110-16	SAM	Shaker	RPR	3/2/05	3/4/05		30.7	4	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
SS030205B06	B	Shaker	RPR	3/2/05	3/4/05		30	2	False	RPR	3/3/05	KD Flask	0.15	MAL	3/4/05	
SS030205BS04	BS	Shaker	RPR	3/2/05	3/14/05		30	2.5	False	RPR	3/3/05	KD Flask	0.15	MAL	3/14/05	
SS030205BSD03	BSD	Shaker	RPR	3/2/05	3/14/05		30	2	False	RPR	3/3/05	KD Flask	0.15	MAL	3/14/05	
TS031105AWS01	AWS						0.05002	10								

Woods Hole Group Environmental Laboratories
Batch Prep Report

03/02/2005 0502110ST - OP SHC

Lab ID	Notes
0502110-01	1st Prep
0502110-01	1st Prep
0502110-01	1st Prep
0502110-02	1st Prep
0502110-03	1st Prep
0502110-04	1st Prep
0502110-05	1st Prep
0502110-06	1st Prep
0502110-07	1st Prep
0502110-08	1st Prep
0502110-09	1st Prep
0502110-10	1st Prep
0502110-11	1st Prep
0502110-12	1st Prep
0502110-15	1st Prep: Archive portion was alumina cleaned and sent to analysis
0502110-16	1st Prep
SS030205B06	1st Prep: This sample was blown down very low.
SS030205BS04	1st Prep: After 100ul was taken from the archive portion for analysis the rest was alumina cleaned, 400ul was cleaned for a FV of 2.5
SS030205BSD03	1st Prep: Archive portion was alumina cleaned and sent to analysis
TS031105AWS01	1st Prep

Woods Hole Group Environmental Laboratories
Batch Weight Report
03/02/2005

Lab ID	QC Type	0502110ST - Sample
0502110-01	D	30.61
0502110-01	SAM	30.06
0502110-01M	OP NEWFIE	30.13
0502110-01M	OP SHC	30.13
0502110-02	SAM	30.52
0502110-03	SAM	30.37
0502110-04	SAM	30.19
0502110-05	SAM	30.02
0502110-06	SAM	30.54
0502110-07	SAM	30.63
0502110-08	SAM	30.32
0502110-09	SAM	30.66
0502110-10	SAM	30.6
0502110-11	SAM	30.69
0502110-12	SAM	30.3
0502110-15	SAM	30.81
0502110-16	SAM	30.7
SS030205B06	B	30
SS030205BS04BS	OP NEWFIE	30
SS030205BS04BS	OP SHC	30
SS030205BSD03BSD	OP NEWFIE	30
SS030205BSD03BSD	OP SHC	30

METHYLENE CHLORIDE A52E20 (tank) A44E26(bottle)
ACETONE: Y10E42 HEXANE: A51E71

COPPER: A49597 SULFURIC ACID: 3102114

GLASS WOOL: 4303309989 SODIUM SULFATE: A45580

DIATEMACEOUS EARTH: 33604

Woods Hole Group Environmental Laboratories
Batch Prep Spike Report

03/02/2005 0502110ST - OP NEWFIE Analyst: RPR Witness: KLA

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
0502110-01	D	WHGRPAA28	100	µl						
0502110-01	M	WHGRPAA28	100	µl	WHGRPAA52	100	µl			
0502110-01	SAM	WHGRPAA28	100	µl						
0502110-02	SAM	WHGRPAA28	100	µl						
0502110-03	SAM	WHGRPAA28	100	µl						
0502110-04	SAM	WHGRPAA28	100	µl						
0502110-05	SAM	WHGRPAA28	100	µl						
0502110-06	SAM	WHGRPAA28	100	µl						
0502110-07	SAM	WHGRPAA28	100	µl						
0502110-08	SAM	WHGRPAA28	100	µl						
0502110-09	SAM	WHGRPAA28	100	µl						
0502110-10	SAM	WHGRPAA28	100	µl						
0502110-11	SAM	WHGRPAA28	100	µl						
0502110-12	SAM	WHGRPAA28	100	µl						
0502110-15	SAM	WHGRPAA28	100	µl						
0502110-16	SAM	WHGRPAA28	100	µl						
SS030205B06	B	WHGRPAA28	100	µl						
SS030205BS04	BS	WHGRPAA28	100	µl	WHGRPAA52	100	µl			
SS030205BSD03	BSD	WHGRPAA28	100	µl	WHGRPAA52	100	µl			

Test: ALK-PAH/SHC

Standard Type: (Surrogate) / *LCS* / *MS-MSD*

LFB / *Other* _____

ID# WHGRPAA28
Conc. PAH@ 100ug/mL / SHC@ 50ug/mL

Test: ALK PAH/SHC

Standard Type: *Surrogate* / (LCS) / *MS-MSD*

LFB / *Other* _____

ID# WHGRPAA52
Conc. PAH@ 100ug/mL / SHC@ 50ug/mL

Woods Hole Group Environmental Laboratories
Batch Clean Up Report
03/02/2005 0502110ST - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Prefraction ation Volume	Fractionation Amount	Fractionation Factor	Transfer Volume
0502110-01	D	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15
0502110-01	M	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15
0502110-01	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15
0502110-02	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15
0502110-03	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	1.25	0	0.15
0502110-04	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15
0502110-05	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15
0502110-06	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2.5	0	0.15
0502110-07	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	0.4	0	0.15
0502110-08	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	0.8	0	0.15
0502110-09	SAM	3610	MP	3/3/05				MAL	3/4/05	False	2	1	0	0.15
0502110-10	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2	0	0.15
0502110-11	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	0.5	0	0.15
0502110-12	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	4	0	0.15
0502110-15	SAM	3610	MAL	3/11/05				MAL	3/14/05	False	10	0.6	0	0.15
0502110-16	SAM	3610	MP	3/3/05				MAL	3/4/05	False	10	2.5	0	0.15
SS030205B06	B	3610	MP	3/3/05				MAL	3/4/05	False	1	0.5	0	0.15
SS030205BS04	BS	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.4	0	0.15
SS030205BSD03	BSD	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.5	0	0.15
TS031105AWS01	AWS	3610							3/14/05					

Woods Hole Group Environmental Laboratories
Batch Clean Up Report

03/02/2005 0502110ST - OP SHC

Lab ID	Notes
0502110-01	This sample was copper cleaned
0502110-01	This sample was copper cleaned
0502110-01	This sample was copper cleaned
0502110-02	This sample was copper cleaned
0502110-03	This sample was copper cleaned
0502110-04	This sample was copper cleaned
0502110-05	This sample was copper cleaned
0502110-06	This sample was copper cleaned
0502110-07	This sample was copper cleaned
0502110-08	This sample was copper cleaned
0502110-09	This sample was copper cleaned
0502110-10	This sample was copper cleaned
0502110-11	This sample was copper cleaned
0502110-12	This sample was copper cleaned
0502110-15	This sample was copper cleaned
0502110-16	This sample was copper cleaned
SS030205B06	This sample was copper cleaned
SS030205BS04	This sample was copper cleaned
SS030205BSD03	This sample was copper cleaned
TS031105AWS01	

Gravimetric Determination For Column

Analyst: MAL
Date: 3/4/05

BATCH: 0502110ST

Entered by: MAL
Verified by: MAL

ETR #	Sample #	QC (MB, LCS, D)	Final Volume of Extract (ul)	Aliquot Removed #1 (ul)	Aliquot Removed #2 (ul)	Aliquot Weight #1 (mg)	Aliquot Weight #2 (mg)	Total Extract Oil Weight (mg)	Volume Removed For Column (ul)	Oil to Column (mg)	Dilution Factor	QC (%R, RPD)
		LCS	10000	50	NA	0.230	NA	46.00	NA	NA	NA	92%
0502110	1		10000	50	NA	0.252	NA	50.40	2000	10.08	5.00	
0502110	1	D	10000	50	NA	0.328	NA	65.60	2000	13.12	5.00	26%
0502110	1	MS	10000	50	NA	0.191	NA	38.20	2000	7.64	5.00	
0502110	2		10000	50	NA	0.200	NA	40.00	2000	8.00	5.00	
0502110	3		10000	50	NA	0.341	NA	68.20	1250	8.53	8.00	
0502110	4		10000	50	NA	0.222	NA	44.40	2000	8.88	5.00	
0502110	5		10000	50	NA	0.223	NA	44.60	2000	8.92	5.00	
0502110	6		10000	50	NA	0.175	NA	35.00	2500	8.75	4.00	
0502110	7		10000	50	NA	1.142	NA	228.40	400	9.14	25.00	
0502110	8		10000	50	NA	0.536	NA	107.20	800	8.58	12.50	
0502110	9		2000	50	NA	0.103	NA	4.12	1000	2.06	2.00	
0502110	10		10000	50	NA	0.218	NA	43.60	2000	8.72	5.00	
0502110	11		10000	50	NA	0.926	NA	185.20	500	9.26	20.00	
0502110	12		10000	50	NA	0.119	NA	23.80	4000	9.52	2.50	
0502110	15		10000	50	NA	0.737	NA	147.40	600	8.84	16.67	
0502110	16		10000	50	NA	0.168	NA	33.60	2500	8.40	4.00	

Total Extract Oil Weight (mg) = (Final Volume of Extract / Aliquot Removed) * Aliquot Weight
Sample Weight (mg/mL) = 20 * Aliquot Weight (mg)
LCS TV = 5 mg/mL

Oil to Column = Total Extract Oil Weight (mg) / Dilution Factor
Dilution Factor = Final Volumne of Extract (ul) / Volume Removed For Column (ul)

TEMPLATE: GravimetricT.XLT
Duplicates should agree within +/- 10%.

Woods Hole Group Internal Std Tracking Form

Project Name: Coasters Harbor
ETR: 0502110ST

Lab ID	Extract Vol (uL)	Standard ID and Vial #	Vol IS Added (uL)	Pre-Injection Vol (uL)[1]	Final Volume Equivalent	Spiked By	Aliquot 1 Removed (uL)	Aliquot 2 Removed (uL)	Date
0502110-01	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-01D	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-01MS	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-02	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-03	900	WHGRPAA31 #3	100	1000	8	MAL	150	150	3/4/05
0502110-04	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-05	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-06	900	WHGRPAA31 #3	100	1000	4	MAL	150	150	3/4/05
0502110-07	900	WHGRPAA31 #3	100	1000	25	MAL	150	150	3/4/05
0502110-08	900	WHGRPAA31 #3	100	1000	12.5	MAL	150	150	3/4/05
0502110-09	900	WHGRPAA31 #3	100	1000	2	MAL	150	150	3/4/05
0502110-10	900	WHGRPAA31 #3	100	1000	5	MAL	150	150	3/4/05
0502110-11	900	WHGRPAA31 #3	100	1000	20	MAL	150	150	3/4/05
0502110-12	900	WHGRPAA31 #3	100	1000	2.5	MAL	150	150	3/4/05
0502110-15	900	WHGRPAA31 #3	100	1000	16.67	MAL	150	150	3/14/05
0502110-16	900	WHGRPAA31 #3	100	1000	4	MAL	150	150	3/4/05
SS030205B06	900	WHGRPAA31 #3	100	1000	2	MAL	150	150	3/4/05
SS030205BS04	900	WHGRPAA31 #3	100	1000	2.5	MAL	150	150	3/14/05
SS030205BSD03	900	WHGRPAA31 #3	100	1000	2	MAL	150	150	3/14/05

[1] Includes Internal Std

Woods . ɔle Group Environmental Laboratories

Batch Prep Report

03/14/2005 0502110SOLID - OP SHC

Lab ID	QC Type	Prep Method	Analyst	Prep Start Date	Prep Completed	TCLP Date	Initial Amount	Final Volume	Solvent Ex	Conc. Analyst	Conc. Date	Conc. Method	Transfer Volume	Vialed By	Vialed Date	Cell Number
0502110-13	D	Shaker	MAL	3/10/05	3/14/05		10.16	50	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
0502110-13	SAM	Shaker	MAL	3/10/05	3/14/05		10.11	50	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
0502110-14	SAM	Shaker	MAL	3/10/05	3/14/05		10.37	50	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
SS031405B02	B	Shaker	MAL	3/10/05	3/14/05		30	2	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
SS031405BS02	BS	Shaker	MAL	3/10/05	3/14/05		30	2	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	
SS031405BSD02	BSD	Shaker	MAL	3/10/05	3/14/05		30	2	False	MAL	3/11/05	KD Flask	0.15	MAL	3/14/05	

Woods . ɔle Group Environmental Laboratories
Batch Prep Report

03/14/2005 0502110SOLID - OP SHC

Lab ID	Notes
0502110-13	1st Prep
0502110-13	1st Prep
0502110-14	1st Prep
SS031405B02	1st Prep
SS031405BS02	1st Prep
SS031405BSD02	1st Prep

Woods .ole Group Environmental Laboratories
Batch Weight Report
03/14/2005

Lab ID	QC Type	0502110SOLID - Sample
0502110-13	D	10.16
0502110-13	SAM	10.11
0502110-14	SAM	10.37
SS031405B02	B	30
SS031405BS02BS	OP NEWFIE	30
SS031405BS02BS	OP SHC	30
SS031405BSD02BSD	OP NEWFIE	30
SS031405BSD02BSD	OP SHC	30

METHYLENE CHLORIDE A52E20 (tank) A44E26(bottle)
ACETONE: Y10E42 HEXANE: A51E71

COPPER: A49597 SULFURIC ACID: 3102114

GLASS WOOL: 4303309989 SODIUM SULFATE: A45580

DIATEMACEOUS EARTH: 33604

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Woods Hole Group Environmental Laboratories
Batch Prep Spike Report

03/14/2005 0502110SOLID - OP NEWFIE Analyst: MAL Witness: RPR

Lab ID	QC Type	OP NEWFIE - surr	Vol OP NEWFIE - surr	Units OP NEWFIE - surr	OP NEWFIE - spk 1	Vol OP NEWFIE - spk 1	Units OP NEWFIE - spk 1	OP NEWFIE - spk 2	Vol OP NEWFIE - spk 2	Units OP NEWFIE - spk 2
0502110-13	D	WHGRPAA56	100	µl						
0502110-13	SAM	WHGRPAA56	100	µl						
0502110-14	SAM	WHGRPAA56	100	µl						
SS031405B02	B	WHGRPAA28	100	µl						
SS031405BS02	BS	WHGRPAA28	100	µl	WHGRPAA52	100	µl			
SS031405BSD02	BSD	WHGRPAA28	100	µl	WHGRPAA52	100	µl			

Test: AIKPAH/SHC

Standard Type: (Surrogate) / *LCS* / *MS-MSD*

LFB / *Other* High

ID# WHGRPAA56
Conc. 100ug/ml / 5mg/ml

Test: AIKPAH/SHC

Standard Type: *Surrogate* / (LCS) / *MS-MSD*

LFB / *Other*

ID# WHGRPAA52
Conc. 10ug/ml / 500ug/ml

Test: AIKPAH/SHC

Standard Type: (Surrogate) / *LCS* / *MS-MSD*

LFB / *Other* LOW

ID# WHGRPAA28
Conc. 10ug/ml / 500ug/ml

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Woods . ole Group Environmental Laboratories

Batch Clean Up Report

03/14/2005 0502110SOLID - OP SHC

Lab ID	QC Type	Clean Up Method	Analyst	Clean Up Date	Flow Rate	Coll. Start	Coll. End	Concentration Analyst	Conc. Date	Solvent Ex.	Prefraction ation Volume	Fractionation Amount	Fractionation Factor	Transfer Volume
0502110-13	D	3610	MAL	3/11/05				MAL	3/14/05	False	25	0.5	0	0.15
0502110-13	SAM	3610	MAL	3/11/05				MAL	3/14/05	False	25	0.5	0	0.15
0502110-14	SAM	3610	MAL	3/11/05				MAL	3/14/05	False	25	0.5	0	0.15
SS031405B02	B	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.5	0	0.15
SS031405BS02	BS	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.5	0	0.15
SS031405BSD02	BSD	3610	MAL	3/11/05				MAL	3/14/05	False	1	0.5	0	0.15

Woods le Group Environmental Laboratories
Batch Clean Up Report
03/14/2005 0502110SOLID - OP SHC

Lab ID	Notes
0502110-13	This sample was copper cleaned
0502110-13	This sample was copper cleaned
0502110-14	This sample was copper cleaned
SS031405B02	This sample was copper cleaned
SS031405BS02	This sample was copper cleaned
SS031405BSD02	This sample was copper cleaned

Gravimetric Determination For Column

Analyst: MAL
Date: 3/11/05

BATCH: 0502110SOLID

Entered by: MAL
Verified by: MAL

ETR #	Sample #	QC (MB, LCS, D)	Final Volume of Extract (ul)	Aliquot Removed #1 (ul)	Aliquot Removed #2 (ul)	Aliquot Weight #1 (mg)	Aliquot Weight #2 (mg)	Total Extract Oil Weight (mg)	Volume Removed For Column (ul)	Oil to Column (mg)	Dilution Factor	QC (%R, RPD)
		LCS	10000	50	NA	0.241	NA	48.20	NA	NA	NA	96%
0502110	13		25000	50	NA	0.996	NA	498.00	500	9.96	50.00	
0502110	13	D	25000	50	NA	1.031	NA	515.50	500	10.31	50.00	3%
0502110	14		25000	50	NA	0.965	NA	482.50	500	9.65	50.00	

Total Extract Oil Weight (mg) = (Final Volume of Extract / Aliquot Removed) * Aliquot Weight
Sample Weight (mg/mL) = 20 * Aliquot Weight (mg)
LCS TV = 5 mg/mL

Oil to Column = Total Extract Oil Weight (mg) / Dilution Factor
Dilution Factor = Final Volumne of Extract (ul) / Volume Removed For Column (ul)

TEMPLATE: GravimetricT.XLT
Duplicates should agree within +/- 10%.

