Interim Action Work Plan

Bay Wood Products Site
Everett, Washington
Agreed Order No. DE 5490

for
Washington State Department of Ecology
on behalf of Port of Everett

October 25, 2012

GeoEngineers
Earth Science + Technology

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Plaza 600 Building
600 Stewart Street, Suite 1700
Seattle, Washington 98101
206.728.2674

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File No. 0676-021-01

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Prepared for:

Washington State Department of Ecology
P.O. Box 47600
Olympia, Washington 98504

Attention: Isaac Standen

On behalf of:

Port of Everett
P.O. Box 583
Everett, Washington 98206

Prepared by:

GeoEngineers, Inc.
Plaza 600 Building
600 Stewart Street, Suite 1700
Seattle, Washington 98101
206.728.2674

Robert Trahan
Geologist

John M. Herzog, PhD
Principal

AJ:RST:csv

GeoEngineers

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1.0 INTRODUCTION

This document presents a Work Plan for the Washington State Department of Ecology (Ecology) required Interim Action at the Bay Wood Products Site (Site) located at 200 West Marine View Drive in Everett, Washington (Figure 1). This Interim Action Work Plan has been prepared to meet the requirements of Washington Administrative Code (WAC) 173-340-430.

The Site is formally listed on the Ecology Hazardous Site List as "Bay Wood Products" with Facility Site Identification No. 4438651. In accordance with Ecology Agreed Order No. DE 5490 (Agreed Order; Ecology, 2008), the Port of Everett (Port) completed Remedial Investigation (RI) activities in both the upland and marine portions of the Site to evaluate soil, groundwater and sediment conditions. Results of these investigations have confirmed the presence of contaminants (carcinogenic polycyclic aromatic hydrocarbons [cPAHs]) at concentrations exceeding preliminary cleanup levels in soil stockpiles located in the uplands portion of the Site. Contaminants of concern were also detected in subsurface soil, however, as discussed in the Draft Bay Wood Products Site Remedial Investigation/Feasibility Study (Draft RI/FS; Anchor et al., 2011), empirical evidence indicates that these soil exceedances are not adversely impacting groundwater at the Site. In addition, results of biological tests performed during the RI confirm sediment quality standards (SQS) exceedances in near shore sediments.

The purpose of this Interim Action Work Plan is to provide an overview of the scope of work that will be completed to remove soil piles that are contaminated with carcinogenic polycyclic aromatic hydrocarbons (cPAHs) at the Site. The following sections provide a description of the nature and extent of cPAH contamination in the soil piles at the Site as well as the proposed remedial, compliance monitoring and restoration activities that will be completed as part of this interim action.

2.0 BACKGROUND INFORMATION

2.1. Site Description

The Site is generally located in the northeastern portion of Port Gardner Bay near the mouth of the Snohomish River. The Site is comprised of three adjoining parcels (Parcel No. 29050700100300, 29050700100500, and 29050700101000) with a combined area (both upland and marine) of approximately 41.32 acres (Figure 2). The upland portion of the Site includes approximately 13 acres of land at elevations above the tidal mudflats. The northern 100 feet of the Site (encompassing a total of 4.12 acres) are part of an easement to the U.S. Army Corps of Engineers for dike maintenance. The Site is bound to the north by the Snohomish River, to the east by West Marine View Drive and vacant land (Parcel No. 29050700100100) owned by Kimberly-Clark Worldwide, Inc., and to the south by the Former Nord Door Site (JELD-WEN).

The upland portion of the Site is generally flat, with an average elevation of approximately 16 feet (1988 North American Vertical Datum [NAVD 88]). The southeastern and central areas of the upland area currently contain piles of soil that were placed at the Site in 2005 and 2006. The imported soil originated from the Port's 14th Street bulkhead replacement project at the Everett Marina.

2.2. Site History

Prior to 1946 and ending in 1979, the Site was used for sawmilling. The sawmill was initially operated by Washington Wood Products, later known as Washington Timber Products, Ltd. Between 1970 and 1994, Site operations transitioned between following companies:

- Publishers Timber Company from 1970 to 1976;
- West Coast Orient Lumber Mills, Inc. from 1976 to 1978;
- West Coast Lumber Operations, Inc. from 1978 to 1979;
- Bay Wood Products, Inc. from 1979 to 1994.

Prior to 1985, the sawmill was reportedly dismantled and the primary use of the Site transitioned to log handling, storage and processing until approximately 1994, when the Bay Wood Products' lease was discontinued. In 1995, the Port removed approximately 130,000 to 140,000 cubic yards of bark, rock, and wood chips from the northern two thirds of the uplands area. Wood debris, present as both surface and subsurface deposits, were encountered to depths reaching an elevation of approximately 4 feet MLLW. Removal of these deeper deposits involved construction of a dike around a portion of the uplands area. The diked area was later filled with approximately 200,000 cubic yards of dredge sediments from the Snohomish River to match the existing grades on the remaining portions of the Site. As part of the construction, the Bay Wood Products buildings were also removed from the Site. Following the removal of the Bay Wood Products building, the Site remained unoccupied and unused until 2005. As previously indicated, soil and sediment excavated as part of the Port's 14th Street bulkhead replacement project was transferred to the Site in 2005 and 2006. Since the placement of these soil piles, the physical condition of the Site has remained unchanged.

Detailed information describing the Site including its known history, current uses, existing property features, soil, groundwater and sediment conditions, and a summary of previous environmental investigations completed at the Site is presented in the Draft RI/FS (Anchor et al., 2011).

2.3. Current and Future Site Use

The City of Everett Comprehensive Plan land use map indicates that the Site is zoned as Waterfront Commercial. Currently the Site is vacant and the Port does not have specific future plans for use of the Site.

3.0 NATURE AND EXTENT OF CONTAMINATION

Several environmental investigations have been completed at the Site. The initial Phase I Environmental Site Assessment (GeoEngineers, 1989) was completed in 1989. The most recent investigation was completed at the Site in March 2012 (SLR, 2012). Investigations conducted prior to 2010 and their findings are summarized in Draft RI/FS (Anchor et al., 2011). Investigations conducted after 2010 and their findings are summarized in the Interim Soil Sampling Summary Report (SLR, 2012) is included as Attachment 1 to this document. The following sections provide a brief summary of the investigative findings. Points of compliance and preliminary cleanup levels referenced below are discussed in Section 4.1.

3.1. Subsurface Soil Conditions

Soil encountered during the previous Site investigation activities consisted mainly of sands and silts. Concrete, asphalt as well as gravel, brick, and/or wood debris were encountered in several borings at depths up to 9 feet below ground surface (bgs).

Contaminants include cPAHs, diesel- and/or heavy oil-range petroleum hydrocarbons and metals (nickel, silver and thallium) were detected in soil at concentrations of exceeding preliminary soil cleanup levels in one or more soil samples obtained from the Site. However, as discussed in the Draft RI/FS (Anchor et al. 2011), these contaminants were only detected in soil samples at a depths greater than the 6-foot conditional point of compliance proposed for the Site. Results of soil samples obtained within the 0 to 6-foot interval either were not detected or were less than preliminary soil cleanup levels. Sample locations and chemical analytical results are detailed in the Draft RI/FS (Anchor et al. 2011).

In 2012, a supplemental soil investigation was completed to further evaluate subsurface conditions at the Site. During this investigation, two additional boring (PB-3CR and PB-5A-R) were completed in the vicinity of PB-3C and PB-5A. The purpose of these borings was to collect soil samples below an approximately 3-foot thick fill layer observed across the southeastern portion of the Site. Chemical analytical results of soil samples obtained indicated that contaminants including cPAHs, diesel- and heavy oil-range petroleum hydrocarbons and metals (nickel, silver and thallium) either were not detected or were detected at concentrations less than preliminary cleanup levels, with one exception. One sample obtained at a depth ranging from 5.5 to 6 feet bgs in boring PB-3CR exceeded the preliminary soil cleanup level for diesel- and heavy oil-range petroleum hydrocarbons.

Field activities for the 2012 investigation are presented in the Interim Soil Sampling Summary Report (SLR, 2012). A copy of the Interim Soil Sampling Summary is presented in Attachment 1. Subsurface Explorations completed as part of SLR's 2012 study are shown relative to the Site on Figure 3.

3.2. Contaminated Soil Pile Conditions

The southeastern and central portions of the upland area contain piles of soil that were transferred to the Site from the Port's 14th Street bulkhead replacement project. As described in the Everett Marina PSDDA Sediment Characterization Report (Retec, 2005; Attachment 2), this material primarily consisted of silt and sand.

Concentrations including cPAHs and copper were detected in soil at concentrations of exceeding preliminary soil cleanup levels in one or more soil stockpile samples obtained from the Site. However, based on the rational presented in the Draft RI/FS (Anchor et al., 2011), copper is not considered a contaminant of potential concern because:

- Soil with low level copper detections is only present in shallow soil at the Site and is not in direct contact with groundwater;
- There is no identified relationship between the copper in the shallow soil and the concentration of detected copper in groundwater;

- Copper concentrations identified in the soil piles are below the Model Toxics Control Act (MTCA) Method B soil direct contact cleanup level of 3,000 milligrams per kilogram (mg/kg) and the terrestrial ecological evaluation (TEE) value of 100 mg/kg;
- There are no known or suspected sources of copper at the Site; and
- Copper is not found in the adjacent sediment at concentrations that exceeded sediment screening criteria.

To refine the extent of cPAHs contamination in soil piles at the Site, SLR completed interim soil sampling activities on behalf of the Port between December 2011 and March 2012. Concentrations of cPAHs were detected at concentrations greater than preliminary soil cleanup levels in 30 of the 68 interim soil samples submitted for chemical analysis.

The approximate extent of soil piles at the Site and soil sample locations are shown on Figure 3. Field activities for the soil pile investigations completed prior to 2012 are presented in the Draft RI/FS (Anchor et al., 2011). A copy of SLR's Interim Soil Sampling Summary Report (SLR, 2012) is presented in Attachment 1.

3.3. Groundwater Conditions

Groundwater conditions based on previous RI activities identified a shallow, unconfined groundwater-bearing zone at depths ranging from 2.5 to 6 feet bgs. Groundwater flow is inferred to be generally toward Port Gardner Bay west of the Site (Anchor et al., 2011).

Contaminants including include cPAHs, arsenic, cadmium, copper, nickel, selenium and silver were detected in groundwater at concentrations greater than preliminary groundwater cleanup levels in one or more groundwater samples obtained from the Site. However, as described in the Draft RI/FS (Anchor et al., 2011), these constituents are not considered to be contaminants of potential concern because:

- There are no known or suspected sources of these contaminants at the Site;
- Detected contaminant concentrations only slightly exceed the preliminary cleanup levels; and
- Samples were collected from direct-push borings, which can result in artificially elevated metals concentrations.

Based on the analysis, the Draft RI/FS Report concluded that there are no COPCs for groundwater at the Site.

3.4. Sediment Conditions

The Snohomish River in the vicinity of the Site is a low salinity estuary, with flow velocities highly influenced by both tides and river discharges. Tides are diurnal, with two high tides and two low tides in each 24-hour period. Maximum annual flows in the Snohomish River occur from November through February as a result of winter precipitation and in May and June as a result of mountain snowmelt. Low flows occur in August and September. The geology of the lower Snohomish estuary in the vicinity of the Site generally consists of alluvial sand and gravel that may contain silt, clay, and organics.

The results of sediment investigation activities completed in 2009 indicated that contaminant concentrations in marine sediments at the Site were less than SQS levels. However, biological test results indicated that surface sediments at one location in the southeastern portion of the marine area of the Site exceeded the biological criteria under the sediment management standards (SMS). In addition, dioxin concentrations (toxicity equivalent [TEQ] concentration of 62 parts per trillion [ppt]) were detected in subsurface sediments at this location. Results of chemical and biological analyses of sediment samples obtained from the Site are presented in the Draft RI/FS Report (Anchor et al., 2011).

In response to public comments received on the Draft RI/FS, additional sediment sampling activities are being completed in general accordance with the Bay Wood Products Site Sediment Sampling and Analysis Plan (SAPA; GeoEngineers, 2012) to further evaluate the nature and extent of contaminants within the Marine portion of the Site. Supplemental sediment samples were collected from the Site on June 28 and 29, 2012

4.0 INTERIM ACTION

The proposed interim action consists of excavation and off-site disposal of the contaminated soil piles located in the upland area of the Site. The general objectives of the interim action is to eliminate, reduce, or otherwise control to the extent feasible and practicable, unacceptable risks to human health and the environment posed by cPAHs in stockpiled soil at the Site in accordance with MTCA (WAC 173-340) and other applicable regulatory requirements. Specifically, the objective of the cleanup action is to mitigate risks associated with the following potential receptors and exposure routes:

- Direct contact (dermal, incidental ingestion, or inhalation) with contaminated shallow soils by Site visitors and workers (including construction workers).
- Direct contact (dermal, incidental ingestion, or inhalation) with contaminated shallow soils by terrestrial wildlife.
- Leaching/migration of contamination from soil into groundwater.

The Interim Action will mitigate these risks by meeting the preliminary soil cleanup levels discussed in the following section (Section 4.1).

4.1. Cleanup Requirements

Interim actions conducted under MTCA must comply with MTCA cleanup standards for the identified contaminants of potential concern and affected media, as well as applicable regulatory requirements based on Federal and State laws (WAC 173-340-710). Cleanup standards and applicable regulatory requirements for the proposed Interim Action are summarized below.

4.1.1. Cleanup Standards

Cleanup standards consist of: 1) cleanup levels that are protective of human health and the environment; and 2) the point of compliance at which the cleanup levels must be met.

4.1.1.1. CLEANUP LEVELS

Preliminary cleanup levels for soil, groundwater and sediment were developed during preparation of the Draft RI/FS (Anchor et al., 2011). For this Interim Action Work Plan, the preliminary soil cleanup levels presented in the Draft RI/FS (Anchor et al., 2011) have been adopted as the cleanup level.

A toxicity equivalence quotient (TEQ) cleanup level of is 0.14 milligrams per kilogram (mg/kg) will be used for cPAHs to evaluate the completeness of the contaminated soil removal at the Site.

4.1.1.2. POINTS OF COMPLIANCE

The proposed conditional points of compliance for affected media are presented in the Draft RI/FS (Anchor et al., 2011). For this Interim Action Work Plan, a conditional point of compliance of six feet (biologically active zone according to MTCA default assumptions) will be used to protect against potential terrestrial ecological exposures. This conditional point of compliance applicable provided that institutional controls are incorporated in to the final cleanup action to address potential excavation of deeper soil (WAC 173-340-7490[4][a]) at the Site.

4.2. Applicable Regulatory Requirements

The interim action at the Site will be performed pursuant to MTCA under the terms of the Agreed Order between Ecology and the Port. Accordingly, the Interim Action meets the permit exemption provisions of MTCA, obviating the need to follow most procedural requirements of the various local and State regulations that would otherwise apply to the action. Ecology will determine the substantive provisions of State and local laws and regulations that are applicable to this project, following consultation with appropriate State and local regulators.

As the lead agency for the cleanup action, Ecology is responsible for identifying and evaluating the potential adverse impacts of the cleanup action on the environment. The Port will perform a review and provide an environmental determination under the State Environmental Policy Act (RCW 43.21). A copy of the State Environmental Policy Act (SEPA) Checklist will be provided to Ecology prior to implementation of the Interim Action to facilitate the SEPA review process.

The permits or other Federal, State or local requirements that are applicable to the cleanup action and that are known at this time include the following:

- Solid Waste Handling Standards (RCW 70.95).
- Dangerous Waste Regulations (RCW 70.105).
- Washington Industrial Safety and Health Act (RCW 49.17).
- Federal Occupational Safety and Health Act (29 CFR 1910, 1926).
- Washington Construction Stormwater General Permit.
- Archeological and Historical Preservation (16 USCA 496a-1).

The Port will submit to Ecology a notice-of-Intent for the Construction Stormwater General Permit during the design phase for the Interim Action.

Ecology is working with stakeholders, including local Indian tribes, to keep them informed of the cleanup of contaminated sites and sediments in the vicinity of Port Gardner Bay area and the Snohomish River Estuary. Port Gardner Bay is identified as a high-priority, "early-action" cleanup area under the Puget Sound Initiative (PSI). Local tribes that have been engaged by Ecology under the PSI at Port Gardner include the Tulalip, Suquamish, Swinomish and Lummi.

Based on Ecology's discussion with the tribes and information provided in a 1973 *Historical Survey of Everett* (Dilgard and Riddle, 1973), people have inhabited the Port Gardner Bay area for thousands of years. For centuries, the northwest point of the peninsula (i.e., Preston Point) was the site of Hebolb, the principal village of the Snohomish tribe. Its location near the mouth of the Snohomish River and next to Port Gardner Bay provided both abundant food and transportation. Native tribes used the Everett shoreline in part for subsistence activities such as shellfish collection, hunting, plant gathering and fishing. Procedures that will be used in the event cultural resources are encountered during site activities are outlined in Section 4.5.

4.3. Remedial Action Alternatives Considered

Three remedial alternatives were generally evaluated as a means to address contaminants in upland soil as part of the Draft RI/FS (Anchor et al., 2011). Remedial alternatives evaluated included leaving contaminated stockpiled soil on Site (Alternative 1), grading and capping of the contaminated stockpile soil on site (Alternative 2), and excavation and offsite disposal of the contaminated stockpiled soil (Alternative 3). Under Alternatives 1 and 2, contaminated soil would be managed on site through soil and/or vegetative caps to isolate the contaminants from direct human contact and minimize erosion. Under Alternative 3 and based on the frequency of exceedances in the soil characterization, all of the soil piles identified at the Site associated with the Port's 14th Street bulkhead replacement project will be transferred from the Site for permitted landfill disposal.

Based on a comparative evaluation of these three alternatives, summarized in the Draft RI/FS (Anchor et al., 2011), the total effectiveness and implementability scores for the three alternatives differed by 4 points and although the estimated cost of Alternative 3 is higher than the other alternatives, it was not determined to be disproportionate. Additionally, it was determined that Alternative 3 would provide the highest degree of protectiveness, permanence and long term effectiveness by completely removing the contaminated soil from the Site. As a result, Alternative 3 is the preferred alternative to address cPAH contamination in stockpiled soil at the Site and will be implemented for the Interim Action.

4.4. Proposed Interim Action

The Interim Action consists of the excavation and off-site disposal of soil piles created at the site as part of the Port's 14th Street bulkhead replacement project. Soil located within these piles has been identified to contain contaminant concentrations in excess of the Site soil preliminary cleanup level. As indicated in above, SLR completed interim stockpile characterization activities to evaluate the extent of cPAH contamination in soil piles at the Site in 2012 (SLR, 2012; Attachment 1). Results of this investigation and previous soil pile investigations indicate that cPAHs exceed soil cleanup levels in 30 (27 discrete and 2 composite) of the 68 soil samples submitted for chemical analysis (Figure 3). Given the frequency of the detected exceedances, it

was identified that full removal of the soil piles would provide the most cost-effective means to achieve the cleanup objectives of the Interim Action.

The following activities will be completed during the Interim Action to address the contaminated soil piles at the Site:

- Implementation of environmental protection measures consisting of Best Management Practices (BMPs) for stormwater and erosion control, spill prevention and pollution control, and all other controls, as needed, to protect environmental quality. Environmental protection measures including a Spill Prevention and Control Plan will be detailed in the contractor's Construction Quality Control Plan. Required environmental protection measures may include the use of silt fencing and/or silt dikes and other BMP, as necessary, to control erosion and cross-contamination.
- Implementation of Site access and traffic control measures will be completed to maintain safe working conditions and protect the public during the Interim Action.
- Removal of soil piles containing detected concentrations of cPAHs that exceed the preliminary soil cleanup level. Soil removal will be completed using standard earthmoving equipment (i.e., excavators, front end loaders, dump trucks, etc.). Existing site data will be used by the Port to obtain pre-authorization for disposal at the approved disposal facility. This approach will allow excavated material to be transported directly to the landfill without further characterization. The initial limits of remedial excavation are shown on Figure 4. The base of the remedial excavation will be completed to match the local Site topography in the vicinity of each stockpile. A typical cross-section for the planned remedial excavation is shown on Figure 5. Final excavation limits will be determined by confirmation soil samples. Verification soil sample locations are shown relative to the initial remedial excavation limits on Figure 6. Soil sampling activities are discussed in Section 4.4.1. Currently, it is anticipated that approximately 7,930 cubic yards will be exported from the Site for offsite disposal following completion of remedial excavation activities.
- Loading and hauling the contaminated soil for offsite disposal at a permitted soil solid waste landfill. The permitted disposal facility will be identified in the contractor's Construction Quality Assurance Plan and approved by the Port. Waste manifest procedures and contaminated soil disposal receipts will be documented in the cleanup report.
- Soil verification sampling to confirm the completeness of the soil removal activities.
- Final grading to level the ground surface to generally match the surrounding ground surface elevation and to provide a sufficient soil thickness in the area of boring location PB-3CR to ensure that the detected contaminant concentrations are below the conditional point of compliance thickness of six feet. Based on the variation of the surface topography observed, the Site has been subdivided into five grading areas (Grading Areas 1 through 5; Figure 7). The planned final surface elevation within each grading area will range between 16 and 17 feet

(NAVD 88)[1]. Planned grading areas and final surface elevations are shown relative to the Site on Figure 7. In the event that remedial excavation activities are completed to a depth below the local ground surface elevation, backfill material will be imported to the Site, as necessary, to meet the planned final surface grade.

- Site restoration, including hydroseeding of the exposed surface soil at the Site. These activities are intended to provide permanent erosion and sediment control following completion of the Interim Action.

4.4.1. Performance Monitoring

Performance monitoring will be conducted to verify that the Interim Action attained soil cleanup standards discussed in Section 4.1.1. Performance monitoring methods including soil verification sampling and chemical analysis are summarized in the following sections.

4.4.1.1. VERIFICATION SOIL SAMPLE DISTRIBUTION

Soil verification sampling will be performed within the footprint of contaminated soil piles after they are removed to verify that the cleanup objectives have been achieved. If verification samples collected from the excavation base exceed soil cleanup levels prior to reaching the conditional point of compliance of six feet, additional soil will be removed at that location until subsequent verification samples are shown to meet the cleanup criteria or until the excavation depth reaches the 6-foot conditional point of compliance. In the event an excavation is completed to the 6-foot conditional point of compliance sampling will be conducted to document concentration of contaminants that will remain at the Site. Additional excavation and soil verification sampling activities beyond the conditional point of compliance will not be performed.

In circumstances where the soil removal requires excavation of 1-foot or more below the local ground surface, sidewall verification soil sampling will also be performed. If the verification samples obtained from the excavation sidewall indicate that further lateral excavation is necessary to achieve the cleanup objectives, additional excavation will be performed laterally until subsequent verification samples obtained from the excavation sidewalls indicate that cleanup objectives have been achieved.

4.4.1.2. VERIFICATION SAMPLE FREQUENCY

Base verification samples will be collected at a frequency of one per 2,500 square feet (50 feet by 50 feet) of remedial excavation base area[2]. If the area of the base is less than 2,500 square feet, a minimum of one base sample will be obtained.

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[1] Planned grading activities shown on Figure 7 will result in an overall increase of the ground surface elevation in the vicinity boring PB-3C-R in which diesel- and heavy oil-range petroleum hydrocarbons were detected at concentrations exceeding soil cleanup levels such that soil contamination at this location will be isolated beneath a 6-foot minimum soil cap (i.e., conditional point of compliance proposed for the Site).

[2] Frequency of base verification soil samples is on the same order as for the soil pile characterization activities completed by SLR.

In circumstances where soil removal requires excavation of 1-foot or more below the local ground surface, verification soil samples will be collected at a frequency of one sample per 40 linear feet of sidewall. If the perimeter of the excavation is less than 40 feet, a minimum of one sample will be obtained per sidewall.

Field procedures for verification soil sampling activities that will be completed during the Interim Action are presented in the Sampling and Analysis Plan (SAP; Appendix A).

4.4.1.3. CHEMICAL ANALYSIS

Verification soil samples obtained from the Site will be submitted to an Ecology-approved analytical laboratory for the chemical analysis of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by EPA Method 8270-SIM.

4.5. Historical and Cultural Resources

Potentially significant archaeological materials may be present within the project site. Types of archaeological materials that may be encountered could include, but are not limited to: stone tools and flakes (arrowheads), charcoal-stained soils or dark and greasy soils, fire-modified rock, concentrations of shell[3] or animal bones, organic materials (basketry, wooden posts, bone and wooden artifacts), and concentrations of old (more than 50 years) bottles, ceramics, and cans. Because planned interim action activities involve the removal of above ground soil stockpiles from the Site, it is anticipated that there will be a minimal amount of disturbance to the subsurface soils (i.e., area in which potentially significant archaeological materials may be present). As such, a professional archaeologist will not be on site during these activities.

However, in the event that remedial excavations extend below the local ground surface based on initial verification soil sample results, procedures for the inadvertent discovery of cultural resource, presented in the following section (Section 4.5.1), will be followed.

4.5.1. Procedures for the Inadvertent Discovery of Cultural Resources

If any archaeological resources are discovered during construction activities, work will be stopped immediately and Ecology, the Department of Archaeology and Historic Preservation (DAHP), the City of Everett Planning and Community Development Department, and the Tulalip and Suquamish Tribes Cultural Resources Departments will be notified by the Port in a timely manner (current day if possible) and no later than the close of the next business day. An archeologist will be retained for an onsite inspection and the parties mentioned above will also be invited to participate. The archaeologist will document the discovery and provide a professionally documented site form and report to the above-listed parties. In the event of any discovery of human remains, work will be immediately halted in the discovery area, the remains will be covered and secured against further disturbance, and the Everett Police Department and Snohomish County Medical Examiner will be

[3] Isolated, small wood fragments or sawdust, and marine shells typical of hydraulic fill materials, are anticipated and are not to be considered significant archaeological materials at the Bay Wood Products Site.

immediately contacted, along with the DAHP Physical Anthropologist and authorized Tribal representatives. A treatment plan by the archaeologist will be developed in consultation with the above-listed parties consistent with RCW 27.44 and RCW 27.53 and implemented according to WAC 25-48.

Information presented below identifies the key responsibilities of construction personnel in the event of a discovery of an item of potential cultural significance during the Bay Wood Produce Site Interim Action. In the unanticipated event of a discovery, the following steps shall be taken:

1. **Stop Work and Protect the Discovery Site.** If any agency employee, contractor, or subcontractor believes that he or she has uncovered any cultural resources, all work within a minimum of 50 feet of the discovery ("discovery site") will be stopped to provide for its total security, protection, and integrity. The discovery site shall be secured and vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site.
2. **Notify the Port.** The individual making the discovery will immediately contact GeoEngineers who will then notify the Project Coordinator for the Port (contact information presented in the following table).
3. **Notify the Project Archaeologist.** Immediately following the work stoppage and notification to the Port, the Project Archaeologist shall be contacted.
4. **Identify the Find.** The Project Archaeologist, in coordination with the Port is responsible for ensuring that appropriate steps have been taken to protect the discovery site. The Project Archaeologist for the Bay Wood Products Site Interim Action shall be qualified as a professional archaeologist under the Secretary of Interior's Professional Qualification Standards (as outlined in 36 CFR Part 61). As such, the Project Archaeologist shall be qualified to examine the find to determine if it is archaeological. If it is determined not to be archaeological, work may proceed at the discovery site with no further delay.
5. **Notify Additional Parties.** If the discovery is determined by the Project Archaeologist to be a cultural resource, the Port or their designee will provide notification to Ecology, DAHP, the City of Everett Planning and Community Development Department, and the Tulalip and Suquamish Tribes Cultural Resources Departments within one (1) working day. Confidentiality of the find will be maintained by Project leads and their contractors.
6. **Obtain Consent to Proceed with Construction.** Construction work will not recommend at the discovery site until treatment has been completed and the Tribes, DAHP, and/or jurisdictional agencies, as appropriate, have provided written or verbal consent to proceed.

CONTACT LIST FOR THE INADVERTENT DISCOVERY OF CULTURAL RESOURCES

Contact Name	Organization	Title	Contact Number
John Herzog (Primary Contact)	GeoEngineers, Inc.	Project Manager	(o) 206.728.2674 (c) 206.406.6431
Robert Trahan (Alternate Contact)	GeoEngineers, Inc.	Field Coordinator	(o) 206.728.2674 (c) 206.240.2300
Eric Gerking	Port of Everett	Project Coordinator	(o) 425.388.0604 (c) 206.234.1991

Contact Name	Organization	Title	Contact Number
Glen Hartman	Cultural Resources Consultants	Project Archaeologist	(o) 206.855.9020
Barry Rogowski	Ecology	Site Manger	(o) 360.407.7236
Rob Whitlam	DAHP	State Archaeologist	(o) 360.586.3080
Stephenie Kramer	DAHP	Assistant State Archaeologist	(o) 360.586.3083
Gerry Ervine	City of Everett	Planning Department	(o) 425.257.7146
Hank Gobin	Tulalip Tribes	Tribal Historical Preservation Officer	(o) 360.654.2636
Dennis Lewarch	Suquamish Nation	Tribal Historical Preservation Officer	(o) 360.394.8529 (c) 360.509.1321

4.6. Environmental Protection

Environmental protection measures consisting of BMPs for stormwater, sediment, drainage, and erosion control; spill prevention and pollution control; and all other controls needed to protect environmental quality will be implemented. Environmental protection measures including a Spill Prevention and Control Plan (SPCC) will be detailed in the contractor's Construction Quality Control Plan. The Contractor will be required to conform to all applicable permit conditions for the project and to develop and implement Stormwater Pollution Prevention Plan (SWPPP; if required) including installation, inspection and maintenance necessary for stormwater management, surface water runoff control, temporary erosion and sediment control measures, and SPCC measures, as necessary, for the duration of the project.

4.7. Worker Health and Safety

Cleanup-related construction activities will be performed in accordance with the requirements of the Washington Industrial Safety and Health Act (RCW 49.17) and the Federal Occupational Safety and Health Act (29 CFR 1910, 1926). These regulations include requirements that workers are to be protected from exposure to contaminants. A Site-specific health and safety plan (HASP) applicable to GeoEngineers' work is included as Appendix B. The Port's construction Contractor will be required to prepare a separate HASP for use by the Contractor's personnel. Personnel engaged in work that involves hazardous material excavation and handling shall comply with the provisions of WAC 173-340-810 (MTCA Cleanup Regulation, Worker Safety and Health) and be HAZWOPER, OSHA, and WISHA certified.

4.8. Quality Assurance/Quality Control

This section describes general quality assurance and quality control (QA/QC) procedures that will be implemented during the Interim Action, including contractor quality control, construction monitoring and field documentation, and analytical QA/QC. Details regarding analytical QA/QC are presented in the Quality Assurance Project Plan (QAPP; Appendix C).

4.8.1. Contractor Quality Control

The contractor will prepare a Construction Quality Assurance Plan before commencing work. This plan will be subject to review and approval by the Port to ensure that the planned actions are in accordance with the project contract requirements. The Construction Quality Assurance Plan will include construction plans for each of the primary elements of work, as well as a quality control plan for each relevant construction element. The quality control plan will address the following:

- General requirements;
- Quality control organization;
- Documentation of methods and procedures;
- Requirements for corrective action when QC and/or acceptance criteria are not met; and
- Any additional elements that the contractor deems necessary to adequately control construction processes required by the contract.

The contractor will maintain QC records. These records will include evidence that the required inspections or tests have been performed, including the type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, proposed corrective action, and corrective actions taken.

In addition to the contractor's Construction Quality Assurance Plan, the Port and/or their representative will perform oversight of the contractor's field activities.

4.8.2. Construction Monitoring and Field Documentation

Construction monitoring will be performed by the Port and/or their representative. A comprehensive record of field activities will be maintained. Field documentation for this project will include field notes, field forms, field reports, and chain-of-custody forms for samples submitted for analytical testing. The field documentation will record construction, sampling, and monitoring activities, sampling personnel, and weather conditions, as well as decisions, corrective actions, and/or modifications to the project plans and procedures discussed in this report.

4.8.3. Analytical QA/QC

Analytical QA/QC is described in the QAPP (Appendix C). The QAPP describes soil sample QA and QC procedures that will be implemented to produce chemical and field data that are representative, valid, and accurate for use in evaluating the effectiveness of the Interim Action construction.

4.9. Schedule

Pending Ecology approvals, Interim Action-related construction work is scheduled to begin in the fall of 2012. A detailed construction schedule will be determined after selection of the contractor.

4.10. Reporting

Following completion of the Interim Action, the results will be reported in both the Remedial Investigation/Feasibility Study (RI/FS) report and the Cleanup Action Plan for the Site. These

reports will include a description of the Interim Action activities and the current condition of the Site upland area, the lateral and vertical limits of any excavations, the volume of contaminated soil removed from each excavation, and the results of post-excavation compliance monitoring.

Analytical data collected as part of the Interim Action will be submitted to the Ecology Information Management (EIM) System referencing Facility Site Identification No. 4438651 in the format required by Ecology's EIM Policy 840.

5.0 LIMITATIONS

This Interim Action Work Plan has been prepared for the exclusive use of the Port of Everett, their authorized agents and regulatory agencies in their evaluation of the Bay Wood Products Site located at 200 West Marine View Drive, Everett, Washington. No other party may rely on the product of our services unless we agree in advance and in writing to such reliance.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

6.0 REFERENCES

Anchor QEA, LLC and SLR International Corp, "Draft Remedial Investigation and Feasibility Study, Former Bay Wood Products Site, Everett, Washington," dated April 2011.

GeoEngineers, Inc., "Phase I Environmental Site Assessment, Existing Log Yard, Everett, Washington," dated September 25, 1989.

GeoEngineers, Inc., "Sediment Sampling and Analysis Plan Addendum, Bay Wood Products Site, Everett, Washington," dated April 30, 2012. GeoEngineers Job No. 0676-021-00.

Science Applications International Corporation (SAIC), "Sediment Characterization Study in Port Gardner and Lower Snohomish Estuary Port Gardner, Washington," dated July 2009.

SLR International Corp, "Final Work Plan for Remedial Investigation/Feasibility Study and Cleanup Action Plan, Port of Everett, Bay Wood Products Site, 200 West Marine View Drive, Everett, Washington 98201," dated May 4, 2009.

SLR International Corp, "Interim Soil Sampling Summary, Bay Wood Products Site, Everett, Washington," dated May 22, 2012.

Retec Group, Inc., 2005, "Everett Marina PSDDA Sediment Characterization Report, 14th Street Bulkhead Replacement, Everett, Washington" dated February 24, 2005.

Washington State Department of Ecology (Ecology), "Agreed Order No. DE 5490 for Remedial Investigation/Feasibility Study and Draft Cleanup Action Plan – Bay Wood Products Site, In the Matter of Remedial Action by: The Port of Everett," dated October 3, 2008.

FIGURES

2,000 0 2,000

Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: ESRI Data & Maps

Projection: NAD 1983 UTM Zone 10N

Vicinity Map

Bay Wood Products Site
Everett, Washington

GeoEngineers

Figure 1

Office: SEA Path: P:\00\0676021\GIS\0676021 00_VicinityMap.mxd Map Revised: 26 June 2012 tward

Legend

- Property Boundary
- MHHW Line (el. 11.09)
- MHHW Mean Higher High Water

N
W E
S

300 0 300
FEET

Notes

1. Horizontal Datum: NAD83 WA SP N.
2. Vertical Datum: NAVD88.
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

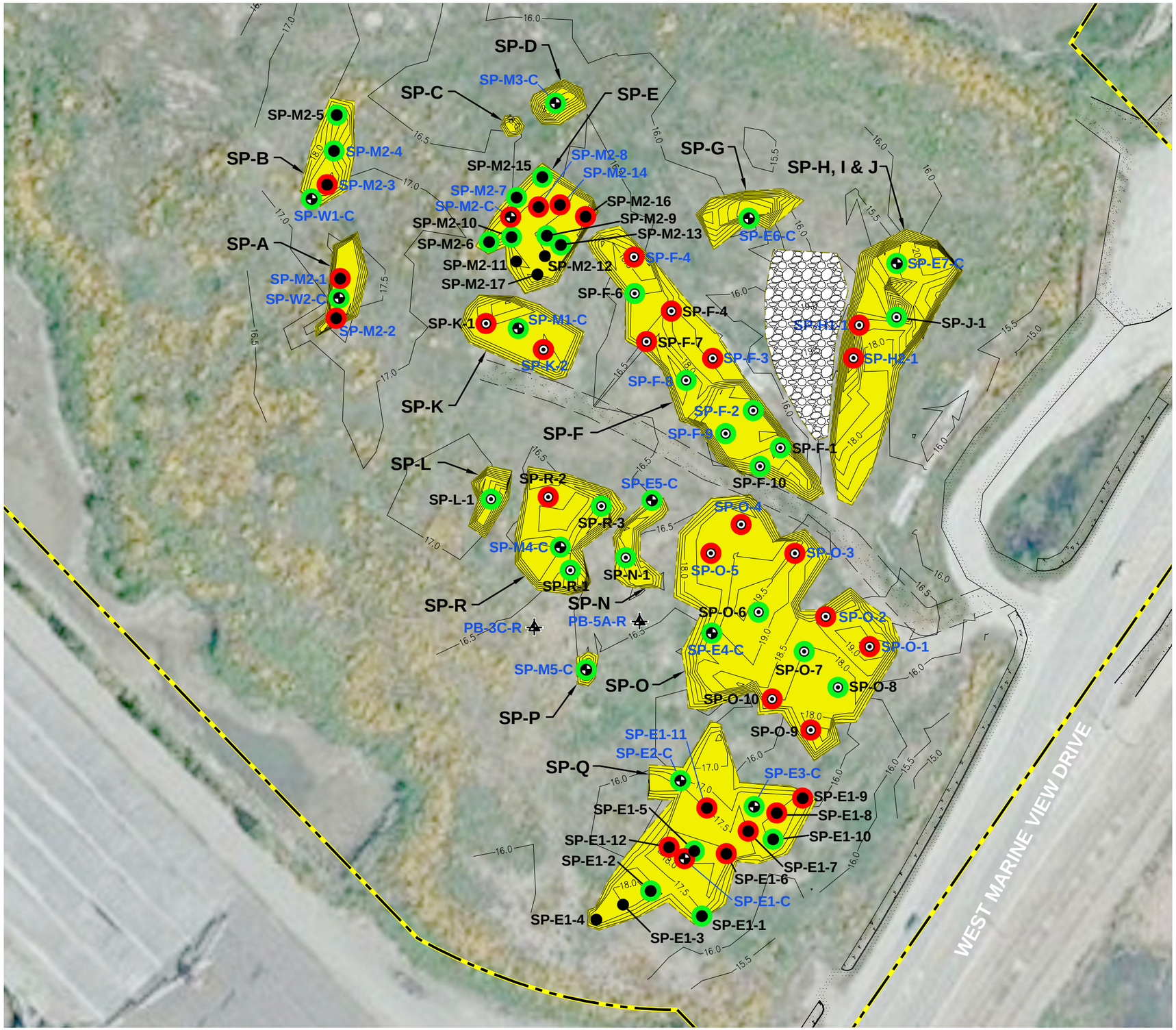
Reference: Base aerial photo from Aerials Express, 2009. Base Survey by Metron and Associated Inc. dated June 2012.

Site Plan

Bay Wood Products Site
Everett, Washington

GeoEngineers | **Figure 2**

P:\0\067602\1\CAD\Ecology Negotiations\067602I-00 Fig 2 Site Plan.dwg\TAB:LANDSCAPE modified by tmichaud on Jul 12, 2012 - 13:31



Legend

- Property Boundary
- Soil Pile
- Rip Rap Stockpile
- Soil Pile Composite Sample Location (June 2009 - SLR)
- Soil Pile Sample Location (December 2011/February 2012 - SLR)
- Soil Pile Sample Location (March 2012 - SLR)
- Direct-Push Soil Sample Location (March 2012 - SLR)
- Contaminant (cPAHs) Greater Than Preliminary Soil Cleanup Level
- Contaminant (cPAHs) Less Than Preliminary Soil Cleanup Level
- **BLACK ID** Surveyed Sample Location
- **BLUE ID** Approximate Sample Location
- cPAH = Carcinogenic Polycyclic Aromatic Hydrocarbons
- 16.0 Elevation Contour

N, W, E, S

80 0 80
FEET

Notes

1. Horizontal Datum: NAD83 WA SP N.
2. Vertical Datum: NAVD88.
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base aerial photo from Aerials Express, 2009. Base Survey by Metron and Associated Inc. dated June 2012.

Soil Pile Sample Locations

Bay Wood Products Site
Everett, Washington

GeoEngineers | **Figure 3**

P:\10\067602\CAD\Ecology Negotiations\067602I-00 Fig 3 Soil Stockpile Sample Locations.dwg\TAB:Fig 3 modified by tmichaud on Jul 12, 2012 - 13:33

Legend

- Property Boundary
- Contaminated Soil Pile to be Removed
- Rip Rap Stockpile (to Remain)
- A A' Cross-Section Location
- 16.0 Elevation Contour

N W E S

80 0 80
FEET

Notes

1. Horizontal Datum: NAD83 WA SP N.
2. Vertical Datum: NAVD88.
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

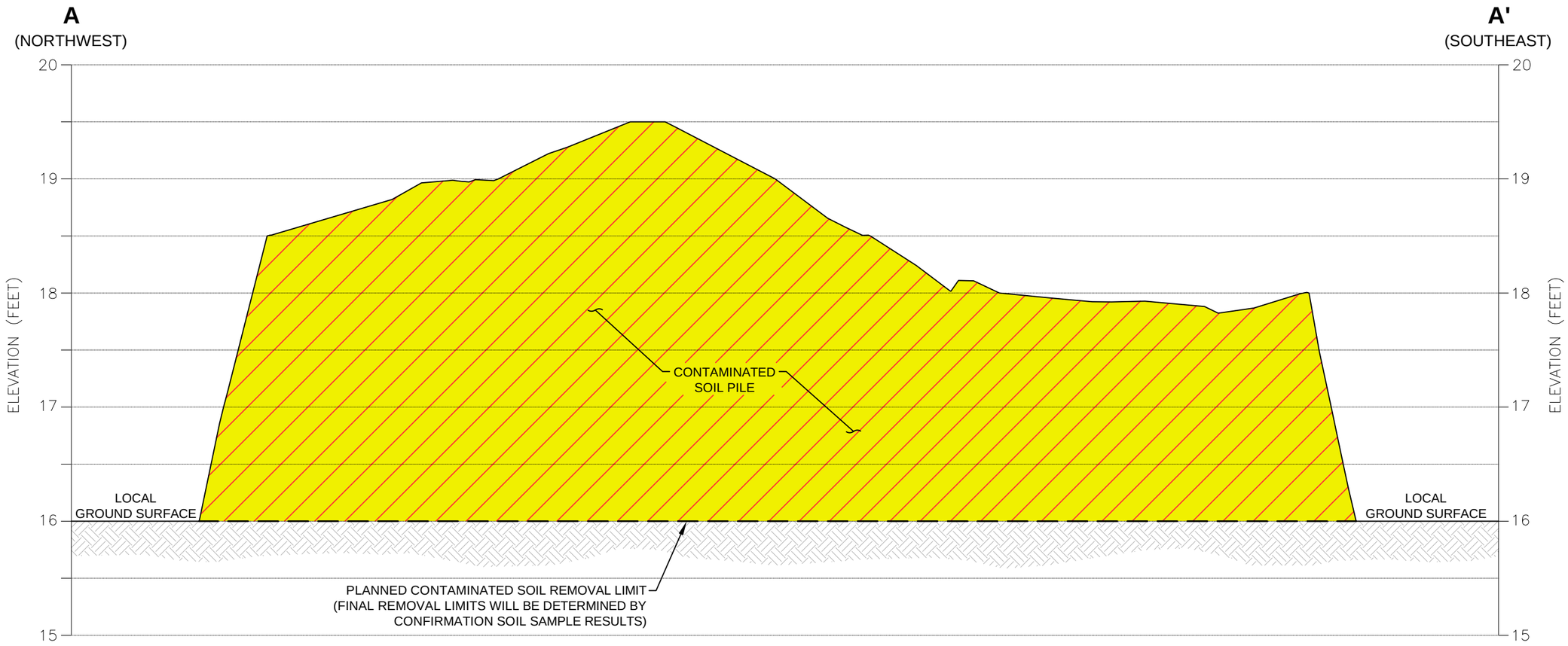
Reference: Base aerial photo from Aerials Express, 2009. Base Survey by Metron and Associated Inc. dated June 2012.

Contaminated Soil Removal

Bay Wood Products Site
Everett, Washington

GeoEngineers | **Figure 4**

P:\0\067602\CAD\Ecology Negotiations\067602I-00 Fig 4 Contaminated Soil Removal.dwg\TAB:Fig 4 modified by tmichaud on Jul 12, 2012 - 13:39



Notes

1. Horizontal Datum: NAD83 WA SP N.
2. Vertical Datum: NAVD88.
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base Survey by Metron and Associated Inc. dated June 2012.

Legend

Contaminated Soil to be Removed

HORIZONTAL SCALE: 1"= 20'
VERTICAL SCALE: 1"= 1'
VERTICAL EXAGGERATION: 20X

20 0 20
FEET

Cross-Section A-A'
(Typical)

Bay Wood Products Site
Everett, Washington

GeoEngineers

Figure 5

P:\0106760211CAD\Ecology Negotiations\067602I-00 Fig 5 Cross-Section AA.dwg\TAB:Fig 5 Modified by TMichaud on Jul 12, 2012 - 13:55

Legend

- Property Boundary
- Verification Sample Location (Approximately 50' x 50' Grid Spacing)
- Footprint of Contaminated Soil Pile
- Rip Rap Stockpile (to Remain)

N
W E
S

80 0 80
FEET

Notes

1. Horizontal Datum: NAD83 WA SP N.
2. Vertical Datum: NAVD88.
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base aerial photo from Aerials Express, 2009. Base Survey by Metron and Associated Inc. dated June 2012.

Compliance Monitoring Plan

Bay Wood Products Site
Everett, Washington

GeoEngineers

Figure 6

P:\0\067602I\CAD\Ecology Negotiations\0676021-00 Fig 6 Compliance Monitoring Plan.dwg\TAB:Fig 6 modified by TMichaud on Jul 19, 2012 - 14:48

Legend

- Property Boundary
- Proposed Grading Area
- Rip Rap Stockpile (to Remain)
- 16.0 — Elevation Contour

Grading Area No.	Proposed Surface Elevation (ft)
1	17.0
2	16.5
3	16.0
4	16.5
5	16.0

N
W E
S

80 0 80
FEET

Notes

1. Horizontal Datum: NAD83 WA SP N.
2. Vertical Datum: NAVD88.
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base aerial photo from Aerials Express, 2009. Base Survey by Metron and Associated Inc. dated June 2012.

Grading Plan

Bay Wood Products Site
Everett, Washington

GeoEngineers | **Figure 7**

P:\10\067602\1\CAD\Ecology Negotiations\067602I-00 Fig 7 Grading Plan.dwg\TAB:Fig 7 modified by TMichaud on Jul 12, 2012 - 13:44

APPENDICES

APPENDIX A
Sampling and Analysis Plan (SAP)

Sampling and Analysis Plan (SAP)

Bay Wood Products Site Interim Action
Everett, Washington
Agreed Order No. DE 5490

for
Washington State Department of Ecology
on Behalf of Port of Everett

October 25, 2012

GeoEngineers

Plaza 600 Building
600 Stewart Street, Suite 1700
Seattle, Washington 98101
206.728.2674

Table of Contents

1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) has been prepared for the planned Interim Action that will be completed at the Port of Everett's (Port's) Bay Wood Product Site (Site) located at 200 West Marine View Drive in Everett, Washington. This SAP serves as the primary guide for standard operating procedures for field verification soil sampling activities that will be completed during the Interim Action.

The Interim Action is being conducted by the Port in accordance with Washington Administrative Code (WAC) 173-340-430 to address carcinogenic polycyclic aromatic hydrocarbon (cPAH) contamination identified in soil piles located within the uplands portion of the Site. The objectives of the Interim Action are discussed in the Interim Action Work Plan (GeoEngineers, 2012). A Site-specific Health and Safety Plan (HASP) will be used for field activities and is presented in Appendix A of the Interim Action Work Plan. Project quality assurance and quality control for field activities are discussed in the Quality Assurance Project Plan (QAPP) presented in Appendix C of Interim Action Work Plan.

2.0 BACKGROUND

2.1. Problem Definition

Between 2005 and 2006, soil and sediment from construction of the Port's 14th Street bulkhead replacement project at the Everett Marina in Everett, Washington was placed in distinct piles at the Site. The remedial investigation (RI) activities completed by the Port on the Site between 2009 and 2010 indicated the presence of carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) at concentrations greater than the Site-specific cleanup levels in the soil piles that are located within the uplands portion of the Site. The results of the RI activities are presented in the Former Bay Wood Products Site Draft Remedial Investigation/Feasibility Study (RI/FS; Anchor et al., 2011). To refine extent of these contaminated soil piles, interim soil sampling activities were completed in 2012 by SLR on behalf of the Port. Results of these sampling activities are documented in Interim Soil Sampling Summary Report (SLR, 2012).

The Interim Action is being conducted by the Port in accordance with WAC 173-340-430 to remove the contaminated soil piles located at the Site.

2.2. Site Description

The Site is generally located in the northeastern portion of Port Gardner Bay near the mouth of the Snohomish River. The Site is comprised of three adjoining parcels (Parcel No. 29050700100300, 29050700100500, and 29050700101000) with a combined area (both upland and marine) of approximately 41.32 acres. The upland portion of the Site includes approximately 13 acres of land at elevations above the tidal mudflats. The northerly 100 feet of the Site (encompassing a total of 4.12 acres) are encumbered by an easement to the U.S. Army Corps of Engineers for dike maintenance. The Site is bounded to the north by the Snohomish River, to the east by West Marine View Drive and vacant land (Parcel No. 29050700100100) owned by Kimberly-Clark Worldwide, Inc., and to the south by the JELD-WEN site.

The upland portion of the Site is relatively flat with an approximate average elevation of 16 feet mean lower low water (MLLW). The southeastern and central areas of the upland area currently contain several piles of soil that originated from the Port's 14th Street bulkhead replacement project and were placed at the site between 2005 and 2006. The marine area of the Site consists primarily of tideland mudflats ranging in elevation from approximately 0 to 6 feet MLLW.

General Site features are shown on Figure 2 of the Interim Action Work Plan.

2.3. Site History

Prior to 1946 and ending in 1979, sawmill operations were completed at the Site. The sawmill was initially operated by Washington Wood Products, later known as Washington Timber Products, Ltd.

Prior to 1985, the sawmill was reportedly dismantled and the primary use of the Site transitioned to log handling, storage and processing until approximately 1994, when the Bay Wood Products' lease was discontinued. In 1995, the Port removed approximately 130,000 to 140,000 cubic yards of bark, rock, and wood chips from the northern two thirds of the uplands area. Wood debris, present as both surface and subsurface deposits, were encountered to depths reaching an elevation of approximately -4 feet MLLW. Removal of these deeper deposits involved construction of a dike around a portion of the uplands area. The diked area was later filled with approximately 200,000 cubic yards of dredge sediments from the Snohomish River to match the existing grades on the remaining portions of the Site. As part of the construction, the Bay Wood Products buildings were also removed from the Site. Following the removal of the Bay Wood Products building, the Site remained unoccupied and unused until 2005. As previously indicated, soil and sediment excavated as part of the Port's 14th Street bulkhead replacement project was transferred to the Site in 2005 and 2006. Since the placement of these soil piles, the physical condition of the Site has remained unchanged.

Detailed information describing the Site including its known history, current uses, existing property features, soil, groundwater and sediment conditions, and a summary of previous environmental investigations completed at the Site is presented in the Draft RI/FS (Anchor et al., 2011).

2.4. Project Description and Schedule

The Interim Action consists of excavation and off-site disposal of soil piles containing cPAHs at concentrations greater than cleanup levels, confirmational sampling, and grading and restoration activities. Verification soil sampling activities are described in Section 3.0. Pending Ecology approvals, Interim Action-related construction work is scheduled to begin in the fall of 2012. The duration of construction will be determined after selection of the construction contractor.

3.0 SAMPLING PROCEDURES

The following sections describe the field sampling procedures that will be used during the Interim Action.

3.1. Soil Verification Sampling

Soil verification sampling and analyses will be completed during the Interim Action as described in the Interim Action Work Plan (GeoEngineers, 2012) to verify that the cleanup levels have been achieved and/or to document concentrations of contaminants remaining at the Site.

Soil verification samples will be collected by GeoEngineers field personnel using a clean stainless steel spoon/trowel or directly by hand using a fresh and clean pair of nitrile gloves either from the excavation equipment (i.e., backhoe or excavator) or from the excavated surfaces. Samples obtained from backhoe or excavator buckets will be from the center of the bucket or from an area of soil that the surface of the bucket has not touched. Collected samples will be transferred into clean sample containers provided by the analytical laboratory. Sampling equipment (if used) will be decontaminated prior to sample collection at each location. Decontamination procedures are described in the QAPP (Appendix B of the Interim Action Work Plan). Each sample container will be securely capped, labeled, and placed in a cooler with ice immediately upon collection.

Each sample will be designated with a unique, sequential sample identification number. The field representative will visually classify the soils in accordance with American Society for Testing and Materials (ASTM) Method D 2488 and record soil descriptions and other relevant field screening details (e.g., staining, sheen, debris, odors, etc.) in the field log. Field screening procedures are presented below.

3.2. Field Screening

The potential presence of petroleum and/or volatile organics contamination in soil samples will be evaluated using field screening techniques. Field screening results will be recorded on the field logs and the results will be used as a general guideline to delineate areas of possible contamination. In addition, screening results will be used as a basis for selecting soil samples for chemical analysis. The following screening methods will be used: (1) visual screening; (2) water sheen screening; and (3) headspace vapor screening.

3.2.1. Visual Screening

The soil will be observed for unusual color and/or staining indicative of possible contamination.

3.2.2. Water Sheen Screening

Water sheen screening involves placing a portion of the soil sample in a pan containing distilled water, and observing the water surface for signs of sheen. This is a relatively sensitive, qualitative field screening method that can help identify the presence or absence of petroleum hydrocarbons and other contaminants, sometimes at concentrations lower than regulatory cleanup guidelines. The following sheen classifications will be used:

Classification	Identifier	Description
No Sheen	(NS)	No visible sheen on the water surface.
Slight Sheen	(SS)	Light, colorless, dull sheen; spotty to globular; spread is irregular, not rapid; sheen dissipates rapidly; areas of no sheen remain.
Moderate Sheen	(MS)	Light to heavy sheen; may have some color/iridescence; globular to stringy; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on the water surface.
Heavy Sheen	(HS)	Heavy sheen with color/iridescence; stringy; spread is rapid; entire water surface may be covered with sheen; sheen flows off the sample.

3.2.3. Headspace Vapor Screening

This is a semi-quantitative field screening method that can help identify the presence or absence of volatile organic compounds (VOCs) in soil samples. A portion of the soil sample will be placed in a resealable plastic bag. The bag will be sealed capturing air in the bag. The bag is then shaken gently to expose the soil to the air trapped in the bag. The bag will remain closed for approximately 5 minutes at ambient temperature before the headspace vapors are measured. Vapors present within the sample bag's headspace will be measured by inserting the probe of a photoionization detector (PID) through a small opening in the bag, taking care not to clog the probe with soil. The maximum PID reading (in parts per million [ppm]) and the ambient air temperature will be recorded on the field log for each sample. The PID will be calibrated to 100 ppm isobutylene each day prior to soil sampling. No soil sample used for headspace screening will be submitted to the laboratory for chemical analysis.

3.3. Decontamination

Non-disposable sampling equipment will be decontaminated using the procedures described in the QAPP (Appendix B of the Interim Action Work Plan).

3.4. Sample Handling

Sample handling procedures, including labeling, container and preservation requirements and holding times are described in QAPP (Appendix B of the Interim Action Work Plan).

3.5. Disposal of Sampling Related Waste Materials

Incidental waste generated during sampling activities includes items such as gloves, plastic sheeting, paper towels and similar expended and discarded field supplies. These materials are considered *de minimis* (Ecology, 2006) and will be disposed of in a local trash receptacle or county disposal facility.

4.0 QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance/quality control (QA/QC) procedures and standards that will be implemented during Cleanup Action activities are presented in the QAPP (Appendix B of the Interim Action Work Plan). The purpose of this document is to describe analysis and quality control procedures that will

be implemented to produce chemical and field data that are representative, valid and accurate for use in evaluating the cleanup action alternatives.

5.0 REFERENCES

Anchor QEA and SLR International Corp, 2011, "Draft Remedial Investigation and Feasibility Study, Former Bay Wood Products Site, Everett, Washington," dated April 2011.

GeoEngineers, Inc., 2012, "Draft Interim Action Work Plan, Bay Wood Products Site, Everett, Washington, Agreed Order No. DE 5490," GEI File No. 0676-021-01, dated July 13, 2012.

Washington State Department of Ecology, 2008, "Agreed Order No. DE 5490 for Remedial Investigation/Feasibility Study and Draft Cleanup Action Plan – Bay Wood Products Site, In the Matter of Remedial Action by: The Port of Everett," dated October 3, 2008.

APPENDIX B
Health and Safety Plan (HASP)

Health and Safety Plan (HASP)

Bay Wood Products Site Interim Action
Everett, Washington
Agreed Order No. DE 5490

for
Washington State Department of Ecology on Behalf of Port of Everett

October 25, 2012

GeoEngineers

Plaza 600 Building
600 Stewart Street, Suite 1700
Seattle, Washington 98101
206.728.2674

Table of Contents

Health and Safety Plan

Bay Wood Products Site
Everett, Washington

This HASP is to be used in conjunction with the GeoEngineers Safety Program Manual. Together, the written safety programs and this HASP constitute the Site safety plan for this Site. This plan is to be used by GeoEngineers personnel on this Site and must be available on-site. If the work entails potential exposures to other substances or unusual situations, additional safety and health information will be included, and the plan will need to be approved by the GeoEngineers Health and Safety Manager. All plans are to be used in conjunction with current standards and policies outlined in the GeoEngineers Health and Safety Program Manual.

Liability Clause: If requested by subcontractors, this Site safety plan may be provided for informational purposes only. In this case, Form C-3 shall be signed by the subcontractor. Please be advised that this Site Safety Plan is intended for use by GeoEngineers Employees only. Nothing herein shall be construed as granting rights to GeoEngineers' subcontractors or any other contractors working on this Site to use or legally rely on this Site Safety Plan. GeoEngineers specifically disclaims any responsibility for the health and safety of any person not employed by them.

1.0 GENERAL PROJECT INFORMATION

Project Name:	Bay Wood Products Site
Project Number:	0676-021-01
Type of Project:	Remedial excavation. Field activities to be performed by GeoEngineers field staff includes construction monitoring and soil sampling.
Start/Completion:	Interim Action-related construction work is expected to begin in the fall of 2012. Construction work is expected to be completed within approximately two months of inception.
Subcontractors:	Currently not known but will include excavation contractor/survey contractor

2.0 WORK PLAN

Remedial activities are planned for the Port of Everett's (Port's) Bay Wood Product Site (Site) as part of the Interim Action. The objectives of the Interim Action are discussed in the Interim Action Work Plan (GeoEngineers, 2012). The Interim Action is being conducted by the Port in accordance with WAC 173-340-430 to address contaminated soil stockpiles located within the uplands portion of the Site.

Our scope for the Interim Action includes:

- Assisting the cleanup contractor in identifying and removing contaminated soil from the Site for permitted disposal.
- Obtaining soil samples from the limits of excavation and submitting samples to an Ecology accredited laboratory for chemical analysis of carcinogenic polycyclic aromatic hydrocarbons (cPAHs).
- Monitoring grading/restoration activities following the completion of remedial excavation activities.

2.1. Site Description

The Site is generally located in the northeastern portion of Port Gardner Bay near the mouth of the Snohomish River. The Site is comprised of three adjoining parcels (Parcel No. 29050700100300, 29050700100500, and 29050700101000) with a combined area (both upland and marine) of approximately 41.32 acres. The upland portion of the Site includes approximately 13 acres of land at elevations above the tidal mudflats. The northern 100 feet of the Site (encompassing a total of 4.12 acres) are part of an easement to the U.S. Army Corps of Engineers for dike maintenance. The Site is bound to the north by the Snohomish River, to the east by West Marine View Drive and vacant land (Parcel No. 29050700100100) owned by Kimberly-Clark Worldwide, Inc., and to the south by the Former Nord Door Site (JELD-WEN).

The upland portion of the Site is generally flat, with an average elevation of approximately 16 feet (1988 North American Vertical Datum [NAVD 88]). The southeastern and central areas of the upland area currently contain piles of soil that were placed at the Site in 2005 and 2006. The imported soil originated from the Port's 14th Street bulkhead replacement project at the Everett Marina.

2.2. Site History

Prior to 1946 and ending in 1979, sawmill operations were completed at the Site. The sawmill was initially operated by Washington Wood Products, later known as Washington Timber Products, Ltd.

Prior to 1985, the sawmill was reportedly dismantled and the primary use of the Site transitioned to log handling, storage and processing until approximately 1994, when the Bay Wood Products' lease was discontinued. In 1995, the Port removed approximately 130,000 to 140,000 cubic yards of bark, rock, and wood chips from the northern two thirds of the uplands area. Wood debris, present as both surface and subsurface deposits, were encountered to depths reaching an elevation of approximately -4 feet MLLW. Removal of these deeper deposits involved construction of a dike around a portion of the uplands area. The diked area was later filled with approximately 200,000 cubic yards of dredge sediments from the Snohomish River to match the existing grades on the remaining portions of the Site. As part of the construction, the Bay Wood Products buildings were also removed from the Site. Following the removal of the Bay Wood Products building, the Site remained unoccupied and unused until 2005. As previously indicated, soil and sediment excavated as part of the Port's 14th Street bulkhead replacement project was transferred to the Site in 2005 and 2006. Since the placement of these soil piles, the physical condition of the Site has remained unchanged.

Detailed information describing the Site including its known history, current uses, existing property features, soil, groundwater and sediment conditions, and a summary of previous environmental investigations completed at the Site is presented in the Draft RI/FS (Anchor et al., 2011).

2.3. List of Field Activities

Check the activities to be completed during the project:

X	Site reconnaissance	X	Field Screening of Soil Samples
___	Exploratory Borings	X	Vapor Measurements
X	Construction Monitoring	___	Groundwater Sampling
X	Surveying	___	Groundwater Depth and Free Product Measurement
___	Test Pit Exploration	___	Product Sample Collection
___	Monitoring Well Installation	X	Soil Testing
___	Monitoring Well Development	X	Remedial Excavation
X	Soil Sample Collection	X	Grading
___	Remediation System Monitoring	X	Restoration

3.0 LIST OF FIELD PERSONNEL AND TRAINING

Anticipated field personnel include the following:

- John Peters
- Abhijit Joshi
- Robert Trahan

Field personnel will have appropriate training and up to date certifications.

4.0 CHAIN OF COMMAND

Chain of Command	Title	Name	Telephone Numbers
1	Project Manager	John Herzog	(c) 206.406.6431
2	Health and Safety Program Manager	Wayne Adams	(o) 253.383.4940 (c) 253.350.4387
3	HAZWOPER Supervisor	Robert Trahan	(o) 206.239.3253 (c) 206.240.2300
4	Site Safety and Health Supervisor*	Abhijit Joshi	(o) 206.239.3256 (c) 425.223.9028

Chain of Command	Title	Name	Telephone Numbers
5	Field Engineer/Geologist	John Peters Abhijit Joshi	(c) 360.790.8570 (c) 425.223.9028
N/A	Client Assigned Site Supervisor	TBD	TBD
N/A	Subcontractor(s)	TBD	TBD
N/A	Current Owner	Port of Everett representative Erik Gerking	(o) 425.388.0604 (c) 425.754.8413

***Site Safety and Health Supervisor** – The individual present at a hazardous waste Site responsible to the employer and who has the authority and knowledge necessary to establish the Site-specific health and safety plan and verify compliance with applicable safety and health requirements.

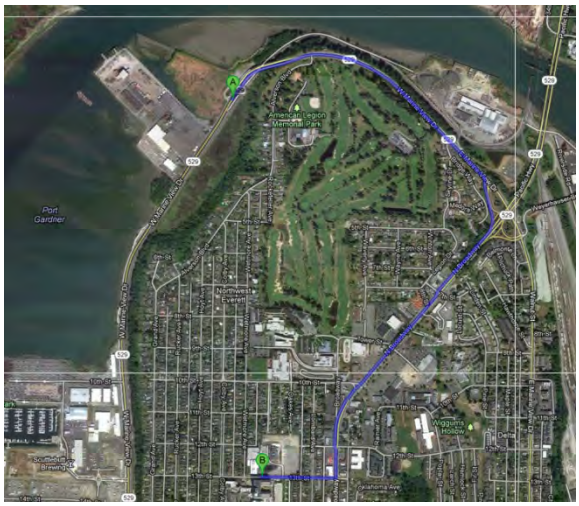
5.0 EMERGANCY INFORMATION

Hospital Name and Address: Providence Regional Medical Center
1321 Colby Avenue
Everett, Washington 98201

Phone Numbers (Hospital ER): Phone: 425.861.6000

Distance: 2.1 miles

1. Head northwest on W Marine View Drive toward Alverson Blvd
2. Exit onto N Broadway
3. Turn right onto 13th Street
4. Destination will be on the left



6.0 STANDARD EMERGENCY PROCEDURES

- **Get help**
  - Send another worker to phone 9-1-1 (if necessary)
  - As soon as feasible, notify GeoEngineers' Project Manager
- **Reduce risk to injured person**
  - Turn off equipment
  - Move person from injury location (if in life-threatening situation only)
  - Keep person warm
  - Perform CPR (if necessary)
- **Transport injured person to medical treatment facility (if necessary)**
  - By ambulance (if necessary) or GeoEngineers vehicle
  - Stay with person at medical facility
  - Keep GeoEngineers manager apprised of situation and notify Human Resources Manager of situation

7.0 HAZARD ANALYSIS

A hazard assessment will be completed at every Site prior to beginning field activities. Updates will be included in the daily log. This list is a summary of hazards listed on the form.

7.1. Physical Hazards

	Drill rigs
X	Backhoe
X	Trackhoe and Trucks
	Crane
X	Front End Loader
X	Excavations/trenching (1:1 slopes for Type B soil)
X	Shored/braced excavation if greater than 4 feet of depth
	Overhead hazards/power lines
X	Tripping/puncture hazards (debris on-site, steep slopes or pits)
X	Unusual traffic hazard – Truck and Trailer traffic
X	Heat/Cold, Humidity
	Utilities/utility locate

- Work areas will be marked with reflective cones, barricades and/or caution tape. High-visibility vests will be worn by on-site personnel to ensure they can be seen by vehicle and equipment operators.
- Field personnel will be aware at all times of the location and motion of heavy equipment in the area of work to ensure a safe distance between personnel and the equipment. Personnel will be visible to the operator at all times and will remain out of the swing and/or direction of the

equipment apparatus. Personnel will approach operating heavy equipment only when they are certain the operator has indicated that it is safe to do so through hand signal or other acceptable means.

- Heavy equipment and/or vehicles used on this Site will not work within 20 feet of overhead utility lines without first ensuring that the lines are not energized. This distance may be reduced to 10 feet depending on the client and the use of a safety watch.
- Personnel entry into unshored or unsloped excavations deeper than 4 feet is not allowed. Any trenching and shoring requirements will follow guidelines established in WAC 296-155, the Washington State Construction Standards or Occupational Safety and Health Administration (OSHA) 1926.651 Excavation Requirements. In the event that a worker is required to enter an excavation deeper than 4 feet, a trench box or other acceptable shoring will be employed or the side walls of the excavation will be sloped according to the soil type and guidelines as outlined in DOSH/OSHA regulations. If the shoring/sloping deviates from that outlined in the WAC, it will be designed and stamped by a PE. Prior to entry, personnel will conduct air monitoring as described later in this plan. All hazardous encumbrances and excavated material will be stockpiled at least 2 feet from the edge of a trench or open pit. If concentrations of volatile gases accumulate within an open trench or excavation, the means of entering shall adhere to confined space entry and air monitoring procedures outlined under the air monitoring recommendations in this Plan and/or the GeoEngineers Health and Safety Program.
- Personnel will avoid tripping hazards, steep slopes, pits and other hazardous encumbrances. If it becomes necessary to work within 6 feet of the edge of a pit, slope or other potentially hazardous area, appropriate fall protection measures will be implemented by the Site Safety and Health Supervisor in accordance with OSHA/DOSH regulations and the GeoEngineers Health and Safety Program.
- Cold stress control measures will be implemented according to the GeoEngineers Health and Safety Program to prevent frost nip (superficial freezing of the skin), frost bite (deep tissue freezing), or hypothermia (lowering of the core body temperature). Heated break areas and warm beverages shall be available during periods of cold weather.
- Heat stress control measures required for this Site will be implemented according to GeoEngineers Health and Safety Program with water provided on-site.
- Excessive levels of noise (exceeding 85 dBA) are anticipated during drilling. Personnel potentially exposed will wear ear plugs or muffs with a noise reduction rating (NRR) of at least 25 dB whenever it becomes difficult to carry on a conversation 3 feet away from a co-worker or whenever noise levels become bothersome. (Increasing the distance from the source will decrease the noise level noticeably.)

7.2. Engineering Controls

X Trench shoring (1:1 slope for Type B Soils)
X Location work spaces upwind/wind direction monitoring
X Other soil covers (as needed)
X Other (specify): Dust control

7.3. Chemical Hazards

CHEMICAL HAZARDS (POTENTIALLY PRESENT AT SITE)

Substance	Pathways
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAH)	Airborne Dust/Soil/Water

SPECIFIC CHEMICAL HAZARDS AND EXPOSURES (POTENTIALLY PRESENT AT SITE)

Compound/ Description	Exposure Limits/IDLH	Exposure Routes	Symptoms/Health Effects
PAHs	PEL 0.2 mg/m^3 TLV 0.2 mg/m^3 REL 0.1 mg/m^3 IDLH 80 mg/m^3	Inhalation, ingestion, skin and/or eye contact	Dermatitis, bronchitis, potential carcinogen

Notes:
mg/m^3 = milligrams per cubic meter
PEL = permissible exposure limit
TLV = threshold limit value (over 10 hrs.)
REL = recommended exposure level
IDLH = immediately dangerous to life or health

Sample handling, packaging, and processing: Skin contact with contaminated media and preservative acids. Wear modified Level D PPE.

Decontamination of equipment: Inhalation or eye contact or skin contact with airborne mists or vapors, or contaminated liquids. Wear safety glasses; decontaminate clothing and skin prior to eating, drinking or other hand to mouth contact.

7.4. Biological Hazards and Procedures

Y/N	Hazard	Procedures
Y	Poison Ivy or other vegetation	Hard hat, gloves and long sleeve shirt
Y	Insects or snakes	Hard hat, gloves and long sleeve shirt
N	Used hypodermic needles or other infectious Hazards	Do not pick up or contact
	Others:	

7.5. Additional Hazards

Update in Daily Report. Include evaluation of:

- Physical Hazards (excavations and shoring, equipment, traffic, tripping, heat stress, cold stress and others)
- Chemical Hazards (odors, spills, free product, airborne particulates and others present)
- Biological Hazards (snakes, spiders, other animals, discarded needles, poison ivy, pollen, bees/wasps and others present)

8.0 AIR MONITORING PLAN

Work upwind if at all possible.

Check instrumentation to be used:

X Photoionization Detector (PID)
___ Other (i.e., detector tubes): _____

Check monitoring frequency/locations and type (specify: work space, borehole, breathing zone):

X 15 minutes - Continuous during soil disturbance activities or handling samples
___ 15 minutes
___ 30 minutes
___ Hourly (in breathing zone during excavations, drilling, sampling)

If excavation activities generate visible dust, the Site Safety and Health Supervisor will be notified immediately to assess the need for air monitoring and lab analysis for inhalable and respirable particulates.

AIR MONITORING ACTION LEVELS

Contaminant	Activity	Monitoring Device	Frequency of Monitoring Breathing Zone	Action Level	Action
Organic Vapors	Environmental Remedial Actions	PID	Start of shift; prior to excavation entry; every 30 to 60 minutes and in event of odors	Background to 5 ppm in breathing zone	Use Level D or Modified Level D PPE
Organic Vapors	Environmental Remedial Actions	PID	Start of shift; prior to excavation entry; every 30 to 60 minutes and in event of odors	5 to 25 ppm in breathing zone	Upgrade to Level C PPE

Contaminant	Activity	Monitoring Device	Frequency of Monitoring Breathing Zone	Action Level	Action
Organic Vapors	Environmental Remedial Actions	PID	Start of shift; prior to excavation entry; every 30 to 60 minutes	> 25 ppm in breathing zone	Stop work and evacuate the area. Contact Health and Safety Manager for guidance.
Combustible Atmosphere	Environmental Remedial Actions	PID	Start of shift; prior to excavation entry; every 30 to 60 minutes	>10% LEL or >1,000 ppm	Depends on contaminant. The PEL is usually exceeded before the lower explosive limit (LEL).
Combustible Atmosphere	Environmental Remedial Actions	PID or 4-gas meter	Start of shift; prior to excavation entry; every 30 to 60 minutes	>10% LEL or >1,000 ppm	Stop work and evacuate the Site. Contact Health and Safety Manager for guidance.
Oxygen Deficient/ Enriched Atmosphere	Environmental Remedial Actions Confined Spaces	Oxygen meter or 4-gas meter	Start of shift; prior to excavation entry; every 30 to 60 minutes	<19.5>23.5%	Continue work if inside range. If outside range, evacuate area and contact Health and Safety Manager.

9.0 SITE CONTROL PLAN

The site control plan minimizes employee exposure to hazardous substances and includes the following.

9.1. Traffic or Vehicle Access Control Plans

The Site is bounded by West Marine View Drive to the east. Traffic related to construction vehicle including trucks and trailers entering and exiting the Site will be controlled by contractor with the help of signs, cones and/or flagger, as appropriate.

9.2. Site Work Zones

Site work zones include construction staging areas, soil stockpiling areas and remedial excavation areas. In general, hot zones/exclusion zones will be located around each excavation. Only persons with the appropriate training will enter this perimeter while work is being conducted there.

A contamination reduction zone will be established just outside the exclusion zone for the decontamination of sampling equipment. Care will be taken to prevent the spread of

contamination. Equipment and personnel decontamination are discussed in the following sections, and the following types of equipment will be available to perform these activities:

- Scrub brushes;
- Spray rinse applicator;
- Plastic garbage bags; and
- Container of Alconox/water solution and Alconox powder.

Method of delineation/excluding non-site personnel

__X__ Fence

_____ Survey Tape

__X__ Traffic Cones

_____ Other

9.3. Buddy System

Personnel on-site should use the buddy system (pairs), particularly whenever communication is restricted. If only one GeoEngineers employee is on-site, a buddy system can be arranged with subcontractor/ contractor personnel.

9.4. Site Communication Plan

Positive communications (within sight and hearing distance or via radio) should be maintained between pairs on-site, with the pair remaining in proximity to assist each other in case of emergencies. The team should prearrange hand signals or other emergency signals for communication when voice communication becomes impaired (including cases of lack of radios or radio breakdown). In these instances, you should consider suspending work until communication can be restored; if not, the following are some examples for communication:

1. Hand gripping throat: Out of air, can't breathe.
2. Gripping partner's wrist or placing both hands around waist: Leave area immediately, no debate.
3. Hands on top of head: Need assistance.
4. Thumbs up: Okay, I'm all right: or I understand.
5. Thumbs down: No, negative.

9.5. Decontamination Procedures

Decontamination consists of removing outer protective Tyvek clothing and washing soiled boots and gloves using bucket and brush provided on-site in the contamination reduction zone. Inner gloves and respirator will then be removed, hands and face will be washed in either a portable

wash station or a bathroom facility in the support zone. Employees will perform decontamination procedures and wash prior to eating, drinking or leaving the Site.

Sampling equipment will be decontaminated using wet decontamination procedures:

- Wash and scrub equipment with Alconox/Liquinox and tap water solution
- Rinse with tap water
- Rinse with distilled water
- Repeat entire procedure or any parts of the procedure as necessary.

In addition to wet decontamination procedures, other measures will be taken to prevent cross-contamination. These measures include changing out disposable gloves between each sampling location, using fresh paper towels at each sample location, and maintaining a clean work area. Downhole drilling equipment will be decontaminated using a hot-water, high-pressure washer. Decontamination water will be stored on-site in 55-gallon drums.

9.6. Waste Disposal or Storage

Used PPE to be placed in on-site drums pending characterization and disposal.

10.0 PERSONAL PROTECTIVE EQUIPMENT

PPE will consist of standard Level D equipment. Air monitoring will be conducted to determine the level of respiratory protection.

- Half-face combination organic vapor/high efficiency particulate air (HEPA) or P100 cartridge respirators will be available on-site to be used as necessary. P100 cartridges are to be used only if PID measurements are below the Site action limit. P100 cartridges are used for protection against dust, metals and asbestos, while the combination organic vapor/HEPA cartridges are protective against both dust and vapor. Ensure that the PID or TLV will detect the chemicals of concern on-site.
- Level D PPE unless a higher level of protection is required will be worn at all times on the Site. Potentially exposed personnel will wash gloves, hands, face and other pertinent items to prevent hand-to-mouth contact. This will be done prior to hand-to-mouth activities including eating, smoking, etc.
- Adequate personnel and equipment decontamination will be used to decrease potential ingestion and inhalation.

Check applicable personal protection gear to be used:

X	Hardhat (if overhead hazards, or client requests)
X	Steel-toed boots (if crushing hazards are a potential or if client requests)
X	Safety glasses (if dust, particles, or other hazards are present or client requests)
X	Hearing protection (if it is difficult to carry on a conversation 3 feet away)
X	Rubber boots (if wet conditions)
X	Life Jackets (for work near/over water)

Gloves (specify):

X	Nitrile
X	Latex
	Liners
	Leather

Protective clothing:

	Tyvek (if dry conditions are encountered, Tyvek is sufficient)
	Saranex (personnel shall use Saranex if liquids are handled or splash may be an issue)
X	Cotton
X	Rain gear (as needed)
X	Layered warm clothing (as needed)

Inhalation hazard protection:

X	Level D
	Level C (respirators with organic vapor/HEPA or P100 filters)

10.1. Personal Protective Equipment Inspections

PPE clothing ensembles designated for use during Site activities shall be selected to provide protection against known or anticipated hazards. However, no protective garment, glove, or boot is entirely chemical-resistant, nor does any PPE provide protection against all types of hazards. To obtain optimum performance from PPE, Site personnel shall be trained in the proper use and inspection of PPE. This training shall include the following:

- Inspect PPE before and during use for imperfect seams, non-uniform coatings, tears, poorly functioning closures or other defects. If the integrity of the PPE is compromised in any manner, proceed to the contamination reduction zone and replace the PPE.
- Inspect PPE during use for visible signs of chemical permeation such as swelling, discoloration, stiffness, brittleness, cracks, tears or other signs of punctures. If the integrity of the PPE is compromised in any manner, proceed to the contamination reduction zone and replace the PPE.
- Disposable PPE should not be reused after breaks unless it has been properly decontaminated.

10.2. Respirator Selection, Use and Maintenance

If respirators are required, Site personnel shall be trained before use on the proper use, maintenance and limitations of respirators. Additionally, they must be medically qualified to wear a respiratory protection in accordance with 29 CFR 1910.134. Site personnel who will use a tight-fitting respirator must have passed a qualitative or quantitative fit test conducted in accordance with an OSHA-accepted fit test protocol. Fit testing must be repeated annually or whenever a new type of respirator is used. Respirators will be stored in a protective container.

10.2.1. Respirator Cartridges

If Site personnel are required to wear air-purifying respirators, the appropriate cartridges shall be selected to protect personnel from known or anticipated Site contaminants. The respirator/cartridge combination shall be certified and approved by the National Institute for Occupational Safety and Health (NIOSH). A cartridge change-out schedule shall be developed based on known Site contaminants, anticipated contaminant concentrations and data supplied by the cartridge manufacturer related to the absorption capacity of the cartridge for specific contaminants. Site personnel shall be made aware of the cartridge change-out schedule prior to the initiation of Site activities. Site personnel shall also be instructed to change respirator cartridges if they detect increased resistance during inhalation or detect vapor breakthrough by smell, taste or feel, although breakthrough is not an acceptable method of determining the change-out schedule.

10.2.2. Respirator Inspection and Cleaning

The Site Safety and Health Supervisor shall periodically (weekly) inspect respirators at the project Site. Site personnel shall inspect respirators prior to each use in accordance with the manufacturer's instructions. In addition, Site personnel wearing a tight-fitting respirator shall perform a positive and negative pressure user seal check each time the respirator is donned, to ensure proper fit and function. User seal checks shall be performed in accordance with the GeoEngineers respiratory protection program or the respirator manufacturer's instructions.

10.2.3. Facial Hair and Corrective Lenses

Site personnel with facial hair that interferes with the sealing surface of a respirator shall not be permitted to wear respiratory protection or work in areas where respiratory protection is required. Normal eyeglasses cannot be worn under full-face respirators because the temple bars interfere with the sealing surface of the respirator. Site personnel requiring corrective lenses will be provided with spectacle inserts designed for use with full-face respirators. Contact lenses should not be worn with respiratory protection.

11.0 ADDITIONAL ELEMENTS

11.1. Cold Stress Prevention

Working in cold environments presents many hazards to Site personnel and can result in frost nip (superficial freezing of the skin), frost bite (deep tissue freezing), or hypothermia (lowering of the core body temperature).

The combination of wind and cold temperatures increases the degree of cold stress experienced by Site personnel. Site personnel shall be trained on the signs and symptoms of cold-related illnesses, how the human body adapts to cold environments, and how to prevent the onset of cold-related illnesses. Heated break areas and warm beverages shall be provided during periods of cold weather.

11.2. Heat Stress Prevention

State and federal OSHA regulations provide specific requirements for handling employee exposure to heat stress. GeoEngineers' program complies with these requirements and will be implemented in all areas where heat stress is identified as a potential health issue.

General requirements for preventing heat stress apply to outdoor work environments from May 1 through September 30, annually, only when employees are exposed to outdoor heat at or above an applicable temperature listed in the table below. To determine which temperature applies to each worksite, select the temperature associated with the general type of clothing or personal protective equipment (PPE) each employee is required to wear.

HEAT STRESS

Type of Clothing	Outdoor Temperature Action Levels (Degrees Fahrenheit)
Non-breathing clothes including vapor barrier clothing or PPE such as chemical resistant suits	52°
Double-layer woven clothes including coveralls, jackets and sweatshirts	77°
All other clothing	89°

Keeping workers hydrated in a hot outdoor environment requires that more water be provided than at other times of the year. GeoEngineers is prepared to supply at least one quart of drinking water per employee per hour. When employee exposure is at or above an applicable temperature listed in the table above, Project Managers shall ensure that:

- A sufficient quantity of drinking water is readily accessible to employees at all times; and
- All employees have the opportunity to drink at least one quart of drinking water per hour.

11.3. Emergency Response

- Personnel on-site should use the "buddy system" (pairs).
- Visual contact should be maintained between "pairs" on-site, with the team remaining in proximity to assist each other in case of emergencies.
- If any member of the field crew experiences any adverse exposure symptoms while on-site, the entire field crew should immediately halt work and act according to the instructions provided by the Site Safety and Health Supervisor.

- Wind indicators visible to all on-site personnel should be provided by the Site Safety and Health Supervisor to indicate possible routes for upwind escape. Alternatively, the Site Safety and Health Supervisor may ask on-site personnel to observe the wind direction periodically during Site activities.
- The discovery of any condition that would suggest the existence of a situation more hazardous than anticipated should result in the evacuation of the field team, contact of the PM, and reevaluation of the hazard and the level of protection required.
- If an accident occurs, the Site Safety and Health Supervisor and the injured person are to complete, within 24 hours, an Accident Report for submittal to the PM, the Health and Safety Program Manager and Human Resources. The PM should ensure that follow-up action is taken to correct the situation that caused the accident or exposure.