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Gravimetric Determination For Column

Analyst: MAL
Date: 3/11/05

BATCH: 0502113SOLID

Entered by: MAL
Verified by: MAL

ETR #	Sample #	QC (MB, LCS, D)	Final Volume of Extract (ul)	Aliquot Removed #1 (ul)	Aliquot Removed #2 (ul)	Aliquot Weight #1 (mg)	Aliquot Weight #2 (mg)	Total Extract Oil Weight (mg)	Volume Removed For Column (ul)	Oil to Column (mg)	Dilution Factor	QC (%R, RPD)
		LCS	10000	50	NA	0.241	NA		NA	NA	NA	0%
0502113	13		25000 ~~10000~~	50	NA	0.996	NA					
0502113	13	D	10000	50	NA	1.031	NA					#VALUE!
0502113	14		10000	50	NA	0.965	NA					

Total Extract Oil Weight (mg) = (Final Volume of Extract / Aliquot Removed) * Aliquot Weight
Sample Weight (mg/mL) = 20 * Aliquot Weight (mg)
LCS TV = 5 mg/mL

Oil to Column = Total Extract Oil Weight (mg) / Dilution Factor
Dilution Factor = Final Volumne of Extract (ul) / Volume Removed For Column (ul)

TEMPLATE: GravimetricT.XLT
Duplicates should agree within +/- 10%.

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Woods Hole Group Internal Std Tracking Form

Project Name: Coasters Harbor
ETR: 0502110Solid

Lab ID	Extract Vol (uL)	Standard ID and Vial #	Vol IS Added (uL)[1]	Pre-Injection Vol (uL)[1]	Final Volume Equivalent	Spiked By	Aliquot 1 Removed (uL)	Aliquot 2 Removed (uL)	Date
0502110-13	900	WHGRPAA31 4of5	100	1000	50	MAL	150	150	3/1/05
0502110-13D	900	WHGRPAA31 4of5	100	1000	50	MAL	150	150	3/1/05
0502110-14	900	WHGRPAA31 4of5	100	1000	50	MAL	150	150	3/1/05
SS031405B02	900	WHGRPAA31 4of5	100	1000	2	MAL	150	150	3/1/05
SS031405BS02	900	WHGRPAA31 4of5	100	1000	2	MAL	150	150	3/1/05
SS031405BSD02	900	WHGRPAA31 4of5	100	1000	2	MAL	150	150	3/1/05

[1] Includes Internal Std

Sequence Name: O:\Organics\SEQUENCE\PAH3\S3030701.S
Comment: TPH TEST
Operator: AC
Data Path: C:\MSDCHEM\4\DATA\MARCH05\MARCH07\

Top Pre-Seq Cmd:
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Top Post-Seq Cmd:
Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line			Sample Name/Misc Info		
1)	Sample	51	P30873	HC30307	DCM
2)	Sample	51	P30874	HC30307	DCM
3)	Sample	52	P30875	HC30307	DCM
4)	Sample	52	P30876	HC30307	DCM
5)	Sample	53	P30877	HC30307	STD
6)	Sample	54	P30878	HC30307	STD
7)	Sample	51	P30879	HC30307	STD#1
8)	Sample	52	P30880	HC30307	DCM
9)	Sample	53	P30881	HC30307	I3030701
10)	Sample	54	P30882	HC30307	I3030702
11)	Sample	55	P30883	HC30307	I3030703
12)	Sample	56	P30884	HC30307	I3030704
13)	Sample	57	P30885	HC30307	I3030705
14)	Sample	58	P30886	HC30307	DCM
15)	Sample	59	P30887	HC30307	Q3030701
16)	Sample	60	P30888	HC30307	ANS3030701
17)	Sample	61	P30889	HC30307	SA3030701
18)	Sample	62	P30890	HC30307	SFF3030701
19)	Sample	63	P30891	HC30307	LA3030701
20)	Sample	64	P30892	HC30307	DCM
21)	Sample	65	P30893	HC30307	C3030701
22)	Sample	66	P30894	HC30307	DCM W/O TOP

Sequence Name: C:\MSDChem\4\sequence\S3031401.S
Comment:
Operator: AC
Data Path: C:\MSDCHEM\4\DATA\MARCH05\MARCH14\

Top Pre-Seq Cmd:
Instrument Control Pre-Seq Cmd:
Data Analysis Pre-Seq Cmd:

Top Post-Seq Cmd:
Instrument Control Post-Seq Cmd:
Data Analysis Post-Seq Cmd:

3/16/05.

Method Sections To Run
(X) Full Method
( ) Reprocessing Only

On A Barcode Mismatch
(X) Inject Anyway
( ) Don't Inject

Line				Sample Name/Misc Info
1)	DualTwr			
2)	SepGC1			
3)	RearSamp	51	P30960	PAH30302 C3031401-AFID PASS
4)	Sample	1	P30961	PAH30302 C3031401 PASS
5)	RearSamp	52	P30962	PAH30302 DCM → Instrument Blank (IB3031401) 3/17/05 RPR SEDIMENTS
6)	Sample	2	P30963	PAH30302 DCM
7)	RearSamp	53	P30964	PAH30302 SS031405B02-AFID
8)	Sample	3	P30965	PAH30302 SS031405B02
9)	RearSamp	54	P30966	PAH30302 [redacted]
10)	Sample	4	P30967	PAH30302 SS031405BS02
11)	RearSamp	55	P30968	PAH30302 [redacted]
12)	Sample	5	P30969	PAH30302 SS031405BSD02
13)	RearSamp	56	P30970	PAH30302 [redacted]
14)	Sample	6	P30971	PAH30302 0502110-13
15)	RearSamp	57	P30972	PAH30302 [redacted]
16)	Sample	7	P30973	PAH30302 0502110-13D
17)	RearSamp	58	P30974	PAH30302 [redacted]
18)	Sample	8	P30975	PAH30302 0502110-14
19)	RearSamp	59	P30976	PAH30302 DCM
20)	Sample	9	P30977	PAH30302 SS030205BS04* Reclume.
21)	RearSamp	60	P30978	PAH30302 DCM
22)	Sample	10	P30979	PAH30302 SS030205BSD03*
23)	RearSamp	61	P30980	PAH30302 DCM
24)	Sample	11	P30981	PAH30302 0502110-15*
25)	RearSamp	62	P30982	PAH30302 C3031402-AFID PASS
26)	Sample	12	P30983	PAH30302 C3031402 PASS
27)	RearSamp	63	P30984	PAH30302 TS030705BS03-AFID
28)	Sample	13	P30985	PAH30302 DCM
29)	RearSamp	64	P30986	PAH30302 DCM-AFID
30)	Sample	13	P30987	PAH30302 DCM
31)	RearSamp	65	P30988	PAH30302 SS030205B06-AFID
32)	Sample	14	P30989	PAH30302 0502110-14E
33)	RearSamp	66	P30990	PAH30302 SS030205BS04-AFID
34)	Sample	15	P30991	PAH30302 DCM
35)	RearSamp	67	P30992	PAH30302 SS030205BSD03-AFID
36)	Sample	16	P30993	PAH30302 SS031405B02
37)	RearSamp	68	P30994	PAH30302 0502110-01-AFID
38)	Sample	17	P30995	PAH30302 C3031403 PASS
39)	RearSamp	69	P30996	PAH30302 0502110-01D-AFID PASS
40)	Sample	15	P30997	PAH30302 DCM
41)	RearSamp	70	P30998	PAH30302 0502110-01M~~S~~-AFID ① "S" removed from ID 3/18/05 RPR
42)	Sample	15	P30999	PAH30302 DCM
43)	RearSamp	71	P31000	PAH30302 0502110-02-AFID

Instrument Blank ~~IB0~~ IB3031401 used for samples 3/21/05 RPR

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Sequence Name: C:\MSDChem\4\sequence\S3031401.S

	Line Type	Vial	DataFile	Method	Sample Name
44)	Sample	15	P31001	PAH30302	DCM
45)	RearSamp	72	P31002	PAH30302	0502110-03-AFID
	Sample	15	P31003	PAH30302	DCM
	RearSamp	73	P31004	PAH30302	0502110-04-AFID
48)	Sample	15	P31005	PAH30302	DCM
49)	RearSamp	74	P31006	PAH30302	0502110-05-AFID
50)	Sample	15	P31007	PAH30302	DCM
51)	RearSamp	75	P31008	PAH30302	C3031403-AFID PASS.
52)	Sample	15	P31009	PAH30302	DCM
53)	RearSamp	76	P31010	PAH30302	[redacted] - Instrument Blank (IB3031601) SOLIDS 3/18/05 RPR
54)	Sample	15	P31011	PAH30302	DCM
55)	RearSamp	77	P31012	PAH30302	[redacted] 052110 Reallumiel. Instrument Blank IB3031601 used for sample 3/24/05 RPR
56)	Sample	15	P31013	PAH30302	DCM
57)	RearSamp	78	P31014	PAH30302	0502110-06-AFID
58)	Sample	100	P31015	PAH30302	DCM
59)	RearSamp	79	P31016	PAH30302	0502110-07-AFID
60)	Sample	100	P31017	PAH30302	DCM
61)	RearSamp	80	P31018	PAH30302	0502110-08-AFID
62)	Sample	100	P31019	PAH30302	DCM
63)	RearSamp	81	P31020	PAH30302	0502110-09-AFID
64)	Sample	100	P31021	PAH30302	DCM
65)	RearSamp	82	P31022	PAH30302	0502110-10-AFID
66)	Sample	100	P31023	PAH30302	DCM
67)	RearSamp	83	P31024	PAH30302	0502110-11-AFID
68)	Sample	99	P31025	PAH30302	PRIME
69)	RearSamp	84	P31026	PAH30302	0502110-12-AFID
70)	Sample	99	P31027	PAH30302	PRIME
71)	RearSamp	85	P31028	PAH30302	0502110-15-AFID
72)	Sample	99	P31029	PAH30302	PRIME
73)	RearSamp	86	P31030	PAH30302	0502110-16-AFID
74)	Sample	98	P31031	PAH30302	C3031404
75)	RearSamp	87	P31032	PAH30302	C3031404-AFID
	Sample	100	P31033	PAH30302	DCM

CHAIN OF CUSTODY RECORDS

0502110

TETRA TECH NUS, INC.

ANALYTICAL SERVICE
Packing List/Chain-of-Custody

Case No.: NA
Subcontract No.: NA
Page 1 of 2

Project No.: N4152-0512
Laboratory Name: Woods Hole
Container Type: 8oz Amber
Sampler Signatures: Craig Sanchez
Date Shipped: 2-24-5
Carrier: Fed Ex
Airbill No.: 8455-0072-9672
No. of Coolers: 1
Analysis: PAH Forensic, TPH Fingerprint
Preservative: Ice

	Sample Number	Matrix (yf=5)	Date/Time	Sample Location	Tag Number(s)	QC	Preservative (Ice)
1		SD	2-22/1335	OFF-SD-OFF2-0006-01		LAB QC	2
2			2-23/1315	- - 411 - -		-	1
3			2-23/1300	- - OFF3- -		-	1
4			2-23/1230	- - 414- -		-	1
5			2-23/1205	- - 505- -		-	1
6			2-23/1200	- - 442- -		-	1
7			2-23/1155	- - OFF6- -		-	1
8			2-22/1150	- - OFF7- -		-	1
9			2-22/1500	OFF-SD-JPC03-0006-01		-	1
10			2-23/1010	OFF-SD-075OF075-0006-01		-	1
11			2-23/1355	OFF-SD-075OF075A-0006-01		-	1
12		SD	2-23/1410	OFF-SD-075OF093-0006-01		-	1

CS

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Shipment for Case Complete?	Remarks
Craig Sanchez	2-24/1600	FED EX	YES (circled) NO	
Relinquished By: (Signature) FED EX	Date/Time 2/25/05 1030	Received for Laboratory By: [signature]	Date/Time	

Tt NUS Form 0022

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02352

0502110

TETRA TECH NUS, INC.

ANALYTICAL SERVICE
Packing List/Chain-of-Custody

Case No. NA
Subcontract No. NA

Project No. N4152-0512

Laboratory Name: Woods Hole

Sampler Signatures: Craig Sanchez

Date Shipped: 2-24-5
Airbill No. 8455-0072-9672
Carrier: Fed Ex
No. of Coolers: 1

Container Type	Container Type	Container Type	Container Type	Container Type
8 oz Amber				

Analysis	Analysis	Analysis	Analysis	Analysis
PAH Forensic				
TPH Fingerprint				

Sample Number	Matrix	Date/Time	Sample Location	Tag Number(s)	QC	Preservative: Ice	Preservative	Preservative	Preservative	Preservative
13	Asphalt	2-23/1300	OFF-SD-4414-Debris1		-	1				
14	Asphalt	2-23/1310	OFF-SD-4414-Debris2		-	1				
15	SD	2-22/1155	OFF-SD-DUP01-01		D1	1				
16	SD	2-23/1202	OFF-SD-DUP02-01		D2	1				

CS CS CS

Relinquished By: (Signature)	Date/Time	Received By: (Signature)	Shipment for Case Complete?	Remarks
Craig Sanchez	2-24/1600	Fed Ex	YES NO	
Relinquished By: (Signature)	**Date/Time**	**Received for Laboratory By:**	**Date/Time**	
Fed Ex	2/25/05 1030			

Tt NUS Form 0022

02948

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Sample Receipt Checklist

Client: NEWRE		**Receipt Date:** 2/25/05	
Project: Constens		**Log-in Date:**	
ETR #: 0502110		**Inspection by:** WR	**Login by:** WR

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? (Yes, FedEx) / UPS / Other:_____
No, WHG Courier pick-up / Hand delivered

Sample storage refrigerator #: F2

Is bill of lading retained? Yes, Tracking #: Attached
No, Unavailable / NA

Sample storage freezer #:_____

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 4° IR Gun, 2° Temp. Blank, / NA

Cooler 2:_____ Cooler 3:_____
Cooler 4:_____ Cooler 5:_____
Cooler 6:_____ Cooler 7:_____
More:_____

Were samples received on ice? (Yes) / No

Chain-of-Custody present? (Yes) / No
Complete? (Yes) / No

Custody seals present on Cooler? (Yes) / No
on Bottles? Yes / (No)
Intact? (Yes) / No / NA

Note: Affix custody seals to back of this page.

Were sample containers intact? Yes / (No) If No, list samples: →

Cap Cracked on OFF-SD-DUP01-01 – replaced

Did VOA/VPH waters contain headspace (>5mm)? Yes / No / (NA) If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / (NA)
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
(Yes) / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? Yes / No / (NA)

☐ C=HCl ☐ M=MeOH ☐ S=H_2SO4
☐ H=NaOH ☐ N=HNO_3 ☐ Other:_____ ☐ U= Unknown

Chemical preservation OK for ALL samples?
Yes / No / (N/A)
If No, list samples below:

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO (NA)
If No, why?:

Were samples received within hold time? (Yes) / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / (No) If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / (NA)

Project Manager Acknowledgement: [illegible] Date: 2/25/05

Please use back for any additional notes!

This portion can be removed for recipient's records.

te 2/24/05 FedEx Tracking Number 8455002297 09

nder's me Craig Sanchez Phone 978 658-7899

Company TETRA TECH NUS INC

Address 55 JONSPIN RD

Dept./Floor/Suite/Room

WILMINGTON State MA ZIP 01887-1020

ur Internal Billing Reference

CUSTODY SEAL

UNITED STATES

TAL PROT

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Attachment G
Quality Control Data Summary

Project Name: Coasters Harbor

Client ID	Method Blank	Method Blank
Lab ID	AA699PB	AA952PB
Matrix	Solid	Solid
Reference Method	Modified 8270C	Modified 8270C
Batch ID	02-405	02-477
Date Collected		
Date Received		
Date Prepped	7/15/2002	8/20/2002
Date Analyzed	7/23/2002	8/23/2002
Sample Size (wet)	22 g	24 g
% Solid	100	100
File ID	C6187.D	F4344.D
Units	µg/Kg	µg/Kg
Final Volume	1.1	1.1
Dilution	1	1
Reporting Limit	0.50	0.46

Class	Abbrev	Analytes	Result	Result
2	N0	Naphthalene	0.35 J	0.24 J
2	N1	C1-Naphthalenes	0.30 J	0.08 J
2	N2	C2-Naphthalenes	0.50 U	0.46 U
2	N3	C3-Naphthalenes	0.50 U	0.46 U
2	N4	C4-Naphthalenes	0.50 U	0.46 U
2	B	Biphenyl	0.50 U	0.46 U
3	DF	Dibenzofuran	0.50 U	0.46 U
3	AY	Acenaphthylene	0.50 U	0.46 U
3	AE	Acenaphthene	0.50 U	0.46 U
3	F0	Fluorene	0.50 U	0.46 U
3	F1	C1-Fluorenes	0.50 U	0.46 U
3	F2	C2-Fluorenes	0.50 U	0.46 U
3	F3	C3-Fluorenes	0.50 U	0.46 U
3	A0	Anthracene	0.50 U	0.46 U
3	P0	Phenanthrene	0.50 U	0.08 J
3	PA1	C1-Phenanthrenes/Anthracenes	0.50 U	0.46 U
3	PA2	C2-Phenanthrenes/Anthracenes	0.50 U	0.46 U
3	PA3	C3-Phenanthrenes/Anthracenes	0.50 U	0.46 U
3	PA4	C4-Phenanthrenes/Anthracenes	0.50 U	0.46 U
3	RET	Retene	NA	NA
3	DBT0	Dibenzothiophene	0.50 U	0.46 U
3	DBT1	C1-Dibenzothiophenes	0.50 U	0.46 U
3	DBT2	C2-Dibenzothiophenes	0.50 U	0.46 U
3	DBT3	C3-Dibenzothiophenes	0.50 U	0.46 U
3	DBT4	C4-Dibenzothiophenes	0.50 U	0.46 U
4	BF	Benzo(b)fluorene	0.50 U	0.46 U
4	FL0	Fluoranthene	0.50 U	0.02 J
4	PY0	Pyrene	0.50 U	0.03 J
4	FP1	C1-Fluoranthenes/Pyrenes	0.50 U	0.46 U
4	FP2	C2-Fluoranthenes/Pyrenes	0.50 U	0.46 U
4	FP3	C3-Fluoranthenes/Pyrenes	0.50 U	0.46 U
4	FP4	C4-Fluoranthenes/Pyrenes	0.50 U	0.46 U
4	NBT0	Naphthobenzothiophenes	NA	NA
4	NBT1	C1-Naphthobenzothiophenes	NA	NA
4	NBT2	C2-Naphthobenzothiophenes	NA	NA
4	NBT3	C3-Naphthobenzothiophenes	NA	NA
4	NBT4	C4-Naphthobenzothiophenes	NA	NA
4	BA0	Benz[a]anthracene	0.50 U	0.46 U
4	C0	Chrysene/Triphenylene	0.50 U	0.46 U
4	BC1	C1-Chrysenes	0.50 U	0.46 U
4	BC2	C2-Chrysenes	0.50 U	0.46 U
4	BC3	C3-Chrysenes	0.50 U	0.46 U
4	BC4	C4-Chrysenes	0.50 U	0.46 U
5	BB	Benzo[b]fluoranthene	0.50 U	0.46 U
5	BJK	Benzo[k]fluoranthene	0.50 U	0.46 U
5	BB	Benzo[a]fluoranthene	0.50 U	0.46 U
5	BEP	Benzo[e]pyrene	0.50 U	0.46 U
5	BAP	Benzo[a]pyrene	0.50 U	0.46 U
5	PER	Perylene	0.50 U	0.46 U
6	IND	Indeno[1,2,3-cd]pyrene	0.50 U	0.46 U
5	DA	Dibenz[a,h]anthracene	0.50 U	0.46 U
6	GHI	Benzo[g,h,i]perylene	0.50 U	0.46 U