11.4. Personnel Medical Surveillance

GeoEngineers employees are not in a medical surveillance program because they do not fall into the category of "Employees Covered" in OSHA 1910.120(f)(2), which states a medical surveillance program is required for the following employees:

1. All employees who are or may be exposed to hazardous substances or health hazards at or above the permissible exposure limits or, if there is no permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.
2. All employees who wear a respirator for 30 days or more a year or as required by state and federal regulations.
3. All employees who are injured, become ill or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation; and Members of HAZMAT teams.

11.5. Sampling, Managing and Handling Drums and Containers

Containers used during the Interim Action shall meet the appropriate Department of Transportation (DOT), OSHA and U.S. Environmental Protection Agency (EPA) regulations for the waste that they contain. Site operations shall be organized to minimize the amount of drum or container movement. When practicable, drums and containers shall be inspected and their integrity shall be ensured before they are moved. Unlabeled drums and containers shall be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled. Before drums or containers are moved, all employees involved in the transfer operation shall be warned of the potential hazards associated with the contents.

Drums or containers and suitable quantities of proper absorbent shall be kept available and used where spills, leaks or rupture may occur. Where major spills may occur, a spill containment program shall be implemented to contain and isolate the entire volume of the hazardous substance being transferred. Fire extinguishing equipment shall be on hand and ready for use to control incipient fires.

11.5.1. Spill Containment Plans (Drum and Container Handling)

Drums will be fitted with secure lids to limit the potential for spills. A spill containment plan will be prepared if required by the client.

11.6. Entry Procedures for Tanks or Vaults (Confined Spaces)

GeoEngineers employees shall not enter confined spaces to perform work unless they have been properly trained and with hands-on experience in the use of retrieval equipment. If a project requires confined space entry, please include a copy of the confined space permit and include the training documentation in this HASP.

Trenches greater than 4 feet in depth with the potential for buildup of a hazardous atmosphere are considered confined spaces.

11.7. Sanitation

If necessary, portable toilets will be provided during work activities.

11.8. Lighting

Field work will be generally conducted during daylight hours; artificial lighting is not anticipated to be necessary.

11.9. Excavation, Trenching and Shoring

All employees working on project sites where there is an excavation greater than 4 feet in depth shall be trained in excavation safety and shall utilize safe procedures. OSHA designates a 5-foot depth for instituting excavation safety procedures; however GeoEngineers will use the more conservative depth of 4 feet as specified by states such as Washington, Oregon and California. This program is for the protection of employees while working in excavations; however, employees should not enter excavations if there is an alternative.

GeoEngineers employees often do not have stop work authority on projects controlled by other contractors. However, any GeoEngineers employee, regardless of job title, working in the field will be responsible for contacting the Project Manager if they observe practices on the job Site that are serious safety violations that are not under their control. They will document the unsafe practices and will contact the Site safety coordinator as identified by the client. If no one is on-site, the Project Manager, once notified, will contact the client. This action establishes GeoEngineers' commitment to Site health and safety on all job Sites as our duty of care to the public, contractors and clients.

GeoEngineers is responsible for its subcontractors and will also be providing inspections and corrections of any work that subcontractors perform around excavations.

12.0 DOCUMENTATION TO BE COMPLETED FOR HAZWOPER PROJECTS

The following forms are required for Hazardous Waste Operations and Emergency Response (HAZWOPER) projects:

- Field Log
- Health and safety pre-entry briefing acknowledgment (Form B-1)
- Health and Safety Plan acknowledgment by GeoEngineers employees (Form B-2)
- Contractor's Health and Safety Plan Disclaimer (Form B-3)
- Conditional forms available at GeoEngineers office: Accident Report

The Field Log is to contain the following information:

- Updates on hazard assessments, field decisions, conversations with subcontractors, client or other parties, etc.;
- Air monitoring/calibration results, including: personnel, locations monitored, activity at the time of monitoring, etc.;
- Actions taken;
- Action level for upgrading PPE and rationale; and
- Meteorological conditions (temperature, wind direction, wind speed, humidity, rain, snow, etc.).

13.0 REFERENCES

Anchor QEA and SLR International Corp, 2011, "Draft Remedial Investigation and Feasibility Study, Former Bay Wood Products Site, Everett, Washington," dated April 2011.

GeoEngineers, Inc., 2012, "Draft Interim Action Work Plan, Bay Wood Products Site, Everett, Washington, Agreed Order No. DE 5490," GEI File No. 0676-021-01, dated July13, 2012.

Ecology, 2008, "Agreed Order No. DE 5490 for Remedial Investigation/Feasibility Study and Draft Cleanup Action Plan – Bay Wood Products Site, In the Matter of Remedial Action by: The Port of Everett," dated October 3, 2008.

14.0 APPROVALS

1. Plan Prepared	Signature	Date
2. Plan Approval	PM Signature	Date
3. Health & Safety Officer	Wayne Adams Health & Safety Program Manager	Date

FORM A-1
HEALTH AND SAFETY PRE-ENTRY BRIEFING
BAY WOOD PRODUCTS SITE INTERIM ACTION, EVERETT, WASHINGTON
FILE NO. 0676-021-01

Inform employees, contractors and subcontractors or their representatives about:

- The nature, level and degree of exposure to hazardous substances they're likely to encounter;
- All Site-related emergency response procedures; and
- Any identified potential fire, explosion, health, safety or other hazards.

Conduct briefings for employees, contractors and subcontractors, or their representatives as follows:

- A pre-entry briefing before any Site activity is started; and
- Additional briefings, as needed, to make sure that the Site-specific HASP is followed.

Make sure all employees working on the Site are informed of any risks identified and trained on how to protect themselves and other workers against the Site hazards and risks

Update all information to reflect current sight activities and hazards.

All personnel participating in this project must receive initial health and safety orientation. Thereafter, brief tailgate safety meetings will be held as deemed necessary by the Site Safety and Health Supervisor.

The orientation and the tailgate safety meetings shall include a discussion of emergency response, Site communications and Site hazards.

Company Employee

Date	Topics	Attendee	Name	Initials

FORM A-2
SITE SAFETY PLAN – GEOENGINEERS' EMPLOYEE ACKNOWLEDGMENT
BAY WOOD PRODUCTS SITE INTERIM ACTION, EVERETT, WASHINGTON
FILE NO. 0676-021-01

(All GeoEngineers' Site workers shall complete this form, which should remain attached to the Safety Plan and filed with other project documentation).

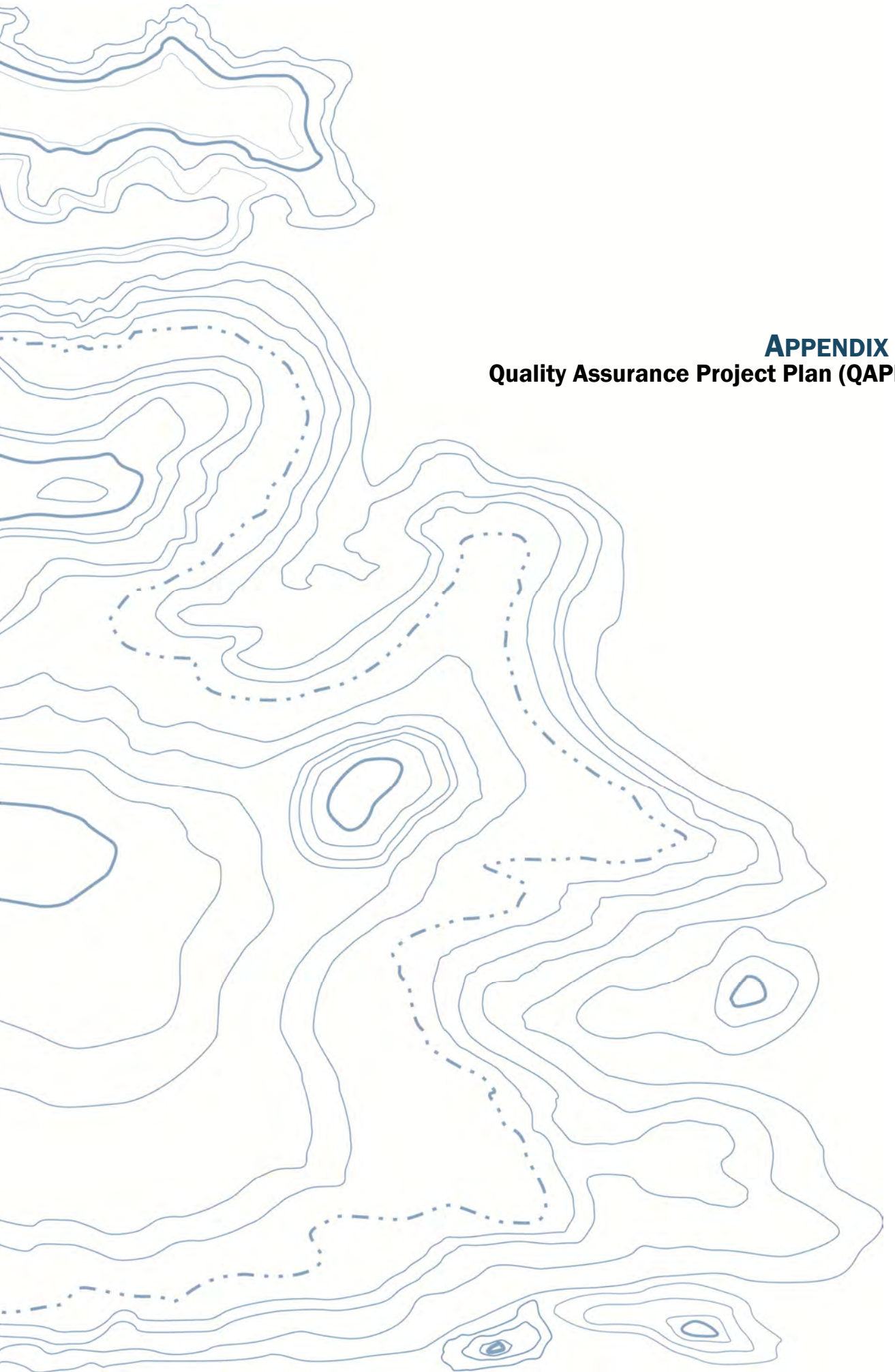
I hereby verify that a copy of the current Safety Plan has been provided by GeoEngineers, Inc., for my review and personal use. I have read the document completely and acknowledge an understanding of the safety procedures and protocol for my responsibilities on site. I agree to comply with all required, specified safety regulations and procedures.

Print Name	**Signature**	**Date**

FORM A-3
SUBCONTRACTOR AND SITE VISITOR SITE SAFETY FORM
BAY WOOD PRODUCTS SITE INTERIM ACTION, EVERETT, WASHINGTON
FILE NO. 0676-021-01

I verify that a copy of the current Site Safety Plan has been provided by GeoEngineers, Inc. to inform me of the hazardous substances on site and to provide safety procedures and protocols that will be used by GeoEngineers' staff at the Site. By signing below, I agree that the safety of my employees is the responsibility of the undersigned company.

Print Name	Signature	Firm	Date



APPENDIX C
Quality Assurance Project Plan (QAPP)

Quality Assurance Project Plan (QAPP)

Bay Wood Products Site Interim Action
Everett, Washington
Agreed Order No. DE 5490

for
Washington State Department of Ecology
on behalf of Port of Everett

October 25, 2012

GeoEngineers

Plaza 600 Building
600 Stewart Street, Suite 1700
Seattle, Washington 98101
206.728.2674

Table of Contents

LIST OF TABLES

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been developed for the performance and compliance monitoring sampling and analysis activities to be performed for the Interim Action at the Port of Everett's (Port's) Bay Wood Products Site (Site), located at 200 West Marine View Drive in Everett, Washington. This QAPP serves as the primary guide for the integration of quality assurance (QA) and quality control (QC) functions into the performance and compliance monitoring sampling and analysis activities. The QAPP presents the objectives, procedures, organization, and specific QA and QC activities designed to achieve data quality goals established for the project. Environmental measurements will be conducted to produce data that are scientifically valid, of known and acceptable quality and that meet established objectives. QA/QC procedures will be implemented so that the precision, accuracy, representativeness, completeness and comparability (PARCC) of the data generated meet the specified data quality objectives.

The U.S. Environmental Protection Agency (EPA) defines quality assurance and quality control as follows:

> *"Quality assurance/quality control measures are those activities you undertake to demonstrate the accuracy (how close to the real result you are) and precision (how reproducible your results are) of your monitoring. Quality Assurance (QA) generally refers to a broad plan for maintaining quality in all aspects of a program. This plan should describe how you will undertake your monitoring effort: proper documentation of all your procedures, training of volunteers, study design, data management and analysis, and specific quality control measures. Quality Control (QC) consists of the steps you will take to determine the validity of specific sampling and analytical procedures."*

The Interim Action is being conducted by the Port in accordance with WAC 173-340-430 to address carcinogenic polycyclic aromatic hydrocodone (cPAH) contamination in soil piles located within the uplands portion of the Site. The objectives of the Interim Action are discussed in the Interim Action Work Plan (GeoEngineers, 2012). Sampling procedures are outlined in the Sampling and Analysis Plan (SAP) presented in Appendix A of the Interim Action Work Plan. A Site-specific Health and Safety Plan (HASP) will be used for field activities and is presented in Appendix B of the Interim Action Work Plan.

The QAPP has been prepared following the EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5), Guidance for Quality Assurance Project Plans (USEPA, 2002), EPAs Contract Laboratory Program (USEPA, 2004) and guidelines for Preparing Quality Assurance Project Plans for Environmental Studies (Ecology, 2004).

2.0 BACKGROUND

2.1. Problem Definition

Between 2005 and 2006, soil and sediment from construction of the Port's 14th Street bulkhead replacement project at the Everett Marina in Everett, Washington was placed at the Site. This

material was characterized in accordance with the Puget Sound Dredged Disposal Analysis (PSDDA) Program for suitability for open-water disposal, as documented in the Everett Marina PSDDA Sediment Characterization Report (Retec, 2005). The remedial investigation (RI) activities completed by the Port on the Site between 2009 and 2010 indicated the presence of carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs) at concentrations greater than the Site-specific cleanup levels in the soil piled soil located within the uplands portion of the Site. The results of the RI activities are presented in the Former Bay Wood Products Site Draft Remedial Investigation/Feasibility Study (RI/FS; Anchor et al., 2011). To refine extent of these contaminated soil piles, interim soil sampling activities were completed in 2012 by SLR on behalf of the Port. Results of these sampling activities are documented in Interim Soil Sampling Summary Report (SLR, 2012).

The Interim Action is being conducted by the Port in accordance with WAC 173-340-430 to address contaminated soil piles located within the uplands portion of the Site.

2.2. Site Description

The Site is generally located in the northeastern portion of Port Gardner Bay near the mouth of the Snohomish River. The Site is comprised of three adjoining parcels (Parcel No. 29050700100300, 29050700100500, and 29050700101000) with a combined area (both upland and marine) of approximately 41.32 acres. The upland portion of the Site includes approximately 13 acres of land at elevations above the tidal mudflats. The northerly 100 feet of the Site (encompassing a total of 4.12 acres) are encumbered by an easement to the U.S. Army Corps of Engineers for dike maintenance. The Site is bounded to the north by the Snohomish River, to the east by West Marine View Drive and vacant land (Parcel No. 29050700100100) owned by Kimberly-Clark Worldwide, Inc., and to the south by the JELD-WEN site.

The upland portion of the Site is relatively flat, with a maximum elevation of approximately 18 feet above mean lower low water (MLLW). The southeastern and central areas of the upland area currently contain several piles of soil that were reportedly placed between 2005 and 2006. This material reportedly was generated from the Port's 14th Street bulkhead replacement project at the Everett Marina. The marine area of the Site consists primarily of tideland mudflats ranging in elevation from approximately 0 to 6 feet MLLW.

General Site features are shown on Figure 2 of the Interim Action Work Plan.

2.3. Site History

Prior to 1946 and ending in 1979, sawmill operations were completed at the Site. The sawmill was initially operated by Washington Wood Products, later known as Washington Timber Products, Ltd.

Prior to 1985, the sawmill was reportedly dismantled and the primary use of the Site transitioned to log handling, storage and processing until approximately 1994, when the Bay Wood Products' lease was discontinued. In 1995, the Port removed approximately 130,000 to 140,000 cubic yards of bark, rock, and wood chips from the northern two thirds of the uplands area. Wood debris, present as both surface and subsurface deposits, were encountered to depths reaching an elevation of approximately -4 feet MLLW. Removal of these deeper deposits involved construction of a dike around a portion of the uplands area. The diked area was later filled with approximately

200,000 cubic yards of dredge sediments from the Snohomish River to match the existing grades on the remaining portions of the Site. As part of the construction, the Bay Wood Products buildings were also removed from the Site. Following the removal of the Bay Wood Products building, the Site remained unoccupied and unused until 2005. As previously indicated, soil and sediment excavated as part of the Port's 14th Street bulkhead replacement project was transferred to the Site in 2005 and 2006. Since the placement of these soil piles, the physical condition of the Site has remained unchanged.

Detailed information describing the Site including its known history, current uses, existing property features, soil, groundwater and sediment conditions, and a summary of previous environmental investigations completed at the Site is presented in the Draft RI/FS (Anchor et al., 2011).

2.4. Project Description and Schedule

The Interim Action consists of excavation and off-site disposal of soil piles containing cPAHs at concentrations greater than cleanup levels, confirmational sampling, and grading and restoration activities.

Verification sampling and analyses will be performed and will involve collecting soil samples from base of the contaminated soil pile excavation to verify that the cleanup levels have been achieved and/or to document concentrations of contaminants remaining at the Site.

Selected samples will be submitted for chemical analysis to an Ecology-approved analytical laboratory for the following analysis:

- Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAH) by EPA Method 8270-SIM.

Pending Ecology approvals, Interim Action-related construction work is scheduled to begin in the fall of 2012.

3.0 PROJECT MANAGMENT

3.1. Project Organization and Responsibilities

Descriptions of the responsibilities, lines of authority and communication for the key positions providing quality assurance and quality control are shown in Figure 3-1. The project organization facilitates the efficient production of project work, allows for an independent quality review, and permits resolution of any QA issues.

Figure 3-1. Project Organization Chart

3.1.1. Project Management

The Project Manager has overall responsibility for executing the project in accordance with contractual requirements. The Project Manager is also responsible for selecting project team members, assigning and coordinating project tasks, determining subcontractor participation, establishing and adhering to budgets and schedules, providing technical oversight, and coordinating production and review of project deliverables.

For the Bay Wood Products Site Interim Action, John Herzog is the Project Manager and can be reached at (206) 406-6431.

3.1.2. Field Coordinator

The Field Coordinator is responsible for the daily management of activities in the field. Specific responsibilities include the following:

- Provides technical direction to the field staff.
- Coordinates data collection activities to be consistent with information requirements.
- Supervises the collection of field data and submittal of samples for laboratory analysis.
- Assures that field information is correctly and completely reported.
- Implements and oversees field sampling in accordance with project plans.
- Supervises field personnel.

- Coordinates work with on-site subcontractors.
- Schedules sample shipment with the analytical laboratory.
- Monitors that appropriate sampling, testing, and measurement procedures are followed.
- Coordinates the transfer of field data, sample tracking forms, and log books to the Project Manager for data reduction and validation.
- Participates in QA corrective actions as required.

For the Bay Wood Products Site Interim Action, Robert Trahan is the Field Coordinator and can be reached at (206) 240-2300.

3.1.3. Quality Assurance Leader

The QA Leader and is responsible for coordinating QA/QC activities as they relate to chemical analytical data. Specific responsibilities include the following:

- Serves as the official contact for laboratory data QA concerns.
- Reviews the implementation of the QAPP and the adequacy of the data generated from a quality perspective.
- Maintains the authority to implement corrective actions as necessary.
- Reviews and approves the laboratory QA Plan.
- Evaluates the laboratory's final QA report for any condition that adversely impacts data generation.
- Ensures that appropriate sampling, testing, and analysis procedures are followed and that correct quality control checks are implemented.
- Monitors laboratory compliance with data quality requirements.

For the Bay Wood Products Site Interim Action, Mark Lybeer is the QA Leader and can be reached at (206) 265-3665.

3.1.4. Laboratory Management

An Ecology-approved analytical laboratory will provide laboratory analytical services for the project. The approved laboratory will designate a Laboratory's QA Coordinator for the project.

The subcontracted laboratories conducting sample analyses for this project are required to obtain approval from the QA Leader before the initiation of sample analysis to assure that the laboratory QA plan complies with the project QA objectives. The Laboratory's QA Coordinator administers the Laboratory QA Plan and is responsible for QC. Specific responsibilities of this position include:

- Ensure implementation of the QA Plan.
- Serve as the laboratory point of contact.
- Activate corrective action for out-of-control events.
- Issue the final QA/QC report.

- Administer QA sample analysis.
- Comply with the specifications established in the project plans as related to laboratory services.
- Participate in QA audits and compliance inspections.

3.2. Health and Safety

A Site-specific health and safety plan (HASP) will be used for Interim Action field activities. A copy of the HASP is presented in Appendix C of the Interim Action Work Plan. The Field Coordinator will be responsible for implementing the HASP during sampling activities. The Project Manager will discuss health and safety issues with the Field Coordinator on a routine basis during the completion of field activities.

The Field Coordinator will terminate any work activities that do not comply with the HASP. Companies providing services for this project on a subcontracted basis will be responsible for developing and implementing their own HASP.

4.0 QUALITY OBJECTIVES AND CRITERIA

The quality assurance objective for technical data is to collect environmental monitoring data of known, acceptable, and documentable quality. The QA objectives established for the project are:

- Implement the procedures outlined herein for field sampling, sample custody, equipment operation and calibration, laboratory analysis, and data reporting that will facilitate consistency and thoroughness of data generated.
- Achieve the acceptable level of confidence and quality required so that data generated are scientifically valid and of known and documented quality. This will be performed by establishing criteria for precision, accuracy, representativeness, completeness, and comparability, and by testing data against these criteria.

The sampling design, field procedures, laboratory procedures, and QC procedures are set up to provide high-quality data for use in this project. Specific data quality factors that may affect data usability include quantitative factors (bias, detection limits, precision, accuracy and completeness) and qualitative factors (representativeness and comparability). The measurement quality objectives (MQO) associated with the data quality factors are summarized in Table C-1 and are discussed below.

4.1. Detection Limits

Analytical methods have quantitative limitations at a given statistical level of confidence that are often expressed as the method detection limit (MDL). Although results reported near the MDL provide insight to Site conditions, quality assurance dictates that analytical methods achieve a consistently reliable level of detection known as the practical quantitation limit (PQL), which is typically demonstrated with the lowest point of a linear calibration. The contract laboratory will provide numerical results for all analytes and report them as detected above the PQL or undetected at the PQL.

The reporting limits for Site Chemicals of Potential Concern (COPCs) in soil are presented in Table C-2. These reporting limits were obtained from an Ecology-certified laboratory. The reporting limits presented in Table C-2 are the laboratory PQLs that are considered target reporting limits (TRLs) because several factors may influence final reporting limits. First, moisture and other physical conditions of soil affect detection limits. Second, analytical procedures may require sample dilutions or other practices to accurately quantify a particular analyte at concentrations above the range of the instrument. The effect is that other analytes could be reported as undetected but at a value higher than a specified TRL. Data users must be aware that high non-detect values, although correctly reported, can bias statistical summaries and careful interpretation is required to correctly characterize Site conditions.

4.2. Precision

Precision is the measure of mutual agreement among replicate or duplicate measurements of an analyte from the same sample and applies to field duplicate or split samples, replicate analyses, and duplicate spiked environmental samples (matrix spike duplicates). The closer the measured values are to each other, the more precise the measurement process. Precision error may affect data usefulness. Good precision is indicative of relative consistency and comparability between different samples. Precision will be expressed as the relative percent difference (RPD) for spike sample comparisons of various matrices and field duplicate comparisons for soil/sediment and water samples. This value is calculated by:

$$RPD\,(\%) = \frac{|D_1 - D_2|}{(D_1 + D_2)/2} \; X \; 100,$$

Where

D_1 = Concentration of analyte in sample.

D_2 = Concentration of analyte in duplicate sample.

The calculation applies to split samples, replicate analyses, duplicate spiked environmental samples (matrix spike duplicates), and laboratory control duplicates. The RPD will be calculated for samples and compared to the applicable criteria. Precision can also be expressed as the percent difference (%D) between replicate analyses. Persons performing the evaluation must review one or more pertinent documents (USEPA, 2004) that address criteria exceedances and courses of action. Project RPD goals for all analyses are 35 percent for water samples and 50 percent for soil/sediment samples, unless the primary and duplicate sample results are less than 5 times the MRL, in which case RPD goals will not apply for data quality assessment purposes.

4.3. Accuracy

Accuracy is a measure of bias in the analytic process. The closer the measurement value is to the true value, the greater the accuracy. This measure is defined as the difference between the reported values versus the actual value and is often measured with the addition of a known compound to a sample. The amount of known compound reported in the sample, or percent recovery, assists in determining the performance of the analytical system in correctly quantifying

the compounds of interest. Since most environmental data collected represent one point spatially and temporally rather than an average of values, accuracy plays a greater role than precision in assessing the results. In general, if the percent recovery is low, non-detect results may indicate that compounds of interest are not present when in fact these compounds are present. Detected compounds may be biased low or reported at a value less than actual environmental conditions. The reverse is true when recoveries are high. Non-detect values are considered accurate while detected results may be higher than the true value.

For this project, accuracy will be expressed as the percent recovery of a known surrogate spike, matrix spike, or laboratory control sample (blank spike), concentration:

$$Recovery\,(\%) = \frac{Spiked\ Result - Unspiked\ Result}{Known\ Spike\ Concentration}\ X\ 100$$

Persons performing the evaluation must review one or more pertinent documents (USEPA, 1999; USEPA, 2004) that address criteria exceedances and courses of action. Accuracy criteria for surrogate spikes, matrix spikes, and laboratory control spikes are found in Table C-1 of this QAPP.

4.4. Representativeness

Representativeness expresses the degree to which data accurately and precisely represent the actual Site conditions. The determination of the representativeness of the data will be performed by completing the following:

- Comparing actual sampling procedures to those delineated within the SAP and this QAPP.
- Comparing analytical results of field duplicates to determine the variations in the analytical results.
- Invalidating non-representative data or identifying data to be classified as questionable or qualitative.

Only representative data will be used in subsequent data reduction, validation, and reporting activities.

4.5. Completeness

Completeness establishes whether a sufficient amount of valid measurements were obtained to meet project objectives. The number of samples and results expected establishes the comparative basis for completeness. Completeness goals are 90 percent useable data for samples/analyses planned. If the completeness goal is not achieved an evaluation will be made to determine if the data are adequate to meet study objectives.

$$Completeness = \frac{number\ of\ valid\ measurements}{total\ number\ of\ data\ points\ planned}\ x\ 100$$

4.6. Comparability

Comparability expresses the confidence with which one set of data can be compared to another. Although numeric goals do not exist for comparability, a statement on comparability will be prepared to determine overall usefulness of data sets, following the determination of both precision and accuracy.

4.7. Holding Times

Holding times are defined as the time between sample collection and extraction, sample collection and analysis, or sample extraction and analysis. Some analytical methods specify a holding time for analysis only. For many methods, holding times may be extended by sample preservation techniques in the field. If a sample exceeds a holding time, then the results may be biased low. For example, if the extraction holding time for volatile analysis of soil sample is exceeded, then the possibility exists that some of the organic constituents may have volatilized from the sample or degraded. Results for that analysis would be qualified as estimated to indicate that the reported results may be lower than actual Site conditions. Holding times are presented in Table C-3.

4.8. Blanks

According to the *National Functional Guidelines for Organic Data Review* (USEPA, 2008), "The purpose of laboratory (or field) blank analysis is to determine the existence and magnitude of contamination resulting from laboratory (or field) activities. The criteria for evaluation of blanks apply to any blank associated with the samples (e.g., method blanks, instrument blanks, trip blanks, and equipment blanks)."

Trip blanks are not planned because volatile compounds are not expected to be present. Method blanks are created during sample preparation and follow samples throughout the analysis process. Analytical results for method blanks will be interpreted in general accordance with National Functional Guidelines for Organic Data Review (USEPA, 2008) and professional judgment.

4.9. Special Training Requirements/Certification

The Superfund Amendments and Reauthorization Act of 1986 required the Secretary of Labor to issue regulations providing health and safety standards and guidelines for workers engaged in hazardous waste operations. Occupational Safety and Health Administration (OSHA) regulations (29 CFR 1910.120) require training to provide employees with the knowledge and skills necessary to enable them to perform their jobs safely and with minimum risk to their personal health. All sampling personnel will have completed the 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course and 8-hour refresher courses, as necessary, to meet OSHA regulations.

5.0 DOCUMENTATION AND RECORDS

5.1. Field observations

Field documentation provides important information about potential problems or special circumstances surrounding sample collection. Field personnel will maintain daily field logs. The field logs will be prepared on field report forms or in a bound logbook. Entries in the field logs and

associated sample documentation forms will be made in waterproof ink, and corrections will consist of line-out deletions that are initialed and dated. Individual logbooks will become part of the project files at the conclusion of the field work.

At a minimum, the following information will be recorded during the collection of each sample.

- Sample location and description;
- Site or sampling area sketch showing sample location and measured distances;
- Sampler's name(s)
- Date and time of sample collection;
- Designation of sample as composite or discrete;
- Sample matrix (soil/sediment or water);
- Type of sampling equipment used;
- Field instrument (e.g., PID) readings (if applicable);
- Field observations and details that are pertinent to the integrity/condition of the samples (e.g., weather conditions, performance of the sampling equipment, sample depth control, sample disturbance, etc.);
- Preliminary sample descriptions (e.g., lithologies, field screening results);
- Sample preservation;
- Sample transport/shipping arrangements; and
- Name of recipient laboratory.

In addition to the sampling information, the following specific information also will be recorded in the field log for each day of sampling.

- Sampling team members;
- Time of arrival/entry on Site and time of Site departure;
- Other personnel present at the Site;
- Summary of pertinent meetings or discussions with regulatory agency or contractor personnel;
- Deviations from sampling plans, QAPP procedures, and HASP;
- Changes in field personnel and responsibilities with reasons for the changes;
- Levels of safety protection; and
- Calibration readings for any field instruments used.

The handling, use, and maintenance of field log books are the Field Coordinator's responsibility.

5.2. Analytical chemistry records

Laboratories will be responsible for internal checks on data reporting and will correct errors identified during the QA review. All laboratories must be accredited by Ecology for the required analytical methods. Close contact will be maintained with the laboratories to resolve any quality control problems in a timely manner. The laboratories will be required to provide the following:

- **Project narrative –** This summary, in the form of a cover letter, will present any problems encountered during any aspect of analysis. The summary will include, but not be limited to, a discussion of QC, sample shipment, sample storage, and analytical difficulties. Any problems encountered by the laboratory, and their resolutions, will be documented in the project narrative.
- **Records –** Legible copies of the chain-of-custody (COC) forms will be provided as part of the data package. This documentation will include the time of receipt and the condition of each sample received by the laboratory. Additional internal tracking of sample custody by the laboratory will also be documented.
- **Sample results –** The data package will summarize the results for each sample analyzed. The summary will include the following information, as applicable:
    - Field sample identification code and the corresponding laboratory identification code
    - Sample matrix
    - Date of sample extraction/digestion
    - Date and time of analysis
    - Weight and/or volume used for analysis
    - Final dilution volumes or concentration factor for the sample
    - Total solids in the samples
    - Identification of the instruments used for analysis
    - MDLs and RLs
    - All data qualifiers and their definitions
- **QA/QC summaries –** These summaries will contain the results of all QA/QC procedures. Each QA/QC sample analysis will be documented with the same information as that required for the sample results (see above). The laboratory will make no recovery or blank corrections. The required summaries are listed below.
    - The calibration data summary will contain the concentrations of the initial calibration and daily calibration standards and the date and time of analysis. The response factor, percent standard deviation (%RSD), RPDs, and retention time for each analyte will be listed, as appropriate. Results for standards analyzed at the RL to determine instrument sensitivity will be reported.
    - The internal standard area summary will report the internal standard areas, as appropriate.
    - The method blank analysis summary will report the method blank analysis associated with each sample and the concentrations of all compounds of interest identified in these blanks.

- The surrogate spike recovery summary will report all surrogate spike recovery data for organic analyses. The names and concentrations of all compounds added, percent recoveries, and QC limits will be listed.
- The matrix spike (MS) recovery summary will report the MS or MS duplicate (MSD) recovery data for analyses, as appropriate. The names and concentrations of all compounds added, percent recoveries, and QC limits will be included in the data package. The RPD for all MS/MSD analyses will be reported.
- The laboratory replicate summary will report the RPD for all laboratory replicate analyses. The QC limits for each compound or analyte will be listed.
- The laboratory control sample (LCS) analysis summary will report the results of the analyses of the LCS. The QC limits for each compound or analyte will be included in the data package.
- The relative retention time summary will report the relative retention times for the primary and confirmational columns of each analyte detected in the samples, as appropriate.

EQuIS four-file format electronic data deliverables will be obtained from the laboratory and data will be submitted into Ecology's Environmental Information Management (EIM) system after data quality assessments are completed.

5.3. Data reduction

Data reduction is the process by which original data are converted or reduced to a specified format or unit to facilitate the analysis of the data. For example, a final analytical concentration may need to be calculated from a diluted sample result. Data reduction requires that all aspects of sample preparation that could affect the test result, such as sample volume analyzed or dilutions required, be taken into account in the final result. The laboratory personnel will reduce the analytical data for review by the Quality Assurance Leader and Project Manager.

During chemical analysis, samples are occasionally diluted after the initial analysis if the estimated concentration curve for one or more of the target analytes is above the calibration curve. In these instances, concentrations from the initial analysis will be identified as the "best result" for all target analytes other than the chemical(s) that was originally above the calibration range. The "best result" for this qualified analyte(s) will be taken from the diluted sample.

6.0 DATA GENERATION AND ACQUISITION

6.1. Sample Process Design

As described in the Interim Action Work Plan, soil sampling activities will involve collecting verification soil samples from base of the contaminated soil pile excavation to verify that the cleanup levels have been achieved and/or to document concentrations of contaminants remaining at the Site. Soil sampling will be conducted by GeoEngineers' field personnel. Table C-2 summarizes the chemical analyses to be performed for soil samples. Verification sample procedures and sample frequencies are described in Section 3.1 of the Sampling and Analyses Plan (Appendix B of the Interim Action Work Plan).

6.2. Sample Methods

6.2.1. Sampling Equipment and Decontamination Procedures

Reusable sampling equipment that comes in contact with soil will be decontaminated before each use. Decontamination procedures for this equipment will consist of the following:

1. Washing with a brush and non-phosphate detergent solution (e.g., Liqui-Nox and distilled water),
2. Rinsing with distilled water, and
3. Wrapping or covering the decontaminated equipment with aluminum foil. Field personnel will limit cross-contamination by changing gloves between sampling locations.

Wash water used to decontaminate the reusable sampling equipment will be collected and stored on-site in 55-gallon drums.

6.2.2. Field Screening Procedures

Field screening procedures are described in Sampling and Analyses Plan (Appendix B of the Interim Action Work Plan).

6.2.3. Sample Containers and Labeling

The Field Coordinator will establish field protocol to manage field sample collection, handling, and documentation. Soil, sediment, and groundwater samples will be placed in appropriate laboratory-prepared containers. Sample containers are listed in Table C-3.

Sample containers will be labeled with the following information at the time of sample collection:

- Project name and number
- Type of sample preservative used (where applicable)
- Sample name, which will include a reference to date and sampling depth (if applicable)
- Date and time of collection

The sample collection activities will be noted in the field log books. The Field Coordinator will monitor consistency between sample containers/labels, field log books, and chain-of-custody (COC) forms.

6.3. Sample Handling and Custody

6.3.1. Sample Storage

Samples will be placed in a cooler with ice after they are collected. The objective of the cold storage will be to attain a sample temperature of 2 to 6 degrees Celsius. Holding times (Table C-3) will be observed during sample storage.

6.3.2. Sample Shipment

Samples will be transported and delivered to the analytical laboratory in the sample coolers. The samples will either be transported by field personnel, laboratory personnel, or by courier service. The Field Coordinator will ensure that the cooler has been properly secured using clear plastic tape and custody seals.

6.3.3. Chain-of-Custody Records

Field personnel are responsible for the security of samples from the time the samples are collected until the samples have been received by the courier service or laboratory personnel. A COC form will be completed for each group of samples being shipped to the laboratory. Information to be included on the COC form includes:

- Project name and number;
- Sample identification numbers;
- Date and time of sampling;
- Sample matrix (soil/sediment and groundwater), preservative, and number of containers for each sample;
- Analyses to be performed;
- Names of sampling personnel;
- Project manager name and contact information including phone number; and
- Shipping information including shipping container number, if applicable.

The original COC form will be signed by a member of the field team. Field personnel will retain copies and place the original and remaining copies in a plastic bag. The plastic bag containing the COC form will be placed in the cooler before sealing the cooler for transport to the laboratory.

6.3.4. Laboratory Custody Procedures

The laboratory will follow their standard operating procedures (SOPs) to document sample handling from time of receipt (sample log-in) to reporting. Documentation will include, at a minimum, the analyst's name or initials, time, and date.

6.4. Analytical Methods

The methods of chemical analysis are identified in Table C-2. The laboratory project manager will determine the remedy to be used if the project RLs cannot be attained, in consultation with GeoEngineers Quality Assurance Leader.

6.5. Quality Control

Table C-4 summarizes the types and frequency of QC samples to be analyzed, including both field QC and laboratory QC samples.

6.5.1. Field Quality Control

Field QC samples serve as a control and check mechanism to monitor the consistency of field sampling methods and the potential influence of off-site factors on project samples. Table C-4 summarizes the types and frequency of field QC samples to be analyzed and the following sections discuss field QC samples.

6.5.1.1. FIELD DUPLICATES

Field duplicates serve as a measure for precision. Under ideal field conditions, field duplicates (sometimes referred to as splits), are created by thoroughly mixing a volume of the sample matrix, placing aliquots of the mixed sample in separate containers, and identifying one of the aliquots as the primary sample and the other as the duplicate sample. Field duplicates measure the precision and consistency of laboratory analytical procedures and methods, as well as the consistency of the sampling techniques used by field personnel.

One field duplicate will be collected for every ten soil sample collected.

6.5.1.2. TRIP BLANKS

Trip blanks are not planned because volatile compounds have not been detected at the Site and are not expected to be present.

6.5.1.3. EQUIPMENT RINSATE BLANKS

Equipment rinsate blanks will be used to evaluate the effectiveness of decontamination procedures for preventing possible cross-contamination of project samples. Rinsate samples will be collected by slowly pouring distilled water over decontaminated sampling equipment and collecting the rinse water in appropriate sample containers for analysis.

Equipment rinsate blank will be collected only if reusable are used for sampling. A minimum of one equipment rinsate blank will be collected for every 20 soil samples collected using reusable equipment.

6.5.2. Laboratory Quality Control

Laboratory QC procedures will be evaluated through a formal data quality assessment process. The analytical laboratory will follow standard analytical method procedures that include specified QC monitoring requirements. These requirements will vary by method, but generally include:

- Method blanks
- Internal standards
- Instrument calibrations
- Matrix spike/matrix spike duplicates (MS/MSD)
- Laboratory control samples/laboratory control sample duplicates (LCS/LCSD)
- Laboratory replicates or duplicates
- Surrogate/Labeled compounds

6.5.2.1. LABORATORY BLANKS

Laboratory procedures utilize several types of blanks, but the most commonly used blanks for QC monitoring are method blanks. Method blanks are laboratory QC samples that consist of either a soil-like material having undergone a contaminant destruction process, or reagent (contaminant-free) water. Method blanks are extracted and analyzed with each batch of environmental samples undergoing analysis. If a substance is detected in a method blank, then one (or more) of the following occurred:

- Sample containers, measurement equipment, and/or analytical instruments were not properly cleaned and contained contaminants.
- Reagents used in the process were contaminated with a substance(s) of interest.

It is difficult to determine which of the above scenarios took place if blank contamination occurs. However, it is assumed that the conditions that affected the blanks also likely affected the project samples. If target analytes are detected in method blanks, data validation guidelines assist in determining which substances in project samples are considered "real," and which ones are attributable to the analytical process. Furthermore, the guidelines state, ". . . there may be instances where little or no contamination was present in the associated blank, but qualification of the sample is deemed necessary. Contamination introduced through dilution water is one example."

6.5.2.2. CALIBRATIONS

Several types of instrument calibrations are used, depending on the analytical method, to assess the linearity of the calibration curve and assure that the sample results reflect accurate and precise measurements. The main calibrations used are initial calibrations, daily calibrations, and continuing calibration verification.

6.5.2.3. MATRIX SPIKE/MATRIX SPIKE DUPLICATES (MS/MSD)

MS/MSD samples are used to assess influences or interferences caused by the physical or chemical properties of the sample itself. For example, extreme pH can affect the results for semivolatile organic compounds. Or, the presence of a particular compound may interfere with accurate quantitation of another analyte. MS/MSD data is reviewed in combination with other QC monitoring data to determine matrix effects. In some cases, matrix effects cannot be determined due to dilution and/or high levels of related substances in the sample. A matrix spike is evaluated by spiking a project sample with a known amount of one or more of the target analytes, ideally at a concentration that is 5 to 10 times higher than the sample result. A percent recovery is then calculated by subtracting the un-spiked sample result from the spiked sample result, dividing by the known concentration of the spike, and multiplying by 100.

MS/MSD samples will be analyzed at a frequency of one MS/MSD per analytical batch. The samples for the MS/MSD analyses should be collected from a boring or sampling location that is believed to have only low-level contamination. A sample from an area of low-level contamination is needed because the objective of MS/MSD analyses is to determine the presence of matrix interferences, which can best be achieved with low levels of contaminants. Additional sample volume will be collected for the MS/MSD analyses as required by the laboratory.

6.5.2.4. LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATES (LCS/LCSD)

Also known as blanks spikes, laboratory control samples (LCS) are similar to MS samples in that a known amount of one or more of the target analytes are spiked into a prepared sample medium, and a percent recovery of the spiked substances is calculated. The primary difference between LCS and MS samples is that the LCS uses a contaminant-free sample medium. For example, reagent water is typically used for LCS water analyses. The purpose of an LCS is to help assess the overall accuracy and precision of the analytical process including sample preparation, instrument performance, and analyst performance.

6.5.2.5. LABORATORY REPLICATES/DUPLICATES

Laboratories utilize MS/MSDs, LCS/LCSDs, and/or replicates to assess precision. Replicates are a second analysis of a field-collected environmental sample. Replicates can be split at varying stages of the sample preparation and analysis process and most commonly consist of a second analysis on the extracted media.

6.5.2.6. SURROGATES/LABELED COMPOUNDS

Surrogate spikes are used to verify proper extraction procedures and the accuracy of the analytical instrument. Surrogates are substances with characteristics similar to the target analytes. A known concentration of surrogate is added to the project sample and passed through the instrument and the percent recovery is calculated. Each surrogate used has acceptance limits (i.e., an acceptable range) for percent recovery. If a surrogate recovery is low, sample results may be biased low and depending on the recovery value, a possibility of false negatives may exist. Conversely, when recoveries are above the specified acceptance limits, a possibility of false positives exist, although non-detect results are considered accurate.

6.6. Instrument Testing, Inspection and Maintenance

The field coordinator will be responsible for overseeing the testing, inspection, and maintenance of all field equipment. The laboratory project manager will be responsible for laboratory equipment testing, inspection, and maintenance requirements. The calibration methods used in calibrating the analytical instrumentation are described in the following section.

6.7. Instrument Calibration and Frequency

6.7.1. Field Instrumentation

Field instrument calibration and calibration checks facilitate accurate and reliable field measurements. The calibration of field instruments used on the project will be checked and adjusted as necessary in general accordance with the manufacturer's recommendations. Methods and intervals of calibration checks and instrument maintenance will be based on the type of instrument, stability characteristics, required accuracy, intended use, and environmental conditions. The basic calibration check frequencies are described below.

The calibration of the PID used for headspace vapor screening will be checked at the start of each day it is used. If necessary (based on the calibration check results), the instrument will be calibrated in general accordance with the manufacturer's specifications. Calibration check and calibration results will be recorded in the field logbook.

6.7.2. Laboratory Instrumentation

For chemical analytical testing, calibration procedures will be performed in general accordance with the analytical methods used and the laboratory's SOPs. Calibration documentation will be retained at the laboratory.

All instrument calibrations and their appropriate chemical standards are to comply with the specific methods within EPA SW-846, Test Methods for Evaluating Solid Waste, Physical and Chemical Methods, 3rd Edition, December 1996 and the Laboratory SOPs. Calibration documentation, initial (ICALs) and continuing (CCALs), will be retained at the Laboratory.

6.8. Inspection of Supplies and Consumables

Supplies and consumables for the field sampling effort will be inspected upon delivery and accepted if the condition of the supplies is satisfactory. For example, jars will be inspected to ensure that they are the correct size and quantity and were not damaged in shipment.

6.9. Data Management

Laboratories will report data in formatted hardcopy and digital formats. Analytical laboratory measurements will be recorded in standard formats that display, at a minimum, the field sample identification, the laboratory identification, reporting units, data qualifiers, analytical method, analyte tested, analytical result, extraction and analysis dates, and quantitation limits. Each sample delivery group will be accompanied by sample receipt forms and a case narrative identifying data quality issues. Laboratory electronic data deliverable (EDD) requirements will be established by GeoEngineers, Inc. with the contract laboratory. The laboratory will send final analytical testing results to the Project Manager.

7.0 ASSESSMENT AND OVERSIGHT

7.1. Review of Field Documentation and Laboratory Receipt Information

Documentation of field sampling data will be reviewed periodically for conformance with project QC requirements described in this QAPP. At a minimum, field documentation will be checked for proper documentation of the following:

- Sample collection information (date, time, location, matrices, etc.);
- Field instruments used and calibration data;
- Sample collection protocol;
- Sample containers, preservation, and volume;
- Field QC samples collected at the frequency specified;
- COC protocols; and
- Sample shipment information.

Sample receipt forms provided by the laboratory will be reviewed for QC exceptions. The final laboratory data package will describe (in the case narrative) the effects that any identified QC

exceptions have on data quality. The laboratory will review transcribed sample collection and receipt information for correctness prior to delivering the final data package.

7.2. Response Actions for Field Sampling

The Field Coordinator, or a designee, will be responsible for correcting equipment malfunctions throughout the field sampling effort and resolving situations in the field that may result in nonconformance or noncompliance with the QAPP. All corrective measures will be documented in the field logbook.

7.3. Corrective Action for Laboratory Analyses

Laboratories are required to comply with their current written standard operating procedures. The laboratory project manager will be responsible for ensuring that appropriate corrective actions are initiated as required for conformance with this QAPP. All laboratory personnel will be responsible for reporting problems that may compromise the quality of the data to the laboratory project manager. A narrative describing the anomaly, the steps taken to identify and correct it, and the treatment of the relevant sample batch (i.e., recalculation, reanalysis, re-extraction) will be submitted with the data package.

8.0 DATA VALIDATION AND USABILITY

8.1. Data Review, Verification and Validation

The data validation and usability elements of the QAPP as detailed below address the QA/QC activities that occur after data collection and/or data generation is complete. Implementation of these elements ensures that the data conform to the specified criteria and will achieve the project objectives

The data are not considered final until validated. All data, including laboratory and field QC sample results, will be summarized in a data validation report. The data validation report will focus on data that did not meet the MQOs specified in Table C-1. The data validation reports will be included as an appendix to the Construction Completion Report and the Confirmation Groundwater Monitoring Report. These reports will also describe any deviations from this QAPP and actions taken to address those deviations.

Level III laboratory data packages will be obtained for all soil samples. These data will be reviewed for the following QC parameters, as applicable:

- Holding times and sample preservation
- Method blanks
- MS/MSD analyses
- LCS/LCSD analyses
- Surrogate spikes
- Field/Lab duplicates

- Calibrations (Initial and Continuing)
- Internal Standards
- Instrument Tunes

In addition to these QC parameters, other documentation such as sample receipt forms and case narratives will be reviewed to evaluate laboratory QA/QC.

8.2. Verification and Validation Methods

Hard-copy laboratory reports will be method detection limit (MDL)-generated providing the analysis-specific information including final sample analytical results, reportable field and laboratory QA/QC analytical results, MDLs and MRLs. The laboratory data will also be reported via electronic media using the tabular outputting capabilities of standard software formats.

The term "reporting limit" will be used interchangeably with "quantitation limit" to mean the lowest concentration at which an analyte can be quantified subject to the quality control criteria of the analytical method. These terms are different from "MDL," which refers to the lowest concentration that the analytical method can ideally detect.

Data validation qualifiers including "U," "J,", and "R" will be used following the reported laboratory results to explain data quality issues affecting the laboratory data to the data user. These qualifiers are explained as follows:

- "U" indicates that a compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit, which is corrected for dilution and percent moisture.
- "J" indicates that a compound was detected below the reporting limit and the value is estimated or the value was estimated by the validator because the of instrument bias reasons.
- If any target analytes are found in a laboratory method blank, it will be regarded as blank contamination. In these cases, the result of a given analyte in the method blank will be compared to any positive result of the same analyte in the associated field samples. If a field sample result is less than five times (ten times for common laboratory contaminants like acetone, phthalates, etc.) the result that is reported in the method blank, the result will be considered blank contamination. Accordingly, the result will be qualified as not-detected "U" at the elevated reporting limit.
- If there are two analyses reported by the laboratory for one sample (as in the case of dilutions), the validator will make a decision as to which analysis to use in the final assessment. As there should be only one reported result per analyte for a given sample, any extraneous results will be qualified as not-reportable "R" and will not be used.

8.3. Reconciliation with User Requirements

A data quality assessment will be conducted by the project Quality Assessment Leader to identify cases where the projects MQOs were not met.

9.0 REFERENCES

Anchor QEA and SLR International Corp, 2011, "Draft Remedial Investigation and Feasibility Study, Former Bay Wood Products Site, Everett, Washington," dated April 2011.

GeoEngineers, Inc., 2012, "Draft Interim Action Work Plan, Bay Wood Products Site, Everett, Washington, Agreed Order No. DE 5490," GEI File No. 0676-021-01, dated July 13, 2012.

USEPA (U.S. Environmental Protection Agency), 2002, "Guidance for Quality Assurance Project Plans, EPA QA/R-5," EPA-240/R-02/009, Office of Emergency and Remedial Response, US Environmental Protection Agency, Washington, DC, dated December 2002.

USEPA, 2004, "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," EPA 540-R-04-004, Office of Emergency and Remedial Response, US Environmental Protection Agency, Washington, DC, dated October 2004.

USEPA, 2008, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," EPA-540-R-08-01. June 2008.

Ecology (Washington State Department of Ecology), 2004, "Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies," 04-03-030, dated July 2004.

Ecology, 2008, "Agreed Order No. DE 5490 for Remedial Investigation/Feasibility Study and Draft Cleanup Action Plan – Bay Wood Products Site, In the Matter of Remedial Action by: The Port of Everett," dated October 3, 2008.

Table C-1

Measurement Quality Objectives

Bay Wood Products Site
Everett, Washington

Laboratory Analysis	Reference Method	Soil				
		LCS %R Limits[1,2]	MS %R Limits[2]	SS %R Limits[1,2,3]	MS Duplicate or Lab Duplicate Samples RPD Limits[4]	Field Duplicate Samples RPD Limits[4]
PAHs	EPA 8270/SIM	42%-134%	35%-139%	33%-128%	≤26%	≤50%

Notes:

Method numbers refer to EPA SW-846 Analytical Methods or Washington State Department of Ecology (Ecology) recommended analytical methods.

[1]Recovery ranges are estimates. Actual ranges will be provided by the laboratory when contracted.

[2]Percent recovery limits are expressed as ranges based on laboratory control limits. Limits will vary for individual analytes.

[3]Individual surrogate recoveries are compound-specific

[4]RPD control limits are only applicable if the primary and duplicate sample concentrations are greater than 5 times the method reporting limit (MRL). For results less than 5 times the MRL, the difference between the primary and duplicate samples must be less than 2X the MRL for soils/solids.

PAHs = Polycyclic Aromatic Hydrocarbons

LCS = Laboratory control sample

MS = Matrix spike

SS = Surrogate standards

RPD = Relative percent difference

NA = Not applicable

Table C-2

Methods of Analysis and Target Reporting Limits for Soil Samples

Bay Wood Products Site
Everett, Washington

Analyte	Analytical Method	Practical Quantitation Limit (PQL)	Method Detection Limits (MDL)
PAHs (mg/kg)			
1-Methylnaphthalene	EPA 8270D-SIM	0.0067	0.000232
2-Methylnaphthalene	EPA 8270D-SIM	0.0067	0.000462
Acenaphthene	EPA 8270D-SIM	0.0067	0.000124
Acenaphthylene	EPA 8270D-SIM	0.0067	0.000252
Benzo[g,h,i]perylene	EPA 8270D-SIM	0.0067	0.000207
Fluoranthene	EPA 8270D-SIM	0.0067	0.000244
Fluorene	EPA 8270D-SIM	0.0067	0.000835
Naphthalene	EPA 8270D-SIM	0.0067	0.000407
Phenanthrene	EPA 8270D-SIM	0.0067	0.000172
Pyrene	EPA 8270D-SIM	0.0067	0.000163
Benzo[a]anthracene	EPA 8270D-SIM	0.0067	0.000184
Benzo[a]pyrene	EPA 8270D-SIM	0.0067	0.000131
Benzo[b]fluoranthene	EPA 8270D-SIM	0.0067	0.000221
Benzo[k]fluoranthene	EPA 8270D-SIM	0.0067	0.000172
Chrysene	EPA 8270D-SIM	0.0067	0.000179
Dibenz[a,h]anthracene	EPA 8270D-SIM	0.0067	0.000180
Indeno[1,2,3-c,d]pyrene	EPA 8270D-SIM	0.0067	0.000172

Notes:

EPA = U.S. Environmental Protection Agency
PAH = Polycyclic aromatic hydrocarbon
SIM = Selective ion monitoring
mg/kg = Milligrams per kilogram

Table C-3

Test Methods, Sample Containers, Preservation and Holding Times

Bay Wood Products Site
Everett, Washington

Analysis	Method	Soil			
		Minimum Sample Size	Sample Containers	Sample Preservation	Holding Times[1]
PAHs	EPA 8270/SIM	100 g	4 oz glass wide mouth with Teflon-lined lid	Cool 4°C	7 days to extraction, 40 days from extraction to analysis

Notes:

[1]Holding times are based on elapsed time from date of collection.
PAH = Polycyclic aromatic hydrocarbon
HCl = Hydrochloric acid
HNO_3 = Nitric acid
oz = Ounce
mL = Milliliter
L = Liter
g = Gram

Table C-4

Quality Control Samples - Type and Frequency

Bay Wood Products Site
Everett, Washington

Parameter	Field QC		Laboratory QC			
	Field Duplicates	Trip Blanks	Method Blanks	LCS	MS / MSD	Lab Duplicates
PAHs	1/10 soil samples	NA	1/batch	1/batch	1 set/batch	NA

Notes:

An analytical lot or batch is defined as a group of samples taken through a preparation procedure and sharing a method blank, LCS, and MS/MSD (or MS and lab duplicate). No more than 20 field samples can be contained in one batch.

QC = Quality control

LCS = Laboratory control sample

MS = Matrix spike sample

MSD = Matrix spike duplicate sample

PAH = Polycyclic aromatic hydrocarbon

ATTACHMENTS

ATTACHMENT 1
Interim Soil Sampling Summary Report

May 22, 2012

Erik Gerking
Environmental Cleanup Administrator
Port of Everett
P.O. Box 538
Everett, WA 98206

Re: Interim Soil Sampling Summary
Bay Wood Products Site, Everett, Washington

Dear Erik,

SLR has prepared the following report to summarize the findings of interim soil sampling activities performed at the Bay Wood Products site located at 200 West Marine View Drive in Everett, Washington (Site).

Background

The interim soil sampling activities were performed in general accordance with December 6, 2011 and March 16, 2012 amendments to the Port of Everett (Port) Bay Wood Products Site Final Remedial Investigation/Feasibility Study Work Plan (RI/FS Work Plan, SLR 2009). The purpose of the investigation was to perform additional upland soil sampling and testing to refine areas of contaminated soil stockpiles previously identified during the Site remedial investigation. Soil sampling from Geoprobe borings was also performed at two locations to supplement existing subsurface soil sampling results. The work is being conducted under an Agreed Order with Ecology (Agreed Order No.: DE 5490).

The material in the soil stockpiles was placed on the Site during an off-site bulkhead replacement construction project performed by the Port of Everett. The stockpile material consists of individual end dump piles generally grouped into “stockpile areas” around the property. In January 2012, GeoEngineers mapped the approximate extent of the stockpile groups using GPS. For the purposes of this investigation, the stockpiles groups have been labeled as stockpile SP-A through SP-R on the attached Figure 1. GeoEngineers estimated the approximate volume of material in each stockpile group based on the average height of the piles. The approximate volume of each pile, as estimated by GeoEngineers, is provided on Table 1.

In June 2009, fourteen composite soil samples were collected from the stockpile areas. The composite samples were composed of subsamples from the separate end-dump piles. These composite samples were submitted for analysis of priority pollutant metals (PPMETS) and polycyclic aromatic hydrocarbons (PAHs). Three samples were also analyzed for semi-volatile organic compounds (SVOCs), including PAHs. All of the composite samples contained one or more PAHs. The carcinogenic PAH (cPAH) toxicity equivalency quotients (TEQs) were greater than the preliminary cleanup level (PCL) of 0.140 milligrams per kilogram (mg/Kg) in two of the

fourteen stockpile soil composite samples, SP-EI-C (0.314 mg/Kg) and SP-M2-C (0.163 mg/Kg). With the exception of PAHs, no other SVOCs were identified above laboratory method detection limits. The metals arsenic, chromium, copper, lead, nickel, zinc, and mercury were identified in nearly all samples; however, none of these metals were identified at concentrations above PCLs presented in the Draft RI/FS report. Removal and off-site disposal of portions of the existing soil piles was proposed in the Draft RI/FS report based on these composite sampling results and the analysis in the FS.

SCOPE OF WORK

Stockpile Sampling - The initial approach to the interim stockpile sampling was to better define the extent of soil in the stockpile areas with cPAHs above PCLs (SP-M2-C and SP-E1-C) by collecting discrete soil samples around the areas of samples SP-E1-C and SP-M2-C. Analysis of these discrete samples was completed in three tiers, with the samples immediately around the composite locations completed first, and stepped-out sample analysis completed based on the Tier 1 results. The analysis completed on these discrete samples identified additional locations near the composite sample locations SP-E1-C and SP-M2-C with cPAH concentrations above the PCL.

Based on the findings of the tiered sampling, the scope of work was expanded to include additional sample collection and analysis from stockpile locations where little or no previous sampling had occurred. A grid pattern was overlain on the stockpiles to evenly distribute the sampling locations across the irregularly-shaped stockpile groups. The number of samples was selected to be roughly proportional to the estimated volume of individual stockpile groups, as well as the total volume of material stockpiled on-site. Table 6.9 in Ecology's *Guidance for the Remediation of Petroleum Contaminated Sites* recommends at least 10 samples, plus one sample for each additional 500 cubic yards of material, at sites with over 2,000 cubic yards of stockpiled material. The volume of stockpiled material at the Site was estimated by GeoEngineers to total approximately 8,400 cubic yards; therefore, under Ecology's guidance, at least 23 samples would be recommended to characterize the stockpiled material. Following the initial tiered sampling approach and subsequent "grid" sampling, a total of 68 discreet samples were collected from the stockpiled material and submitted for laboratory analysis.

The samples were collected from approximately 6-inches to 1-foot below the top surface of the existing stockpile in the areas shown on Figure 1. Soil sampling locations were marked in the field with a stake displaying the sample number. Soil sampling equipment was decontaminated between each sample location using the procedures described in the Sampling and Analysis Plan (SAP). The soil samples were submitted to Analytical Resources, Inc. (ARI), an Ecology-accredited laboratory (Accreditation Number C1235), for analysis of PAHs by EPA Method 8270-SIM.

Geoprobe Sampling – The scope of work for this investigation included collecting soil samples below the approximately three feet of fill material that was placed across the Site, and above the six foot depth that is the conditional point of compliance for terrestrial ecological receptors per WAC 173-340-7490(4). Subsurface soil samples were collected immediately adjacent to the former remedial investigation boring locations PB-3C and PB-5A. The subsurface soil samples were collected using a truck-mounted Geoprobe direct push drill rig. The borings were

advanced to six feet below ground surface (bgs). Samples were initially proposed from depths of between 3.75 feet bgs to 4.75 feet bgs in the borings; however, field-evidence of impact was observed at approximately 5.5 to 6 feet bgs in soil boring PB-3CR, therefore an additional soil sample was collected from this depth. Soil samples were collected from the disposable acetate liner of the Geoprobe and placed directly into laboratory-provided sample containers. The soil samples were submitted to ARI for laboratory analysis for total petroleum hydrocarbons (TPH) in the diesel range (TPH-Dx) using NWTPH methods and PCBs using EPA Method 8082.

Analytical Results Summary

Stockpile Sampling - A summary of the laboratory analytical results, shown in groups by stockpile area, are presented in Table 1. Toxicity equivalency factors (TEFs) were used to calculate a TEQ for total cPAHs relative to reference chemical benzo(a)pyrene in accordance with WAC 173-340-708(8)(e). Laboratory analytical results were compared to a PCL for cPAHs of 0.140 mg/Kg.

Of the 16 soil stockpiles areas that were sampled, nine had at least one sample with a cPAHs TEQ above the PCL. Sampled soil stockpiles SP-D, SP-G, SP-I, SP-J, SP-L, SP-N and SP-P did not exhibit cPAH TEQs above the PCL. A rough grid system was used to delineate areas of the stockpile groups with cPAH concentrations exceeding PCLs. Figure 2 shows the grid areas where cPAHs were identified above PCLs. Copies of the analytical reports have been included as Appendix A.

Geoprobe Sampling - A summary of the laboratory analytical results from the Geoprobe sampling locations are presented on Table 2. TPH in the diesel and heavy oil range was identified at concentrations of 690 mg/Kg and 550 mg/Kg, respectively, in the soil sample from boring PB-3CR at a depth of 5.5 to 6 feet bgs. These concentrations exceeded the PCL of 460 mg/Kg. Concentrations of TPH in soil from boring PB-3CR at 3.5 to 4 feet bgs and boring PB-5AR at 3.75 to 4 feet bgs were below the PCLs. No PCBs at concentrations above laboratory method reporting limits were identified in any of the three samples submitted for laboratory analysis.

Please feel free to contact us with any questions.

Sincerely,
SLR International Corp

Megan S. Coracci
Senior Scientist

R. Scott Miller
Principal Engineer

Attachments: Figure 1 – Soil Stockpile Sampling Locations
Figure 2 – Stockpile Areas Exceeding PCLs
Tables – Soil Analytical Summary Tables
Attachment – Analytical Summary Reports

Figures

Figure 1 - Soil Stockpile Sampling Locations

Figure 2 - Stockpile Areas Exceeding PCLs

NOTES

AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO, LICENSED TO SLR INTERNATIONAL CORP., PHOTOGRAPH DATED NOVEMBER 9, 2007

LEGEND

- LIMITS OF STOCKPILES OBSERVED 1/25/2012

DECEMBER 2011/FEBRUARY 2012

- TIER 1 SOIL STOCKPILE SAMPLE LOCATION
- TIER 2 SOIL STOCKPILE SAMPLE LOCATION
- TIER 3 SOIL STOCKPILE SAMPLE LOCATION
- JUNE 2009 SOIL STOCKPILE COMPOSITE SAMPLE LOCATION
- MARCH 2012 SOIL STOCKPILE SAMPLE LOCATIONS
- GEOPROBE BORING SAMPLE LOCATIONS

CONCENTRATIONS OF cPAHs

- 0–0.139 BELOW INTERIM ACTION SCREENING LEVEL
- ≥ 0.140 ABOVE INTERIM ACTION SCREENING LEVEL

PORT OF EVERETT
BAY WOOD PRODUCTS SITE
EVERETT, WASHINGTON

Report: SUMMARY REPORT ON SOIL STOCKPILE SAMPLING ACTIVITIES

Drawing: INTERIM SOIL SAMPLING LOCATIONS

Date: APRIL 11, 2012	Scale: AS SHOWN	Fig. No. 1
File Name: Rev 2 FIG 3-1	Project No. 105.0006.00001	

SLR

NOTES

AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO, LICENSED TO SLR INTERNATIONAL CORP., PHOTOGRAPH DATED NOVEMBER 9, 2007

LEGEND

LIMITS OF STOCKPILES OBSERVED 1/25/2012

STOCKPILE AREA EXCEEDING PCLs

PORT OF EVERETT
BAY WOOD PRODUCTS SITE
EVERETT, WASHINGTON

Report: SUMMARY REPORT ON SOIL STOCKPILE SAMPLING ACTIVITIES

Drawing: STOCKPILE AREAS EXCEEDING PCLs

Date: APRIL 11, 2012	Scale: AS SHOWN	Fig. No. 2
File Name: Rev 2 FIG 2-1	Project No. 108.0030.00001	

SLR

Tables

Table 1: Soil Stockpile Analytical Summary Table

Table 2: Geoprobe Boring Analytical Summary Table

Table 1 - Soil Stockpile Analytical Summary Table
cPAHs
Bay Wood Products Site, Port of Everett, Everett, WA

Soil Pile: SP-A Volume[A]: 290 cubic yards (CY)

Sample Name	Preliminary Cleanup Levels	SP-M2-1			SP-M2-2			SP-W2-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		12/21/2011			12/21/2011			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ
cPAHs[B] in soil (mg/Kg)										
benzo[a]anthracene	TEQ	**0.16**	0.1	**0.016**	**0.088**	0.1	**0.0088**	**0.047**	0.1	**0.0047**
benzo[a]pyrene	0.140	**0.094**	1	**0.094**	**0.096**	1	**0.096**	**0.031**	1	**0.031**
total benzofluoranthenes	TEQ	**0.33**	0.1	**0.033**	**0.34**	0.1	**0.034**	**0.128**	0.1	**0.0128**
chrysene	TEQ	**0.27**	0.01	**0.0027**	**0.28**	0.01	**0.0028**	**0.075**	0.01	**0.00075**
dibenzo[a,h]anthracene	TEQ	**0.021**	0.1	**0.0021**	**0.017**	0.1	**0.0017**	**0.005**	0.1	**0.0005**
indeno[1,2,3-cd]pyrene	TEQ	**0.056**	0.1	**0.0056**	**0.05**	0.1	**0.005**	**0.01**	0.1	**0.001**
Total TEQ	0.140			**0.153**			**0.148**			**0.051**

Soil Pile: SP-B Volume: 140 CY

Sample Name	Preliminary Cleanup Levels	SP-M2-3			SP-M2-4			SP-M2-5			SP-W1-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		12/21/2011			12/21/2011			12/21/2011			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)													
benzo[a]anthracene	TEQ	**0.32**	0.1	0.032	**0.061**	0.1	0.0061	**0.037**	0.1	0.0037	**0.058**	0.1	**0.0058**
benzo[a]pyrene	0.140	**0.09**	1	0.09	**0.049**	1	0.049	**0.025**	1	0.025	**0.024**	1	**0.024**
total benzofluoranthenes	TEQ	**0.49**	0.1	0.049	**0.23**	0.1	0.023	**0.095**	0.1	0.0095	**0.099**	0.1	**0.0099**
chrysene	TEQ	**0.56**	0.01	0.0056	**0.12**	0.01	0.0012	**0.069**	0.01	0.00069	**0.11**	0.01	**0.0011**
dibenzo[a,h]anthracene	TEQ	**0.03**	0.1	0.003	**0.0098**	0.1	0.00098	**0.0065**	0.1	0.00065	**0.0032**	0.1	**0.00032**
indeno[1,2,3-cd]pyrene	TEQ	**0.064**	0.1	0.0064	**0.029**	0.1	0.0029	**0.016**	0.1	0.0016	**0.0086**	0.1	**0.00086**
Total TEQ	0.140			**0.186**			**0.083**			**0.041**			**0.042**

Soil Pile: SP-C Volume: 10 CY

No soil samples collected for SP-C

Soil Pile: SP-D Volume: 140 CY

Sample Name	Preliminary Cleanup Levels	SP-M3-C		
Sample Depth		0.5 to 1 ft bgs		
Sample Date		6/2/2009		
		Value	TEF	TEQ
cPAHs in soil (mg/Kg)				
benzo[a]anthracene	TEQ	**0.087**	0.1	0.0087
benzo[a]pyrene	0.140	**0.076**	1	0.076
total benzofluoranthenes	TEQ	**0.107**	0.1	0.0107
chrysene	TEQ	**0.084**	0.01	0.00084
dibenzo[a,h]anthracene	TEQ	**0.01**	0.1	0.001
indeno[1,2,3-cd]pyrene	TEQ	**0.017**	0.1	0.0017
Total TEQ	0.140			**0.099**

Soil Pile: SP-E Volume: 1,000 CY

Sample Name	Preliminary Cleanup Levels	SP-M2-6			SP-M2-7			SP-M2-8			SP-M2-9			SP-M2-10			SP-M2-13			SP-M2-14*			SP-M2-15			SP-M2-16			SP-M2-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		2/1/2012			2/1/2012			2/1/2012			2/1/2012			2/1/2012			2/1/2012			2/1/2012			2/1/2012			2/1/2012			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)																															
benzo[a]anthracene	TEQ	**0.11**	0.1	**0.011**	**0.12**	0.1	**0.012**	**0.15**	0.1	0.015	**0.1**	0.1	0.01	**0.11**	0.1	0.011	**0.049**	0.1	0.0049	**0.99**	0.1	0.099	**0.024**	0.1	0.0024	**0.14**	0.1	0.014	**0.18**	0.1	0.018
benzo[a]pyrene	0.140	**0.084**	1	**0.084**	**0.071**	1	**0.071**	**0.14**	1	0.14	**0.051**	1	0.051	**0.064**	1	0.064	**0.078**	1	0.078	**0.36**	1	0.36	**0.019**	1	0.019	**0.1**	1	0.1	**0.1**	1	0.1
total benzofluoranthenes	TEQ	**0.29**	0.1	**0.029**	**0.35**	0.1	**0.035**	**0.46**	0.1	0.046	**0.24**	0.1	0.024	**0.25**	0.1	0.025	**0.23**	0.1	0.023	**1.5**	0.1	0.15	**0.055**	0.1	0.0055	**0.38**	0.1	0.038	**0.36**	0.1	0.036
chrysene	TEQ	**0.18**	0.01	**0.0018**	**0.24**	0.01	**0.0024**	**0.31**	0.01	0.0031	**0.24**	0.01	0.0024	**0.19**	0.01	0.0019	**0.12**	0.01	0.0012	**2**	0.01	0.02	**0.062**	0.01	0.00062	**0.3**	0.01	0.003	**0.31**	0.01	0.0031
dibenzo[a,h]anthracene	TEQ	**0.022**	0.1	**0.0022**	**0.022**	0.1	**0.0022**	**0.028**	0.1	0.0028	**0.016**	0.1	0.0016	**0.016**	0.1	0.0016	**0.019**	0.1	0.0019	**0.066**	0.1	0.0066	**0.0048**	0.1	0.00048	**0.023**	0.1	0.0023	**0.013**	0.1	0.0013
indeno[1,2,3-cd]pyrene	TEQ	**0.06**	0.1	**0.006**	**0.057**	0.1	**0.0057**	**0.074**	0.1	0.0074	**0.036**	0.1	0.0036	**0.047**	0.1	0.0047	**0.06**	0.1	0.006	**0.17**	0.1	0.017	**0.012**	0.1	0.0012	**0.055**	0.1	0.0055	**0.043**	0.1	0.0043
Total TEQ	0.140			**0.134**			**0.128**			**0.214**			**0.093**			**0.108**			**0.115**			**0.653**			**0.029**			**0.163**			**0.163**

Soil Pile: SP-F Volume: 1,380 CY

Sample Name	Preliminary Cleanup Levels	SP-F-1			SP-F-2			SP-F-3			SP-F-4			SP-F-5*			SP-F-6			SP-F-7			SP-F-8			SP-F-9			SP-F-10		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012		
		Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)																															
benzo[a]anthracene	TEQ	**0.045**	0.1	**0.0045**	**0.041**	0.1	**0.0041**	**0.18**	0.1	0.018	**0.23**	0.1	0.023	**0.27**	0.1	0.027	**0.12**	0.1	**0.012**	**0.18**	0.1	**0.018**	**0.027**	0.1	0.0027	**0.064**	0.1	0.0064	**0.028**	0.1	0.0028
benzo[a]pyrene	0.140	**0.069**	1	**0.069**	**0.058**	1	**0.058**	**0.12**	1	0.12	**0.14**	1	0.14	**0.18**	1	0.18	**0.051**	1	**0.051**	**0.11**	1	**0.11**	**0.02**	1	0.02	**0.091**	1	0.091	**0.058**	1	0.058
total benzofluoranthenes	TEQ	**0.12**	0.1	**0.012**	**0.11**	0.1	**0.011**	**0.48**	0.1	0.048	**0.44**	0.1	0.044	**0.73**	0.1	0.073	**0.28**	0.1	**0.028**	**0.46**	0.1	**0.046**	**0.088**	0.1	0.0088	**0.16**	0.1	0.016	**0.18**	0.1	0.018
chrysene	TEQ	**0.055**	0.01	**0.00055**	**0.057**	0.01	**0.00057**	**0.3**	0.01	0.003	**0.37**	0.01	0.0037	**0.56**	0.01	0.0056	**0.2**	0.01	**0.002**	**0.32**	0.01	**0.0032**	**0.06**	0.01	0.0006	**0.069**	0.01	0.00069	**0.084**	0.01	0.00084
dibenzo[a,h]anthracene	TEQ	**0.013**	0.1	**0.0013**	**0.012**	0.1	**0.0012**	<0.028	0.1	0.0014	**0.03**	0.1	0.003	**0.028**	0.1	0.0028	**0.013**	0.1	**0.0013**	**0.025**	0.1	**0.0025**	**<0.0047**	0.1	0.000235	**0.017**	0.1	0.0017	**0.018**	0.1	0.0018
indeno[1,2,3-cd]pyrene	TEQ	**0.049**	0.1	**0.0049**	**0.039**	0.1	**0.0039**	**0.064**	0.1	0.0064	**0.075**	0.1	0.0075	**0.1**	0.1	0.01	**0.037**	0.1	**0.0037**	**0.07**	0.1	**0.007**	**0.012**	0.1	0.0012	**0.06**	0.1	0.006	**0.063**	0.1	0.0063
Total TEQ	0.140			**0.092**			**0.079**			**0.197**			**0.221**			**0.298**			**0.098**			**0.187**			**0.034**			**0.122**			**0.088**

Table 1 - Soil Stockpile Analytical Summary Table
cPAHs
Bay Wood Products Site, Port of Everett, Everett, WA

Soil Pile: SP-G Volume: 170 CY

Sample Name	Preliminary Cleanup Levels	SP-E6-C		
Sample Depth		0.5 to 1 ft bgs		
Sample Date		6/2/2009		
		Value	TEF	TEQ
cPAHs in soil (mg/Kg)				
benzo[a]anthracene	TEQ	**0.023**	0.1	0.0023
benzo[a]pyrene	0.140	**0.022**	1	0.022
total benzofluoranthenes	TEQ	**0.043**	0.1	0.0043
chrysene	TEQ	**0.022**	0.01	0.00022
dibenzo[a,h]anthracene	TEQ	**0.005**	0.1	0.0005
indeno[1,2,3-cd]pyrene	TEQ	**0.014**	0.1	0.0014
Total TEQ	0.140			**0.031**

Soil Pile: SP-H Volume: 160 CY

Sample Name	Preliminary Cleanup Levels	SP-H-1*			SP-H-2		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		3/27/2012			3/27/2012		
		Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)							
benzo[a]anthracene	TEQ	**2.6**	0.1	0.26	**0.13**	0.1	0.013
benzo[a]pyrene	0.140	**2**	1	2	**0.2**	1	0.2
total benzofluoranthenes	TEQ	**6.3**	0.1	0.63	**0.64**	0.1	0.064
chrysene	TEQ	**5.3**	0.01	0.053	**0.4**	0.01	0.004
dibenzo[a,h]anthracene	TEQ	**0.22**	0.1	0.022	**0.041**	0.1	0.0041
indeno[1,2,3-cd]pyrene	TEQ	**1**	0.1	0.1	**0.16**	0.1	0.016
Total TEQ	0.140			**3.065**			**0.301**

Soil Pile: SP-I Volume: 50 CY

Sample Name	Preliminary Cleanup Levels	SP-E7-C		
Sample Depth		0.5 to 1 ft bgs		
Sample Date		6/2/2009		
		Value	TEF	TEQ
cPAHs in soil (mg/Kg)				
benzo[a]anthracene	TEQ	**0.14**	0.1	0.014
benzo[a]pyrene	0.140	**0.08**	1	0.08
total benzofluoranthenes	TEQ	**0.212**	0.1	0.0212
chrysene	TEQ	**0.097**	0.01	0.00097
dibenzo[a,h]anthracene	TEQ	**0.014**	0.1	0.0014
indeno[1,2,3-cd]pyrene	TEQ	**0.028**	0.1	0.0028
Total TEQ	0.140			**0.120**

Soil Pile: SP-J Volume: 40 CY

Sample Name	Preliminary Cleanup Levels	SP-J-1		
Sample Depth		0.5 to 1 ft bgs		
Sample Date		3/27/2012		
		Value	TEF	TEQ
cPAHs in soil (mg/Kg)				
benzo[a]anthracene	TEQ	**0.012**	0.1	0.0012
benzo[a]pyrene	0.140	**0.015**	1	0.015
total benzofluoranthenes	TEQ	**0.036**	0.1	0.0036
chrysene	TEQ	**0.022**	0.01	0.00022
dibenzo[a,h]anthracene	TEQ	**<0.0048**	0.1	0.00024
indeno[1,2,3-cd]pyrene	TEQ	**0.011**	0.1	0.0011
Total TEQ	0.140			**0.021**

Soil Pile: SP-K Volume: 260 CY

Sample Name	Preliminary Cleanup Levels	SP-K-1*			SP-K-2*			SP-M1-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		3/27/2012			3/27/2012			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)										
benzo[a]anthracene	TEQ	**0.25**	0.1	**0.025**	**0.52**	0.1	**0.052**	**0.15**	0.1	**0.015**
benzo[a]pyrene	0.140	**0.099**	1	**0.099**	**0.2**	1	**0.2**	**0.072**	1	**0.072**
total benzofluoranthenes	TEQ	**0.45**	0.1	**0.045**	**0.98**	0.1	**0.098**	**0.3**	0.1	**0.03**
chrysene	TEQ	**0.61**	0.01	**0.0061**	**1**	0.01	**0.01**	**0.2**	0.01	**0.002**
dibenzo[a,h]anthracene	TEQ	**0.018**	0.1	**0.0018**	**0.041**	0.1	**0.0041**	**0.016**	0.1	**0.0016**
indeno[1,2,3-cd]pyrene	TEQ	**0.052**	0.1	**0.0052**	**0.12**	0.1	**0.012**	**0.035**	0.1	**0.0035**
Total TEQ	0.140			**0.182**			**0.376**			**0.124**

Table 1 - Soil Stockpile Analytical Summary Table
cPAHs
Bay Wood Products Site, Port of Everett, Everett, WA

Soil Pile: SP-L Volume: 130 CY

Sample Name	Preliminary Cleanup Levels	SP-L-1		
Sample Depth		0.5 to 1 ft bgs		
Sample Date		3/27/2012		
		Value	TEF	TEQ
cPAHs in soil (mg/Kg)				
benzo[a]anthracene	TEQ	**0.027**	0.1	0.0027
benzo[a]pyrene	0.140	**0.04**	1	0.04
total benzofluoranthenes	TEQ	**0.11**	0.1	0.011
chrysene	TEQ	**0.073**	0.01	0.00073
dibenzo[a,h]anthracene	TEQ	**0.017**	0.1	0.0017
indeno[1,2,3-cd]pyrene	TEQ	**0.055**	0.1	0.0055
Total TEQ	0.140			**0.062**

Soil Pile: SP-M

Renamed SP-R

Soil Pile: SP-N Volume: 100 CY

Sample Name	Preliminary Cleanup Levels	SP-N-1			SP-E5-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		3/27/2012			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)							
benzo[a]anthracene	TEQ	**0.14**	0.1	0.014	**0.1**	0.1	0.01
benzo[a]pyrene	0.140	**0.051**	1	0.051	**0.038**	1	0.038
total benzofluoranthenes	TEQ	**0.21**	0.1	0.021	**0.142**	0.1	0.0142
chrysene	TEQ	**0.38**	0.01	0.0038	**0.13**	0.01	0.0013
dibenzo[a,h]anthracene	TEQ	**0.012**	0.1	0.0012	**0.012**	0.1	0.0012
indeno[1,2,3-cd]pyrene	TEQ	**0.033**	0.1	0.0033	**0.023**	0.1	0.0023
Total TEQ	0.140			**0.094**			**0.067**

Soil Pile: SP-O Volume: 2,610 CY

Sample Name	Preliminary Cleanup Levels	SP-O-1			SP-O-2*			SP-O-3			SP-O-4*			SP-O-5			SP-O-6			SP-O-7			SP-O-8			SP-O-9*			SP-O-10			SP-E4-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			3/27/2012			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)																																	
benzo[a]anthracene	TEQ	**0.15**	0.1	**0.015**	**0.45**	0.1	**0.045**	**0.17**	0.1	**0.017**	**0.3**	0.1	**0.03**	**0.16**	0.1	**0.016**	**0.1**	0.1	**0.01**	**0.033**	0.1	**0.0033**	**0.13**	0.1	**0.013**	**0.34**	0.1	**0.034**	**0.18**	0.1	**0.018**	**0.15**	0.1	**0.015**
benzo[a]pyrene	0.140	**0.1**	1	**0.1**	**0.77**	1	**0.77**	**0.16**	1	**0.16**	**0.18**	1	**0.18**	**0.13**	1	**0.13**	**0.086**	1	**0.086**	**0.04**	1	**0.04**	**0.082**	1	**0.082**	**0.14**	1	**0.14**	**0.12**	1	**0.12**	**0.08**	1	**0.08**
total benzofluoranthenes	TEQ	**0.44**	0.1	**0.044**	**1.2**	0.1	**0.12**	**0.43**	0.1	**0.043**	**0.79**	0.1	**0.079**	**0.85**	0.1	**0.085**	**0.31**	0.1	**0.031**	**0.087**	0.1	**0.0087**	**0.25**	0.1	**0.025**	**0.65**	0.1	**0.065**	**0.55**	0.1	**0.055**	**0.305**	0.1	**0.0305**
chrysene	TEQ	**0.29**	0.01	**0.0029**	**0.68**	0.01	**0.0068**	**0.36**	0.01	**0.0036**	**0.83**	0.01	**0.0083**	**0.48**	0.01	**0.0048**	**0.21**	0.01	**0.0021**	**0.043**	0.01	**0.00043**	**0.23**	0.01	**0.0023**	**0.73**	0.01	**0.0073**	**0.45**	0.01	**0.0045**	**0.24**	0.01	**0.0024**
dibenzo[a,h]anthracene	TEQ	**0.027**	0.1	**0.0027**	**0.14**	0.1	**0.014**	**0.027**	0.1	**0.0027**	**0.035**	0.1	**0.0035**	**0.039**	0.1	**0.0039**	**0.019**	0.1	**0.0019**	**0.0061**	0.1	**0.00061**	**0.017**	0.1	**0.0017**	**0.03**	0.1	**0.003**	**0.028**	0.1	**0.0028**	**0.019**	0.1	**0.0019**
indeno[1,2,3-cd]pyrene	TEQ	**0.072**	0.1	**0.0072**	**0.48**	0.1	**0.048**	**0.076**	0.1	**0.0076**	**0.086**	0.1	**0.0086**	**0.1**	0.1	**0.01**	**0.054**	0.1	**0.0054**	**0.019**	0.1	**0.0019**	**0.052**	0.1	**0.0052**	**0.083**	0.1	**0.0083**	**0.072**	0.1	**0.0072**	**0.037**	0.1	**0.0037**
Total TEQ	0.140			**0.172**			**1.004**			**0.234**			**0.309**			**0.250**			**0.136**			**0.055**			**0.129**			**0.258**			**0.208**			**0.134**

Soil Pile: SP-P Volume: 10 CY

Sample Name	Preliminary Cleanup Levels	SP-M5-C		
Sample Depth		0.5 to 1 ft bgs		
Sample Date		6/2/2009		
		Value	TEF	TEQ
cPAHs in soil (mg/Kg)				
benzo[a]anthracene	TEQ	**0.011**	0.1	0.0011
benzo[a]pyrene	0.140	**0.006**	1	0.006
total benzofluoranthenes	TEQ	**0.025**	0.1	0.0025
chrysene	TEQ	**0.022**	0.01	0.00022
dibenzo[a,h]anthracene	TEQ	**0.001**	0.1	0.0001
indeno[1,2,3-cd]pyrene	TEQ	**0.003**	0.1	0.0003
Total TEQ	0.140			**0.010**

Soil Pile: SP-Q Volume: 1,200 CY

Sample Name	Preliminary Cleanup Levels	SP-E1-1			SP-E1-2			SP-E1-5			SP-E1-6			SP-E1-7*			SP-E1-8			SP-E1-9*			SP-E1-10			SP-E1-11			SP-E1-12			SP-E1-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		12/21/2011			12/21/2011			12/21/2011			12/21/2011			12/21/2011			12/21/2011			12/21/2011			12/21/2011			12/21/2011			12/21/2011			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)																																	
benzo[a]anthracene	TEQ	**0.16**	0.1	**0.016**	**0.12**	0.1	**0.012**	**0.0048**	0.1	**0.00048**	**0.3**	0.1	**0.03**	**0.45**	0.1	**0.045**	**0.14**	0.1	**0.014**	**0.48**	0.1	**0.048**	**0.097**	0.1	**0.0097**	**0.18**	0.1	**0.018**	**0.11**	0.1	**0.011**	**0.75**	0.1	**0.075**
benzo[a]pyrene	0.140	**0.054**	1	**0.054**	**0.042**	1	**0.042**	<0.0047	1	0.00235	**0.14**	1	**0.14**	**0.09**	1	**0.09**	**0.08**	1	**0.08**	**0.15**	1	**0.15**	**0.054**	1	**0.054**	**0.11**	1	**0.11**	**0.1**	1	**0.1**	**0.15**	1	**0.15**
total benzofluoranthenes	TEQ	**0.36**	0.1	**0.036**	**0.27**	0.1	**0.027**	**0.013**	0.1	**0.0013**	**0.77**	0.1	**0.077**	**0.58**	0.1	**0.058**	**0.51**	0.1	**0.051**	**0.82**	0.1	**0.082**	**0.28**	0.1	**0.028**	**0.6**	0.1	**0.06**	**0.29**	0.1	**0.029**	**0.71**	0.1	**0.071**
chrysene	TEQ	**0.31**	0.01	**0.0031**	**0.21**	0.01	**0.0021**	**0.0083**	0.01	**0.000083**	**0.59**	0.01	**0.0059**	**0.67**	0.01	**0.0067**	**0.31**	0.01	**0.0031**	**0.75**	0.01	**0.0075**	**0.21**	0.01	**0.0021**	**0.42**	0.01	**0.0042**	**0.21**	0.01	**0.0021**	**0.82**	0.01	**0.0082**
dibenzo[a,h]anthracene	TEQ	**0.02**	0.1	**0.002**	**0.015**	0.1	**0.0015**	<0.0047	0.1	0.000235	**0.039**	0.1	**0.0039**	**0.03**	0.1	**0.003**	**0.028**	0.1	**0.0028**	**0.049**	0.1	**0.0049**	**0.014**	0.1	**0.0014**	**0.028**	0.1	**0.0028**	**0.02**	0.1	**0.002**	**0.032**	0.1	**0.0032**
indeno[1,2,3-cd]pyrene	TEQ	**0.05**	0.1	**0.005**	**0.034**	0.1	**0.0034**	<0.0047	0.1	0.000235	**0.11**	0.1	**0.011**	**0.069**	0.1	**0.0069**	**0.067**	0.1	**0.0067**	**0.11**	0.1	**0.011**	**0.035**	0.1	**0.0035**	**0.08**	0.1	**0.008**	**0.055**	0.1	**0.0055**	**0.065**	0.1	**0.0065**
Total TEQ	0.140			**0.116**			**0.088**			**0.005**			**0.268**			**0.210**			**0.158**			**0.303**			**0.099**			**0.203**			**0.150**			**0.314**

Table 1 - Soil Stockpile Analytical Summary Table
cPAHs
Bay Wood Products Site, Port of Everett, Everett, WA

Soil Pile: SP-Q (Continued)

Sample Name	Preliminary Cleanup Levels	SP-E2-C			SP-E3-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		6/2/2009			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)							
benzo[a]anthracene	TEQ	**0.072**	0.1	**0.0072**	**0.051**	0.1	**0.0051**
benzo[a]pyrene	0.140	**0.04**	1	**0.04**	**0.026**	1	**0.026**
total benzofluoranthenes	TEQ	**0.134**	0.1	**0.0134**	**0.105**	0.1	**0.0105**
chrysene	TEQ	**0.15**	0.01	**0.0015**	**0.089**	0.01	**0.00089**
dibenzo[a,h]anthracene	TEQ	**0.012**	0.1	**0.0012**	**0.01**	0.1	**0.001**
indeno[1,2,3-cd]pyrene	TEQ	**0.026**	0.1	**0.0026**	**0.022**	0.1	**0.0022**
Total TEQ	0.140			**0.066**			**0.046**

Soil Pile: SP-R Volume: 710 CY

Sample Name	Preliminary Cleanup Levels	SP-R-1			SP-R-2			SP-R-3			SP-M4-C		
Sample Depth		0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs			0.5 to 1 ft bgs		
Sample Date		3/27/2012			3/27/2012			3/27/2012			6/2/2009		
		Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ	Value	TEF	TEQ
cPAHs in soil (mg/Kg)													
benzo[a]anthracene	TEQ	**0.075**	0.1	0.0075	**0.15**	0.1	0.015	**0.048**	0.1	0.0048	**0.05**	0.1	**0.005**
benzo[a]pyrene	0.140	**0.048**	1	0.048	**0.1**	1	0.1	**0.057**	1	0.057	**0.032**	1	**0.032**
total benzofluoranthenes	TEQ	**0.18**	0.1	0.018	**0.39**	0.1	0.039	**0.19**	0.1	0.019	**0.094**	0.1	**0.0094**
chrysene	TEQ	**0.12**	0.01	0.0012	**0.33**	0.01	0.0033	**0.11**	0.01	0.0011	**0.06**	0.01	**0.0006**
dibenzo[a,h]anthracene	TEQ	**0.0085**	0.1	0.00085	**0.022**	0.1	0.0022	**0.01**	0.1	0.001	**0.006**	0.1	**0.0006**
indeno[1,2,3-cd]pyrene	TEQ	**0.028**	0.1	0.0028	**0.057**	0.1	0.0057	**0.027**	0.1	0.0027	**0.011**	0.1	**0.0011**
Total TEQ	0.140			**0.078**			**0.165**			**0.086**			**0.049**

Notes:

Data presented in milligrams per kilogram (mg/Kg)

Shading indicates detected concentration greater than PCL

BOLD indicates detected above laboratory detection limit

Value - Concentrations identified by analytical laboratory

TEF - Toxicity Equivalency Factor (TEF) as presented in Ecology memo: Evaluating the Toxicity and Assessing the Carcinogenic Risk of Environmental Mixtures Using Toxicity Equivalency Factors

TEQ - TEQ for individual congeners

<0.058 indicates detected below the detection limit of 0.058 mg/kg

A - Volume estimate provided by GeoEngineers to Port of Everett on January 30, 2012, based on January 25, 2012 site visit.

B - Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) by EPA Method 8270 SIM

* Dilution required to obtain an accurate quantification of the analyte.

Table 2 -Geoprobe Boring Analytical Summary Table
PCBs and TPH-Dx
Bay Wood Products Site, Port of Everett, Everett, WA

Sample Name	PB-3CR-3.5-4.0	PB-3CR-5.5-6.0	PB-5AR-3.75-4.75	Preliminary Cleanup Level
Sample Depth (ft)	**3.5 - 4.0**	**5.5 - 6.0**	**3.75 - 4.75**	
Sample Date	**12/21/2011**	**12/21/2011**	**12/21/2011**	
Polychlorinated Biphenyls (PCBs) [A] (mg/Kg)				
aroclor 1016	<0.0095	<0.0096	<0.0096	--
aroclor 1221	<0.0095	<0.0096	<0.0096	--
aroclor 1232	<0.0095	<0.0096	<0.0096	--
aroclor 1242	<0.0095	<0.0096	<0.0096	--
aroclor 1248	<0.0095	<0.0096	<0.0096	--
aroclor 1254	<0.0095	<0.0096	<0.0096	--
aroclor 1260	<0.0095	<0.0096	<0.0096	--
Total PCBs	ND	ND	ND	0.0005[B]
Total Petroleum Hydrocarbons (TPH) [C] mg/Kg				
Diesel Range Organics	**16**	**690**	23	460
Heavy Oil Range Organics	**60**	**550**	27	460

Notes:

Data presented in milligrams per kilogram (mg/Kg)

Shading indicates detected concentration greater than Preliminary Cleanup Level

BOLD indicates detected above laboratory detection limit

<0.0095 indicates detected below the detection limit of 0.058 mg/kg

A - PCBs per EPA Method 8082

B - PCB value is a total value for all PCBs

C - Total Petroleum Hydrocarbons Diesel and Residual Range per NWTPH-Dx Method

Appendix 1

Laboratory Analytical Reports

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UC38

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-E1-1
SAMPLE

Lab Sample ID: UC38A
LIMS ID: 11-29360
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 17:26
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.78 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 23.3%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.6**	**160**
218-01-9	**Chrysene**	**4.6**	**310**
50-32-8	**Benzo(a)pyrene**	**4.6**	**54**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.6**	**50**
53-70-3	**Dibenz(a,h)anthracene**	**4.6**	**20**
TOTBFA	**Total Benzofluoranthenes**	**4.6**	**360**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracen	67.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-E1-2
SAMPLE

Lab Sample ID: UC38B
LIMS ID: 11-29361
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 17:50
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.95 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 23.2%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.6**	**120**
218-01-9	**Chrysene**	**4.6**	**210**
50-32-8	**Benzo(a)pyrene**	**4.6**	**42**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.6**	**34**
53-70-3	**Dibenz(a,h)anthracene**	**4.6**	**15**
TOTBFA	**Total Benzofluoranthenes**	**4.6**	**270**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.3%
d14-Dibenzo(a,h)anthracen	80.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-E1-5
SAMPLE

Lab Sample ID: UC38E
LIMS ID: 11-29364
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 18:15
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.73 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 11.1%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.7**	**4.8**
218-01-9	**Chrysene**	**4.7**	**8.3**
50-32-8	Benzo(a)pyrene	4.7	< 4.7 U
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	< 4.7 U
53-70-3	Dibenz(a,h)anthracene	4.7	< 4.7 U
TOTBFA	**Total Benzofluoranthenes**	**4.7**	**13**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	58.3%
d14-Dibenzo(a,h)anthracen	95.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-E1-6
SAMPLE

Lab Sample ID: UC38F
LIMS ID: 11-29365
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 19:30
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.56 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 30.1%

CAS Number	Analyte	RL	Result	
56-55-3	**Benzo(a)anthracene**	**4.7**	**300**	
218-01-9	**Chrysene**	**4.7**	**590**	**E**
50-32-8	**Benzo(a)pyrene**	**4.7**	**140**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.7**	**110**	
53-70-3	**Dibenz(a,h)anthracene**	**4.7**	**39**	
TOTBFA	**Total Benzofluoranthenes**	**4.7**	**770**	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	64.3%
d14-Dibenzo(a,h)anthracen	77.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-E1-6
DILUTION

Lab Sample ID: UC38F
LIMS ID: 11-29365
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 17:29
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.56 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 30.1%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**14**	**320**
218-01-9	**Chrysene**	**14**	**640**
50-32-8	**Benzo(a)pyrene**	**14**	**160**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**14**	**110**
53-70-3	**Dibenz(a,h)anthracene**	**14**	**38**
TOTBFA	**Total Benzofluoranthenes**	**14**	**830**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	68.0%
d14-Dibenzo(a,h)anthracen	71.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-M2-1
SAMPLE

Lab Sample ID: UC38M
LIMS ID: 11-29372
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 19:55
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.87 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 23.3%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.6**	**160**
218-01-9	**Chrysene**	**4.6**	**270**
50-32-8	**Benzo(a)pyrene**	**4.6**	**94**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.6**	**56**
53-70-3	**Dibenz(a,h)anthracene**	**4.6**	**21**
TOTBFA	**Total Benzofluoranthenes**	**4.6**	**330**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	48.3%
d14-Dibenzo(a,h)anthracen	63.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-M2-3
SAMPLE

Lab Sample ID: UC38O
LIMS ID: 11-29374
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 20:19
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.22 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 27.9%

CAS Number	Analyte	RL	Result	
56-55-3	**Benzo(a)anthracene**	**4.9**	**320**	
218-01-9	**Chrysene**	**4.9**	**560**	**E**
50-32-8	**Benzo(a)pyrene**	**4.9**	**90**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.9**	**64**	
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**30**	
TOTBFA	**Total Benzofluoranthenes**	**4.9**	**490**	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.0%
d14-Dibenzo(a,h)anthracen	68.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-M2-3
DILUTION

Lab Sample ID: UC38O
LIMS ID: 11-29374
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 18:19
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.22 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 27.9%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**15**	**310**
218-01-9	**Chrysene**	**15**	**550**
50-32-8	**Benzo(a)pyrene**	**15**	**93**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**15**	**56**
53-70-3	**Dibenz(a,h)anthracene**	**15**	**25**
TOTBFA	**Total Benzofluoranthenes**	**15**	**470**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	54.0%
d14-Dibenzo(a,h)anthracen	62.0%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
SP-E1-1	59.0%	67.7%	0
SP-E1-2	59.3%	80.0%	0
MB-122811	61.3%	85.7%	0
LCS-122811	57.3%	97.0%	0
SP-E1-5	58.3%	95.0%	0
SP-E1-5 MS	58.7%	97.3%	0
SP-E1-5 MSD	55.3%	89.3%	0
SP-E1-6	64.3%	77.0%	0
SP-E1-6 DL	68.0%	71.0%	0
SP-M2-1	48.3%	63.7%	0
SP-M2-3	57.0%	68.3%	0
SP-M2-3 DL	54.0%	62.0%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 11-29360 to 11-29374

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: SP-E1-5
MATRIX SPIKE

Lab Sample ID: UC38E
LIMS ID: 11-29364
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted MS/MSD: 12/28/11

Date Analyzed MS: 01/03/12 18:40
MSD: 01/03/12 19:05
Instrument/Analyst MS: NT4/JZ
MSD: NT4/JZ

Sample Amount MS: 10.7 g-dry-wt
MSD: 10.8 g-dry-wt
Final Extract Volume MS: 0.50 mL
MSD: 0.50 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzo(a)anthracene	4.8	105	140	71.6%	93.5	139	63.8%	11.6%
Chrysene	8.3	111	140	73.4%	90.6	139	59.2%	20.2%
Benzo(a)pyrene	< 4.7 U	98.3	140	70.2%	93.3	139	67.1%	5.2%
Indeno(1,2,3-cd)pyrene	< 4.7 U	101	140	72.1%	96.4	139	69.4%	4.7%
Dibenz(a,h)anthracene	< 4.7 U	109	140	77.9%	102	139	73.4%	6.6%
Total Benzofluoranthenes	12.7	195	280	65.1%	186	279	62.1%	4.7%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-E1-5
MATRIX SPIKE

Lab Sample ID: UC38E
LIMS ID: 11-29364
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 18:40
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.73 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 11.1%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.7	---
218-01-9	Chrysene	4.7	---
50-32-8	Benzo(a)pyrene	4.7	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	---
53-70-3	Dibenz(a,h)anthracene	4.7	---
TOTBFA	Total Benzofluoranthenes	4.7	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	58.7%
d14-Dibenzo(a,h)anthracen	97.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-E1-5
MATRIX SPIKE DUPLICATE

Lab Sample ID: UC38E
LIMS ID: 11-29364
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 19:05
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.77 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 11.1%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	---
218-01-9	Chrysene	4.6	---
50-32-8	Benzo(a)pyrene	4.6	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	---
53-70-3	Dibenz(a,h)anthracene	4.6	---
TOTBFA	Total Benzofluoranthenes	4.6	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	55.3%
d14-Dibenzo(a,h)anthracen	89.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-122811
LAB CONTROL SAMPLE

Lab Sample ID: LCS-122811
LIMS ID: 11-29364
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 12/28/11
Date Analyzed LCS: 01/03/12 16:36
Instrument/Analyst LCS: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Benzo(a)anthracene	105	150	70.0%
Chrysene	100	150	66.7%
Benzo(a)pyrene	99.2	150	66.1%
Indeno(1,2,3-cd)pyrene	107	150	71.3%
Dibenz(a,h)anthracene	114	150	76.0%
Total Benzofluoranthenes	216	300	72.0%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.3%
d14-Dibenzo(a,h)anthracen	97.0%

4B

BLANK NO.

SEMIVOLATILE METHOD BLANK SUMMARY

UC38MBS1

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UC38 Project: BAY WOOD

Lab File ID: 01031203 Date Extracted: 12/28/11

Instrument ID: NT4 Date Analyzed: 01/03/12

Matrix: SOLID Time Analyzed: 1611

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UC38LCSS1	UC38LCSS1	01031204	01/03/12
02	SP-E1-1	UC38A	01031206	01/03/12
03	SP-E1-2	UC38B	01031207	01/03/12
04	SP-E1-5	UC38E	01031208	01/03/12
05	SP-E1-5 MS	UC38EMS	01031209	01/03/12
06	SP-E1-5 MSD	UC38EMSD	01031210	01/03/12
07	SP-E1-6	UC38F	01031211	01/03/12
08	SP-M2-1	UC38M	01031212	01/03/12
09	SP-M2-3	UC38O	01031213	01/03/12
10	SP-E1-6	UC38F	01041204	01/04/12
11	SP-M2-3	UC38O	01041206	01/04/12
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: MB-122811
METHOD BLANK

Lab Sample ID: MB-122811
LIMS ID: 11-29364
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC38-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 12/28/11
Date Analyzed: 01/03/12 16:11
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	61.3%
d14-Dibenzo(a,h)anthracen	85.7%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 11/21/11 DFTPP Injection Time: 0937

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.8
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	10.0 - 80.0% of mass 198	47.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	30.3
365	Greater than 1.0% of mass 198	4.03
441	0.0 - 24.0% of mass 442	22.6 (15.5)2
442	50.0 - 200.0% of mass 198	145.7
443	15.0 - 24.0% of mass 442	29.5 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC251121	IC251121	11211102	11/21/11	1109
02	IC011121	IC011121	11211103	11/21/11	1138
03	IC051121	IC051121	11211104	11/21/11	1206
04	IC11121	IC11121	11211105	11/21/11	1233
05	IC51121	IC51121	11211106	11/21/11	1301
06	IC101121	IC101121	11211107	11/21/11	1329
07					
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 01/03/12 DFTPP Injection Time: 1511

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	26.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	30.3
70	Less than 2.0% of mass 69	0.1 (0.3)1
127	10.0 - 80.0% of mass 198	43.5
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	31.9
365	Greater than 1.0% of mass 198	4.50
441	0.0 - 24.0% of mass 442	25.5 (14.5)2
442	50.0 - 200.0% of mass 198	175.4
443	15.0 - 24.0% of mass 442	34.5 (19.7)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0103	CC0103	01031202	01/03/12	1532
02	UC38MBS1	UC38MBS1	01031203	01/03/12	1611
03	UC38LCSS1	UC38LCSS1	01031204	01/03/12	1636
04	SP-E1-1	UC38A	01031206	01/03/12	1726
05	SP-E1-2	UC38B	01031207	01/03/12	1750
06	SP-E1-5	UC38E	01031208	01/03/12	1815
07	SP-E1-5 MS	UC38EMS	01031209	01/03/12	1840
08	SP-E1-5 MSD	UC38EMSD	01031210	01/03/12	1905
09	SP-E1-6	UC38F	01031211	01/03/12	1930
10	SP-M2-1	UC38M	01031212	01/03/12	1955
11	SP-M2-3	UC38O	01031213	01/03/12	2019
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 01/04/12 DFTPP Injection Time: 1600

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	27.8
70	Less than 2.0% of mass 69	0.1 (0.5)1
127	10.0 - 80.0% of mass 198	42.9
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	32.1
365	Greater than 1.0% of mass 198	4.60
441	0.0 - 24.0% of mass 442	27.1 (14.2)2
442	50.0 - 200.0% of mass 198	190.7
443	15.0 - 24.0% of mass 442	36.6 (19.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0104	CC0104	01041202	01/04/12	1632
02	SP-E1-6	UC38F	01041204	01/04/12	1729
03	SP-M2-3	UC38O	01041206	01/04/12	1819
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6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UC38 Project: BAY WOOD

Instrument ID: NT4 Calibration Date: 11/21/11

LAB FILE ID: RRF0.1=11211103 RRF0.5=11211104 RRF1 =11211105
RRF2.5=11211102 RRF5 =11211106 RRF10 =11211107

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	___ RRF	%RSD /R^2
Naphthalene	1.153	0.967	0.977	0.932	0.878	0.888	0.966	10.4
2-Methylnaphthalene	0.679	0.543	0.555	0.543	0.523	0.518	0.560	10.6
Acenaphthylene	1.836	1.390	1.450	1.504	1.467	1.554	1.534	10.3
Acenaphthene	1.334	1.033	1.037	0.992	0.967	1.018	1.064	12.7
Dibenzofuran	1.825	1.445	1.525	1.442	1.412	1.468	1.520	10.2
Fluorene	1.534	1.146	1.140	1.112	1.104	1.170	1.201	13.7
Phenanthrene	1.325	1.042	1.022	0.972	0.978	0.987	1.054	12.8
Anthracene	1.218	0.930	0.919	0.944	0.927	0.998	0.989	11.7
Fluoranthene	1.565	1.109	1.078	1.047	1.038	1.075	1.152	17.7
Pyrene	1.331	0.968	0.958	0.949	0.923	0.976	1.018	15.2
Benzo(a)anthracene	1.283	0.858	0.883	0.864	0.857	0.913	0.943	17.8
Chrysene	1.381	0.920	0.933	0.875	0.874	0.920	0.984	19.9
Benzo(b)fluoranthene	1.416	0.927	0.958	0.915	0.909	1.016	1.024	19.2
Benzo(k)fluoranthene	1.180	0.947	1.027	0.978	0.923	0.998	1.009	9.1
Benzo(j)fluoranthene	0.908	0.916	0.897	0.808	0.863	0.938	0.888	5.2
Benzo(a)pyrene	0.738	0.792	0.885	0.888	0.907	1.019	0.872	11.2
Indeno(1,2,3-cd)pyrene	1.298	0.986	1.024	1.120	1.192	1.336	1.159	12.3
Dibenzo(a,h)anthracene	0.847	0.718	0.842	0.888	0.958	1.116	0.895	14.9
Benzo(g,h,i)perylene	1.255	0.944	1.071	1.041	1.073	1.179	1.094	9.9
1-methylnaphthalene	0.711	0.540	0.539	0.508	0.499	0.494	0.548	14.9
Perylene	1.167	0.908	0.940	0.895	0.907	1.011	0.971	10.8
2-Methylnaphthalene-d10	0.735	0.614	0.601	0.570	0.558	0.557	0.606	11.2
Dibenzo(a,h)anthracene-d14	0.593	0.558	0.640	0.717	0.782	0.926	0.703	19.4

<- Outside QC limits: %RSD <20% or R^2 > 0.990

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UC38 Project: BAY WOOD

Instrument ID: NT4 Cont. Calib. Date: 01/03/12

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1532

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	0.966	0.920	0.700	AVRG	-4.8	
2-Methylnaphthalene	0.560	0.563	0.400	AVRG	0.5	
Acenaphthylene	1.534	1.568	0.900	AVRG	2.2	
Acenaphthene	1.064	1.008	0.900	AVRG	-5.3	
Dibenzofuran	1.520	1.456	0.800	AVRG	-4.2	
Fluorene	1.201	1.149	0.900	AVRG	-4.3	
Phenanthrene	1.054	0.956	0.700	AVRG	-9.3	
Anthracene	0.989	0.992	0.700	AVRG	0.3	
Fluoranthene	1.152	1.061	0.600	AVRG	-7.9	
Pyrene	1.018	0.903	0.600	AVRG	-11.3	
Benzo(a)anthracene	0.943	0.869	0.800	AVRG	-7.8	
Chrysene	0.984	0.860	0.700	AVRG	-12.6	
Benzo(b)fluoranthene	1.024	0.979	0.700	AVRG	-4.4	
Benzo(k)fluoranthene	1.009	0.920	0.700	AVRG	-8.8	
Benzo(j)fluoranthene	0.888	0.832	0.010	AVRG	-6.3	
Benzo(a)pyrene	0.872	0.883	0.700	AVRG	1.3	
Indeno(1,2,3-cd)pyrene	1.159	1.227	0.500	AVRG	5.9	
Dibenzo(a,h)anthracene	0.895	1.005	0.400	AVRG	12.3	
Benzo(g,h,i)perylene	1.094	1.069	0.500	AVRG	-2.3	
1-methylnaphthalene	0.548	0.524	0.010	AVRG	-4.4	
Perylene	0.971	0.922	0.010	AVRG	-5.0	
2-Methylnaphthalene-d10	0.606	0.610	0.010	AVRG	0.7	
Dibenzo(a,h)anthracene-d14	0.703	0.912	0.010	AVRG	29.7	<-

<- Exceeds QC limit of 20% D
* RF less than minimum RF

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UC38 Project: BAY WOOD

Instrument ID: NT4 Cont. Calib. Date: 01/04/12

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1632

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Naphthalene	0.966	0.947	0.700	AVRG	-2.0
2-Methylnaphthalene	0.560	0.560	0.400	AVRG	0.0
Acenaphthylene	1.534	1.561	0.900	AVRG	1.8
Acenaphthene	1.064	0.996	0.900	AVRG	-6.4
Dibenzofuran	1.520	1.431	0.800	AVRG	-5.8
Fluorene	1.201	1.134	0.900	AVRG	-5.6
Phenanthrene	1.054	0.958	0.700	AVRG	-9.1
Anthracene	0.989	0.891	0.700	AVRG	-9.9
Fluoranthene	1.152	1.072	0.600	AVRG	-6.9
Pyrene	1.018	0.907	0.600	AVRG	-10.9
Benzo(a)anthracene	0.943	0.874	0.800	AVRG	-7.3
Chrysene	0.984	0.862	0.700	AVRG	-12.4
Benzo(b)fluoranthene	1.024	0.945	0.700	AVRG	-7.7
Benzo(k)fluoranthene	1.009	0.951	0.700	AVRG	-5.7
Benzo(j)fluoranthene	0.888	0.849	0.010	AVRG	-4.4
Benzo(a)pyrene	0.872	0.906	0.700	AVRG	3.9
Indeno(1,2,3-cd)pyrene	1.159	0.978	0.500	AVRG	-15.6
Dibenzo(a,h)anthracene	0.895	0.800	0.400	AVRG	-10.6
Benzo(g,h,i)perylene	1.094	0.949	0.500	AVRG	-13.2
1-methylnaphthalene	0.548	0.522	0.010	AVRG	-4.7
Perylene	0.971	0.895	0.010	AVRG	-7.8
2-Methylnaphthalene-d10	0.606	0.600	0.010	AVRG	-1.0
Dibenzo(a,h)anthracene-d14	0.703	0.702	0.010	AVRG	-0.1

<- Exceeds QC limit of 20% D
* RF less than minimum RF

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UC38 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 01/03/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	343604	5.50	195804	7.79	321226	9.76
	UPPER LIMIT	687208		391608		642452	
	LOWER LIMIT	171802		97902		160613	
	CCAL	314429	4.41	192529	6.64	336054	8.56
	UPPER LIMIT		4.91		7.14		9.06
	LOWER LIMIT		3.91		6.14		8.06
01	UC38MBS1	281103	4.41	168151	6.64	288980	8.56
02	UC38LCSS1	296925	4.40	180845	6.63	308253	8.55
03	SP-E1-1	251311	4.40	152052	6.63	275012	8.55
04	SP-E1-2	320712	4.40	199189	6.63	346293	8.55
05	SP-E1-5	291614	4.40	178421	6.63	318993	8.55
06	SP-E1-5 MS	310379	4.40	190352	6.63	334436	8.55
07	SP-E1-5 MSD	265179	4.40	161857	6.63	287398	8.55
08	SP-E1-6	306233	4.40	191469	6.63	338009	8.55
09	SP-M2-1	303110	4.41	189902	6.63	326377	8.55
10	SP-M2-3	320241	4.40	196772	6.63	346656	8.55
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25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UC38 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 01/03/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	375207	15.01	400310	18.86		
	UPPER LIMIT	750414		800620			
	LOWER LIMIT	187604		200155			
	CCAL	409251	12.91	434264	16.41		
	UPPER LIMIT		13.41		16.91		
	LOWER LIMIT		12.41		15.91		
01	UC38MBS1	355945	12.91	376711	16.41		
02	UC38LCSS1	379097	12.90	394334	16.40		
03	SP-E1-1	357770	12.90	389068	16.40		
04	SP-E1-2	457240	12.90	488129	16.41		
05	SP-E1-5	395126	12.89	415226	16.40		
06	SP-E1-5 MS	413308	12.90	428726	16.40		
07	SP-E1-5 MSD	354431	12.90	361267	16.40		
08	SP-E1-6	450684	12.90	508615	16.41		
09	SP-M2-1	419913	12.90	464935	16.40		
10	SP-M2-3	460013	12.90	500760	16.41		
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UC38 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 01/04/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	375207	15.01	400310	18.86		
	UPPER LIMIT	750414		800620			
	LOWER LIMIT	187604		200155			
	CCAL	420933	12.83	444939	16.31		
	UPPER LIMIT		13.33		16.81		
	LOWER LIMIT		12.33		15.81		
01	SP-E1-6	394255	12.82	427136	16.30		
02	SP-M2-3	426305	12.82	457153	16.30		
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UC38 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 01/04/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	343604	5.50	195804	7.79	321226	9.76
	UPPER LIMIT	687208		391608		642452	
	LOWER LIMIT	171802		97902		160613	
	CCAL	322871	4.36	197461	6.59	341696	8.51
	UPPER LIMIT		4.86		7.09		9.01
	LOWER LIMIT		3.86		6.09		8.01
01	SP-E1-6	278653	4.35	178025	6.58	304377	8.50
02	SP-M2-3	305911	4.35	192298	6.58	326416	8.50
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

PCB Analysis
Report and Summary QC Forms

ARI Job ID: UC39

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: PB-3CR-3.5-4.0
SAMPLE

Lab Sample ID: UC39A
LIMS ID: 11-29377
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 13:42
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 13.1 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 13.7%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	9.5	< 9.5 U
53469-21-9	Aroclor 1242	9.5	< 9.5 U
12672-29-6	Aroclor 1248	9.5	< 9.5 U
11097-69-1	Aroclor 1254	9.5	< 9.5 U
11096-82-5	Aroclor 1260	9.5	< 9.5 U
11104-28-2	Aroclor 1221	9.5	< 9.5 U
11141-16-5	Aroclor 1232	9.5	< 9.5 U
37324-23-5	Aroclor 1262	9.5	< 9.5 U
11100-14-4	Aroclor 1268	9.5	< 9.5 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	84.2%
Tetrachlorometaxylene	82.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
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Sample ID: PB-3CR-5.5-6.0
SAMPLE

Lab Sample ID: UC39B
LIMS ID: 11-29378
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 14:03
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 13.0 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 13.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	9.6	< 9.6 U
53469-21-9	Aroclor 1242	9.6	< 9.6 U
12672-29-6	Aroclor 1248	9.6	< 9.6 U
11097-69-1	Aroclor 1254	9.6	< 9.6 U
11096-82-5	Aroclor 1260	9.6	< 9.6 U
11104-28-2	Aroclor 1221	9.6	< 9.6 U
11141-16-5	Aroclor 1232	9.6	< 9.6 U
37324-23-5	Aroclor 1262	9.6	< 9.6 U
11100-14-4	Aroclor 1268	9.6	< 9.6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	84.2%
Tetrachlorometaxylene	82.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: PB-5AR-3.75-4.75
SAMPLE

Lab Sample ID: UC39C
LIMS ID: 11-29379
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 15:03
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 13.0 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 20.4%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	9.6	< 9.6 U
53469-21-9	Aroclor 1242	9.6	< 9.6 U
12672-29-6	Aroclor 1248	9.6	< 9.6 U
11097-69-1	Aroclor 1254	9.6	< 9.6 U
11096-82-5	Aroclor 1260	9.6	< 9.6 U
11104-28-2	Aroclor 1221	9.6	< 9.6 U
11141-16-5	Aroclor 1232	9.6	< 9.6 U
37324-23-5	Aroclor 1262	9.6	< 9.6 U
11100-14-4	Aroclor 1268	9.6	< 9.6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	84.2%
Tetrachlorometaxylene	79.2%

ANALYTICAL RESOURCES INCORPORATED

SW8082/PCB SOIL/SEDIMENT SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001

Client ID	DCBP % REC	DCBP LCL-UCL	TCMX % REC	TCMX LCL-UCL	TOT OUT
PB-3CR-3.5-4.0	84.2%	24-127	82.0%	34-109	0
MB-122811	87.2%	48-123	54.5%	43-107	0
LCS-122811	88.0%	48-123	74.2%	43-107	0
PB-3CR-5.5-6.0	84.2%	24-127	82.8%	34-109	0
PB-3CR-5.5-6.0 MS	85.0%	24-127	85.0%	34-109	0
PB-3CR-5.5-6.0 MSD	84.0%	24-127	83.8%	34-109	0
PB-5AR-3.75-4.75	84.2%	24-127	79.2%	34-109	0

Microwave (MARS) Control Limits PCBSMM
Prep Method: SW3546
Log Number Range: 11-29377 to 11-29379

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: PB-3CR-5.5-6.0
MS/MSD

Lab Sample ID: UC39B
LIMS ID: 11-29378
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted MS/MSD: 12/28/11

Sample Amount MS: 13.0 g-dry-wt
MSD: 13.3 g-dry-wt

Date Analyzed MS: 01/04/12 14:23
MSD: 01/04/12 14:43

Final Extract Volume MS: 2.5 mL
MSD: 2.5 mL

Instrument/Analyst MS: ECD7/JGR
MSD: ECD7/JGR

Dilution Factor MS: 1.00
MSD: 1.00

GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Silica Gel: No

Percent Moisture: 13.8%

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Aroclor 1016	< 9.6 U	74.0	96.8	76.4%	70.6	94.5	74.7%	4.7%
Aroclor 1260	< 9.6 U	84.6	96.8	87.4%	83.5	94.5	88.4%	1.3%

Results reported in µg/kg (ppb)
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: PB-3CR-5.5-6.0
MATRIX SPIKE

Lab Sample ID: UC39B
LIMS ID: 11-29378
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 14:23
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 13.0 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 13.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	9.6	---
53469-21-9	Aroclor 1242	9.6	< 9.6 U
12672-29-6	Aroclor 1248	9.6	< 9.6 U
11097-69-1	Aroclor 1254	9.6	< 9.6 U
11096-82-5	Aroclor 1260	9.6	---
11104-28-2	Aroclor 1221	9.6	< 9.6 U
11141-16-5	Aroclor 1232	9.6	< 9.6 U
37324-23-5	Aroclor 1262	9.6	< 9.6 U
11100-14-4	Aroclor 1268	9.6	< 9.6 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	85.0%
Tetrachlorometaxylene	85.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: PB-3CR-5.5-6.0
MATRIX SPIKE DUP

Lab Sample ID: UC39B
LIMS ID: 11-29378
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 14:43
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 13.3 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: 13.8%

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	9.4	---
53469-21-9	Aroclor 1242	9.4	< 9.4 U
12672-29-6	Aroclor 1248	9.4	< 9.4 U
11097-69-1	Aroclor 1254	9.4	< 9.4 U
11096-82-5	Aroclor 1260	9.4	---
11104-28-2	Aroclor 1221	9.4	< 9.4 U
11141-16-5	Aroclor 1232	9.4	< 9.4 U
37324-23-5	Aroclor 1262	9.4	< 9.4 U
11100-14-4	Aroclor 1268	9.4	< 9.4 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	84.0%
Tetrachlorometaxylene	83.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD **Sample ID: LCS-122811**
Page 1 of 1 **LAB CONTROL**

Lab Sample ID: LCS-122811
LIMS ID: 11-29378
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 13:02
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 12.5 g-dry-wt
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

Analyte	Lab Control	Spike Added	Recovery
Aroclor 1016	78.8	101	78.0%
Aroclor 1260	98.3	101	97.3%

PCB Surrogate Recovery

Decachlorobiphenyl	88.0%
Tetrachlorometaxylene	74.2%

Results reported in µg/kg (ppb)

PCB METHOD BLANK SUMMARY

BLANK NO. UC39MBS1

Lab Name: ANALYTICAL RESOURCES INC — Client: SLR

ARI Job No.: UC39 — Project: BAY WOOD

Lab Sample ID: UC39MBS1 — Lab File ID: 0104A011

Date Extracted: 12/28/11 — Matrix: SOLID

Date Analyzed: 01/04/12 — Instrument ID: ECD7

Time Analyzed: 1242 — GC Columns: ZB5/ZB35

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	UC39LCSS1	UC39LCSS1	01/04/12
02	PB-3CR-3.5-4.0	UC39A	01/04/12
03	PB-3CR-5.5-6.0	UC39B	01/04/12
04	PB-3CR-5.5-6.0 MS	UC39BMS	01/04/12
05	PB-3CR-5.5-6.0 MSD	UC39BMSD	01/04/12
06	PB-5AR-3.75-4.75	UC39C	01/04/12

ALL RUNS ARE DUAL COLUMN

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PSDDA PCB by GC/ECD
Page 1 of 1

Sample ID: MB-122811
METHOD BLANK

Lab Sample ID: MB-122811
LIMS ID: 11-29378
Matrix: Soil
Data Release Authorized:
Reported: 01/05/12

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 12/28/11
Date Analyzed: 01/04/12 12:42
Instrument/Analyst: ECD7/JGR
GPC Cleanup: No
Sulfur Cleanup: Yes
Acid Cleanup: Yes
Florisil Cleanup: No

Sample Amount: 12.5 g
Final Extract Volume: 2.50 mL
Dilution Factor: 1.00
Silica Gel: No

Percent Moisture: NA

CAS Number	Analyte	RL	Result
12674-11-2	Aroclor 1016	10	< 10 U
53469-21-9	Aroclor 1242	10	< 10 U
12672-29-6	Aroclor 1248	10	< 10 U
11097-69-1	Aroclor 1254	10	< 10 U
11096-82-5	Aroclor 1260	10	< 10 U
11104-28-2	Aroclor 1221	10	< 10 U
11141-16-5	Aroclor 1232	10	< 10 U
37324-23-5	Aroclor 1262	10	< 10 U
11100-14-4	Aroclor 1268	10	< 10 U

Reported in µg/kg (ppb)

PCB Surrogate Recovery

Decachlorobiphenyl	87.2%
Tetrachlorometaxylene	54.5%

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 01/03/12

SURROGATES

	RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX	6.22- 6.42	0.8644	0.9348	1.0032	1.0321	1.0618	1.0681	0.9940	8.0
DCB	14.79-14.99	1.1459	1.2328	1.2832	1.2654	1.2532	1.2263	1.2345	3.9

Aroclor-1016 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	8.23- 8.43	0.0235	0.0242	0.0255	0.0249	0.0246	0.0240	0.0244	2.8
2	8.71- 8.91	0.0763	0.0788	0.0831	0.0824	0.0827	0.0811	0.0807	3.3
3	8.89- 9.09	0.0325	0.0331	0.0345	0.0333	0.0329	0.0319	0.0330	2.6
4	9.02- 9.22	0.0218	0.0231	0.0239	0.0233	0.0231	0.0226	0.0230	3.1

AROCLOR AVERAGE %RSD = 3.0

Aroclor-1260 Peak	RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1	11.77-11.97	0.1138	0.1163	0.1190	0.1190	0.1192	0.1143	0.1169	2.1
2	12.37-12.57	0.0756	0.0780	0.0793	0.0792	0.0791	0.0755	0.0778	2.3
3	12.69-12.89	0.0737	0.0764	0.0786	0.0794	0.0800	0.0769	0.0775	3.0
4	13.42-13.62	0.0812	0.0857	0.0893	0.0906	0.0931	0.0908	0.0884	4.9
5	13.52-13.72	0.0350	0.0360	0.0368	0.0368	0.0366	0.0354	0.0361	2.1

AROCLOR AVERAGE %RSD = 2.9

6F

8082 INITIAL CALIBRATION OF AROCLOR 1016/1260

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 01/03/12

SURROGATES

RT WIN	LVL1	LVL2	LVL3	LVL4	LVL5	LVL6	MEAN	%RSD
TCX 6.34- 6.54	1.0654	1.0690	1.0973	1.0632	1.0523	1.0311	1.0631	2.0
DCB 15.12-15.32	1.5742	1.4522	1.3765	1.2721	1.2050	1.1524	1.3387	11.9

Aroclor-1016 Peak RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1 8.47- 8.67	0.0504	0.0474	0.0464	0.0420	0.0394	0.0364	0.0437	12.2
2 9.20- 9.40	0.0973	0.0942	0.0936	0.0876	0.0833	0.0787	0.0891	8.0
3 9.63- 9.83	0.0210	0.0245	0.0242	0.0228	0.0215	0.0202	0.0224	7.8
4 9.74- 9.94	0.0274	0.0300	0.0290	0.0262	0.0245	0.0227	0.0267	10.3

AROCLOR AVERAGE %RSD = 9.6

Aroclor-1260 Peak RT WIN	LVL1 .02	LVL2 0.05	LVL3 0.1	LVL4 .25	LVL5 0.5	LVL6 1.0	MEAN	%RSD R^2
1 12.76-12.96	0.1069	0.0997	0.0926	0.0841	0.0791	0.0720	0.0891	14.7
2 13.44-13.64	0.2211	0.2073	0.1992	0.1869	0.1827	0.1738	0.1952	8.9
3 13.93-14.13	0.1524	0.1453	0.1367	0.1255	0.1200	0.1126	0.1321	11.6
4 14.49-14.69	0.0487	0.0472	0.0491	0.0429	0.0394	0.0360	0.0439	12.3

AROCLOR AVERAGE %RSD = 11.9

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 01/03/12

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	6.770	6.67- 6.87	0.01018
2	6.983	6.88- 7.08	0.00751
3	7.106	7.01- 7.21	0.02573

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	8.328	8.23- 8.43	0.01002
2	8.816	8.72- 8.92	0.03282
3	8.989	8.89- 9.09	0.01359
4	10.301	10.20-10.40	0.01111

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	8.326	8.23- 8.43	0.01912
2	8.815	8.72- 8.92	0.06290
3	8.987	8.89- 9.09	0.02559
4	10.604	10.50-10.70	0.02148

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	9.383	9.28- 9.48	0.02552
2	9.714	9.61- 9.81	0.03047
3	10.299	10.20-10.40	0.03574
4	10.604	10.50-10.70	0.03377

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB5 Instrument ID: ECD7

Calibration Date: 01/03/12

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.364	10.26-10.46	0.04308
2	10.687	10.59-10.79	0.05731
3	11.070	10.97-11.17	0.03539
4	11.209	11.11-11.31	0.06971
5	11.926	11.83-12.03	0.04352

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.472	12.37-12.57	0.13391
2	12.787	12.69-12.89	0.09627
3	13.149	13.05-13.25	0.24557
4	13.618	13.52-13.72	0.07996
5	13.681	13.58-13.78	0.08369

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.618	13.52-13.72	0.24989
2	13.680	13.58-13.78	0.22635
3	14.002	13.90-14.10	0.18807
4	14.603	14.50-14.70	0.46290

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 01/03/12

Aroclor-1221			
Peak	RT	RT WIN	Cal Factor
1	7.270	7.17- 7.37	0.01263
2	7.571	7.47- 7.67	0.00726
3	7.710	7.61- 7.81	0.02184
4	7.795	7.70- 7.90	0.00368

Aroclor-1232			
Peak	RT	RT WIN	Cal Factor
1	8.576	8.48- 8.68	0.01985
2	9.306	9.21- 9.41	0.03797
3	9.733	9.63- 9.83	0.01013
4	11.196	11.10-11.30	0.01656

Aroclor-1242			
Peak	RT	RT WIN	Cal Factor
1	8.574	8.47- 8.67	0.03294
2	9.305	9.20- 9.40	0.06837
3	9.731	9.63- 9.83	0.01812
4	11.194	11.09-11.29	0.02853

Aroclor-1248			
Peak	RT	RT WIN	Cal Factor
1	9.838	9.74- 9.94	0.03189
2	10.284	10.18-10.38	0.03482
3	10.833	10.73-10.93	0.03540
4	11.193	11.09-11.29	0.04671

6G

8082 INITIAL CALIBRATION OF SINGLE POINT PCBs

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB35 Instrument ID: ECD7

Calibration Date: 01/03/12

Aroclor-1254			
Peak	RT	RT WIN	Cal Factor
1	10.900	10.80-11.00	0.03645
2	11.070	10.97-11.17	0.04584
3	11.606	11.51-11.71	0.03622
4	11.759	11.66-11.86	0.07690
5	12.546	12.45-12.65	0.04426

Aroclor-1262			
Peak	RT	RT WIN	Cal Factor
1	12.859	12.76-12.96	0.13839
2	13.301	13.20-13.40	0.11736
3	13.539	13.44-13.64	0.24502
4	13.981	13.88-14.08	0.09198
5	14.033	13.93-14.13	0.15081

Aroclor-1268			
Peak	RT	RT WIN	Cal Factor
1	13.980	13.88-14.08	0.23886
2	14.035	13.93-14.13	0.22691
3	14.346	14.25-14.45	0.18130
4	14.934	14.83-15.03	0.44234

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 01/03/12

Date Analyzed :01/04/12

Lab Standard ID: AR1254 Time Analyzed :1202

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	10.36	10.26	10.46	249.3	250.0	-0.3
Aroclor-1254-2	10.69	10.59	10.79	247.2	250.0	-1.1
Aroclor-1254-3	11.07	10.97	11.17	243.9	250.0	-2.4
Aroclor-1254-4	11.21	11.11	11.31	240.7	250.0	-3.7
Aroclor-1254-5	11.92	11.83	12.03	234.0	250.0	-6.4

AVERAGE %D = 2.8

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 01/03/12

Date Analyzed :01/04/12

Lab Standard ID: AR1254 Time Analyzed :1202

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1254-1	10.90	10.80	11.00	246.2	250.0	-1.5
Aroclor-1254-2	11.07	10.97	11.17	244.0	250.0	-2.4
Aroclor-1254-3	11.61	11.51	11.71	236.5	250.0	-5.4
Aroclor-1254-4	11.76	11.66	11.86	233.9	250.0	-6.4
Aroclor-1254-5	12.54	12.45	12.65	219.1	250.0	-12.4

AVERAGE %D = 5.6

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 01/03/12

Date Analyzed :01/04/12

Lab Standard ID: AR1660 Time Analyzed :1222

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D	
Aroclor-1016-1	8.33	8.23	8.43	251.8	250.0	0.7	
Aroclor-1016-2	8.82	8.71	8.91	253.6	250.0	1.4	
Aroclor-1016-3	8.99	8.89	9.09	249.8	250.0	-0.1	
Aroclor-1016-4	9.12	9.02	9.22	252.4	250.0	1.0	

AVERAGE %D = 0.8

Date Analyzed :01/04/12

Lab Standard ID: AR1660 Time Analyzed :1222

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D	
Aroclor-1260-1	11.87	11.77	11.97	318.4	250.0	27.4	<-
Aroclor-1260-2	12.47	12.37	12.57	309.8	250.0	23.9	
Aroclor-1260-3	12.79	12.69	12.89	306.3	250.0	22.5	
Aroclor-1260-4	13.52	13.42	13.62	290.4	250.0	16.2	
Aroclor-1260-5	13.62	13.52	13.72	288.2	250.0	15.3	

AVERAGE %D = 21.1

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 01/03/12

Date Analyzed :01/04/12

Lab Standard ID: AR1660 Time Analyzed :1222

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.58	8.47	8.67	239.9	250.0	-4.0
Aroclor-1016-2	9.31	9.20	9.40	246.2	250.0	-1.5
Aroclor-1016-3	9.73	9.63	9.83	254.7	250.0	1.9
Aroclor-1016-4	9.84	9.74	9.94	245.2	250.0	-1.9

AVERAGE %D = 2.3

Date Analyzed :01/04/12

Lab Standard ID: AR1660 Time Analyzed :1222

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	12.86	12.76	12.96	273.8	250.0	9.5
Aroclor-1260-2	13.54	13.44	13.64	264.3	250.0	5.7
Aroclor-1260-3	14.03	13.93	14.13	245.4	250.0	-1.8
Aroclor-1260-4	14.59	14.49	14.69	229.3	250.0	-8.3

AVERAGE %D = 6.3

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 01/03/12

Date Analyzed :01/04/12

Lab Standard ID: AR1248 Time Analyzed :1523

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1248-1	9.38	9.28	9.48	219.7	250.0	-12.1
Aroclor-1248-2	9.71	9.61	9.81	219.5	250.0	-12.2
Aroclor-1248-3	10.30	10.20	10.40	215.2	250.0	-13.9
Aroclor-1248-4	10.60	10.50	10.70	212.9	250.0	-14.8

AVERAGE %D = 13.2

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 01/03/12

Date Analyzed :01/04/12

Lab Standard ID: AR1248 Time Analyzed :1523

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D	
Aroclor-1248-1	9.84	9.74	9.94	192.9	250.0	-22.8	
Aroclor-1248-2	10.28	10.18	10.38	190.4	250.0	-23.8	
Aroclor-1248-3	10.83	10.73	10.93	186.7	250.0	-25.3	<-
Aroclor-1248-4	11.19	11.09	11.29	175.8	250.0	-29.7	<-

AVERAGE %D = 25.4

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB5 Intrument: ECD7

Init. Calib. Date: 01/03/12

Date Analyzed :01/04/12

Lab Standard ID: AR1660 Time Analyzed :1544

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.33	8.23	8.43	244.4	250.0	-2.2
Aroclor-1016-2	8.81	8.71	8.91	240.1	250.0	-4.0
Aroclor-1016-3	8.99	8.89	9.09	232.2	250.0	-7.1
Aroclor-1016-4	9.12	9.02	9.22	232.7	250.0	-6.9

AVERAGE %D = 5.1

Date Analyzed :01/04/12

Lab Standard ID: AR1660 Time Analyzed :1544

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	11.87	11.77	11.97	287.4	250.0	15.0
Aroclor-1260-2	12.47	12.37	12.57	277.9	250.0	11.2
Aroclor-1260-3	12.79	12.69	12.89	270.5	250.0	8.2
Aroclor-1260-4	13.52	13.42	13.62	258.7	250.0	3.5
Aroclor-1260-5	13.62	13.52	13.72	260.9	250.0	4.4

AVERAGE %D = 8.5

7F

PCB CALIBRATION VERIFICATION SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB35 Intrument: ECD7

Init. Calib. Date: 01/03/12

Date Analyzed :01/04/12

Lab Standard ID: AR1660 Time Analyzed :1544

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1016-1	8.57	8.47	8.67	225.2	250.0	-9.9
Aroclor-1016-2	9.30	9.20	9.40	214.4	250.0	-14.2
Aroclor-1016-3	9.73	9.63	9.83	212.3	250.0	-15.1
Aroclor-1016-4	9.84	9.74	9.94	200.2	250.0	-19.9

AVERAGE %D = 14.8

Date Analyzed :01/04/12

Lab Standard ID: AR1660 Time Analyzed :1544

COMPOUND/PEAK NO.	RT	RT WINDOW FROM	RT WINDOW TO	CALC AMOUNT (ng)	NOM AMOUNT (ng)	%D
Aroclor-1260-1	12.86	12.76	12.96	225.0	250.0	-10.0
Aroclor-1260-2	13.54	13.44	13.64	224.3	250.0	-10.3
Aroclor-1260-3	14.03	13.93	14.13	212.7	250.0	-14.9
Aroclor-1260-4	14.59	14.49	14.69	203.6	250.0	-18.6

AVERAGE %D = 13.5

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB5 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 01/03/12

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

			IS1 AREA	RT	IS2 AREA	RT
		ICAL MIDPT	5014750	3.331	2501033	15.151
		UPPER LIMIT	10029500	3.431	5002066	15.251
		LOWER LIMIT	2507375	3.231	1250516	15.051

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	01/03/12	1712	5121528	3.330	2589798	15.151
02		0.25 PPM AR1	01/03/12	1732	5014750	3.331	2501033	15.151
03		0.02 PPM AR1	01/03/12	1752	5097873	3.331	2526235	15.151
04		0.05 PPM AR1	01/03/12	1812	5018042	3.331	2471692	15.151
05		1 PPM AR1660	01/03/12	1833	4814562	3.330	2453835	15.150
06		0.1 PPM AR16	01/03/12	1853	5025539	3.331	2553010	15.151
07		0.5 PPM AR16	01/03/12	1913	4946082	3.330	2467012	15.150
08		AR1242	01/03/12	1933	5102171	3.330	2421342	15.151
09		AR1248	01/03/12	1953	5053179	3.331	2468964	15.151
10		AR1254	01/03/12	2013	5070552	3.330	2460857	15.151
11		AR2162	01/03/12	2034	5034684	3.331	2498767	15.151
12		AR3268	01/03/12	2054	5073596	3.331	2470122	15.151
13	ZZZZZ	ZZZZZ	01/03/12	2114	5094705	3.332	2449135	15.150
14	ZZZZZ	ZZZZZ	01/03/12	2134	5029731	3.331	2504628	15.150
15	ZZZZZ	ZZZZZ	01/03/12	2154	5085080	3.330	2504832	15.151
16	ZZZZZ	ZZZZZ	01/03/12	2214	5142731	3.332	2517585	15.151
17	ZZZZZ	ZZZZZ	01/03/12	2235	4994693	3.331	2447896	15.151
18	ZZZZZ	ZZZZZ	01/03/12	2255	5200048	3.329	2577192	15.150
19		AR1254	01/04/12	1202	5040638	3.329	1910405	15.150
20		AR1660	01/04/12	1222	5246793	3.331	1936867	15.150
21	UC39MBS1	UC39MBS1	01/04/12	1242	5479236	3.332	2099842	15.149
22	UC39LCSS1	UC39LCSS1	01/04/12	1302	5198880	3.331	2022136	15.149
23	ZZZZZ	ZZZZZ	01/04/12	1322	5345506	3.331	2114874	15.149
24	PB-3CR-3.5-4	UC39A	01/04/12	1342	5242178	3.330	2115237	15.147
25	PB-3CR-5.5-6	UC39B	01/04/12	1403	4654626	3.331	1939245	15.148
26	PB-3CR-5.5-6	UC39BMS	01/04/12	1423	4606019	3.332	1786472	15.148
27	PB-3CR-5.5-6	UC39BMSD	01/04/12	1443	4561385	3.331	1701917	15.148
28	PB-5AR-3.75-	UC39C	01/04/12	1503	5098298	3.333	1664599	15.148
29		AR1248	01/04/12	1523	5101253	3.332	1678926	15.149
30		AR1660	01/04/12	1544	5217336	3.330	1727627	15.149

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

FORM 8
PCB INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INT CORP

ARI Job No.: UC39 Project: BAY WOOD

GC Column: ZB35 ID: 0.53(mm) Instrument ID: ECD7

Init. Calib. Date: 01/03/12

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

			IS1 AREA	RT	IS2 AREA	RT
		ICAL MIDPT	7906278	4.185	3590653	15.804
		UPPER LIMIT	15812556	4.285	7181306	15.904
		LOWER LIMIT	3953139	4.085	1795326	15.704

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME	IS1 AREA	RT	IS2 AREA	RT
01	ZZZZZ	ZZZZZ	01/03/12	1712	7979878	4.185	3730319	15.804
02		0.25 PPM AR1	01/03/12	1732	7906278	4.185	3590653	15.804
03		0.02 PPM AR1	01/03/12	1752	8052451	4.186	3623952	15.804
04		0.05 PPM AR1	01/03/12	1812	7958956	4.187	3543054	15.804
05		1 PPM AR1660	01/03/12	1833	7642806	4.186	3535286	15.803
06		0.1 PPM AR16	01/03/12	1853	7837315	4.186	3642669	15.804
07		0.5 PPM AR16	01/03/12	1913	7800217	4.186	3545416	15.804
08		AR1242	01/03/12	1933	7934492	4.187	3423080	15.804
09		AR1248	01/03/12	1953	7876763	4.186	3514300	15.804
10		AR1254	01/03/12	2013	7777753	4.186	3514812	15.803
11		AR2162	01/03/12	2034	7717210	4.187	3533906	15.803
12		AR3268	01/03/12	2054	7817302	4.186	3551684	15.803
13	ZZZZZ	ZZZZZ	01/03/12	2114	7897032	4.186	3513000	15.803
14	ZZZZZ	ZZZZZ	01/03/12	2134	7790432	4.186	3579405	15.803
15	ZZZZZ	ZZZZZ	01/03/12	2154	7882094	4.185	3579554	15.803
16	ZZZZZ	ZZZZZ	01/03/12	2214	8021436	4.186	3584997	15.804
17	ZZZZZ	ZZZZZ	01/03/12	2235	7725321	4.187	3477553	15.804
18	ZZZZZ	ZZZZZ	01/03/12	2255	7955909	4.185	3661941	15.804
19		AR1254	01/04/12	1202	7856695	4.185	2750063	15.803
20		AR1660	01/04/12	1222	8280121	4.186	2799527	15.803
21	UC39MBS1	UC39MBS1	01/04/12	1242	8502170	4.187	3014515	15.804
22	UC39LCSS1	UC39LCSS1	01/04/12	1302	8278067	4.186	2894160	15.802
23	ZZZZZ	ZZZZZ	01/04/12	1322	8526094	4.186	3049311	15.803
24	PB-3CR-3.5-4	UC39A	01/04/12	1342	7999134	4.185	3084579	15.801
25	PB-3CR-5.5-6	UC39B	01/04/12	1403	7127644	4.184	2816609	15.802
26	PB-3CR-5.5-6	UC39BMS	01/04/12	1423	7107472	4.186	2579095	15.803
27	PB-3CR-5.5-6	UC39BMSD	01/04/12	1443	7023182	4.185	2441933	15.803
28	PB-5AR-3.75-	UC39C	01/04/12	1503	7749744	4.188	2418691	15.801
29		AR1248	01/04/12	1523	8002212	4.187	2472431	15.802
30		AR1660	01/04/12	1544	8161443	4.186	2533703	15.804

IS1 = 1-Bromo-2-Nitrobenzene RT Window = RT +/- 0.1 min
IS2 = Hexabromobiphenyl

* Indicates value outside QC Limits

TPHD Analysis
Report and Summary QC Forms

ARI Job ID: UC39

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Page 1 of 1
Matrix: Soil

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001

Data Release Authorized:
Reported: 12/29/11

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DL	Range/Surrogate	RL	Result
MB-122711	Method Blank	12/27/11	12/28/11	1.00	Diesel Range	5.0	< 5.0 U
11-29377	HC ID: ---		FID4A	1.0	Motor Oil Range	10	< 10 U
					o-Terphenyl		104%
UC39A	PB-3CR-3.5-4.0	12/27/11	12/28/11	1.00	**Diesel Range**	**5.8**	**16**
11-29377	HC ID: **DRO/MOTOR OIL**		FID4A	1.0	**Motor Oil Range**	**12**	**60**
					o-Terphenyl		80.1%
UC39B	PB-3CR-5.5-6.0	12/27/11	12/28/11	1.00	**Diesel Range**	**29**	**690**
11-29378	HC ID: **DIESEL/MOTOR OIL**		FID4A	5.0	**Motor Oil Range**	**58**	**550**
					o-Terphenyl		72.6%
UC39C	PB-5AR-3.75-4.75	12/27/11	12/28/11	1.00	**Diesel Range**	**6.2**	**23**
11-29379	HC ID: **DRO/MOTOR OIL**		FID4A	1.0	**Motor Oil Range**	**12**	**72**
					o-Terphenyl		84.7%

Reported in mg/kg (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001

Client ID	OTER	TOT OUT
MB-122711	104%	0
LCS-122711	96.8%	0
PB-3CR-3.5-4.0	80.1%	0
PB-3CR-3.5-4.0 MS	83.6%	0
PB-3CR-3.5-4.0 MSD	76.4%	0
PB-3CR-5.5-6.0	72.6%	0
PB-5AR-3.75-4.75	84.7%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3546
Log Number Range: 11-29377 to 11-29379

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: PB-3CR-3.5-4.0**
Page 1 of 1 **MS/MSD**

Lab Sample ID: UC39A
LIMS ID: 11-29377
Matrix: Soil
Data Release Authorized:
Reported: 12/29/11

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted MS/MSD: 12/27/11

Sample Amount MS: 8.67 g-dry-wt
MSD: 8.90 g-dry-wt
Final Extract Volume MS: 1.0 mL
MSD: 1.0 mL
Dilution Factor MS: 1.0
MSD: 1.0
Percent Moisture: 13.7%

Date Analyzed MS: 12/28/11 15:47
MSD: 12/28/11 16:10
Instrument/Analyst MS: FID/MH
MSD: FID/MH

Range	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Diesel	16.4	161	173	83.6%	148	169	77.9%	8.4%

TPHD Surrogate Recovery

	MS	MSD
o-Terphenyl	83.6%	76.4%

Results reported in mg/kg
RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-122711**
 LAB CONTROL

Lab Sample ID: LCS-122711
LIMS ID: 11-29377
Matrix: Soil
Data Release Authorized:
Reported: 12/29/11

QC Report No: UC39-SLR International Corp.
Project: Bay Wood
108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/27/11
Date Analyzed: 12/28/11 14:59
Instrument/Analyst: FID/MH

Sample Amount: 10.0 g
Final Extract Volume: 1.0 mL
Dilution Factor: 1.0

Range	Lab Control	Spike Added	Recovery
Diesel	140	150	93.3%

TPHD Surrogate Recovery

o-Terphenyl	96.8%

Results reported in mg/kg

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

ARI Job: UC39
Matrix: Soil Project: Bay Wood
Date Received: 12/22/11 108.00339.00001

ARI ID	Client ID	Client Amt	Final Vol	Basis	Prep Date
11-29377-122711MB1	Method Blank	10.0 g	1.00 mL	-	12/27/11
11-29377-122711LCS1	Lab Control	10.0 g	1.00 mL	-	12/27/11
11-29377-UC39A	PB-3CR-3.5-4.0	8.66 g	1.00 mL	D	12/27/11
11-29377-UC39AMS	PB-3CR-3.5-4.0	8.67 g	1.00 mL	D	12/27/11
11-29377-UC39AMSD	PB-3CR-3.5-4.0	8.90 g	1.00 mL	D	12/27/11
11-29378-UC39B	PB-3CR-5.5-6.0	8.66 g	1.00 mL	D	12/27/11
11-29379-UC39C	PB-5AR-3.75-4.75	8.06 g	1.00 mL	D	12/27/11

Basis: D=Dry Weight W=As Received

BLANK NO.

UC39MBS1

TPH METHOD BLANK SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

SDG No.: UC39 Project No.: BAY WOOD

Date Extracted: 12/27/11 Matrix: SOLID

Date Analyzed : 12/28/11 Instrument ID : FID4A

Time Analyzed : 1436

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS, and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED
01	UC39LCSS1	UC39LCSS1	12/28/11
02	PB-3CR-3.5-4	UC39A	12/28/11
03	PB-3CR-3.5-4	UC39AMS	12/28/11
04	PB-3CR-3.5-4	UC39AMSD	12/28/11
05	PB-3CR-5.5-6	UC39B	12/28/11
06	PB-5AR-3.75-	UC39C	12/28/11
07			

6a

DIESEL INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: SLR INTERNATIONAL CORP

Instrument: FID4A.I Project: BAY WOODER

Calibration Date: 09-SEP-2011 SDG No.: UC39

Diesel Range	RF1 50	RF2 100	RF3 250	RF4 500	RF5 1000	RF6 2500	Ave RF	%RSD
WA Diesel	14703	12956	13392	13411	13293	13096	13475	4.7
AK Diesel	17729	15603	15918	15893	15671	15387	16034	5.3
OR Diesel	17959	16022	16018	15997	15760	15452	16201	5.5
Cal Diesel	17660	15477	15870	15850	15624	15344	15971	5.3
o-Terph	19567	17603	18304	18243	17526	16851	18016	5.2

<- Indicates %RSD outside limits
Surrogate areas are not included in Diesel RF calculation.

Quant Ranges : WA Diesel C12-C24 (4.438-8.193)
AK Diesel C10-C25 (3.447-8.447)
OR Diesel C10-C28 (3.447-9.189)
Cal Diesel C10-C24 (3.447-8.193)

Calibration Files	Analysis Time
0909a011.d	09-SEP-2011 18:11
0909a012.d	09-SEP-2011 18:34
0909a013.d	09-SEP-2011 18:57
0909a014.d	09-SEP-2011 19:20
0909a015.d	09-SEP-2011 19:43
0909a016.d	09-SEP-2011 20:06

NW MOTOR OIL RANGE INITIAL CALIBRATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: SLR INTERNATIONAL CORP

Instrument: FID4A.I Project: BAY WOOD

Calibration Date: 16-DEC-2011 SDG No.: UC39

Product Range	RF1 100	RF2 250	RF3 500	RF4 1000	RF5 2500	RF6 5000	Ave RF	%RSD
WA M.Oil C24-C38	11959	11226	11052	10563	9844	9640	10714	8.2
Triac Surr	13869	15790	16383	16241	16176	*****	15692	6.6

<- Indicates %RSD outside limits
Surrogate areas are not included in Motor Oil RF calculation.

Calibration Files	Analysis Time
1216a023.d	16-DEC-2011 17:31
1216a024.d	16-DEC-2011 17:55
1216a025.d	16-DEC-2011 18:18
1216a026.d	16-DEC-2011 18:41
1216a027.d	16-DEC-2011 19:04
1216a028.d	16-DEC-2011 19:28

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC.
Client: SLR INTERNATIONAL C

ICal Date: 09-SEP-2011
Project: BAY WOOD

CCal Date: 28-DEC-2011
SDG No.: UC39

Analysis Time: 13:48
Lab ID: DIESEL#3

Instrument: FID4A.I
Lab File Name: 1228a022.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3499309	259.7	250	3.9
AK102 (C10-C25)	4102584	255.9	250	2.3
Terphenyl	894378	49.6	45	10.3

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24
AK Diesel C10-C25

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: SLR INTERNATIONAL C

ICal Date: 16-DEC-2011 Project: BAY WOOD

CCal Date: 28-DEC-2011 SDG No.: UC39

Analysis Time: 14:12 Lab ID: MOIL#3

Instrument: FID4A.I Lab File Name: 1228a023.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	5406307	504.6	500	0.9	
AK103 (C25-C36)	4907828	711.1	500	42.2	<-
CRUDE(Tol-C40)	6275164	830.8	500	66.2	
n-Triacontane	787282	50.2	45	11.5	

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

7a

DIESEL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: SLR INTERNATIONAL C

ICal Date: 09-SEP-2011 Project: BAY WOOD

CCal Date: 28-DEC-2011 SDG No.: UC39

Analysis Time: 18:08 Lab ID: DIESEL#4

Instrument: FID4A.I Lab File Name: 1228a033.d

Diesel Range	Area*	CalcAmnt	NomAmnt	% D
WADies(C12-C24)	3612425	268.1	250	7.2
AK102 (C10-C25)	4250535	265.1	250	6.0
Terphenyl	917389	50.9	45	13.2

* Surrogate areas are subtracted from range areas

<- Indicates a %D outside QC limits

Quant Ranges : WA Diesel C12-C24

AK Diesel C10-C25

MOTOR OIL CONTINUING CALIBRATION VERIFICATION

Lab Name: ANALYTICAL RESOURCES, INC. Client: SLR INTERNATIONAL C

ICal Date: 16-DEC-2011 Project: BAY WOOD

CCal Date: 28-DEC-2011 SDG No.: UC39

Analysis Time: 18:32 Lab ID: MOIL#4

Instrument: FID4A.I Lab File Name: 1228a034.d

M.oil Range	Area*	CalcAmnt	NomAmnt	% D	
WAMoil(C24-C38)	5158002	481.4	500	-3.7	
AK103 (C25-C36)	4716215	683.3	500	36.7	<-
CRUDE(Tol-C40)	6065900	803.1	500	60.6	
n-Triacontane	802676	51.2	45	13.7	

* Surrogate areas are subtracted from range areas
<- Indicates a %D outside QC limits

Quant Ranges : WA M.Oil C24-C38
AK M.Oil C25-C36

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

SDG No.: UC39 Project: BAY WOOD

Instrument ID: FID4A GC Column: RTX-1

Run Date: 09/09/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.65 TRIAC: 9.72

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01		RT	09/09/11	1639	6.65	9.72
02		DIESEL 50	09/09/11	1811	6.65	9.71
03		DIESEL 100	09/09/11	1834	6.65	9.73
04		DIESEL 250	09/09/11	1857	6.66	9.73
05		DIESEL 500	09/09/11	1920	6.66	9.73
06		DIESEL 1000	09/09/11	1943	6.67	9.73
07		DIESEL 2500	09/09/11	2006	6.70	9.73
08		DIESEL ICV	09/09/11	2029	6.65	9.73

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

SDG No.: UC39 Project: BAY WOOD

Instrument ID: FID4A GC Column: RTX-1

Run Date: 12/16/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.60 TRIAC: 9.65

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01		RINSE	12/16/11	1622	6.60	9.65
02	RT	RT	12/16/11	1645	6.60	9.65
03	IB	IB	12/16/11	1708	6.60	9.64
04	100	MOIL 100	12/16/11	1731		9.63
05	250	MOIL250	12/16/11	1755		9.64
06	500	MOIL500	12/16/11	1818		9.64
07	1000	MOIL1000	12/16/11	1841		9.66
08	2500	MOIL2500	12/16/11	1904		9.69
09	5000	MOIL5000	12/16/11	1928		9.72*
10	ICV	MOILICV	12/16/11	1951		9.64
11						

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

SDG No.: UC39 Project: BAY WOOD

Instrument ID: FID4A GC Column: RTX-1

Run Date: 12/28/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.60 TRIAC: 9.64

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	ZZZZZ	ZZZZZ	12/28/11	0539	6.60	9.64
02	RT	RT	12/28/11	0602	6.60	9.64
03	IB	IB	12/28/11	0625	6.60	9.64
04	ZZZZZ	ZZZZZ	12/28/11	0648	6.60	9.64
05	ZZZZZ	ZZZZZ	12/28/11	0711	6.62	9.64
06	ZZZZZ	ZZZZZ	12/28/11	0734		
07	ZZZZZ	ZZZZZ	12/28/11	0758	6.60	9.64
08	ZZZZZ	ZZZZZ	12/28/11	0821	6.60	9.64
09	ZZZZZ	ZZZZZ	12/28/11	0844	6.60	9.64
10	ZZZZZ	ZZZZZ	12/28/11	0907	6.60	9.64
11	ZZZZZ	ZZZZZ	12/28/11	0931	6.60	9.63
12	ZZZZZ	ZZZZZ	12/28/11	0954	6.60	9.64
13	ZZZZZ	ZZZZZ	12/28/11	1017	6.59	9.64
14	ZZZZZ	ZZZZZ	12/28/11	1040	6.59	9.63
15	ZZZZZ	ZZZZZ	12/28/11	1104	6.62	9.64
16	ZZZZZ	ZZZZZ	12/28/11	1127	6.60	9.64
17	ZZZZZ	ZZZZZ	12/28/11	1151	6.60	9.64
18	ZZZZZ	ZZZZZ	12/28/11	1214	6.60	9.64
19	ZZZZZ	ZZZZZ	12/28/11	1238	6.60	9.65
20	ZZZZZ	ZZZZZ	12/28/11	1301	6.60	9.64
21	ZZZZZ	ZZZZZ	12/28/11	1325	6.60	9.65
22	BAY WOOD	DIESEL#3	12/28/11	1348	6.60	9.63
23	BAY WOOD	MOIL#3	12/28/11	1412	6.60	9.64
24	UC39MBS1	UC39MBS1	12/28/11	1436	6.60	9.64
25	UC39LCSS1	UC39LCSS1	12/28/11	1459	6.60	9.64
26	PB-3CR-3.5-4	UC39A	12/28/11	1523	6.60	9.64
27	PB-3CR-3.5-4	UC39AMS	12/28/11	1547	6.60	9.64
28	PB-3CR-3.5-4	UC39AMSD	12/28/11	1610	6.60	9.64
29	PB-3CR-5.5-6	UC39B	12/28/11	1634	6.59	9.64
30	PB-5AR-3.75-	UC39C	12/28/11	1657	6.60	9.64
31	ZZZZZ	ZZZZZ	12/28/11	1721	6.60	9.64
32	ZZZZZ	ZZZZZ	12/28/11	1745	6.60	9.65

QC LIMITS

TERPH = o-terph (+/- 0.05 MINUTES)
TRIAC = Triacon Surr (+/- 0.05 MINUTES)

* Values outside of QC limits.

TPH ANALYTICAL SEQUENCE

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

SDG No.: UC39 Project: BAY WOOD

Instrument ID: FID4A GC Column: RTX-1

Run Date: 12/28/11

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, AND STANDARDS, IS GIVEN BELOW:

SURROGATE RT FROM DAILY STANDARD
TERPH: 6.60 TRIAC: 9.64

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TERPH RT #	TRIAC RT #
01	BAY WOOD	DIESEL#4	12/28/11	1808	6.60	9.64
02	BAY WOOD	MOIL#4	12/28/11	1832	6.58	9.65

	QC LIMITS
TERPH = o-terph	(+/- 0.05 MINUTES)
TRIAC = Triacon Surr	(+/- 0.05 MINUTES)

* Values outside of QC limits.

Table of Contents: ARI Job UG85

Client: SLR International Corp. Project: 108.00339.00001 Bay Wood

BL
Signature

February-03-2012
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

February 3, 2012

Scott Miller
SLR International Corp.
1800 Blankenship Road, Suite 440
West Linn, OR 97068

RE: Bay Wood, 108.00339.00001
ARI Job No.: UG85

Dear Scott:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
-For-
Susan D. Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile UG85

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UG85

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UC38	Turn-around Requested: ~~Seven days~~ @ 21st Standard See Comments	Page: 1 of 2	
ARI Client Company: SLR	Phone: (425) 402-8800	Date: 12/21/11	Ice Present? Y
Client Contact: CHRIS LEE		No. of Coolers: 1	Cooler Temps: 1.7
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CAL / NB		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: CPAHs	Notes/Comments
SP-E1-1	12/21/11	1230	SOIL	1		
SP-E1-2		1235				
SP-E1-3		1240				
SP-E1-4		1245				
SP-E1-5		1250				
SP-E1-6		1255				
SP-E1-7		1300				
SP-E1-8		1305				
SP-E1-9		1310				
SP-E1-10		1315				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Please extract samples & then freeze for further analysis	Printed Name: CHRIS LEE	Printed Name: Jose Ugus	Printed Name:	Printed Name:
	Company: SLR	Company: ART	Company:	Company:
	Date & Time: 12/22/11	Date & Time: 12-22-11 13:20	Date & Time:	Date & Time:

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UC38	Turn-around Requested: ~~Seven days~~ Standard See comments	Page: 2	of 2
ARI Client Company: SLR	Phone: (425) 402-8800	Date: 12/21/11	Ice Present? Y
Client Contact: CHRIS LEE		No. of Coolers: 1	Cooler Temps: 1.7
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CAL / NB		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs								Notes/Comments
SP-E1-11	12/21/11	1320	SOIL	1									
SP-E1-12	↓	1325	↓	↓									
SP-M2-1	↓	1330	↓	↓									
SP-M2-2	↓	1335	↓	↓									
SP-M2-3	↓	1335	↓	↓									
SP-M2-4	↓	1340	↓	↓									
SP-M2-5	↓	1345	↓	↓									

Comments/Special Instructions	Relinquished by	Received by	Relinquished by	Received by
Please extract samples & then freeze for further analysis	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: CHRIS LEE	Printed Name: Jose Urgas	Printed Name:	Printed Name:
	Company: SLR	Company: ARI	Company:	Company:
	Date & Time: 12/22/11	Date & Time: 12-22-11 13:20	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

~~UC38 : 00004~~ ~~UG85 : 00004~~

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SLR
COC No(s): ____ (NA circled)
Assigned ARI Job No: UC38

Project Name: Bay Wood
Delivered by: Fed-Ex UPS Courier (circled) Hand Delivered Other: ____
Tracking No: ____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO (circled)
Were custody papers included with the cooler?	YES (circled)	NO
Were custody papers properly filled out (ink, signed, etc.)	YES (circled)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 17 ____ ____ ____

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: JM Date: 12-22-11 Time: 13:20

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO (circled)

What kind of packing material was used? ... Bubble Wrap **Wet Ice** (circled) Gel Packs Baggies Foam Block Paper Other: ____

Was sufficient ice used (if appropriate)?	NA	YES (circled)	NO
Were all bottles sealed in individual plastic bags?		YES	NO (circled)
Did all bottles arrive in good condition (unbroken)?		YES (circled)	NO
Were all bottle labels complete and legible?		YES (circled)	NO
Did the number of containers listed on COC match with the number of containers received?		YES (circled)	NO
Did all bottle labels and tags agree with custody papers?		YES (circled)	NO
Were all bottles used correct for the requested analyses?		YES (circled)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA (circled)	YES	NO
Were all VOC vials free of air bubbles?	NA (circled)	YES	NO
Was sufficient amount of sample sent in each bottle?		YES (circled)	NO
Date VOC Trip Blank was made at ARI	NA (circled)		

Was Sample Split by ARI: NA (circled) YES Date/Time: ____ Equipment: ____ Split by: ____

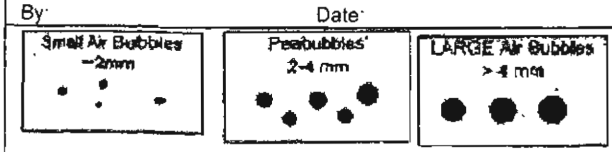
Samples Logged by: JM Date: 12/23/11 Time: 740

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: ____ Date: ____



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Baywood Held Samples

Subject: Baywood Held Samples
From: Megan Coracci <mcoracci@slrconsulting com>
Date: 4.29 PM
To: Sue Dunnihoo <sue@anlabs com>

Hi Sue -

We'd like to run PAH analysis on the following held samples for Baywood:

-SP-M2-2
-SP-M2-4
-SP-E1-7
-SP-E1-10
-SP-E1-11
-SP-E1-12

Thank you,
Megan

Megan Coracci
Senior Scientist
SLR International Corp

Email: mailto:mcoracci@slrconsulting.com
Mob: 503-927-7784
Tel: 503-723-4423
Fax: 503-723-4436

1800 Blankenship Road, Suite 440, West Linn, 97068, United States

www.slrconsulting.com

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UG85

Case Narrative

Client: SLR International Corp.
Project: Bay Wood, 108.00339.00001
ARI Job No.: UG85

Sample receipt

Six extracts previously logged under ARI job UC38 were removed from archive as requested on February 1, 2012. The extracts were logged under the ARI job referenced above and extracts were analyzed for SIM PAHs. For details regarding sample receipt, please refer to the Cooler Receipt Forms.

SIM PAHs by SW8270D

The samples were extracted and analyzed within the method recommended holding times.

The initial calibrations were within method requirements.

The continuing calibration fell outside the 20% control limit low for Benzo(a)anthracene. All detected results for this compound have been flagged with a "Q" qualifier. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS percent recoveries were within control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UG85
Client: SLR International Corp.
Project Event: 108.00339.00001
Project Name: Bay Wood

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SP-E1-7	UG85A	12-1867	Soil	12/21/11 13:00	12/22/11 13:20
2.	SP-E1-10	UG85B	12-1868	Soil	12/21/11 13:15	12/22/11 13:20
3.	SP-E1-11	UG85C	12-1869	Soil	12/21/11 13:20	12/22/11 13:20
4.	SP-E1-12	UG85D	12-1870	Soil	12/21/11 13:25	12/22/11 13:20
5.	SP-M2-2	UG85E	12-1871	Soil	12/21/11 13:35	12/22/11 13:20
6.	SP-M2-4	UG85F	12-1872	Soil	12/21/11 13:40	12/22/11 13:20

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1920-1	ABN	100/150	MEOH	06/09/12
B	1917-2	SIM PNA	15/75	ACETONE	05/30/12
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1925-5	LOW PCB	0.2	ACETONE	05/28/12
E	1900-2	HERB	62.5	MEOH	10/06/12
F	1919-5	PCP	12.5	ACETONE	12/09/12
G	1906-3	d8-DIOXANE	100	MEOH	04/30/12
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1896-3	LOW S. PNA	1.5	ACETONE	09/22/12
J	1915-4	TBT-PORE	0.125	MECL2	11/23/12
K	1925-4	MED PCB	20	ACETONE	05/28/12
L	1915-3	TBT	2.5	MECL2	11/23/12
M	1888-4	EPH	1500	MECL2	04/04/12
N	1914-2	PCB	2	ACETONE	05/28/12
O	1914-4	TPH	450	MECL2	02/04/12
P	1895-4	HCID	2250	MECL2	02/04/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1925-2	LOW PCP	1.25	ACETONE	12/09/12

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1907-1	PCB 1660	20	ACETONE	11/01/12
2#		BCOC PEST	10	ACETONE	NA
3	1922-2	PEST	01/02/10	ACETONE	12/13/12
4	1922-3	LOW PEST	.1/.2/1	ACETONE	12/13/12
5	1902-4	EPH	1500	MECL2	10/04/12
6	1919-2	PCP	12.5/125	ACETONE	10/15/12
7	1926-2	ABN	100	MEOH	05/31/12
8	1916-2	TBT	2.5	MECL2	11/23/12
9	1918-2	PORE TBT	.125/.25	MECL2	11/23/12
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1838-4	LOW PCB	2	ACETONE	01/31/12
14					
15	1929-1	SIM PNA	15/75	MEOH	06/21/12
16	1906-4	1,4-DIOXANE	100	MEOH	04/30/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1927-2	LOW SIM PNA	1.5	ACETONE	06/20/12
19	1931-1	AK103	7500	ACETONE	05/17/12
20	1930-1	PNA	100	ACETONE	06/23/12
21	1936-1	SKY/BHT	100	MEOH	02/14/12
22	1852-1	HERB	02 to 2500	MEOH	03/03/12
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#		DIPHENYL	100	MEOH	NA
26	1904-2	OP-PEST	25	MEOH	02/10/12
27		STEROLS	200	MEOH	NA
28#		ADD. PEST	2	ACETONE	NA
29#		DECANES	100	MEOH	NA

LCS SOLUTIONS

30		EDB/DBCP	0.2	MEOH	NA
31	1909-2	TERPINEOL	100	MEOH	02/14/12
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33		RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36		ALKYL PNA B	10	MEOH	NA
37		CAR/PERY	100	ACETONE	NA
38	1926-3	ABN ACID	200-450	MEOH	06/19/12
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1900-1	FULL RESIN	250	ACETONE	08/12/12
51		DDTS	0.01	ACETONE	NA
52		1232 PCB	20	ACETONE	NA
53	1919-1	DALAPON	50	MEOH	08/22/12
54		T-CHLORDANE	10	ACETONE	NA
55		TOXAPHENE	50	ACETONE	NA
56	1917-1	ABN BASE	50-200	MEOH	05/31/12
#=PROJECT SPECIFIC SOLUTION					

DL, LOD, LOQ and Control Limits Summary
Analysis of Solid Samples for PNA EPA Method 8270 – SIM

Microwave (EPA 3546) or Sonication (EPA 3550C) Extraction using 10 g sample with extract with 0.5 mL final volume. ARI Bench Sheet 3060F or 3051F ARI Analyses: PNSSMI & PNSSCI

Analyte	DL[1] µg/kg	LOD[1,2] µg/kg	LOQ[1] µg/kg	LCS Control Limit[3,4]	Replicate RPD[5]
Naphthalene	2.63	**5.0**	**5.0**	37 – **100**	≤ 40
1-Methylnaphthalene	1.71	**2.5**	**5.0**	30 – 160[6]	≤ 40
2-Methylnaphthalene	1.52	**2.5**	**5.0**	37 – **100**	≤ 40
Biphenyl	1.44	**2.5**	**5.0**	30 – 160[6]	≤ 40
2,6-Dimethylnapthalene	0.75	**2.5**	**5.0**	30 – 160[6]	≤ 40
Acenaphthylene	1.26	**2.5**	**5.0**	35 – **100**	≤ 40
Acenaphthene	1.32	**2.5**	**5.0**	39 – **100**	≤ 40
Dibenzofuran	1.51	**2.5**	**5.0**	39 – **100**	≤ 40
1,6,7-Trimethylnaphthalene	0.42	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluorene	1.29	**2.5**	**5.0**	42 – **100**	≤ 40
Benzothiophene	0.43	**2.5**	**5.0**	30 – 160[6]	≤ 40
Phenanthrene	1.98	**2.5**	**5.0**	47 – **100**	≤ 40
Anthracene	1.46	**2.5**	**5.0**	41 – 106	≤ 40
Carbazole	0.62	**2.5**	**5.0**	30 – 160[6]	≤ 40
1-Methylphenanthrene	0.70	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluoranthene	1.77	**4.0**	**5.0**	52 – 109	≤ 40
Pyrene	2.22	**4.0**	**5.0**	47 – 111	≤ 40
Benzo(a)anthracene	1.60	**2.5**	**5.0**	47 – 114	≤ 40
Chrysene	1.88	**2.5**	**5.0**	51 – 106	≤ 40
Benzo(b)fluoranthene	1.90	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(k)fluoranthene	2.05	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(e)pyrene	0.65	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(a)pyrene	1.75	**2.5**	**5.0**	44 – 111	≤ 40
Indeno(1,2,3-cd)pyrene	3.47	**4.0**	**5.0**	41 – 114	≤ 40
Dibenz(a,h)anthracene	2.38	**4.0**	**5.0**	42 – 116	≤ 40
Benzo(g,h,i)perylene	3.05	**4.0**	**5.0**	37 – 115	≤ 40
Perylene	2.99	**4.0**	**5.0**	30 – 160[6]	≤ 40
Surrogate Recovery			**MB / LCS**	**Samples**	**RPD**
2-Methylnapthalene-d_{10}			35 – **100**	34 – **100**	≤ 40
Dibenzo(a,h)anthracene-d_{14}			37 – 120	**10** – 117	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD), Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) LOD verification performed 8/26/11 ARI Sample TJ75I
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Control limits calculated using all data from 1/1/08 through 12/31/08.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(6) Default limits pending generation of historic limits.

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UG85

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-E1-7
SAMPLE

Lab Sample ID: UG85A
LIMS ID: 12-1867
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 02/02/12 13:02
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.69 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 24.6%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.7	450 Q
218-01-9	Chrysene	4.7	670 E
50-32-8	Benzo(a)pyrene	4.7	86
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	66
53-70-3	Dibenz(a,h)anthracene	4.7	27
TOTBFA	Total Benzofluoranthenes	4.7	600

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	66.0%
d14-Dibenzo(a,h)anthracen	76.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-E1-7
DILUTION

Lab Sample ID: UG85A
LIMS ID: 12-1867
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 02/02/12 16:26
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.69 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 24.6%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	14	450 Q
218-01-9	Chrysene	14	670
50-32-8	Benzo(a)pyrene	14	90
193-39-5	Indeno(1,2,3-cd)pyrene	14	69
53-70-3	Dibenz(a,h)anthracene	14	30
TOTBFA	Total Benzofluoranthenes	14	580

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	65.0%
d14-Dibenzo(a,h)anthracen	75.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-E1-10
SAMPLE

Lab Sample ID: UG85B
LIMS ID: 12-1868
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 02/02/12 13:27
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.41 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 21.1%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	97 Q
218-01-9	Chrysene	4.8	210
50-32-8	Benzo(a)pyrene	4.8	54
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	35
53-70-3	Dibenz(a,h)anthracene	4.8	14
TOTBFA	Total Benzofluoranthenes	4.8	280

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	60.3%
d14-Dibenzo(a,h)anthracen	86.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-E1-11
SAMPLE

Lab Sample ID: UG85C
LIMS ID: 12-1869
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 02/02/12 13:52
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.79 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 33.4%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	4.6	180	Q
218-01-9	Chrysene	4.6	420	
50-32-8	Benzo(a)pyrene	4.6	110	
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	80	
53-70-3	Dibenz(a,h)anthracene	4.6	28	
TOTBFA	Total Benzofluoranthenes	4.6	600	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	68.0%
d14-Dibenzo(a,h)anthracen	73.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-E1-12
SAMPLE

Lab Sample ID: UG85D
LIMS ID: 12-1870
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 02/02/12 14:17
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.18 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 16.4%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.9	110 Q
218-01-9	Chrysene	4.9	210
50-32-8	Benzo(a)pyrene	4.9	100
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	55
53-70-3	Dibenz(a,h)anthracene	4.9	20
TOTBFA	Total Benzofluoranthenes	4.9	290

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	66.3%
d14-Dibenzo(a,h)anthracen	88.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-M2-2
SAMPLE

Lab Sample ID: UG85E
LIMS ID: 12-1871
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 02/02/12 14:41
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.66 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 19.0%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	4.7	88	Q
218-01-9	Chrysene	4.7	280	
50-32-8	Benzo(a)pyrene	4.7	96	
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	50	
53-70-3	Dibenz(a,h)anthracene	4.7	17	
TOTBFA	Total Benzofluoranthenes	4.7	340	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	60.3%
d14-Dibenzo(a,h)anthracen	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-4
SAMPLE

Lab Sample ID: UG85F
LIMS ID: 12-1872
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 12/28/11
Date Analyzed: 02/02/12 15:06
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.26 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 21.4%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.9	61 Q
218-01-9	Chrysene	4.9	120
50-32-8	Benzo(a)pyrene	4.9	49
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	29
53-70-3	Dibenz(a,h)anthracene	4.9	9.8
TOTBFA	Total Benzofluoranthenes	4.9	230

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	61.3%
d14-Dibenzo(a,h)anthracen	81.7%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
MB-122811	60.7%	65.7%	0
LCS-122811	56.3%	73.7%	0
SP-E1-7	66.0%	76.0%	0
SP-E1-7 DL	65.0%	75.0%	0
SP-E1-10	60.3%	86.3%	0
SP-E1-11	68.0%	73.0%	0
SP-E1-12	66.3%	88.3%	0
SP-M2-2	60.3%	102%	0
SP-M2-4	61.3%	81.7%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 12-1867 to 12-1872

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-122811
LAB CONTROL SAMPLE

Lab Sample ID: LCS-122811
LIMS ID: 12-1867
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 12/28/11
Date Analyzed LCS: 02/02/12 12:37
Instrument/Analyst LCS: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Benzo(a)anthracene	83.3 Q	150	55.5%
Chrysene	90.5	150	60.3%
Benzo(a)pyrene	78.8	150	52.5%
Indeno(1,2,3-cd)pyrene	78.8	150	52.5%
Dibenz(a,h)anthracene	72.2	150	48.1%
Total Benzofluoranthenes	180	300	60.0%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	56.3%
d14-Dibenzo(a,h)anthracen	73.7%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO. UG85MBS1

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UG85 Project: BAY WOOD

Lab File ID: 02021203 Date Extracted: 12/28/11

Instrument ID: NT4 Date Analyzed: 02/02/12

Matrix: SOLID Time Analyzed: 1213

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UG85LCSS1	UG85LCSS1	02021204	02/02/12
02	SP-E1-7	UG85A	02021205	02/02/12
03	SP-E1-10	UG85B	02021206	02/02/12
04	SP-E1-11	UG85C	02021207	02/02/12
05	SP-E1-12	UG85D	02021208	02/02/12
06	SP-M2-2	UG85E	02021209	02/02/12
07	SP-M2-4	UG85F	02021210	02/02/12
08	SP-E1-7	UG85A	02021211	02/02/12
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MB-122811
METHOD BLANK

Lab Sample ID: MB-122811
LIMS ID: 12-1867
Matrix: Soil
Data Release Authorized:
Reported: 02/03/12

QC Report No: UG85-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 12/28/11
Date Analyzed: 02/02/12 12:13
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	60.7%
d14-Dibenzo(a,h)anthracen	65.7%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 11/21/11 DFTPP Injection Time: 0937

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.8
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	10.0 - 80.0% of mass 198	47.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	30.3
365	Greater than 1.0% of mass 198	4.03
441	0.0 - 24.0% of mass 442	22.6 (15.5)2
442	50.0 - 200.0% of mass 198	145.7
443	15.0 - 24.0% of mass 442	29.5 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC251121	IC251121	11211102	11/21/11	1109
02	IC011121	IC011121	11211103	11/21/11	1138
03	IC051121	IC051121	11211104	11/21/11	1206
04	IC11121	IC11121	11211105	11/21/11	1233
05	IC51121	IC51121	11211106	11/21/11	1301
06	IC101121	IC101121	11211107	11/21/11	1329
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 02/02/12 DFTPP Injection Time: 1031

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	25.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	28.6
70	Less than 2.0% of mass 69	0.1 (0.5)1
127	10.0 - 80.0% of mass 198	42.8
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 60.0% of mass 198	34.3
365	Greater than 1.0% of mass 198	4.76
441	0.0 - 24.0% of mass 442	28.4 (14.6)2
442	50.0 - 200.0% of mass 198	194.3
443	15.0 - 24.0% of mass 442	38.0 (19.5)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0202	CC0202	02021202	02/02/12	1119
02	UG85MBS1	UG85MBS1	02021203	02/02/12	1213
03	UG85LCSS1	UG85LCSS1	02021204	02/02/12	1237
04	SP-E1-7	UG85A	02021205	02/02/12	1302
05	SP-E1-10	UG85B	02021206	02/02/12	1327
06	SP-E1-11	UG85C	02021207	02/02/12	1352
07	SP-E1-12	UG85D	02021208	02/02/12	1417
08	SP-M2-2	UG85E	02021209	02/02/12	1441
09	SP-M2-4	UG85F	02021210	02/02/12	1506
10	SP-E1-7	UG85A	02021211	02/02/12	1626
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6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UG85 Project: BAY WOOD

Instrument ID: NT4 Calibration Date: 11/21/11

LAB FILE ID: RRF0.1=11211103 RRF0.5=11211104 RRF1 =11211105
RRF2.5=11211102 RRF5 =11211106 RRF10 =11211107

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	___ RRF	%RSD /R^2
Naphthalene	1.153	0.967	0.977	0.932	0.878	0.888	0.966	10.4
2-Methylnaphthalene	0.679	0.543	0.555	0.543	0.523	0.518	0.560	10.6
Acenaphthylene	1.836	1.390	1.450	1.504	1.467	1.554	1.534	10.3
Acenaphthene	1.334	1.033	1.037	0.992	0.967	1.018	1.064	12.7
Dibenzofuran	1.825	1.445	1.525	1.442	1.412	1.468	1.520	10.2
Fluorene	1.534	1.146	1.140	1.112	1.104	1.170	1.201	13.7
Phenanthrene	1.325	1.042	1.022	0.972	0.978	0.987	1.054	12.8
Anthracene	1.218	0.930	0.919	0.944	0.927	0.998	0.989	11.7
Fluoranthene	1.565	1.109	1.078	1.047	1.038	1.075	1.152	17.7
Pyrene	1.331	0.968	0.958	0.949	0.923	0.976	1.018	15.2
Benzo(a)anthracene	1.283	0.858	0.883	0.864	0.857	0.913	0.943	17.8
Chrysene	1.381	0.920	0.933	0.875	0.874	0.920	0.984	19.9
Benzo(b)fluoranthene	1.416	0.927	0.958	0.915	0.909	1.016	1.024	19.2
Benzo(k)fluoranthene	1.180	0.947	1.027	0.978	0.923	0.998	1.009	9.1
Benzo(j)fluoranthene	0.908	0.916	0.897	0.808	0.863	0.938	0.888	5.2
Benzo(a)pyrene	0.738	0.792	0.885	0.888	0.907	1.019	0.872	11.2
Indeno(1,2,3-cd)pyrene	1.298	0.986	1.024	1.120	1.192	1.336	1.159	12.3
Dibenzo(a,h)anthracene	0.847	0.718	0.842	0.888	0.958	1.116	0.895	14.9
Benzo(g,h,i)perylene	1.255	0.944	1.071	1.041	1.073	1.179	1.094	9.9
1-methylnaphthalene	0.711	0.540	0.539	0.508	0.499	0.494	0.548	14.9
Perylene	1.167	0.908	0.940	0.895	0.907	1.011	0.971	10.8
2-Methylnaphthalene-d10	0.735	0.614	0.601	0.570	0.558	0.557	0.606	11.2
Dibenzo(a,h)anthracene-d14	0.593	0.558	0.640	0.717	0.782	0.926	0.703	19.4

<- Outside QC limits: %RSD <20% or R^2 > 0.990

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UG85 Project: BAY WOOD

Instrument ID: NT4 Cont. Calib. Date: 02/02/12

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1119

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	0.966	0.940	0.700	AVRG	-2.7	
2-Methylnaphthalene	0.560	0.527	0.400	AVRG	-5.9	
Acenaphthylene	1.534	1.289	0.900	AVRG	-16.0	
Acenaphthene	1.064	0.979	0.900	AVRG	-8.0	
Dibenzofuran	1.520	1.503	0.800	AVRG	-1.1	
Fluorene	1.201	1.061	0.900	AVRG	-11.6	
Phenanthrene	1.054	0.970	0.700	AVRG	-8.0	
Anthracene	0.989	0.856	0.700	AVRG	-13.4	
Fluoranthene	1.152	0.992	0.600	AVRG	-13.9	
Pyrene	1.018	0.857	0.600	AVRG	-15.8	
Benzo(a)anthracene	0.943	0.672	0.800	AVRG	-28.7	<-
Chrysene	0.984	0.874	0.700	AVRG	-11.2	
Benzo(b)fluoranthene	1.024	0.929	0.700	AVRG	-9.3	
Benzo(k)fluoranthene	1.009	1.000	0.700	AVRG	-0.9	
Benzo(j)fluoranthene	0.888	0.889	0.010	AVRG	0.1	
Benzo(a)pyrene	0.872	0.890	0.700	AVRG	2.1	
Indeno(1,2,3-cd)pyrene	1.159	1.115	0.500	AVRG	-3.8	
Dibenzo(a,h)anthracene	0.895	0.866	0.400	AVRG	-3.2	
Benzo(g,h,i)perylene	1.094	1.091	0.500	AVRG	-0.3	
1-methylnaphthalene	0.548	0.505	0.010	AVRG	-7.8	
Perylene	0.971	0.965	0.010	AVRG	-0.6	
2-Methylnaphthalene-d10	0.606	0.572	0.010	AVRG	-5.6	
Dibenzo(a,h)anthracene-d14	0.703	0.751	0.010	AVRG	6.8	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UG85 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 02/02/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	343604	5.50	195804	7.79	321226	9.76
	UPPER LIMIT	687208		391608		642452	
	LOWER LIMIT	171802		97902		160613	
	CCAL	334331	4.30	192223	6.53	318348	8.45
	UPPER LIMIT		4.80		7.03		8.95
	LOWER LIMIT		3.80		6.03		7.95
01	UG85MBS1	296380	4.30	180040	6.52	295626	8.44
02	UG85LCSS1	333317	4.30	214982	6.52	353994	8.44
03	SP-E1-7	263628	4.30	156367	6.52	281509	8.44
04	SP-E1-10	318594	4.30	187870	6.52	319419	8.44
05	SP-E1-11	303821	4.30	187564	6.52	324924	8.44
06	SP-E1-12	251182	4.30	149311	6.52	252909	8.44
07	SP-M2-2	250351	4.30	150145	6.52	248716	8.44
08	SP-M2-4	266205	4.30	159683	6.52	269495	8.44
09	SP-E1-7	285233	4.31	173448	6.53	282447	8.45
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IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UG85 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 02/02/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	375207	15.01	400310	18.86		
	UPPER LIMIT	750414		800620			
	LOWER LIMIT	187604		200155			
	CCAL	399023	12.72	340244	16.18		
	UPPER LIMIT		13.22		16.68		
	LOWER LIMIT		12.22		15.68		
01	UG85MBS1	348511	12.72	296721	16.18		
02	UG85LCSS1	436448	12.71	406439	16.18		
03	SP-E1-7	377613	12.71	404376	16.18		
04	SP-E1-10	408106	12.71	436716	16.18		
05	SP-E1-11	432390	12.72	451045	16.19		
06	SP-E1-12	323273	12.71	353489	16.18		
07	SP-M2-2	313084	12.71	335158	16.18		
08	SP-M2-4	340222	12.71	369669	16.18		
09	SP-E1-7	363828	12.73	401583	16.19		
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IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

Total Solids

ARI Job ID: UG85

Extractions Total Solids-extts
Data By: Damien Greene
Created: 12/23/11

Worklist: 3986
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UC38A 11-29360 SP-E1-1	1.13	10.77	8.52	76.7	NR
2.	UC38B 11-29361 SP-E1-2	1.13	10.14	8.05	76.8	NR
3.	UC38C 11-29362 SP-E1-3	1.14	10.78	8.55	76.9	NR
4.	UC38D 11-29363 SP-E1-4	1.13	10.83	8.29	73.8	NR
5.	UC38E 11-29364 SP-E1-5	1.13	10.40	9.37	88.9	NR
6.	UC38F 11-29365 SP-E1-6	1.11	10.51	7.68	69.9	NR
7.	UC38G 11-29366 SP-E1-7	1.12	10.09	7.88	75.4	NR
8.	UC38H 11-29367 SP-E1-8	1.13	10.32	8.65	81.8	NR
9.	UC38I 11-29368 SP-E1-9	1.14	10.36	8.24	77.0	NR
10.	UC38J 11-29369 SP-E1-10	1.13	10.81	8.77	78.9	NR
11.	UC38K 11-29370 SP-E1-11	1.21	10.40	7.33	66.6	NR
12.	UC38L 11-29371 SP-E1-12	1.13	10.48	8.95	83.6	NR
13.	UC38M 11-29372 SP-M2-1	1.16	10.91	8.64	76.7	NR

UC38:00043 w 2/3/12

UC85:00036

Extractions Total Solids-extts
Data By: Damien Greene
Created: 12/23/11

Worklist: 3986
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
14.	UC38N 11-29373 SP-M2-2	1.15	10.39	8.63	81.0	NR
15.	UC38O 11-29374 SP-M2-3	1.15	10.40	7.82	72.1	NR
16.	UC38P 11-29375 SP-M2-4	1.14	10.15	8.22	78.6	NR
17.	UC38Q 11-29376 SP-M2-5	1.13	10.30	8.34	78.6	NR

Extractions Total Solids-extts
Data By: Damien Greene
Created: 12/23/11

Worklist: 3986
Analyst: DG
Comments:

Oven ID: ø15

Balance ID: 34040092

Samples In: Date: 12-23-11 Time: 18:05 Temp: 108°C Analyst: AC/DG

Samples Out: Date 12/27/11 Time: 05:50 Temp: 103° Analyst: RR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UC38A 11-29360 SP-E1-1	1.13	1ø.77	8.52		NR
2.	UC38B 11-29361 SP-E1-2	1.13	1ø.14	8.ø5		NR
3.	UC38C 11-29362 SP-E1-3	1.14	1ø.78	8.55		NR
4.	UC38D 11-29363 SP-E1-4	1.13	1ø.83	8.29		NR
5.	UC38E 11-29364 SP-E1-5	1.13	1ø.4ø	9.37		NR
6.	UC38F 11-29365 SP-E1-6	1.11	1ø.51	7.68		NR
7.	UC38G 11-29366 SP-E1-7	1.12	1ø.49	7.88		NR
8.	UC38H 11-29367 SP-E1-8	1.13	1ø.32	8.65		NR
9.	UC38I 11-29368 SP-E1-9	1.14	1ø.56	8.24		NR
10.	UC38J 11-29369 SP-E1-10	1.13	1ø.81	8.77		NR
11.	UC38K 11-29370 SP-E1-11	1.21	1ø.4ø	7.33		NR
12.	UC38L 11-29371 SP-E1-12	1.13	1ø.48	8.95		NR
13.	UC38M 11-29372 SP-M2-1	1.16	1ø.91	8.64		NR

~~UC38 000115~~

~~UG05 00038~~

Extractions Total Solids-extts
Data By: Damien Greene
Created: 12/23/11

Worklist: 3986
Analyst: DG
Comments:

Oven ID: ϕ15

Balance ID: 380 dec 12

Samples In: Date: 12-23-11 Time: 1845 Temp: ~~104~~ 108°C AC 122311 Analyst: AC IDG

Samples Out: Date: _____ Time: _____ Temp: _____ Analyst: _____

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
14.	UC38N 11-29373 SP-M2-2	1.15	10.39	8.63		NR
15.	UC38O 11-29374 SP-M2-3	1.15	10.40	7.82		NR
16.	UC38P 11-29375 SP-M2-4	1.14	10.15	8.22		NR
17.	UC38Q 11-29376 SP-M2-5	1.13	10.30	8.34		NR

12/31/11

~~UC38:00046~~

~~UG85:00039~~

Table of Contents: ARI Job UG92

Client: SLR International Corp. Project: 108.00339.00001 Bay Wood

2/13/12

EJ

Signature

February-13-2012

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

February 13, 2012

Scott Miller
SLR International Corp.
1800 Blankenship Road, Suite 440
West Linn, OR 97068

RE: Bay Wood, 108.00339.00001
ARI Job No.: UG92

Dear Scott:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
-For-
Susan D. Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile UG92

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UG92

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number:	Turn-around Requested: Standard (see comments)
ARI Client Company: SLR INTERNATIONAL CORP	Phone: (425)402-8800
Client Contact: CHRIS LEE	
Client Project Name: BAY WOOD	
Client Project #: 108.00339.00001	Samplers: CAL

Page: 1 of 2
Date: 2/1/12
Ice Present?
No. of Coolers:
Cooler Temps:

Sample ID	Date	Time	Matrix	No. Containers	CPAHs								Notes/Comments
SP-M2-6	2/1/12	1150	SOIL	1	X								
SP-M2-7	↓	1155	↓	↓	X								
SP-M2-8	↓	1200	↓	↓	X								
SP-M2-9	↓	1205	↓	↓	X								
SP-M2-10	↓	1210	↓	↓	X								
SP-M2-11	↓	1215	↓	↓									
SP-M2-12	↓	1220	↓	↓									
SP-M2-13	↓	1225	↓	↓									
SP-M2-14	↓	1230	↓	↓									
SP-M2-15	↓	1235	↓	↓									

Comments/Special Instructions: Please extract all samples & then freeze for further analysis.

Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
Printed Name: CHRIS LEE	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
Company: SLR	Company: ARI	Company:	Company:
Date & Time: 2/1/12 1533	Date & Time: 2/1/12 1533	Date & Time:	Date & Time:

__Limits of Liability:__ ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

UG92:00003

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number:	Turn-around Requested: Standard (see comments)
ARI Client Company: SLR INTERNATIONAL CORP	Phone: (425) 402-8800
Client Contact: CHRIS LEE	
Client Project Name: BAY WOOD	
Client Project #: 108.00339.00001	Samplers: CAL

Page: 2	of 2
Date: 2/1/12	Ice Present?
No. of Coolers:	Cooler Temps:

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs								Notes/Comments
SP-M2-16	2/1/12	1240	SOIL	1	X @								
SP-M2-17	↓	1245	↓	↓									

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
Please extract all samples & then freeze for future analysis	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: CHRIS LEE	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
	Company: SLR	Company: ARI	Company:	Company:
	Date & Time: 2/1/12 1533	Date & Time: 2/1/12 1533	Date & Time:	Date & Time:

UG92:00004

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SLR Project Name: Bay wood

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: UG92 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES (NO)

Were custody papers included with the cooler? (YES) NO

Were custody papers properly filled out (ink, signed, etc.) (YES) NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 1.5 0.3 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 2/1/12 Time: 1533

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES (NO)

What kind of packing material was used? Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA (YES) NO

Were all bottles sealed in individual plastic bags? YES (NO)

Did all bottles arrive in good condition (unbroken)? (YES) NO

Were all bottle labels complete and legible? (YES) NO

Did the number of containers listed on COC match with the number of containers received? (YES) NO

Did all bottle labels and tags agree with custody papers? (YES) NO

Were all bottles used correct for the requested analyses? (YES) NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... (NA) YES NO

Were all VOC vials free of air bubbles? (NA) YES NO

Was sufficient amount of sample sent in each bottle? (YES) NO

Date VOC Trip Blank was made at ARI (NA) _____

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

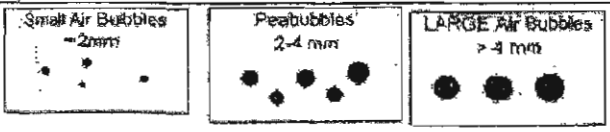
Samples Logged by: TS Date: 2-2-12 Time: 1031

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UG92

Case Narrative

Client: SLR International Corp.
Project: Bay Wood, 108.00339.00001
ARI Job No.: UG92

Sample receipt

Twelve soil samples were received on February 1, 2012. The cooler temperatures measured by IR thermometer following ARI SOP were 0.3 and 1.5°C. Per client instructions, all samples were extracted upon receipt and seven samples were frozen and placed in sample archives. The remaining five samples were analyzed for SIM PAHs as requested; the results of which are reported here. For details regarding sample receipt, please refer to the Cooler Receipt Form.

SIM PAHs by SW8270D

The samples and associated laboratory QC were extracted and analyzed within the method recommended holding times.

The initial and continuing calibrations were within method requirements. Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS percent recoveries were within control limits.

The matrix spike duplicate percent recoveries of Benzo(a)anthracene, Chrysene, and Benzo(a)pyrene were outside advisory control limits high with a wide RPD for Benzo(a)pyrene. No corrective action is required for matrix QC.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UG92
Client: SLR International Corp.
Project Event: 108.00339.00001
Project Name: Bay Wood

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SP-M2-6	UG92A	12-1911	Soil	02/01/12 11:50	02/01/12 15:33
2.	SP-M2-7	UG92B	12-1912	Soil	02/01/12 11:55	02/01/12 15:33
3.	SP-M2-8	UG92C	12-1913	Soil	02/01/12 12:00	02/01/12 15:33
4.	SP-M2-9	UG92D	12-1914	Soil	02/01/12 12:05	02/01/12 15:33
5.	SP-M2-10	UG92E	12-1915	Soil	02/01/12 12:10	02/01/12 15:33
6.	SP-M2-11	UG92F	12-1916	Soil	02/01/12 12:15	02/01/12 15:33
7.	SP-M2-12	UG92G	12-1917	Soil	02/01/12 12:20	02/01/12 15:33
8.	SP-M2-13	UG92H	12-1918	Soil	02/01/12 12:25	02/01/12 15:33
9.	SP-M2-14	UG92I	12-1919	Soil	02/01/12 12:30	02/01/12 15:33
10.	SP-M2-15	UG92J	12-1920	Soil	02/01/12 12:35	02/01/12 15:33
11.	SP-M2-16	UG92K	12-1921	Soil	02/01/12 12:40	02/01/12 15:33
12.	SP-M2-17	UG92L	12-1922	Soil	02/01/12 12:45	02/01/12 15:33

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1920-1	ABN	100/150	MEOH	06/09/12
B	1917-2	SIM PNA	15/75	ACETONE	05/30/12
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1925-5	LOW PCB	0.2	ACETONE	05/28/12
E	1900-2	HERB	62.5	MEOH	10/06/12
F	1919-5	PCP	12.5	ACETONE	12/09/12
G	1906-3	d8-DIOXANE	100	MEOH	04/30/12
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1896-3	LOW S. PNA	1.5	ACETONE	09/22/12
J	1915-4	TBT-PORE	0.125	MECL2	11/23/12
K	1925-4	MED PCB	20	ACETONE	05/28/12
L	1915-3	TBT	2.5	MECL2	11/23/12
M	1888-4	EPH	1500	MECL2	04/04/12
N	1914-2	PCB	2	ACETONE	05/28/12
O	1947-2	TPH	450	MECL2	09/28/12
P	1948-3	HCID	2250	MECL2	09/28/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1925-2	LOW PCP	1.25	ACETONE	12/09/12

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1907-1	PCB 1660	20	ACETONE	11/01/12
2#		BCOC PEST	10	ACETONE	NA
3	1922-2	PEST	01/02/10	ACETONE	12/13/12
4	1922-3	LOW PEST	.1/.2/1	ACETONE	12/13/12
5	1902-4	EPH	1500	MECL2	10/04/12
6	1919-2	PCP	12.5/125	ACETONE	10/15/12
7	1926-2	ABN	100	MEOH	05/31/12
8	1916-2	TBT	2.5	MECL2	11/23/12
9	1918-2	PORE TBT	.125/.25	MECL2	11/23/12
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1948-1	LOW PCB	2	ACETONE	11/01/12
14					
15	1929-1	SIM PNA	15/75	MEOH	06/21/12
16	1906-4	1,4-DIOXANE	100	MEOH	04/30/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1927-2	LOW SIM PNA	1.5	ACETONE	06/20/12
19	1931-1	AK103	7500	ACETONE	05/17/12
20	1930-1	PNA	100	ACETONE	06/23/12
21	1943-2	SKY/BHT	100	MEOH	07/27/12
22	1852-1	HERB	04 to 5000	MEOH	03/03/12
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#		DIPHENYL	100	MEOH	NA
26	1904-2	OP-PEST	25	MEOH	02/10/12
27		STEROLS	200	MEOH	NA
28#		ADD. PEST	2	ACETONE	NA
29#		DECANES	100	MEOH	NA

LCS SOLUTIONS

30		EDB/DBCP	0.2	MEOH	NA
31	1944-1	TERPINEOL	100	MEOH	07/27/12
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33		RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36		ALKYL PNA B	10	MEOH	NA
37		CAR/PERY	100	ACETONE	NA
38	1926-3	ABN ACID	200-450	MEOH	06/19/12
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1900-1	FULL RESIN	250	ACETONE	08/12/12
51		DDTS	0.01	ACETONE	NA
52		1232 PCB	20	ACETONE	NA
53	1919-1	DALAPON	50	MEOH	08/22/12
54		T-CHLORDANE	10	ACETONE	NA
55		TOXAPHENE	50	ACETONE	NA
56	1917-1	ABN BASE	50-200	MEOH	05/31/12
#=PROJECT SPECIFIC SOLUTION					

DL, LOD, LOQ and Control Limits Summary
Analysis of Solid Samples for PNA EPA Method 8270 – SIM

Microwave (EPA 3546) or Sonication (EPA 3550C) Extraction using 10 g sample with extract with 0.5 mL final volume. ARI Bench Sheet 3060F or 3051F ARI Analyses: PNSSMI & PNSSCI

Analyte	DL[1] µg/kg	LOD[1,2] µg/kg	LOQ[1] µg/kg	LCS Control Limit[3,4]	Replicate RPD[5]
Naphthalene	2.63	**5.0**	**5.0**	37 – **100**	≤ 40
1-Methylnaphthalene	1.71	**2.5**	**5.0**	30 – 160[6]	≤ 40
2-Methylnaphthalene	1.52	**2.5**	**5.0**	37 – **100**	≤ 40
Biphenyl	1.44	**2.5**	**5.0**	30 – 160[6]	≤ 40
2,6-Dimethylnapthalene	0.75	**2.5**	**5.0**	30 – 160[6]	≤ 40
Acenaphthylene	1.26	**2.5**	**5.0**	35 – **100**	≤ 40
Acenaphthene	1.32	**2.5**	**5.0**	39 – **100**	≤ 40
Dibenzofuran	1.51	**2.5**	**5.0**	39 – **100**	≤ 40
1,6,7-Trimethylnaphthalene	0.42	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluorene	1.29	**2.5**	**5.0**	42 – **100**	≤ 40
Benzothiophene	0.43	**2.5**	**5.0**	30 – 160[6]	≤ 40
Phenanthrene	1.98	**2.5**	**5.0**	47 – **100**	≤ 40
Anthracene	1.46	**2.5**	**5.0**	41 – 106	≤ 40
Carbazole	0.62	**2.5**	**5.0**	30 – 160[6]	≤ 40
1-Methylphenanthrene	0.70	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluoranthene	1.77	**4.0**	**5.0**	52 – 109	≤ 40
Pyrene	2.22	**4.0**	**5.0**	47 – 111	≤ 40
Benzo(a)anthracene	1.60	**2.5**	**5.0**	47 – 114	≤ 40
Chrysene	1.88	**2.5**	**5.0**	51 – 106	≤ 40
Benzo(b)fluoranthene	1.90	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(k)fluoranthene	2.05	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(e)pyrene	0.65	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(a)pyrene	1.75	**2.5**	**5.0**	44 – 111	≤ 40
Indeno(1,2,3-cd)pyrene	3.47	**4.0**	**5.0**	41 – 114	≤ 40
Dibenz(a,h)anthracene	2.38	**4.0**	**5.0**	42 – 116	≤ 40
Benzo(g,h,i)perylene	3.05	**4.0**	**5.0**	37 – 115	≤ 40
Perylene	2.99	**4.0**	**5.0**	30 – 160[6]	≤ 40
Surrogate Recovery			**MB / LCS**	**Samples**	**RPD**
2-Methylnapthalene-d_{10}			35 – **100**	34 – **100**	≤ 40
Dibenzo(a,h)anthracene-d_{14}			37 – 120	**10** – 117	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD), Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) LOD verification performed 8/26/11 ARI Sample TJ75I
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Control limits calculated using all data from 1/1/08 through 12/31/08.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(6) Default limits pending generation of historic limits.

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UG92

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-6
SAMPLE

Lab Sample ID: UG92A
LIMS ID: 12-1911
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/09/12 21:04
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.78 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 17.5%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	110
218-01-9	Chrysene	4.6	180
50-32-8	Benzo(a)pyrene	4.6	84
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	60
53-70-3	Dibenz(a,h)anthracene	4.6	22
TOTBFA	Total Benzofluoranthenes	4.6	290

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	70.7%
d14-Dibenzo(a,h)anthracen	104%

11692: 00017R 3/6/12

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-M2-7
SAMPLE

Lab Sample ID: UG92B
LIMS ID: 12-1912
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/10/12 13:39
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.43 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 26.6%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	120
218-01-9	Chrysene	4.8	240
50-32-8	Benzo(a)pyrene	4.8	71
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	57
53-70-3	Dibenz(a,h)anthracene	4.8	22
TOTBFA	Total Benzofluoranthenes	4.8	350

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	67.3%
d14-Dibenzo(a,h)anthracen	89.3%

UG92.00018R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-8
SAMPLE

Lab Sample ID: UG92C
LIMS ID: 12-1913
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/10/12 14:04
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.39 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 21.8%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	150
218-01-9	Chrysene	4.8	310
50-32-8	Benzo(a)pyrene	4.8	140
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	74
53-70-3	Dibenz(a,h)anthracene	4.8	28
TOTBFA	Total Benzofluoranthenes	4.8	460

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	63.7%
d14-Dibenzo(a,h)anthracen	110%

UG92:CCC19R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-M2-9
SAMPLE

Lab Sample ID: UG92D
LIMS ID: 12-1914
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/10/12 14:28
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.81 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 24.2%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	100
218-01-9	Chrysene	4.6	240
50-32-8	Benzo(a)pyrene	4.6	51
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	36
53-70-3	Dibenz(a,h)anthracene	4.6	16
TOTBFA	Total Benzofluoranthenes	4.6	240

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	63.3%
d14-Dibenzo(a,h)anthracen	98.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-10
SAMPLE

Lab Sample ID: UG92E
LIMS ID: 12-1915
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/10/12 14:53
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.53 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 25.3%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	110
218-01-9	Chrysene	4.8	190
50-32-8	Benzo(a)pyrene	4.8	64
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	47
53-70-3	Dibenz(a,h)anthracene	4.8	16
TOTBFA	Total Benzofluoranthenes	4.8	250

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	63.0%
d14-Dibenzo(a,h)anthracen	89.7%

UG92:00021R

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
MB-020612	72.0%	112%	0
LCS-020612	69.3%	116%	0
SP-M2-6	70.7%	104%	0
SP-M2-6 MS	71.0%	107%	0
SP-M2-6 MSD	61.3%	92.3%	0
SP-M2-7	67.3%	89.3%	0
SP-M2-8	63.7%	110%	0
SP-M2-9	63.3%	98.7%	0
SP-M2-10	63.0%	89.7%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 12-1911 to 12-1922

UG92:00022R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-6
MATRIX SPIKE

Lab Sample ID: UG92A
LIMS ID: 12-1911
Matrix: Soil
Data Release Authorized: *B*
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted MS/MSD: 02/06/12

Date Analyzed MS: 02/09/12 21:29
MSD: 02/10/12 13:14
Instrument/Analyst MS: NT4/JZ
MSD: NT4/JZ

Sample Amount MS: 10.8 g-dry-wt
MSD: 10.8 g-dry-wt
Final Extract Volume MS: 0.50 mL
MSD: 0.50 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzo(a)anthracene	107	214	139	77.0%	269	139	117%	22.8%
Chrysene	176	278	139	73.4%	373	139	142%	29.2%
Benzo(a)pyrene	84.2	153	139	49.5%	244	139	115%	45.8%
Indeno(1,2,3-cd)pyrene	59.9	157	139	69.9%	183	139	88.6%	15.3%
Dibenz(a,h)anthracene	22.2	140	139	84.7%	137	139	82.6%	2.2%
Total Benzofluoranthenes	287	470	279	65.6%	608	277	116%	25.6%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

UG92.00023R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-6
MATRIX SPIKE

Lab Sample ID: UG92A
LIMS ID: 12-1911
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/09/12 21:29
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.76 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 17.5%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	---
218-01-9	Chrysene	4.6	---
50-32-8	Benzo(a)pyrene	4.6	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	---
53-70-3	Dibenz(a,h)anthracene	4.6	---
TOTBFA	Total Benzofluoranthenes	4.6	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	71.0%
d14-Dibenzo(a,h)anthracen	107%

UG92:00024R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-M2-6
MATRIX SPIKE DUPLICATE

Lab Sample ID: UG92A
LIMS ID: 12-1911
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/10/12 13:14
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.82 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 17.5%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	---
218-01-9	Chrysene	4.6	---
50-32-8	Benzo(a)pyrene	4.6	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	---
53-70-3	Dibenz(a,h)anthracene	4.6	---
TOTBFA	Total Benzofluoranthenes	4.6	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	61.3%
d14-Dibenzo(a,h)anthracen	92.3%

UG92:00025R

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: LCS-020612
LAB CONTROL SAMPLE

Lab Sample ID: LCS-020612
LIMS ID: 12-1911
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 02/06/12
Date Analyzed LCS: 02/09/12 20:39
Instrument/Analyst LCS: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Benzo(a)anthracene	122	150	81.3%
Chrysene	123	150	82.0%
Benzo(a)pyrene	125	150	83.3%
Indeno(1,2,3-cd)pyrene	136	150	90.7%
Dibenz(a,h)anthracene	140	150	93.3%
Total Benzofluoranthenes	261	300	87.0%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	69.3%
d14-Dibenzo(a,h)anthracen	116%

UG92:00026R

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UG92MBS1

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UG92 Project: BAY WOOD

Lab File ID: 02091222 Date Extracted: 02/09/12

Instrument ID: NT4 Date Analyzed: 02/09/12

Matrix: SOLID Time Analyzed: 2014

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UG92LCSS1	UG92LCSS1	02091223	02/09/12
02	SP-M2-6	UG92A	02091224	02/09/12
03	SP-M2-6 MS	UG92AMS	02091225	02/09/12
04	SP-M2-6 MSD	UG92AMSD	02101205	02/10/12
05	SP-M2-7	UG92B	02101206	02/10/12
06	SP-M2-8	UG92C	02101207	02/10/12
07	SP-M2-9	UG92D	02101208	02/10/12
08	SP-M2-10	UG92E	02101209	02/10/12
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: MB-020612
METHOD BLANK

Lab Sample ID: MB-020612
LIMS ID: 12-1911
Matrix: Soil
Data Release Authorized:
Reported: 03/06/12

QC Report No: UG92-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 02/06/12
Date Analyzed: 02/09/12 20:14
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	72.0%
d14-Dibenzo(a,h)anthracen	112%

UG92.00028R

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 11/21/11 DFTPP Injection Time: 0937

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.8
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	10.0 - 80.0% of mass 198	47.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	30.3
365	Greater than 1.0% of mass 198	4.03
441	0.0 - 24.0% of mass 442	22.6 (15.5)2
442	50.0 - 200.0% of mass 198	145.7
443	15.0 - 24.0% of mass 442	29.5 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC251121	IC251121	11211102	11/21/11	1109
02	IC011121	IC011121	11211103	11/21/11	1138
03	IC051121	IC051121	11211104	11/21/11	1206
04	IC11121	IC11121	11211105	11/21/11	1233
05	IC51121	IC51121	11211106	11/21/11	1301
06	IC101121	IC101121	11211107	11/21/11	1329
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FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 02/09/12 DFTPP Injection Time: 1137

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	27.3
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	31.7
70	Less than 2.0% of mass 69	0.2 (0.7)1
127	10.0 - 80.0% of mass 198	44.3
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 60.0% of mass 198	32.0
365	Greater than 1.0% of mass 198	4.30
441	0.0 - 24.0% of mass 442	23.9 (14.5)2
442	50.0 - 200.0% of mass 198	164.6
443	15.0 - 24.0% of mass 442	32.9 (20.0)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0209	CC0209	02091202	02/09/12	1158
02	UG92MBS1	UG92MBS1	02091222	02/09/12	2014
03	UG92LCSS1	UG92LCSS1	02091223	02/09/12	2039
04	SP-M2-6	UG92A	02091224	02/09/12	2104
05	SP-M2-6 MS	UG92AMS	02091225	02/09/12	2129
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5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 02/10/12 DFTPP Injection Time: 1106

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	24.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	28.6
70	Less than 2.0% of mass 69	0.1 (0.3)1
127	10.0 - 80.0% of mass 198	42.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	32.3
365	Greater than 1.0% of mass 198	4.55
441	0.0 - 24.0% of mass 442	25.8 (14.5)2
442	50.0 - 200.0% of mass 198	178.5
443	15.0 - 24.0% of mass 442	34.1 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0210	CC0210	02101202	02/10/12	1155
02	SP-M2-6 MSD	UG92AMSD	02101205	02/10/12	1314
03	SP-M2-7	UG92B	02101206	02/10/12	1339
04	SP-M2-8	UG92C	02101207	02/10/12	1404
05	SP-M2-9	UG92D	02101208	02/10/12	1428
06	SP-M2-10	UG92E	02101209	02/10/12	1453
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19					
20					
21					
22					

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UG92 Project: BAY WOOD

Instrument ID: NT4 Calibration Date: 11/21/11

LAB FILE ID: RRF0.1=11211103 RRF0.5=11211104 RRF1 =11211105
RRF2.5=11211102 RRF5 =11211106 RRF10 =11211107

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	___ RRF	%RSD /R^2
Naphthalene	1.153	0.967	0.977	0.932	0.878	0.888	0.966	10.4
2-Methylnaphthalene	0.679	0.543	0.555	0.543	0.523	0.518	0.560	10.6
Acenaphthylene	1.836	1.390	1.450	1.504	1.467	1.554	1.534	10.3
Acenaphthene	1.334	1.033	1.037	0.992	0.967	1.018	1.064	12.7
Dibenzofuran	1.825	1.445	1.525	1.442	1.412	1.468	1.520	10.2
Fluorene	1.534	1.146	1.140	1.112	1.104	1.170	1.201	13.7
Phenanthrene	1.325	1.042	1.022	0.972	0.978	0.987	1.054	12.8
Anthracene	1.218	0.930	0.919	0.944	0.927	0.998	0.989	11.7
Fluoranthene	1.565	1.109	1.078	1.047	1.038	1.075	1.152	17.7
Pyrene	1.331	0.968	0.958	0.949	0.923	0.976	1.018	15.2
Benzo(a)anthracene	1.283	0.858	0.883	0.864	0.857	0.913	0.943	17.8
Chrysene	1.381	0.920	0.933	0.875	0.874	0.920	0.984	19.9
Benzo(b)fluoranthene	1.416	0.927	0.958	0.915	0.909	1.016	1.024	19.2
Benzo(k)fluoranthene	1.180	0.947	1.027	0.978	0.923	0.998	1.009	9.1
Benzo(j)fluoranthene	0.908	0.916	0.897	0.808	0.863	0.938	0.888	5.2
Benzo(a)pyrene	0.738	0.792	0.885	0.888	0.907	1.019	0.872	11.2
Indeno(1,2,3-cd)pyrene	1.298	0.986	1.024	1.120	1.192	1.336	1.159	12.3
Dibenzo(a,h)anthracene	0.847	0.718	0.842	0.888	0.958	1.116	0.895	14.9
Benzo(g,h,i)perylene	1.255	0.944	1.071	1.041	1.073	1.179	1.094	9.9
1-methylnaphthalene	0.711	0.540	0.539	0.508	0.499	0.494	0.548	14.9
Perylene	1.167	0.908	0.940	0.895	0.907	1.011	0.971	10.8
2-Methylnaphthalene-d10	0.735	0.614	0.601	0.570	0.558	0.557	0.606	11.2
Dibenzo(a,h)anthracene-d14	0.593	0.558	0.640	0.717	0.782	0.926	0.703	19.4

<- Outside QC limits: %RSD <20% or R^2 > 0.990

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UG92 Project: BAY WOOD

Instrument ID: NT4 Cont. Calib. Date: 02/09/12

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1158

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	0.966	0.948	0.700	AVRG	-1.9	
2-Methylnaphthalene	0.560	0.585	0.400	AVRG	4.5	
Acenaphthylene	1.534	1.559	0.900	AVRG	1.6	
Acenaphthene	1.064	0.984	0.900	AVRG	-7.5	
Dibenzofuran	1.520	1.462	0.800	AVRG	-3.8	
Fluorene	1.201	1.148	0.900	AVRG	-4.4	
Phenanthrene	1.054	0.973	0.700	AVRG	-7.7	
Anthracene	0.989	1.025	0.700	AVRG	3.6	
Fluoranthene	1.152	1.065	0.600	AVRG	-7.6	
Pyrene	1.018	0.906	0.600	AVRG	-11.0	
Benzo(a)anthracene	0.943	0.875	0.800	AVRG	-7.2	
Chrysene	0.984	0.873	0.700	AVRG	-11.3	
Benzo(b)fluoranthene	1.024	0.883	0.700	AVRG	-13.8	
Benzo(k)fluoranthene	1.009	0.961	0.700	AVRG	-4.8	
Benzo(j)fluoranthene	0.888	0.856	0.010	AVRG	-3.6	
Benzo(a)pyrene	0.872	0.896	0.700	AVRG	2.8	
Indeno(1,2,3-cd)pyrene	1.159	1.194	0.500	AVRG	3.0	
Dibenzo(a,h)anthracene	0.895	0.989	0.400	AVRG	10.5	
Benzo(g,h,i)perylene	1.094	1.026	0.500	AVRG	-6.2	
1-methylnaphthalene	0.548	0.541	0.010	AVRG	-1.3	
Perylene	0.971	0.920	0.010	AVRG	-5.2	
2-Methylnaphthalene-d10	0.606	0.608	0.010	AVRG	0.3	
Dibenzo(a,h)anthracene-d14	0.703	0.871	0.010	AVRG	23.9	<-

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC — Client: SLR INTERNATIONAL CORP

ARI Job No: UG92 — Project: BAY WOOD

Instrument ID: NT4 — Cont. Calib. Date: 02/10/12

Init. Calib. Date: 11/21/11 — Cont. Calib. Time: 1155

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	0.966	0.953	0.700	AVRG	-1.3	
2-Methylnaphthalene	0.560	0.560	0.400	AVRG	0.0	
Acenaphthylene	1.534	1.470	0.900	AVRG	-4.2	
Acenaphthene	1.064	0.997	0.900	AVRG	-6.3	
Dibenzofuran	1.520	1.502	0.800	AVRG	-1.2	
Fluorene	1.201	1.122	0.900	AVRG	-6.6	
Phenanthrene	1.054	0.942	0.700	AVRG	-10.6	
Anthracene	0.989	0.865	0.700	AVRG	-12.5	
Fluoranthene	1.152	1.015	0.600	AVRG	-11.9	
Pyrene	1.018	0.883	0.600	AVRG	-13.3	
Benzo(a)anthracene	0.943	0.767	0.800	AVRG	-18.7	*
Chrysene	0.984	0.871	0.700	AVRG	-11.5	
Benzo(b)fluoranthene	1.024	0.851	0.700	AVRG	-16.9	
Benzo(k)fluoranthene	1.009	0.958	0.700	AVRG	-5.0	
Benzo(j)fluoranthene	0.888	0.882	0.010	AVRG	-0.7	
Benzo(a)pyrene	0.872	0.841	0.700	AVRG	-3.6	
Indeno(1,2,3-cd)pyrene	1.159	1.146	0.500	AVRG	-1.1	
Dibenzo(a,h)anthracene	0.895	0.920	0.400	AVRG	2.8	
Benzo(g,h,i)perylene	1.094	1.069	0.500	AVRG	-2.3	
1-methylnaphthalene	0.548	0.524	0.010	AVRG	-4.4	
Perylene	0.971	0.894	0.010	AVRG	-7.9	
2-Methylnaphthalene-d10	0.606	0.576	0.010	AVRG	-5.0	
Dibenzo(a,h)anthracene-d14	0.703	0.805	0.010	AVRG	14.5	

<- Exceeds QC limit of 20% D
* RF less than minimum RF

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: SLR INTERNATIONAL CORP

ARI Job No: UG92 | Project: BAY WOOD

Ical Midpoint ID: 11211102 | Ical Date: 11/21/11

Instrument ID: NT4 | Cont. Cal Date: 02/09/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	343604	5.50	195804	7.79	321226	9.76
	UPPER LIMIT	687208		391608		642452	
	LOWER LIMIT	171802		97902		160613	
	CCAL	216972	4.22	135397	6.43	235433	8.34
	UPPER LIMIT		4.72		6.93		8.84
	LOWER LIMIT		3.72		5.93		7.84
01	UG92MBS1	201389	4.21	122732	6.42	211583	8.34
02	UG92LCSS1	217995	4.21	130821	6.43	225960	8.34
03	SP-M2-6	221989	4.21	136826	6.42	236894	8.34
04	SP-M2-6 MS	229018	4.21	140116	6.42	236055	8.34
05							
06							
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23							
24							
25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: SLR INTERNATIONAL CORP

ARI Job No: UG92 | Project: BAY WOOD

Ical Midpoint ID: 11211102 | Ical Date: 11/21/11

Instrument ID: NT4 | Cont. Cal Date: 02/09/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	375207	15.01	400310	18.86		
	UPPER LIMIT	750414		800620			
	LOWER LIMIT	187604		200155			
	CCAL	288476	12.55	296278	15.97		
	UPPER LIMIT		13.05		16.47		
	LOWER LIMIT		12.05		15.47		
01	UG92MBS1	255263	12.53	255421	15.95		
02	UG92LCSS1	276736	12.53	275815	15.96		
03	SP-M2-6	313693	12.53	345611	15.95		
04	SP-M2-6 MS	310211	12.53	332920	15.95		
05							
06							
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IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: SLR INTERNATIONAL CORP

ARI Job No: UG92 | Project: BAY WOOD

Ical Midpoint ID: 11211102 | Ical Date: 11/21/11

Instrument ID: NT4 | Cont. Cal Date: 02/10/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	343604	5.50	195804	7.79	321226	9.76
	UPPER LIMIT	687208		391608		642452	
	LOWER LIMIT	171802		97902		160613	
	CCAL	216979	4.22	128344	6.43	227426	8.34
	UPPER LIMIT		4.72		6.93		8.84
	LOWER LIMIT		3.72		5.93		7.84
01	SP-M2-6 MSD	225795	4.21	140892	6.43	244105	8.34
02	SP-M2-7	243391	4.21	148964	6.43	261257	8.34
03	SP-M2-8	247798	4.21	151174	6.43	256396	8.34
04	SP-M2-9	233653	4.21	147137	6.42	245548	8.34
05	SP-M2-10	236079	4.21	141462	6.43	242696	8.34
06							
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25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: SLR INTERNATIONAL CORP

ARI Job No: UG92 | Project: BAY WOOD

Ical Midpoint ID: 11211102 | Ical Date: 11/21/11

Instrument ID: NT4 | Cont. Cal Date: 02/10/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	375207	15.01	400310	18.86		
	UPPER LIMIT	750414		800620			
	LOWER LIMIT	187604		200155			
	CCAL	275782	12.54	268632	15.96		
	UPPER LIMIT		13.04		16.46		
	LOWER LIMIT		12.04		15.46		
01	SP-M2-6 MSD	324827	12.54	356853	15.96		
02	SP-M2-7	340553	12.53	380363	15.95		
03	SP-M2-8	328665	12.54	348765	15.95		
04	SP-M2-9	324509	12.53	354225	15.96		
05	SP-M2-10	316267	12.53	340543	15.96		
06							
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25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

Total Solids

ARI Job ID: UG92

SD

Extractions Total Solids-extts
Data By: Yen Luu
Created: 2/ 2/12

Worklist: 2713
Analyst: RVR
Comments: SLR Int.

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UG92A 12-1911 SP-M2-6	1.14	11.70	9.85	82.5	NR
2.	UG92B 12-1912 SP-M2-7	1.12	11.68	8.87	73.4	NR
3.	UG92C 12-1913 SP-M2-8	1.13	12.26	9.83	78.2	NR
4.	UG92D 12-1914 SP-M2-9	1.15	11.89	9.29	75.8	NR
5.	UG92E 12-1915 SP-M2-10	1.15	11.58	8.94	74.7	NR
6.	UG92F 12-1916 SP-M2-11	1.15	12.06	9.84	79.7	NR
7.	UG92G 12-1917 SP-M2-12	1.15	12.06	8.62	68.5	NR
8.	UG92H 12-1918 SP-M2-13	1.14	11.11	9.58	84.7	NR
9.	UG92I 12-1919 SP-M2-14	1.13	11.65	8.93	74.1	NR
10.	UG92J 12-1920 SP-M2-15	1.15	11.70	10.60	89.6	NR
11.	UG92K 12-1921 SP-M2-16	1.14	12.16	9.72	77.9	NR
12.	UG92L 12-1922 SP-M2-17	1.15	11.39	8.34	70.2	NR

Extractions Total Solids-extts
Data By: Yen Luu
Created: 2/ 2/12

Worklist: 2713
Analyst: YL
Comments:

Oven ID: Ø15

Balance ID: B14642614

Samples In: Date: 2/2/12 Time: 2Ø3Ø Temp: 99 Analyst: YL

Samples Out: Date: 2/3/12 Time: Ø9:5Ø Temp: 1Ø6° Analyst: RR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UG92A 12-1911 SP-M2-6	1.14	11.7Ø	9.85		NR
2.	UG92B 12-1912 SP-M2-7	1.12	11.68	8.87		NR
3.	UG92C 12-1913 SP-M2-8	1.13	12.26	9.83		NR
4.	UG92D 12-1914 SP-M2-9	1.15	11.89	9.29		NR
5.	UG92E 12-1915 SP-M2-10	1.15	11.58	8.94		NR
6.	UG92F 12-1916 SP-M2-11	1.15	12.Ø6	9.84		NR
7.	UG92G 12-1917 SP-M2-12	1.15	12Ø6	8.62		NR
8.	UG92H 12-1918 SP-M2-13	1.14	11.11	9.58		NR
9.	UG92I 12-1919 SP-M2-14	1.13	11.65	8.93		NR
10.	UG92J 12-1920 SP-M2-15	1.15	11.7Ø	1Ø.6Ø		NR
11.	UG92K 12-1921 SP-M2-16	1.14	12.16	9.72		NR
12.	UG92L 12-1922 SP-M2-17	1.15	11.39	8.34		NR

Table of Contents: ARI Job UI85

Client: SLR

Project: 108.00339.00001 Bay Wood

Signature

February-23-2012
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

February 23, 2012

Scott Miller
SLR International Corp.
1800 Blankenship Road, Suite 440
West Linn, OR 97068

RE: Bay Wood, 108.00339.00001
ARI Job No.: UI85

Dear Scott:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
-For-
Susan D. Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile UI85

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UI85

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number:	Turn-around Requested: Standard (see comments)
ARI Client Company: SLR INTERNATIONAL CORP	Phone: (425)402-8800
Client Contact: CHRIS LEE	
Client Project Name: BAY WOOD	
Client Project #: 108.00339.00001	Samplers: CAL
Page: 1 of 2	
Date: 2/1/12	Ice Present?
No. of Coolers:	Cooler Temps:

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: CPAHs								Notes/Comments
SP-M2-6	2/1/12	1150	SOIL	1	X								
SP-M2-7	↓	1155	↓	↓	X								
SP-M2-8	↓	1200	↓	↓	X								
SP-M2-9	↓	1205	↓	↓	X								
SP-M2-10	↓	1210	↓	↓	X								
SP-M2-11	↓	1215	↓	↓									
SP-M2-12	↓	1220	↓	↓									
SP-M2-13	↓	1225	↓	↓									
SP-M2-14	↓	1230	↓	↓									
SP-M2-15	↓	1235	↓	↓									

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
Please extract all samples & then freeze for further analysis.	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: CHRIS LEE	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
	Company: SLR	Company: ARI	Company:	Company:
	Date & Time: 2/1/12 1533	Date & Time: 2/1/12 1533	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

DG92 00003 ω2/23/12
UI85 00003

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number:

Turn-around Requested: Standard (see comments)

Page: 2 of 2

ARI Client Company: SLR INTERNATIONAL CORP

Phone: (425) 402-8800

Date: 2/1/12

Ice Present?

Client Contact: CHRIS LEE

No. of Coolers:

Cooler Temps:

Client Project Name: BAY WOOD

Client Project #: 108.00339.00001

Samplers: CAL

Sample ID	Date	Time	Matrix	No Containers	cPAHs								Notes/Comments
SP-M2-16	2/1/12	1240	Soil	2	X								
SP-M2-17	↓	1245	↓	↓									

Comments/Special Instructions: Please extract all samples & then freeze for further analysis

Relinquished by:	Received by:	Relinquished by:	Received by:
(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
Printed Name: CHRIS LEE	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
Company: SLR	Company: ARI	Company:	Company:
Date & Time: 2/1/12 1533	Date & Time: 2/1/12 1533	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SLR Project Name: Bay wood

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: UG92 Tracking No. _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2 0-6 0 °C for chemistry) 1.5 0.3 ___ ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by AV Date. 2/1/12 Time. 1533

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI : (NA) YES Date/Time:_____ Equipment:_____ Split by:_____

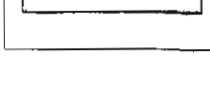
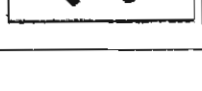
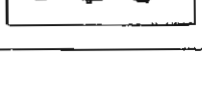
Samples Logged by: TS Date: 2-2-12 Time: 1031

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By. Date.

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

02/03/12

~~UG92:00005~~
UI65:00005

Subject: RE FW Baywood Held Samples
From: Megan Coracci <mcoracci@slrconsulting com>
Date: 3 31 PM
To: Cheronne Oreiro <cheronneo@arilabs com>

Hi Cheronne,

Please run the following held samples for Baywood.

SP-M2-5
SP-M2-13
SP-M2-14
SP-M2-15
SP-E1-8

-----Original Message-----
From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Wednesday, February 15, 2012 2:57 PM
To: Chris Kramer
Cc: Megan Coracci
Subject: Re: FW: Baywood Held Samples

Hi Chris,

I just sent you an email regarding the pricing you asked about earlier.
Attached is the data summary for ARI job UG85. Please let me know if you have any questions.
Thanks,
-Cheronne

On 2/15/2012 2:52 PM, Chris Kramer wrote:
Hello,
I called a little earlier for a price quote and also about the status of some follow-up samples that you said were sent on the 3rd:
Please see the emails below, it looks like we didn't request the analysis until the 3rd and have not seen any results yet.
Let me know what you find.

Chris

Chris Kramer
Project Scientist
SLR International Corp

Email: mailto:ckramer@slrconsulting.com
Mob: 503-341-2187
Tel: 503-723-4423
Fax: 503-723-4436

1800 Blankenship Road, Suite 440, West Linn, 97068, United States

www.slrconsulting.com

-----Original Message-----
From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Wednesday, February 01, 2012 4:30 PM
To: Megan Coracci
Cc: Sue Dunnihoo
Subject: Re: Baywood Held Samples

Thanks Megan. I'll let you know if I have any questions.
-Cheronne

Cheronne Oreiro
Project Manager
Analytical Resources, Inc.
4611 S. 134th Place, Suite 100
Tukwila, WA 98168-3240
cheronneo@arilabs.com
(206)-695-6214

On 2/1/2012 4:29 PM, Megan Coracci wrote:

Hi Sue -

We'd like to run PAH analysis on the following held samples for Baywood:

-SP-M2-2
-SP-M2-4
-SP-E1-7
-SP-E1-10
-SP-E1-11
-SP-E1-12

Thank you,
Megan

Megan Coracci
Senior Scientist
SLR International Corp

Email: mailto:mcoracci@slrconsulting.com
Mob: 503-927-7784
Tel: 503-723-4423
Fax: 503-723-4436

1800 Blankenship Road, Suite 440, West Linn, 97068, United States

www.slrconsulting.com

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UI85

Case Narrative

Client: SLR International Corp.
Project: Bay Wood, 108.00339.00001
ARI Job No.: UI85

Sample receipt

Three extracts previously logged under ARI job UG92 were removed from archive as requested on February 16, 2012. The extracts were logged under the ARI job referenced above and extracts were analyzed for SIM PAHs. For details regarding sample receipt, please refer to the Cooler Receipt Forms.

SIM PAHs by SW8270D

The samples were extracted and analyzed within the method recommended holding times.

The initial calibrations were within method requirements.

The continuing calibration fell outside the 20% control limit low for Benzo(a)anthracene. All detected results for this compound have been flagged with a "Q" qualifier. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS percent recoveries were within control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UI85
Client: SLR
Project Event: 108.00339.00001
Project Name: Bay Wood

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SP-M2-13	UI85A	12-3035	Soil	02/01/12 12:25	02/01/12 15:33
2.	SP-M2-14	UI85B	12-3036	Soil	02/01/12 12:30	02/01/12 15:33
3.	SP-M2-15	UI85C	12-3037	Soil	02/01/12 12:35	02/01/12 15:33

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1920-1	ABN	100/150	MEOH	06/09/12
B	1917-2	SIM PNA	15/75	ACETONE	05/30/12
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1925-5	LOW PCB	0.2	ACETONE	05/28/12
E	1900-2	HERB	62.5	MEOH	10/06/12
F	1919-5	PCP	12.5	ACETONE	12/09/12
G	1906-3	d8-DIOXANE	100	MEOH	04/30/12
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1896-3	LOW S. PNA	1.5	ACETONE	09/22/12
J	1915-4	TBT-PORE	0.125	MECL2	11/23/12
K	1925-4	MED PCB	20	ACETONE	05/28/12
L	1915-3	TBT	2.5	MECL2	11/23/12
M	1888-4	EPH	1500	MECL2	04/04/12
N	1914-2	PCB	2	ACETONE	05/28/12
O	1947-2	TPH	450	MECL2	09/28/12
P	1948-3	HCID	2250	MECL2	09/28/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1925-2	LOW PCP	1.25	ACETONE	12/09/12

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1907-1	PCB 1660	20	ACETONE	11/01/12
2#		BCOC PEST	10	ACETONE	NA
3	1922-2	PEST	01/02/10	ACETONE	12/13/12
4	1922-3	LOW PEST	.1/.2/1	ACETONE	12/13/12
5	1902-4	EPH	1500	MECL2	10/04/12
6	1919-2	PCP	12.5/125	ACETONE	10/15/12
7	1926-2	ABN	100	MEOH	05/31/12
8	1916-2	TBT	2.5	MECL2	11/23/12
9	1918-2	PORE TBT	.125/.25	MECL2	11/23/12
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1948-1	LOW PCB	2	ACETONE	11/01/12
14					
15	1929-1	SIM PNA	15/75	MEOH	06/21/12
16	1906-4	1,4-DIOXANE	100	MEOH	04/30/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1927-2	LOW SIM PNA	1.5	ACETONE	06/20/12
19	1931-1	AK103	7500	ACETONE	05/17/12
20	1930-1	PNA	100	ACETONE	06/23/12
21	1943-2	SKY/BHT	100	MEOH	07/27/12
22	1852-1	HERB	04 to 5000	MEOH	03/03/12
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#		DIPHENYL	100	MEOH	NA
26	1904-2	OP-PEST	25	MEOH	02/10/12
27		STEROLS	200	MEOH	NA
28#		ADD. PEST	2	ACETONE	NA
29#		DECANES	100	MEOH	NA

LCS SOLUTIONS

30		EDB/DBCP	0.2	MEOH	NA
31	1944-1	TERPINEOL	100	MEOH	07/27/12
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33		RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36		ALKYL PNA B	10	MEOH	NA
37		CAR/PERY	100	ACETONE	NA
38	1926-3	ABN ACID	200-450	MEOH	06/19/12
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1900-1	FULL RESIN	250	ACETONE	08/12/12
51		DDTS	0.01	ACETONE	NA
52		1232 PCB	20	ACETONE	NA
53	1919-1	DALAPON	50	MEOH	08/22/12
54		T-CHLORDANE	10	ACETONE	NA
55		TOXAPHENE	50	ACETONE	NA
56	1917-1	ABN BASE	50-200	MEOH	05/31/12
#=PROJECT SPECIFIC SOLUTION					

DL, LOD, LOQ and Control Limits Summary
Analysis of Solid Samples for PNA EPA Method 8270 – SIM

Microwave (EPA 3546) or Sonication (EPA 3550C) Extraction using 10 g sample with extract with 0.5 mL final volume. ARI Bench Sheet 3060F or 3051F ARI Analyses: PNSSMI & PNSSCI

Analyte	DL[1] µg/kg	LOD[1,2] µg/kg	LOQ[1] µg/kg	LCS Control Limit[3,4]	Replicate RPD[5]
Naphthalene	2.63	**5.0**	**5.0**	37 – **100**	≤ 40
1-Methylnaphthalene	1.71	**2.5**	**5.0**	30 – 160[6]	≤ 40
2-Methylnaphthalene	1.52	**2.5**	**5.0**	37 – **100**	≤ 40
Biphenyl	1.44	**2.5**	**5.0**	30 – 160[6]	≤ 40
2,6-Dimethylnapthalene	0.75	**2.5**	**5.0**	30 – 160[6]	≤ 40
Acenaphthylene	1.26	**2.5**	**5.0**	35 – **100**	≤ 40
Acenaphthene	1.32	**2.5**	**5.0**	39 – **100**	≤ 40
Dibenzofuran	1.51	**2.5**	**5.0**	39 – **100**	≤ 40
1,6,7-Trimethylnaphthalene	0.42	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluorene	1.29	**2.5**	**5.0**	42 – **100**	≤ 40
Benzothiophene	0.43	**2.5**	**5.0**	30 – 160[6]	≤ 40
Phenanthrene	1.98	**2.5**	**5.0**	47 – **100**	≤ 40
Anthracene	1.46	**2.5**	**5.0**	41 – 106	≤ 40
Carbazole	0.62	**2.5**	**5.0**	30 – 160[6]	≤ 40
1-Methylphenanthrene	0.70	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluoranthene	1.77	**4.0**	**5.0**	52 – 109	≤ 40
Pyrene	2.22	**4.0**	**5.0**	47 – 111	≤ 40
Benzo(a)anthracene	1.60	**2.5**	**5.0**	47 – 114	≤ 40
Chrysene	1.88	**2.5**	**5.0**	51 – 106	≤ 40
Benzo(b)fluoranthene	1.90	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(k)fluoranthene	2.05	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(e)pyrene	0.65	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(a)pyrene	1.75	**2.5**	**5.0**	44 – 111	≤ 40
Indeno(1,2,3-cd)pyrene	3.47	**4.0**	**5.0**	41 – 114	≤ 40
Dibenz(a,h)anthracene	2.38	**4.0**	**5.0**	42 – 116	≤ 40
Benzo(g,h,i)perylene	3.05	**4.0**	**5.0**	37 – 115	≤ 40
Perylene	2.99	**4.0**	**5.0**	30 – 160[6]	≤ 40
Surrogate Recovery			**MB / LCS**	**Samples**	**RPD**
2-Methylnapthalene-d_{10}			35 – **100**	34 – **100**	≤ 40
Dibenzo(a,h)anthracene-d_{14}			37 – 120	**10** – 117	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD), Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) LOD verification performed 8/26/11 ARI Sample TJ75I
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Control limits calculated using all data from 1/1/08 through 12/31/08.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(6) Default limits pending generation of historic limits.

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UI85

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS **Sample ID: SP-M2-13**
Page 1 of 1 **SAMPLE**

Lab Sample ID: UI85A
LIMS ID: 12-3035
Matrix: Soil
Data Release Authorized:
Reported: 02/23/12

QC Report No: UI85-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/22/12 13:20
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.22 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 15.3%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.9	49 Q
218-01-9	Chrysene	4.9	120
50-32-8	Benzo(a)pyrene	4.9	78
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	60
53-70-3	Dibenz(a,h)anthracene	4.9	19
TOTBFA	Total Benzofluoranthenes	4.9	230

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	60.3%
d14-Dibenzo(a,h)anthracen	87.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS **Sample ID: SP-M2-14**
Page 1 of 1 **SAMPLE**

Lab Sample ID: UI85B
LIMS ID: 12-3036
Matrix: Soil
Data Release Authorized: MW
Reported: 02/23/12

QC Report No: UI85-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/22/12 13:46
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.42 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 25.9%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	4.8	1,000	ES
218-01-9	Chrysene	4.8	1,900	ES
50-32-8	Benzo(a)pyrene	4.8	390	
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	190	
53-70-3	Dibenz(a,h)anthracene	4.8	83	
TOTBFA	Total Benzofluoranthenes	4.8	1,600	E

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

dl0-2-Methylnaphthalene	65.0%
dl4-Dibenzo(a,h)anthracen	95.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-14
DILUTION

Lab Sample ID: UI85B
LIMS ID: 12-3036
Matrix: Soil
Data Release Authorized: MW
Reported: 02/23/12

QC Report No: UI85-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/22/12 15:59
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.42 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 5.00
Percent Moisture: 25.9%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	24	990 Q
218-01-9	Chrysene	24	2,000
50-32-8	Benzo(a)pyrene	24	360
193-39-5	Indeno(1,2,3-cd)pyrene	24	170
53-70-3	Dibenz(a,h)anthracene	24	66
TOTBFA	Total Benzofluoranthenes	24	1,500

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	56.7%
d14-Dibenzo(a,h)anthracen	75.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS **Sample ID: SP-M2-15**
Page 1 of 1 **SAMPLE**

Lab Sample ID: UI85C
LIMS ID: 12-3037
Matrix: Soil
Data Release Authorized: MW
Reported: 02/23/12

QC Report No: UI85-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 02/22/12 14:13
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 11.03 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 10.4%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.5	24 Q
218-01-9	Chrysene	4.5	62
50-32-8	Benzo(a)pyrene	4.5	19
193-39-5	Indeno(1,2,3-cd)pyrene	4.5	12
53-70-3	Dibenz(a,h)anthracene	4.5	4.8
TOTBFA	Total Benzofluoranthenes	4.5	55

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	58.0%
d14-Dibenzo(a,h)anthracen	90.7%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UI85-SLR
Project: Bay Wood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
MB-020612	40.7%	49.7%	0
LCS-020612	55.3%	84.0%	0
SP-M2-13	60.3%	87.7%	0
SP-M2-14	65.0%	95.0%	0
SP-M2-14 DL	56.7%	75.0%	0
SP-M2-15	58.0%	90.7%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 12-3035 to 12-3037

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-020612
LAB CONTROL SAMPLE

Lab Sample ID: LCS-020612
LIMS ID: 12-3035
Matrix: Soil
Data Release Authorized: MW
Reported: 02/23/12

QC Report No: UI85-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 02/06/12
Date Analyzed LCS: 02/22/12 15:32
Instrument/Analyst LCS: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Benzo(a)anthracene	90.6 Q	150	60.4%
Chrysene	89.6	150	59.7%
Benzo(a)pyrene	86.5	150	57.7%
Indeno(1,2,3-cd)pyrene	93.0	150	62.0%
Dibenz(a,h)anthracene	95.3	150	63.5%
Total Benzofluoranthenes	183	300	61.0%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	55.3%
d14-Dibenzo(a,h)anthracen	84.0%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UI85MBS1

Lab Name: ANALYTICAL RESOURCES INC — Client: SLR

ARI Job No: UI85 — Project: BAY WOOD

Lab File ID: 02221203 — Date Extracted: 02/06/12

Instrument ID: NT4 — Date Analyzed: 02/22/12

Matrix: SOLID — Time Analyzed: 1227

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	SP-M2-13	UI85A	02221205	02/22/12
02	SP-M2-14	UI85B	02221206	02/22/12
03	SP-M2-15	UI85C	02221207	02/22/12
04	UI85LCSS1	UI85LCSS1	02221208	02/22/12
05	SP-M2-14	UI85B	02221209	02/22/12
06				
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: MB-020612
METHOD BLANK

Lab Sample ID: MB-020612
LIMS ID: 12-3035
Matrix: Soil
Data Release Authorized: MW
Reported: 02/23/12

QC Report No: UI85-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 02/06/12
Date Analyzed: 02/22/12 12:27
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	40.7%
d14-Dibenzo(a,h)anthracen	49.7%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 11/21/11 DFTPP Injection Time: 0937

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.8
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	10.0 - 80.0% of mass 198	47.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	30.3
365	Greater than 1.0% of mass 198	4.03
441	0.0 - 24.0% of mass 442	22.6 (15.5)2
442	50.0 - 200.0% of mass 198	145.7
443	15.0 - 24.0% of mass 442	29.5 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC251121	IC251121	11211102	11/21/11	1109
02	IC011121	IC011121	11211103	11/21/11	1138
03	IC051121	IC051121	11211104	11/21/11	1206
04	IC11121	IC11121	11211105	11/21/11	1233
05	IC51121	IC51121	11211106	11/21/11	1301
06	IC101121	IC101121	11211107	11/21/11	1329
07					
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22					

FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 02/22/12 DFTPP Injection Time: 1117

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	26.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	29.4
70	Less than 2.0% of mass 69	0.1 (0.2)1
127	10.0 - 80.0% of mass 198	42.8
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	33.2
365	Greater than 1.0% of mass 198	4.78
441	0.0 - 24.0% of mass 442	27.3 (14.6)2
442	50.0 - 200.0% of mass 198	186.1
443	15.0 - 24.0% of mass 442	35.6 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0222	CC0222	02221202	02/22/12	1159
02	UI85MBS1	UI85MBS1	02221203	02/22/12	1227
03	SP-M2-13	UI85A	02221205	02/22/12	1320
04	SP-M2-14	UI85B	02221206	02/22/12	1346
05	SP-M2-15	UI85C	02221207	02/22/12	1413
06	UI85LCSS1	UI85LCSS1	02221208	02/22/12	1532
07	SP-M2-14	UI85B	02221209	02/22/12	1559
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22					

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UI85 Project: BAY WOOD

Instrument ID: NT4 Calibration Date: 11/21/11

LAB FILE ID: RRF0.1=11211103 RRF0.5=11211104 RRF1 =11211105
RRF2.5=11211102 RRF5 =11211106 RRF10 =11211107

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	RRF	%RSD /R^2
Naphthalene	1.153	0.967	0.977	0.932	0.878	0.888	0.966	10.4
2-Methylnaphthalene	0.679	0.543	0.555	0.543	0.523	0.518	0.560	10.6
Acenaphthylene	1.836	1.390	1.450	1.504	1.467	1.554	1.534	10.3
Acenaphthene	1.334	1.033	1.037	0.992	0.967	1.018	1.064	12.7
Dibenzofuran	1.825	1.445	1.525	1.442	1.412	1.468	1.520	10.2
Fluorene	1.534	1.146	1.140	1.112	1.104	1.170	1.201	13.7
Phenanthrene	1.325	1.042	1.022	0.972	0.978	0.987	1.054	12.8
Anthracene	1.218	0.930	0.919	0.944	0.927	0.998	0.989	11.7
Fluoranthene	1.565	1.109	1.078	1.047	1.038	1.075	1.152	17.7
Pyrene	1.331	0.968	0.958	0.949	0.923	0.976	1.018	15.2
Benzo(a)anthracene	1.283	0.858	0.883	0.864	0.857	0.913	0.943	17.8
Chrysene	1.381	0.920	0.933	0.875	0.874	0.920	0.984	19.9
Benzo(b)fluoranthene	1.416	0.927	0.958	0.915	0.909	1.016	1.024	19.2
Benzo(k)fluoranthene	1.180	0.947	1.027	0.978	0.923	0.998	1.009	9.1
Benzo(j)fluoranthene	0.908	0.916	0.897	0.808	0.863	0.938	0.888	5.2
Benzo(a)pyrene	0.738	0.792	0.885	0.888	0.907	1.019	0.872	11.2
Indeno(1,2,3-cd)pyrene	1.298	0.986	1.024	1.120	1.192	1.336	1.159	12.3
Dibenzo(a,h)anthracene	0.847	0.718	0.842	0.888	0.958	1.116	0.895	14.9
Benzo(g,h,i)perylene	1.255	0.944	1.071	1.041	1.073	1.179	1.094	9.9
1-methylnaphthalene	0.711	0.540	0.539	0.508	0.499	0.494	0.548	14.9
Perylene	1.167	0.908	0.940	0.895	0.907	1.011	0.971	10.8
2-Methylnaphthalene-d10	0.735	0.614	0.601	0.570	0.558	0.557	0.606	11.2
Dibenzo(a,h)anthracene-d14	0.593	0.558	0.640	0.717	0.782	0.926	0.703	19.4

<- Outside QC limits: %RSD <20% or R^2 > 0.990

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UI85 Project: BAY WOOD

Instrument ID: NT4 Cont. Calib. Date: 02/22/12

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1159

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	0.966	0.955	0.700	AVRG	-1.1	
2-Methylnaphthalene	0.560	0.555	0.400	AVRG	-0.9	
Acenaphthylene	1.534	1.408	0.900	AVRG	-8.2	
Acenaphthene	1.064	1.014	0.900	AVRG	-4.7	
Dibenzofuran	1.520	1.489	0.800	AVRG	-2.0	
Fluorene	1.201	1.119	0.900	AVRG	-6.8	
Phenanthrene	1.054	0.976	0.700	AVRG	-7.4	
Anthracene	0.989	0.833	0.700	AVRG	-15.8	
Fluoranthene	1.152	0.997	0.600	AVRG	-13.4	
Pyrene	1.018	0.890	0.600	AVRG	-12.6	
Benzo(a)anthracene	0.943	0.743	0.800	AVRG	-21.2	<-
Chrysene	0.984	0.881	0.700	AVRG	-10.5	
Benzo(b)fluoranthene	1.024	0.933	0.700	AVRG	-8.9	
Benzo(k)fluoranthene	1.009	1.015	0.700	AVRG	0.6	
Benzo(j)fluoranthene	0.888	0.940	0.010	AVRG	5.8	
Benzo(a)pyrene	0.872	0.878	0.700	AVRG	0.7	
Indeno(1,2,3-cd)pyrene	1.159	1.182	0.500	AVRG	2.0	
Dibenzo(a,h)anthracene	0.895	0.923	0.400	AVRG	3.1	
Benzo(g,h,i)perylene	1.094	1.067	0.500	AVRG	-2.5	
1-methylnaphthalene	0.548	0.518	0.010	AVRG	-5.5	
Perylene	0.971	0.989	0.010	AVRG	1.8	
2-Methylnaphthalene-d10	0.606	0.572	0.010	AVRG	-5.6	
Dibenzo(a,h)anthracene-d14	0.703	0.796	0.010	AVRG	13.2	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UI85 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 02/22/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	343604	5.50	195804	7.79	321226	9.76
	UPPER LIMIT	687208		391608		642452	
	LOWER LIMIT	171802		97902		160613	
	CCAL	305435	4.16	176649	6.38	301698	8.30
	UPPER LIMIT		4.66		6.88		8.80
	LOWER LIMIT		3.66		5.88		7.80
01	UI85MBS1	442061	4.16	268446	6.38	471216	8.29
02	SP-M2-13	299888	4.16	181176	6.38	321466	8.29
03	SP-M2-14	277168	4.16	165926	6.38	289642	8.29
04	SP-M2-15	308578	4.16	185929	6.38	320468	8.29
05	UI85LCSS1	384501	4.16	232978	6.38	407455	8.29
06	SP-M2-14	317765	4.16	192807	6.38	331663	8.29
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IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UI85 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 02/22/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	375207	15.01	400310	18.86		
	UPPER LIMIT	750414		800620			
	LOWER LIMIT	187604		200155			
	CCAL	368378	12.47	348621	15.88		
	UPPER LIMIT		12.97		16.38		
	LOWER LIMIT		11.97		15.38		
01	UI85MBS1	576918	12.47	573915	15.87		
02	SP-M2-13	404896	12.46	420875	15.87		
03	SP-M2-14	392131	12.47	414938	15.88		
04	SP-M2-15	395588	12.46	417126	15.87		
05	UI85LCSS1	504292	12.46	518075	15.87		
06	SP-M2-14	425048	12.47	458608	15.87		
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IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

Total Solids

ARI Job ID: UI85

ORGANICS ANALYSIS DATA SHEET
Percent Moisture/Total Solids

Matrix: Soil

QC Report No: UI85-SLR
Project: Bay Wood
108.00339.00001

Data Release Authorized:
Reported: 02/23/12

Date Received: 02/01/12

ARI ID	Sample ID	Solids	Moisture	pH
UI85A	SP-M2-13	84.7%	15.3%	NA
UI85B	SP-M2-14	74.1%	25.9%	NA
UI85C	SP-M2-15	89.6%	10.4%	NA

Table of Contents: ARI Job UI96

Client: SLR

Project: 108.00339.00001 Bay Wood

Signature

March-01-2012
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 2, 2012

Scott Miller
SLR International Corp.
1800 Blankenship Road, Suite 440
West Linn, OR 97068

RE: Bay Wood, 108.00339.00001
ARI Job No.: UI96

Dear Scott:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
-For-
Susan D. Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile UI96

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UI96

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UC38	Turn-around Requested: ~~Seven days~~ 8 days Standard See Comments	Page: 1 of 2	
ARI Client Company: SLR	Phone: (425) 402-8800	Date: 12/21/11	Ice Present? Y
Client Contact: CHRIS LEE		No. of Coolers: 1	Cooler Temps: 1.7
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CAL / NB		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs	Notes/Comments
SP-E1-1	12/21/11	1230	Soil	1		
SP-E1-2		1235				
SP-E1-3		1240				
SP-E1-4		1245				
SP-E1-5		1250				
SP-E1-6		1255				
SP-E1-7		1300				
SP-E1-8		1305				
SP-E1-9		1310				
SP-E1-10		1315				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Please extract samples & then freeze for further analysis	Printed Name: CHRIS LEE	Printed Name: Jose Ulgus	Printed Name:	Printed Name:
	Company: SLR	Company: ART	Company:	Company:
	Date & Time: 12/22/11	Date & Time: 12-22-11 13:20	Date & Time:	Date & Time:

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UC38	Turn-around Requested: ~~Seven days~~ 21st Standard @ See comments	Page: 2 of 2	
ARI Client Company: SLR	Phone: (425) 402-8800	Date: 12/21/11	Ice Present? Y
Client Contact: CHRIS LEE		No. of Coolers: 1	Cooler Temps: 1.7
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CAL / NB		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs	Notes/Comments
SP-E1-11	12/21/11	1320	Soil	1		
SP-E1-12		1325				
SP-M2-1		1330				
SP-M2-2		1335				
SP-M2-3		1335				
SP-M2-4		1340				
SP-M2-5		1345				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Please extract samples & then freeze for further analysis	Printed Name: CHRIS LEE	Printed Name: Jose Ugas	Printed Name:	Printed Name:
	Company: SLR	Company: ARI	Company:	Company:
	Date & Time: 12/22/11	Date & Time: 12-22-11 13:20	Date & Time:	Date & Time:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SLR

Project Name: Bay Wood

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: UC38

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 17

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 90941619

Cooler Accepted by: JM Date: 12-22-11 Time: 13:20

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

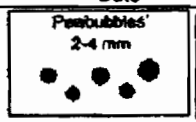
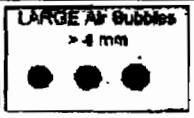
Samples Logged by: JM Date: 12/23/11 Time: 740

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles >4 mm
		

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

~~UC38:00005~~ 01312012

01312012 ~~UC85:00005~~

UI96:00005

Subject: RE. FW. Baywood Held Samples
From: Megan Coracci <mcoracci@slrconsulting com>
Date: 4 46 PM
To: Cheronne Oreiro <cheronneo@anlabs com>

Yes, please re-extract from frozen volume

-----Original Message-----
From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Friday, February 17, 2012 10:00 AM
To: Megan Coracci
Subject: Re: FW: Baywood Held Samples

Hi Megan,

The extracts for samples SP-M2-5 and SP-E1-8 are past the 40-day holding time. Would you like us to re-extract samples from frozen volume?
Thanks,
-Cheronne

On 2/16/2012 3:31 PM, Megan Coracci wrote:
Hi Cheronne,

Please run the following held samples for Baywood.