Surrogates (% Recovery)		
Naphthalene-d8	75	93
Phenanthrene-d10	82	80
Chrysene-d12	96	85

J = Estimated value < RL
NA = Not analyzed
U = Not detected

* = Outside QC Limits

Project Name: Coasters Harbor

	Client ID	Method Blank	Method Blank
	Lab ID	SS030205B06	SS031405B02
	Matrix	Solid	Solid
	Reference Method	Modified 8270C	Modified 8270C
	Batch ID	SS030205B06	SS031405B02
	Date Collected		
	Date Received		
	Date Prepped	3/2/2005	3/10/2005
	Date Analyzed	3/4/2005	3/15/2005
	Sample Size (wet)	30	30
	% Solid	100	100
	File ID	P12072.D	P30993.D
	Units	µg/Kg	µg/Kg
	Final Volume	2	2
	Dilution	1	1
	Reporting Limit	0.67	0.67
Class	Abbrev	Analytes	Result	Result
2	N0	Naphthalene	0.67 U	0.67 U
2	N1	C1-Naphthalenes	0.67 U	0.67 U
2	N2	C2-Naphthalenes	0.67 U	0.67 U
2	N3	C3-Naphthalenes	0.67 U	0.67 U
2	N4	C4-Naphthalenes	0.67 U	0.67 U
2	B	Biphenyl	0.67 U	0.67 U
3	DF	Dibenzofuran	0.67 U	0.67 U
3	AY	Acenaphthylene	0.67 U	0.18 J
3	AE	Acenaphthene	0.67 U	0.67 U
3	F0	Fluorene	0.67 U	0.67 U
3	F1	C1-Fluorenes	0.67 U	0.67 U
3	F2	C2-Fluorenes	0.67 U	0.67 U
3	F3	C3-Fluorenes	0.67 U	0.67 U
3	A0	Anthracene	0.67 U	0.67 U
3	P0	Phenanthrene	0.23 J	0.073 J
3	PA1	C1-Phenanthrenes/Anthracenes	0.67 U	0.67 U
3	PA2	C2-Phenanthrenes/Anthracenes	0.67 U	0.67 U
3	PA3	C3-Phenanthrenes/Anthracenes	0.67 U	0.67 U
3	PA4	C4-Phenanthrenes/Anthracenes	0.67 U	0.67 U
3	RET	Retene	0.67 U	0.67 U
3	DBT0	Dibenzothiophene	0.67 U	0.67 U
3	DBT1	C1-Dibenzothiophenes	0.56 J	0.67 U
3	DBT2	C2-Dibenzothiophenes	0.67 U	0.67 U
3	DBT3	C3-Dibenzothiophenes	0.67 U	0.67 U
3	DBT4	C4-Dibenzothiophenes	0.67 U	0.67 U
4	BF	Benzo(b)fluorene	0.67 U	0.67 U
4	FL0	Fluoranthene	0.67 U	0.67 U
4	PY0	Pyrene	0.67 U	0.67 U
4	FP1	C1-Fluoranthenes/Pyrenes	0.67 U	0.67 U
4	FP2	C2-Fluoranthenes/Pyrenes	0.67 U	0.67 U
4	FP3	C3-Fluoranthenes/Pyrenes	0.67 U	0.67 U
4	FP4	C4-Fluoranthenes/Pyrenes	0.67 U	0.67 U
4	NBT0	Naphthobenzothiophenes	0.67 U	0.67 U
4	NBT1	C1-Naphthobenzothiophenes	0.67 U	0.67 U
4	NBT2	C2-Naphthobenzothiophenes	0.67 U	0.67 U
4	NBT3	C3-Naphthobenzothiophenes	0.67 U	0.67 U
4	NBT4	C4-Naphthobenzothiophenes	0.67 U	0.67 U
4	BA0	Benz[a]anthracene	0.67 U	0.033 J
4	C0	Chrysene/Triphenylene	0.67 U	0.027 J
4	BC1	C1-Chrysenes	0.67 U	0.67 U
4	BC2	C2-Chrysenes	0.67 U	0.67 U
4	BC3	C3-Chrysenes	0.67 U	0.67 U
4	BC4	C4-Chrysenes	0.67 U	0.67 U
5	BB	Benzo[b]fluoranthene	0.67 U	0.67 U
5	BJK	Benzo[k]fluoranthene	0.67 U	0.67 U
5	BB	Benzo[a]fluoranthene	0.67 U	0.67 U
5	BEP	Benzo[e]pyrene	0.67 U	0.67 U
5	BAP	Benzo[a]pyrene	0.67 U	0.67 U
5	PER	Perylene	0.67 U	0.67 U
6	IND	Indeno[1,2,3-cd]pyrene	0.67 U	0.67 U
5	DA	Dibenz[a,h]anthracene	0.67 U	0.67 U
6	GHI	Benzo[g,h,i]perylene	0.67 U	0.67 U

Surrogates (% Recovery)		
2-Methylnaphthalene-d10	58	59
Pyrene-d10	96	82
Benzo[b]fluoranthene-d12	85	77

J = Estimated value < RL
NA = Not analyzed
U = Not detected

* = Outside QC Limits

Project Name: Coasters Harbor

Client ID	Laboratory Control Sample
Lab ID	AA700LCS
Matrix	Solid
Reference Method	Modified 8270C
Batch ID	02-405
Date Collected	
Date Received	
Date Prepped	7/15/2002
Date Analyzed	7/23/2002
Sample Size (wet)	
% Solid	
File ID	C6188.D
Units	
Final Volume	
Dilution	
Reporting Limit	

Class	Abbrev	Analytes	% Recovery	Q
2	N0	Naphthalene	96	
2	N1	C1-Naphthalenes		
2	N2	C2-Naphthalenes		
2	N3	C3-Naphthalenes		
2	N4	C4-Naphthalenes		
2	B	Biphenyl	98	
3	DF	Dibenzofuran	101	
3	AY	Acenaphthylene	97	
3	AE	Acenaphthene	96	
3	F0	Fluorene	100	
3	F1	C1-Fluorenes		
3	F2	C2-Fluorenes		
3	F3	C3-Fluorenes		
3	A0	Anthracene	88	
3	P0	Phenanthrene	99	
3	PA1	C1-Phenanthrenes/Anthracenes		
3	PA2	C2-Phenanthrenes/Anthracenes		
3	PA3	C3-Phenanthrenes/Anthracenes		
3	PA4	C4-Phenanthrenes/Anthracenes		
3	RET	Retene		
3	DBT0	Dibenzothiophene	90	
3	DBT1	C1-Dibenzothiophenes		
3	DBT2	C2-Dibenzothiophenes		
3	DBT3	C3-Dibenzothiophenes		
3	DBT4	C4-Dibenzothiophenes		
4	BF	Benzo(b)fluorene		
4	FL0	Fluoranthene	87	
4	PY0	Pyrene	96	
4	FP1	C1-Fluoranthenes/Pyrenes		
4	FP2	C2-Fluoranthenes/Pyrenes		
4	FP3	C3-Fluoranthenes/Pyrenes		
4	FP4	C4-Fluoranthenes/Pyrenes		
4	NBT0	Naphthobenzothiophenes		
4	NBT1	C1-Naphthobenzothiophenes		
4	NBT2	C2-Naphthobenzothiophenes		
4	NBT3	C3-Naphthobenzothiophenes		
4	NBT4	C4-Naphthobenzothiophenes		
4	BA0	Benz[a]anthracene	92	
4	C0	Chrysene/Triphenylene	93	
4	BC1	C1-Chrysenes		
4	BC2	C2-Chrysenes		
4	BC3	C3-Chrysenes		
4	BC4	C4-Chrysenes		
5	BB	Benzo[b]fluoranthene	94	
5	BJK	Benzo[k]fluoranthene	104	
5	BB	Benzo[a]fluoranthene		
5	BEP	Benzo[e]pyrene	91	
5	BAP	Benzo[a]pyrene	101	
5	PER	Perylene	104	
6	IND	Indeno[1,2,3-cd]pyrene	106	
5	DA	Dibenz[a,h]anthracene	108	
6	GHI	Benzo[g,h,i]perylene	108	

Surrogates (% Recovery)	
Naphthalene-d8	101
Phenanthrene-d10	82
Chrysene-d12	89

* = Outside QC Limits

Project Name: Coasters Harbor

	Client ID	Laboratory Control Sample	Laboratory Control Sample
	Lab ID	SS030205BS04	SS031405BS02
	Matrix	Solid	Solid
	Reference Method	Modified 8270C	Modified 8270C
	Batch ID	SS030205B06	SS031405B02
	Date Collected		
	Date Received		
	Date Prepped	3/2/2005	3/10/2005
	Date Analyzed	3/15/2005	3/14/2005
	Sample Size (wet)		
	% Solid		
	File ID	P30977.D	P30967.D
	Units		
	Final Volume		
	Dilution		
	Reporting Limit		

Class	Abbrev	Analytes	% Recovery	Q	% Recovery	Q
2	N0	Naphthalene	51		47	*
2	N1	C1-Naphthalenes				
2	N2	C2-Naphthalenes				
2	N3	C3-Naphthalenes				
2	N4	C4-Naphthalenes				
2	B	Biphenyl				
3	DF	Dibenzofuran				
3	AY	Acenaphthylene	95		74	
3	AE	Acenaphthene	72		73	
3	F0	Fluorene	72		71	
3	F1	C1-Fluorenes				
3	F2	C2-Fluorenes				
3	F3	C3-Fluorenes				
3	A0	Anthracene	89		85	
3	P0	Phenanthrene	71		71	
3	PA1	C1-Phenanthrenes/Anthracenes				
3	PA2	C2-Phenanthrenes/Anthracenes				
3	PA3	C3-Phenanthrenes/Anthracenes				
3	PA4	C4-Phenanthrenes/Anthracenes				
3	RET	Retene				
3	DBT0	Dibenzothiophene				
3	DBT1	C1-Dibenzothiophenes				
3	DBT2	C2-Dibenzothiophenes				
3	DBT3	C3-Dibenzothiophenes				
3	DBT4	C4-Dibenzothiophenes				
4	BF	Benzo(b)fluorene				
4	FL0	Fluoranthene	77		78	
4	PY0	Pyrene	80		82	
4	FP1	C1-Fluoranthenes/Pyrenes				
4	FP2	C2-Fluoranthenes/Pyrenes				
4	FP3	C3-Fluoranthenes/Pyrenes				
4	FP4	C4-Fluoranthenes/Pyrenes				
4	NBT0	Naphthobenzothiophenes				
4	NBT1	C1-Naphthobenzothiophenes				
4	NBT2	C2-Naphthobenzothiophenes				
4	NBT3	C3-Naphthobenzothiophenes				
4	NBT4	C4-Naphthobenzothiophenes				
4	BA0	Benz[a]anthracene	81		74	
4	C0	Chrysene/Triphenylene	73		77	
4	BC1	C1-Chrysenes				
4	BC2	C2-Chrysenes				
4	BC3	C3-Chrysenes				
4	BC4	C4-Chrysenes				
5	BB	Benzo[b]fluoranthene	69		66	
5	BJK	Benzo[k]fluoranthene	71		73	
5	BB	Benzo[a]fluoranthene				
5	BEP	Benzo[e]pyrene				
5	BAP	Benzo[a]pyrene	73		65	
5	PER	Perylene				
6	IND	Indeno[1,2,3-cd]pyrene	68		51	
5	DA	Dibenz[a,h]anthracene	65		56	
6	GHI	Benzo[g,h,i]perylene	58		55	

Surrogates (% Recovery)		
2-Methylnaphthalene-d10	65	69
Pyrene-d10	80	87
Benzo[b]fluoranthene-d12	74	80

* = Outside QC Limits

Project Name: Coasters Harbor

		Client ID	Duplicate		Duplicate	
			OFF-SD-5-0006		OFF-SD-5-0006	
		Lab ID	V5870DUP		V5870DUP	
		Matrix	Solid		Solid	
		Reference Method	Modified 8270C		Modified 8270C	
		Batch ID	02-405		02-477	
		Date Collected	7/2/2002		7/2/2002	
		Date Received	7/3/2002		7/3/2002	
		Date Prepped	7/15/2002		8/20/2002	
		Date Analyzed	7/24/2002		8/23/2002	
		Sample Size (wet)	25.23		24.09	
		% Solid	80.78%		78.83%	
		File ID	C6204.D		F4346.D	
		Units	mg/kg		mg/kg	
		Final Volume	1.1		1.1	
		Dilution	0.001		0.001	
		Reporting Limit				
Class	Abbrev	Analytes	RPD	Q	RPD	Q
2	N0	Naphthalene	185	*	26	
2	N1	C1-Naphthalenes	191	*	51	*
2	N2	C2-Naphthalenes	173	*	4	
2	N3	C3-Naphthalenes	141	*	2	
2	N4	C4-Naphthalenes	110	*	11	
2	B	Biphenyl	192	*	47	*
3	DF	Dibenzofuran	186	*	74	*
3	AY	Acenaphthylene	150	*	34	
3	AE	Acenaphthene	167	*	23	
3	F0	Fluorene	174	*	28	
3	F1	C1-Fluorenes	137	*	25	
3	F2	C2-Fluorenes	127	*	17	
3	F3	C3-Fluorenes	124	*	6	
3	A0	Anthracene	108	*	26	
3	P0	Phenanthrene	120	*	33	
3	PA1	C1-Phenanthrenes/Anthracenes	76	*	10	
3	PA2	C2-Phenanthrenes/Anthracenes	59	*	26	
3	PA3	C3-Phenanthrenes/Anthracenes	55	*	20	
3	PA4	C4-Phenanthrenes/Anthracenes	155	*	7	
3	RET	Retene				
3	DBT0	Dibenzothiophene	160	*	28	
3	DBT1	C1-Dibenzothiophenes	124	*	38	*
3	DBT2	C2-Dibenzothiophenes	113	*	61	*
3	DBT3	C3-Dibenzothiophenes	92	*	46	*
3	DBT4	C4-Dibenzothiophenes	58	*	45	*
4	BF	Benzo(b)fluorene	86	*	8	
4	FL0	Fluoranthene	80	*	16	
4	PY0	Pyrene	76	*	11	
4	FP1	C1-Fluoranthenes/Pyrenes	59	*	20	
4	FP2	C2-Fluoranthenes/Pyrenes	67	*	7	
4	FP3	C3-Fluoranthenes/Pyrenes	47		16	
4	FP4	C4-Fluoranthenes/Pyrenes				
4	NBT0	Naphthobenzothiophenes				
4	NBT1	C1-Naphthobenzothiophenes				
4	NBT2	C2-Naphthobenzothiophenes				
4	NBT3	C3-Naphthobenzothiophenes				
4	NBT4	C4-Naphthobenzothiophenes				
4	BA0	Benz[a]anthracene	119	*	3	
4	C0	Chrysene/Triphenylene	131	*	3	
4	BC1	C1-Chrysenes	111	*	18	
4	BC2	C2-Chrysenes	98	*	15	
4	BC3	C3-Chrysenes	83	*	6	
4	BC4	C4-Chrysenes	66	*	6	
5	BB	Benzo[b]fluoranthene	124	*	2	
5	BJK	Benzo[k]fluoranthene	116	*	7	
5	BB	Benzo[a]fluoranthene	111	*	6	
5	BEP	Benzo[e]pyrene	115	*	7	
5	BAP	Benzo[a]pyrene	117	*	5	
5	PER	Perylene	114	*	14	
6	IND	Indeno[1,2,3-cd]pyrene	118	*	9	
5	DA	Dibenz[a,h]anthracene	114	*	5	
6	GHI	Benzo[g,h,i]perylene	112	*	9	
		Surrogates (% Recovery)				
		Naphthalene-d8	5		5	
		Phenanthrene-d10	2		2	
		Chrysene-d12	5		1	

* = Outside QC Limits

Project Name: Coasters Harbor

	Client ID	Duplicate	Duplicate	Duplicate	Duplicate
		OFF-SD-OFF2-0006-01	OFF-SD-414-DEBRIS1	Laboratory Control Sample	Laboratory Control Sample
	Lab ID	0502110-01D	0502110-13D	SS030205BSD03	SS031405BSD02
	Matrix	Solid	Solid	Solid	Solid
	Reference Method	Modified 8270C	Modified 8270C	Modified 8270C	Modified 8270C
	Batch ID	SS030205B06	SS031405B02	SS030205B06	SS031405B02
	Date Collected	2/22/2005	2/23/2005		
	Date Received	2/25/2005	2/25/2005		
	Date Prepped	3/2/2005	3/10/2005	3/2/2005	3/10/2005
	Date Analyzed	3/5/2005	3/15/2005	3/15/2005	3/14/2005
	Sample Size (wet)	30.61	10.16		
	% Solid	87.54	98.04		
	File ID	P12080.D	P30973.D	P30979.D	P30969.D
	Units	µg/Kg	µg/Kg		
	Final Volume	5	50		
	Dilution	1	1		
	Reporting Limit				