SP-M2-5
SP-M2-13
SP-M2-14
SP-M2-15
SP-E1-8

-----Original Message-----
From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Wednesday, February 15, 2012 2:57 PM
To: Chris Kramer
Cc: Megan Coracci
Subject: Re: FW: Baywood Held Samples

Hi Chris,

I just sent you an email regarding the pricing you asked about earlier.
Attached is the data summary for AR1 job UG85. Please let me know if you have any questions.
Thanks,
-Cheronne

On 2/15/2012 2:52 PM, Chris Kramer wrote:
Hello,
I called a little earlier for a price quote and also about the status of some follow-up samples that you said were sent on the 3rd:
Please see the emails below, it looks like we didn't request the analysis until the 3rd and have not seen any results yet.
Let me know what you find.

Chris

Chris Kramer
Project Scientist
SLR International Corp

Email: mailto:ckramer@slrconsulting.com
Mob: 503-341-2187
Tel: 503-723-4423
Fax: 503-723-4436

1800 Blankenship Road, Suite 440, West Linn, 97068, United States

www.slrconsulting.com

-----Original Message-----
From: Cheronne Oreiro [mailto:cheronneo@arilabs.com]
Sent: Wednesday, February 01, 2012 4:30 PM
To: Megan Coracci

Cc: Sue Dunnihoo
Subject: Re: Baywood Held Samples

Thanks Megan. I'll let you know if I have any questions.
-Cheronne

Cheronne Oreiro
Project Manager
Analytical Resources, Inc.
4611 S. 134th Place, Suite 100
Tukwila, WA 98168-3240
cheronneo@arilabs.com
(206)-695-6214

On 2/1/2012 4:29 PM, Megan Coracci wrote:
Hi Sue -

We'd like to run PAH analysis on the following held samples for Baywood:

-SP-M2-2
-SP-M2-4
-SP-E1-7
-SP-E1-10
-SP-E1-11
-SP-E1-12

Thank you,
Megan

Megan Coracci
Senior Scientist
SLR International Corp

Email: mailto:mcoracci@slrconsulting.com
Mob: 503-927-7784
Tel: 503-723-4423
Fax: 503-723-4436

1800 Blankenship Road, Suite 440, West Linn, 97068, United States

www.slrconsulting.com

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UI96

Case Narrative

Client: SLR International Corp.
Project: Bay Wood, 108.00339.00001
ARI Job No.: UI96

Sample receipt

Two samples that were previously logged under ARI job UC38 were removed from frozen archive and logged under ARI job UI96 as requested on February 17, 2012. The samples were extracted and analyzed for SIM PAHs. For details regarding sample receipt, please refer to the Cooler Receipt Forms.

SIM PAHs by SW8270D

The samples were extracted and analyzed within the method recommended holding times for samples stored frozen.

The initial and continuing calibrations were within method requirements. Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UI96
Client: SLR
Project Event: 108.00339.00001
Project Name: Bay Wood

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SP-E1-8	UI96A	12-3080	Soil	12/21/11 13:05	12/22/11 13:20
2.	SP-M2-5	UI96B	12-3081	Soil	12/21/11 13:45	12/22/11 13:20

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S	Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
NA	The flagged analyte was not analyzed for
NR	Spiked compound recovery is not reported due to chromatographic interference
NS	The flagged analyte was not spiked into the sample
M	Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
M2	The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
Y	The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
EMPC	Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
C	The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
P	The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference
X	Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
Z	Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1920-1	ABN	100/150	MEOH	06/09/12
B	1917-2	SIM PNA	15/75	ACETONE	05/30/12
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1925-5	LOW PCB	0.2	ACETONE	05/28/12
E	1900-2	HERB	62.5	MEOH	10/06/12
F	1919-5	PCP	12.5	ACETONE	12/09/12
G	1906-3	d8-DIOXANE	100	MEOH	04/30/12
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1896-3	LOW S. PNA	1.5	ACETONE	09/22/12
J	1915-4	TBT-PORE	0.125	MECL2	11/23/12
K	1925-4	MED PCB	20	ACETONE	05/28/12
L	1915-3	TBT	2.5	MECL2	11/23/12
M	1888-4	EPH	1500	MECL2	04/04/12
N	1914-2	PCB	2	ACETONE	05/28/12
O	1947-2	TPH	450	MECL2	09/28/12
P	1948-3	HCID	2250	MECL2	09/28/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1925-2	LOW PCP	1.25	ACETONE	12/09/12

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1907-1	PCB 1660	20	ACETONE	11/01/12
2#		BCOC PEST	10	ACETONE	NA
3	1922-2	PEST	01/02/10	ACETONE	12/13/12
4	1922-3	LOW PEST	.1/.2/1	ACETONE	12/13/12
5	1902-4	EPH	1500	MECL2	10/04/12
6	1919-2	PCP	12.5/125	ACETONE	10/15/12
7	1926-2	ABN	100	MEOH	05/31/12
8	1916-2	TBT	2.5	MECL2	11/23/12
9	1918-2	PORE TBT	.125/.25	MECL2	11/23/12
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1948-1	LOW PCB	2	ACETONE	11/01/12
14					
15	1929-1	SIM PNA	15/75	MEOH	06/21/12
16	1906-4	1,4-DIOXANE	100	MEOH	04/30/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1927-2	LOW SIM PNA	1.5	ACETONE	06/20/12
19	1931-1	AK103	7500	ACETONE	05/17/12
20	1930-1	PNA	100	ACETONE	06/23/12
21	1943-2	SKY/BHT	100	MEOH	07/27/12
22	1852-1	HERB	04 to 5000	MEOH	03/03/12
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#		DIPHENYL	100	MEOH	NA
26	1904-2	OP-PEST	25	MEOH	02/10/12
27		STEROLS	200	MEOH	NA
28#		ADD. PEST	2	ACETONE	NA
29#		DECANES	100	MEOH	NA

LCS SOLUTIONS

30		EDB/DBCP	0.2	MEOH	NA
31	1944-1	TERPINEOL	100	MEOH	07/27/12
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33		RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36		ALKYL PNA B	10	MEOH	NA
37		CAR/PERY	100	ACETONE	NA
38	1926-3	ABN ACID	200-450	MEOH	06/19/12
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1900-1	FULL RESIN	250	ACETONE	08/12/12
51		DDTS	0.01	ACETONE	NA
52		1232 PCB	20	ACETONE	NA
53	1919-1	DALAPON	50	MEOH	08/22/12
54		T-CHLORDANE	10	ACETONE	NA
55		TOXAPHENE	50	ACETONE	NA
56	1917-1	ABN BASE	50-200	MEOH	05/31/12
#=PROJECT SPECIFIC SOLUTION					

DL, LOD, LOQ and Control Limits Summary
Analysis of Solid Samples for PNA EPA Method 8270 – SIM

Microwave (EPA 3546) or Sonication (EPA 3550C) Extraction using 10 g sample with extract with 0.5 mL final volume. ARI Bench Sheet 3060F or 3051F ARI Analyses: PNSSMI & PNSSCI

Analyte	DL[1] µg/kg	LOD[1,2] µg/kg	LOQ[1] µg/kg	LCS Control Limit[3,4]	Replicate RPD[5]
Naphthalene	2.63	**5.0**	**5.0**	37 – **100**	≤ 40
1-Methylnaphthalene	1.71	**2.5**	**5.0**	30 – 160[6]	≤ 40
2-Methylnaphthalene	1.52	**2.5**	**5.0**	37 – **100**	≤ 40
Biphenyl	1.44	**2.5**	**5.0**	30 – 160[6]	≤ 40
2,6-Dimethylnapthalene	0.75	**2.5**	**5.0**	30 – 160[6]	≤ 40
Acenaphthylene	1.26	**2.5**	**5.0**	35 – **100**	≤ 40
Acenaphthene	1.32	**2.5**	**5.0**	39 – **100**	≤ 40
Dibenzofuran	1.51	**2.5**	**5.0**	39 – **100**	≤ 40
1,6,7-Trimethylnaphthalene	0.42	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluorene	1.29	**2.5**	**5.0**	42 – **100**	≤ 40
Benzothiophene	0.43	**2.5**	**5.0**	30 – 160[6]	≤ 40
Phenanthrene	1.98	**2.5**	**5.0**	47 – **100**	≤ 40
Anthracene	1.46	**2.5**	**5.0**	41 – 106	≤ 40
Carbazole	0.62	**2.5**	**5.0**	30 – 160[6]	≤ 40
1-Methylphenanthrene	0.70	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluoranthene	1.77	**4.0**	**5.0**	52 – 109	≤ 40
Pyrene	2.22	**4.0**	**5.0**	47 – 111	≤ 40
Benzo(a)anthracene	1.60	**2.5**	**5.0**	47 – 114	≤ 40
Chrysene	1.88	**2.5**	**5.0**	51 – 106	≤ 40
Benzo(b)fluoranthene	1.90	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(k)fluoranthene	2.05	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(e)pyrene	0.65	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(a)pyrene	1.75	**2.5**	**5.0**	44 – 111	≤ 40
Indeno(1,2,3-cd)pyrene	3.47	**4.0**	**5.0**	41 – 114	≤ 40
Dibenz(a,h)anthracene	2.38	**4.0**	**5.0**	42 – 116	≤ 40
Benzo(g,h,i)perylene	3.05	**4.0**	**5.0**	37 – 115	≤ 40
Perylene	2.99	**4.0**	**5.0**	30 – 160[6]	≤ 40
Surrogate Recovery			**MB / LCS**	**Samples**	**RPD**
2-Methylnapthalene-d_{10}			35 – **100**	34 – **100**	≤ 40
Dibenzo(a,h)anthracene-d_{14}			37 – 120	**10** – 117	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD), Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) LOD verification performed 8/26/11 ARI Sample TJ75I
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Control limits calculated using all data from 1/1/08 through 12/31/08.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(6) Default limits pending generation of historic limits.

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UI96

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS **Sample ID: SP-E1-8**
Page 1 of 1 **SAMPLE**

Lab Sample ID: UI96A
LIMS ID: 12-3080
Matrix: Soil
Data Release Authorized:
Reported: 02/29/12

QC Report No: UI96-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 02/23/12
Date Analyzed: 02/29/12 13:30
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.80 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 17.9%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	140
218-01-9	Chrysene	4.6	310
50-32-8	Benzo(a)pyrene	4.6	80
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	67
53-70-3	Dibenz(a,h)anthracene	4.6	28
TOTBFA	Total Benzofluoranthenes	4.6	510

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracen	96.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-5
SAMPLE

Lab Sample ID: UI96B
LIMS ID: 12-3081
Matrix: Soil
Data Release Authorized:
Reported: 02/29/12

QC Report No: UI96-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 12/22/11

Date Extracted: 02/23/12
Date Analyzed: 02/29/12 13:59
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.39 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 21.5%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	37
218-01-9	Chrysene	4.8	69
50-32-8	Benzo(a)pyrene	4.8	25
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	16
53-70-3	Dibenz(a,h)anthracene	4.8	6.5
TOTBFA	Total Benzofluoranthenes	4.8	95

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	55.7%
d14-Dibenzo(a,h)anthracen	82.0%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UI96-SLR
Project: Bay Wood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
MB-022312	55.3%	96.3%	0
LCS-022312	56.3%	106%	0
LCSD-022312	54.7%	101%	0
SP-E1-8	59.0%	96.7%	0
SP-M2-5	55.7%	82.0%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 12-3080 to 12-3081

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: LCS-022312
LAB CONTROL SAMPLE

Lab Sample ID: LCS-022312
LIMS ID: 12-3080
Matrix: Soil
Data Release Authorized:
Reported: 02/29/12

QC Report No: UI96-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 02/23/12

Date Analyzed LCS: 02/29/12 12:05
LCSD: 02/29/12 12:33
Instrument/Analyst LCS: NT4/JZ
LCSD: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
LCSD: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzo(a)anthracene	105	150	70.0%	107	150	71.3%	1.9%
Chrysene	110	150	73.3%	109	150	72.7%	0.9%
Benzo(a)pyrene	110	150	73.3%	102	150	68.0%	7.5%
Indeno(1,2,3-cd)pyrene	123	150	82.0%	120	150	80.0%	2.5%
Dibenz(a,h)anthracene	129	150	86.0%	126	150	84.0%	2.4%
Total Benzofluoranthenes	255	300	85.0%	239	300	79.7%	6.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
d10-2-Methylnaphthalene	56.3%	54.7%
d14-Dibenzo(a,h)anthracen	106%	101%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UI96MBS1

Lab Name: ANALYTICAL RESOURCES INC — Client: SLR

ARI Job No: UI96 — Project: BAY WOOD

Lab File ID: 02291203 — Date Extracted: 02/23/12

Instrument ID: NT4 — Date Analyzed: 02/29/12

Matrix: SOLID — Time Analyzed: 1136

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UI96LCSS1	UI96LCSS1	02291204	02/29/12
02	UI96LCSDS1	UI96LCSDS1	02291205	02/29/12
03	SP-E1-8	UI96A	02291207	02/29/12
04	SP-M2-5	UI96B	02291208	02/29/12
05				
06				
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FORM IV SV

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: MB-022312
METHOD BLANK

Lab Sample ID: MB-022312
LIMS ID: 12-3080
Matrix: Soil
Data Release Authorized:
Reported: 02/29/12

QC Report No: UI96-SLR
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 02/23/12
Date Analyzed: 02/29/12 11:36
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	55.3%
d14-Dibenzo(a,h)anthracen	96.3%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 11/21/11 DFTPP Injection Time: 0937

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	29.1
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.8
70	Less than 2.0% of mass 69	0.1 (0.4)1
127	10.0 - 80.0% of mass 198	47.1
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.8
275	10.0 - 60.0% of mass 198	30.3
365	Greater than 1.0% of mass 198	4.03
441	0.0 - 24.0% of mass 442	22.6 (15.5)2
442	50.0 - 200.0% of mass 198	145.7
443	15.0 - 24.0% of mass 442	29.5 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC251121	IC251121	11211102	11/21/11	1109
02	IC011121	IC011121	11211103	11/21/11	1138
03	IC051121	IC051121	11211104	11/21/11	1206
04	IC11121	IC11121	11211105	11/21/11	1233
05	IC51121	IC51121	11211106	11/21/11	1301
06	IC101121	IC101121	11211107	11/21/11	1329
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 02/29/12 DFTPP Injection Time: 1050

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	30.0
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.3
70	Less than 2.0% of mass 69	0.1 (0.3)1
127	10.0 - 80.0% of mass 198	43.8
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 60.0% of mass 198	31.4
365	Greater than 1.0% of mass 198	4.51
441	0.0 - 24.0% of mass 442	26.4 (15.1)2
442	50.0 - 200.0% of mass 198	175.1
443	15.0 - 24.0% of mass 442	34.3 (19.6)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0229	CC0229	02291202	02/29/12	1104
02	UI96MBS1	UI96MBS1	02291203	02/29/12	1136
03	UI96LCSS1	UI96LCSS1	02291204	02/29/12	1205
04	UI96LCSDS1	UI96LCSDS1	02291205	02/29/12	1233
05	SP-E1-8	UI96A	02291207	02/29/12	1330
06	SP-M2-5	UI96B	02291208	02/29/12	1359
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V SV

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UI96 Project: BAY WOOD

Instrument ID: NT4 Calibration Date: 11/21/11

LAB FILE ID: RRF0.1=11211103 RRF0.5=11211104 RRF1 =11211105
RRF2.5=11211102 RRF5 =11211106 RRF10 =11211107

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	___ RRF	%RSD /R^2
Naphthalene	1.153	0.967	0.977	0.932	0.878	0.888	0.966	10.4
2-Methylnaphthalene	0.679	0.543	0.555	0.543	0.523	0.518	0.560	10.6
Acenaphthylene	1.836	1.390	1.450	1.504	1.467	1.554	1.534	10.3
Acenaphthene	1.334	1.033	1.037	0.992	0.967	1.018	1.064	12.7
Dibenzofuran	1.825	1.445	1.525	1.442	1.412	1.468	1.520	10.2
Fluorene	1.534	1.146	1.140	1.112	1.104	1.170	1.201	13.7
Phenanthrene	1.325	1.042	1.022	0.972	0.978	0.987	1.054	12.8
Anthracene	1.218	0.930	0.919	0.944	0.927	0.998	0.989	11.7
Fluoranthene	1.565	1.109	1.078	1.047	1.038	1.075	1.152	17.7
Pyrene	1.331	0.968	0.958	0.949	0.923	0.976	1.018	15.2
Benzo(a)anthracene	1.283	0.858	0.883	0.864	0.857	0.913	0.943	17.8
Chrysene	1.381	0.920	0.933	0.875	0.874	0.920	0.984	19.9
Benzo(b)fluoranthene	1.416	0.927	0.958	0.915	0.909	1.016	1.024	19.2
Benzo(k)fluoranthene	1.180	0.947	1.027	0.978	0.923	0.998	1.009	9.1
Benzo(j)fluoranthene	0.908	0.916	0.897	0.808	0.863	0.938	0.888	5.2
Benzo(a)pyrene	0.738	0.792	0.885	0.888	0.907	1.019	0.872	11.2
Indeno(1,2,3-cd)pyrene	1.298	0.986	1.024	1.120	1.192	1.336	1.159	12.3
Dibenzo(a,h)anthracene	0.847	0.718	0.842	0.888	0.958	1.116	0.895	14.9
Benzo(g,h,i)perylene	1.255	0.944	1.071	1.041	1.073	1.179	1.094	9.9
1-methylnaphthalene	0.711	0.540	0.539	0.508	0.499	0.494	0.548	14.9
Perylene	1.167	0.908	0.940	0.895	0.907	1.011	0.971	10.8
2-Methylnaphthalene-d10	0.735	0.614	0.601	0.570	0.558	0.557	0.606	11.2
Dibenzo(a,h)anthracene-d14	0.593	0.558	0.640	0.717	0.782	0.926	0.703	19.4

<- Outside QC limits: %RSD <20% or R^2 > 0.990

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UI96 Project: BAY WOOD

Instrument ID: NT4 Cont. Calib. Date: 02/29/12

Init. Calib. Date: 11/21/11 Cont. Calib. Time: 1104

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	0.966	0.941	0.700	AVRG	-2.6	
2-Methylnaphthalene	0.560	0.574	0.400	AVRG	2.5	
Acenaphthylene	1.534	1.572	0.900	AVRG	2.5	
Acenaphthene	1.064	1.055	0.900	AVRG	-0.8	
Dibenzofuran	1.520	1.453	0.800	AVRG	-4.4	
Fluorene	1.201	1.143	0.900	AVRG	-4.8	
Phenanthrene	1.054	0.965	0.700	AVRG	-8.4	
Anthracene	0.989	0.931	0.700	AVRG	-5.9	
Fluoranthene	1.152	1.042	0.600	AVRG	-9.5	
Pyrene	1.018	1.010	0.600	AVRG	-0.8	
Benzo(a)anthracene	0.943	0.857	0.800	AVRG	-9.1	
Chrysene	0.984	0.902	0.700	AVRG	-8.3	
Benzo(b)fluoranthene	1.024	0.886	0.700	AVRG	-13.5	
Benzo(k)fluoranthene	1.009	1.037	0.700	AVRG	2.8	
Benzo(j)fluoranthene	0.888	0.894	0.010	AVRG	0.7	
Benzo(a)pyrene	0.872	0.946	0.700	AVRG	8.5	
Indeno(1,2,3-cd)pyrene	1.159	1.232	0.500	AVRG	6.3	
Dibenzo(a,h)anthracene	0.895	1.003	0.400	AVRG	12.1	
Benzo(g,h,i)perylene	1.094	1.056	0.500	AVRG	-3.5	
1-methylnaphthalene	0.548	0.542	0.010	AVRG	-1.1	
Perylene	0.971	0.964	0.010	AVRG	-0.7	
2-Methylnaphthalene-d10	0.606	0.578	0.010	AVRG	-4.6	
Dibenzo(a,h)anthracene-d14	0.703	0.885	0.010	AVRG	25.9	<-

<- Exceeds QC limit of 20% D
* RF less than minimum RF

FORM VII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UI96 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 02/29/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	343604	5.50	195804	7.79	321226	9.76
	UPPER LIMIT	687208		391608		642452	
	LOWER LIMIT	171802		97902		160613	
	CCAL	299173	4.01	174543	6.22	293673	8.12
	UPPER LIMIT		4.51		6.72		8.62
	LOWER LIMIT		3.51		5.72		7.62
01	UI96MBS1	255697	4.00	147801	6.21	250635	8.12
02	UI96LCSS1	202539	4.00	121023	6.21	202594	8.12
03	UI96LCSDS1	261828	4.00	150758	6.21	263382	8.12
04	SP-E1-8	219063	4.00	133604	6.21	236654	8.12
05	SP-M2-5	219948	4.00	136247	6.21	229501	8.11
06							
07							
08							
09							
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22							
23							
24							
25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UI96 Project: BAY WOOD

Ical Midpoint ID: 11211102 Ical Date: 11/21/11

Instrument ID: NT4 Cont. Cal Date: 02/29/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	375207	15.01	400310	18.86		
	UPPER LIMIT	750414		800620			
	LOWER LIMIT	187604		200155			
	CCAL	322707	12.18	303257	15.52		
	UPPER LIMIT		12.68		16.02		
	LOWER LIMIT		11.68		15.02		
01	UI96MBS1	281169	12.18	260095	15.51		
02	UI96LCSS1	226208	12.17	208997	15.51		
03	UI96LCSDS1	297625	12.17	288180	15.50		
04	SP-E1-8	307623	12.17	328471	15.51		
05	SP-M2-5	283929	12.17	298394	15.50		
06							
07							
08							
09							
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19							
20							
21							
22							
23							
24							
25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

Total Solids

ARI Job ID: UI96

Extractions Total Solids-extts
Data By: Yen Luu
Created: 2/21/12

Worklist: 7653
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UI96A 12-3080 SP-E1-8	1.11	11.30	9.48	82.1	NR
2.	UI96B 12-3081 SP-M2-5	1.14	11.96	9.63	78.5	NR

Extractions Total Solids-extts
Data By: Yen Luu
Created: 2/21/12

Worklist: 7653
Analyst: YL
Comments:

Oven ID: Ø15

Balance ID: B139298ØØ2

Samples In: Date: 2/21/12 Time: 17:ØØ Temp: 1Ø2 Analyst: YL

Samples Out: Date: Ø2/22/12 Time: Ø6:15 Temp: 104° Analyst: RR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UI96A 12-3080 SP-E1-8	1.11	11.3Ø	9.48		NR
2.	UI96B 12-3081 SP-M2-5	1.14	11.96	9.63		NR

SIM PAH Raw Data
Extraction Bench Sheets and Notes

ARI Job ID: UI96

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Benchsheet

SIM PNA Soil/Sediment
Microwave (3546) (SOP # 3304S)

Preparation Test SIM PNA # 5 (SPNASDMI)

In-House (5ppb)

ARI Job No(s) UI96, UJ04

Batch set up by: SP

Bottle #	Extraction Requirements	Verify Client ID	Volume Extracted (dry wt)	KD 80-85°C Hex X (X2) 100°C	Turbo Vap 1 2 3	(Opt) (REQ) Silica Gel Clean (1:1) Y/N	Turbo Vap 1 2 3	Final Effective Volume	Volume to Lab	Comments
	UI96 MBS	Date NL	10.00g	↓	↓	↓	↓	0.5mL	0.5mL	See notes
	SBS	2/23/12	↓					↓	↓	
	SBS Dup.	↓	↓					↓	↓	↓
	QLS	↓	↓					↓	↓	
1	A	Checked	13.16					↓	↓	
1	B	↓	13.24					↓	↓	
7	UJ04 A	↓	14.06	↓	↓	↓	↓	1mL	1mL	↓
Analyst/Date	NL 2/23/12			MH 2/28/12	SP 2/29/12	SP 2/29/12	SP 2/29/12	SP 2/29/12	SP 2/29/12	

Standard	Standard ID	Volume	Expiration Date	Analyst	Witness
Surrogate	B	100µL	5/30/12	NL	SP
Spike	15	100µL	6/21/12	NL	SP
QLS Spike	4	50µL	6/21/12	NL	SP

Extraction Time: 1310 **Balance ID:** B139298002

SPECIAL INSTRUCTIONS: 1. Weigh into beakers-lightly dry with Sodium Sulfate. 2. Transfer to microwave vessel. Note: do not fill vessel more than 2/3rd full. Some samples may require two vessels). 3. Add 1:1 DCM/ACE to the vessels (until solvent is 3" above soil layer after homogenization). 4. Add surr/spike. 5. Microwave on appropriate power setting determined by # of samples. 6. After microwave-let cool 10-15 min in cold water. 7. Decant 1:1 DCM/ACE into Erlenmeyer flask with sodium sulfate in the bottom and funnel containing neutral glasswool. 8. Rinse with DCM 9. Microwave a 2nd time using DCM only (until solvent is 3" above soil layer after homogenization). 10. Let cool and decant solvent then empty the soil into the funnel and rinse with DCM. 11. KD (Small or Large drying column) to 5mL at 80-85°C. 12. Exchange to Hexane (2X with 10mL). 13. TurboVap. 14. Silica Clean-up Opt-Any Color=REQ (All or none). 15. TurboVap (if Silica Clean) 16. Vial in DCM.

A. Need Total Solids Y/N **~~B. Archive~~/Freeze Y/N**

3060F

Revision 05
9/01/2011

UJ04:00035

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Organic Extractions Laboratory Analyst Notes

ARI Job No.: UI96 Client ID: SLR

Parameter: Sim BNA Client Project: Bay Wood

Screens: Soil/Sediment/Solid/Other:	Analyst/Date
☒ No Anomalies (standard soil/wet sediment/sand/gravel)= A, B	YL 2/21/12
☐ Standing Water Decanted (Not shared)=	
☐ Standing Water Homogenized (Shared samples)=	
☐ Clay/Clumps (Difficult to homogenize)=	
☐ Rocks (%+size)?	
☐ Organics (Leaves/sticks/grass)=	
☐ Oily, obvious fuel/sulfur odors=	
☐ Other (Details)=	
Aqueous:	
☐ No Anomalies	
☐ Turbid/Color=	
☐ Particulates(%)=(Note: >5%=Notify Supervisor/Lead)	
☐ Emulsions (%)=	
☐ Other (Details)=	
☒ Other Notes/Comments= (Note problems, concerns, corrective actions). Sample pre-screens and total solids were reprocessed, due to samples being frozen for 2 months.	~~SP~~ 2/21/12
All samples filtered prior to SPE cleanup	SP 2/29/12

SIM PAH Raw Data
Initial Calibration

ARI Job ID: UI96

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC/MS SVOA Analyst Notes / Corrective Action Log

ARI Project ID: Curved Client ID: /

ARI SOP: **801S**(SIM-PNA) (circled) **802S**(Butyl Tins) **804S**(SVOA-8270D) **805S**(op-Pest)

Parameter(s): SimPNA

Instrument: NT-2 NT-4 (circled) NT-6 NT-8 NT11

Curve Date: 11/21/11 Analysis Start Date: 11/21/11

DFTPP Tune Meets Criteria?	YES (circled) / NO	Internal Standard Meets Criteria?	YES (circled) / NO
DDT Breakdown <20%?	YES (circled) / NO / NA	Method Blank In Control?	YES / NO / NA (circled)
Peak Tailing Factor ≤2?	YES (circled) / NO / NA	LCS / LCSD Recovery In Control?	YES (circled) / NO
ICal acceptable?	YES (circled) / NO	CCal acceptable?	YES (circled) / NO
Q flag applied?	YES / NO	Q flag applied?	YES / NO
Surrogate Recovery in Control?	YES (circled) / NO	Special Analysis Criteria Met?	YES / NO / NA (circled)
Manual Integrations for ICal?	YES (circled) / NO	Manual Integrations for Samples?	Yes (circled) / NO

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

ICV. By accident, IS, 1871-1, was added in (~~30X~~ 10X high than 1871-2). [initials] 2/29/12

Additional Details on Reverse: Yes / No

Analyst: [signature] **Date:** 11/21/11

Reviewer: [initials] **Date:** 11/22/11

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-NOV-2011 11:09
End Cal Date : 21-NOV-2011 13:29
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Cal Date : 21-Nov-2011 17:42 jianqing
Curve Type : Average

Calibration File Names:
Level 1: /chem3/nt4.i/20111121.b/11211103.d
Level 2: /chem3/nt4.i/20111121.b/11211104.d
Level 3: /chem3/nt4.i/20111121.b/11211105.d
Level 4: /chem3/nt4.i/20111121.b/11211102.d
Level 5: /chem3/nt4.i/20111121.b/11211106.d
Level 6: /chem3/nt4.i/20111121.b/11211107.d

	Compound	0.10000 Level 1	0.50000 Level 2	1.000 Level 3	2.500 Level 4	5.000 Level 5	10.000 Level 6	___ RRF	% RSD
1	trans-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
2	cis-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
3	Benzo(b)thiophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
7	Naphthalene	1.15327	0.96699	0.97718	0.93188	0.87822	0.88782	0.96589	10.372
14	2-Methylnaphthalene	0.67876	0.54317	0.55515	0.54276	0.52350	0.51838	0.56028	10.641
15	1-methylnaphthalene	0.71090	0.53959	0.53894	0.50849	0.49905	0.49404	0.54850	14.936
19	Biphenyl	1.77840	1.31493	1.37553	1.31022	1.28216	1.33943	1.40011	13.424
20	2,6-Dimethylnaphthalene	1.41254	0.94570	0.97334	0.97596	0.94293	0.99590	1.04106	17.586
21	Acenaphthylene	1.83623	1.39052	1.45049	1.50368	1.46702	1.55395	1.53365	10.298
23	Acenaphthene	1.33410	1.03330	1.03678	0.99202	0.96706	1.01778	1.06351	12.710
11	Dibenzofuran	1.82484	1.44536	1.52486	1.44165	1.41198	1.46825	1.51949	10.153
24	1,6,7-Trimethylnaphthalene	1.01902	0.89983	0.90521	0.90275	0.90872	0.96464	0.93336	5.200
4	C1-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
25	Fluorene	1.53352	1.14595	1.13951	1.11185	1.10371	1.16953	1.20068	13.725
5	C2-Naphthalenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
8	C3-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
27	Dibenzothiophene	1.14865	0.90952	0.93191	0.91487	0.91296	0.92858	0.95775	9.809
30	Phenanthrene	1.32515	1.04197	1.02225	0.97232	0.97850	0.98727	1.05457	12.828
9	C2-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
10	C1-Naphthalenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
31	Anthracene	1.21813	0.93036	0.91948	0.94379	0.92714	0.99765	0.98943	11.675

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-NOV-2011 11:09
End Cal Date : 21-NOV-2011 13:29
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Cal Date : 21-Nov-2011 17:42 jianqing
Curve Type : Average

	Compound	0.10000 Level 1	0.50000 Level 2	1.000 Level 3	2.500 Level 4	5.000 Level 5	10.000 Level 6	___ RRF	% RSD
26	Carbazole	1.26693	0.85365	0.85772	0.83397	0.82654	0.86475	0.91726	18.743
13	C3_Benzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
33	1-Methylphenanthrene	0.94896	0.71668	0.74602	0.73313	0.72221	0.75886	0.77098	11.486
16	C3-Naphthalenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
17	C1-Benzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
18	C2-Benzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
36	Fluoranthene	1.56540	1.10945	1.07764	1.04720	1.03821	1.07463	1.15209	17.710
39	Pyrene	1.33103	0.96855	0.95762	0.94861	0.92349	0.97581	1.01752	15.200
46	Benzo(a)anthracene	1.28299	0.85772	0.88263	0.86351	0.85731	0.91310	0.94288	17.815
48	Chrysene	1.38121	0.91963	0.93314	0.87488	0.87401	0.92016	0.98384	19.948
32	C4-Naphthalenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
34	C1-Fluorenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
35	C2-Dibenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
51	Benzo(b)fluoranthene	1.41639	0.92715	0.95771	0.91472	0.90939	1.01658	1.02366	19.187
52	Benzo(k)fluoranthene	1.18050	0.94749	1.02713	0.97762	0.92316	0.99761	1.00892	9.085
64	Total Benzofluoranthenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
251	Benzo(j)fluoranthene	0.90777	0.91602	0.89750	0.80827	0.86287	0.93789	0.88839	5.217
37	C2-Phenanthrenes/Anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
55	Benzo(e)pyrene	0.97479	0.99071	0.98211	0.93172	0.94206	1.01480	0.97270	3.188
54	Benzo(a)pyrene	0.73752	0.79184	0.88533	0.88802	0.90665	1.01864	0.87133	11.203
57	Perylene	1.16732	0.90850	0.93994	0.89503	0.90739	1.01103	0.97154	10.779
40	C3-Phenanthrenes/Anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
41	C3-Fluorenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
42	Retene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
43	C1-Dibenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
44	C1-Phenanthrenes/Anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
45	C1-Fluoranthenes/Pyrenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
63	Indeno(1,2,3-cd)pyrene	1.29797	0.98632	1.02409	1.11991	1.19255	1.33653	1.15956	12.287
62	Dibenzo(a,h)anthracene	0.84737	0.71833	0.84195	0.88843	0.95780	1.11606	0.89499	14.920

Analytical Resources, Inc.

INITIAL CALIBRATION DATA

Start Cal Date : 21-NOV-2011 11:09
End Cal Date : 21-NOV-2011 13:29
Quant Method : ISTD
Origin : Disabled
Target Version : 3.50
Integrator : HP RTE
Method file : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Cal Date : 21-Nov-2011 17:42 jianqing
Curve Type : Average

Compound	0.10000 Level 1	0.50000 Level 2	1.000 Level 3	2.500 Level 4	5.000 Level 5	10.000 Level 6	___ RRF	% RSD
49 Naphthobenzothiophene	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
61 Benzo(g,h,i)perylene	1.25504	0.94454	1.07130	1.04125	1.07335	1.17898	1.09408	9.947
50 C3-Dibenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
53 C4-Phenanthrenes/Anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
58 C4-Dibenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
59 C3-Fluoranthenes/Pyrenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
66 C1-Naphthobenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
67 C2-Fluoranthenes/Pyrenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
68 C1-Benzo(a)anthracenes/Chryse	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
69 C2-Benzo(a)anthracenes/Chryse	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
70 C2-Fluorenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
71 C2-Naphthobenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
72 C3-Benzo(a)anthracenes/Chryse	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
73 C3-Naphthobenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
74 C1-Dibenzo(a)anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
75 C2-Dibenzo(a)anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
76 C3-Dibenzo(a)anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
77 C4-Benzo(a)anthracenes/Chryse	+++++	+++++	+++++	+++++	+++++	+++++	+++++	+++++
$ 12 2-Methylnaphthalene-d10	0.73504	0.61441	0.60072	0.56952	0.55759	0.55711	0.60573	11.152
$ 60 Dibenzo(a,h)anthracene-d14	0.59322	0.55803	0.64022	0.71712	0.78161	0.92612	0.70272	19.425

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Batch File: /chem3/nt4.i/20111121.b
Inst ID: nt4.i

ID:	RT01	RT02	RT03	RT04	RT05	RT06
FILENAME:	11211102	11211103	11211104	11211105	11211106	11211107
INJ.DATE:	21-NOV-2011	21-NOV-2011	21-NOV-2011	21-NOV-2011	21-NOV-2011	21-NOV-2011
INJ.TIME:	11:09	11:38	12:06	12:33	13:01	13:29

[initials] 11/21/11

	Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
	1 trans-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	4.243	1.243-7.243	+++++	+++++
	2 cis-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	4.856	1.856-7.856	+++++	+++++
	3 Benzo(b)thiophene	+++++	+++++	+++++	+++++	+++++	+++++	6.193	3.193-9.193	+++++	+++++
*	6 Naphthalene-d8	5.499	5.494	5.494	5.495	5.497	5.494	5.499	2.499-8.499	5.495	0.002
	7 Naphthalene	5.527	5.526	5.522	5.523	5.522	5.522	5.527	2.527-8.527	5.524	0.002
$	12 2-Methylnaphthalene-d1	6.250	6.245	6.242	6.242	6.244	6.241	6.250	3.250-9.250	6.244	0.003
	14 2-Methylnaphthalene	6.294	6.286	6.289	6.286	6.288	6.289	6.294	3.294-9.294	6.289	0.003
	15 1-methylnaphthalene	6.493	6.491	6.485	6.485	6.487	6.487	6.493	3.493-9.493	6.488	0.003
	19 Biphenyl	6.941	6.936	6.932	6.933	6.935	6.935	6.941	3.941-9.941	6.935	0.003
	20 2,6-Dimethylnaphthalen	7.007	7.002	7.002	7.002	7.001	7.001	7.007	4.007-10.007	7.003	0.002
	21 Acenaphthylene	7.647	7.643	7.642	7.643	7.642	7.642	7.647	4.647-10.647	7.643	0.002
*	22 Acenaphthene-d10	7.786	7.781	7.781	7.782	7.780	7.781	7.786	4.786-10.786	7.782	0.002
	23 Acenaphthene	7.833	7.829	7.828	7.829	7.828	7.828	7.833	4.833-10.833	7.829	0.002
	11 Dibenzofuran	7.978	7.974	7.973	7.971	7.973	7.973	7.978	4.978-10.978	7.974	0.003
	24 1,6,7-Trimethylnaphtha	8.092	8.087	8.087	8.084	8.083	8.083	8.092	5.092-11.092	8.086	0.003
	4 C1-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	8.826	5.826-11.826	+++++	+++++
	25 Fluorene	8.442	8.437	8.437	8.435	8.436	8.437	8.442	5.442-11.442	8.437	0.003

Reviewer 1 ________ Date: ________
Reviewer 2 [signature] Date: 11/22/11

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Batch File: /chem3/nt4.i/20111121.b
Inst ID: nt4.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
5 C2-Naphthalenes	+++++	+++++	+++++	+++++	+++++	+++++	10.000	7.000-13.000	+++++	+++++
8 C3-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	10.296	7.296-13.296	+++++	+++++
27 Dibenzothiophene	9.644	9.639	9.639	9.636	9.638	9.638	9.644	6.644-12.644	9.639	0.003
* 28 Phenanthrene-d10	9.761	9.759	9.756	9.756	9.758	9.755	9.761	6.761-12.761	9.758	0.002
30 Phenanthrene	9.799	9.794	9.790	9.791	9.793	9.790	9.799	6.799-12.799	9.793	0.003
9 C2-Decalin	+++++	+++++	+++++	+++++	+++++	+++++	10.453	7.453-13.453	+++++	+++++
10 C1-Naphthalenes	+++++	+++++	+++++	+++++	+++++	+++++	10.453	7.453-13.453	+++++	+++++
31 Anthracene	9.833	9.829	9.825	9.826	9.828	9.828	9.833	6.833-12.833	9.828	0.003
26 Carbazole	10.313	10.308	10.308	10.305	10.307	10.307	10.313	7.313-13.313	10.308	0.003
13 C3_Benzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	11.200	8.200-14.200	+++++	+++++
33 1-Methylphenanthrene	10.657	10.652	10.648	10.652	10.651	10.651	10.657	7.657-13.657	10.652	0.003
16 C3-Naphthalenes	+++++	+++++	+++++	+++++	+++++	+++++	11.600	8.600-14.600	+++++	+++++
17 C1-Benzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	11.769	8.769-14.769	+++++	+++++
18 C2-Benzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	11.842	8.842-14.842	+++++	+++++
36 Fluoranthene	11.726	11.721	11.718	11.718	11.720	11.720	11.726	8.726-14.726	11.721	0.003
39 Pyrene	12.268	12.261	12.260	12.258	12.263	12.263	12.268	9.268-15.268	12.262	0.004
46 Benzo(a)anthracene	14.883	14.879	14.878	14.879	14.881	14.878	14.883	11.883-17.883	14.880	0.002
* 47 Chrysene-d12	15.013	15.005	15.005	15.002	15.004	15.001	15.013	12.013-18.013	15.005	0.004
48 Chrysene	15.082	15.081	15.074	15.071	15.073	15.074	15.082	12.082-18.082	15.076	0.004
* 29 Fluorene-d10	14.773	14.759	14.733	14.762	14.692	14.875	14.773	11.773-17.773	14.766	0.061
32 C4-Naphthalenes	+++++	+++++	+++++	+++++	+++++	+++++	15.983	12.983-18.983	+++++	+++++
34 C1-Fluorenes	+++++	+++++	+++++	+++++	+++++	+++++	16.962	13.962-19.962	+++++	+++++

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Batch File: /chem3/nt4.i/20111121.b
Inst ID: nt4.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
35 C2-Dibenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	17.000	14.000-20.000	+++++	+++++
51 Benzo(b)fluoranthene	17.650	17.642	17.642	17.639	17.641	17.641	17.650	14.650-20.650	17.642	0.004
52 Benzo(k)fluoranthene	17.707	17.696	17.695	17.696	17.701	17.701	17.707	14.707-20.707	17.699	0.004
64 Total Benzofluoranthen	+++++	+++++	+++++	+++++	+++++	+++++	17.174	14.174-20.174	+++++	+++++
251 Benzo(j)fluoranthene	17.785	17.778	17.780	17.775	17.777	17.780	17.785	14.786-20.785	17.779	0.004
* 38 Pyrene-d10	17.852	17.907	17.888	17.866	17.893	17.916	17.852	14.852-20.852	17.887	0.024
37 C2-Phenanthrenes/Anthr	+++++	+++++	+++++	+++++	+++++	+++++	17.500	14.500-20.500	+++++	+++++
55 Benzo(e)pyrene	18.530	18.532	18.525	18.525	18.524	18.524	18.530	15.530-21.530	18.527	0.003
54 Benzo(a)pyrene	18.650	18.645	18.645	18.642	18.644	18.644	18.650	15.650-21.650	18.645	0.003
* 56 Perylene-d12	18.861	18.856	18.856	18.854	18.852	18.856	18.861	15.861-21.861	18.856	0.003
57 Perylene	18.931	18.932	18.925	18.923	18.928	18.928	18.931	15.931-21.931	18.928	0.003
40 C3-Phenanthrenes/Anthr	+++++	+++++	+++++	+++++	+++++	+++++	18.800	15.800-21.800	+++++	+++++
41 C3-Fluorenes	+++++	+++++	+++++	+++++	+++++	+++++	18.831	15.831-21.831	+++++	+++++
42 Retene	+++++	+++++	+++++	+++++	+++++	+++++	18.831	15.831-21.831	+++++	+++++
43 C1-Dibenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	18.997	15.997-21.997	+++++	+++++
44 C1-Phenanthrenes/Anthr	+++++	+++++	+++++	+++++	+++++	+++++	19.008	16.008-22.008	+++++	+++++
45 C1-Fluoranthenes/Pyren	+++++	+++++	+++++	+++++	+++++	+++++	19.500	16.500-22.500	+++++	+++++
$ 60 Dibenzo(a,h)anthracene	21.615	21.607	21.613	21.610	21.612	21.609	21.615	18.615-24.615	21.611	0.003
63 Indeno(1,2,3-cd)pyrene	21.722	21.717	21.708	21.718	21.720	21.720	21.722	18.722-24.722	21.717	0.005
62 Dibenzo(a,h)anthracene	21.732	21.730	21.736	21.730	21.726	21.732	21.732	18.732-24.732	21.731	0.003
49 Naphthobenzothiophene	+++++	+++++	+++++	+++++	+++++	+++++	20.438	17.438-23.438	+++++	+++++
61 Benzo(g,h,i)perylene	22.867	22.859	22.865	22.860	22.862	22.868	22.867	19.867-25.867	22.864	0.004
50 C3-Dibenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	21.254	18.254-24.254	+++++	+++++
53 C4-Phenanthrenes/Anthr	+++++	+++++	+++++	+++++	+++++	+++++	21.403	18.403-24.403	+++++	+++++

Analytical Resources, Inc.
RETENTION TIME SUMMARY REPORT

Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Batch File: /chem3/nt4.i/20111121.b
Inst ID: nt4.i

Compound	RT01	RT02	RT03	RT04	RT05	RT06	EXPEC RT	RT WINDOW	AVG RT	STD DEV
58 C4-Dibenzothiophenes	+++++	+++++	+++++	+++++	+++++	+++++	22.001	19.001-25.001	+++++	+++++
59 C3-Fluoranthenes/Pyren	+++++	+++++	+++++	+++++	+++++	+++++	22.500	19.500-25.500	+++++	+++++
* 65 Benzo(a)pyrene-d12	23.549	23.534	23.559	23.513	23.578	23.530	23.549	20.549-26.549	23.544	0.023
66 C1-Naphthobenzothiophe	+++++	+++++	+++++	+++++	+++++	+++++	24.564	21.564-27.564	+++++	+++++
67 C2-Fluoranthenes/Pyren	+++++	+++++	+++++	+++++	+++++	+++++	24.611	21.611-27.611	+++++	+++++
68 C1-Benzo(a)anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	25.122	22.122-28.122	+++++	+++++
69 C2-Benzo(a)anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	26.122	23.122-29.122	+++++	+++++
70 C2-Fluorenes	+++++	+++++	+++++	+++++	+++++	+++++	26.436	23.436-29.436	+++++	+++++
71 C2-Naphthobenzothiophe	+++++	+++++	+++++	+++++	+++++	+++++	26.660	23.660-29.660	+++++	+++++
72 C3-Benzo(a)anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	27.203	24.203-30.203	+++++	+++++
73 C3-Naphthobenzothiophe	+++++	+++++	+++++	+++++	+++++	+++++	27.491	24.491-30.491	+++++	+++++
74 C1-Dibenzo(a)anthracen	+++++	+++++	+++++	+++++	+++++	+++++	28.000	25.000-31.000	+++++	+++++
75 C2-Dibenzo(a)anthracen	+++++	+++++	+++++	+++++	+++++	+++++	29.000	26.000-32.000	+++++	+++++
76 C3-Dibenzo(a)anthracen	+++++	+++++	+++++	+++++	+++++	+++++	29.500	26.500-32.500	+++++	+++++
77 C4-Benzo(a)anthracenes	+++++	+++++	+++++	+++++	+++++	+++++	30.777	27.777-33.777	+++++	+++++

Analytical Resources Inc.: Organics Instrument Log

NT-4 Serial No.: GC = US00010849; MS = US72821113

Date: 11/21/11 Analysis: SIMPAH Analyst: JB

GC Program: SIMPAH35 Column No: 220747 Column Type: ZB-35

Instrument Tune (.U or .CT.): 112111 EM Voltage: 2496

Calibration File: 112102 Curve Date: 11/21/11 Injection Vol.: 1µl

IS/SS	Ical/Ccal	LCS/ICV
1874-2	1896-1	1899-3

Document All Maintenance Tasks In StarLIMS

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem3/nt4.i/20111121.b

	Time	Filename	LabID	ClientId	DF											
1	0937	11211101.d	DFTPP1121	DFTPP1121	1	NO ISTDS FOUND!										
2	1109	11211102.d	IC251121	IC251121	1	5 50	343604	7 79	195804	9 76	321226	15.01	375207	18 86	400310	
3	1138	11211103.d	IC011121	IC011121	1	5 49	322266	7 78	184334	9 76	303679	15 00	356775	18 86	377805	
4	1206	11211104.d	IC051121	IC051121	1	5 49	315627	7 78	181613	9 76	297200	15 00	348670	18 86	364059	
5	1233	11211105.d	IC11121	IC11121	1	5 49	315463	7.78	182679	9 76	304130	15 00	355644	18 85	369211	
6	1301	11211106.d	IC51121	IC51121	1	5 50	324501	7 78	184717	9 76	304366	15 00	360991	18 85	376577	
7	1329	11211107.d	IC101121	IC101121	1	5 49	307930	7.78	167632	9 76	280849	15 00	325638	18 86	329532	
8	1357	11211108.d	ICV1121	ICV1121	1	5 49	2746674	7 78	1665308	9 76	2631078	15 01	3213923	18 86	3529775	
9	1441	11211109.d	TU65N	IT-SB-5(8-9	15	5 50	468395	7 79	280523	9 77	474618	15 02	566464	18 87	614625	
10	1509	11211110.d	TU65A	IT-MW-7(2-3	5	5 49	263846	7 78	155445	9 76	265865	15 00	313246	18 85	328981	
11	1536	11211111.d	TU65C	IT-MW-9(5-6	5	5 49	277637	7 78	165040	9 76	282449	15 01	334072	18 86	381676	

11/21/11

Every line must contain information or be lined out. Make all entries legible.
Start a new page for each QC period. Document All Maintenance Tasks In StarLIMS

MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem3/nt4.i/20111121.b

ARI Job No.: DFTP Method: tune.b/DF8270.m Instrument: nt4.i Date: 21-NOV-2011

11/21/11

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
0937	11211101.d	DFTPP1121	DFTPP1121	1	NO MANUAL INTEGRATION
1109	11211102.d	IC251121	IC251121	1	Dibenzo(a,h)anthracene-d14,
1138	11211103.d	IC011121	IC011121	1	Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(j)fluoranthene, Dibenzo(a,h)anthracene-d14,
1206	11211104.d	IC051121	IC051121	1	Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(j)fluoranthene, Dibenzo(a,h)anthracene-d14,
1233	11211105.d	IC11121	IC11121	1	Benzo(k)fluoranthene, Benzo(j)fluoranthene, Dibenzo(a,h)anthracene-d14,
1301	11211106.d	IC51121	IC51121	1	NO MANUAL INTEGRATION
1329	11211107.d	IC101121	IC101121	1	NO MANUAL INTEGRATION
1357	11211108.d	ICV1121	ICV1121	1	NO MANUAL INTEGRATION

Analytical Resources Inc.
ABN by sw846 8270C
DDT Breakdown Report

Data file: /chem3/nt4.i/20111121.b/ddt.b/11211101.d ARI ID: DDT
Method: /chem3/nt4.i/20111121.b/ddt.b/sw846ddt.m Misc: 11-
Analysis Date: 21-NOV-2011 09:37 Instrument: nt4.i

COMPOUND	RT	AREA
Pentachlorophenol	5.559	71156
Benzidine	7.233	514041
4,4'-DDE	----	----
4,4'-DDD	7.316	5870
4,4'-DDT	7.545	257664

$$\text{DDT Percent Breakdown} = \frac{(\text{DDE Area} + \text{DDD Area}) * 100}{(\text{DDE Area} + \text{DDD Area} + \text{DDT Area})}$$

$$\text{DDT Percent Breakdown} = \frac{(0 + 5870) * 100}{(0 + 5870 + 257664)}$$

DDT Percent Breakdown = 2.2 %

11/21/11

Data File: /chem3/nt4.1/20111121.b/tune.b/11211101.d

Date : 21-NOV-2011 09:37

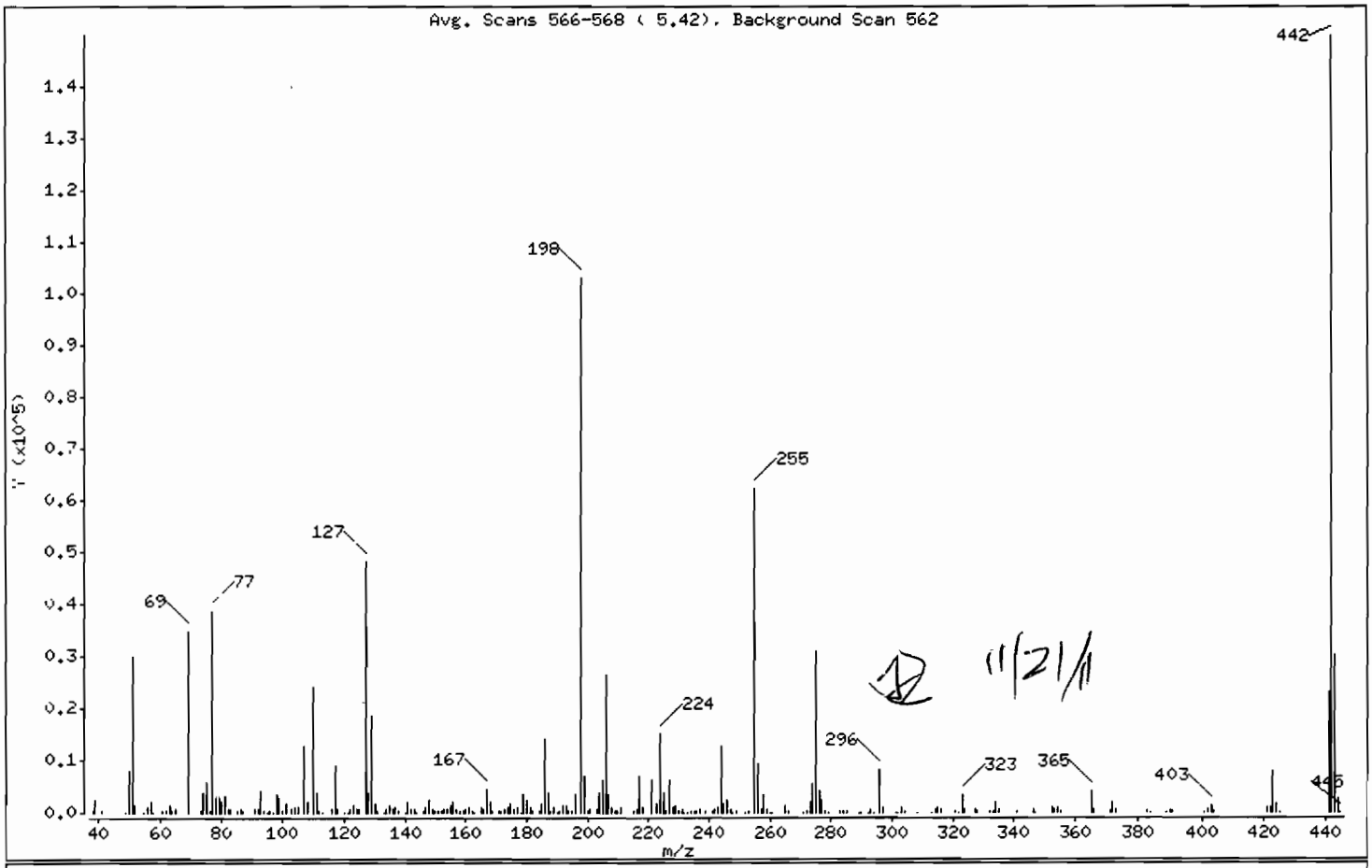
Client ID: DFTPP1121 Instrument: nt4.1

Sample Info: DFTPP1121

Operator: JZ

Column phase: ZB-5ms1 Column diameter: 0.32

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	29.10
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	33.82
70	Less than 2.00% of mass 69	0.15 (0.44)
127	10.00 - 80.00% of mass 198	47.05
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.83
275	10.00 - 60.00% of mass 198	30.31
365	Greater than 1.00% of mass 198	4.03
441	0.01 - 24.00% of mass 442	22.60 (15.51)
442	50.00 - 200.00% of mass 198	145.71
443	15.00 - 24.00% of mass 442	29.50 (20.25)

Date : 21-NOV-2011 09:37

Client ID: DFTPP1121 Instrument: nt4.1

Sample Info: DFTPP1121

Operator: JZ

Column phase: ZB-5ms1 Column diameter: 0.32

Data File: 11211101.d
Spectrum: Avg. Scans 566-568 (5.42), Background Scan 562
Location of Maximum: 442.00
Number of points: 262

m/z	Y	m/z	Y	m/z	Y	m/z	Y
38.00	364	128.00	3785	196.00	3346	283.00	352
39.00	2271	129.00	18624	198.00	102912	284.00	178
40.00	69	130.00	1569	199.00	7029	285.00	497
41.00	196	131.00	281	200.00	509	289.00	74
49.00	84	132.00	74	201.00	628	290.00	55
50.00	7951	133.00	52	203.00	695	292.00	74
51.00	29944	134.00	544	204.00	3621	293.00	558
52.00	1527	135.00	1376	205.00	6153	294.00	60
55.00	135	136.00	529	206.00	26672	296.00	8327
56.00	942	137.00	909	207.00	3448	297.00	1135
57.00	2160	138.00	210	208.00	995	301.00	80
58.00	57	140.00	149	209.00	355	302.00	70
61.00	402	141.00	2206	210.00	354	303.00	1043
62.00	489	142.00	798	211.00	1168	304.00	278
63.00	1252	143.00	522	215.00	313	308.00	133
64.00	188	144.00	135	216.00	563	313.00	108
65.00	667	145.00	120	217.00	6898	314.00	523
67.00	54	146.00	484	218.00	944	315.00	982
69.00	34808	147.00	1137	221.00	6126	316.00	727
70.00	152	148.00	2542	223.00	1609	317.00	95
73.00	382	149.00	590	224.00	15211	321.00	353
74.00	3643	150.00	178	225.00	3716	322.00	132
75.00	5792	151.00	500	226.00	461	323.00	3315
76.00	346	152.00	272	227.00	6165	324.00	567
77.00	38600	153.00	828	228.00	883	327.00	583
78.00	2697	154.00	620	229.00	1366	328.00	327
79.00	2660	155.00	1334	230.00	208	332.00	232
80.00	1957	156.00	2175	231.00	582	333.00	320
81.00	3017	157.00	525	232.00	50	334.00	2075
82.00	754	158.00	417	233.00	129	335.00	530
83.00	765	159.00	347	234.00	419	341.00	400
85.00	483	160.00	779	235.00	381	346.00	721
86.00	857	161.00	1119	236.00	319	347.00	65
87.00	281	162.00	336	237.00	524	352.00	1010
88.00	113	163.00	67	239.00	288	353.00	792

Date : 21-NOV-2011 09:37

Client ID: DFTPP1121 Instrument: nt4.i

Sample Info: DFTPP1121

Operator: JZ

Column phase: ZB-5msi Column diameter: 0.32

Data File: 11211101.d
Spectrum: Avg. Scans 566-568 (5.42), Background Scan 562
Location of Maximum: 442.00
Number of points: 262

m/z	Y	m/z	Y	m/z	Y	m/z	Y
91.00	654	164.00	91	240.00	164	354.00	1088
92.00	793	165.00	874	241.00	396	355.00	177
93.00	4297	166.00	724	242.00	814	365.00	4152
94.00	372	167.00	4440	243.00	926	366.00	645
95.00	122	168.00	2176	244.00	12616	370.00	50
96.00	214	169.00	374	245.00	1579	371.00	342
97.00	55	170.00	133	246.00	2388	372.00	1977
98.00	3353	171.00	173	247.00	518	373.00	528
99.00	2824	172.00	434	248.00	73	383.00	470
100.00	279	173.00	590	249.00	437	384.00	126
101.00	1713	174.00	989	252.00	50	389.00	51
103.00	575	175.00	1888	253.00	256	390.00	293
104.00	1033	176.00	622	255.00	62304	391.00	261
105.00	1011	177.00	921	256.00	9424	392.00	147
107.00	12746	178.00	158	257.00	698	401.00	50
108.00	1927	179.00	3586	258.00	3576	402.00	691
110.00	23960	180.00	2461	259.00	638	403.00	1226
111.00	3660	181.00	1175	260.00	54	404.00	464
112.00	427	182.00	187	261.00	51	405.00	122
113.00	83	184.00	307	264.00	53	421.00	1065
116.00	653	185.00	1817	265.00	1384	422.00	1074
117.00	9014	186.00	14164	266.00	239	423.00	8028
118.00	677	187.00	3935	271.00	65	424.00	1779
119.00	128	188.00	423	272.00	219	425.00	134
120.00	131	189.00	882	273.00	2008	441.00	23256
121.00	51	190.00	159	274.00	5615	442.00	149952
122.00	836	191.00	331	275.00	31192	443.00	30360
123.00	1376	192.00	1251	276.00	4186	444.00	2676
124.00	571	193.00	1367	277.00	2366	445.00	169
125.00	534	194.00	285	278.00	395		
127.00	48424	195.00	174	279.00	55		

Data File: /chem3/nt4.i/20111121.b/tune.b/11211101.d

Date : 21-NOV-2011 09:37

Client ID: DFTPP1121

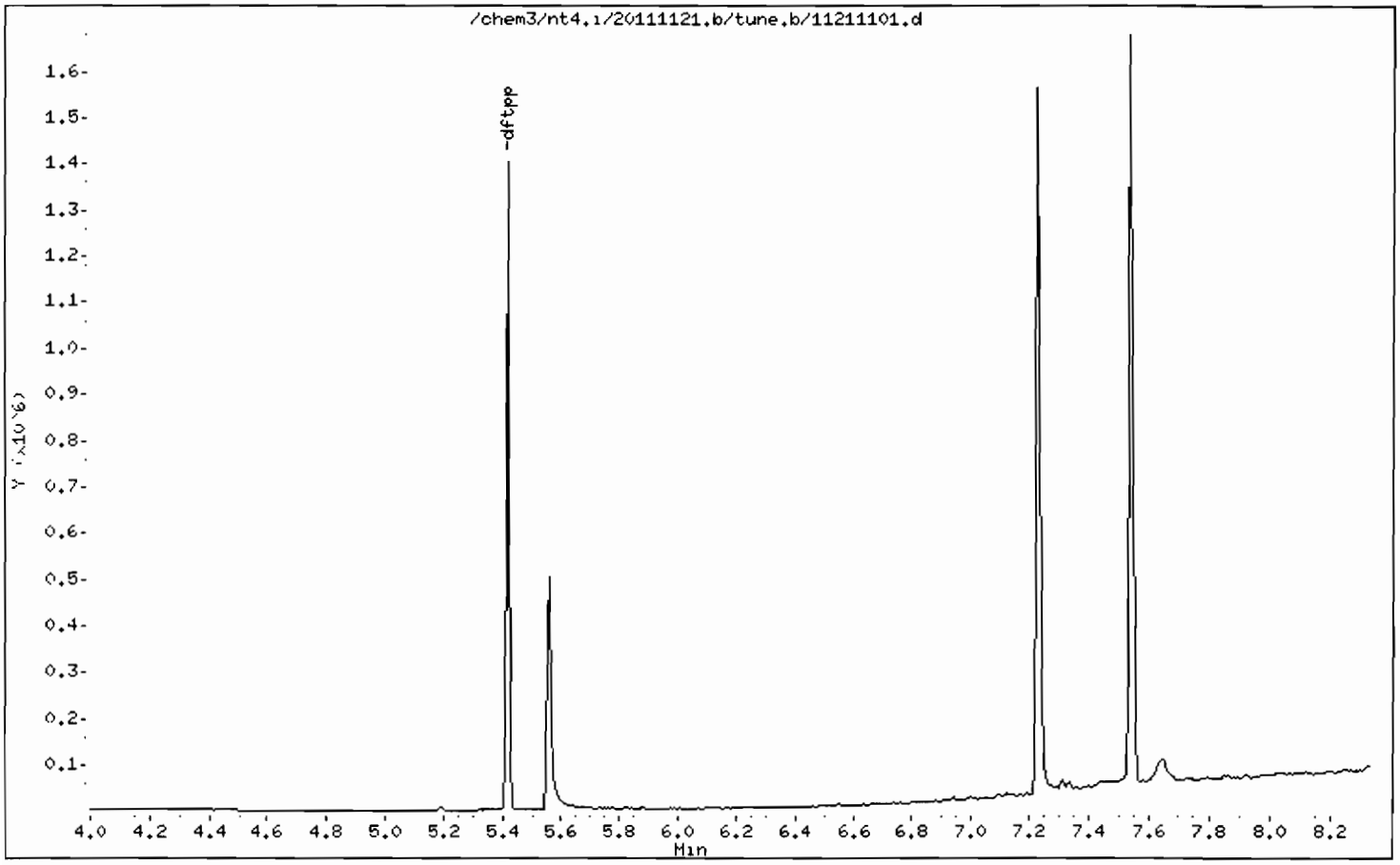
Instrument: nt4.i

Sample Info: DFTPP1121

Operator: JZ

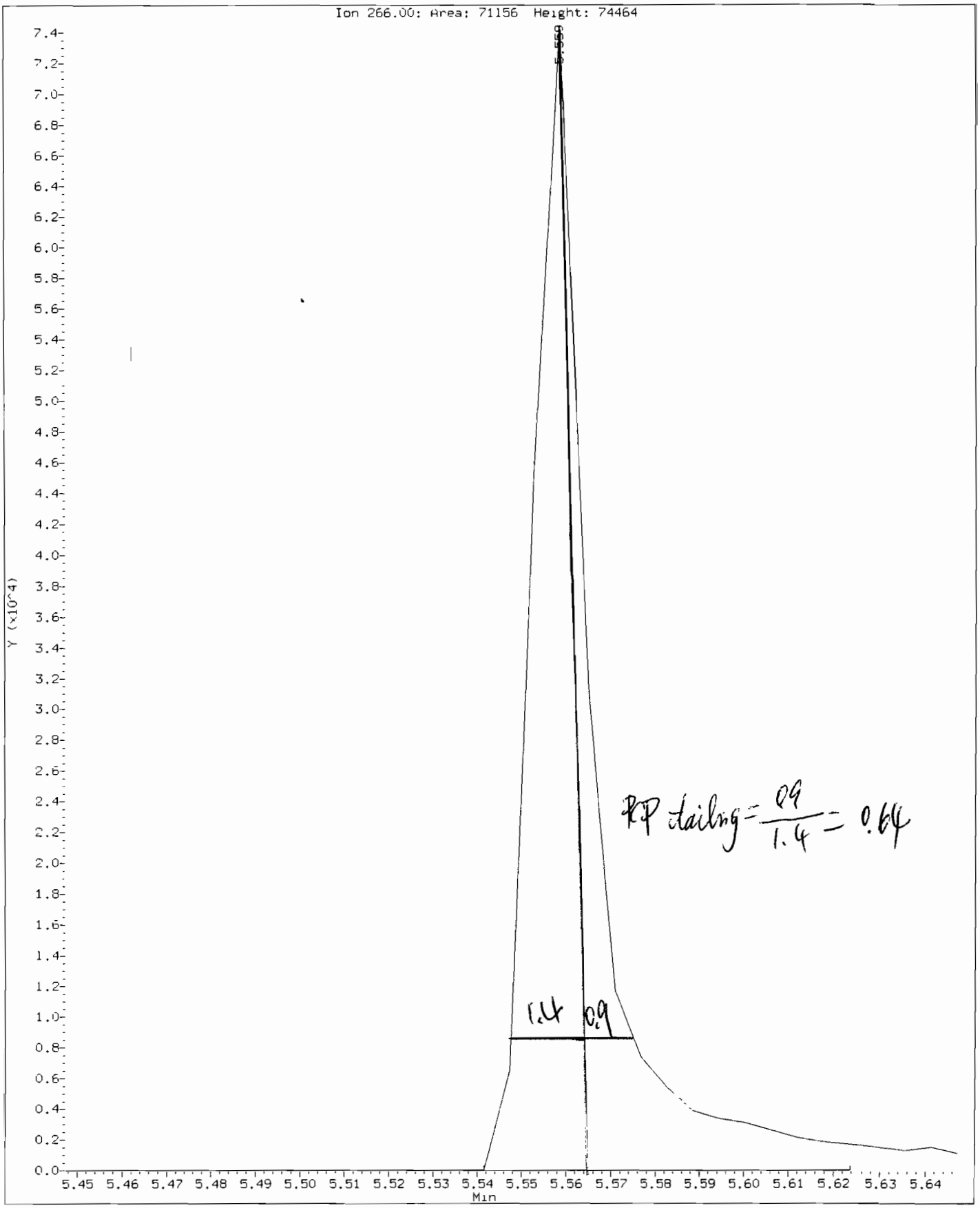
Column phase: ZB-5ms1

Column diameter: 0.32



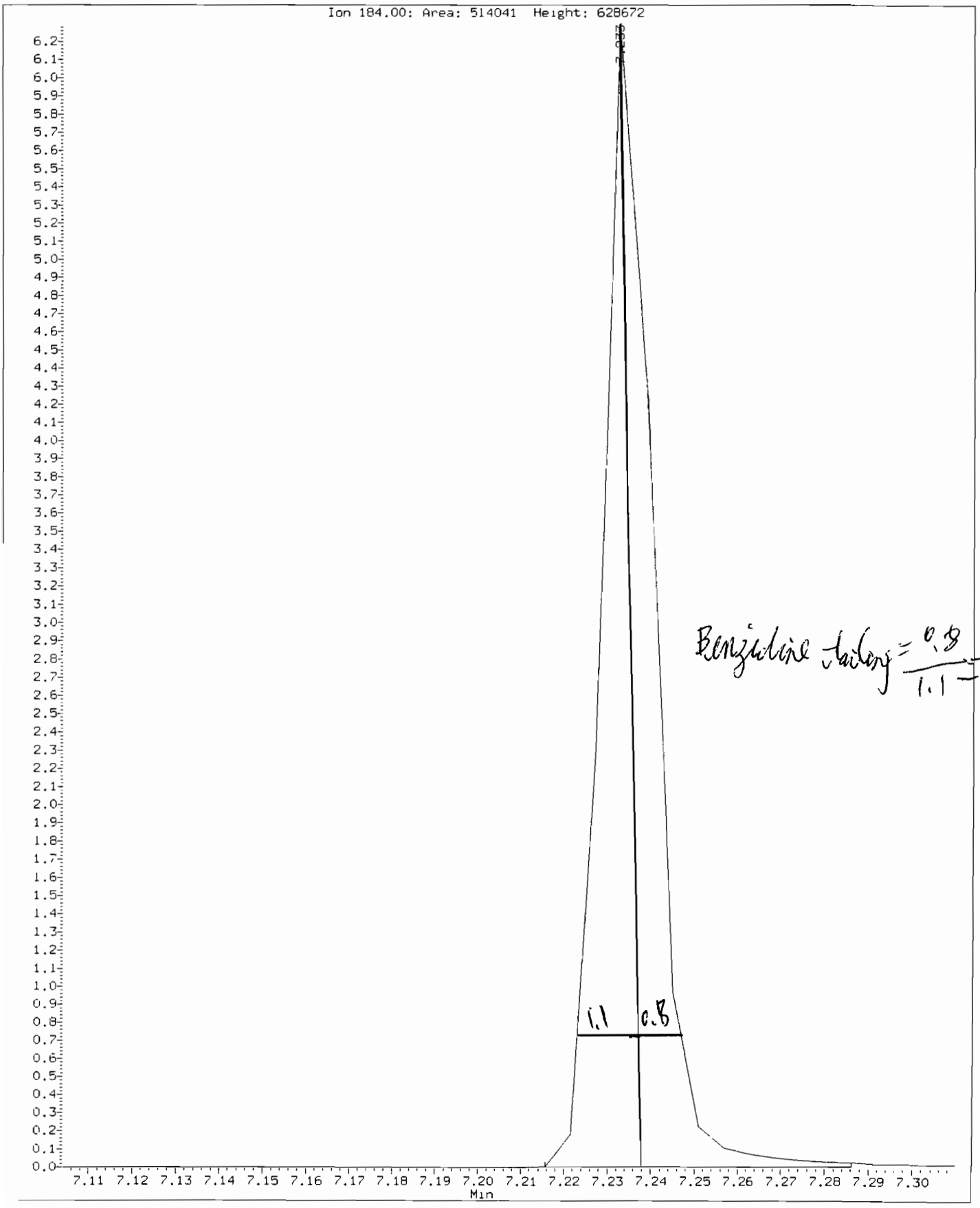
Data File: /chem3/nt4.1/20111121.b/ddt.b/11211101.d
Injection Date: 21-NOV-2011 09:37
Instrument: nt4.1
Client Sample ID: DDT1121

Compound: Pentachlorophenol
CAS Number: 87-86-5



Data File: /chem3/nt4.1/20111121.b/ddt.b/11211101.d
Injection Date: 21-NOV-2011 09:37
Instrument: nt4.1
Client Sample ID: DDT1121

Compound: Benzidine
CAS Number:



Benzidine tailing = $\frac{0.8}{1.1} = 0.73$

UI96 : 00054

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem3/nt4.i/20111121.b/11211102.d
Lab Smp Id: IC251121 Client Smp ID: IC251121
Inj Date : 21-NOV-2011 11:09
Operator : JZ Inst ID: nt4.i
Smp Info : IC251121,
Misc Info : 11-
Comment : 1ul Injection
Method : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Meth Date : 21-Nov-2011 17:42 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 2 Calibration Sample, Level: 4
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: NEWSIMPNAICL.sub
Target Version: 3.50

11/21/11

AMOUNTS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	6 Naphthalene-d8	136	5.499	5.499	(1.000)	343604	2.00000	
	7 Naphthalene	128	5.527	5.527	(1.005)	400249	2.50000	2.412
$	12 2-Methylnaphthalene-d10	152	6.250	6.250	(1.137)	244611	2.50000	2.351
	14 2-Methylnaphthalene	141	6.294	6.294	(1.145)	233117	2.50000	2.422
	15 1-methylnaphthalene	141	6.493	6.493	(1.181)	218400	2.50000	2.318
	19 Biphenyl	154	6.941	6.941	(0.891)	320683	2.50000	2.339
	20 2,6-Dimethylnaphthalene	156	7.007	7.007	(0.900)	238872	2.50000	2.344
	21 Acenaphthylene	152	7.647	7.647	(0.982)	368032	2.50000	2.451
*	22 Acenaphthene-d10	164	7.786	7.786	(1.000)	195804	2.00000	
	23 Acenaphthene	153	7.833	7.833	(1.006)	242801	2.50000	2.332
	11 Dibenzofuran	168	7.978	7.978	(1.025)	352850	2.50000	2.372
	24 1,6,7-Trimethylnaphthalene	170	8.092	8.092	(1.039)	220952	2.50000	2.418
	25 Fluorene	166	8.442	8.442	(1.084)	272131	2.50000	2.315
	27 Dibenzothiophene	184	9.644	9.644	(0.988)	367351	2.50000	2.388
*	28 Phenanthrene-d10	188	9.761	9.761	(1.000)	321226	2.00000	
	30 Phenanthrene	178	9.799	9.799	(1.004)	390417	2.50000	2.305
	31 Anthracene	178	9.833	9.833	(1.007)	378962	2.50000	2.385
	26 Carbazole	167	10.313	10.313	(1.057)	334867	2.50000	2.273
	33 1-Methylphenanthrene	192	10.657	10.657	(1.092)	294374	2.50000	2.377
	36 Fluoranthene	202	11.726	11.726	(1.201)	420486	2.50000	2.272
	39 Pyrene	202	12.268	12.268	(0.817)	444905	2.50000	2.331
	46 Benzo(a)anthracene	228	14.883	14.883	(0.991)	404992	2.50000	2.290
*	47 Chrysene-d12	240	15.013	15.013	(1.000)	375207	2.00000	
	48 Chrysene	228	15.082	15.082	(1.005)	410327	2.50000	2.223
	51 Benzo(b)fluoranthene	252	17.650	17.650	(0.936)	457716	2.50000	2.234
	52 Benzo(k)fluoranthene	252	17.707	17.707	(0.939)	489190	2.50000	2.422
	251 Benzo(j)fluoranthene	252	17.785	17.785	(0.943)	404449	2.50000	2.275(H)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
55	Benzo(e)pyrene	252	18.530	18.530	(0.982)	466221	2.50000	2.395
54	Benzo(a)pyrene	252	18.650	18.650	(0.989)	444355	2.50000	2.548
* 56	Perylene-d12	264	18.861	18.861	(1.000)	400310	2.00000	
57	Perylene	252	18.931	18.931	(1.004)	447864	2.50000	2.303
$ 60	Dibenzo(a,h)anthracene-d14	292	21.615	21.615	(1.146)	358840	2.50000	2.551 (M)
63	Indeno(1,2,3-cd)pyrene	276	21.722	21.722	(1.152)	560391	2.50000	2.415
62	Dibenzo(a,h)anthracene	278	21.732	21.732	(1.152)	444557	2.50000	2.482
61	Benzo(g,h,i)perylene	276	22.867	22.867	(1.212)	521027	2.50000	2.379

QC Flag Legend

M - Compound response manually integrated.
H - Operator selected an alternate compound hit.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 11211102.d
Lab Smp Id: IC251121
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Misc Info: 11-

Calibration Date: 21-NOV-2011
Calibration Time: 11:09
Client Smp ID: IC251121
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	343604	0.00
22 Acenaphthene-d10	195804	97902	391608	195804	0.00
28 Phenanthrene-d10	321226	160613	642452	321226	0.00
47 Chrysene-d12	375207	187604	750414	375207	0.00
56 Perylene-d12	400310	200155	800620	400310	0.00

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	5.50	5.00	6.00	5.50	0.00
22 Acenaphthene-d10	7.79	7.29	8.29	7.79	0.00
28 Phenanthrene-d10	9.76	9.26	10.26	9.76	0.00
47 Chrysene-d12	15.01	14.51	15.51	15.01	0.00
56 Perylene-d12	18.86	18.36	19.36	18.86	0.00

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.