Class	Abbrev	Analytes	RPD	Q	RPD	Q	RPD	Q	RPD	Q
2	N0	Naphthalene	25		0		2		7	
2	N1	C1-Naphthalenes	5		53	*				
2	N2	C2-Naphthalenes	21							
2	N3	C3-Naphthalenes	5							
2	N4	C4-Naphthalenes	7							
2	B	Biphenyl	5							
3	DF	Dibenzofuran	6							
3	AY	Acenaphthylene	3		41	*	12		8	
3	AE	Acenaphthene	14				2		4	
3	F0	Fluorene	14				3		5	
3	F1	C1-Fluorenes	9							
3	F2	C2-Fluorenes	15							
3	F3	C3-Fluorenes	10							
3	A0	Anthracene	1		55	*	3		0	
3	P0	Phenanthrene	6		2		3		5	
3	PA1	C1-Phenanthrenes/Anthracenes	0		9					
3	PA2	C2-Phenanthrenes/Anthracenes	12		10					
3	PA3	C3-Phenanthrenes/Anthracenes	5		5					
3	PA4	C4-Phenanthrenes/Anthracenes	11		9					
3	RET	Retene	16							
3	DBT0	Dibenzothiophene	9							
3	DBT1	C1-Dibenzothiophenes	11		68	*				
3	DBT2	C2-Dibenzothiophenes	12		32	*				
3	DBT3	C3-Dibenzothiophenes	15		9					
3	DBT4	C4-Dibenzothiophenes	12		17					
4	BF	Benzo(b)fluorene	0							
4	FL0	Fluoranthene	19		38	*	3		4	
4	PY0	Pyrene	26		8		5		5	
4	FP1	C1-Fluoranthenes/Pyrenes	19		1					
4	FP2	C2-Fluoranthenes/Pyrenes	15		5					
4	FP3	C3-Fluoranthenes/Pyrenes	15		1					
4	FP4	C4-Fluoranthenes/Pyrenes	15		0					
4	NBT0	Naphthobenzothiophenes	16		1					
4	NBT1	C1-Naphthobenzothiophenes	14		3					
4	NBT2	C2-Naphthobenzothiophenes	19		5					
4	NBT3	C3-Naphthobenzothiophenes	11		3					
4	NBT4	C4-Naphthobenzothiophenes	21		1					
4	BA0	Benz[a]anthracene	16		5		0		2	
4	C0	Chrysene/Triphenylene	17		1		3		2	
4	BC1	C1-Chrysenes	9		0					
4	BC2	C2-Chrysenes	9		2					
4	BC3	C3-Chrysenes	24		2					
4	BC4	C4-Chrysenes	3		22					
5	BB	Benzo[b]fluoranthene	20		7		4		2	
5	BJK	Benzo[k]fluoranthene	9		8		3		4	
5	BB	Benzo[a]fluoranthene	7							
5	BEP	Benzo[e]pyrene	12		1					
5	BAP	Benzo[a]pyrene	15		6		0		3	
5	PER	Perylene	11		10					
6	IND	Indeno[1,2,3-cd]pyrene	9		6		1		2	
5	DA	Dibenz[a,h]anthracene	8		5		3		1	
6	GHI	Benzo[g,h,i]perylene	8		6		4		2	
		Surrogates (% Recovery)								
		2-Methylnaphthalene-d10	3		5		7		7	
		Pyrene-d10	1		1		4		2	
		Benzo[b]fluoranthene-d12	5		6		4		1	

* = Outside QC Limits

Project Name: Coasters Harbor

	Client ID	Independent Standard	Independent Standard
	Lab ID	FV94	FV94
	Matrix	Ical Check	Ical Check
	Reference Method	Modified 8270C	Modified 8270C
	Batch ID		
	Date Collected		
	Date Received		
	Date Prepped		
	Date Analyzed	7/23/2002	8/8/2002
	Sample Size (wet)		
	% Solid		
	File ID	C6186.D	F4104.D
	Units		
	Final Volume		
	Dilution		
	Reporting Limit		

Class	Abbrev	Analytes	% Recovery	Q	% Recovery	Q
2	N0	Naphthalene	101		101	
2	N1	C1-Naphthalenes				
2	N2	C2-Naphthalenes				
2	N3	C3-Naphthalenes				
2	N4	C4-Naphthalenes				
2	B	Biphenyl	102		98	
3	DF	Dibenzofuran				
3	AY	Acenaphthylene	99		105	
3	AE	Acenaphthene	105		104	
3	F0	Fluorene	107		102	
3	F1	C1-Fluorenes				
3	F2	C2-Fluorenes				
3	F3	C3-Fluorenes				
3	A0	Anthracene	111		106	
3	P0	Phenanthrene	105		101	
3	PA1	C1-Phenanthrenes/Anthracenes				
3	PA2	C2-Phenanthrenes/Anthracenes				
3	PA3	C3-Phenanthrenes/Anthracenes				
3	PA4	C4-Phenanthrenes/Anthracenes				
3	RET	Retene				
3	DBT0	Dibenzothiophene				
3	DBT1	C1-Dibenzothiophenes				
3	DBT2	C2-Dibenzothiophenes				
3	DBT3	C3-Dibenzothiophenes				
3	DBT4	C4-Dibenzothiophenes				
4	BF	Benzo(b)fluorene				
4	FL0	Fluoranthene	106		105	
4	PY0	Pyrene	106		104	
4	FP1	C1-Fluoranthenes/Pyrenes				
4	FP2	C2-Fluoranthenes/Pyrenes				
4	FP3	C3-Fluoranthenes/Pyrenes				
4	FP4	C4-Fluoranthenes/Pyrenes				
4	NBT0	Naphthobenzothiophenes				
4	NBT1	C1-Naphthobenzothiophenes				
4	NBT2	C2-Naphthobenzothiophenes				
4	NBT3	C3-Naphthobenzothiophenes				
4	NBT4	C4-Naphthobenzothiophenes				
4	BA0	Benz[a]anthracene	106		98	
4	C0	Chrysene/Triphenylene	108		105	
4	BC1	C1-Chrysenes				
4	BC2	C2-Chrysenes				
4	BC3	C3-Chrysenes				
4	BC4	C4-Chrysenes				
5	BB	Benzo[b]fluoranthene	101		102	
5	BJK	Benzo[k]fluoranthene	114		105	
5	BB	Benzo[a]fluoranthene				
5	BEP	Benzo[e]pyrene	102		97	
5	BAP	Benzo[a]pyrene	105		103	
5	PER	Perylene	105		102	
6	IND	Indeno[1,2,3-cd]pyrene	104		100	
5	DA	Dibenz[a,h]anthracene	107		103	
6	GHI	Benzo[g,h,i]perylene	101		99	

* = Outside QC Limits

Project Name: Coasters Harbor

Client ID		Independent Standard	Independent Standard
Lab ID		Q1021601	Q3030201
Matrix		Ical Check	Ical Check
Reference Method		Modified 8270C	Modified 8270C
Batch ID			
Date Collected			
Date Received			
Date Prepped			
Date Analyzed		2/17/2005	3/3/2005
Sample Size (wet)			
% Solid			
File ID		P11815.D	P30864.D
Units			
Final Volume			
Dilution			
Reporting Limit			

Class	Abbrev	Analytes	% Recovery	Q	% Recovery	Q
2	N0	Naphthalene	87		84	
2	N1	C1-Naphthalenes	89		87	
2	N2	C2-Naphthalenes				
2	N3	C3-Naphthalenes				
2	N4	C4-Naphthalenes				
2	B	Biphenyl	90		86	
3	DF	Dibenzofuran	89		87	
3	AY	Acenaphthylene	84		88	
3	AE	Acenaphthene	90		89	
3	F0	Fluorene	88		87	
3	F1	C1-Fluorenes				
3	F2	C2-Fluorenes				
3	F3	C3-Fluorenes				
3	A0	Anthracene	91		91	
3	P0	Phenanthrene	89		89	
3	PA1	C1-Phenanthrenes/Anthracenes				
3	PA2	C2-Phenanthrenes/Anthracenes				
3	PA3	C3-Phenanthrenes/Anthracenes				
3	PA4	C4-Phenanthrenes/Anthracenes				
3	RET	Retene				
3	DBT0	Dibenzothiophene				
3	DBT1	C1-Dibenzothiophenes				
3	DBT2	C2-Dibenzothiophenes				
3	DBT3	C3-Dibenzothiophenes				
3	DBT4	C4-Dibenzothiophenes				
4	BF	Benzo(b)fluorene				
4	FL0	Fluoranthene	88		87	
4	PY0	Pyrene	94		94	
4	FP1	C1-Fluoranthenes/Pyrenes				
4	FP2	C2-Fluoranthenes/Pyrenes				
4	FP3	C3-Fluoranthenes/Pyrenes				
4	FP4	C4-Fluoranthenes/Pyrenes				
4	NBT0	Naphthobenzothiophenes				
4	NBT1	C1-Naphthobenzothiophenes				
4	NBT2	C2-Naphthobenzothiophenes				
4	NBT3	C3-Naphthobenzothiophenes				
4	NBT4	C4-Naphthobenzothiophenes				
4	BA0	Benz[a]anthracene	92		92	
4	C0	Chrysene/Triphenylene	92		89	
4	BC1	C1-Chrysenes				
4	BC2	C2-Chrysenes				
4	BC3	C3-Chrysenes				
4	BC4	C4-Chrysenes				
5	BB	Benzo[b]fluoranthene	89		88	
5	BJK	Benzo[k]fluoranthene	89		88	
5	BB	Benzo[a]fluoranthene				
5	BEP	Benzo[e]pyrene	90		90	
5	BAP	Benzo[a]pyrene	91		90	
5	PER	Perylene	91		92	
6	IND	Indeno[1,2,3-cd]pyrene	92		84	
5	DA	Dibenz[a,h]anthracene	89		80	
6	GHI	Benzo[g,h,i]perylene	89		79	

* = Outside QC Limits

Project Name: Coasters Harbor

	Client ID	Reference Sample	Reference Sample	Reference Sample
	Lab ID	AA923NSC	SO021805AWS01	SW031405AWS01
	Matrix	Crude Oil	Crude Oil	Crude Oil
	Reference Method	Modified 8270C	Modified 8270C	Modified 8270C
	Batch ID			
	Date Collected			
	Date Received			
	Date Prepped			
	Date Analyzed	8/9/2002	2/17/2005	3/4/2005
	Sample Size (wet)	0.0516	0.05	0.05
	% Solid			
	File ID	F4122.D	P11805.D	P30875.D
	Units	mg/Kg	mg/Kg	mg/Kg
	Final Volume			
	Dilution			
	Reporting Limit			

Class	Abbrev	Analytes	% Recovery	Q	% Recovery	Q	% Recovery	Q
2	N0	Naphthalene	110		108		85	
2	N1	C1-Naphthalenes	105		103		87	
2	N2	C2-Naphthalenes	108		103		89	
2	N3	C3-Naphthalenes	108		101		91	
2	N4	C4-Naphthalenes	112		106		97	
2	B	Biphenyl	103		92		84	
3	DF	Dibenzofuran						
3	AY	Acenaphthylene						
3	AE	Acenaphthene						
3	F0	Fluorene	120		91		83	
3	F1	C1-Fluorenes	115		97		96	
3	F2	C2-Fluorenes	117		95		100	
3	F3	C3-Fluorenes	120		102		102	
3	A0	Anthracene						
3	P0	Phenanthrene	108		94		94	
3	PA1	C1-Phenanthrenes/Anthracenes	108		98		99	
3	PA2	C2-Phenanthrenes/Anthracenes	104		91		96	
3	PA3	C3-Phenanthrenes/Anthracenes	119		96		108	
3	PA4	C4-Phenanthrenes/Anthracenes	119		90		105	
3	RET	Retene						
3	DBT0	Dibenzothiophene	111		96		97	
3	DBT1	C1-Dibenzothiophenes	107		89		97	
3	DBT2	C2-Dibenzothiophenes	110		94		108	
3	DBT3	C3-Dibenzothiophenes	115		97		118	
3	DBT4	C4-Dibenzothiophenes	120		102		124	
4	BF	Benzo(b)fluorene						
4	FL0	Fluoranthene	85		91		86	
4	PY0	Pyrene	87		75		86	
4	FP1	C1-Fluoranthenes/Pyrenes	104		88		104	
4	FP2	C2-Fluoranthenes/Pyrenes	100		88		104	
4	FP3	C3-Fluoranthenes/Pyrenes	135		119		132	
4	FP4	C4-Fluoranthenes/Pyrenes						
4	NBT0	Naphthobenzothiophenes						
4	NBT1	C1-Naphthobenzothiophenes						
4	NBT2	C2-Naphthobenzothiophenes						
4	NBT3	C3-Naphthobenzothiophenes						
4	NBT4	C4-Naphthobenzothiophenes						
4	BA0	Benz[a]anthracene						
4	C0	Chrysene/Triphenylene	101		108		97	
4	BC1	C1-Chrysenes	101		116		112	
4	BC2	C2-Chrysenes	119		118		130	
4	BC3	C3-Chrysenes	96		129		133	
4	BC4	C4-Chrysenes	87		135		150	*
5	BB	Benzo[b]fluoranthene	105		99		87	
5	BJK	Benzo[k]fluoranthene						
5	BB	Benzo[a]fluoranthene						
5	BEP	Benzo[e]pyrene	105		105		91	
5	BAP	Benzo[a]pyrene						
5	PER	Perylene						
6	IND	Indeno[1,2,3-cd]pyrene						
5	DA	Dibenz[a,h]anthracene						
6	GHI	Benzo[g,h,i]perylene	94		122		96	

* = Outside QC Limits

Attachment H
Environmental Forensics Overview

Environmental Forensics Overview

The use of chromatographic signatures to identify and classify materials began in the early 1900s when the Russian scientist Mikhail Tswett demonstrated compositional distinctions among plant pigments[1]. Instrumentation scientists earned Nobel prizes and other significant awards over the following decades for the development of new detectors, separation columns, and instrumentation components that culminated in 1954 with the development of the gas chromatograph (GC)[2]. The following decade, the scientific community experienced an explosion of new GC applications including the addition of the flame ionization detector (FID)[3] and mass spectrometer (MS)[4]. Each technological advancement was closely followed by discoveries in an ever widening range of scientific disciplines.

In the mid to late 1960s, petroleum geochemists identified hundreds of compounds in crude oil with varying degrees of stability in the environment and clear associations with compounds that originated from living organisms[5]. Having survived the forces of nature over geological timescales, the composition and relative abundances of diagnostic compounds allowed geochemists to trace the signature of fossil fuels among vast tracks of source rock and migration zones to concentrated reservoirs of oil upon which human society was dependent[6].

In the 1970s and 1980's, environmental scientists used GC techniques in a more limited capacity to identify and control the distribution of potentially hazardous chemicals in the environment. The U.S. Environmental Protection Agency (EPA) and other regulatory bodies recognized the reliable use of GC methods during the promulgation of compliance monitoring methods from 1980 to present [7,8,9]. With slight modification, these regulatory compliance monitoring methods can be used to identify many of the signatures developed by petroleum geochemists to identify the source of fugitive hydrocarbons in the environment[10].

A discussion of crude oil and selected derivative petroleum products demonstrates the multifaceted hydrocarbon signatures that allow the definitive identification of these materials in the environment. Crude oil contains thousands of saturated (e.g., no double bonds), aromatic (e.g., benzene ring structures), and heteroatomic (e.g., nitrogen, oxygen, and sulfur containing) hydrocarbons[6]. The chemical complexity of crude oil is a function of the mixture of initial organic matter (e.g., types of land and marine biomass), depositional environments (e.g., oxic condition and mineral substrates), and conditions of formation (e.g., temperature, pressure, and residence time)[11]. The unique combinations of these variables help define the molecular signature of crude oils and allow geochemists to distinguish one reservoir formation from another[11].

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[1] M. Tswett, Ber. Dtsch. Bot. Ges. 24: 316 (1906).
[2] W. Jennings (1987) Analytical Gas Chromatography. Academic Press. NewYork.
[3] H.J. Issac (2001) A Century of Separation Science. Marcel Dekker. New York.
[4] F.W. McLafferty and F. Turecek (1993) Interpretation of Mass Spectrometry. University Science Books, Sausalito, California.
[5] G. Eglinton, P.M. Scott, T. Besky, A.L. Burlingame, and M. Calvin (1964) Hydrocarbons of biological origin from a one-billion-year-old sediment. Science 145: 263-264.
[6] K.E. Peters, C.C. Walters, and J. M. Moldowan (2005) The Biomarker Guide. Second Edition. Cambridge University Press.
[7] EPA (2004) Multi-Media, Multi-Concentration Organics Analysis, SOM01.1
[8] EPA (1980) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
[9] EPA (2005) Waste Management System; Testing and Monitoring Activities; Final Rule: Methods Innovation Rule and SW-846 Final Update IIIB
[10] S.A. Stout, A. D. Uhler, K.J. McCarthy, and S.D. Emsbo-Mattingly (2002) Chemical Fingerprinting of Hydrocarbons. In: Introduction to Environmental Forensics, (B. Murphy and R. Morrison, Eds.), Academic Press.
[11] J.M. Hunt (1979) Petroleum Geochemistry and Geology. Second ed. New York: W.H. Freeman and Company.

Many of the compositional features used to trace crude oil are equally effective at tracing fugitive petroleum and tar products in the environment[10]. These compositional analyses are evaluated in a stepwise fashion that systematically considers the molecular residues of each candidate source material[12]. The residues are generally categorized into saturated and aromatic hydrocarbon groups, because these substances are abundant in hydrocarbon products, the diversity of compounds provides high signature richness, and their sequential degradation in the environment is well established[13].

An example will help illustrate the tiered approach. Crude oil contains a wide range of saturated and aromatic hydrocarbons (Figure H1a). It is dominated by normal alkanes eluting from before n-octane (n-C_8) to n-tetratriacontane (n-C_{40}) and beyond with lesser amounts of isoprenoid hydrocarbons. The PAHs in this range are mostly alkylated (e.g., bell-shaped petrogenic homologue profile) 2- to 4-ring PAHs (Figure H2a). Although present at lower concentrations than the normal alkanes, the triterpane biomarkers are always present in the heavy fraction of petroleum and readily recognized as tricyclic and pentacyclic (including Ts, Tm, NH, H, and homohopanes) compounds (Figure H3a). The relative abundances of specific normal alkanes, isoprenoid hydrocarbons, PAHs, and triterpane biomarkers are characteristic of the reservoir from which it was collected[6]. While petroleum refining can alter these distributions, many of them retain their initial source signature even under the influence of environmental weathering processes. The most recalcitrant source signatures reside in the pattern of isoprenoid hydrocarbons, unresolved complex mixture (UCM), 3- and 4-ring PAH assemblages, and triterpane patterns.

Refined petroleum products derived from crude oil possess more limited hydrocarbon ranges that help distinguish these materials in the environment. For example, diesel range petroleum is typically distilled between 260°C and 315°C and is commercially sold as #2 fuel oil, diesel fuel marine, and middle range gas oil. It predominantly contains hydrocarbons that elute between n-decane (n-C_{10}) and n-octacosane (n-C_{28}) (Figure H1b) including petrogenic 2- to 4-ring PAHs (Figure H2b) and trace levels of triterpane biomarkers dominated by tricyclic compounds (Figure H3b). Heavier petroleum products, like #4 Fuel Oil (Figure H1c) and #6 Fuel Oil (Figure H1d) contain progressively heavier fractions of crude oil with higher proportions of petrogenic 4-ring PAHs (Figures H2c and H2d, respectively) and triterpane biomarkers (Figures H3c and H3d, respectively). Heavy refined petroleum distillates, like lubricating oil, are specifically distilled to operate in motors and machines with specific operation temperatures and mechanical properties. Lubricating oils for passenger cars generally contain a range of compounds eluting from n-octadecane (n-C_{18}) to n-hexatriacontane (n-C_{36}) with a characteristic UCM that excludes heavier petroleum waxes and residual petroleum constituents (Figure H1e). The used lubricating oil presented in this report contained 710 mg/kg total EPAPAHs relative to its starting amount of 4 mg/kg. The increase reflected higher levels of pyrogenic and petrogenic PAHs (Figure H2e) with no change in the triterpane pattern (Figure H3e).

A study of middle distillates used at fire fighter training areas demonstrated the compositional changes that occur during combustion. It should be noted that previously reported results for combusted distillates (Emsbo-Mattingly, 2002) were contaminated by pyrogenic PAH residues on the combustion crucibles from a tar ashing project. The combustion study was rerun with new combustion crucibles and the results are presented in Table H1 and Figures H1, H2, and H3. The lighter middle distillates, like kerosene, experience significant hydrocarbon loss in the n-octane (n-C_8) to n-tridecane (n-C_{13}) range with little change in the relative abundances of n-pentadecane (n-C_{15}) to n-heptadecane (n-C_{17}) hydrocarbons (Figures H1f, H1g, and H1h). Combustion depletes the lighter 2-ring PAHs with little other effect on the PAH composition (Figures H2f, H2g, and H2h) and non-existent triterpane biomarkers (Figures H3f, H3g, and H3h). During combustion, diesel range middle distillates experience a similar loss of lighter saturated hydrocarbons (Figures H1f, H1g, and H1h) and 2-ring PAHs (Figures H2f, H2g, and H2h) with no other

[12] L.G. Faksness, H.M. Weiss, P.S. Daling (2002) Revision of the Nordtest Methodology for Oil Spill Identification. Sintef Applied Chemistry Report STF66 A02028, N-7465 Trondheim, Norway.
[13] T.A. Abrajano, B. Yan, and V. O'Malley (2005) High Molecular Weight Petrogenic and Pyrogenic Hydrocarbons in Aquatic Environments. In Environmental Geochemistry, Elsevier, New York.

significant change in the PAH or triterpane biomarker profiles (Figures H3f, H3g, and H3h). In both middle distillate studies, there was no appreciable increase in the levels of pyrogenic PAHs. Therefore, the fuel residues from the OFFTA were not likely sources of pyrogenic PAHs in Coasters Harbor sediments. The absence of pyrogenic PAHs in the residual fuel was not surprising, because the fuel combustion zone exists in the vapor phase above the fuel and does not contact the liquid fuel directly.

Additional reference samples of pavement materials and coal tar demonstrated the types of materials likely to influence the storm water runoff in areas with high densities of paved surfaces. For example, Hot Patch is a material commonly used to repair modern roads. It contains of heavy residual petroleum consistent with the residue of crude oil after the light, middle, and heavy distillates have been removed (Figure H1l). After extensive heating at the refinery and during its hot application, this material is predominantly petrogenic 2- to 4-ring PAHs mixed with a significant quantity of pyrogenic 3- to 6 ring PAHs (Figure H2l). The removal of distillates is revealed by the absence of tricyclic triterpane biomarkers (Figure H3l). Modern roadway pavement material applied at a lower temperature often contains residual range petroleum mixed with a kerosene range distillate to facilitate its application (Figure H1m). Like Hot Patch, this roadway pavement contains a mixture of petrogenic and pyrogenic PAHs (Figure H2m) and no tricyclic triterpane biomarkers (Figure H3m). However, older pavement contained different types and blends of residual petroleum (Figure H1n) and tar (Figure H1o). The PAH composition of these pavement samples collected from a roads built in the 1940s indicated that the tar binder containing pyrogenic 2- to 6-ring PAHs was well preserved for the past 6 decades (Figures H2n and H2o, respectively). The abundance of tar derived PAHs was lower in the first sample (Figures H1n and H2n), because this pavement was a blended petroleum-tar binder whereas the second sample (Figures H1o and H2o) contained little residual petroleum (see high triterpanes in Figure H3n and low triterpanes in Figure H3o). The coal tar reference sample demonstrates the enriched levels of parent PAHs (Figures H1p and H2p) and depleted levels of triterpane biomarkers (Figure H3p) in commonly encountered tar products. Environmental weathering can remove the 2- and 3-ring PAHs, but it does not alter the relative abundances of diagnostic 4- to 6-ring PAHs[14]. These heavier PAHs possess some of the most useful information for source identification purposes.

Environmental forensic investigators use the hydrocarbon signatures of Reference Materials to evaluate the compositional features of field samples. This systematic evaluation employs multiple lines of evidence to identify and track source signatures of fugitive hydrocarbons in the environment. The lines of evidence include 1) the molecular ranges of hydrocarbon types, 2) relative abundances of source specific markers, and 3) weathering effects. The examples provided in this section and those presented in the associated literature citations provide the basis for determining the most likely origins of hydrocarbon residues in the forensic study area. For example, many of the pavement samples in this section bear very strong similarities to the OFF-SD-414-Debris2 and sediment samples collected from the site. By contrast, the source samples SO11 and SO15 bear close resemblance to biodegraded diesel and asphalt, respectively. The specific application of these relationships is presented in the main body of the forensic report.

[14] A.D. Uhler and S.D. Emsbo-Mattingly (2006) Environmental stability of PAH source indices in pyrogenic tars. Bulletin of Environ. Contam. and Tox.

Figure H1. Reference Samples.

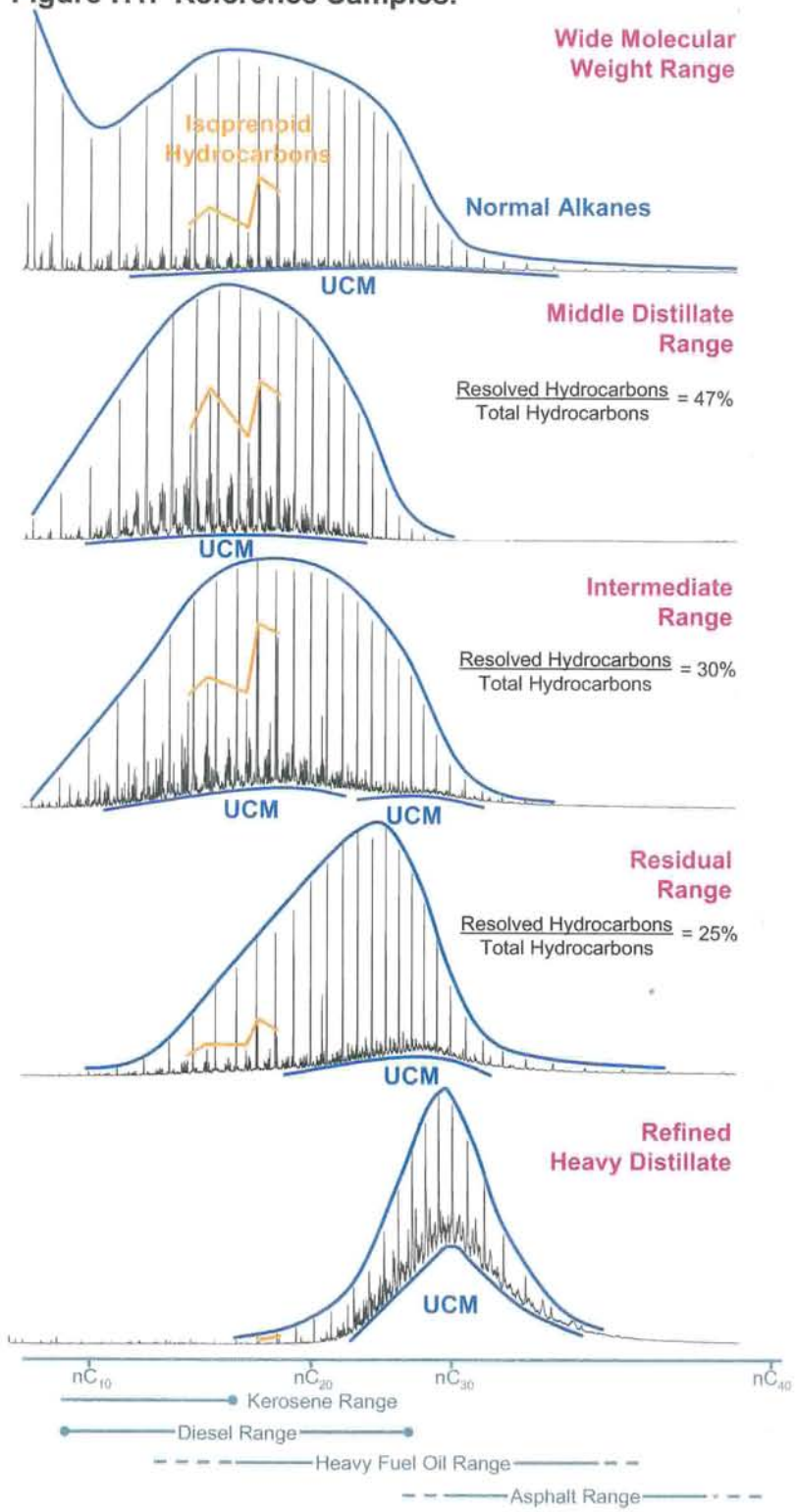
a. Crude Oil
Crude oil is the primary feedstock for a petroleum refinery. This complex hydrocarbon mixture is the source of many petroleum derived materials.

b. #2 Fuel Oil
After distilling light hydrocarbons for gasoline, middle distillates, like this #2 Fuel Oil, are distilled from the crude oil feedstock.

c. #4 Fuel Oil
Intermediate fuel oils are commonly blended to include middle distillates and heavy fuel oils.

d. #6 Fuel Oil
Heavy fuel oils fall into the residual range of crude oil. They may be composed of heavy distillates that are generated after middle distillates are removed.

e. Used Lube Oil
Lubricating oils, like this motor oil, are manufactured from heavy distillates that are subsequently purified and fortified with performance enhancing agents.



PAH Analytes in Table 2
Q quality control compounds
UCM unresolved complex mixture

Figure H1. Reference Samples (continued).

f. Kerosene
This is a light to middle petroleum distillate. Notice how the heavy end profile does not change significantly during combustion.

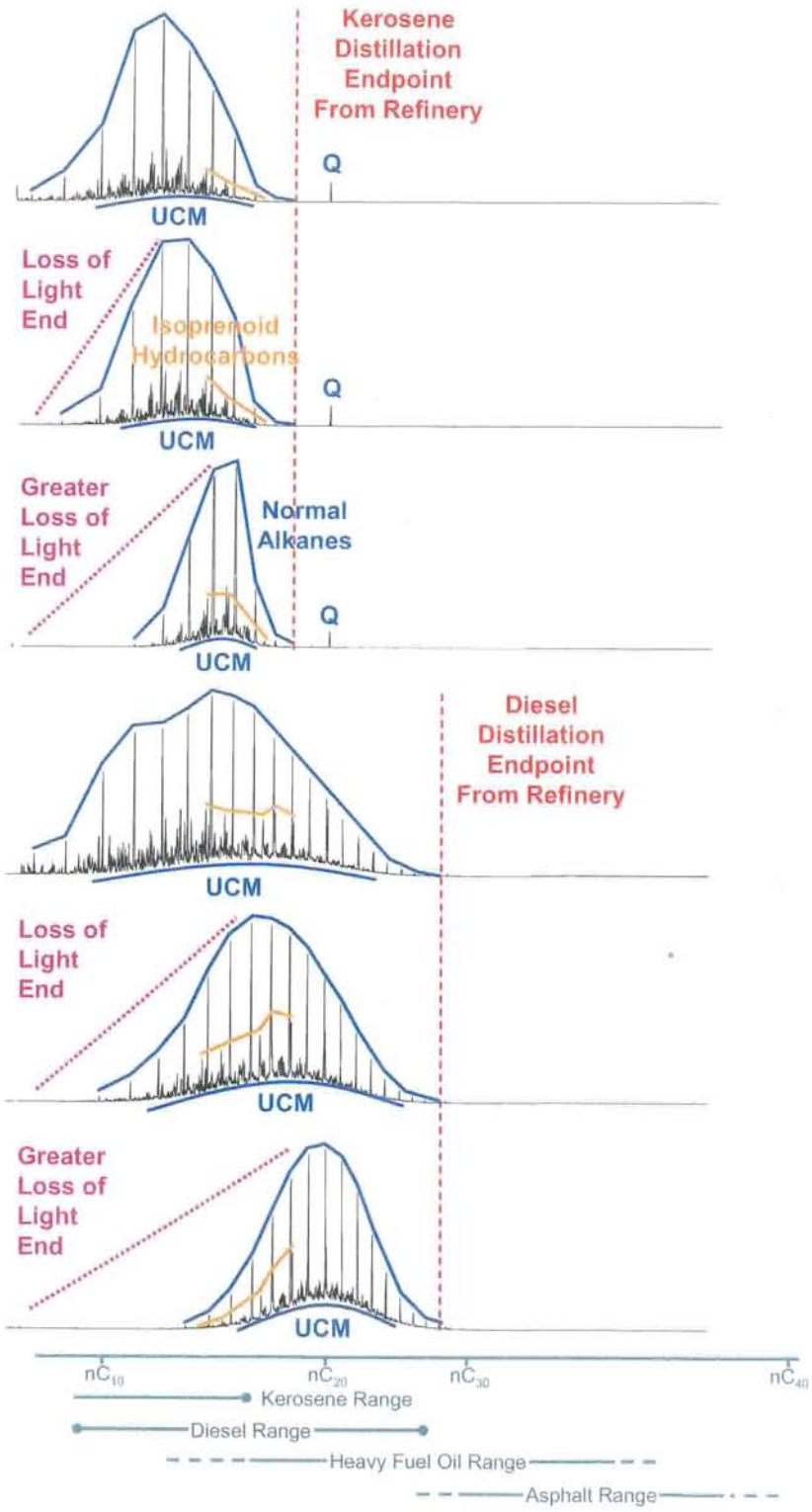
g. Kerosene
50% Combusted
Combustion results in the loss of lighter hydrocarbons as they volatilize during a fire.

h. Kerosene
Combustion Residue
When consumed and extinguished, traces of kerosene remain. Notice the absence of significant pyrogenic PAHs.

i. Diesel
This middle petroleum distillate contains a wider boiling point range of hydrocarbons. Again the heavy end profile does not change significantly during combustion.

j. Diesel
50% Combusted
Combustion results in the loss of lighter hydrocarbons as they volatilize during a fire.

k. Diesel
Combustion Residue.
When consumed and extinguished, traces of diesel remain. Notice the absence of significant pyrogenic PAHs.



PAH Analytes in Table 2
Q quality control compounds
UCM unresolved complex mixture

Figure H1. Reference Samples (continued).