Data File: /chem3/nt4.i/20111121.b/11211102.d

Date : 21-NOV-2011 11:09

Client ID: IC251121

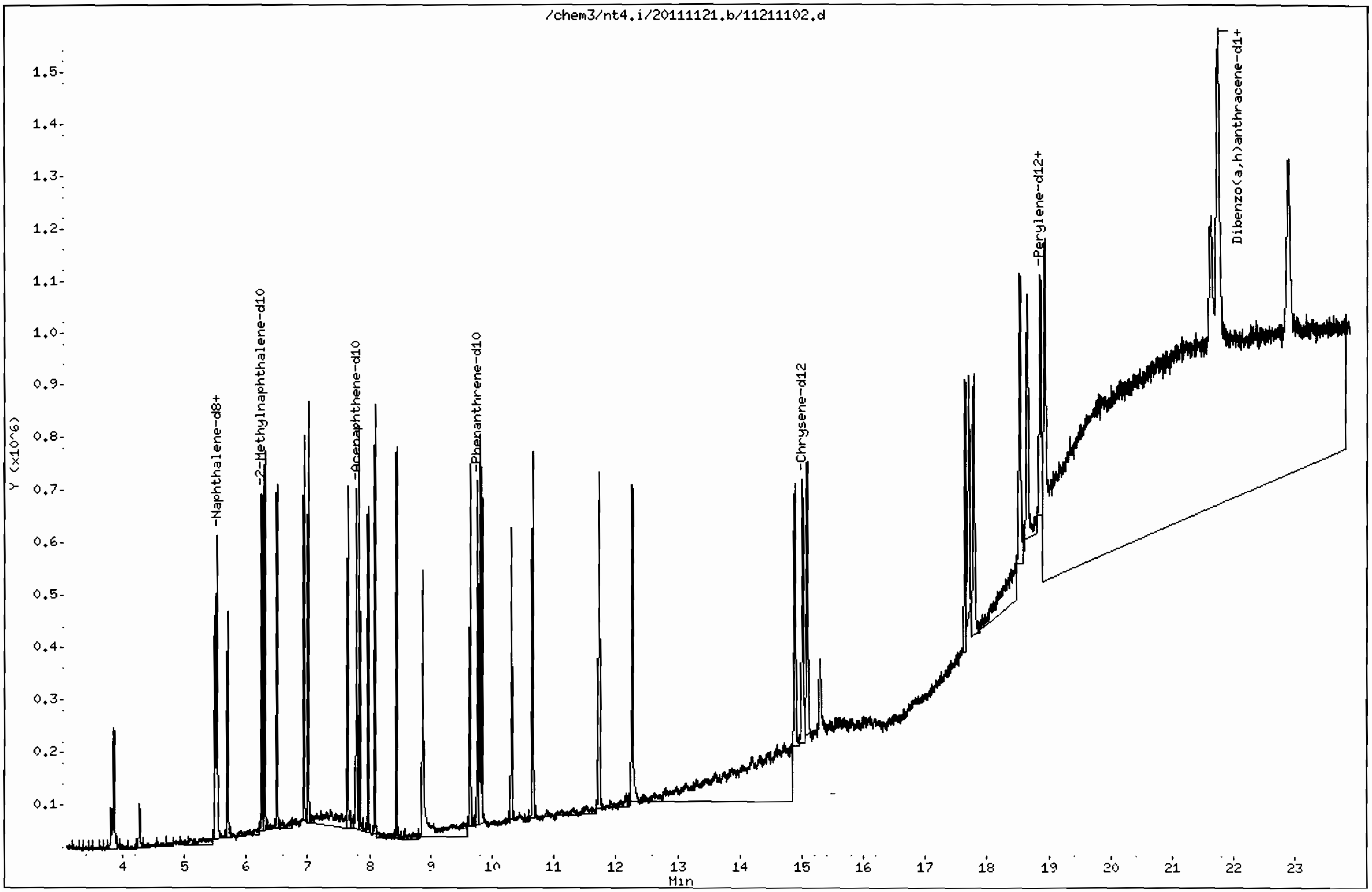
Sample Info: IC251121,

Column phase: ZB-5ms1

Instrument: nt4.i

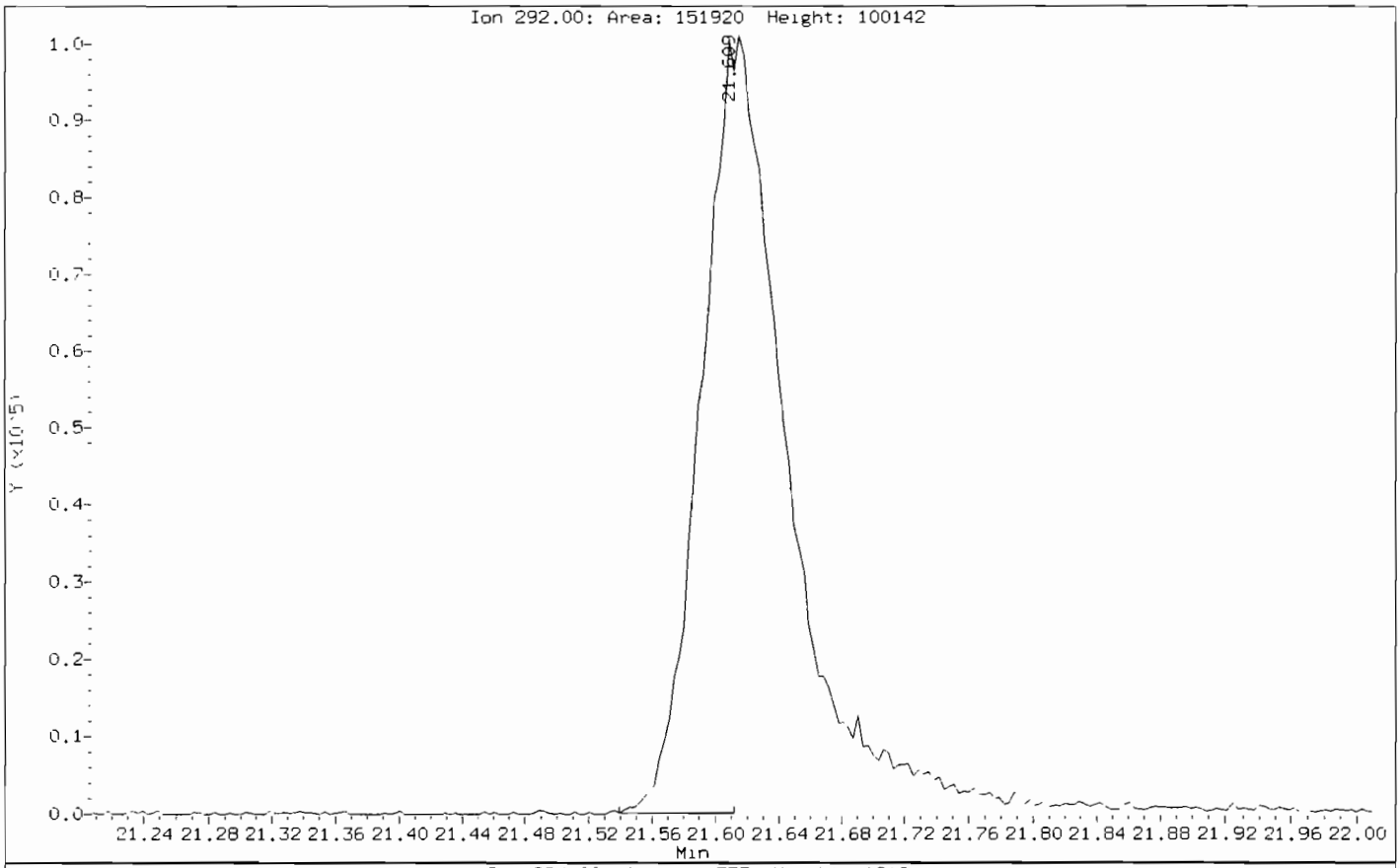
Operator: JZ

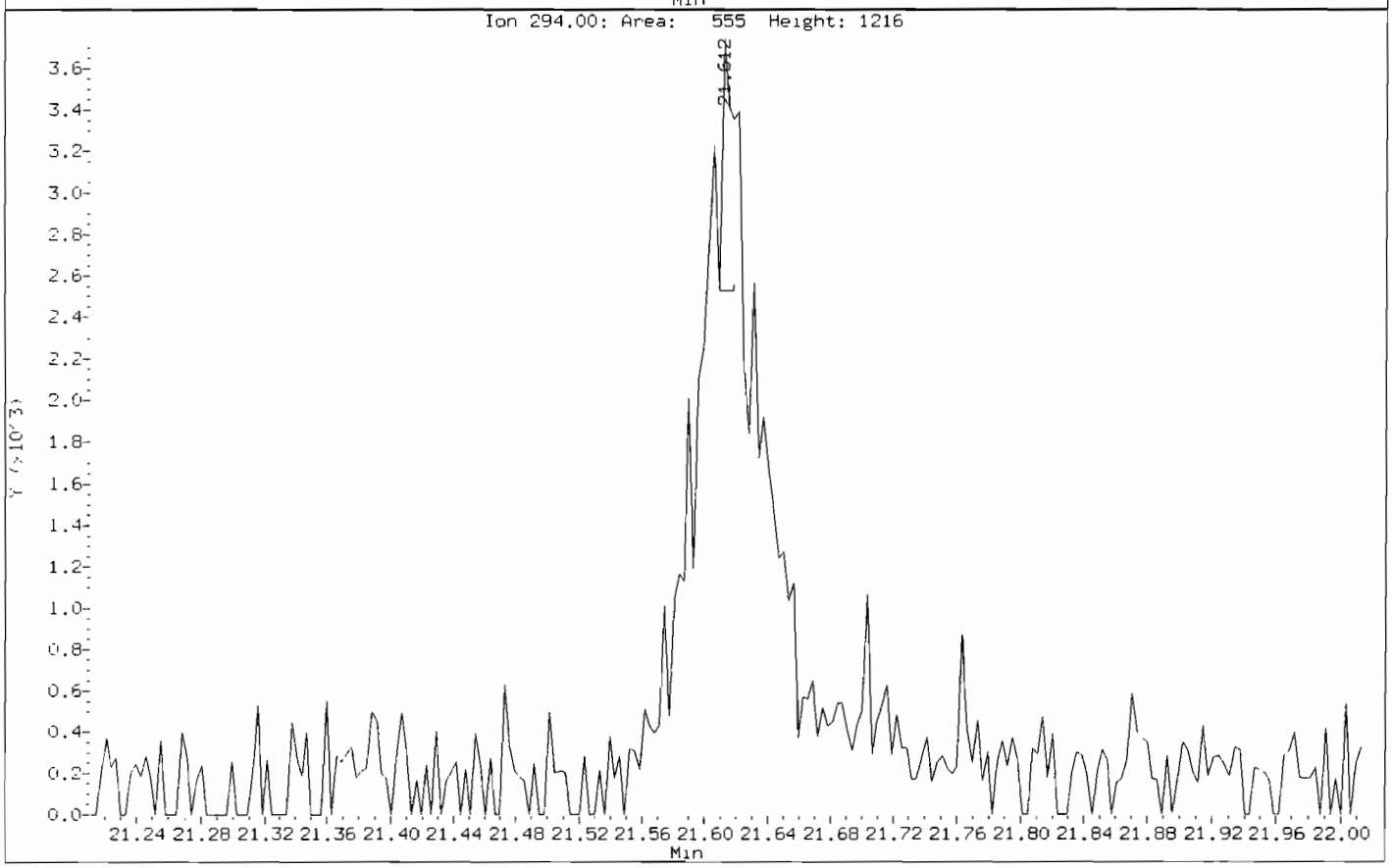
Column diameter: 0.25



Data File: /chem3/nt4.i/20111121.b/11211102.d
Injection Date: 21-NOV-2011 11:09
Instrument: nt4.i
Client Sample ID: IC251121

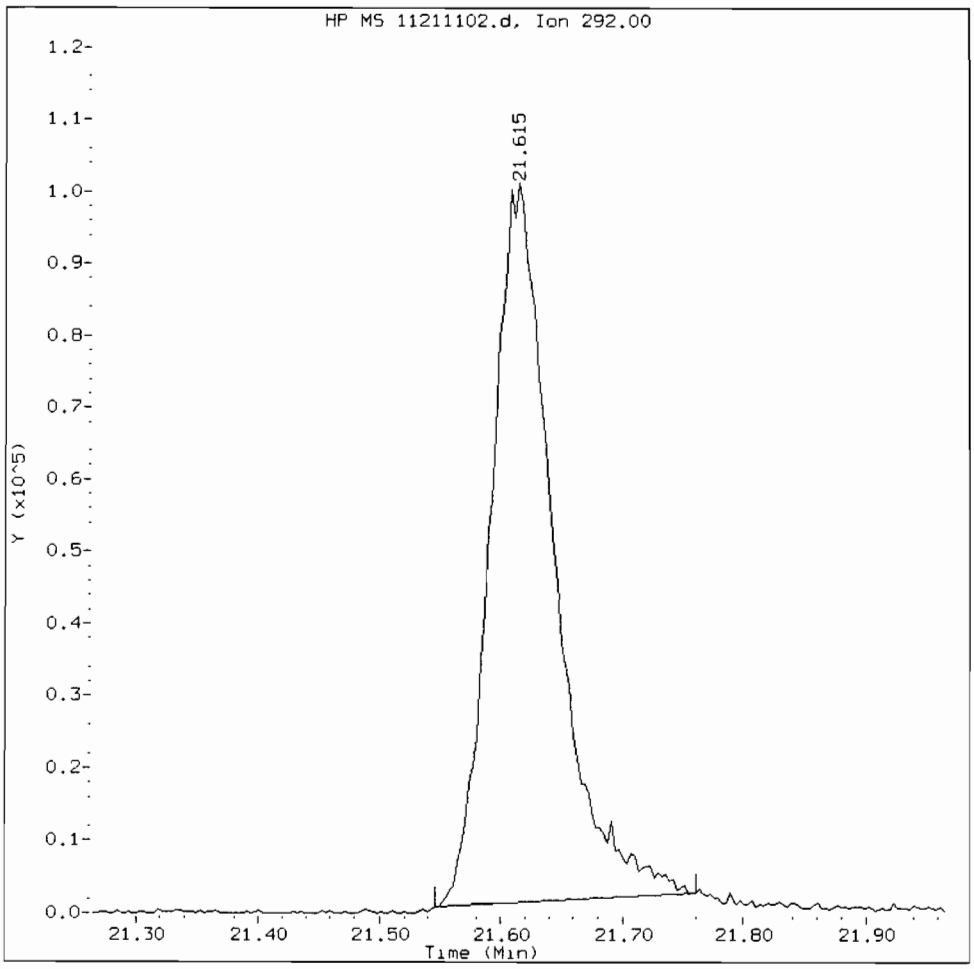
Compound: Dibenzo(a,h)anthracene-d14
CAS Number:





IC251121, /chem3/nt4.i/20111121.b/11211102.d

Dibenzo(a,h)anthracene-d14 Amount: 2.55 Area: 358840



MANUAL INTEGRATION for Dibenzo(a,h)anthracene-d14

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/21/11

CO-ELUTION SUMMARY FOR FILE - 11211102.d

Lab ID: IC251121, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 21-NOV-2011

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem3/nt4.i/20111121.b/11211103.d
Lab Smp Id: IC011121 Client Smp ID: IC011121
Inj Date : 21-NOV-2011 11:38
Operator : JZ Inst ID: nt4.i
Smp Info : IC011121,
Misc Info : 11-
Comment : 1ul Injection
Method : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Meth Date : 21-Nov-2011 17:42 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 3 Calibration Sample, Level: 1
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: NEWSIMPNAICL.sub
Target Version: 3.50

11/22/11

AMOUNTS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
* 6	Naphthalene-d8	136	5.494	5.499	(1.000)	322266	2.00000	
7	Naphthalene	128	5.526	5.527	(1.006)	18583	0.10000	0.1194
$ 12	2-Methylnaphthalene-d10	152	6.245	6.250	(1.137)	11844	0.10000	0.1213
14	2-Methylnaphthalene	141	6.286	6.294	(1.144)	10937	0.10000	0.1211
15	1-methylnaphthalene	141	6.491	6.493	(1.181)	11455	0.10000	0.1296
19	Biphenyl	154	6.936	6.941	(0.891)	16391	0.10000	0.1270
20	2,6-Dimethylnaphthalene	156	7.002	7.007	(0.900)	13019	0.10000	0.1357
21	Acenaphthylene	152	7.643	7.647	(0.982)	16924	0.10000	0.1197
* 22	Acenaphthene-d10	164	7.781	7.786	(1.000)	184334	2.00000	
23	Acenaphthene	153	7.829	7.833	(1.006)	12296	0.10000	0.1254
11	Dibenzofuran	168	7.974	7.978	(1.025)	16819	0.10000	0.1201
24	1,6,7-Trimethylnaphthalene	170	8.087	8.092	(1.039)	9392	0.10000	0.1092
25	Fluorene	166	8.437	8.442	(1.084)	14134	0.10000	0.1277
27	Dibenzothiophene	184	9.639	9.644	(0.988)	17441	0.10000	0.1199
* 28	Phenanthrene-d10	188	9.759	9.761	(1.000)	303679	2.00000	
30	Phenanthrene	178	9.794	9.799	(1.004)	20121	0.10000	0.1257
31	Anthracene	178	9.829	9.833	(1.007)	18496	0.10000	0.1231
26	Carbazole	167	10.308	10.313	(1.056)	19237	0.10000	0.1381
33	1-Methylphenanthrene	192	10.652	10.657	(1.091)	14409	0.10000	0.1231
36	Fluoranthene	202	11.721	11.726	(1.201)	23769	0.10000	0.1359
39	Pyrene	202	12.261	12.268	(0.817)	23744	0.10000	0.1308
46	Benzo(a)anthracene	228	14.879	14.883	(0.992)	22887	0.10000	0.1361
* 47	Chrysene-d12	240	15.005	15.013	(1.000)	356775	2.00000	
48	Chrysene	228	15.081	15.082	(1.005)	24639	0.10000	0.1404 (M)
51	Benzo(b)fluoranthene	252	17.642	17.650	(0.936)	26756	0.10000	0.1384 (M)
52	Benzo(k)fluoranthene	252	17.696	17.707	(0.938)	22300	0.10000	0.1170 (M)
251	Benzo(j)fluoranthene	252	17.778	17.785	(0.943)	17148	0.10000	0.1022 (M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
	55 Benzo(e)pyrene	252	18.532	18.530	(0.983)	18414	0.10000	0.1002
	54 Benzo(a)pyrene	252	18.645	18.650	(0.989)	13932	0.10000	0.08464
*	56 Perylene-d12	264	18.856	18.861	(1.000)	377805	2.00000	
	57 Perylene	252	18.932	18.931	(1.004)	22051	0.10000	0.1202
$	60 Dibenzo(a,h)anthracene-d14	292	21.607	21.615	(1.146)	11206	0.10000	0.08442 (M)
	63 Indeno(1,2,3-cd)pyrene	276	21.717	21.722	(1.152)	24519	0.10000	0.1119
	62 Dibenzo(a,h)anthracene	278	21.730	21.732	(1.152)	16007	0.10000	0.09468
	61 Benzo(g,h,i)perylene	276	22.859	22.867	(1.212)	23708	0.10000	0.1147

QC Flag Legend

M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 11211103.d
Lab Smp Id: IC011121
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Misc Info: 11-

Calibration Date: 21-NOV-2011
Calibration Time: 11:09
Client Smp ID: IC011121
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	322266	-6.21
22 Acenaphthene-d10	195804	97902	391608	184334	-5.86
28 Phenanthrene-d10	321226	160613	642452	303679	-5.46
47 Chrysene-d12	375207	187604	750414	356775	-4.91
56 Perylene-d12	400310	200155	800620	377805	-5.62

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	5.50	5.00	6.00	5.49	-0.09
22 Acenaphthene-d10	7.79	7.29	8.29	7.78	-0.06
28 Phenanthrene-d10	9.76	9.26	10.26	9.76	-0.02
47 Chrysene-d12	15.01	14.51	15.51	15.00	-0.05
56 Perylene-d12	18.86	18.36	19.36	18.86	-0.02

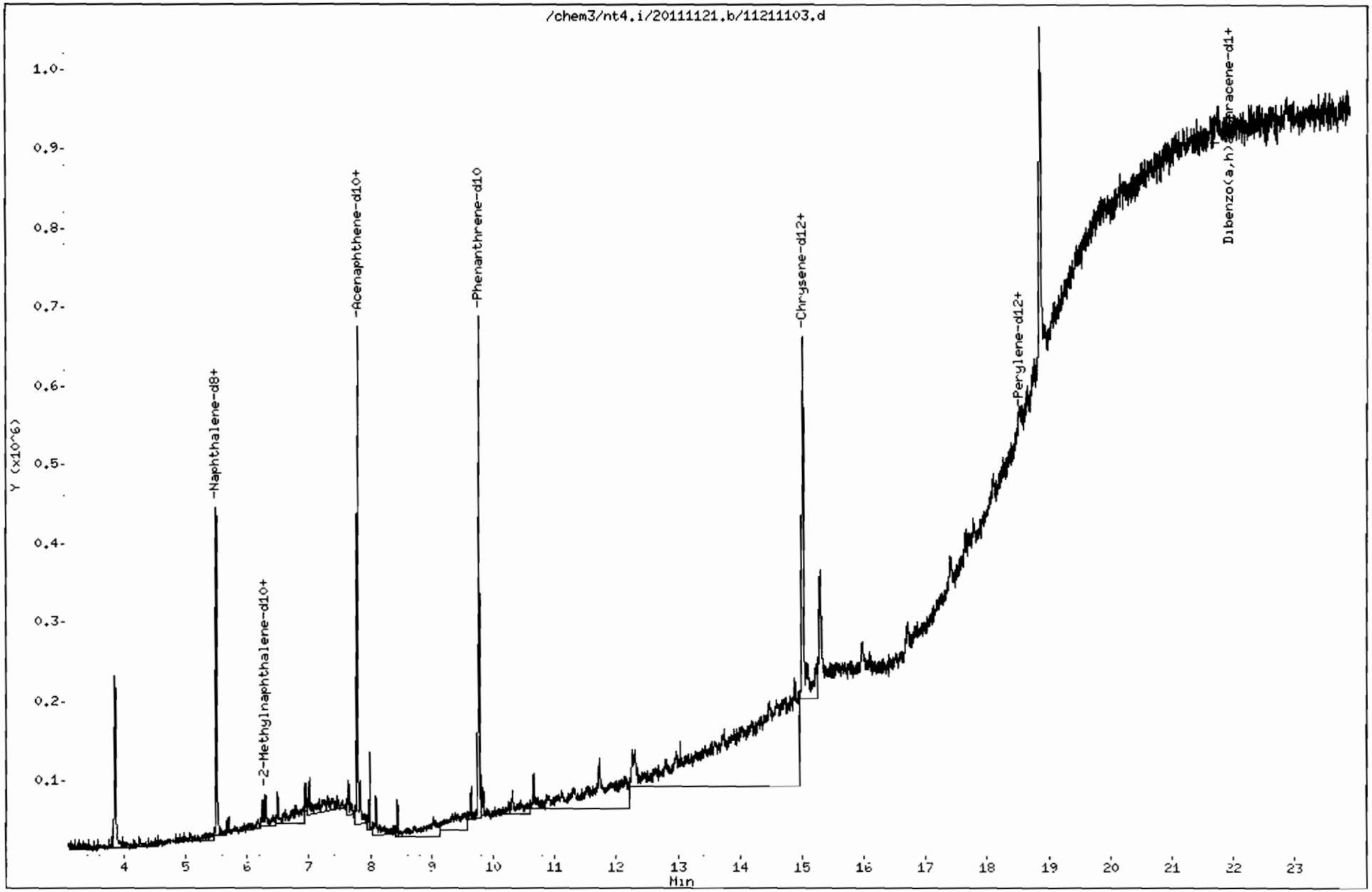
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem3/nt4.i/20111121.b/11211103.d
Date : 21-NOV-2011 11:38
Client ID: IC011121
Sample Info: IC011121,

Instrument: nt4.i

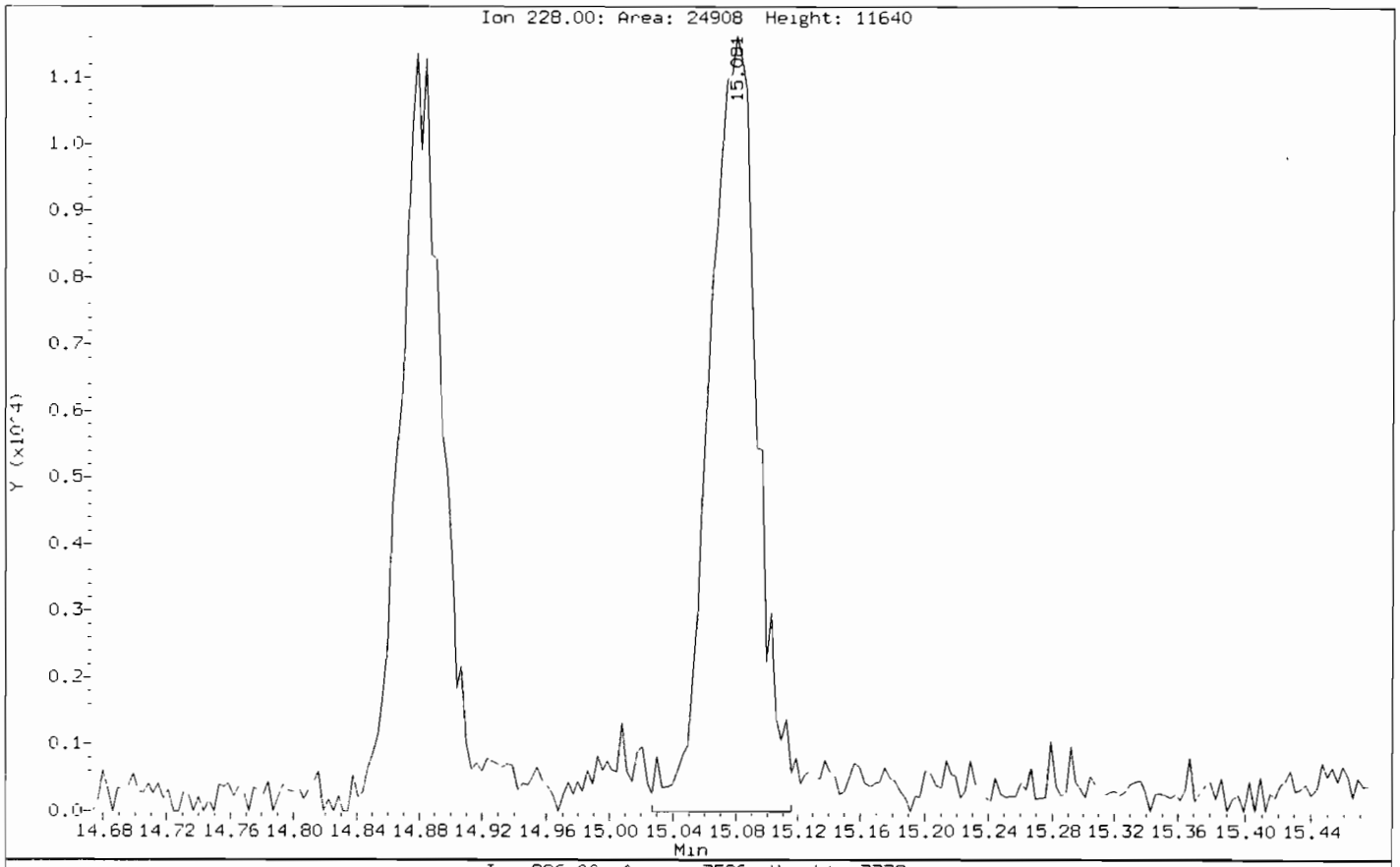
Operator: JZ
Column diameter: 0.25

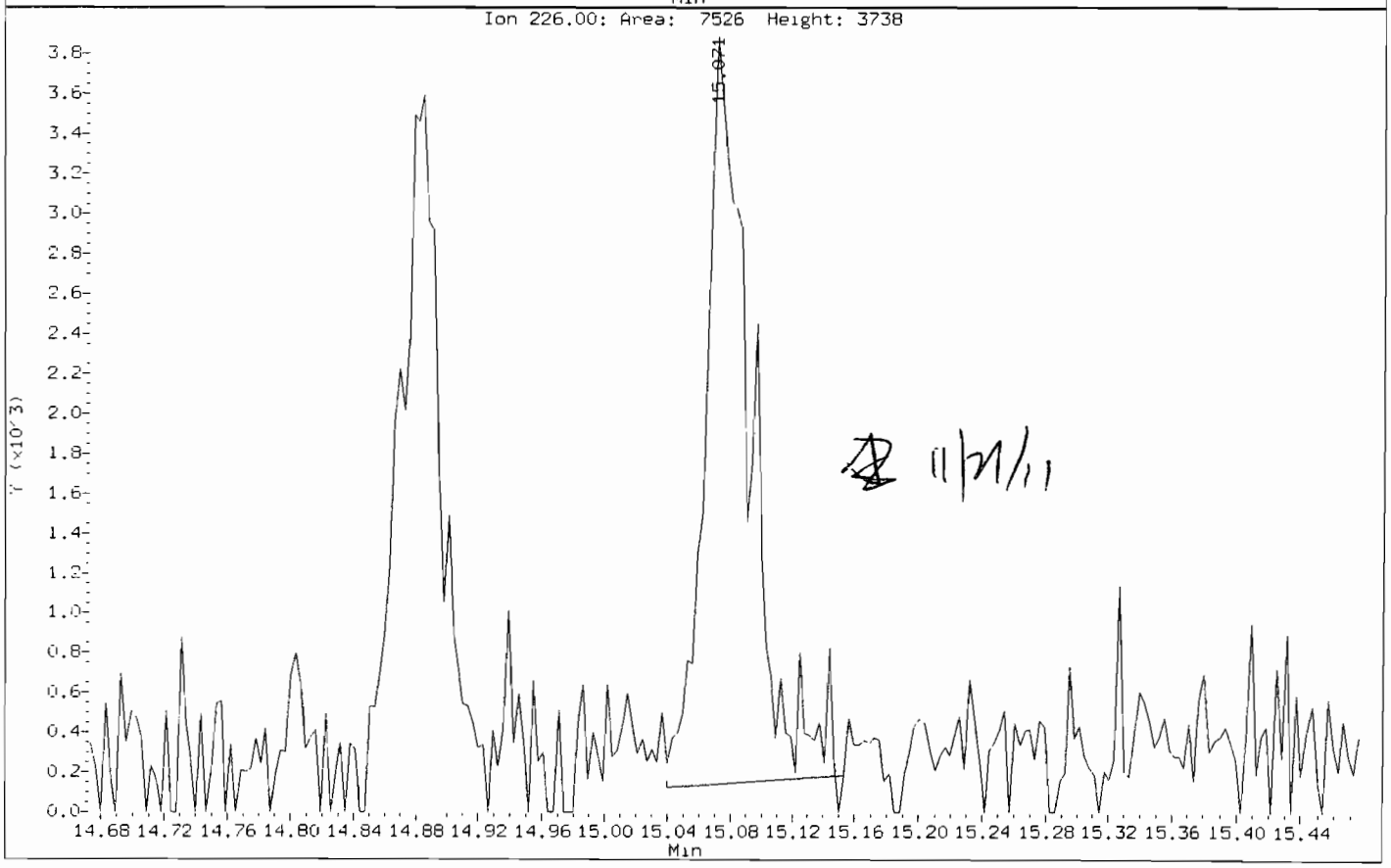
Column phase: ZB-5msi



Data File: /chem3/nt4.i/20111121.b/11211103.d
Injection Date: 21-NOV-2011 11:38
Instrument: nt4.i
Client Sample ID: IC011121

Compound: Chrysene
CAS Number: 218-01-9

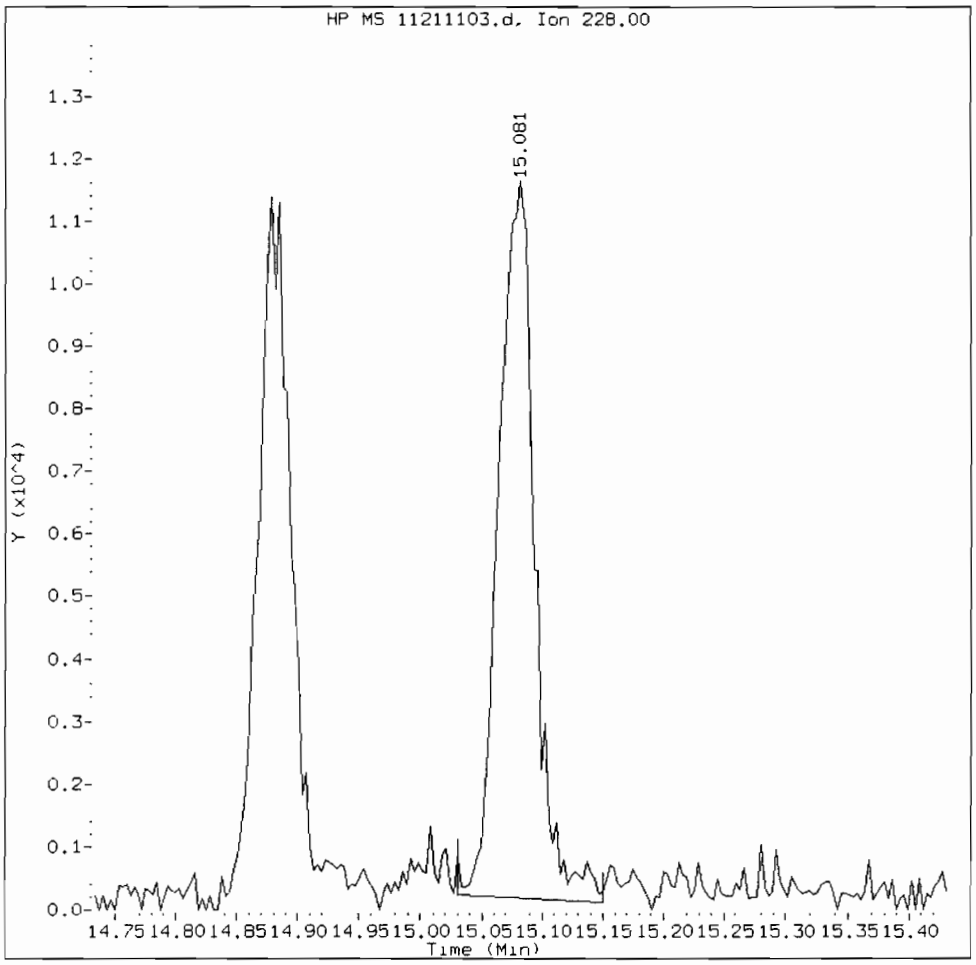




11/21/11

IC011121, /chem3/nt4.i/20111121.b/11211103.d

Chrysene Amount: 0.14 Area: 24639



MANUAL INTEGRATION for Chrysene

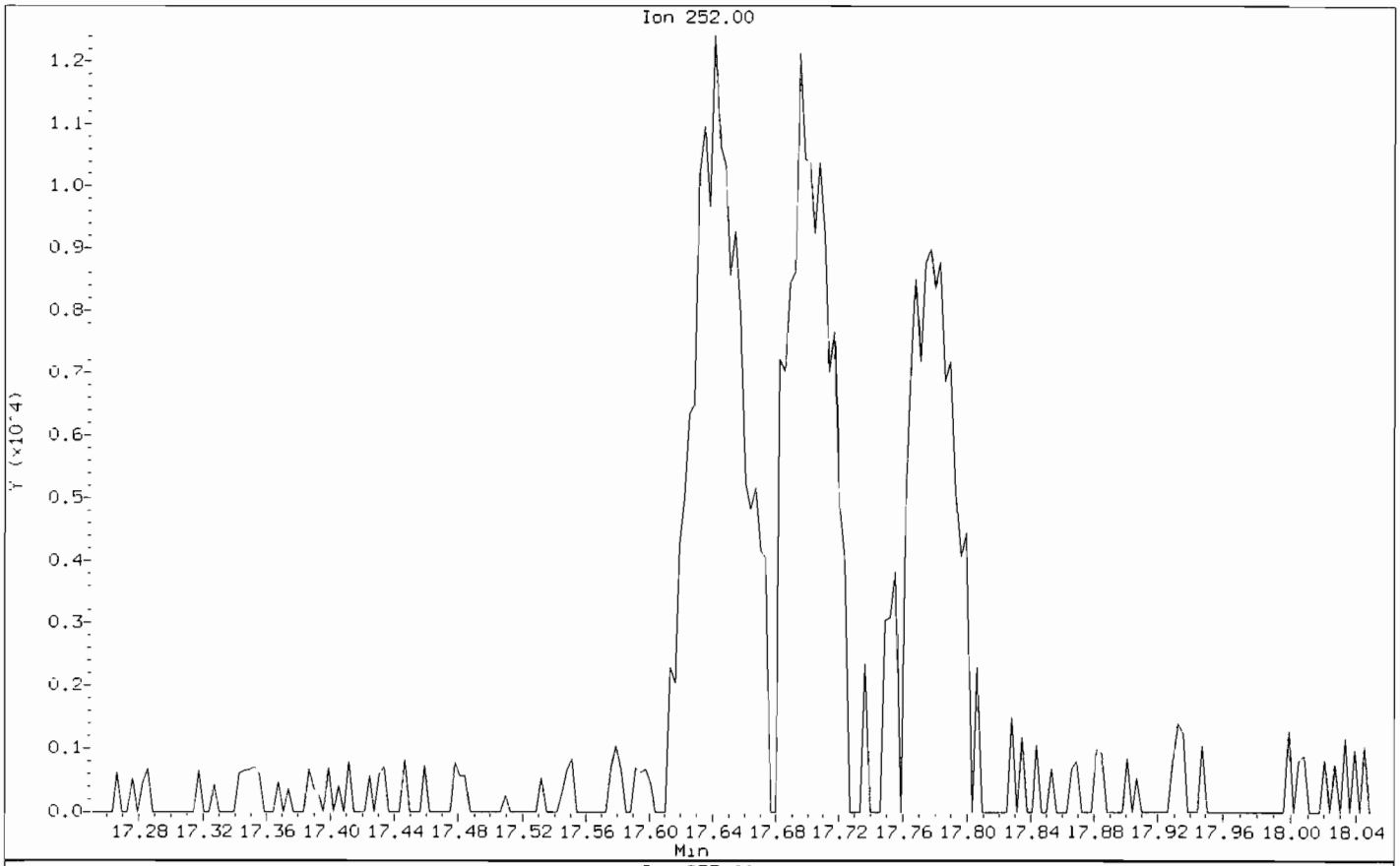
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

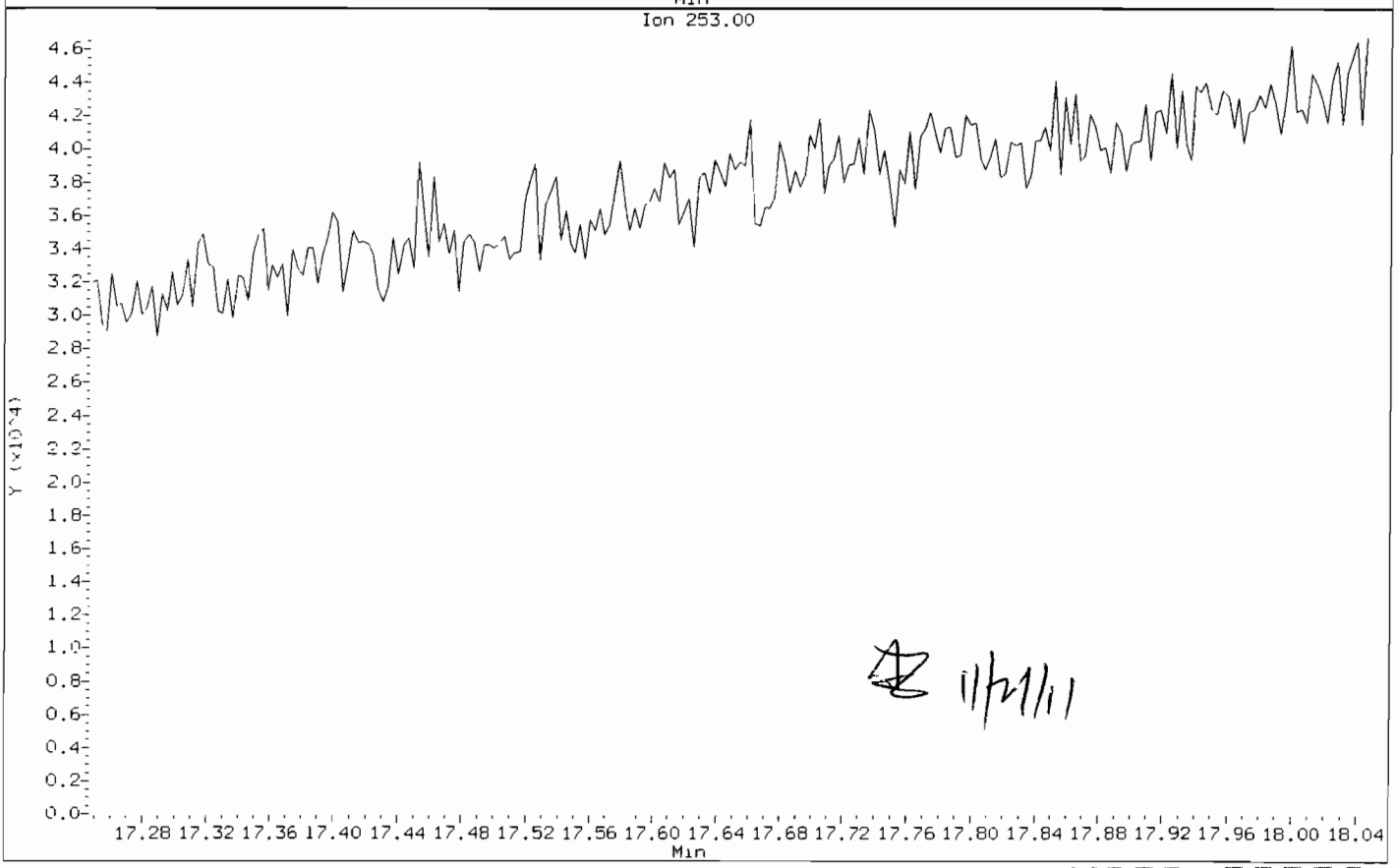
5. Other _____

Analyst: _____ Date: 11/21/11

Data File: /chem3/nt4.i/20111121.b/11211103.d
Injection Date: 21-NOV-2011 11:38
Instrument: nt4.i
Client Sample ID: IC011121

Compound: Benzo(b)fluoranthene
CAS Number: 205-99-2

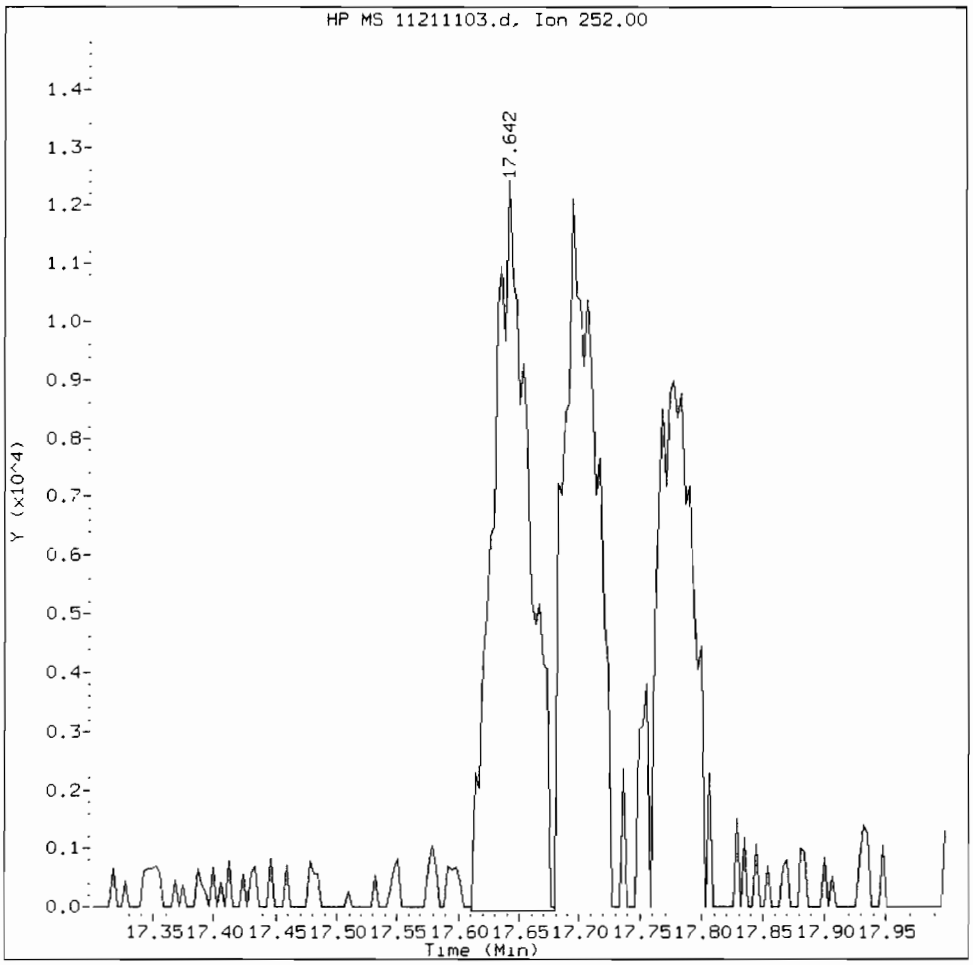




11/21/11

IC011121, /chem3/nt4.i/20111121.b/11211103.d

Benzo(b)fluoranthene Amount: 0.14 Area: 26756



MANUAL INTEGRATION for Benzo(b)fluoranthene

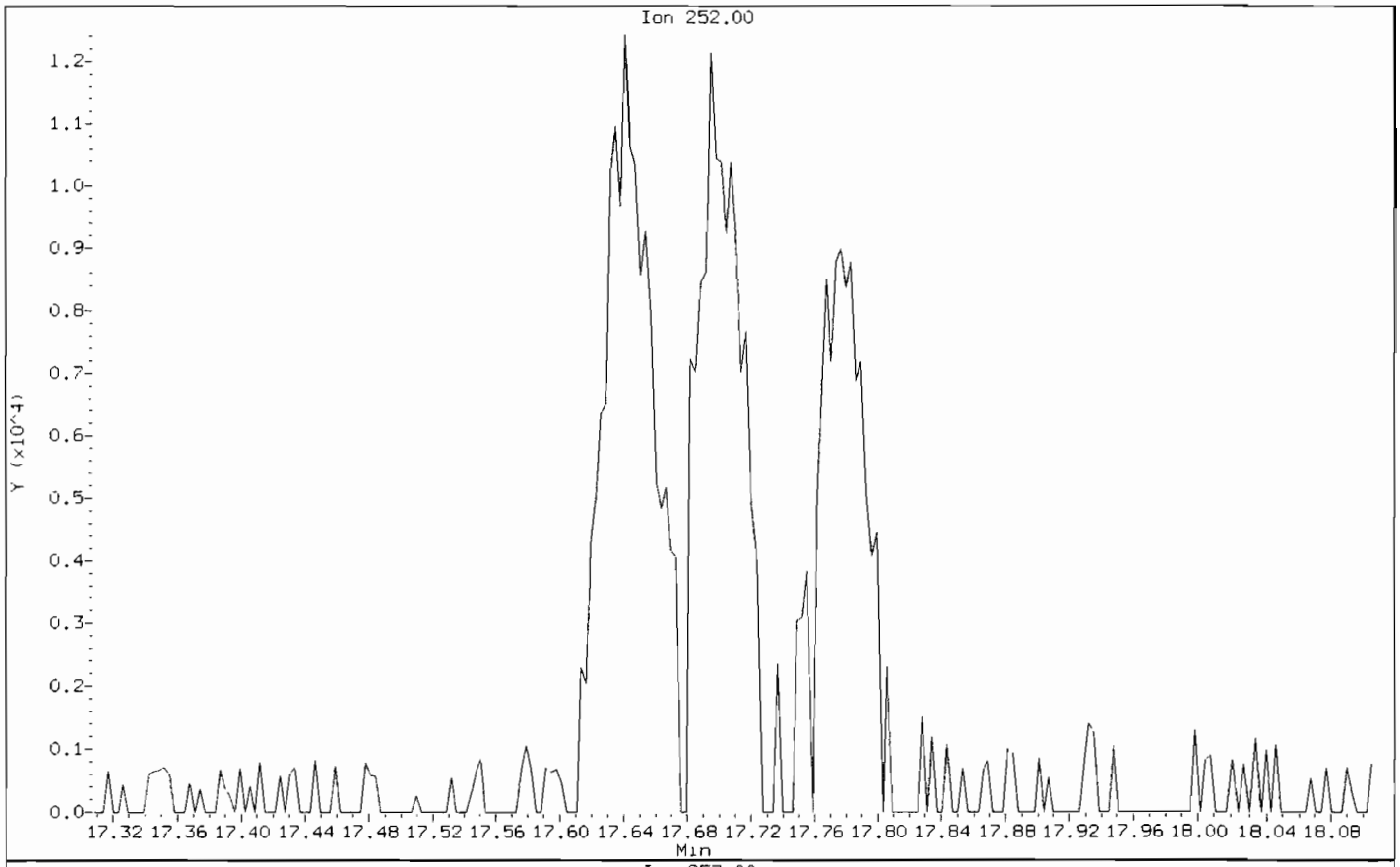
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

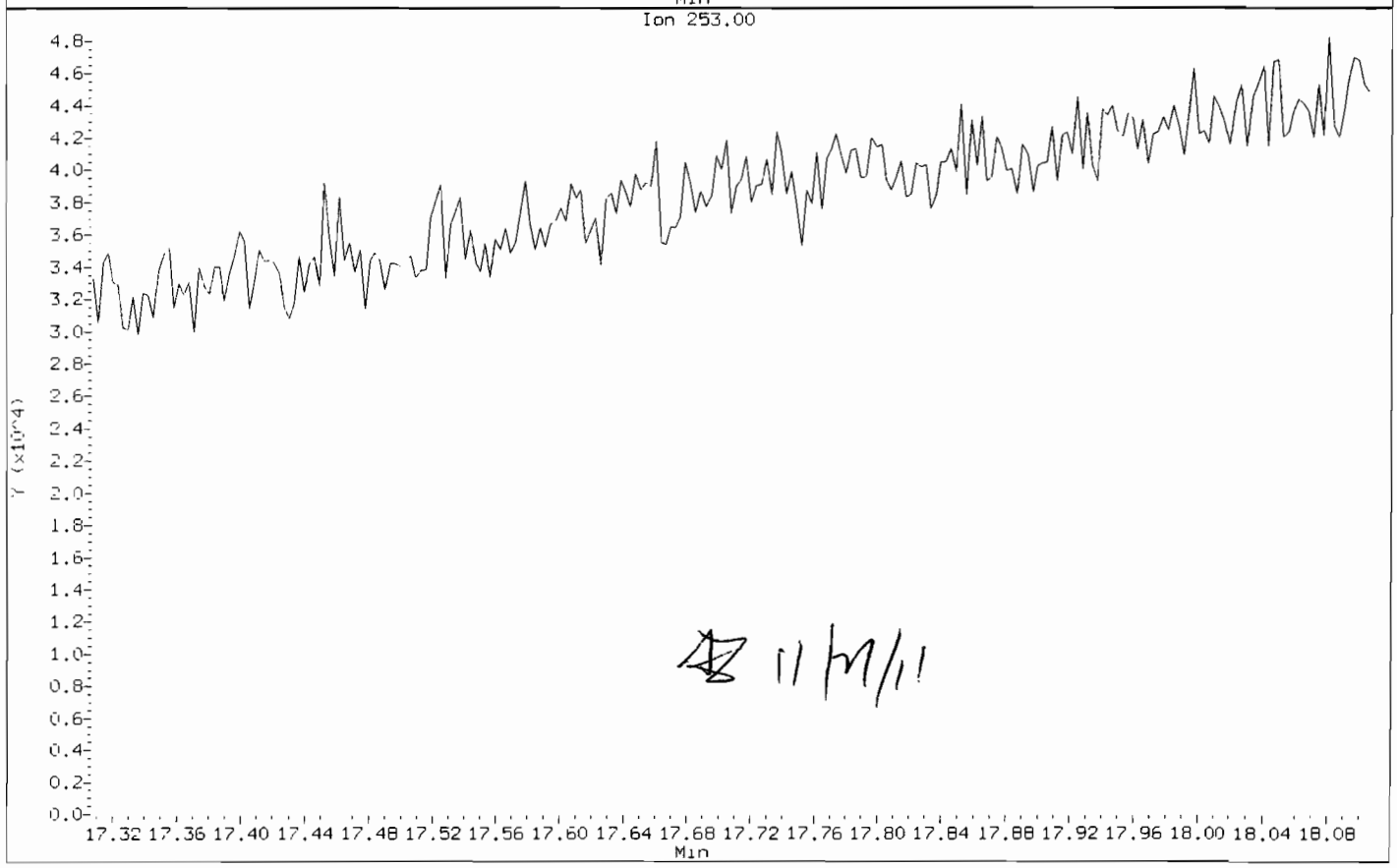
5. Other _____

Analyst: _____ Date: 11/23/11

Data File: /chem3/nt4.i/20111121.b/11211103.d
Injection Date: 21-NOV-2011 11:38
Instrument: nt4.i
Client Sample ID: IC011121

Compound: Benzo(k)fluoranthene
CAS Number: 207-08-9

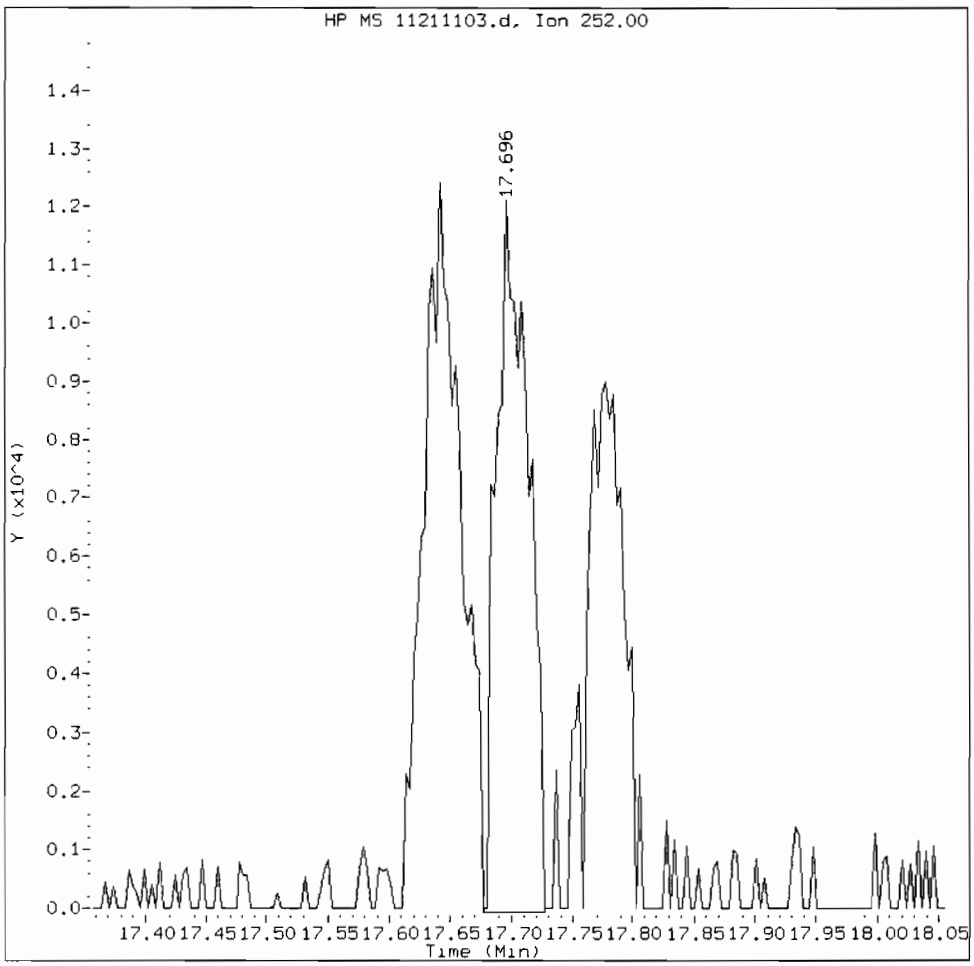




11/11/11

IC011121, /chem3/nt4.i/20111121.b/11211103.d

Benzo(k)fluoranthene Amount: 0.12 Area: 22300



MANUAL INTEGRATION for Benzo(k)fluoranthene

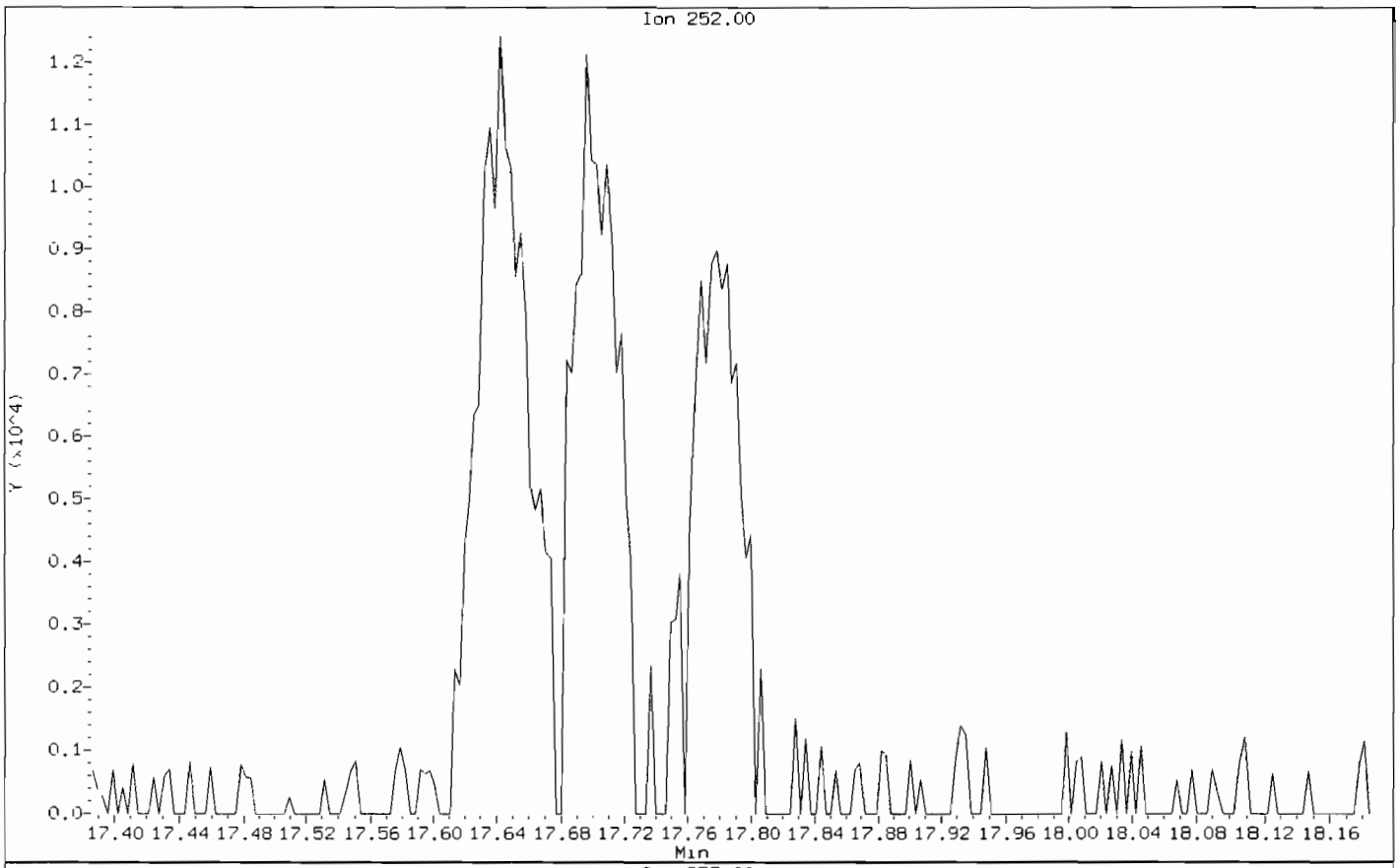
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

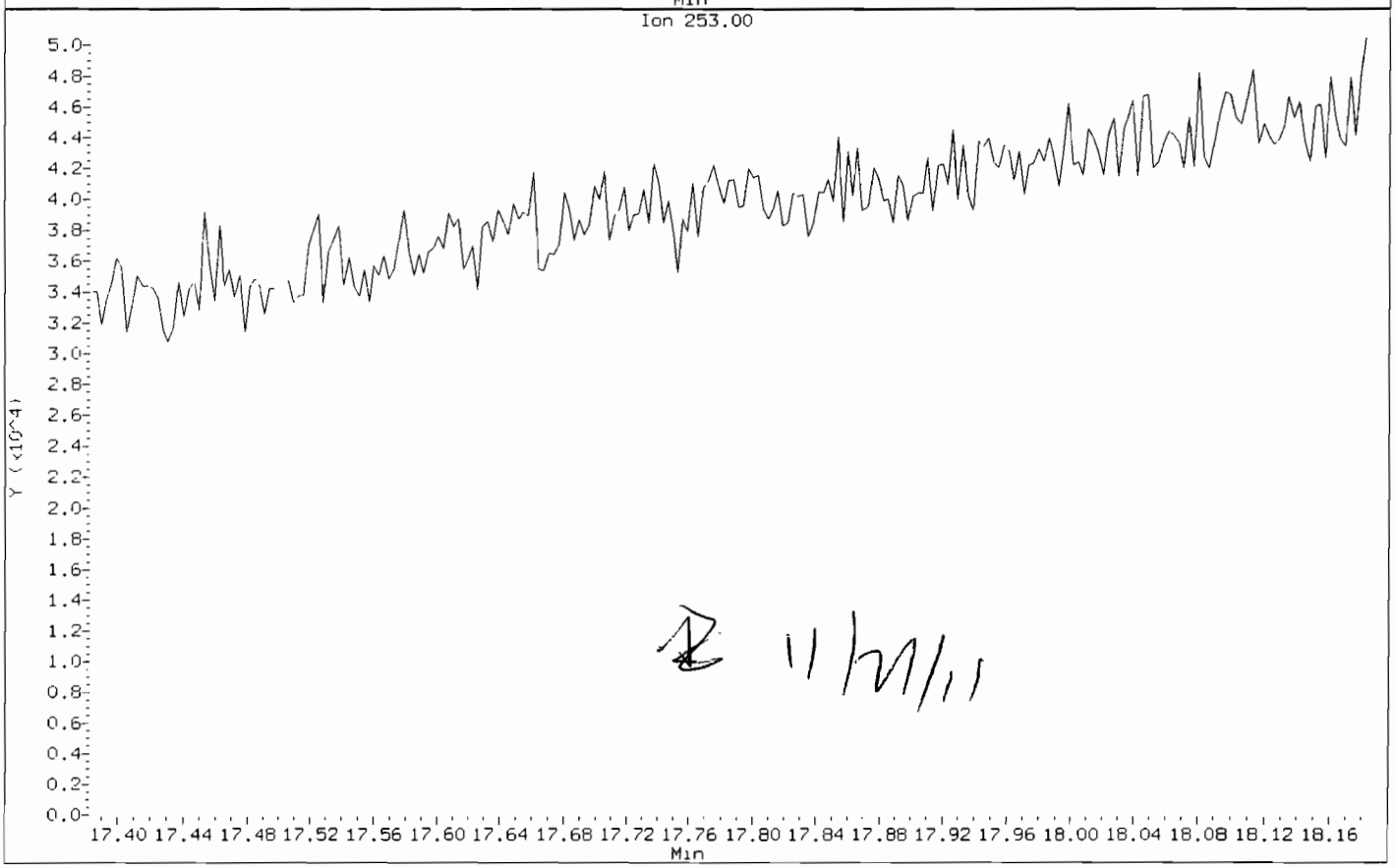
5. Other _____

Analyst: _____ Date: 11/21/11

Data File: /chem3/nt4.i/20111121.b/11211103.d
Injection Date: 21-NOV-2011 11:38
Instrument: nt4.i
Client Sample ID: IC011121

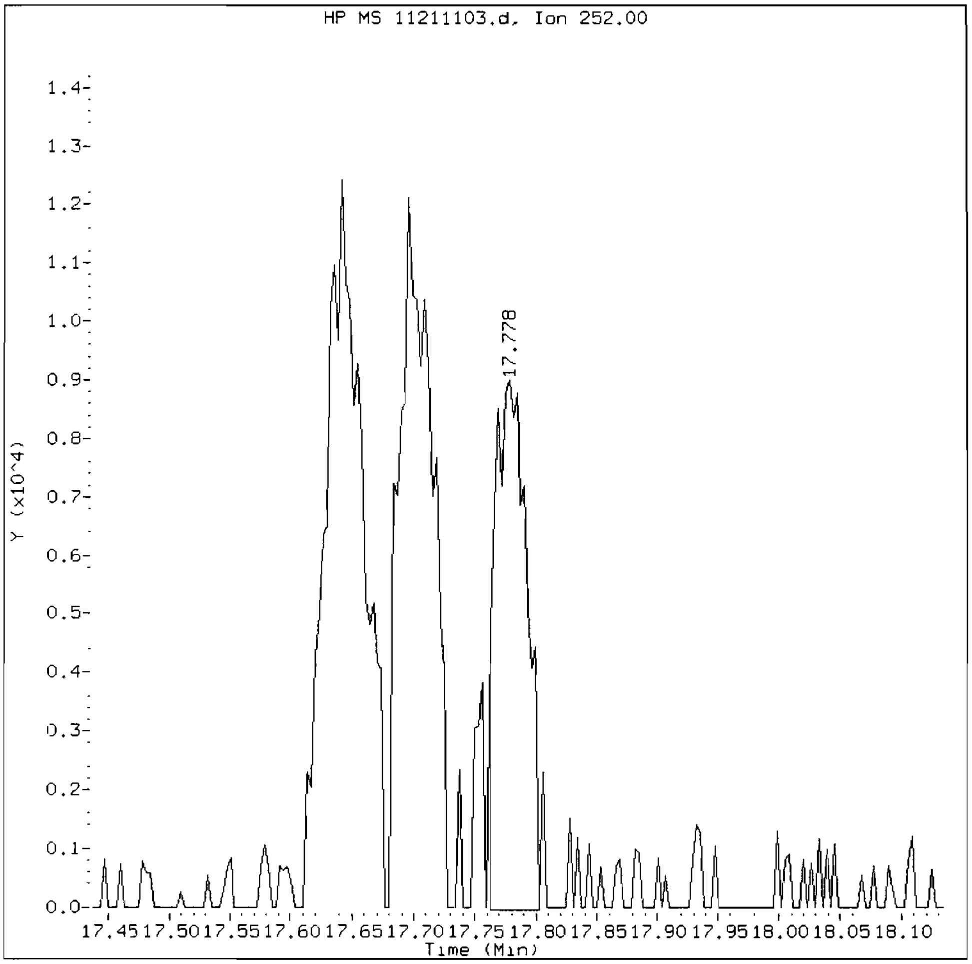
Compound: Benzo(j)fluoranthene
CAS Number:





IC011121, /chem3/nt4.i/20111121.b/11211103.d

Benzo(j)fluoranthene   Amount: 0.10   Area: 17148



MANUAL INTEGRATION for Benzo(j)fluoranthene

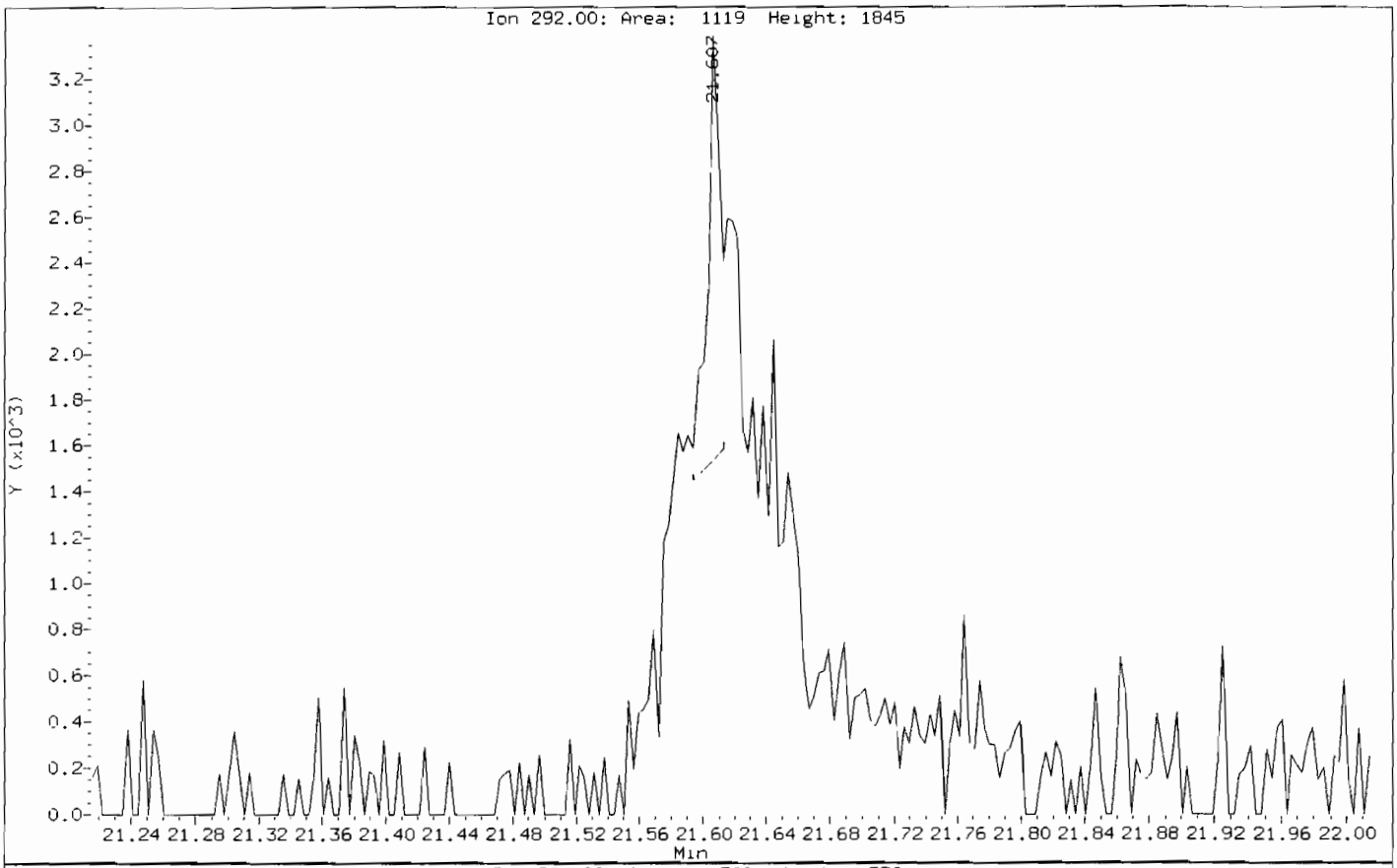
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

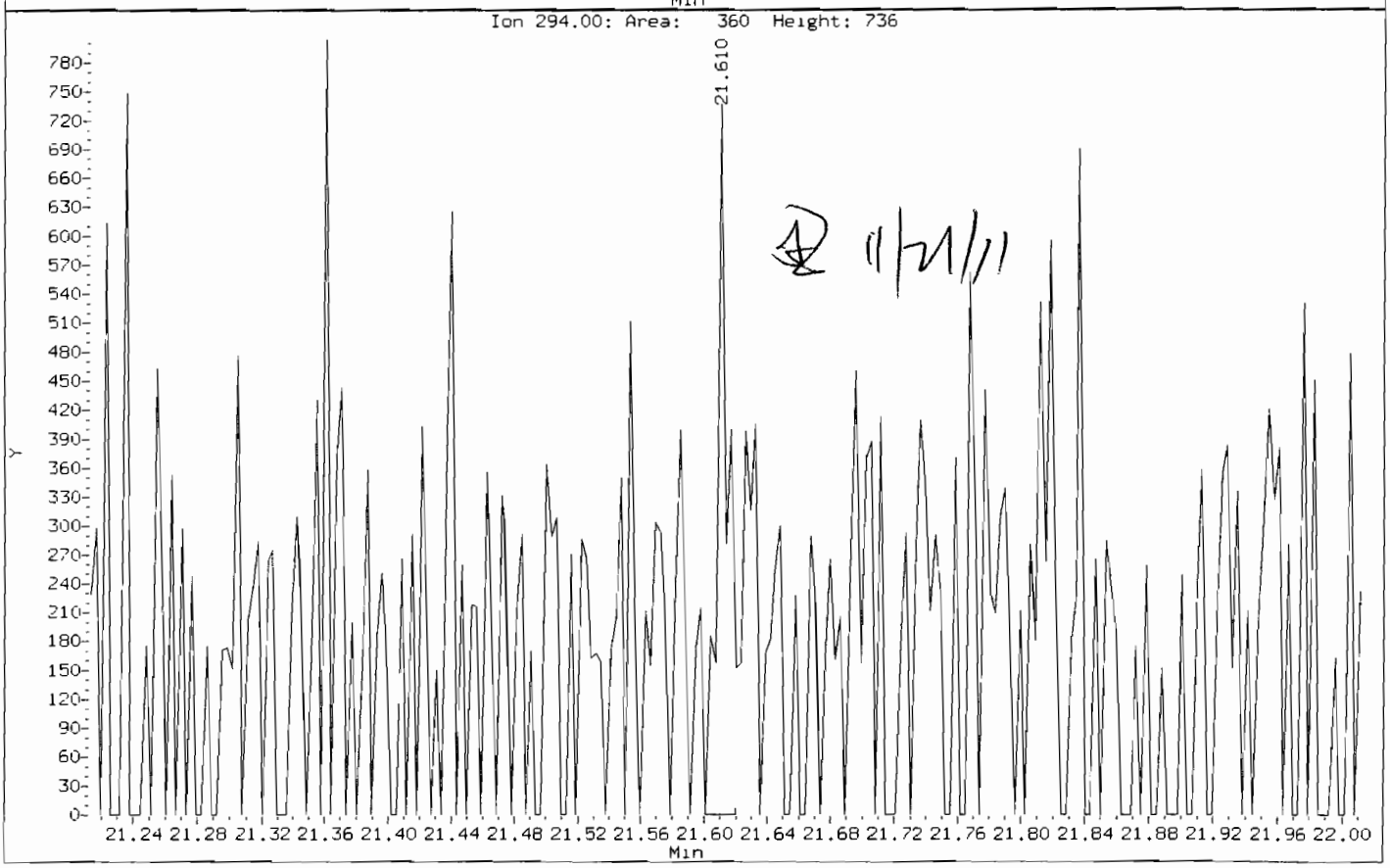
5. Other ________________________________

Analyst: [signature]   Date: 11/21/11

Data File: /chem3/nt4.i/20111121.b/11211103.d
Injection Date: 21-NOV-2011 11:38
Instrument: nt4.i
Client Sample ID: IC011121

Compound: Dibenzo(a,h)anthracene-d14
CAS Number:



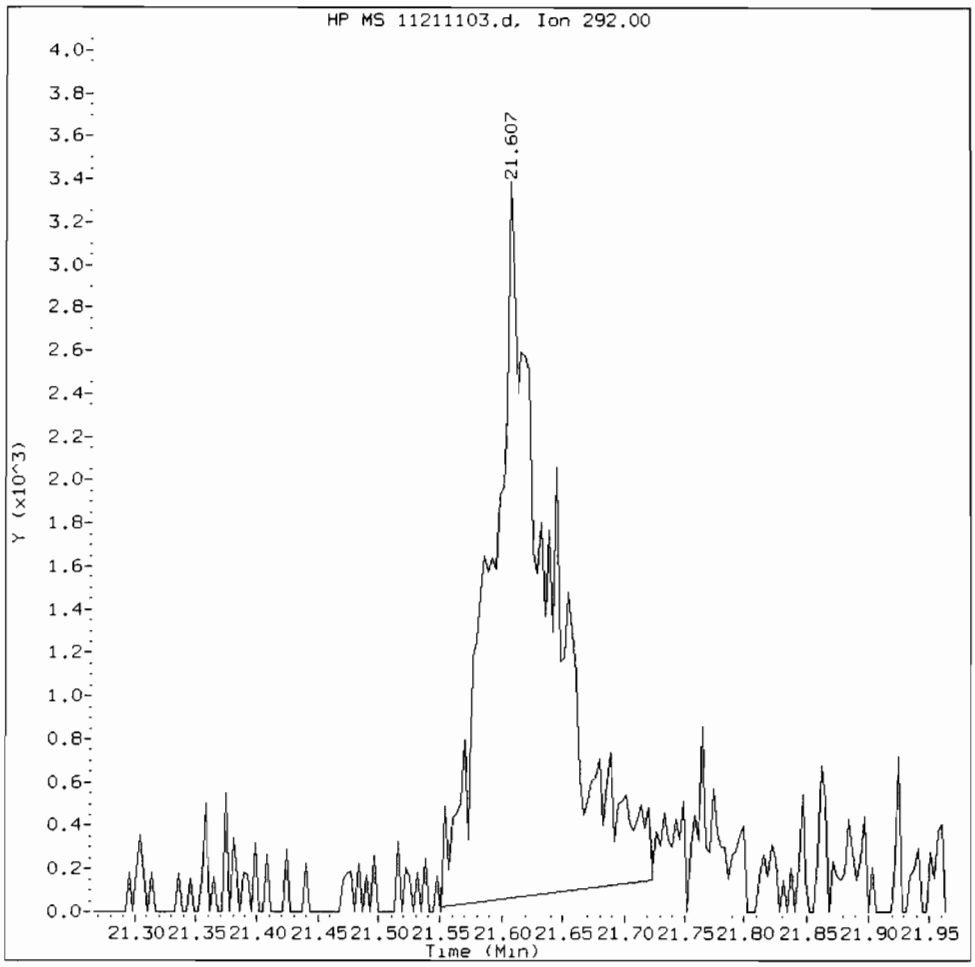


11/21/11

U196 : 00074

IC011121, /chem3/nt4.i/20111121.b/11211103.d

Dibenzo(a,h)anthracene-d14 Amount: 0.08 Area: 11206



MANUAL INTEGRATION for Dibenzo(a,h)anthracene-d14

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/21/11

CO-ELUTION SUMMARY FOR FILE - 11211103.d

Lab ID: IC011121, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 21-NOV-2011

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem3/nt4.i/20111121.b/11211104.d
Lab Smp Id: IC051121 Client Smp ID: IC051121
Inj Date : 21-NOV-2011 12:06
Operator : JZ Inst ID: nt4.i
Smp Info : IC051121,
Misc Info : 11-
Comment : 1ul Injection
Method : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Meth Date : 21-Nov-2011 17:42 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 4 Calibration Sample, Level: 2
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: NEWSIMPNAICL.sub
Target Version: 3.50

11/21/11

		QUANT SIG					AMOUNTS CAL-AMT	ON-COL
Compounds		MASS	RT	EXP RT	REL RT	RESPONSE	(ug/mL)	(ug/mL)
*	6 Naphthalene-d8	136	5.494	5.499	(1.000)	315627	2.00000	
	7 Naphthalene	128	5.522	5.527	(1.005)	76302	0.50000	0.5006
$	12 2-Methylnaphthalene-d10	152	6.242	6.250	(1.136)	48481	0.50000	0.5072
	14 2-Methylnaphthalene	141	6.289	6.294	(1.145)	42860	0.50000	0.4847
	15 1-methylnaphthalene	141	6.485	6.493	(1.180)	42577	0.50000	0.4919
	19 Biphenyl	154	6.932	6.941	(0.891)	59702	0.50000	0.4696
	20 2,6-Dimethylnaphthalene	156	7.002	7.007	(0.900)	42938	0.50000	0.4542
	21 Acenaphthylene	152	7.642	7.647	(0.982)	63134	0.50000	0.4533
*	22 Acenaphthene-d10	164	7.781	7.786	(1.000)	181613	2.00000	
	23 Acenaphthene	153	7.828	7.833	(1.006)	46915	0.50000	0.4858
	11 Dibenzofuran	168	7.973	7.978	(1.025)	65624	0.50000	0.4756
	24 1,6,7-Trimethylnaphthalene	170	8.087	8.092	(1.039)	40855	0.50000	0.4820
	25 Fluorene	166	8.437	8.442	(1.084)	52030	0.50000	0.4772
	27 Dibenzothiophene	184	9.639	9.644	(0.988)	67577	0.50000	0.4748
*	28 Phenanthrene-d10	188	9.756	9.761	(1.000)	297200	2.00000	
	30 Phenanthrene	178	9.790	9.799	(1.004)	77418	0.50000	0.4940
	31 Anthracene	178	9.825	9.833	(1.007)	69126	0.50000	0.4702
	26 Carbazole	167	10.308	10.313	(1.057)	63426	0.50000	0.4653
	33 1-Methylphenanthrene	192	10.648	10.657	(1.091)	53249	0.50000	0.4648
	36 Fluoranthene	202	11.718	11.726	(1.201)	82432	0.50000	0.4815
	39 Pyrene	202	12.260	12.268	(0.817)	84426	0.50000	0.4759
	46 Benzo(a)anthracene	228	14.878	14.883	(0.992)	74765	0.50000	0.4548
*	47 Chrysene-d12	240	15.005	15.013	(1.000)	348670	2.00000	
	48 Chrysene	228	15.074	15.082	(1.005)	80162	0.50000	0.4674(M)
	51 Benzo(b)fluoranthene	252	17.642	17.650	(0.936)	84384	0.50000	0.4529(M)
	52 Benzo(k)fluoranthene	252	17.695	17.707	(0.938)	86236	0.50000	0.4696(M)
	251 Benzo(j)fluoranthene	252	17.780	17.785	(0.943)	83371	0.50000	0.5156(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)	
	55 Benzo(e)pyrene	252	18.525	18.530	(0.982)	90169	0.50000	0.5093	
	54 Benzo(a)pyrene	252	18.645	18.650	(0.989)	72069	0.50000	0.4544	
*	56 Perylene-d12	264	18.856	18.861	(1.000)	364059	2.00000		
	57 Perylene	252	18.925	18.931	(1.004)	82687	0.50000	0.4676	
$	60 Dibenzo(a,h)anthracene-d14	292	21.613	21.615	(1.146)	50789	0.50000	0.3971	(M)
	63 Indeno(1,2,3-cd)pyrene	276	21.708	21.722	(1.151)	89770	0.50000	0.4253	
	62 Dibenzo(a,h)anthracene	278	21.736	21.732	(1.153)	65379	0.50000	0.4013	
	61 Benzo(g,h,i)perylene	276	22.865	22.867	(1.213)	85967	0.50000	0.4317	

QC Flag Legend

M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 11211104.d
Lab Smp Id: IC051121
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Misc Info: 11-

Calibration Date: 21-NOV-2011
Calibration Time: 11:09
Client Smp ID: IC051121
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	315627	-8.14
22 Acenaphthene-d10	195804	97902	391608	181613	-7.25
28 Phenanthrene-d10	321226	160613	642452	297200	-7.48
47 Chrysene-d12	375207	187604	750414	348670	-7.07
56 Perylene-d12	400310	200155	800620	364059	-9.06

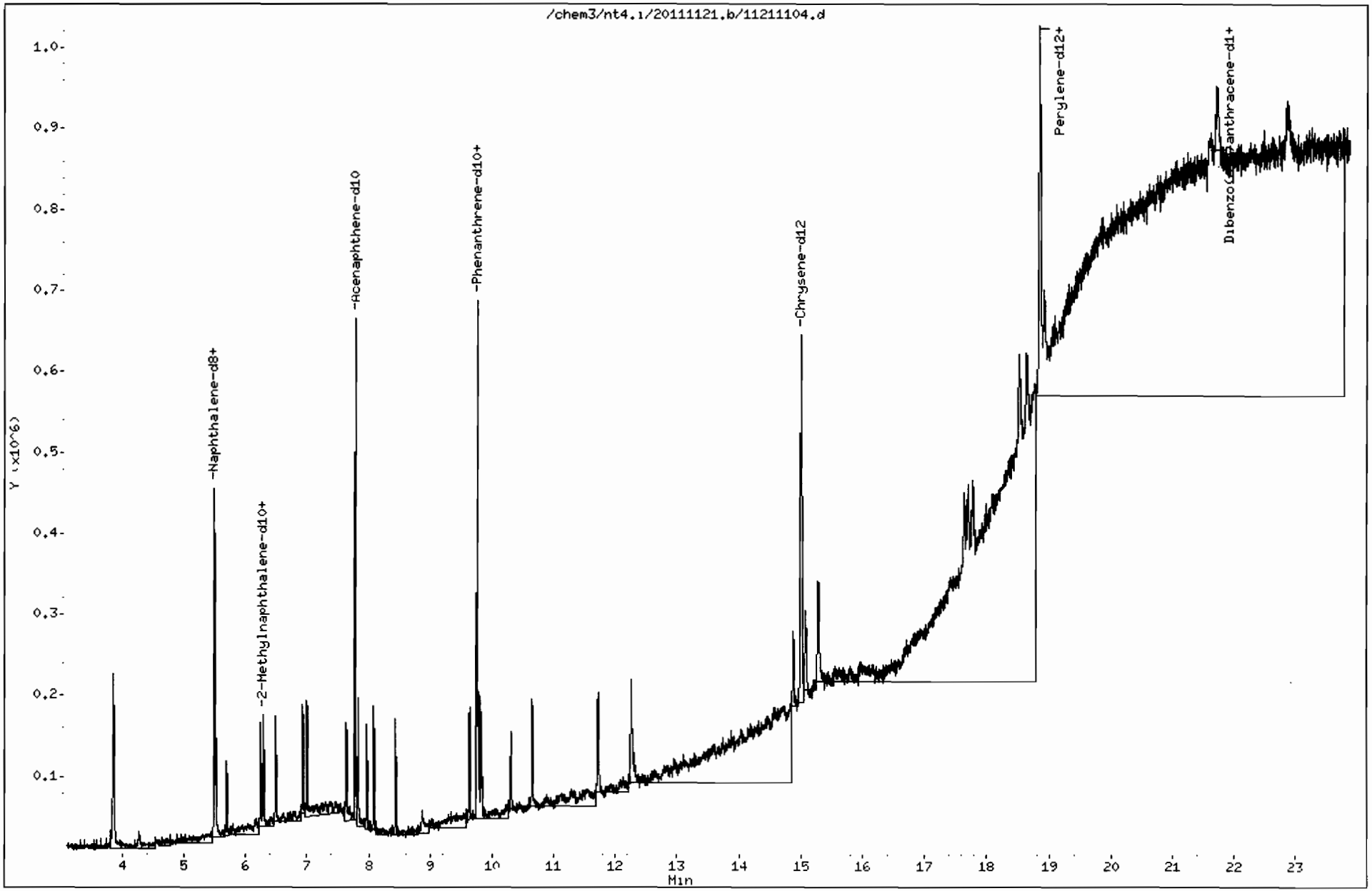
		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	5.50	5.00	6.00	5.49	-0.09
22 Acenaphthene-d10	7.79	7.29	8.29	7.78	-0.07
28 Phenanthrene-d10	9.76	9.26	10.26	9.76	-0.05
47 Chrysene-d12	15.01	14.51	15.51	15.00	-0.05
56 Perylene-d12	18.86	18.36	19.36	18.86	-0.03

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.