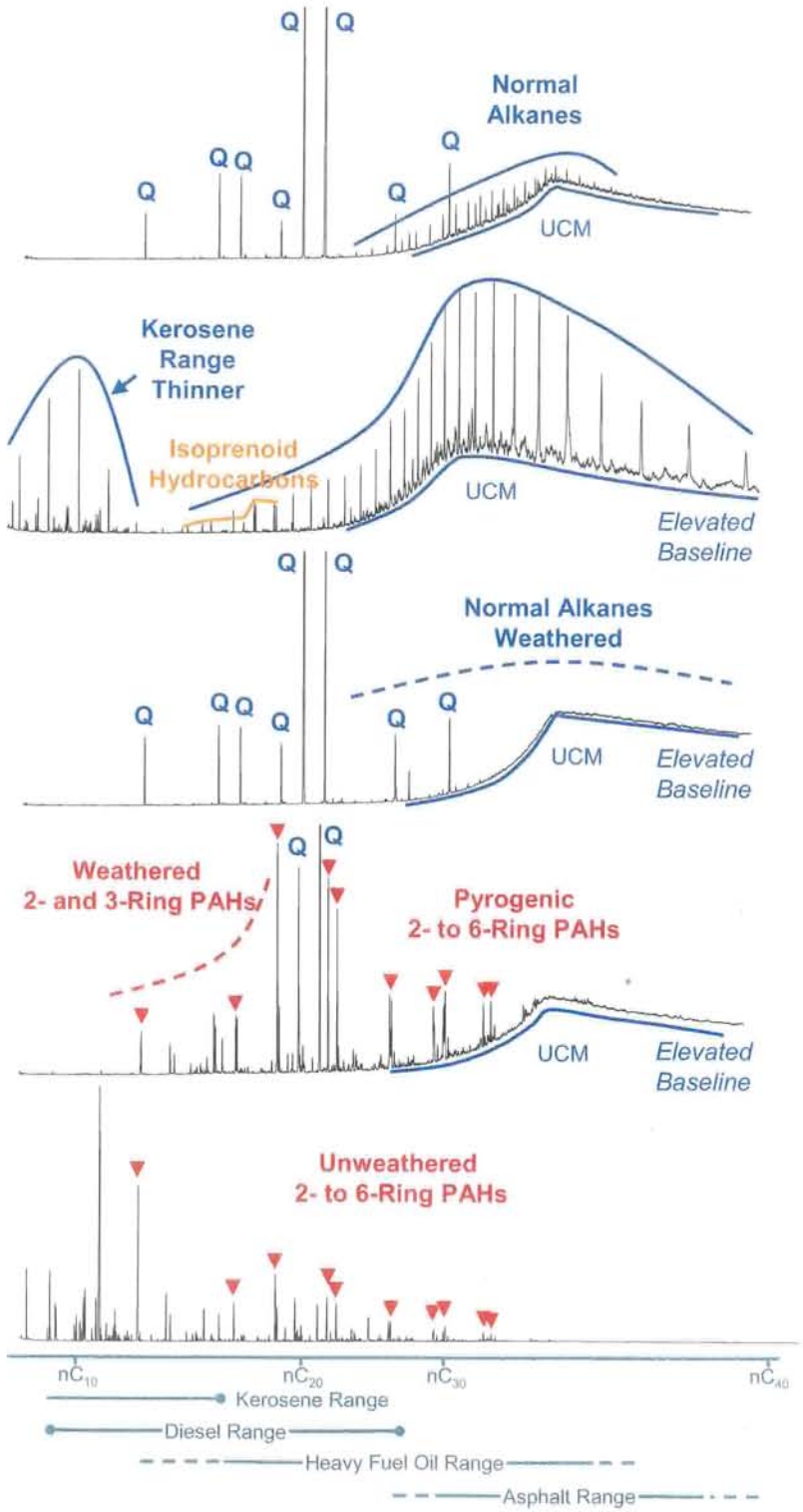
l. Hot Patch
This paving material is commonly used to patch roadways. Instead of kerosene, this residual range petroleum is heated to make it more malleable during its application.

m. Roadway Pavement (*c.* 2005)
The dominant fraction of this material is residual range crude oil that is solid during the summer temperatures. Kerosene is sometimes added to improve fluidity during its application.

n. Roadway Pavement (*c.* 1940s)
This pavement clearly contains residual range petroleum as evidenced by the late eluting UCM and elevated baseline. The normal alkanes typically degrade in old pavement.

o. Roadway Pavement (*c.* 1940s)
The active bonding agent of roadway pavement and road oils was often tar, especially before the 1950s. Some of the pavement produced in this period also contained varying levels of residual petroleum.

p. Coal Tar Oil
Unweathered pyrogenic PAHs dominate the tar fingerprint.



PAH Analytes in Table 2
Q quality control compounds
UCM unresolved complex mixture

Figure H2. PAH Profiles of Reference Samples.

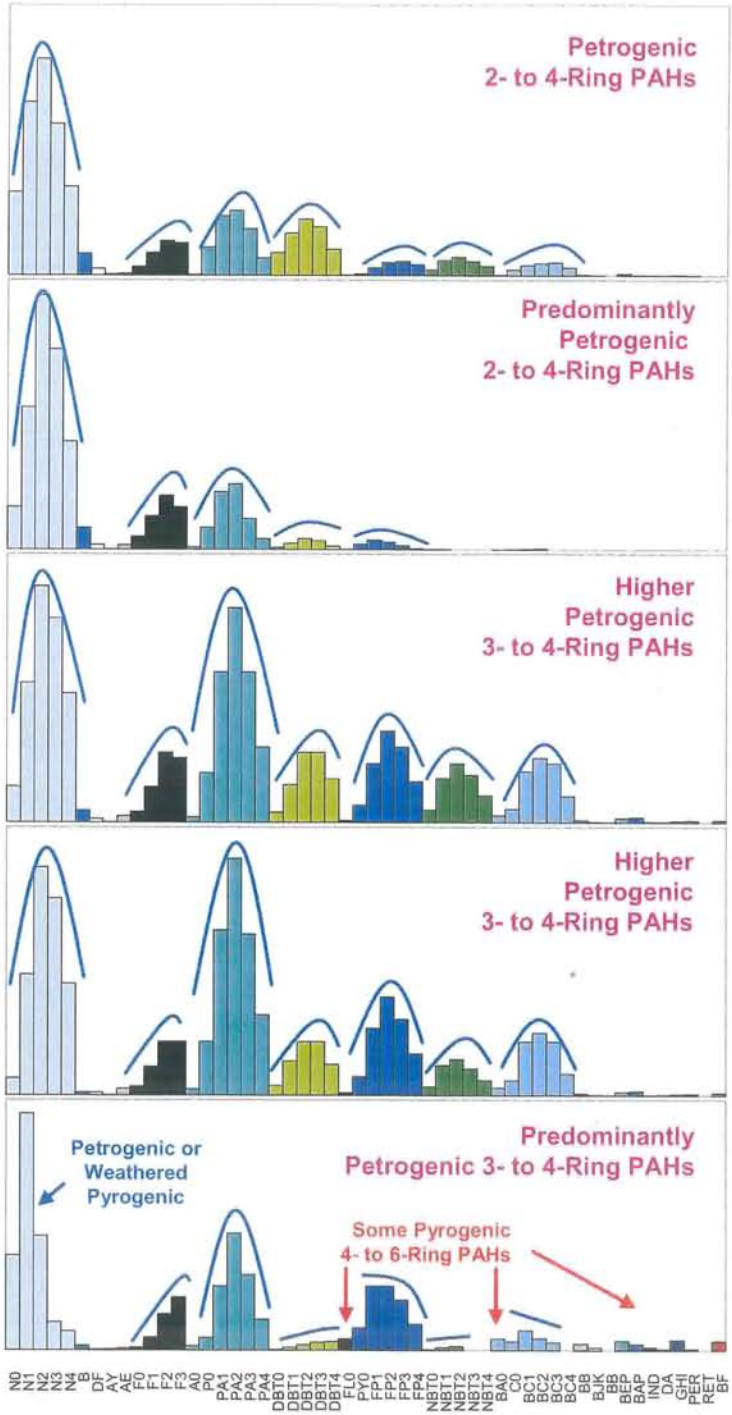
a. Crude Oil
Crude oil and coal used a fuels and fuel feedstocks contain a wide range of petrogenic 2- to 4-ring PAHs.

b. #2 Fuel Oil
#2 Fuel Oil contains petrogenic 2- and 3-ring PAHs. Low levels of petrogenic 4-ring PAHs may also be present.

c. #4 Fuel Oil
#4 Fuel Oil contains petrogenic 2- to 4-ring PAHs. It contains less 2-ring PAHs and more 4-ring PAHs than #2 Fuel Oil due to the presence of heavier petroleum fractions.

d. #6 Fuel Oil
Heavy fuel oils fall into the residual range of crude oil. They contain less 2-ring and more 4-ring PAHs than #2 and #4 Fuel Oils, although the latter distinction can be subtle.

e. Used Lube Oil
Used lubricating oils, like this used motor oil, are manufactured from heavy distillates that are subsequently purified and fortified with performance enhancing agents. The low levels of PAHs in new lube oil can increase by more than 10 times in used oil as a result of pyrolysis inside the engine.



PAH Analytes in Table 2
NA Not analyzed

Figure H2. PAH Profiles of Reference Samples (continued).

f. Kerosene
This light middle petroleum distillate is overwhelmingly composed of petrogenic 2-ring PAHs.

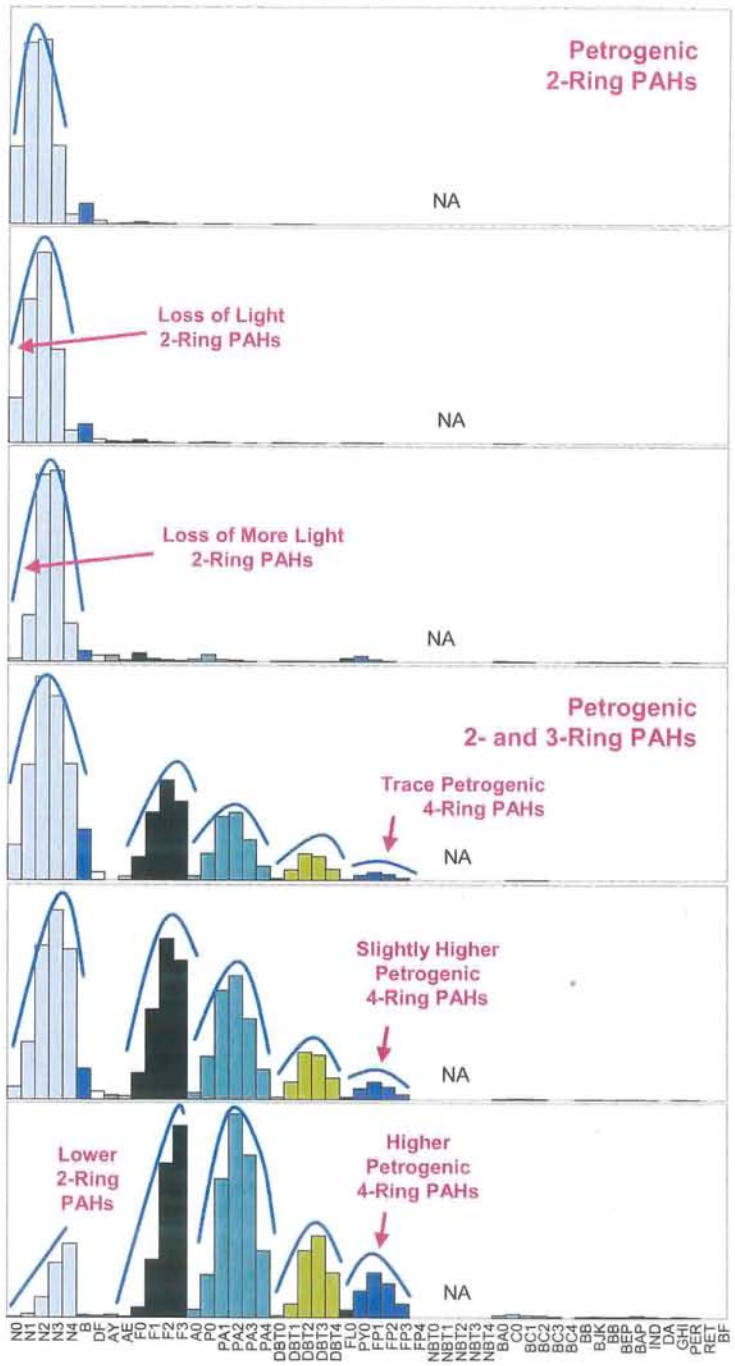
g. Kerosene
50% Combusted
Combustion causes the preferential loss of light 2-ring PAHs.

h. Kerosene
Combustion Residue
Combustion causes the continued loss of light 2-ring PAHs.

i. Diesel
This middle petroleum distillate contains a wider boiling point range of PAHs. The heavy end profile does not change significantly during combustion.

j. Diesel
50% Combusted
Combustion results in the loss of lighter PAHs.

k. Diesel
Combustion Residue.
When consumed and extinguished, traces of diesel remain. Notice the absence of significant pyrogenic PAHs.



PAH Analytes in Table 2
NA Not analyzed

Figure H2. PAH Profiles of Reference Samples (continued).

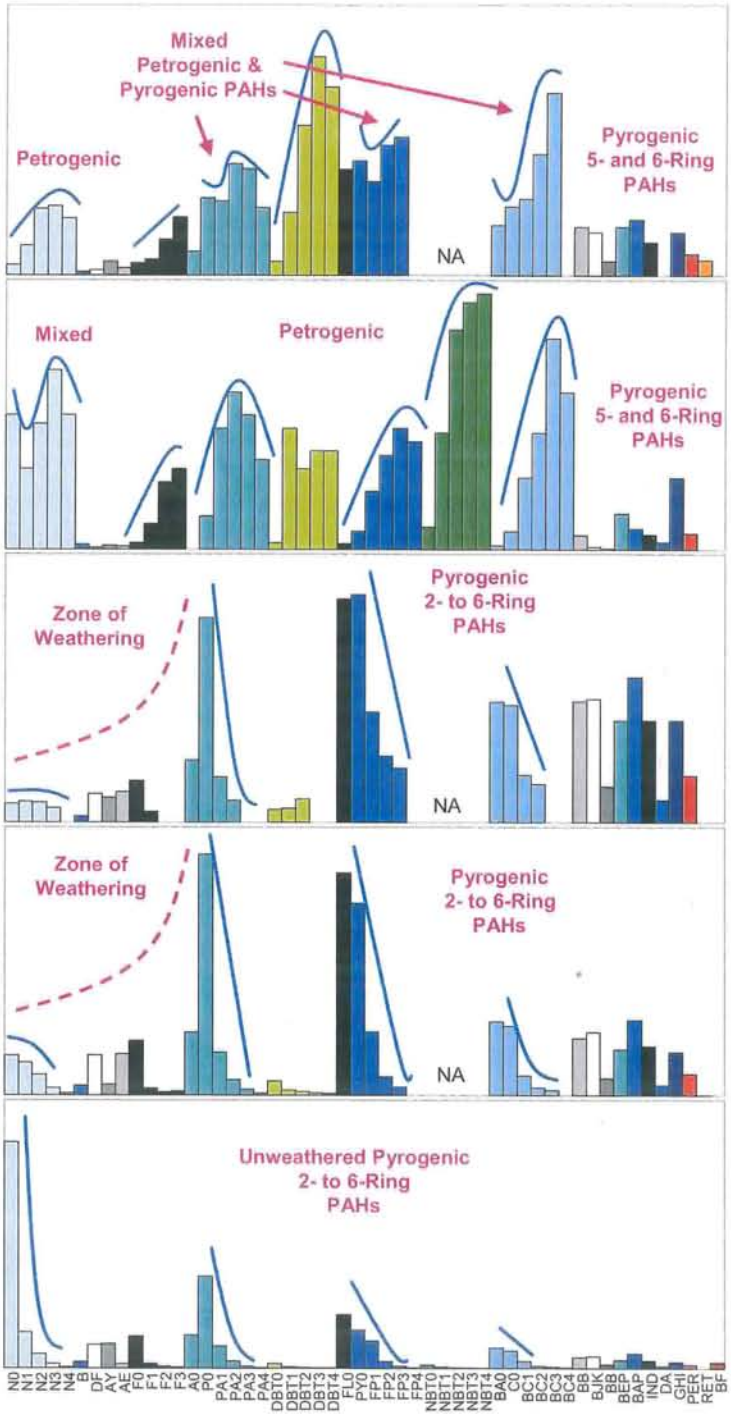
l. Hot Patch
This paving material is composed of heavy PAHs in the residual petroleum range. It is a complex mixture of petrogenic 2- to 4-ring PAHs mixed with pyrogenic 3- to 6-ring PAHs.

m. Roadway Pavement (*c.* 2005)
Like Hot Patch, this modern pavement contains mixtures of pyrogenic and petrogenic PAHs. In particular, it has higher levels of 2-ring PAHs is caused by the kerosene solvent.

n. Roadway Pavement (*c.* 1940s)
Mid-century pavement was frequently blended with petroleum and tar. In this sample the tar derived pyrogenic 3- to 6-ring PAHs are dominant.

o. Roadway Pavement (*c.* 1940s)
Pavement from the early to mid 1900s was predominantly made with tar binders. Accordingly, the pyrogenic 2- to 6-ring PAHs from tar were well preserved in the roadway bedding.

p. Coal Tar Oil
The downward sloping profile of each homologue group is a feature shared by all pyrogenic tars. Subtle changes in several isomer ratios (e.g., FL0:PY0) are characteristic of the different processes by which they are generated.



PAH Analytes in Table 2
NA Not analyzed

Figure H3. Triterpane Fingerprints of Reference Samples.

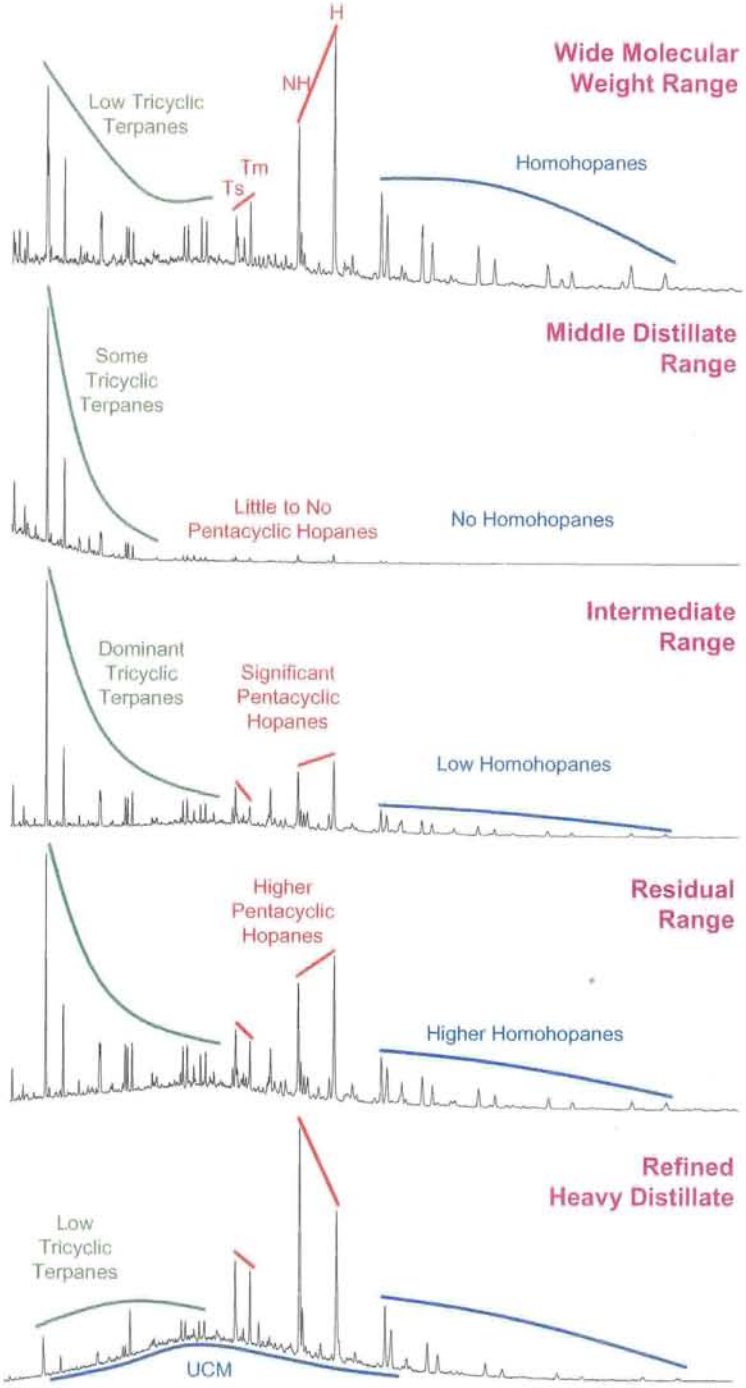
a. Crude Oil
Heavy petroleum fraction contains a full range of triterpane biomarkers ranging from the lighter tricyclic to the heavier homohopane series. The relative abundances of isomers, like Ts:Tm and NH:H help identify the petroleum origin.

b. #2 Fuel Oil
Middle petroleum distillates contain only the lightest, if any, triterpane biomarkers.

c. #4 Fuel Oil
Intermediate fuel oils blend middle and heavy distillates. The levels of tricyclic triterpanes are generally more abundant than pentacyclic triterpanes.

d. #6 Fuel Oil
Heavy fuel oils generally retain the full triterpane signature of the crude oil.

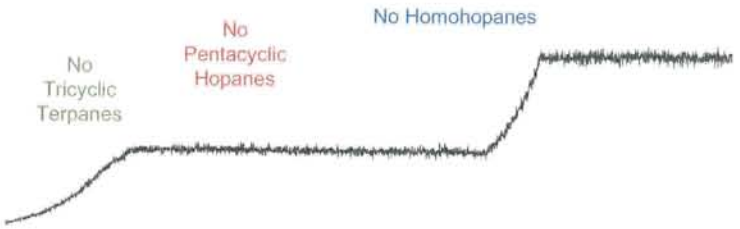
e. Lube Oil
Heavy refined distillates primarily retain a portion of the triterpane pattern commensurate with the distillation range (see UCM).



UCM unresolved complex mixture

Figure H3. Triterpane Fingerprints of Reference Samples (continued).

f. Kerosene
Light middle distillates, like kerosene, do not contain heavy petroleum hydrocarbons in the triterpane range.



g. Kerosene
50% Combusted
Combustion causes the loss of lighter hydrocarbons and concentration of heavier hydrocarbons. Even so, no triterpanes appear.

h. Kerosene
Combustion Residue
No triterpanes appear when the heaviest fraction of kerosene is concentrated to its maximum limit.

i. Diesel
Diesel range middle petroleum distillate contains low levels of the lightest tricyclic triterpanes.

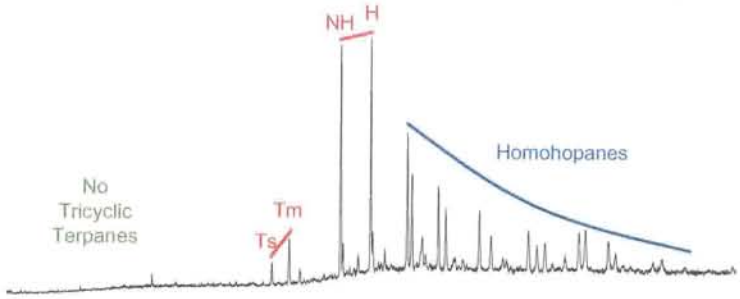
j. Diesel
50% Combusted
The triterpane pattern remains unaltered when half of the diesel range hydrocarbons are combusted.

k. Diesel
Combustion Residue.
The triterpane pattern remains unaltered when the heaviest (< 1%) middle distillate hydrocarbons are isolated in the combustion residue.

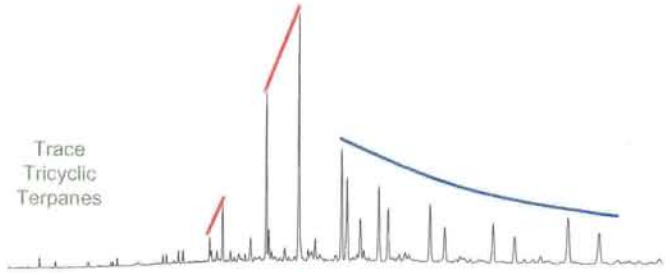
UCM unresolved complex mixture

Figure H3. Triterpane Fingerprints of Reference Samples (continued).

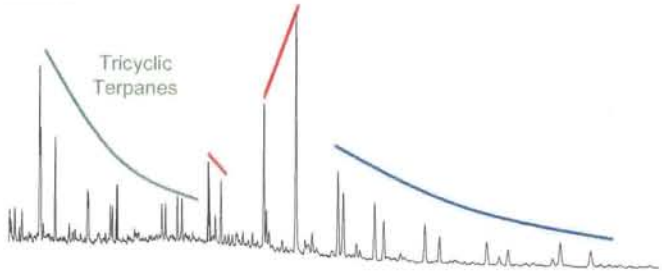
l. Hot Patch
Paving material is formulated to remain solid at ambient roadway conditions. Distillation of middle and heavy petroleum distillates leaves only the heaviest triterpanes in the petroleum pitch binder.



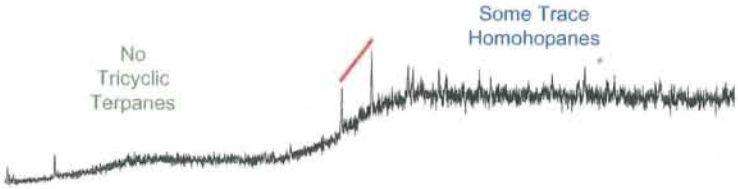
m. Roadway Pavement (*c.* 2005)
The heavy petroleum fraction in modern roadway pavement is from the same residual fraction as the Hot Patch sample.



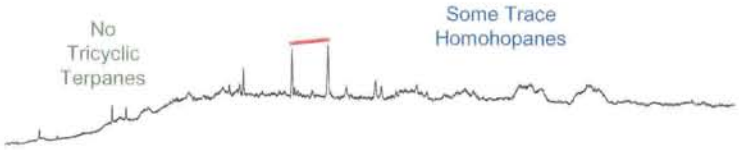
n. Roadway Pavement (*c.* 1940s)
The residual petroleum used to pave roads often contained lighter hydrocarbon fractions relative to modern residual petroleum products.



o. Roadway Pavement (*c.* 1940s)
Variable levels of residual petroleum are found in pavement laid down in the early 1900s. None is evident in this sample. The binder in the pavement was tar.



p. Coal Tar Oil
Coal tar oil contains low levels of triterpane biomarkers. The concentrations in this coal tar oil are consistent with the Roadway Pavement sample illustrated above.



UCM unresolved complex mixture

Attachment I
Past OFFTA Soil Samples and Biodegradation Patterns

Past OFFTA Soil Samples and Biodegradation Patterns

Two samples were collected as part of the forensic investigation to represent the types of hydrocarbons associated with petroleum residues from the OFFTA (Emsbo-Mattingly 2002). These samples included SO11 and SO15. The forensic fingerprints of these samples were compared to more than 200 soil sample the chromatograms associated with the Extractable Petroleum Hydrocarbon (EPH) results generated during past OFFTA landside investigations. While the forensic and EPH fingerprints were not perfectly aligned, the basic hydrocarbon signatures were comparable. This comparison established that the two samples used to represent the OFFTA landside signatures (SO11 and SO15) represented the dominant hydrocarbons in the overwhelming number of subsurface soil samples. These data also demonstrated the advanced degree of hydrocarbon biodegradation present in these subsurface soil samples.

The diesel range petroleum was the most common hydrocarbon signature in the OFFTA soil samples. It was observed in approximately 45% of the historical EPH chromatograms. Sample SO11 represented well the diesel range petroleum distillate found in the OFFTA soils with hydrocarbons eluting between approximately n-decane (n-C_{10}) and n-hexacosane (n-C_{26}) (Figure I1a). The dominant feature of this pattern is the unresolved complex mixture (UCM). The prominent isoprenoids in the absence of normal alkanes indicated heavy biodegradation. With some variation in the degree of weathering, this pattern occurred throughout the central section of the OFFTA. One of the least biodegraded OFFTA soil samples was SB511-0406 (Figure I1b). However, the level of weathering in SB511 was more severe (normal alkanes < isoprenoids) than any of the diesel range signatures observed along the Coasters Harbor shoreline in 2005 (normal alkanes $\geq$ isoprenoids); thus, this diesel could not have been the source of middle distillates observed in Coasters Harbor sediments. More commonly, the OFFTA diesel signatures exhibited more severe degrees of biodegradation. For example, the microbes frequently reduced the abundances of normal alkanes below detectable levels (Figure I1c) as observed in SO11. The diesel range petroleum in some soil samples were so biodegraded the normal alkanes and isoprenoids were consumed (Figure I1d). Some biodegraded diesel signatures also contained asphalt range hydrocarbons and pyrogenic PAHs attributed to middle distillates of OFFTA fuel residues commingling with pavement debris (Figure I1e).

The residual range petroleum hydrocarbons were less commonly observed than the diesel range hydrocarbons. This signature was identified in approximately 25% of the historical EPH chromatograms. Sample SO15 demonstrated the basic features of the residual range hydrocarbons found in the OFFTA soils. It contained a UCM eluting after approximately n-hexacosane (n-C_{26}) with low levels of normal alkanes likely removed by biodegradation (Figure I1f). Late eluting hydrocarbons were also observed in locations such as SB503 (Figure I1g) and SB426 (Figure I1h) with varying levels of severely degraded middle or heavy distillate petroleum products. PAHs were sometimes encountered at concentrations that appeared to fluctuate independently of the amount of petroleum (Figures I1i and I1j). The independent distribution of these petrogenic and pyrogenic hydrocarbons suggested that they were released separately and commingled in the environment. The composition of these pyrogenic PAHs resembled the tar binder in the OFF-SD-414-Debris2 pavement sample (Figure 3j). The OFFTA samples with the higher pyrogenic PAH signatures were commonly encountered below the parking lot around Building 1248 and along the shoreline where historical pavement resides.

Although only two OFFTA soil samples (SO11 and SO15) were collected for forensic analyses, this comparison to historical hydrocarbon chromatograms established that they represented the dominant hydrocarbon patterns observed throughout the OFFTA soils. The majority of diesel range fuel in the OFFTA soils was very similar in composition and weathering state when compared to SO11. A few samples were less weathered and many samples were more weathered than SO11. The variability in the weathering state did not affect our ability to detect this material in the Coasters Harbor sediments.

The residual range material was less frequently encountered and often observed in mixtures with heavily and severely biodegraded diesel range petroleum. It is possible that several historical soil samples may

have contained degraded residues of heavy fuel oil (e.g., #6 Fuel Oil). While SO15 forensic sample generally represented the commonly encountered heavy asphalt range petroleum, we could not determine the degree to which it represented all of the heavy hydrocarbons observed in the OFFTA soils based on the available EPH chromatograms.

Other hydrocarbons observed in the EPH chromatograms consisted of naturally occurring organics associated with peat and intertidal mudflats. These naturally occurring hydrocarbons were observed in fewer than 10% of the samples and typically between 8 and 12 feet of depth. These signatures were not helpful for determining the origin of PAHs in Coasters Harbor sediments.

Several features of SO11 and SO15 distinguished these samples from Coasters Harbor sediments. First, the PAH composition of SO11 was clearly from a middle petroleum distillate containing petrogenic 2- to 4-ring PAHs (Figure I2a). The sediment samples contained pyrogenic 3- to 6-ring PAHs (Figure 4b). Environmental weathering can not transform petrogenic 2- to 4-ring PAHs into pyrogenic 3- to 6-ring PAHs. Therefore, middle distillate residues from the OFFTA operation were not a significant the origin of PAHs in Coasters Harbor sediments. Second, the overwhelming amount of hydrocarbons in SO15 was associated with the heavy unresolved complex mixture (UCM) (Figure I1f). The hydrocarbons in SO15 were too heavy to be considered an OFFTA training fuel. Notice the dominant late eluting UCM in SO15 (Figure I1f) overlapped poorly with the hydrocarbon range of candidate fuels like kerosene (Figure H1f), diesel (Figure H1i), #2 Fuel Oil (Figure H1b), #4 Fuel Oil (Figure H1c), and #6 Fuel Oil (Figure H1d). Rather, the heavy nature of the hydrocarbons in SO15 (Figure I1f) was most similar to residual petroleum material in pavement (Figures H1l, H1m, H1n, and H1n). Third, the large quantity of heavy petroleum was associated with petrogenic 2- and 4-ring PAHs (Figure I2b). However, this sample also contained pyrogenic 2- to 6-ring PAHs. Like many samples of pavement (Figures H2l, H2n, and H2o), mixtures of heavy petroleum and tar derived PAHs co-occur in historical and modern pavement. Fourth, the biomarker profile of SO11 (Figure I3a) and SO15 (Figure I3b) exhibited features that were inconsistent with the residual petroleum observed in the Coasters Harbor sediments. Patterns E and H were not observed in the sediments collected from Coasters Harbor (Table 3). Collectively, the numerous differences between the hydrocarbon signatures of OFFTA soils and proximal sediments supported the conclusion that the PAHs in Coasters Harbor sediments originated from non-OFFTA sources.

Figure I1. OFFTA Soil Samples.

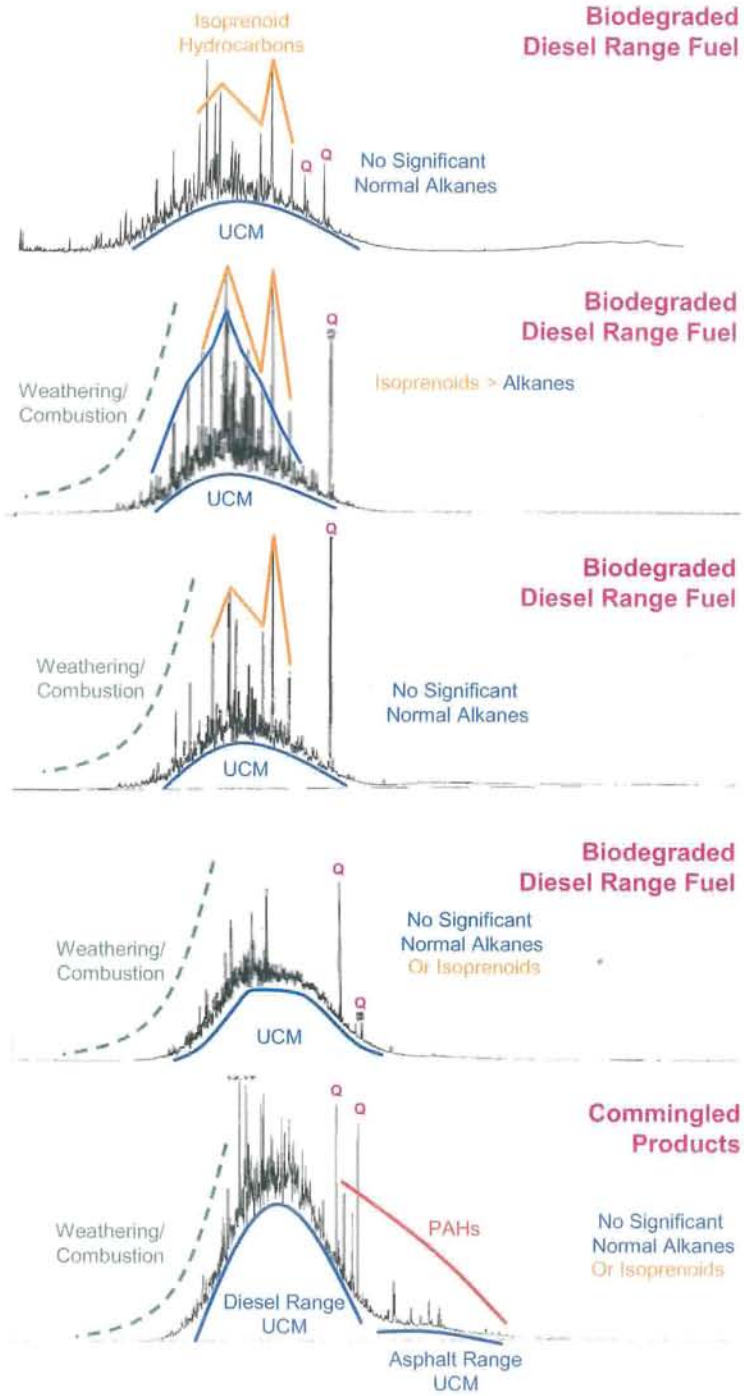
a. SO11 (OFFTA Forensic Sample)
This diesel range petroleum distillate contained hydrocarbons eluting between about n-decane (n-C_{10}) and n-hexacosane (n-C_{26}). Microbes selectively consumed the normal alkanes, leaving the isoprenoid hydrocarbons behind.

b. SB511-0406
This diesel range petroleum was slightly less biodegraded in a few samples as evidenced by the higher levels of normal alkane relative to the isoprenoid hydrocarbons.

c. SB18-0406
This biodegraded diesel range petroleum distillate contained no significant normal alkanes.

d. SB431-0810
This severely biodegraded diesel range petroleum distillate contained no significant normal alkanes or isoprenoid hydrocarbons.

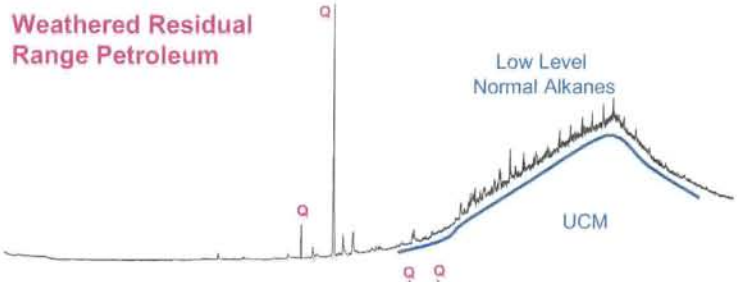
e. SB430-1214
Mixture of biodegraded diesel and asphalt range petroleum products. This pattern was consistent with the commingling of middle distillate OFFTA fuel and pavement near the shoreline.



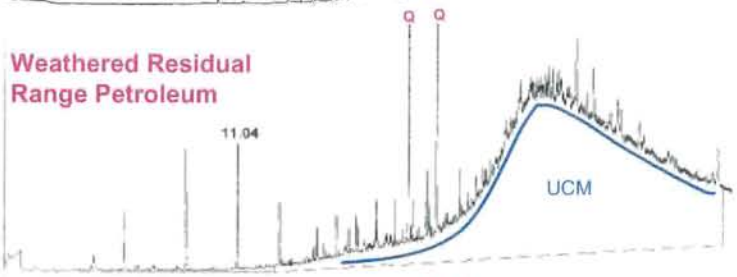
Q quality control compounds
UCM unresolved complex mixture

Figure I1. OFFTA Soil Samples.

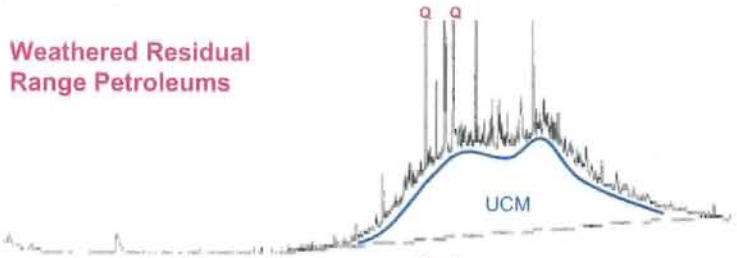
f. SO15 (OFFTA Forensic Sample)
This residual range petroleum was primarily a UCM eluting after n-pentacosane (n-C_{25}). Low levels of normal alkanes indicated heavy biodegradation.



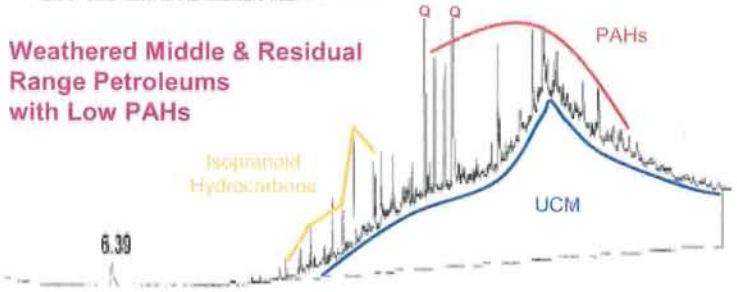
g. SB503-0810
This residual range petroleum also consisted of a late eluting UCM with low levels of unidentified peaks. The absence of normal alkanes indicated heavy biodegradation.



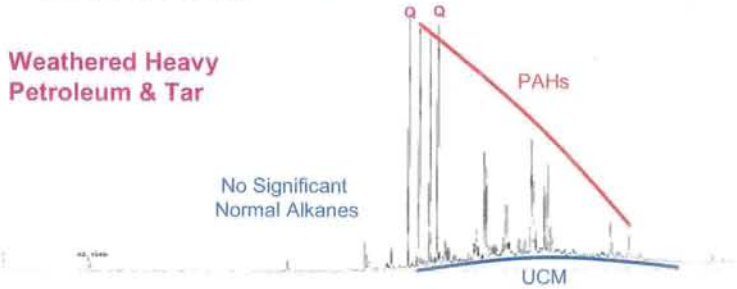
h. SB426-0204
This residual range petroleum contained a bimodal late eluting UCM consisting of a mixture of more than one heavy petroleum product.



i. SB406-1012
This mixture of weathered middle and residual range petroleum also contained low levels of PAHs.



j. SB03-0305
PAHs were present at higher levels than the biodegraded residual range petroleum in this sample. These PAHs were consistently observed below the parking lot around Building 1248 and the OFFTA shoreline – two places where pavement was known to occur.

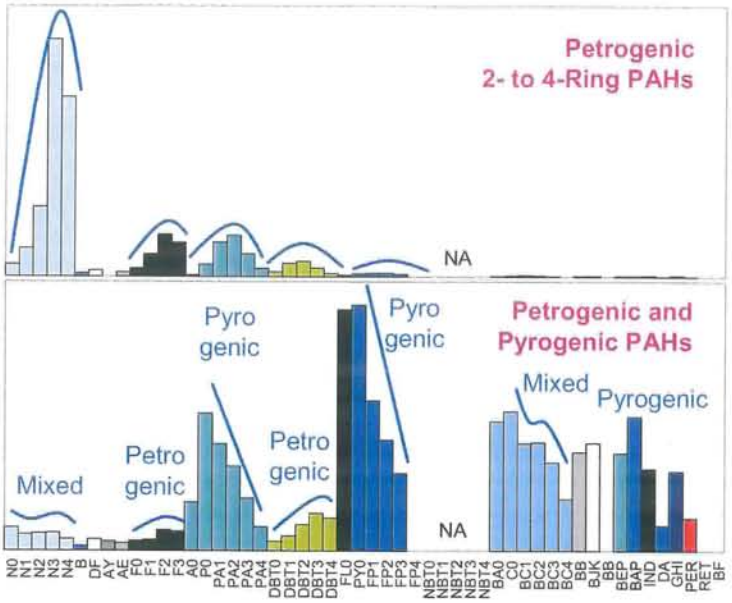


Q quality control compounds
UCM unresolved complex mixture

Figure I2. PAH Histograms of OFFTA Soil Samples.

a. SO11 (OFFTA Forensic Sample) This diesel range petroleum distillate contained petrogenic 2- to 4-ring PAHs. Environmental weathering substantially reduced the less alkylated naphthalenes.

b. SO15 (OFFTA Forensic Sample) This residual range petroleum contained petrogenic 2- to 4-ring PAHs. However, the dominant pyrogenic 3- to 6-ring PAHs were possibly derived from abraded pavement, like the OFF-SD-414-Debris2 sample.

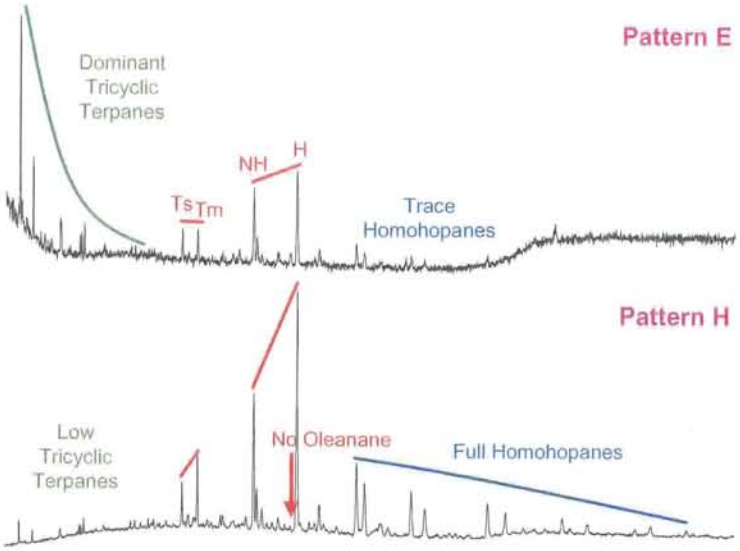


PAH Analytes in Table 2
NA Not analyzed

Figure I3. Triterpane Fingerprints of OFFTA Soil Samples.

a. SO11
Middle distillate tricyclic terpanes dominate the pentacyclic terpanes. This pattern results from the generation of diesel range distillates at the refinery.

b. SO15
The residual petroleum product is dominated by pentacyclic triterpanes. The unique features of this pattern are 1) the abundance of NH is about half of H and 2) the abundance of oleanane is negligible. These features were not observed in Coasters Harbor sediment samples that exhibited Pattern A in which 1) NH is about 75% of H and 2) oleanane is detectable.



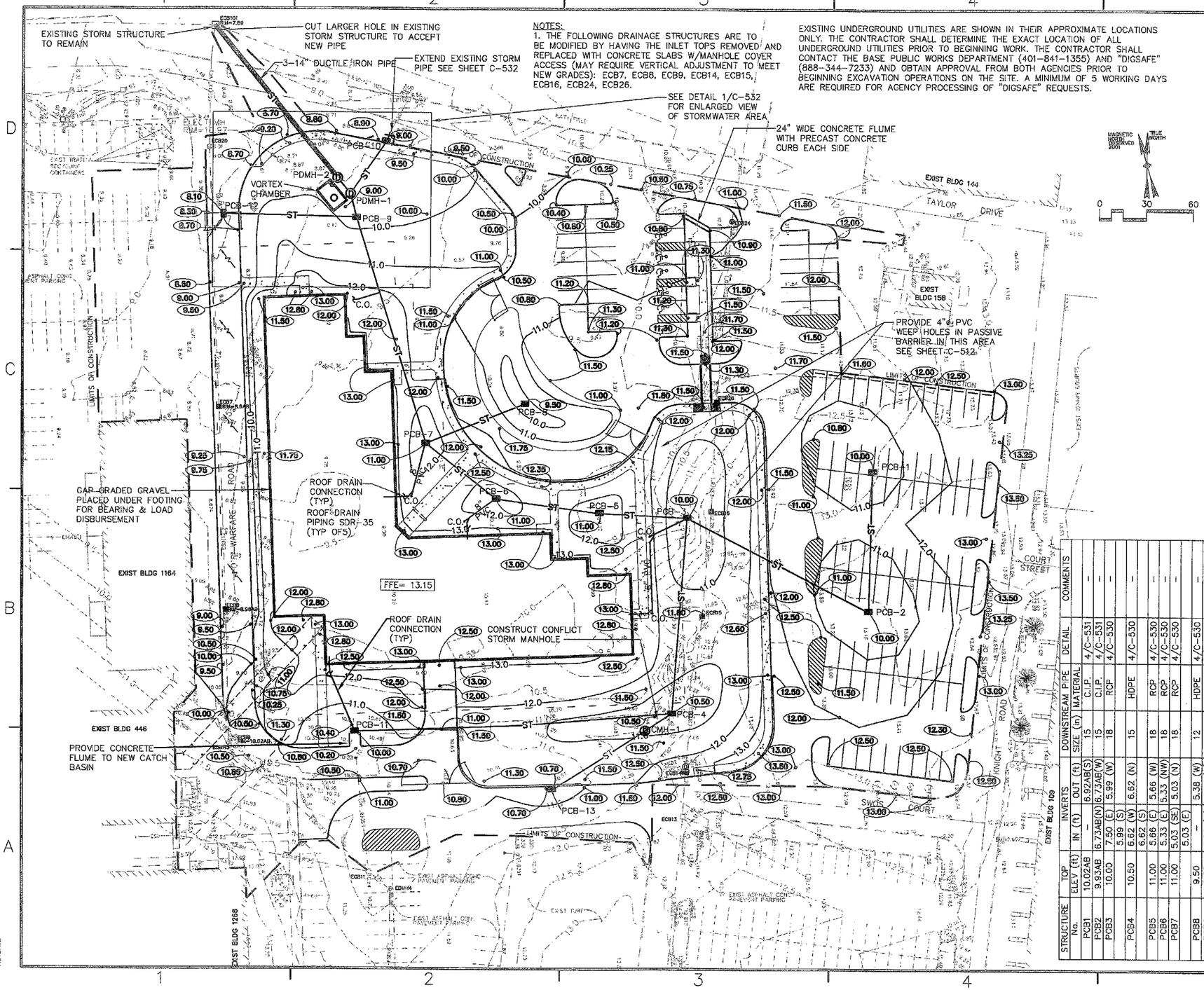
Ts 18α(H)-22,29,30-Trisnorneohopane
Tm 17α(H)-22,29,30-Trisnorhopane
NH 30-Norhopane
H Hopane

APPENDIX F

RECONFIGURED SWOS STORM DRAIN SYSTEM

NOTES:
1. THE FOLLOWING DRAINAGE STRUCTURES ARE TO BE MODIFIED BY HAVING THE INLET TOPS REMOVED AND REPLACED WITH CONCRETE SLABS W/MANHOLE COVER ACCESS (MAY REQUIRE VERTICAL ADJUSTMENT TO MEET NEW GRADES): ECB7, ECB8, ECB9, ECB14, ECB15, ECB16, ECB24, ECB26.

EXISTING UNDERGROUND UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL CONTACT THE BASE PUBLIC WORKS DEPARTMENT (401-841-1355) AND "DIGSAFE" (888-344-7233) AND OBTAIN APPROVAL FROM BOTH AGENCIES PRIOR TO BEGINNING EXCAVATION OPERATIONS ON THE SITE. A MINIMUM OF 5 WORKING DAYS ARE REQUIRED FOR AGENCY PROCESSING OF "DIGSAFE" REQUESTS.



STRUCTURE No.	TOP ELEV (ft)	INVERTS IN (ft)	INVERTS OUT (ft)	DOWNSTREAM PIPE SIZE (in)	DOWNSTREAM PIPE MATERIAL	DETAIL	COMMENTS
PCB1	10.02AB	–	6.92AB(S)	15	C.I.P.	4/C-531	–
PCB2	9.93AB	6.73AB(N)	6.73AB(W)	15	C.I.P.	4/C-531	–
PCB3	10.00	7.50 (E)	5.99 (W)	18	RCP	4/C-530	–
PCB4	10.50	5.99 (S) 6.62 (W) 6.62 (S)	6.62 (N)	15	HDPE	4/C-530	–
PCB5	11.00	5.66 (E)	5.66 (W)	18	RCP	4/C-530	–
PCB6	11.00	5.33 (E)	5.33 (NW)	18	RCP	4/C-530	–
PCB7	11.00	5.03 (SE) 5.03 (E)	5.03 (N)	18	RCP	4/C-530	–
PCB8	9.50	–	5.38 (W)	12	HDPE	4/C-530	–
PCB9	9.00	4.20 (W) 4.20 (S)	4.20 (N)	24	RCP	1/C-530	–
PCB10	8.90	5.52 (N)	4.45 (SE)	15	RCP	4/C-531	–
PCB11	10.22AB		7.42AB(E)	15	RCP	4/C-530	–
PCB12	8.09AB		4.73AB(W)	15	RCP	4/C-531	–
PCB13	10.70	7.07 (N)	7.07 (S)	15	RCP	4/C-531	–
ECB101	7.70	3.50 (S)	2.20 (W)	–	–	–	EXIST STRUCTURE
PDMH1	10.86AB	4.26 (NE) 4.13 (S)	4.10 (SW) 6.25 (NW)	24	RCP	1/C-530	–
PDMH2	10.84AB	6.20 (SE) 4.10 (SW)	4.07 (NW)	24	RCP	1/C-530	–
VORTEX CHAMBER	10.82AB	4.10 (NE)	4.10 (NE)	24	RCP	1/C-532	–
CMH-1	10.84	6.71 (SW)	6.71 (NE)	15	RCP	X/C-53X	–

THE HASKELL COMPANY
TOTAL FACILITY SOLUTIONS

RECORD DRAWING	9/10/04	
CHANGE TO AS-BUILT	9/15/04	
FIELD ORDER 1	9/10/04	
REV READY FOR CONSTRUCTION	11/26/03	
BIDDER SUBMISSION	11/18/03	
READY FOR CONSTRUCTION DESIGN SUBMISSION	9/19/03	
REVISED CONST. FAST TRACKING SUBMISSION (CWL)	9/19/03	
CONST. FAST TRACKING SUBMISSION (CWL)	8/18/03	
REVISED FINAL DESIGN SUBMISSION	8/1/03	
FINAL DESIGN SUBMISSION	7/2/03	
DESCRIPTION	DATE	APPR

TRITON

APPROVED
PRIMARY – SATISFACTORY TO
DATE
APPROVED
FOR EFD FOR COMMANDER NAVFAC
DATE

A/E		EFD
MLQ	DESIGN	
HMS	DRAWN	
DLS	REVIEW	
REL	QC	
DLS	CHIEF ARCH./ ENGR.	

PROJECT MANAGER
FIRE PROTECTION
BRANCH MANAGER
DESIGN DIRECTOR

NAVAL FACILITIES ENGINEERING COMMAND
DEPARTMENT OF THE NAVY
ENGINEERING FIELD ACTIVITY NORTHEAST
LESTER PENNSYLVANIA
NAVAL STATION NEWPORT, RI

SWOS APPLIED INSTRUCTION BUILDING

SITE GRADING & DRAINAGE PLAN

CODE ID. NO. 80091 | SIZE D
SCALE: 1" = 30'
EFD NO.
STA. PROJ. NO.
SPEC. NO. 04010002
CONSTR. CONTR. NO. N62472-01-C-0002
NAVFAC DRAWING NO. 2213718
SHEET 10 OF 305

C-130

DRAWFRAME REVISION MAY 2003

REVDATE