Data File: /chem3/nt4.i/20111121.b/11211104.d
Date : 21-NOV-2011 12:06
Client ID: IC051121
Sample Info: IC051121,

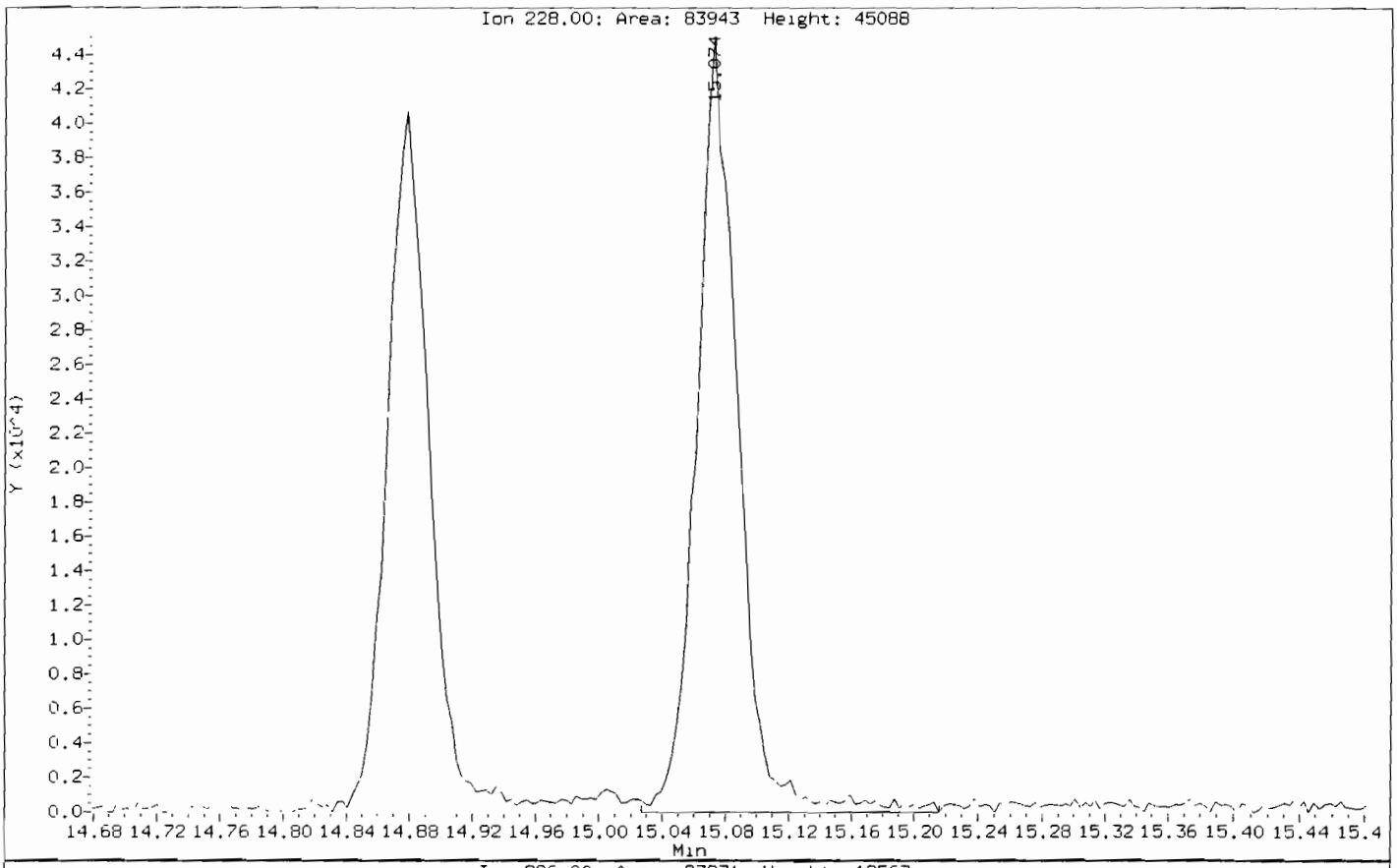
Instrument: nt4.1
Operator: JZ
Column diameter: 0.25

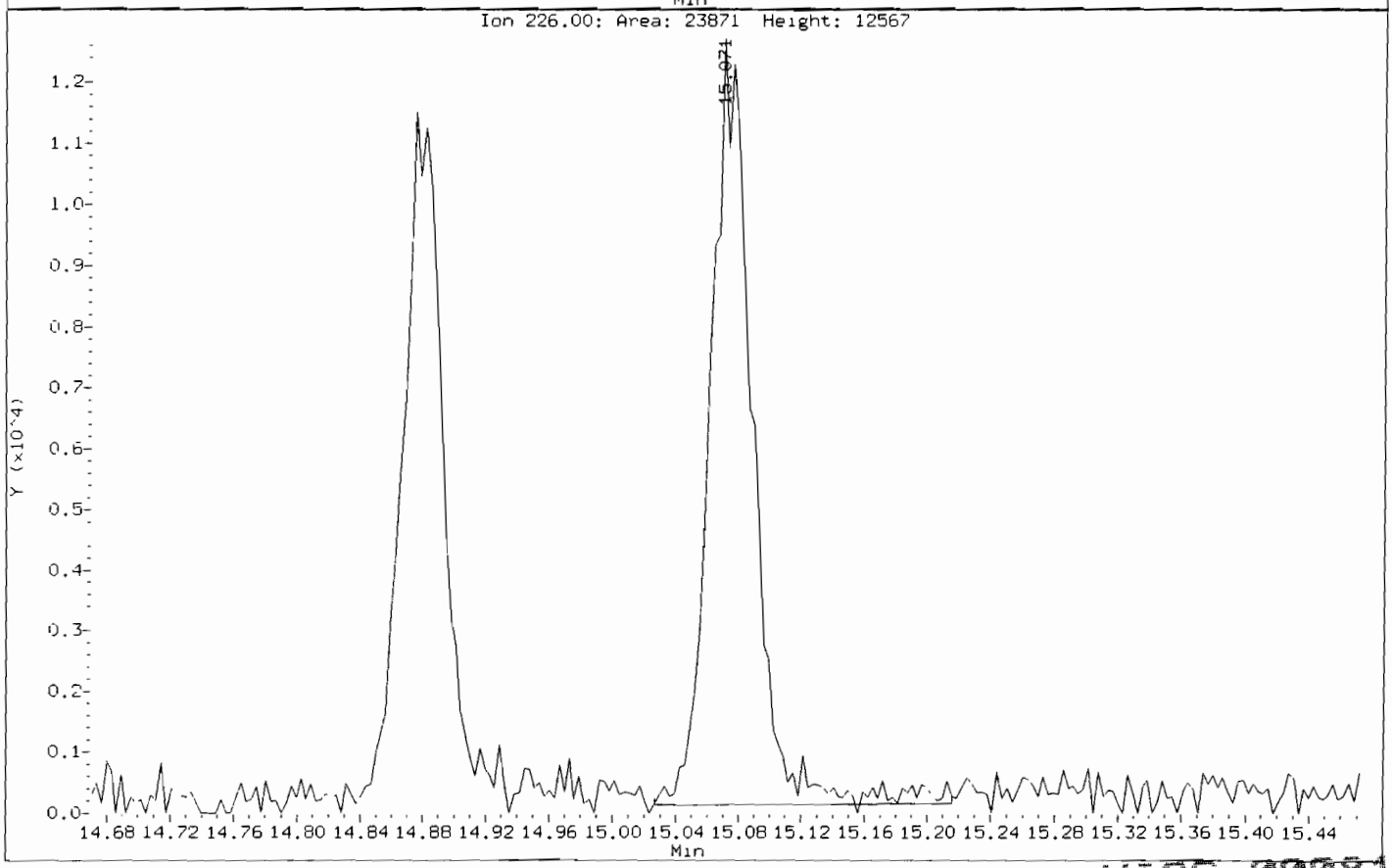
Column phase: ZB-5ms1



Data File: /chem3/nt4.1/20111121.b/11211104.d
Injection Date: 21-NOV-2011 12:06
Instrument: nt4.1
Client Sample ID: IC051121

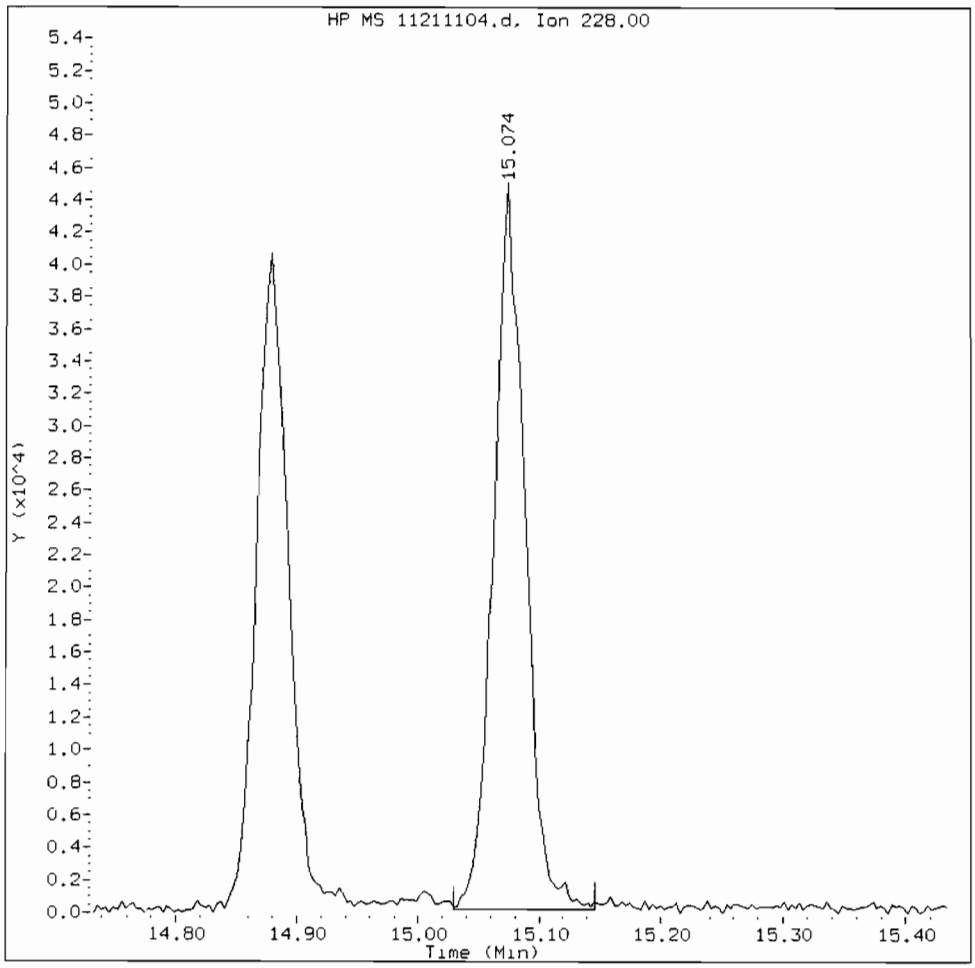
Compound: Chrysene
CAS Number: 218-01-9





IC051121, /chem3/nt4.i/20111121.b/11211104.d

Chrysene Amount: 0.47 Area: 80162



MANUAL INTEGRATION for Chrysene

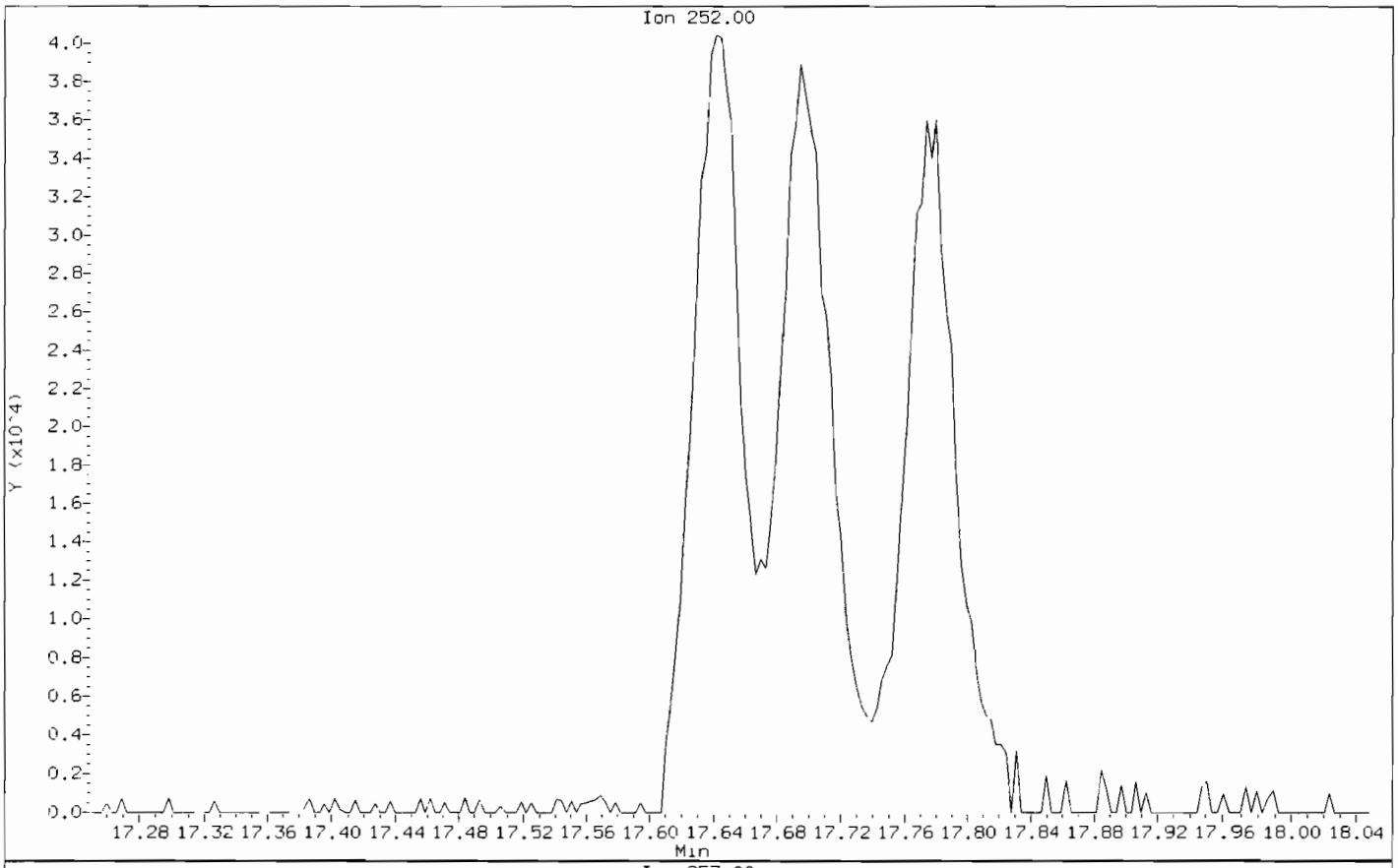
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

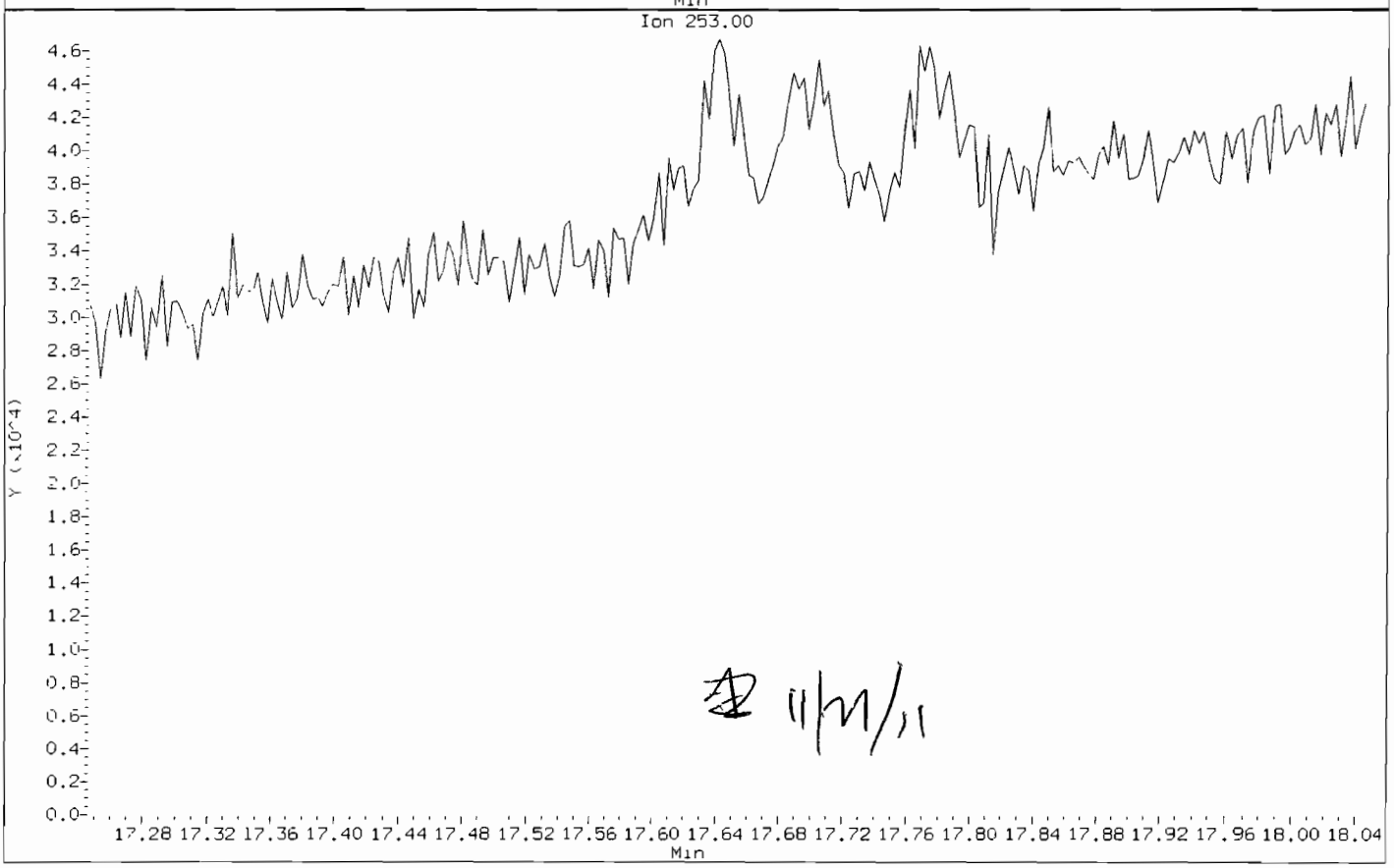
5. Other _____

Analyst: _____ Date: 11/21/11

Data File: /chem3/nt4.i/20111121.b/11211104.d
Injection Date: 21-NOV-2011 12:06
Instrument: nt4.i
Client Sample ID: IC051121

Compound: Benzo(b)fluoranthene
CAS Number: 205-99-2

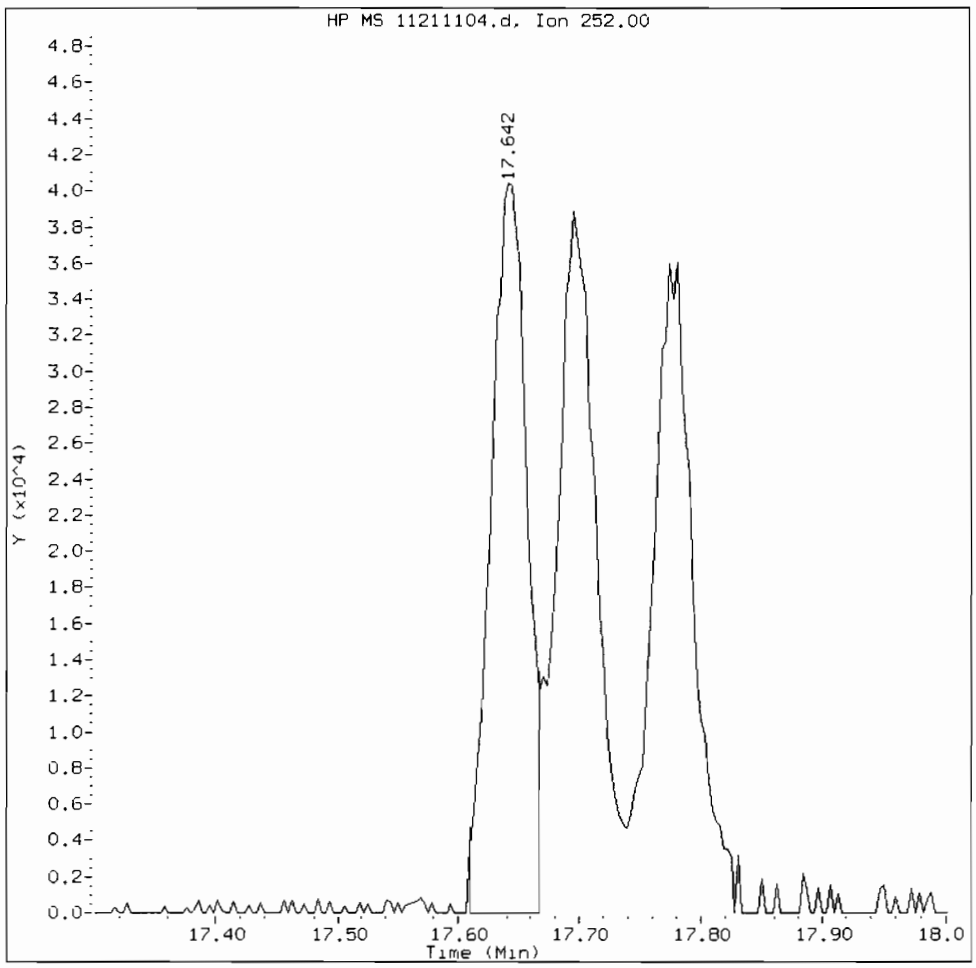




11/21/11

IC051121, /chem3/nt4.i/20111121.b/11211104.d

Benzo(b)fluoranthene Amount: 0.45 Area: 84384



MANUAL INTEGRATION for Benzo(b)fluoranthene

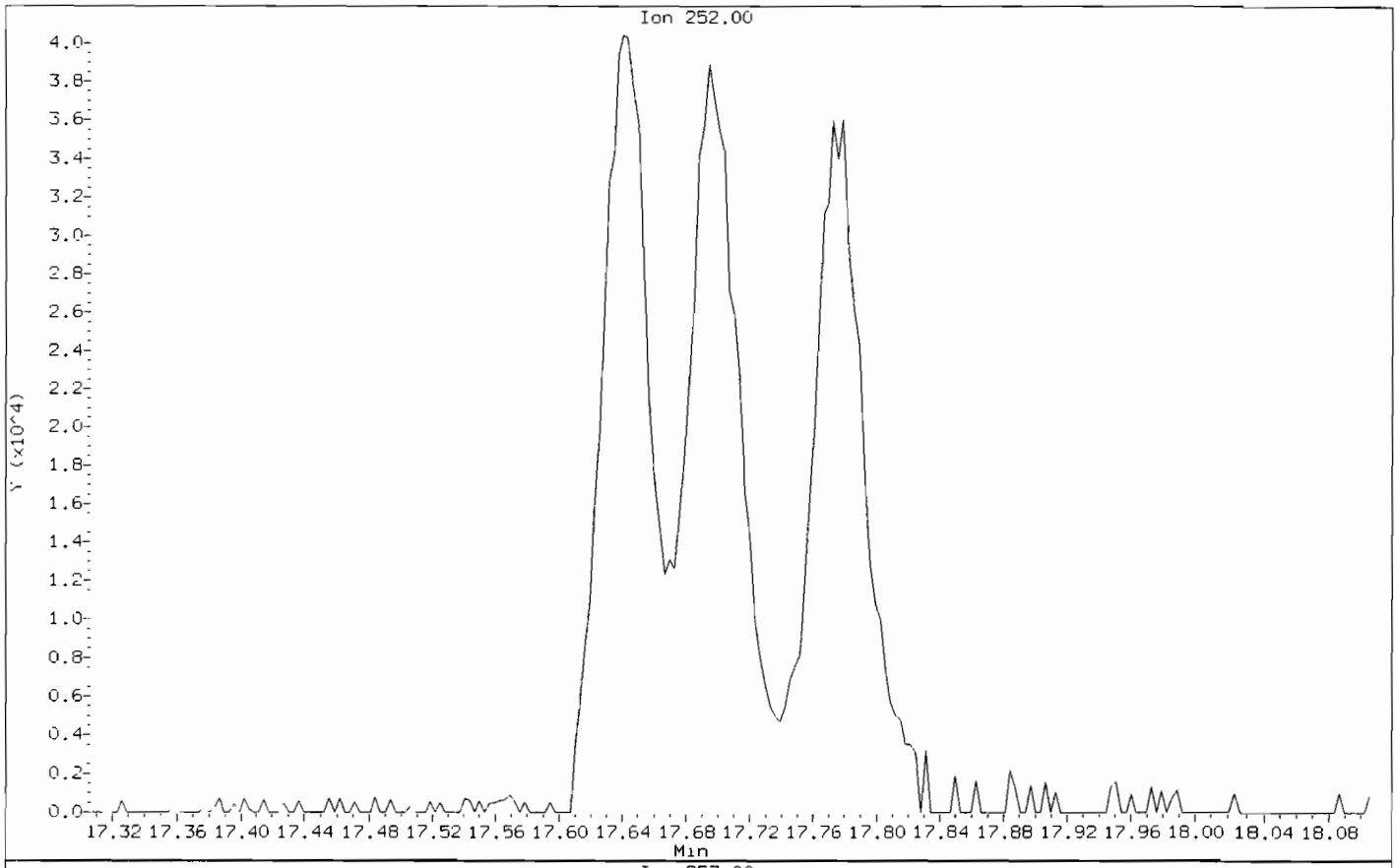
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

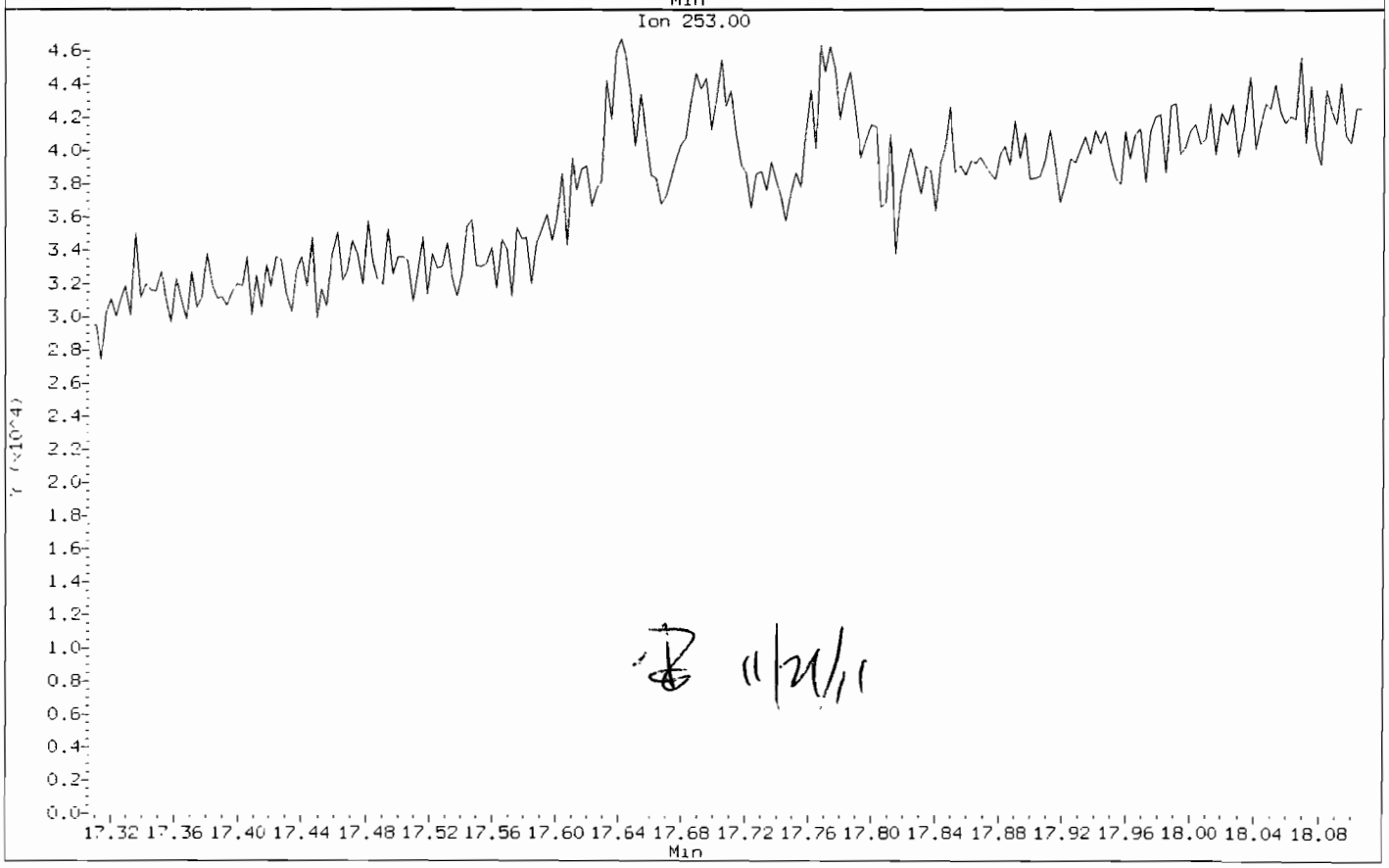
5. Other _____

Analyst: _____ Date: 11/21/11

Data File: /chem3/nt4.i/20111121A.b/11211104.d
Injection Date: 21-NOV-2011 12:06
Instrument: nt4.i
Client Sample ID: IC051121

Compound: Benzo(k)fluoranthene
CAS Number: 207-08-9

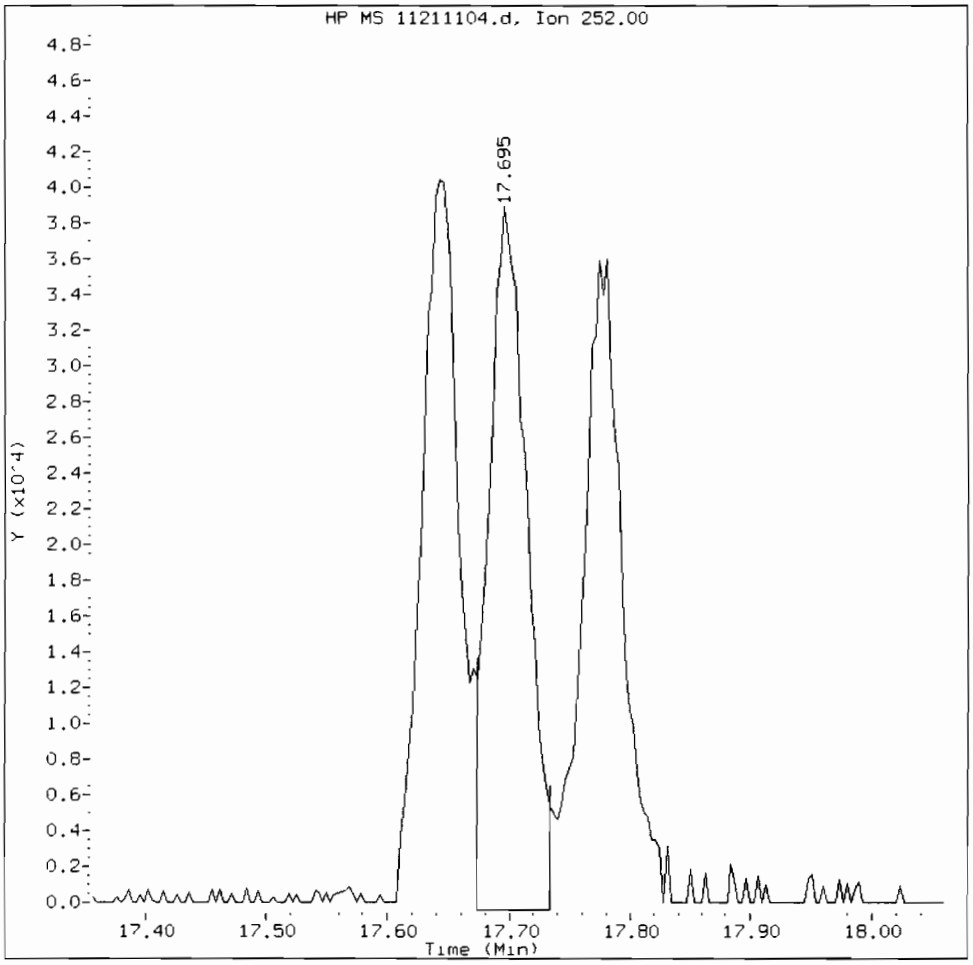




11/21/11

IC051121, /chem3/nt4.i/20111121.b/11211104.d

Benzo(k)fluoranthene Amount: 0.47 Area: 86236



MANUAL INTEGRATION for Benzo(k)fluoranthene

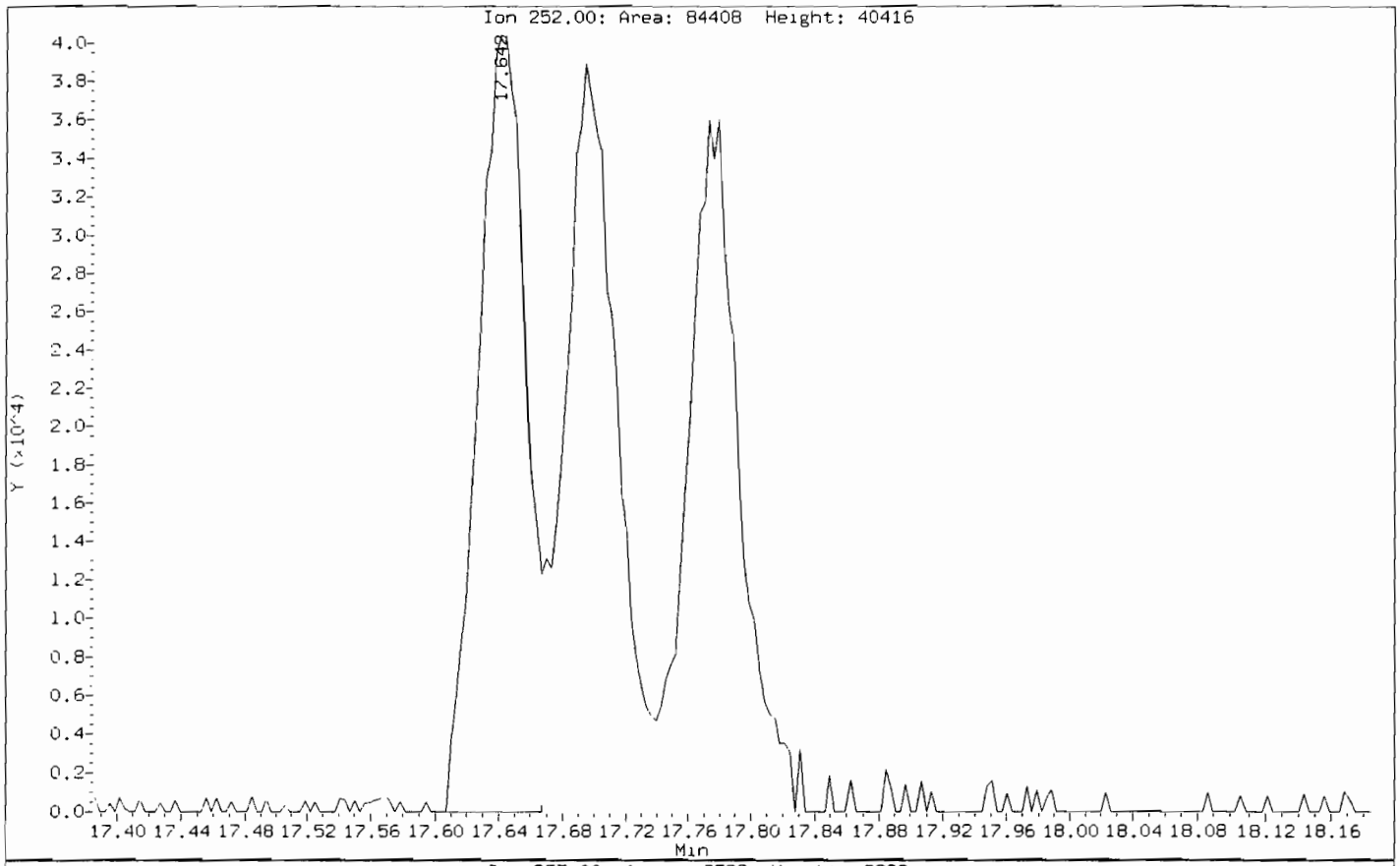
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

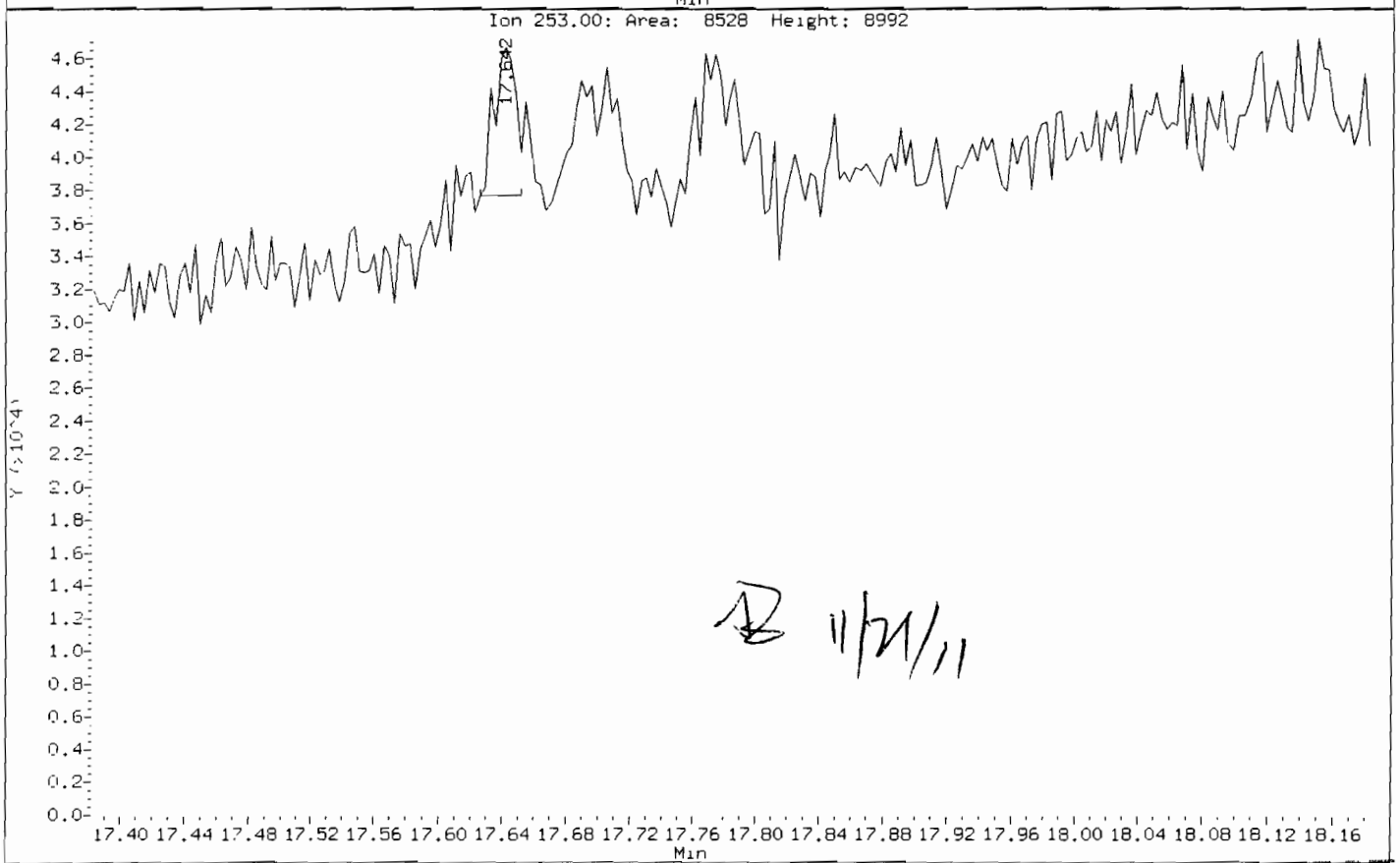
5. Other _____

Analyst: _____ Date: 11/21/11

Data File: /chem3/nt4.i/20111121.b/11211104.d
Injection Date: 21-NOV-2011 12:06
Instrument: nt4.i
Client Sample ID: IC051121

Compound: Benzo(j)fluoranthene
CAS Number:

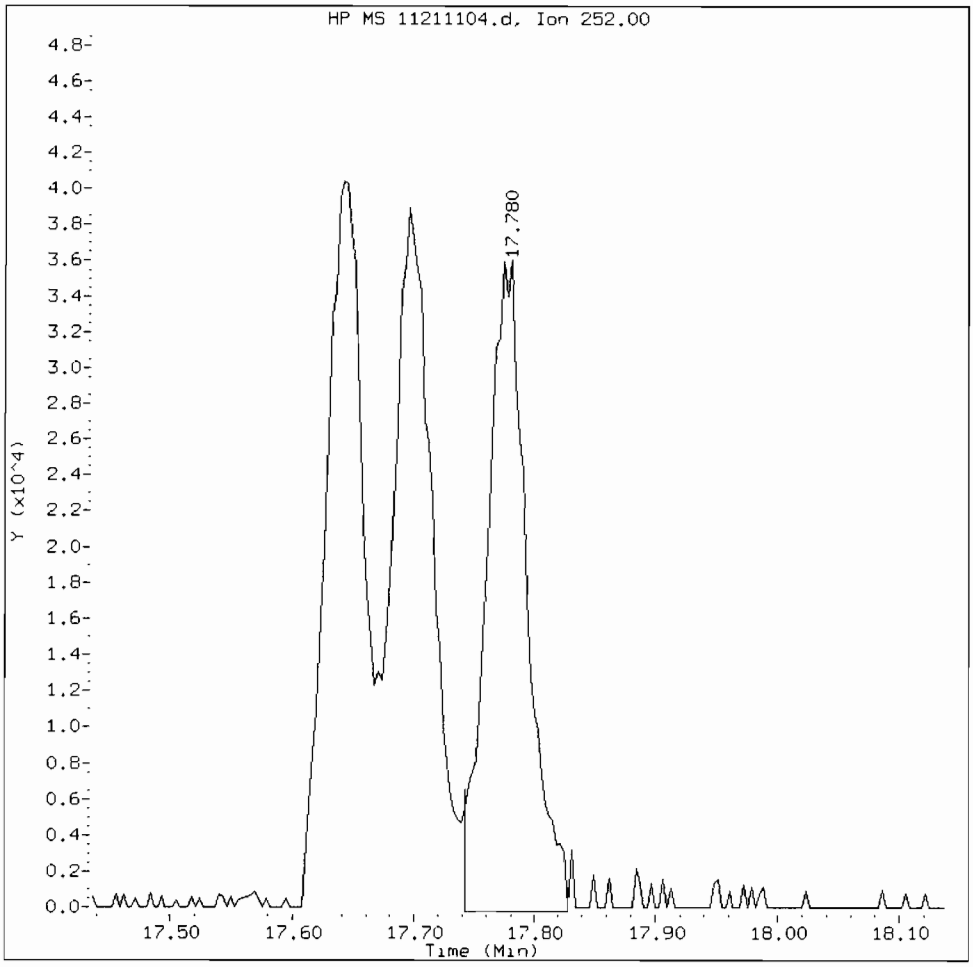




11/21/11

IC051121, /chem3/nt4.i/20111121.b/11211104.d

Benzo(j)fluoranthene Amount: 0.52 Area: 83371



MANUAL INTEGRATION for Benzo(j)fluoranthene

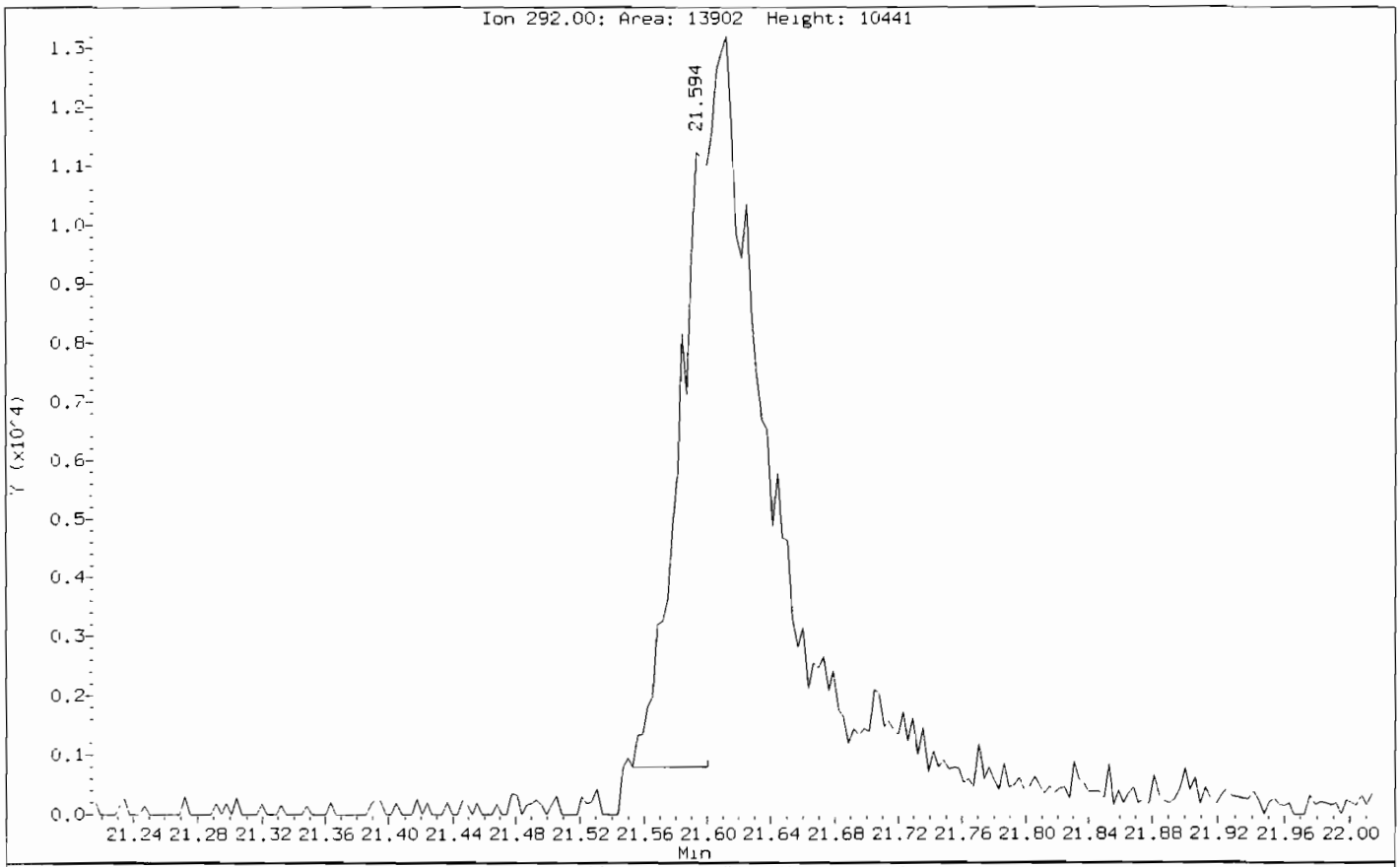
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

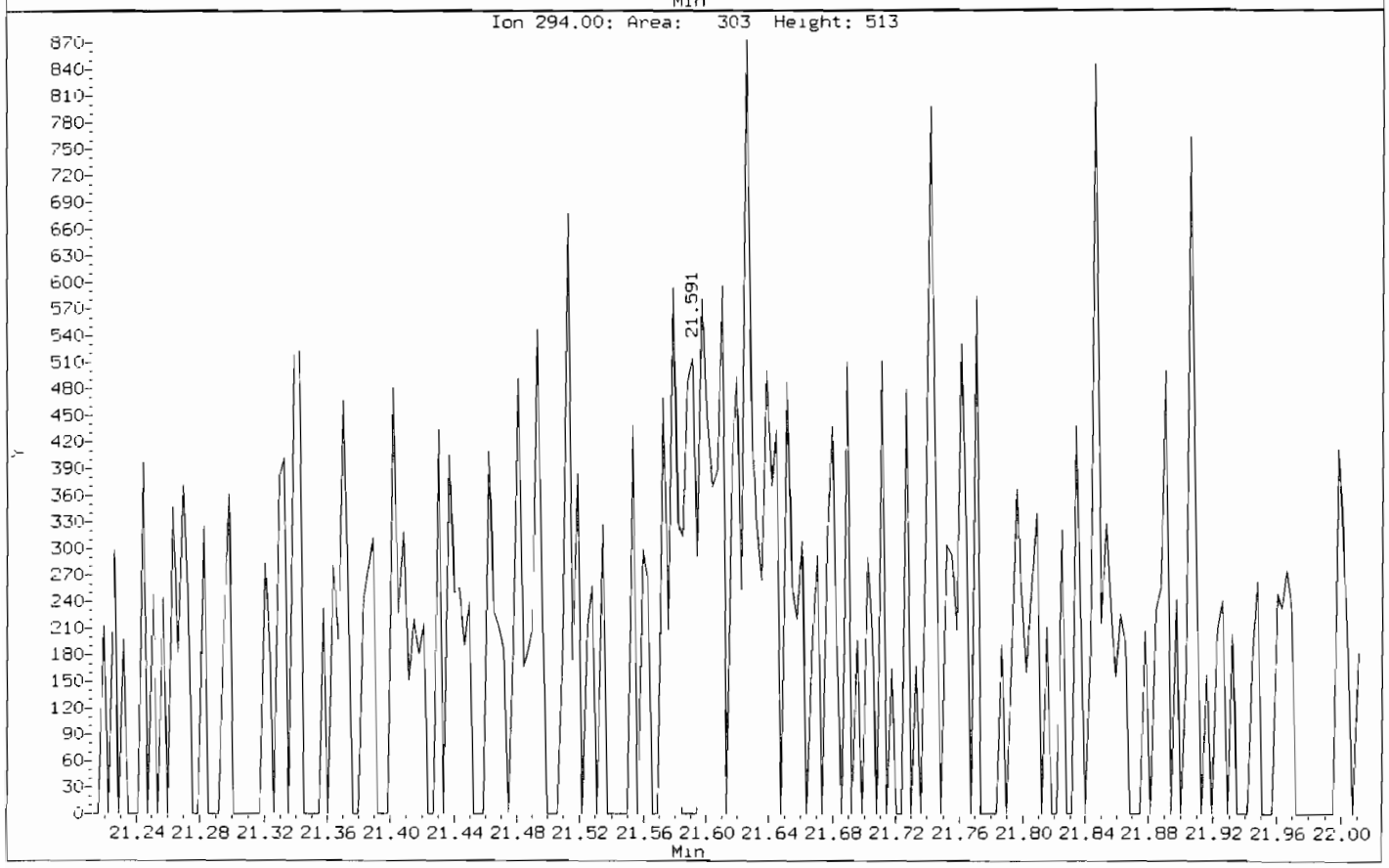
5. Other _____

Analyst: _____ Date: 6/21/11

Data File: /chem3/nt4.i/20111121.b/11211104.d
Injection Date: 21-NOV-2011 12:06
Instrument: nt4.i
Client Sample ID: IC051121

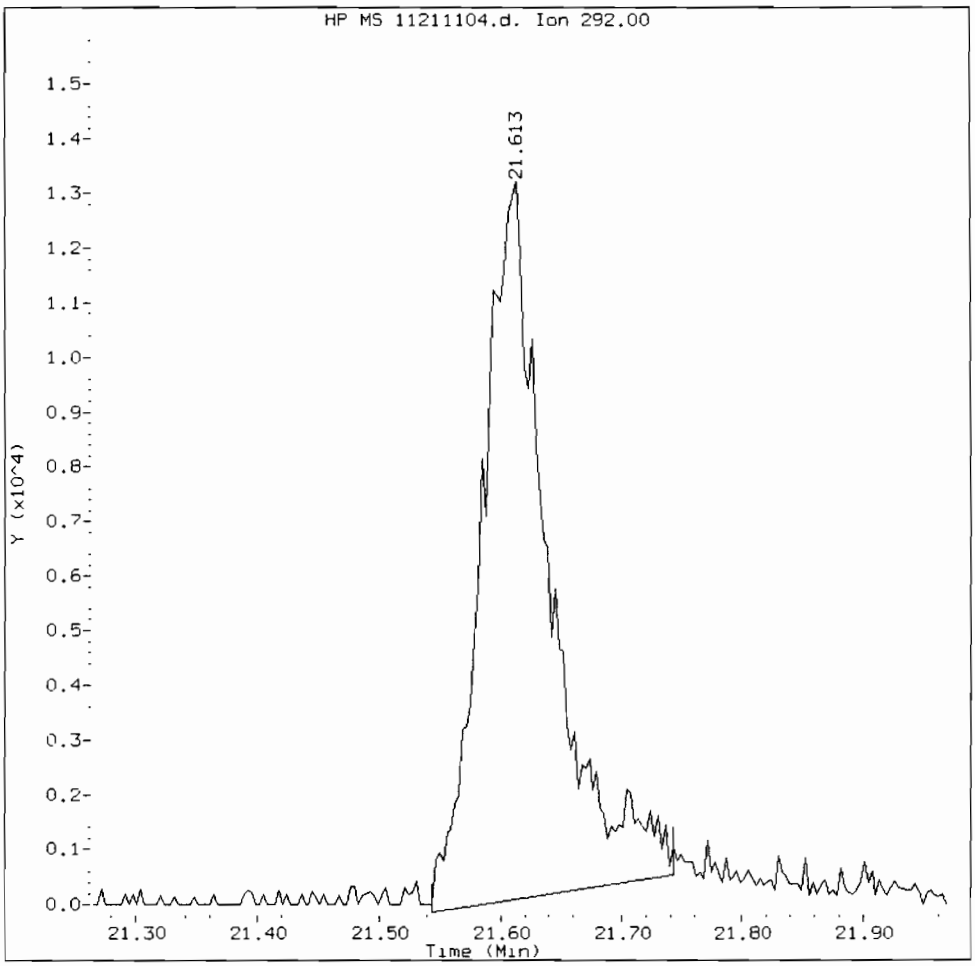
Compound: Dibenzo(a,h)anthracene-d14
CAS Number:





IC051121, /chem3/nt4.i/20111121.b/11211104.d

Dibenzo(a,h)anthracene-d14 Amount: 0.40 Area: 50789



MANUAL INTEGRATION for Dibenzo(a,h)anthracene-d14

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/21/11

CO-ELUTION SUMMARY FOR FILE - 11211104.d

Lab ID: IC051121, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 21-NOV-2011

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem3/nt4.i/20111121.b/11211105.d
Lab Smp Id: IC11121 Client Smp ID: IC11121
Inj Date : 21-NOV-2011 12:33
Operator : JZ Inst ID: nt4.i
Smp Info : IC11121,
Misc Info : 11-
Comment : 1ul Injection
Method : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Meth Date : 21-Nov-2011 17:42 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 5 Calibration Sample, Level: 3
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: NEWSIMPNAICL.sub
Target Version: 3.50

11/21/11

AMOUNTS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
* 6	Naphthalene-d8	136	5.495	5.499	(1.000)	315463	2.00000	
7	Naphthalene	128	5.523	5.527	(1.005)	154132	1.00000	1.012
$ 12	2-Methylnaphthalene-d10	152	6.242	6.250	(1.136)	94752	1.00000	0.9917
14	2-Methylnaphthalene	141	6.286	6.294	(1.144)	87564	1.00000	0.9908
15	1-methylnaphthalene	141	6.485	6.493	(1.180)	85008	1.00000	0.9826
19	Biphenyl	154	6.933	6.941	(0.891)	125640	1.00000	0.9824
20	2,6-Dimethylnaphthalene	156	7.002	7.007	(0.900)	88904	1.00000	0.9349
21	Acenaphthylene	152	7.643	7.647	(0.982)	132487	1.00000	0.9458
* 22	Acenaphthene-d10	164	7.782	7.786	(1.000)	182679	2.00000	
23	Acenaphthene	153	7.829	7.833	(1.006)	94699	1.00000	0.9749
11	Dibenzofuran	168	7.971	7.978	(1.024)	139280	1.00000	1.004
24	1,6,7-Trimethylnaphthalene	170	8.084	8.092	(1.039)	82681	1.00000	0.9698
25	Fluorene	166	8.435	8.442	(1.084)	104082	1.00000	0.9491
27	Dibenzothiophene	184	9.636	9.644	(0.988)	141711	1.00000	0.9730
* 28	Phenanthrene-d10	188	9.756	9.761	(1.000)	304130	2.00000	
30	Phenanthrene	178	9.791	9.799	(1.004)	155448	1.00000	0.9693
31	Anthracene	178	9.826	9.833	(1.007)	139821	1.00000	0.9293
26	Carbazole	167	10.305	10.313	(1.056)	130429	1.00000	0.9351
33	1-Methylphenanthrene	192	10.652	10.657	(1.092)	113443	1.00000	0.9676
36	Fluoranthene	202	11.718	11.726	(1.201)	163871	1.00000	0.9354
39	Pyrene	202	12.258	12.268	(0.817)	170286	1.00000	0.9411
46	Benzo(a)anthracene	228	14.879	14.883	(0.992)	156951	1.00000	0.9361
* 47	Chrysene-d12	240	15.002	15.013	(1.000)	355644	2.00000	
48	Chrysene	228	15.071	15.082	(1.005)	165932	1.00000	0.9485
51	Benzo(b)fluoranthene	252	17.639	17.650	(0.936)	176799	1.00000	0.9356
52	Benzo(k)fluoranthene	252	17.696	17.707	(0.939)	189614	1.00000	1.018(M)
251	Benzo(j)fluoranthene	252	17.775	17.785	(0.943)	165683	1.00000	1.010(M)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
	55 Benzo(e)pyrene	252	18.525	18.530	(0.983)	181303	1.00000	1.010
	54 Benzo(a)pyrene	252	18.642	18.650	(0.989)	163436	1.00000	1.016
*	56 Perylene-d12	264	18.854	18.861	(1.000)	369211	2.00000	
	57 Perylene	252	18.923	18.931	(1.004)	173518	1.00000	0.9675
$	60 Dibenzo(a,h)anthracene-d14	292	21.610	21.615	(1.146)	118189	1.00000	0.9111 (M)
	63 Indeno(1,2,3-cd)pyrene	276	21.718	21.722	(1.152)	189053	1.00000	0.8832
	62 Dibenzo(a,h)anthracene	278	21.730	21.732	(1.153)	155428	1.00000	0.9407
	61 Benzo(g,h,i)perylene	276	22.860	22.867	(1.212)	197767	1.00000	0.9792

QC Flag Legend

M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 11211105.d
Lab Smp Id: IC11121
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Misc Info: 11-

Calibration Date: 21-NOV-2011
Calibration Time: 11:09
Client Smp ID: IC11121
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	315463	-8.19
22 Acenaphthene-d10	195804	97902	391608	182679	-6.70
28 Phenanthrene-d10	321226	160613	642452	304130	-5.32
47 Chrysene-d12	375207	187604	750414	355644	-5.21
56 Perylene-d12	400310	200155	800620	369211	-7.77

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	5.50	5.00	6.00	5.49	-0.08
22 Acenaphthene-d10	7.79	7.29	8.29	7.78	-0.06
28 Phenanthrene-d10	9.76	9.26	10.26	9.76	-0.05
47 Chrysene-d12	15.01	14.51	15.51	15.00	-0.07
56 Perylene-d12	18.86	18.36	19.36	18.85	-0.04

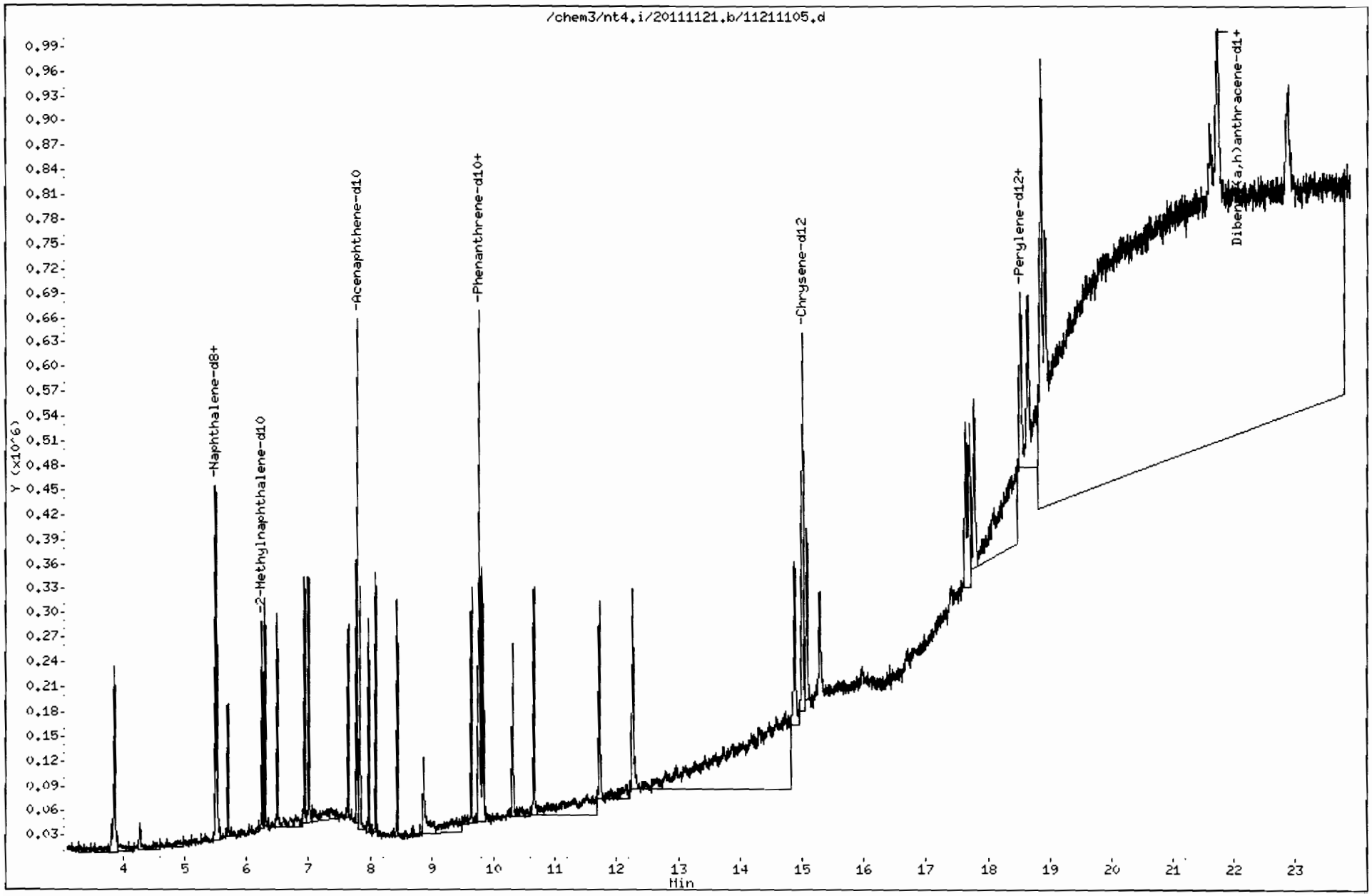
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem3/nt4.i/20111121.b/11211105.d
Date : 21-NOV-2011 12:33
Client ID: IC11121
Sample Info: IC11121,

Instrument: nt4.i

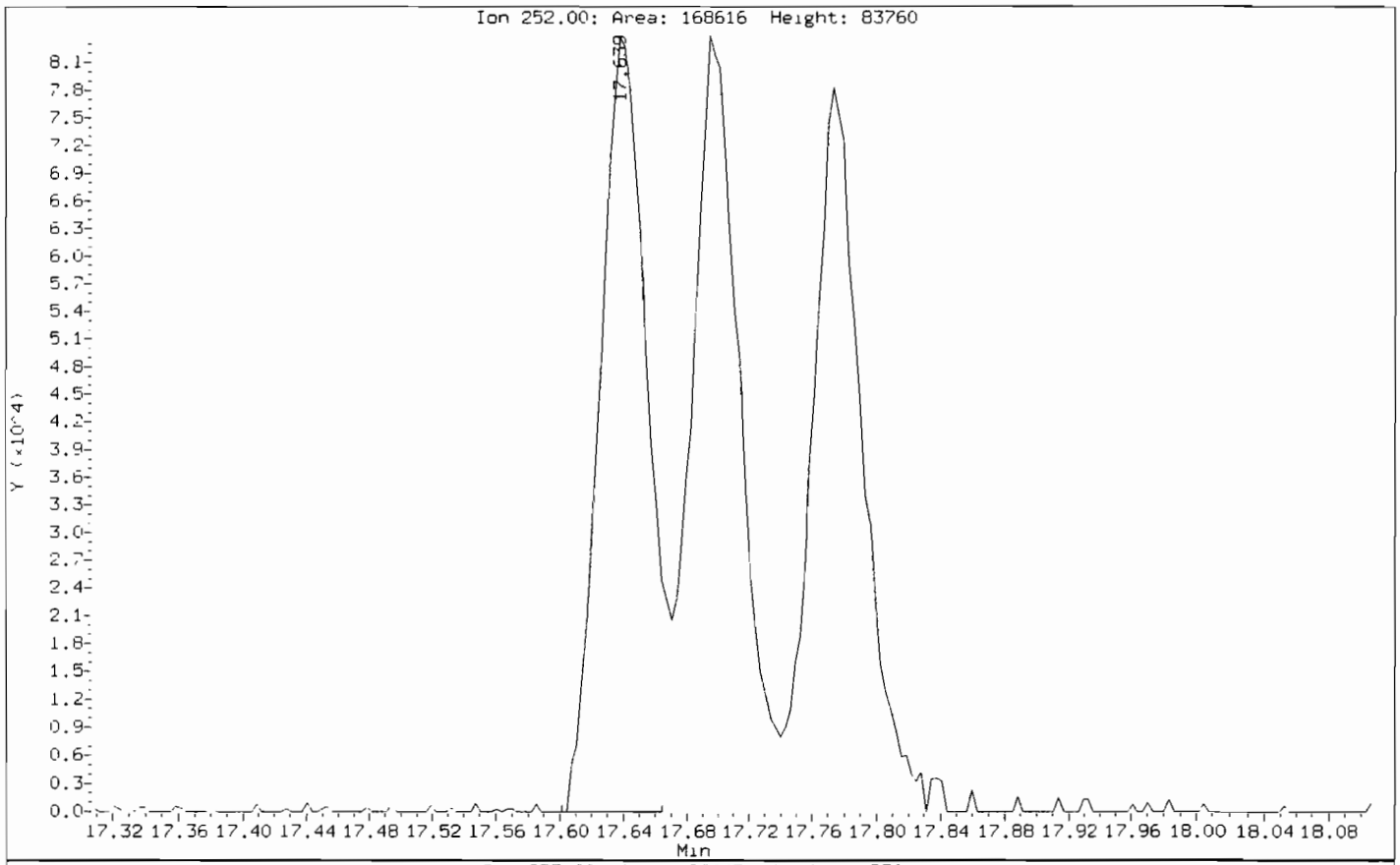
Operator: JZ
Column diameter: 0.25

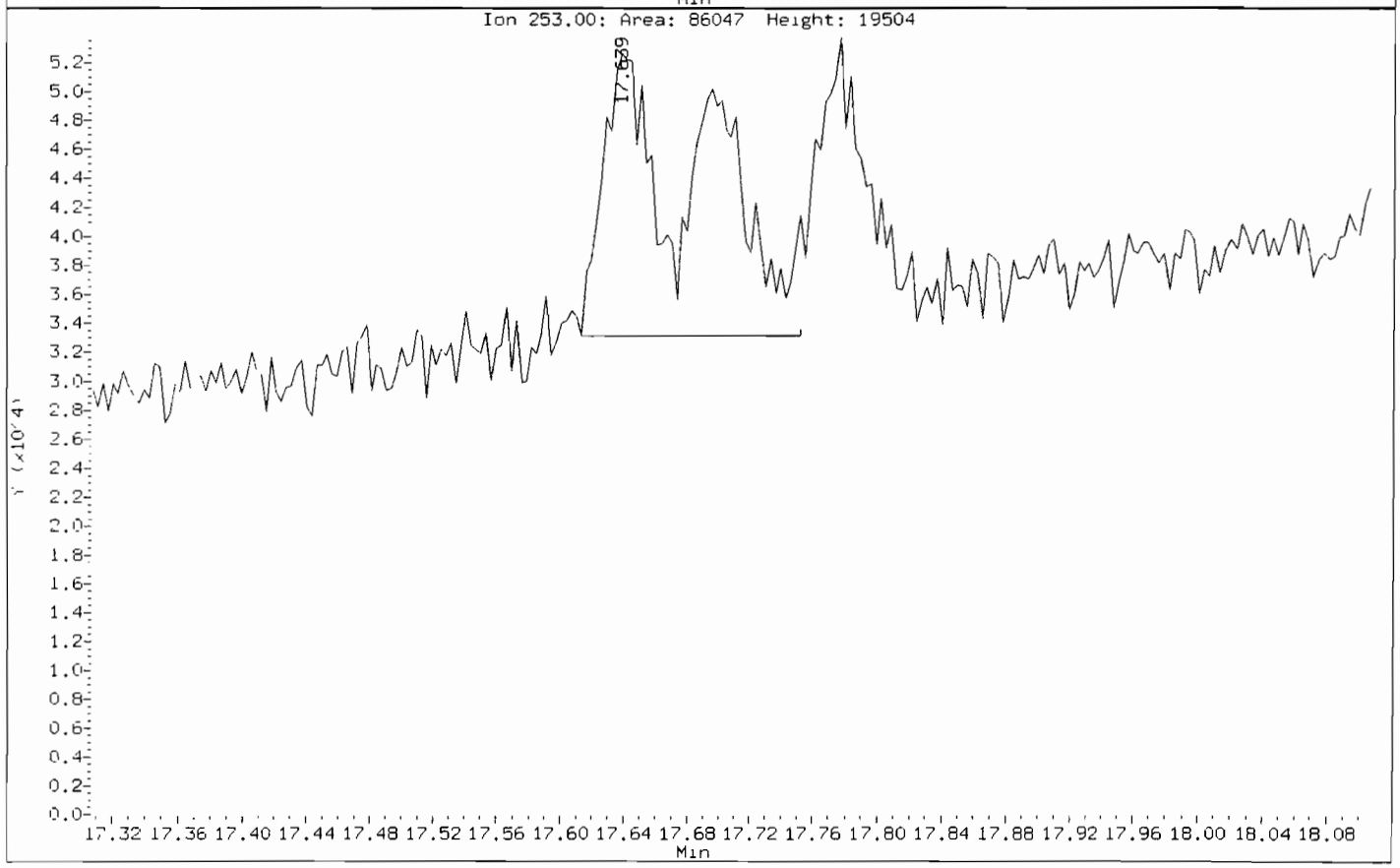
Column phase: ZB-5msi



Data File: /chem3/nt4.i/20111121.b/11211105.d
Injection Date: 21-NOV-2011 12:33
Instrument: nt4.i
Client Sample ID: IC11121

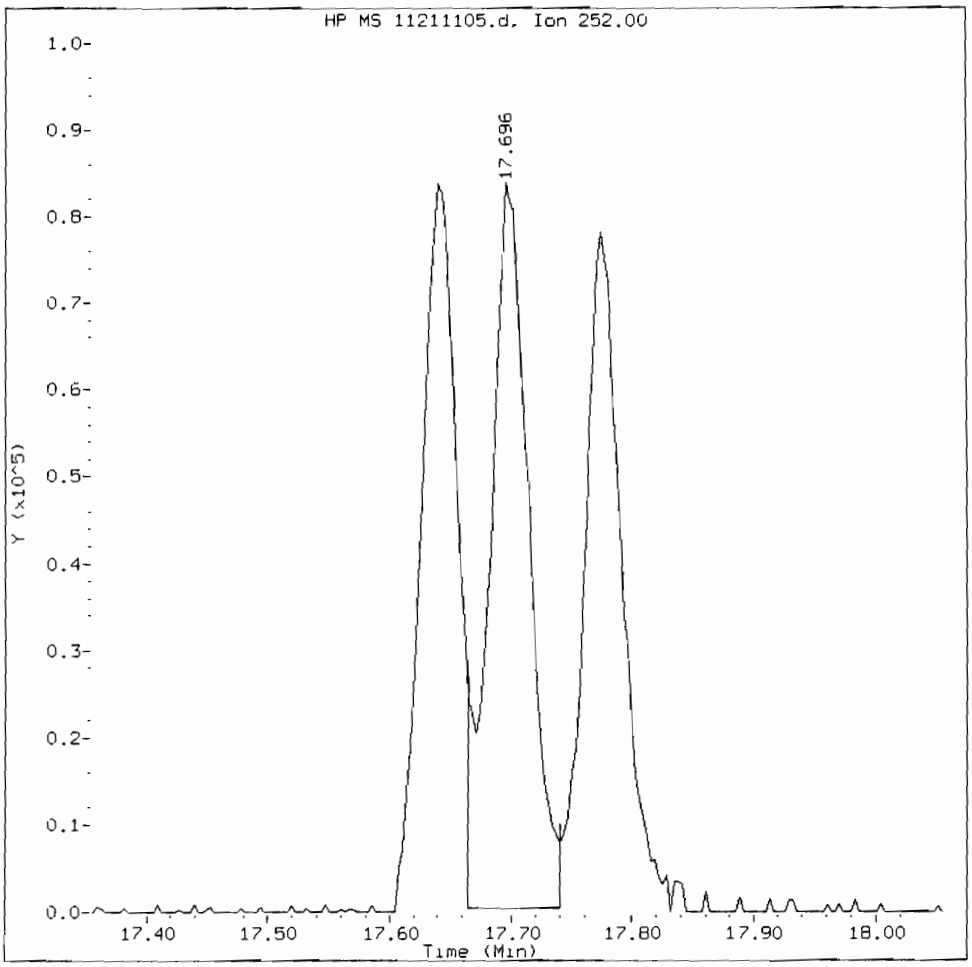
Compound: Benzo(k)fluoranthene
CAS Number: 207-08-9





IC11121, /chem3/nt4.i/20111121.b/11211105.d

Benzo(k)fluoranthene Amount: 1.02 Area: 189614



MANUAL INTEGRATION for Benzo(k)fluoranthene

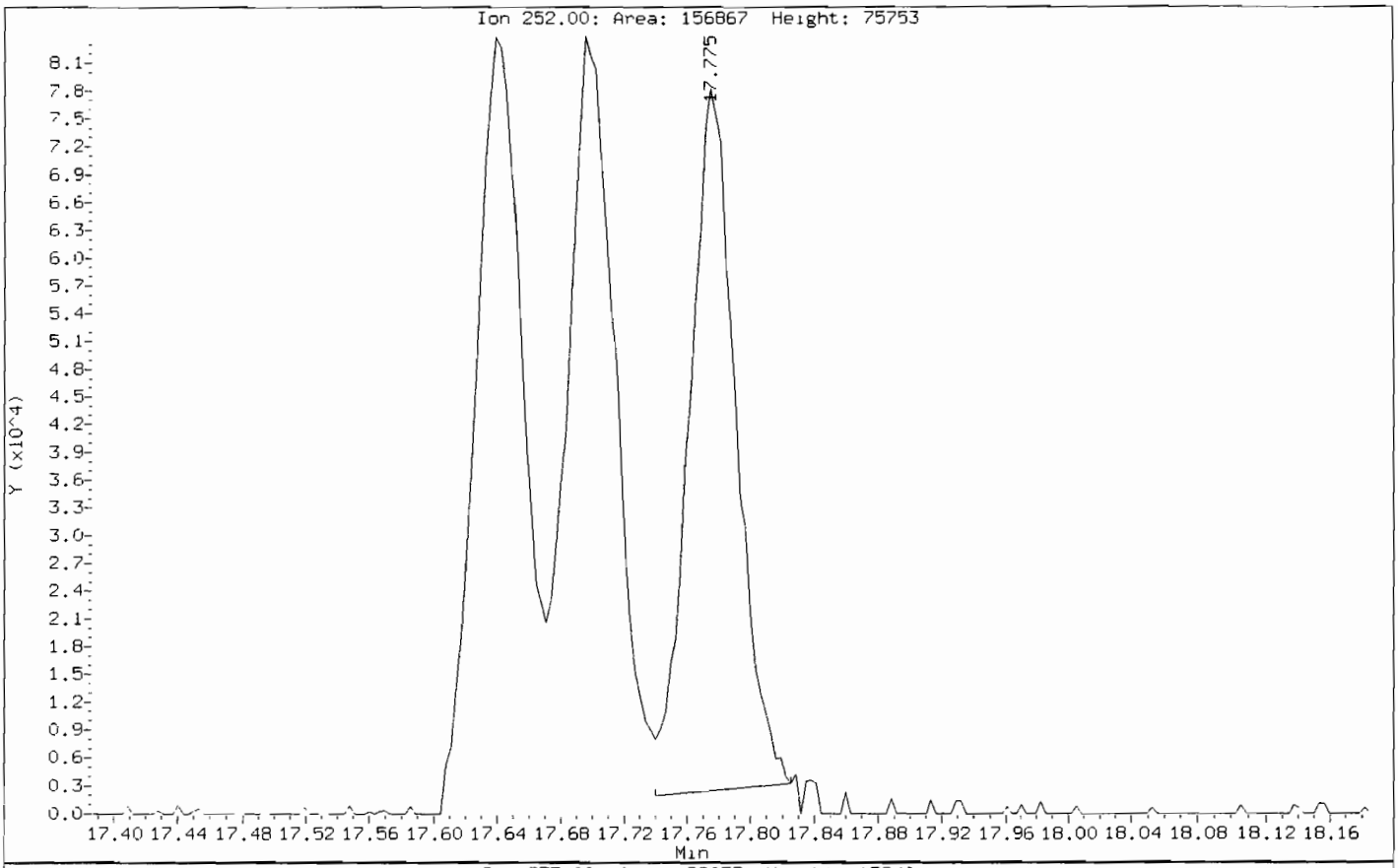
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

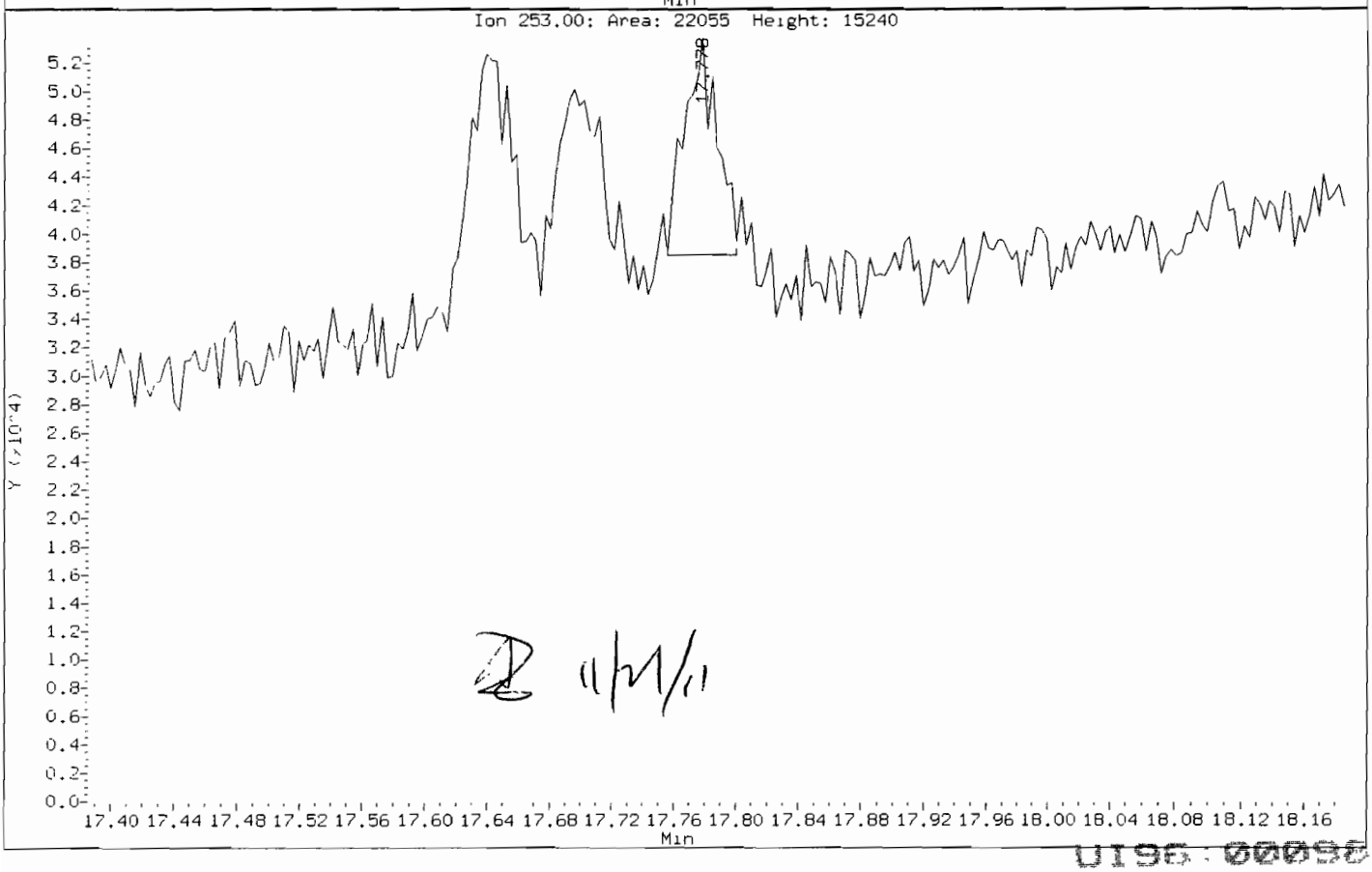
5. Other _____

Analyst: _____ Date: 11/21/11

Data File: /chem3/nt4.i/20111121A.b/11211105.d
Injection Date: 21-NOV-2011 12:33
Instrument: nt4.i
Client Sample ID: IC11121

Compound: Benzo(j)fluoranthene
CAS Number:



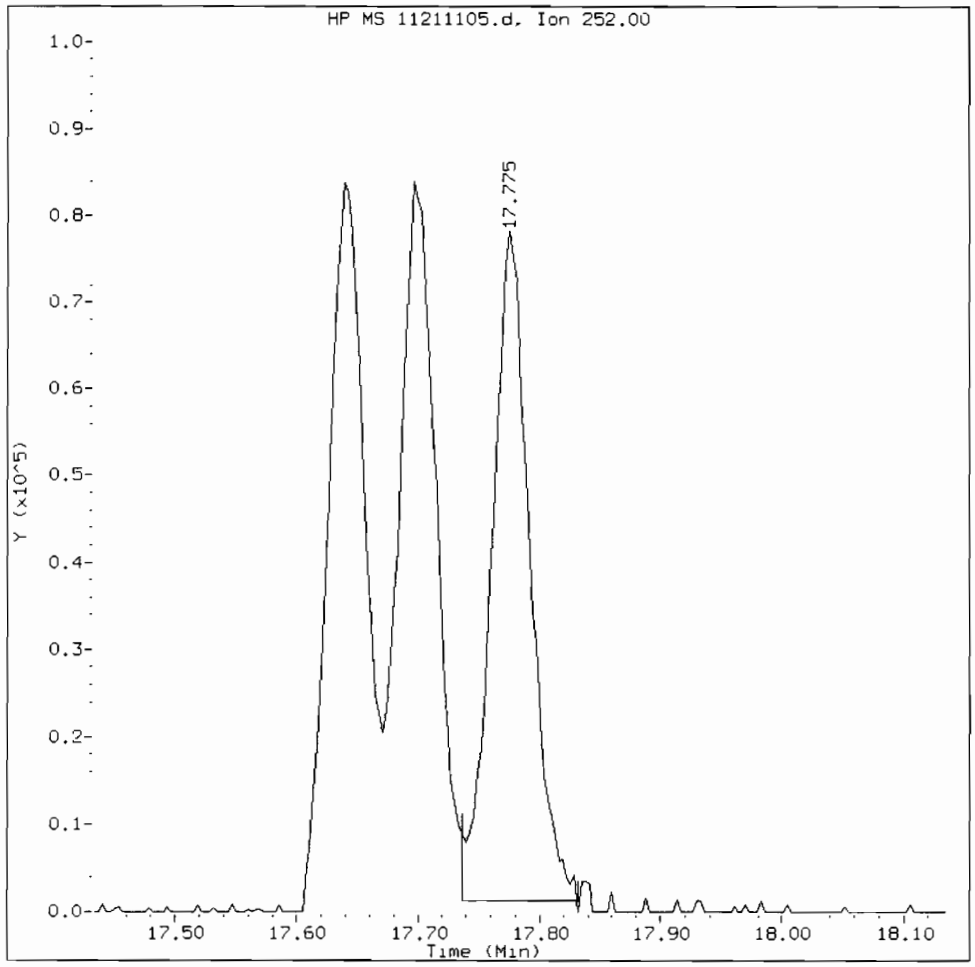


11/21/11

UI96:00096

IC11121, /chem3/nt4.i/20111121.b/11211105.d

Benzo(j)fluoranthene Amount: 1.01 Area: 165683



MANUAL INTEGRATION for Benzo(j)fluoranthene

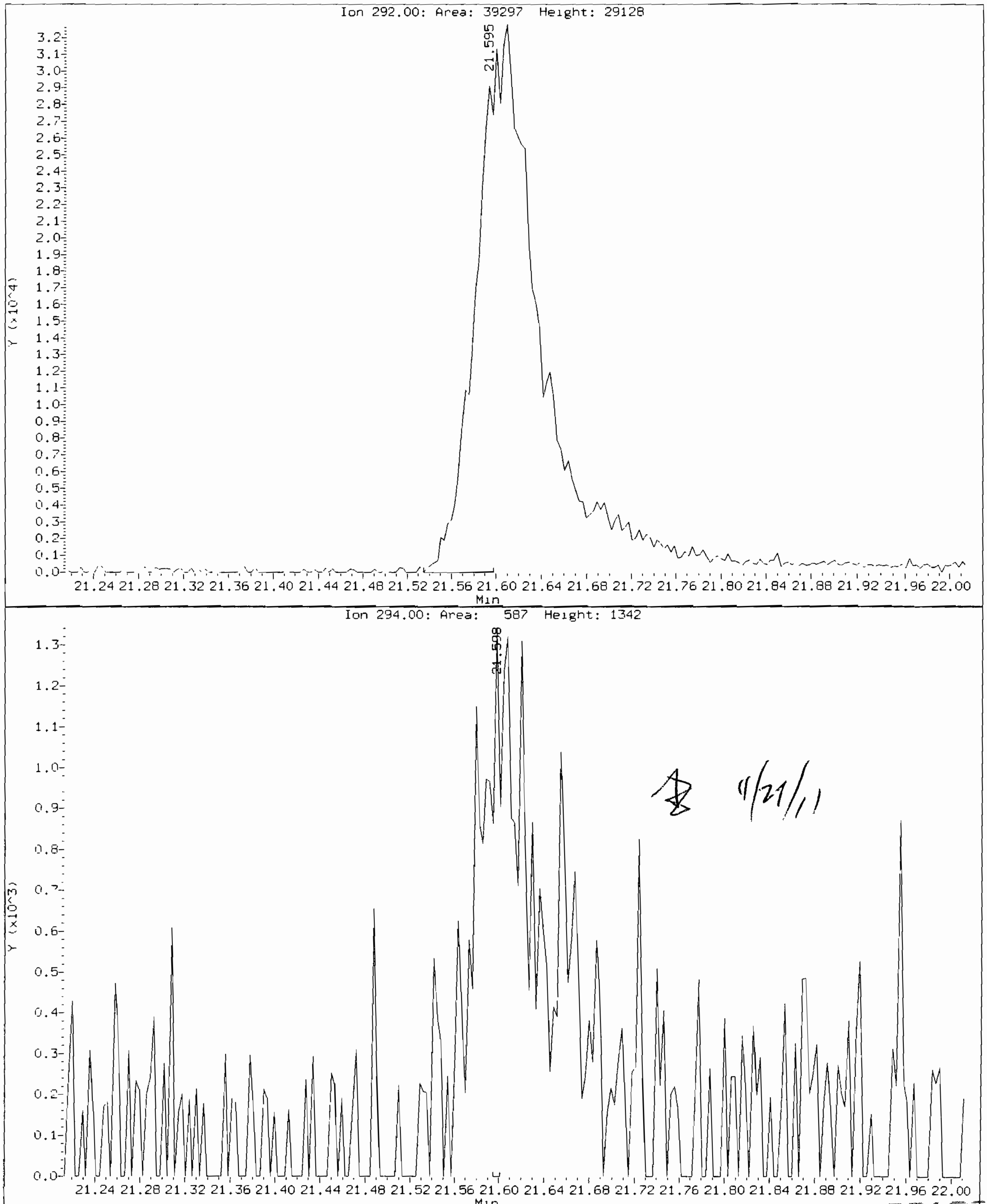
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/21/11

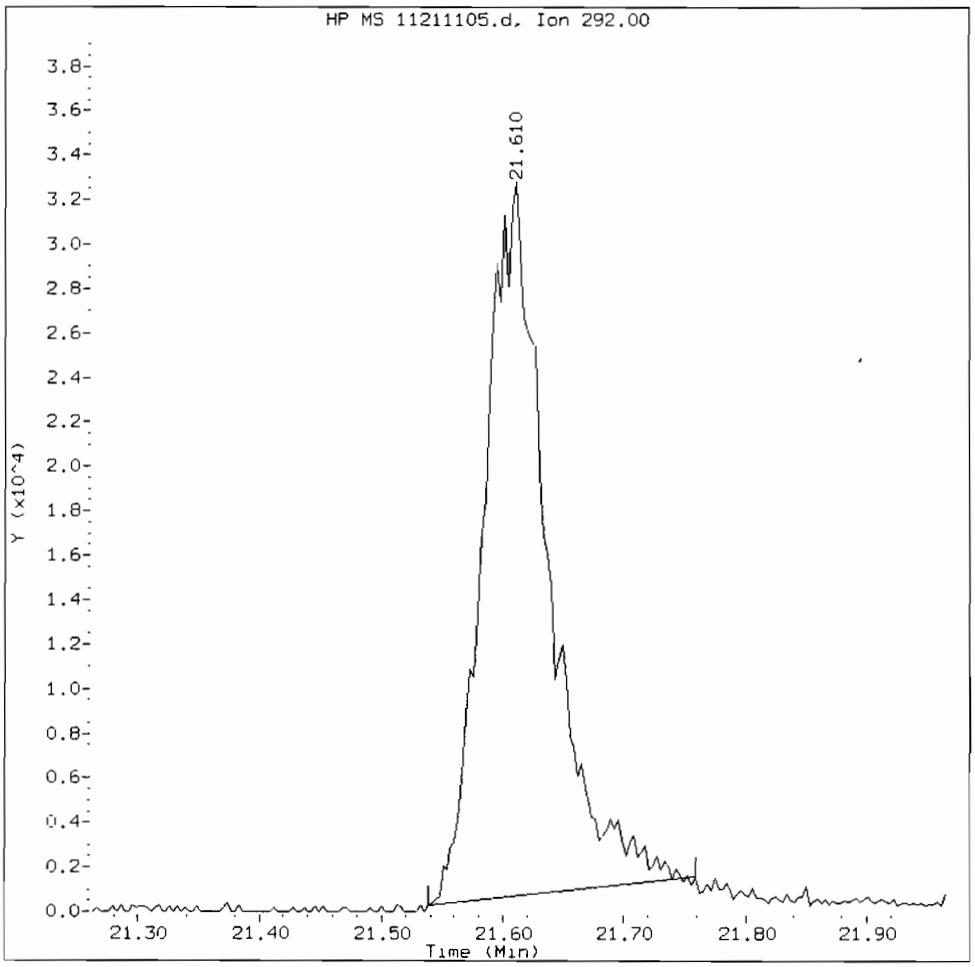
Data File: /chem3/nt4.i/20111121.b/11211105.d
Injection Date: 21-NOV-2011 12:33
Instrument: nt4.i
Client Sample ID: IC11121

Compound: Dibenzo(a.h)anthracene-d14
CAS Number:



IC11121, /chem3/nt4.i/20111121.b/11211105.d

Dibenzo(a,h)anthracene-d14 Amount: 0.91 Area: 118189



MANUAL INTEGRATION for Dibenzo(a,h)anthracene-d14

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 11/21/11

CO-ELUTION SUMMARY FOR FILE - 11211105.d

Lab ID: IC11121, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 21-NOV-2011

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem3/nt4.i/20111121.b/11211106.d
Lab Smp Id: IC51121 Client Smp ID: IC51121
Inj Date : 21-NOV-2011 13:01
Operator : JZ Inst ID: nt4.i
Smp Info : IC51121,
Misc Info : 11-
Comment : 1ul Injection
Method : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Meth Date : 21-Nov-2011 17:42 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 6 Calibration Sample, Level: 5
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: NEWSIMPNAICL.sub
Target Version: 3.50

11/29/11

AMOUNTS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
* 6	Naphthalene-d8	136	5.497	5.499	(1.000)	324501	2.00000	
7	Naphthalene	128	5.522	5.527	(1.005)	712457	5.00000	4.546
$ 12	2-Methylnaphthalene-d10	152	6.244	6.250	(1.136)	452346	5.00000	4.603
14	2-Methylnaphthalene	141	6.288	6.294	(1.144)	424687	5.00000	4.672
15	1-methylnaphthalene	141	6.487	6.493	(1.180)	404855	5.00000	4.549
19	Biphenyl	154	6.935	6.941	(0.891)	592093	5.00000	4.579
20	2,6-Dimethylnaphthalene	156	7.001	7.007	(0.900)	435439	5.00000	4.529
21	Acenaphthylene	152	7.642	7.647	(0.982)	677457	5.00000	4.783
* 22	Acenaphthene-d10	164	7.780	7.786	(1.000)	184717	2.00000	
23	Acenaphthene	153	7.828	7.833	(1.006)	446579	5.00000	4.547
11	Dibenzofuran	168	7.973	7.978	(1.025)	652041	5.00000	4.646
24	1,6,7-Trimethylnaphthalene	170	8.083	8.092	(1.039)	419639	5.00000	4.868
25	Fluorene	166	8.436	8.442	(1.084)	509687	5.00000	4.596
27	Dibenzothiophene	184	9.638	9.644	(0.988)	694685	5.00000	4.766
* 28	Phenanthrene-d10	188	9.758	9.761	(1.000)	304366	2.00000	
30	Phenanthrene	178	9.793	9.799	(1.004)	744553	5.00000	4.639
31	Anthracene	178	9.828	9.833	(1.007)	705475	5.00000	4.685
26	Carbazole	167	10.307	10.313	(1.056)	628927	5.00000	4.505
33	1-Methylphenanthrene	192	10.651	10.657	(1.091)	549542	5.00000	4.684
36	Fluoranthene	202	11.720	11.726	(1.201)	789987	5.00000	4.506
39	Pyrene	202	12.263	12.268	(0.817)	833431	5.00000	4.538
46	Benzo(a)anthracene	228	14.881	14.883	(0.992)	773705	5.00000	4.546
* 47	Chrysene-d12	240	15.004	15.013	(1.000)	360991	2.00000	
48	Chrysene	228	15.073	15.082	(1.005)	788776	5.00000	4.442
51	Benzo(b)fluoranthene	252	17.641	17.650	(0.936)	856135	5.00000	4.442
52	Benzo(k)fluoranthene	252	17.701	17.707	(0.939)	869106	5.00000	4.575
251	Benzo(j)fluoranthene	252	17.777	17.785	(0.943)	812347	5.00000	4.856 (H)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
	55 Benzo(e)pyrene	252	18.524	18.530	(0.983)	886895	5.00000	4.843
	54 Benzo(a)pyrene	252	18.644	18.650	(0.989)	853556	5.00000	5.203
*	56 Perylene-d12	264	18.852	18.861	(1.000)	376577	2.00000	
	57 Perylene	252	18.928	18.931	(1.004)	854259	5.00000	4.670
$	60 Dibenzo(a,h)anthracene-d14	292	21.612	21.615	(1.146)	735837	5.00000	5.561
	63 Indeno(1,2,3-cd)pyrene	276	21.720	21.722	(1.152)	1122720	5.00000	5.142
	62 Dibenzo(a,h)anthracene	278	21.726	21.732	(1.152)	901712	5.00000	5.351
	61 Benzo(g,h,i)perylene	276	22.862	22.867	(1.213)	1010497	5.00000	4.905

QC Flag Legend

H - Operator selected an alternate compound hit.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 11211106.d
Lab Smp Id: IC51121
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Misc Info: 11-

Calibration Date: 21-NOV-2011
Calibration Time: 11:09
Client Smp ID: IC51121
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	324501	-5.56
22 Acenaphthene-d10	195804	97902	391608	184717	-5.66
28 Phenanthrene-d10	321226	160613	642452	304366	-5.25
47 Chrysene-d12	375207	187604	750414	360991	-3.79
56 Perylene-d12	400310	200155	800620	376577	-5.93

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	5.50	5.00	6.00	5.50	-0.05
22 Acenaphthene-d10	7.79	7.29	8.29	7.78	-0.07
28 Phenanthrene-d10	9.76	9.26	10.26	9.76	-0.03
47 Chrysene-d12	15.01	14.51	15.51	15.00	-0.06
56 Perylene-d12	18.86	18.36	19.36	18.85	-0.05

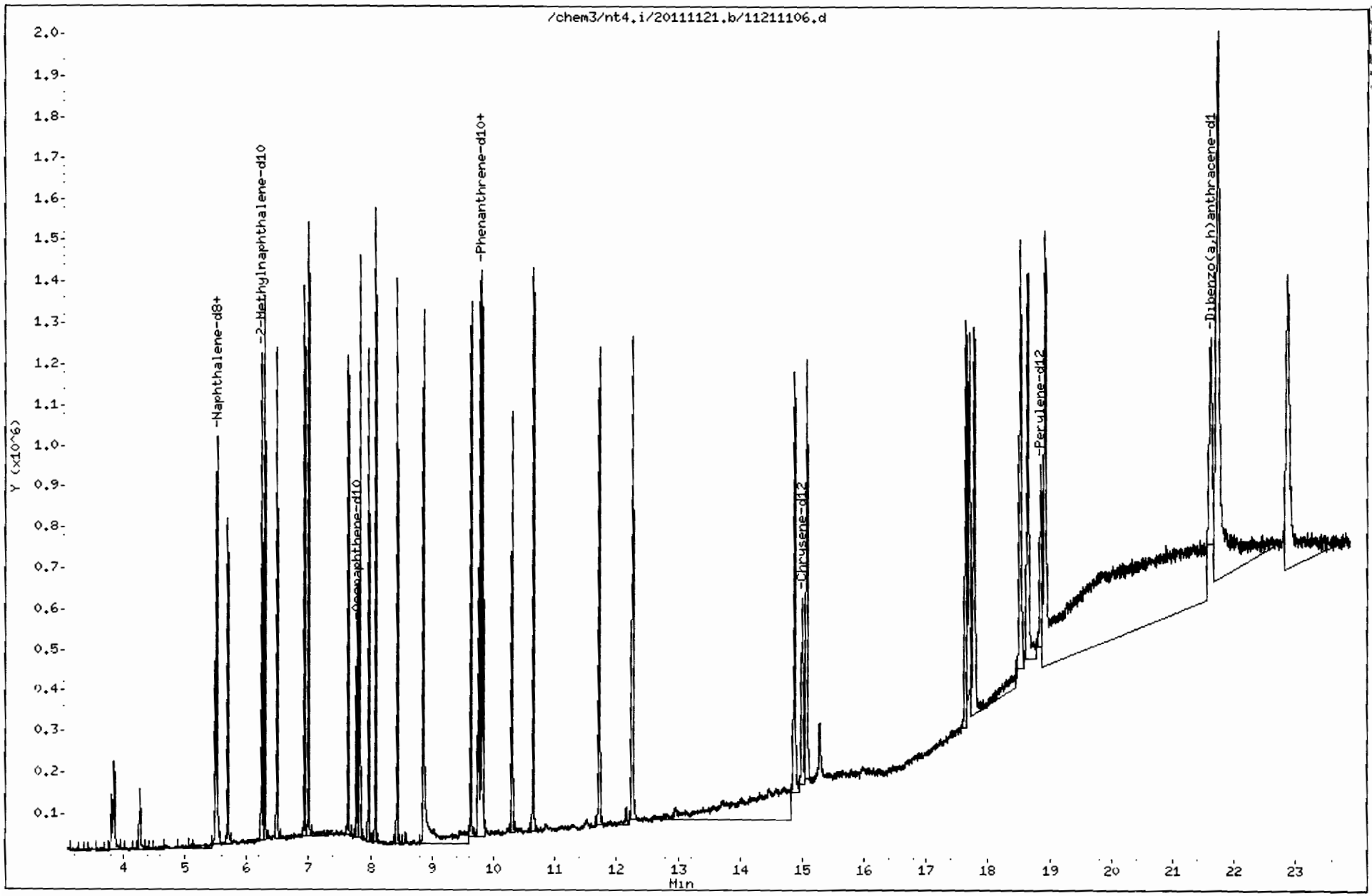
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem3/nt4.i/20111121.b/11211106.d
Date : 21-NOV-2011 13:01
Client ID: IC51121
Sample Info: IC51121,

Column phase: ZB-5ms1

Instrument: nt4.1

Operator: JZ
Column diameter: 0.25



CO-ELUTION SUMMARY FOR FILE - 11211106.d

Lab ID: IC51121, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 21-NOV-2011

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Analytical Resources, Inc.

Semivolatile Report SW846 Method 8270D

Data file : /chem3/nt4.i/20111121.b/11211107.d
Lab Smp Id: IC101121 Client Smp ID: IC101121
Inj Date : 21-NOV-2011 13:29
Operator : JZ Inst ID: nt4.i
Smp Info : IC101121,
Misc Info : 11-
Comment : 1ul Injection
Method : /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Meth Date : 21-Nov-2011 17:42 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 7 Calibration Sample, Level: 6
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: NEWSIMPNAICL.sub
Target Version: 3.50

11/21/11

AMOUNTS

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
* 6 Naphthalene-d8	136	5.494	5.499	(1.000)	307930	2.00000	
7 Naphthalene	128	5.522	5.527	(1.005)	1366928	10.0000	9.192
$ 12 2-Methylnaphthalene-d10	152	6.241	6.250	(1.136)	857761	10.0000	9.197
14 2-Methylnaphthalene	141	6.289	6.294	(1.145)	798121	10.0000	9.252
15 1-methylnaphthalene	141	6.487	6.493	(1.181)	760641	10.0000	9.007
19 Biphenyl	154	6.935	6.941	(0.891)	1122659	10.0000	9.567
20 2,6-Dimethylnaphthalene	156	7.001	7.007	(0.900)	834727	10.0000	9.566
21 Acenaphthylene	152	7.642	7.647	(0.982)	1302457	10.0000	10.13
* 22 Acenaphthene-d10	164	7.781	7.786	(1.000)	167632	2.00000	
23 Acenaphthene	153	7.828	7.833	(1.006)	853066	10.0000	9.570
11 Dibenzofuran	168	7.973	7.978	(1.025)	1230630	10.0000	9.663
24 1,6,7-Trimethylnaphthalene	170	8.083	8.092	(1.039)	808520	10.0000	10.34
25 Fluorene	166	8.437	8.442	(1.084)	980255	10.0000	9.741
27 Dibenzothiophene	184	9.638	9.644	(0.988)	1303949	10.0000	9.695
* 28 Phenanthrene-d10	188	9.755	9.761	(1.000)	280849	2.00000	
30 Phenanthrene	178	9.790	9.799	(1.004)	1386373	10.0000	9.362
31 Anthracene	178	9.828	9.833	(1.007)	1400941	10.0000	10.08
26 Carbazole	167	10.307	10.313	(1.057)	1214320	10.0000	9.428
33 1-Methylphenanthrene	192	10.651	10.657	(1.092)	1065623	10.0000	9.843
36 Fluoranthene	202	11.720	11.726	(1.201)	1509043	10.0000	9.328
39 Pyrene	202	12.263	12.268	(0.817)	1588805	10.0000	9.590
46 Benzo(a)anthracene	228	14.878	14.883	(0.992)	1486701	10.0000	9.684
* 47 Chrysene-d12	240	15.001	15.013	(1.000)	325638	2.00000	
48 Chrysene	228	15.074	15.082	(1.005)	1498193	10.0000	9.353
51 Benzo(b)fluoranthene	252	17.641	17.650	(0.936)	1674972	10.0000	9.931
52 Benzo(k)fluoranthene	252	17.701	17.707	(0.939)	1643724	10.0000	9.888
251 Benzo(j)fluoranthene	252	17.780	17.785	(0.943)	1545319	10.0000	10.56(H)

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
	55 Benzo(e)pyrene	252	18.524	18.530	(0.982)	1672042	10.0000	10.43
	54 Benzo(a)pyrene	252	18.644	18.650	(0.989)	1678371	10.0000	11.69
*	56 Perylene-d12	264	18.856	18.861	(1.000)	329532	2.00000	
	57 Perylene	252	18.928	18.931	(1.004)	1665840	10.0000	10.41
$	60 Dibenzo(a,h)anthracene-d14	292	21.609	21.615	(1.146)	1525929	10.0000	13.18
	63 Indeno(1,2,3-cd)pyrene	276	21.720	21.722	(1.152)	2202151	10.0000	11.53
	62 Dibenzo(a,h)anthracene	278	21.732	21.732	(1.153)	1838890	10.0000	12.47
	61 Benzo(g,h,i)perylene	276	22.868	22.867	(1.213)	1942561	10.0000	10.78

QC Flag Legend

H - Operator selected an alternate compound hit.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 11211107.d
Lab Smp Id: IC101121
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20111121.b/FSIMPNA1121.m
Misc Info: 11-

Calibration Date: 21-NOV-2011
Calibration Time: 11:09
Client Smp ID: IC101121
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	307930	-10.38
22 Acenaphthene-d10	195804	97902	391608	167632	-14.39
28 Phenanthrene-d10	321226	160613	642452	280849	-12.57
47 Chrysene-d12	375207	187604	750414	325638	-13.21
56 Perylene-d12	400310	200155	800620	329532	-17.68

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	5.50	5.00	6.00	5.49	-0.10
22 Acenaphthene-d10	7.79	7.29	8.29	7.78	-0.07
28 Phenanthrene-d10	9.76	9.26	10.26	9.76	-0.06
47 Chrysene-d12	15.01	14.51	15.51	15.00	-0.08
56 Perylene-d12	18.86	18.36	19.36	18.86	-0.03

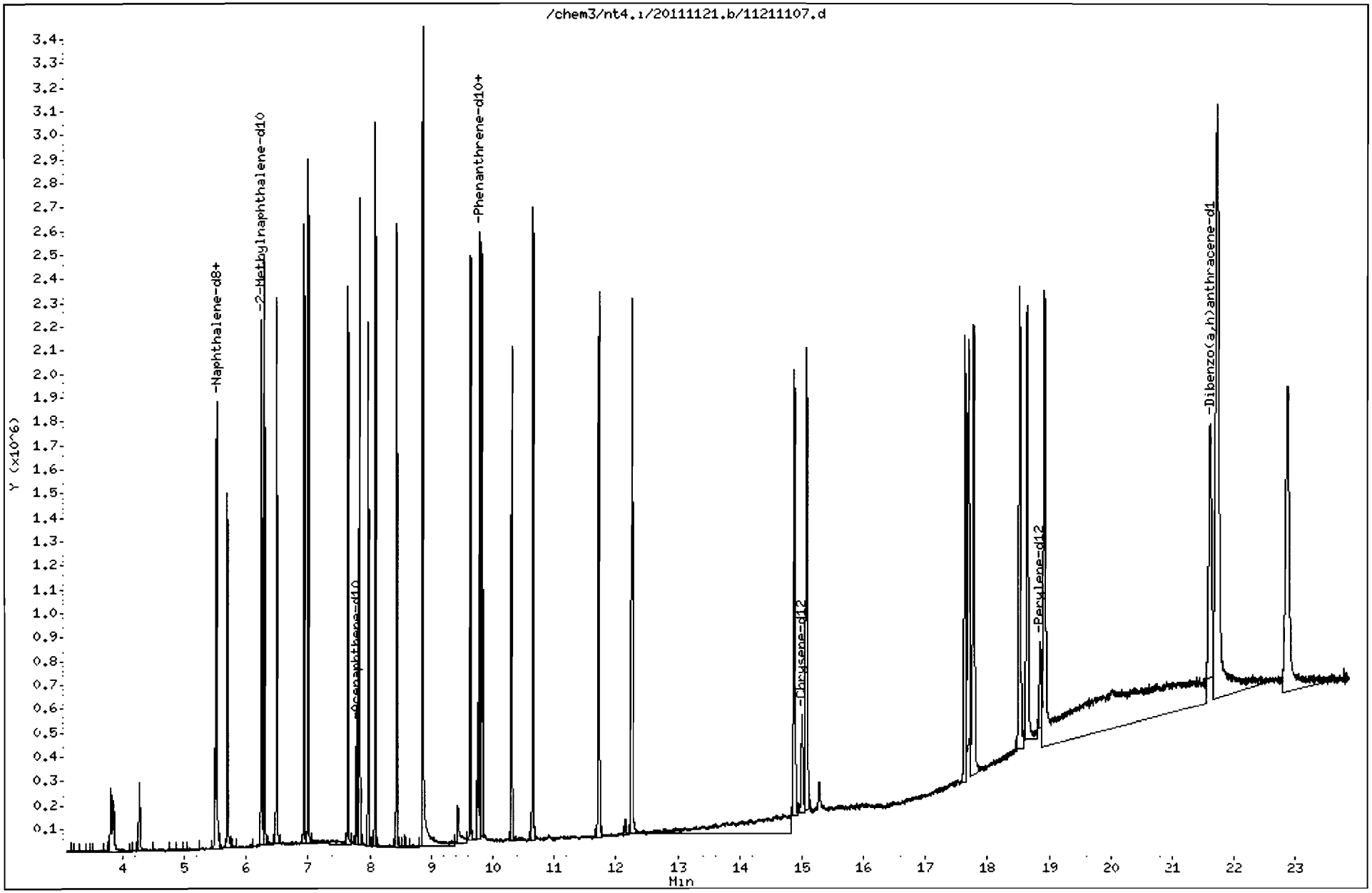
AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Data File: /chem3/nt4.1/20111121.b/11211107.d
Date : 21-NOV-2011 13:29
Client ID: IC101121
Sample Info: IC101121,

Column phase: ZB-5ms1

Instrument: nt4.1

Operator: JZ
Column diameter: 0.25



CO-ELUTION SUMMARY FOR FILE - 11211107.d

Lab ID: IC101121, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 21-NOV-2011

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

SIM PAH Raw Data
Run Logs, Continuing Calibrations, and Raw Data

ARI Job ID: UI96

Analytical Resources, Incorporated
Analytical Chemists and Consultants

GC/MS SVOA Analyst Notes / Corrective Action Log

ARI Project ID: UI96 Client ID: SLR

ARI SOP: **801S**(SIM-PNA) **802S**(Butyl Tins) **804S**(SVOA-8270D) **805S**(op-Pest)

Parameter(s): SimPAH

Instrument: NT-2 NT-4 NT-6 NT-8 NT11

Curve Date: 11/21/11 Analysis Start Date: 2/29/12

DFTPP Tune Meets Criteria?	YES / NO	Internal Standard Meets Criteria?	YES / NO
DDT Breakdown <20%?	YES / NO / NA	Method Blank In Control?	YES / NO
Peak Tailing Factor ≤2?	YES / NO / NA	LCS / LCSD Recovery In Control?	YES / NO
ICal acceptable?	YES / NO	CCal acceptable?	YES / NO
Q flag applied?	YES / NO	Q flag applied?	YES / NO
Surrogate Recovery in Control?	YES / NO	Special Analysis Criteria Met?	YES / NO / NA
Manual Integrations for ICal?	YES / NO	Manual Integrations for Samples?	Yes / NO

Detail problems, corrective actions and/or other pertinent information below (use reverse side when necessary):

Samples A + B + MB/LCS/LCSD + QLS.

C-Cal: SS, d14-Dibenzo(a,h)anthracene, recovery out of QC limit (a high bias.

Forms included.

Additional Details on Reverse: Yes / No

Analyst: [signature] **Date:** 02/29/12

Reviewer: [signature] **Date:** 2/29/12

Analytical Resources Inc.: Organics Instrument Log

NT-4 Serial No.: GC = US00010849; MS = US72821113

Date: 2/29/12 Analysis: SimPNA Analyst: [illegible]

GC Program: SimPNA3F Column No: 220747 Column Type: ZB-5ms

Instrument Tune (.U or .CT.): 112111 EM Voltage: 2929

Calibration File: 02291202 Curve Date: 11/21/11 Injection Vol.: 1µl

IS/SS	Ical/Ccal	LCS/ICV
1874-2	1896-1	

Document All Maintenance Tasks In StarLIMS

INTERNAL STANDARD SUMMARY FOR DATABATCH - /chem3/nt4.i/20120229.b

	Time	Filename	LabID	ClientId	DF									
1	1050	02291201.d	DFTPP0229	DFTPP0229	1	NO ISTDS FOUND								
2	1104	02291202 d	CC0229	CC0229	1	4.01	299173	6 22	174543	8 12	293673	12 18	322707	15 52	303257
3	1136	02291203 d	UI96MBS1	UI96MBS1	1	4 00	255697	6 21	147801	8 12	250635	12 18	281169	15 51	260095
4	1205	02291204 d	UI96LCSS1	UI96LCSS1	1	4 00	202539	6 21	121023	8 12	202594	12 17	226208	15 51	208997
5	1233	02291205 d	UI96LCSDS1	UI96LCSDS1	1	4 00	261828	6 21	150758	8 12	263382	12 17	297625	15 50	288180
6	1302	02291206 d	UI96QLS	UI96QLS	1	4 00	235038	6 21	140025	8 12	237636	12.18	267108	15 51	241938
7	1330	02291207 d	UI96A	SP-E1-8	1	4.00	219063	6.21	133604	8 12	236654	12 17	307623	15 51	328471
8	1359	02291208.d	UI96B	SP-M2-5	1	4.00	219948	6 21	136247	8 11	229501	12 17	283929	15 50	298394
9	1427	02291209 d	UJ04A	SOL-PK47-120	3	4.00	218436	6 21	127864	8.12	212373	12 17	285621	15 51	315049

02/29/12

Every line must contain information or be lined out. Make all entries legible.
Start a new page for each QC period. Document All Maintenance Tasks In StarLIMS

Q-FLAG SUMMARY FOR DATABATCH - /chem3/nt4.i/20120229.b

Instrument: nt4.i Date: 29-FEB-2012 Method: FSIMPNA1121.m

INITIAL CAL: 21-NOV-2011

Compound	%RSD or R^2
NO Q-FLAGS	

CONTINUING CAL: 29-FEB-2012

Compound	%D
Dibenzo(a,h)anthracene-d14	25.9

02/29/12

Analytical Resources, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: nt4.i Injection Date: 29-FEB-2012 11:04
Lab File ID: 02291202.d Init. Cal. Date(s): 21-NOV-2011 21-NOV-2011
Analysis Type: Init. Cal. Times: 11:09 13:29
Lab Sample ID: CC0229 Quant Type: ISTD
Method: /chem3/nt4.i/20120229.b/FSIMPNA1121.m

02/29/12

COMPOUND	RRF / AMOUNT	RF2	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
7 Naphthalene	0.96589	0.94087	0.100	-2.59078	20.00000	Averaged	
$ 12 2-Methylnaphthalene-d10	0.60573	0.57791	0.100	-4.59394	20.00000	Averaged	
14 2-Methylnaphthalene	0.56028	0.57424	0.100	2.49156	20.00000	Averaged	
15 1-methylnaphthalene	0.54850	0.54217	0.100	-1.15474	20.00000	Averaged	
21 Acenaphthylene	1.53365	1.57221	0.100	2.51479	20.00000	Averaged	
23 Acenaphthene	1.06351	1.05471	0.100	-0.82661	20.00000	Averaged	
11 Dibenzofuran	1.51949	1.45312	0.100	-4.36756	20.00000	Averaged	
25 Fluorene	1.20068	1.14299	0.100	-4.80517	20.00000	Averaged	
30 Phenanthrene	1.05457	0.96508	0.100	-8.48629	20.00000	Averaged	
31 Anthracene	0.98943	0.93096	0.100	-5.90917	20.00000	Averaged	
36 Fluoranthene	1.15209	1.04207	0.100	-9.54913	20.00000	Averaged	
39 Pyrene	1.01752	1.01041	0.100	-0.69904	20.00000	Averaged	
46 Benzo(a)anthracene	0.94288	0.85671	0.100	-9.13837	20.00000	Averaged	
48 Chrysene	0.98384	0.90242	0.100	-8.27544	20.00000	Averaged	
51 Benzo(b)fluoranthene	1.02366	0.88630	0.100	-13.41834	20.00000	Averaged	
52 Benzo(k)fluoranthene	1.00892	1.03734	0.100	2.81634	20.00000	Averaged	
251 Benzo(j)fluoranthene	0.88839	0.89370	0.100	0.59846	20.00000	Averaged	
54 Benzo(a)pyrene	0.87133	0.94561	0.100	8.52475	20.00000	Averaged	
63 Indeno(1,2,3-cd)pyrene	1.15956	1.23200	0.100	6.24681	20.00000	Averaged	
$ 60 Dibenzo(a,h)anthracene-d14	0.70272	0.88489	0.100	25.92388	20.00000	Averaged	<-
62 Dibenzo(a,h)anthracene	0.89499	1.00340	0.100	12.11318	20.00000	Averaged	
61 Benzo(g,h,i)perylene	1.09408	1.05653	0.100	-3.43151	20.00000	Averaged	
57 Perylene	0.97154	0.96413	0.100	-0.76283	20.00000	Averaged	

Analytical Resources, Inc.

Semivolatile Report 801S Method SIMPNA

Data file : /chem3/nt4.i/20120229.b/02291202.d
Lab Smp Id: CC0229 Client Smp ID: CC0229
Inj Date : 29-FEB-2012 11:04
Operator : JZ Inst ID: nt4.i
Smp Info : CC0229
Misc Info : 12-
Comment : 1ul Injection
Method : /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Meth Date : 29-Feb-2012 12:20 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 2 Continuing Calibration Sample
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnax.sub
Target Version: 3.50

JZ 02/29/12

AMOUNTS

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CAL-AMT (ug/mL)	ON-COL (ug/mL)
*	6 Naphthalene-d8	136	4.008	4.008	(1.000)	299173	2.00000	
	7 Naphthalene	128	4.033	4.033	(1.006)	351853	2.50000	2.435
$	12 2-Methylnaphthalene-d10	152	4.740	4.740	(1.183)	216117	2.50000	2.385
	14 2-Methylnaphthalene	141	4.781	4.781	(1.193)	214748	2.50000	2.562
	15 1-methylnaphthalene	141	4.967	4.967	(1.239)	202752	2.50000	2.471
	21 Acenaphthylene	152	6.080	6.080	(0.978)	343024	2.50000	2.563
*	22 Acenaphthene-d10	164	6.219	6.219	(1.000)	174543	2.00000	
	23 Acenaphthene	153	6.263	6.263	(1.007)	230117	2.50000	2.479
	11 Dibenzofuran	168	6.408	6.408	(1.030)	317041	2.50000	2.391
	25 Fluorene	166	6.859	6.859	(1.103)	249375	2.50000	2.380
*	28 Phenanthrene-d10	188	8.124	8.124	(1.000)	293673	2.00000	
	30 Phenanthrene	178	8.159	8.159	(1.004)	354272	2.50000	2.288
	31 Anthracene	178	8.190	8.190	(1.008)	341746	2.50000	2.352
	36 Fluoranthene	202	9.679	9.679	(1.191)	382536	2.50000	2.261
	39 Pyrene	202	10.055	10.055	(0.825)	407582	2.50000	2.483
	46 Benzo(a)anthracene	228	12.089	12.089	(0.992)	345584	2.50000	2.272
*	47 Chrysene-d12	240	12.184	12.184	(1.000)	322707	2.00000	
	48 Chrysene	228	12.241	12.241	(1.005)	364022	2.50000	2.293
	51 Benzo(b)fluoranthene	252	14.442	14.442	(0.931)	335970	2.50000	2.165
	52 Benzo(k)fluoranthene	252	14.499	14.499	(0.934)	393224	2.50000	2.570
	251 Benzo(j)fluoranthene	252	14.559	14.559	(0.938)	338777	2.50000	2.515
	54 Benzo(a)pyrene	252	15.323	15.323	(0.987)	358454	2.50000	2.713
*	56 Perylene-d12	264	15.518	15.518	(1.000)	303257	2.00000	
	63 Indeno(1,2,3-cd)pyrene	276	17.698	17.698	(1.140)	467016	2.50000	2.656
$	60 Dibenzo(a,h)anthracene-d14	292	17.657	17.657	(1.138)	335437	2.50000	3.148
	62 Dibenzo(a,h)anthracene	278	17.733	17.733	(1.143)	380360	2.50000	2.803
	61 Benzo(g,h,i)perylene	276	18.354	18.354	(1.183)	400501	2.50000	2.414

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	AMOUNTS CAL-AMT (ug/mL)	AMOUNTS ON-COL (ug/mL)
57 Perylene	252	15.578	15.578	(1.004)	365473	2.50000	2.481

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 02291202.d
Lab Smp Id: CC0229
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-

Calibration Date: 29-FEB-2012
Calibration Time: 11:04
Client Smp ID: CC0229
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	299173	-12.93
22 Acenaphthene-d10	195804	97902	391608	174543	-10.86
28 Phenanthrene-d10	321226	160613	642452	293673	-8.58
47 Chrysene-d12	375207	187604	750414	322707	-13.99
56 Perylene-d12	400310	200155	800620	303257	-24.24

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	4.01	3.51	4.51	4.01	0.00
22 Acenaphthene-d10	6.22	5.72	6.72	6.22	0.00
28 Phenanthrene-d10	8.12	7.62	8.62	8.12	0.00
47 Chrysene-d12	12.18	11.68	12.68	12.18	0.00
56 Perylene-d12	15.52	15.02	16.02	15.52	0.00

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.

Data File: /chem3/nt4.i/20120229.b/02291202.d

Date : 29-FEB-2012 11:04

Client ID: CC0229

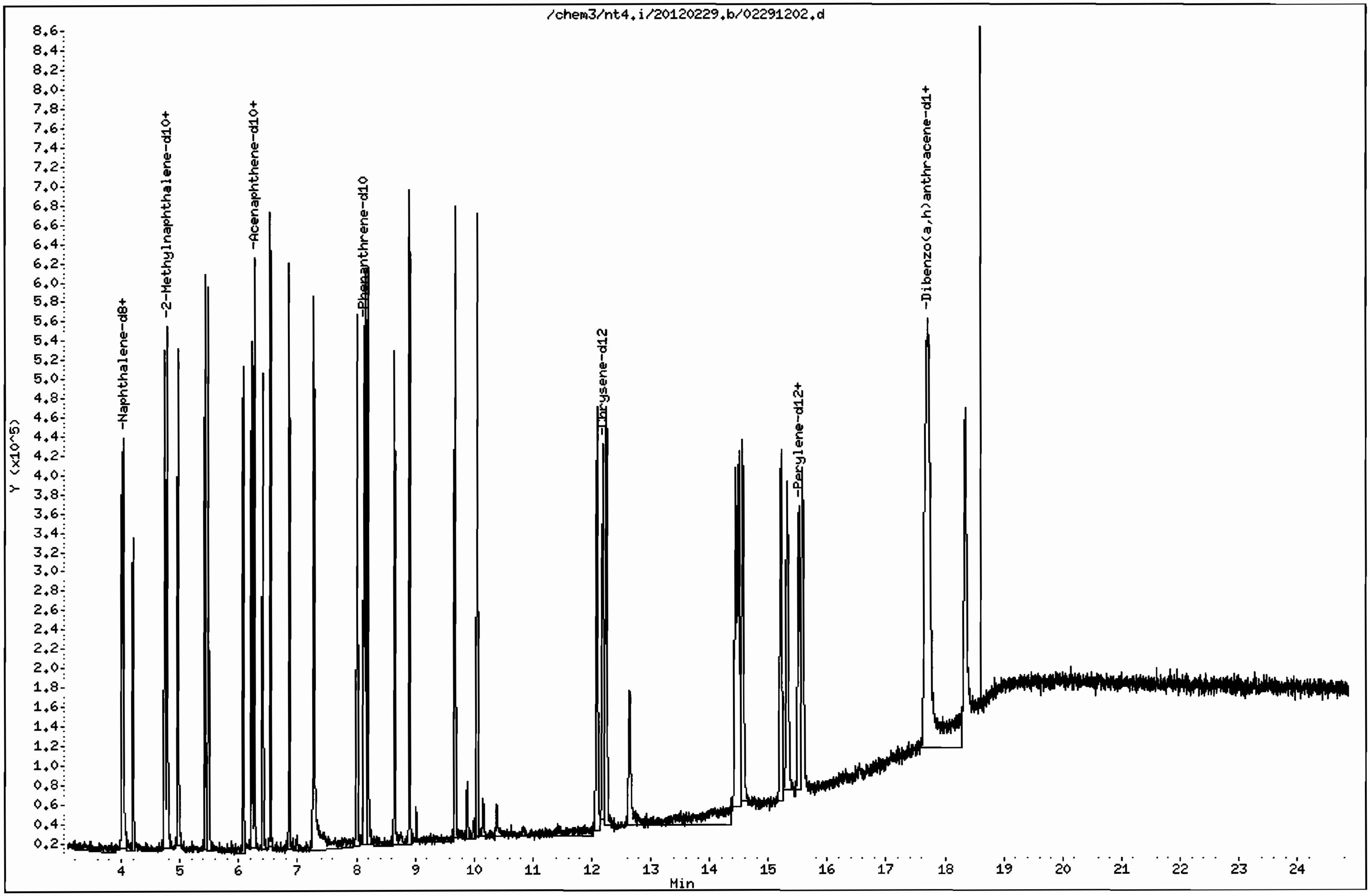
Sample Info: CC0229

Column phase: ZB-35

Instrument: nt4.i

Operator: JZ

Column diameter: 0.25



CO-ELUTION SUMMARY FOR FILE - 02291202.d

Lab ID: CC0229, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 29-FEB-2012

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Data File: /chem3/nt4.i/20120229.b/tune.b/02291201.d

Date : 29-FEB-2012 10:50

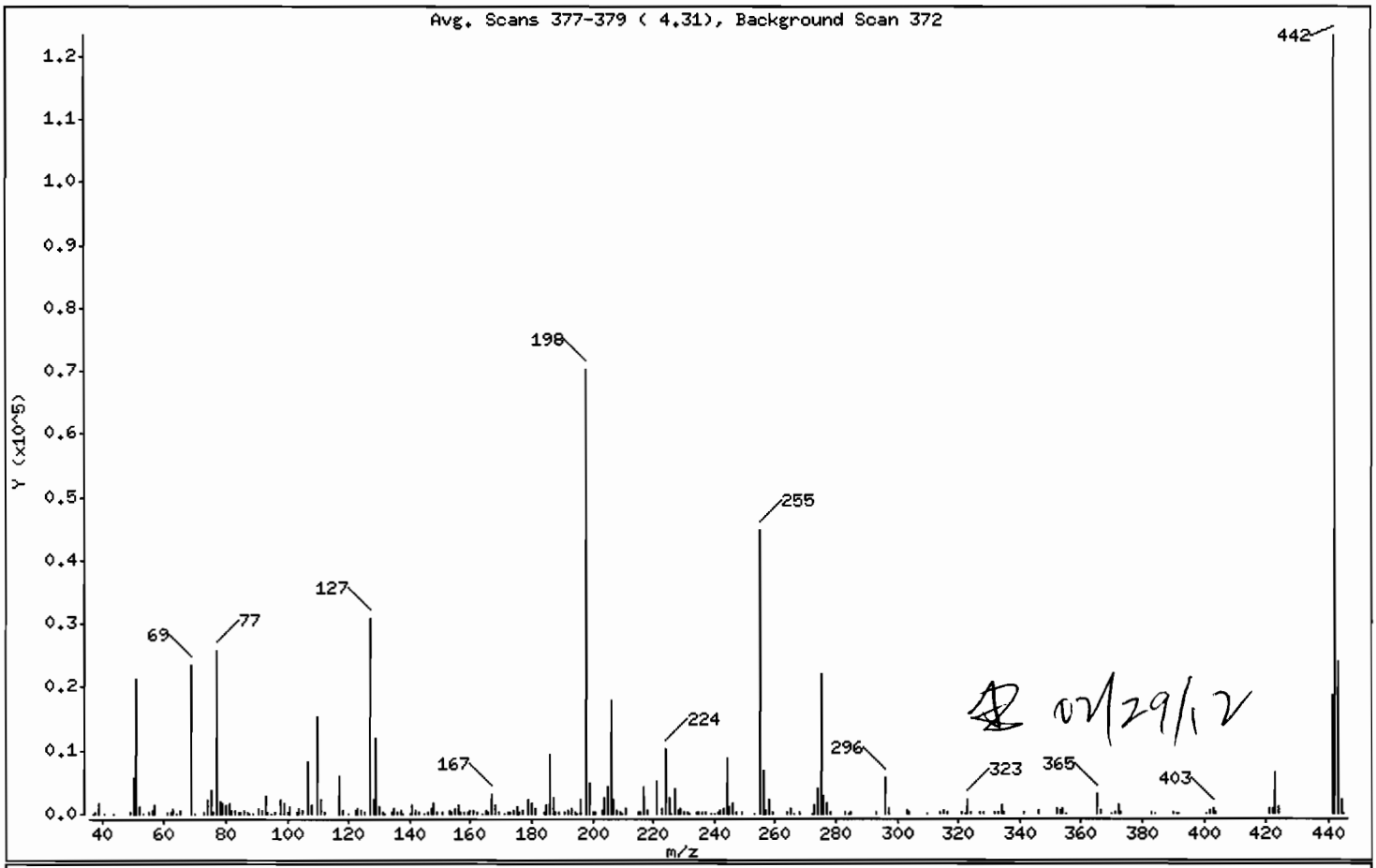
Client ID: DFTPP0229 Instrument: nt4.i

Sample Info: DFTPP0229

Operator: JZ

Column phase: ZB-35 Column diameter: 0.25

1 dftpp



m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
198	Base Peak, 100% relative abundance	100.00
51	10.00 - 80.00% of mass 198	30.00
68	Less than 2.00% of mass 69	0.00 (0.00)
69	Mass 69 relative abundance	33.29
70	Less than 2.00% of mass 69	0.09 (0.26)
127	10.00 - 80.00% of mass 198	43.82
197	Less than 2.00% of mass 198	0.00
199	5.00 - 9.00% of mass 198	6.67
275	10.00 - 60.00% of mass 198	31.42
365	Greater than 1.00% of mass 198	4.51
441	0.01 - 24.00% of mass 442	26.44 (15.11)
442	50.00 - 200.00% of mass 198	175.05
443	15.00 - 24.00% of mass 442	34.34 (19.61)

Date : 29-FEB-2012 10:50

Client ID: DFTPP0229 Instrument: nt4.i

Sample Info: DFTPP0229

Operator: JZ

Column phase: ZB-35 Column diameter: 0.25

Data File: 02291201.d
Spectrum: Avg. Scans 377-379 (4.31), Background Scan 372
Location of Maximum: 442.00
Number of points: 232

m/z	Y	m/z	Y	m/z	Y	m/z	Y
37.00	66	123.00	895	194.00	167	276.00	2950
38.00	347	124.00	428	195.00	73	277.00	1708
39.00	1710	125.00	374	196.00	2237	278.00	253
41.00	63	127.00	30872	198.00	70456	283.00	227
44.00	118	128.00	2329	199.00	4699	284.00	71
49.00	198	129.00	11767	200.00	409	285.00	326
50.00	5632	130.00	998	201.00	399	293.00	403
51.00	21136	131.00	152	203.00	473	296.00	5552
52.00	1083	132.00	66	204.00	2447	297.00	827
53.00	69	134.00	269	205.00	4192	303.00	683
55.00	151	135.00	875	206.00	17968	304.00	202
56.00	634	136.00	368	207.00	2342	310.00	51
57.00	1462	137.00	516	208.00	606	314.00	341
61.00	307	138.00	63	209.00	151	315.00	654
62.00	341	140.00	61	210.00	103	316.00	390
63.00	992	141.00	1457	211.00	772	321.00	199
64.00	91	142.00	499	215.00	156	322.00	58
65.00	560	143.00	284	216.00	178	323.00	2237
69.00	23456	145.00	65	217.00	4339	324.00	405
70.00	61	146.00	290	218.00	623	327.00	407
73.00	169	147.00	769	221.00	4979	328.00	166
74.00	2272	148.00	1608	223.00	959	332.00	162
75.00	3663	149.00	336	224.00	10328	333.00	231
76.00	194	151.00	164	225.00	2665	334.00	1415
77.00	25832	153.00	491	226.00	136	335.00	377
78.00	1864	154.00	380	227.00	3999	341.00	219
79.00	1771	155.00	963	228.00	622	346.00	572
80.00	1299	156.00	1316	229.00	864	352.00	761
81.00	1836	157.00	287	230.00	156	353.00	560
82.00	475	158.00	233	231.00	362	354.00	813
83.00	488	159.00	174	232.00	58	355.00	109
84.00	190	160.00	502	234.00	328	365.00	3179
85.00	283	161.00	698	235.00	320	366.00	478
86.00	606	162.00	167	236.00	156	370.00	52
87.00	205	164.00	57	237.00	338	371.00	175

Data File: /chem3/nt4.i/20120229.b/tune.b/02291201.d

Date : 29-FEB-2012 10:50

Client ID: DFTPP0229

Instrument: nt4.i

Sample Info: DFTPP0229

Operator: JZ

Column phase: ZB-35

Column diameter: 0.25

Data File: 02291201.d
Spectrum: Avg. Scans 377-379 (4.31), Background Scan 372
Location of Maximum: 442.00
Number of points: 232

m/z	Y	m/z	Y	m/z	Y	m/z	Y
88.00	51	165.00	674	239.00	128	372.00	1339
89.00	57	166.00	347	240.00	59	373.00	371
91.00	788	167.00	3015	241.00	237	383.00	391
92.00	579	168.00	1408	242.00	561	384.00	58
93.00	2848	169.00	236	243.00	757	390.00	196
94.00	180	171.00	127	244.00	8931	391.00	56
95.00	51	172.00	243	245.00	1149	392.00	56
96.00	146	173.00	341	246.00	1564	401.00	58
98.00	2165	174.00	694	247.00	248	402.00	617
99.00	1681	175.00	1170	249.00	312	403.00	910
100.00	159	176.00	416	253.00	133	404.00	337
101.00	1039	177.00	566	255.00	44928	421.00	851
103.00	349	179.00	2183	256.00	6779	422.00	814
104.00	713	180.00	1691	257.00	514	423.00	6553
105.00	604	181.00	714	258.00	2404	424.00	1230
107.00	8196	184.00	361	259.00	370	441.00	18632
108.00	1349	185.00	1348	264.00	201	442.00	123336
110.00	15428	186.00	9413	265.00	980	443.00	24192
111.00	2363	187.00	2647	266.00	83	444.00	2170
112.00	239	188.00	224	268.00	178	445.00	73
117.00	5864	189.00	423	272.00	72		
118.00	495	191.00	240	273.00	1492		
120.00	56	192.00	649	274.00	3864		
122.00	527	193.00	777	275.00	22136		

Data File: /chem3/nt4.i/20120229.b/tune.b/02291201.d

Date : 29-FEB-2012 10:50

Client ID: DFTPP0229

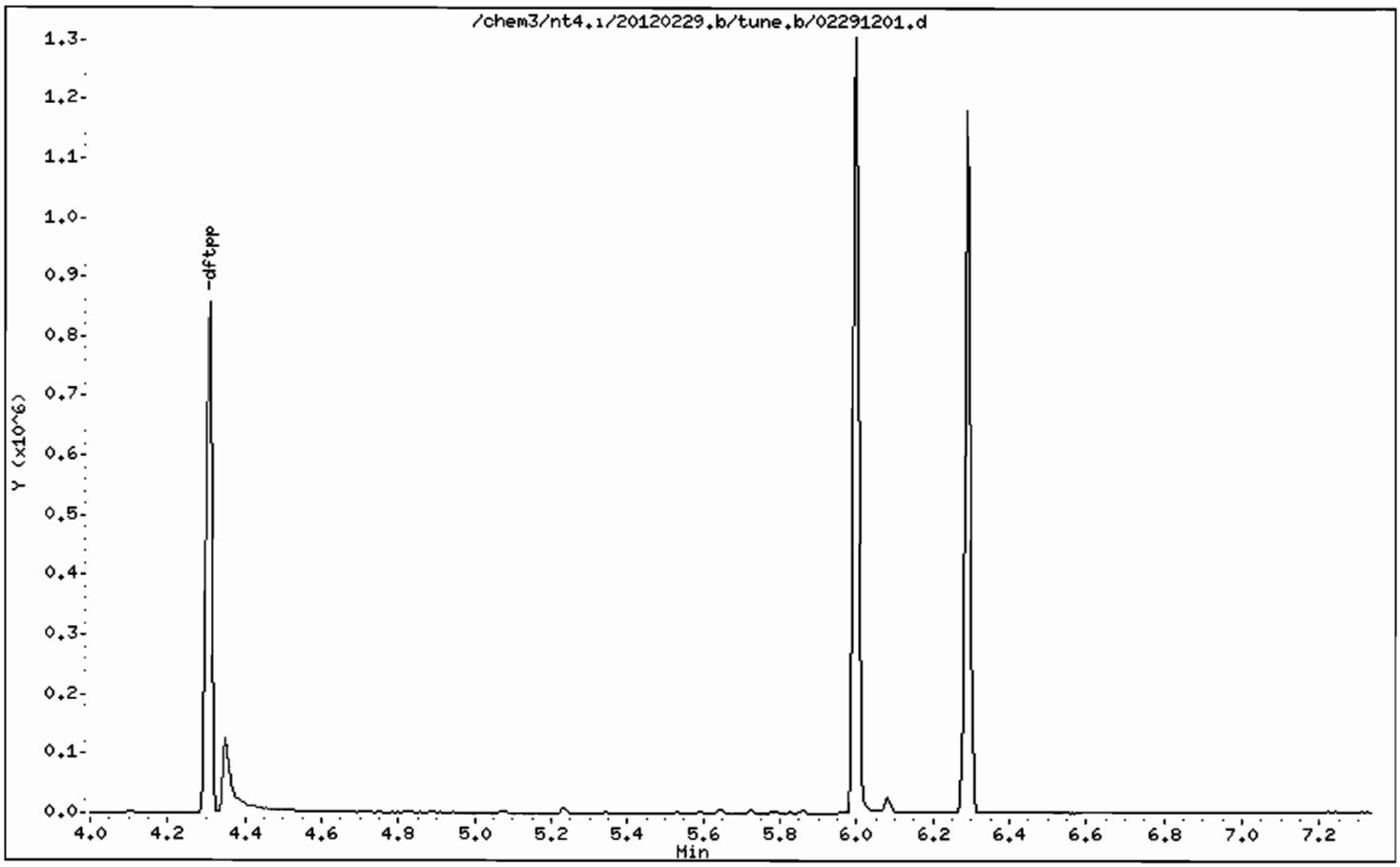
Instrument: nt4.i

Sample Info: DFTPP0229

Operator: JZ

Column phase: ZB-35

Column diameter: 0.25



Analytical Resources Inc.
ABN by sw846 8270C
DDT Breakdown Report

Data file: /chem3/nt4.i/20120229.b/ddt.b/02291201.d ARI ID: DDT
Method: /chem3/nt4.i/20120229.b/ddt.b/sw846ddt.m Misc: 12-
Analysis Date: 29-FEB-2012 10:50 Instrument: nt4.i

COMPOUND	RT	AREA
Pentachlorophenol	4.350	28091
Benzidine	6.001	517019
4,4'-DDE	5.725	733
4,4'-DDD	6.083	5675
4,4'-DDT	6.289	252307

$$\text{DDT Percent Breakdown} = \frac{(\text{DDE Area} + \text{DDD Area}) * 100}{(\text{DDE Area} + \text{DDD Area} + \text{DDT Area})}$$

$$\text{DDT Percent Breakdown} = \frac{(\ 733 + 5675) * 100}{(\ 733 + 5675 + 252307)}$$

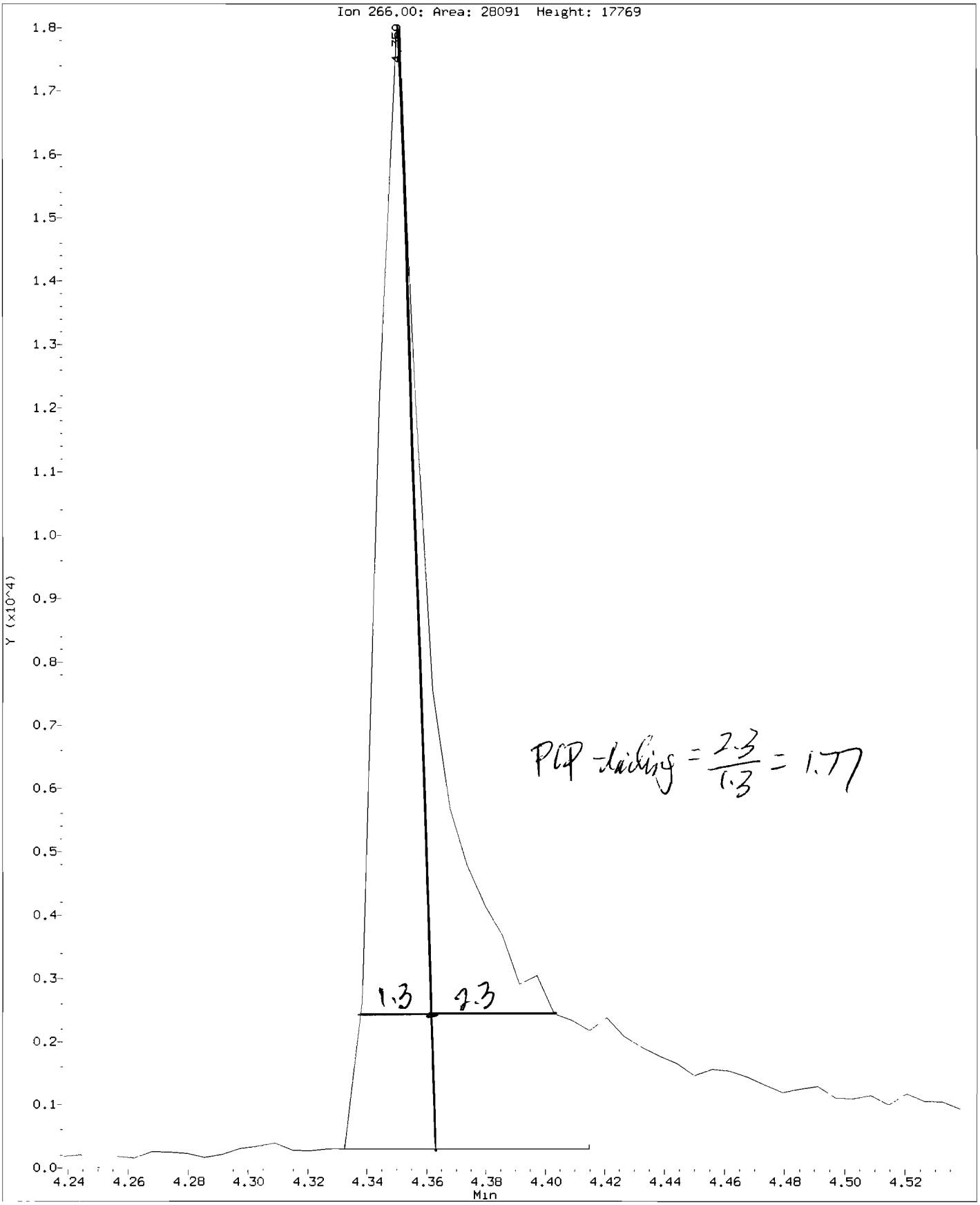
DDT Percent Breakdown = 2.5 %

ok

02/29/12

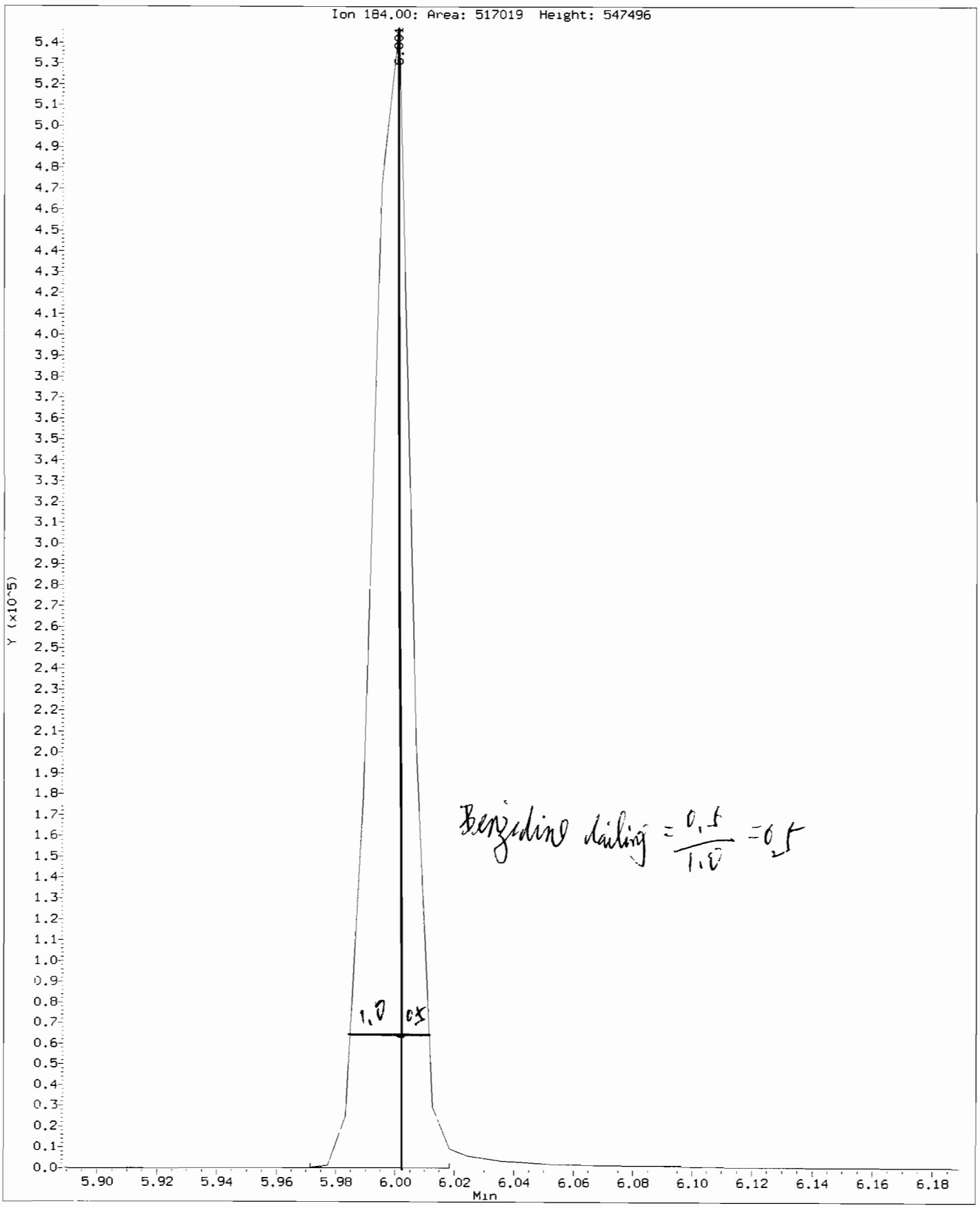
Data File: /chem3/nt4.1/20120229.b/ddt.b/02291201.d
Injection Date: 29-FEB-2012 10:50
Instrument: nt4.1
Client Sample ID: DDT0229

Compound: Pentachlorophenol
CAS Number: 87-86-5



Data File: /chem3/nt4.1/20120229.b/ddt.b/02291201.d
Injection Date: 29-FEB-2012 10:50
Instrument: nt4.1
Client Sample ID: DDT0229

Compound: Benzidine
CAS Number:



MANUAL INTEGRATION SUMMARY FOR DATABATCH - /chem3/nt4.i/20120229.b

ARI Job No.: CC02 Method: FSIMPNA1121.m Instrument: nt4.i Date: 29-FEB-2012

AR 02/29/12

Time	Filename	LabID	ClientId	DF	Manually Integrated Compounds
1104	02291202.d	CC0229	CC0229	1	NO MANUAL INTEGRATION
1136	02291203.d	UI96MBS1	UI96MBS1	1	NO MANUAL INTEGRATION
1205	02291204.d	UI96LCSS1	UI96LCSS1	1	NO MANUAL INTEGRATION
1233	02291205.d	UI96LCSDS1	UI96LCSDS1	1	NO MANUAL INTEGRATION
1302	02291206.d	UI96QLS	UI96QLS	1	Phenanthrene, Benzo(g,h,i)perylene,
1330	02291207.d	UI96A	SP-E1-8	1	Anthracene,
1359	02291208.d	UI96B	SP-M2-5	1	Anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(j)fluoranthene,

Analytical Resources, Inc.

Semivolatile Report 801S Method SIMPNA

Data file : /chem3/nt4.i/20120229.b/02291203.d
Lab Smp Id: UI96MBS1 Client Smp ID: UI96MBS1
Inj Date : 29-FEB-2012 11:36
Operator : JZ Inst ID: nt4.i
Smp Info : UI96MBS1,
Misc Info : 12-3080
Comment : 1ul Injection
Method : /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Meth Date : 29-Feb-2012 12:43 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 3 QC Sample: BLANK
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnax.sub
Target Version: 3.50

02/29/12

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	500.00000	Volume of final extract (uL)
Ws	10.00000	Weight of sample extracted (g)
M	0.00000	% Moisture

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
*	6 Naphthalene-d8	136	4.003	4.008	(1.000)	255697	2.00000	
	7 Naphthalene	128	Compound Not Detected.					
$	12 2-Methylnaphthalene-d10	152	4.738	4.740	(1.184)	128383	1.65780	82.89
	14 2-Methylnaphthalene	141	Compound Not Detected.					
	15 1-methylnaphthalene	141	Compound Not Detected.					
	21 Acenaphthylene	152	Compound Not Detected.					
*	22 Acenaphthene-d10	164	6.214	6.219	(1.000)	147801	2.00000	
	23 Acenaphthene	153	Compound Not Detected.					
	11 Dibenzofuran	168	Compound Not Detected.					
	25 Fluorene	166	Compound Not Detected.					
*	28 Phenanthrene-d10	188	8.122	8.124	(1.000)	250635	2.00000	
	30 Phenanthrene	178	Compound Not Detected.					
	31 Anthracene	178	Compound Not Detected.					
	36 Fluoranthene	202	Compound Not Detected.					
	39 Pyrene	202	Compound Not Detected.					

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
46	Benzo(a)anthracene	228	Compound Not Detected.					
* 47	Chrysene-d12	240	12.182	12.184	(1.000)	281169	2.00000	
48	Chrysene	228	Compound Not Detected.					
51	Benzo(b)fluoranthene	252	Compound Not Detected.					
52	Benzo(k)fluoranthene	252	Compound Not Detected.					
251	Benzo(j)fluoranthene	252	Compound Not Detected.					
54	Benzo(a)pyrene	252	Compound Not Detected.					
* 56	Perylene-d12	264	15.513	15.518	(1.000)	260095	2.00000	
63	Indeno(1,2,3-cd)pyrene	276	Compound Not Detected.					
$ 60	Dibenzo(a,h)anthracene-d14	292	17.652	17.657	(1.138)	263898	2.88770	144.4
62	Dibenzo(a,h)anthracene	278	Compound Not Detected.					
61	Benzo(g,h,i)perylene	276	Compound Not Detected.					
57	Perylene	252	Compound Not Detected.					

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 02291203.d
Lab Smp Id: UI96MBS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3080

Calibration Date: 29-FEB-2012
Calibration Time: 11:04
Client Smp ID: UI96MBS1
Level: LOW
Sample Type: Solid

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	255697	-25.58
22 Acenaphthene-d10	195804	97902	391608	147801	-24.52
28 Phenanthrene-d10	321226	160613	642452	250635	-21.98
47 Chrysene-d12	375207	187604	750414	281169	-25.06
56 Perylene-d12	400310	200155	800620	260095	-35.03

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	4.01	3.51	4.51	4.00	-0.12
22 Acenaphthene-d10	6.22	5.72	6.72	6.21	-0.08
28 Phenanthrene-d10	8.12	7.62	8.62	8.12	-0.02
47 Chrysene-d12	12.18	11.68	12.68	12.18	-0.01
56 Perylene-d12	15.52	15.02	16.02	15.51	-0.03

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: SLR
Sample Matrix: SOLID
Lab Smp Id: UI96MBS1
Level: LOW
Data Type: MS DATA
SpikeList File: pnalcss.spk
Sublist File: pnax.sub
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3080

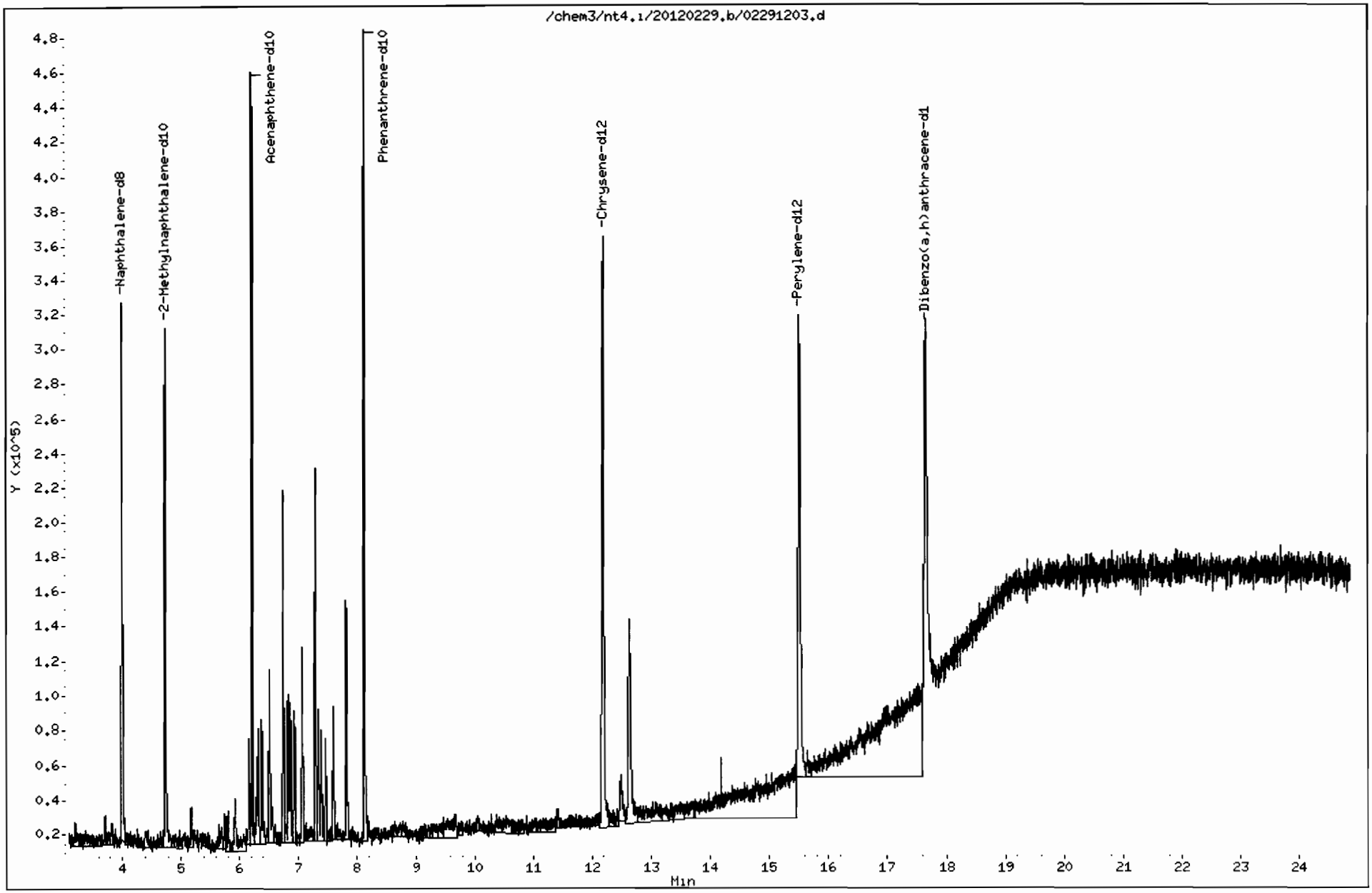
Client SDG: UI96
Fraction: SV
Client Smp ID: UI96MBS1
Operator: JZ
SampleType: BLANK
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS	
$ 12 2-Methylnaphthalen	150.0	82.89	55.26	35-100	
$ 60 Dibenzo(a,h)anthra	150.0	144.4	96.26	37-120	Q

02/29/12

Data File: /chem3/nt4.1/20120229.b/02291203.d
Date : 29-FEB-2012 11:36
Client ID: UI96MBS1
Sample Info: UI96MBS1,
Volume Injected (uL): 1.0
Column phase: ZB-35

Instrument: nt4.1
Operator: JZ
Column diameter: 0.25



CO-ELUTION SUMMARY FOR FILE - 02291203.d

Lab ID: UI96MBS1, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 29-FEB-2012

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Analytical Resources, Inc.

Semivolatile Report 801S Method SIMPNA

Data file : /chem3/nt4.i/20120229.b/02291204.d
Lab Smp Id: UI96LCSS1 Client Smp ID: UI96LCSS1
Inj Date : 29-FEB-2012 12:05
Operator : JZ Inst ID: nt4.i
Smp Info : UI96LCSS1,
Misc Info : 12-3080
Comment : 1ul Injection
Method : /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Meth Date : 29-Feb-2012 12:43 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 4 QC Sample: LCS
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnax.sub
Target Version: 3.50

02/29/12

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	500.00000	Volume of final extract (uL)
Ws	10.00000	Weight of sample extracted (g)
M	0.00000	% Moisture

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
*	6 Naphthalene-d8	136	3.999	4.008	(1.000)	202539	2.00000	
	7 Naphthalene	128	4.027	4.033	(1.007)	153107	1.56526	78.26
$	12 2-Methylnaphthalene-d10	152	4.730	4.740	(1.183)	103513	1.68747	84.37
	14 2-Methylnaphthalene	141	4.775	4.781	(1.194)	86174	1.51876	75.94
	15 1-methylnaphthalene	141	4.957	4.967	(1.240)	89075	1.60361	80.18
	21 Acenaphthylene	152	6.068	6.080	(0.977)	146960	1.58357	79.18
*	22 Acenaphthene-d10	164	6.210	6.219	(1.000)	121023	2.00000	
	23 Acenaphthene	153	6.254	6.263	(1.007)	103360	1.60611	80.31
	11 Dibenzofuran	168	6.399	6.408	(1.030)	142710	1.55210	77.60
	25 Fluorene	166	6.847	6.859	(1.103)	125529	1.72774	86.39
*	28 Phenanthrene-d10	188	8.118	8.124	(1.000)	202594	2.00000	
	30 Phenanthrene	178	8.147	8.159	(1.003)	215862	2.02070	101.0
	31 Anthracene	178	8.181	8.190	(1.008)	193420	1.92984	96.49
	36 Fluoranthene	202	9.670	9.679	(1.191)	246043	2.10828	105.4
	39 Pyrene	202	10.046	10.055	(0.825)	252191	2.19134	109.6

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
46	Benzo(a)anthracene	228	12.074	12.089	(0.992)	223220	2.09315	104.7
* 47	Chrysene-d12	240	12.175	12.184	(1.000)	226208	2.00000	
48	Chrysene	228	12.232	12.241	(1.005)	244820	2.20012	110.0
51	Benzo(b)fluoranthene	252	14.430	14.442	(0.931)	270381	2.52762	126.4
52	Benzo(k)fluoranthene	252	14.484	14.499	(0.934)	270641	2.56700	128.4
251	Benzo(j)fluoranthene	252	Compound Not Detected.					
54	Benzo(a)pyrene	252	15.313	15.323	(0.988)	199487	2.19089	109.5
* 56	Perylene-d12	264	15.506	15.518	(1.000)	208997	2.00000	
63	Indeno(1,2,3-cd)pyrene	276	17.692	17.698	(1.141)	297327	2.45375	122.7
$ 60	Dibenzo(a,h)anthracene-d14	292	17.654	17.657	(1.139)	233795	3.18378	159.2
62	Dibenzo(a,h)anthracene	278	17.717	17.733	(1.143)	241006	2.57691	128.8
61	Benzo(g,h,i)perylene	276	18.342	18.354	(1.183)	265747	2.32440	116.2
57	Perylene	252	15.566	15.578	(1.004)	220884	2.17568	108.8

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 02291204.d
Lab Smp Id: UI96LCSS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3080

Calibration Date: 29-FEB-2012
Calibration Time: 11:04
Client Smp ID: UI96LCSS1
Level: LOW
Sample Type: Solid

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	202539	-41.05
22 Acenaphthene-d10	195804	97902	391608	121023	-38.19
28 Phenanthrene-d10	321226	160613	642452	202594	-36.93
47 Chrysene-d12	375207	187604	750414	226208	-39.71
56 Perylene-d12	400310	200155	800620	208997	-47.79

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	4.01	3.51	4.51	4.00	-0.23
22 Acenaphthene-d10	6.22	5.72	6.72	6.21	-0.15
28 Phenanthrene-d10	8.12	7.62	8.62	8.12	-0.07
47 Chrysene-d12	12.18	11.68	12.68	12.17	-0.08
56 Perylene-d12	15.52	15.02	16.02	15.51	-0.08

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: SLR
Sample Matrix: SOLID
Lab Smp Id: UI96LCSS1
Level: LOW
Data Type: MS DATA
SpikeList File: pnalcss.spk
Sublist File: pnax.sub
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3080

Client SDG: UI96
Fraction: SV
Client Smp ID: UI96LCSS1
Operator: JZ
SampleType: LCS
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
7 Naphthalene	150.0	78.26	52.18	37-100
14 2-Methylnaphthalen	150.0	75.94	50.63	37-100
15 1-methylnaphthalen	150.0	80.18	53.45	30-160
21 Acenaphthylene	150.0	79.18	52.79	35-100
23 Acenaphthene	150.0	80.31	53.54	39-100
11 Dibenzofuran	150.0	77.60	51.74	39-100
25 Fluorene	150.0	86.39	57.59	42-100
30 Phenanthrene	150.0	101.0	67.36	47-100
31 Anthracene	150.0	96.49	64.33	41-106
36 Fluoranthene	150.0	105.4	70.28	52-109
39 Pyrene	150.0	109.6	73.04	47-111
46 Benzo(a)anthracene	150.0	104.7	69.77	47-114
48 Chrysene	150.0	110.0	73.34	51-106
51 Benzo(b)fluoranthe	150.0	126.4	84.25	30-160
52 Benzo(k)fluoranthe	150.0	128.4	85.57	30-160
54 Benzo(a)pyrene	150.0	109.5	73.03	44-111
63 Indeno(1,2,3-cd)py	150.0	122.7	81.79	41-114
62 Dibenzo(a,h)anthra	150.0	128.8	85.90	42-118
61 Benzo(g,h,i)peryle	150.0	116.2	77.48	37-115
57 Perylene	150.0	108.8	72.52	30-160

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS	
$ 12 2-Methylnaphthalen	150.0	84.37	56.25	35-100	
$ 60 Dibenzo(a,h)anthra	150.0	159.2	106.13	37-120	Q

02/29/12

Data File: /chem3/nt4.1/20120229.b/02291204.d

Date : 29-FEB-2012 12:05

Client ID: UI96LCSS1

Sample Info: UI96LCSS1,

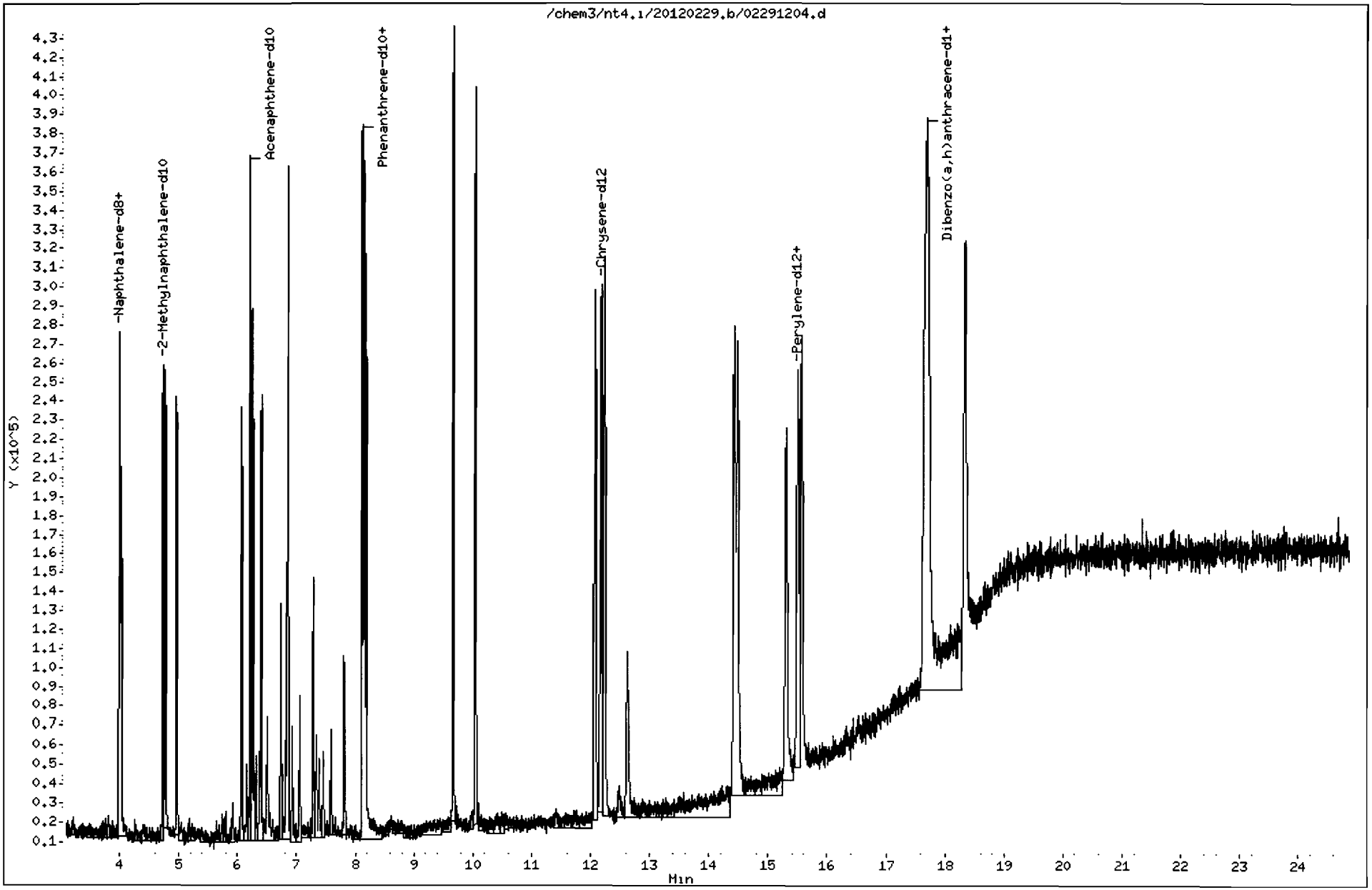
Volume Injected (uL): 1.0

Column phase: ZB-35

Instrument: nt4.1

Operator: JZ

Column diameter: 0.25



CO-ELUTION SUMMARY FOR FILE - 02291204.d

Lab ID: UI96LCSS1, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 29-FEB-201

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Analytical Resources, Inc.

Semivolatile Report 801S Method SIMPNA

Data file : /chem3/nt4.i/20120229.b/02291205.d
Lab Smp Id: UI96LCSDS1 Client Smp ID: UI96LCSDS1
Inj Date : 29-FEB-2012 12:33
Operator : JZ Inst ID: nt4.i
Smp Info : UI96LCSDS1,
Misc Info : 12-3080
Comment : 1ul Injection
Method : /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Meth Date : 29-Feb-2012 12:43 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 5 QC Sample: LCSD
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnax.sub
Target Version: 3.50

07/29/12

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	500.00000	Volume of final extract (uL)
Ws	10.00000	Weight of sample extracted (g)
M	0.00000	% Moisture

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
*	6 Naphthalene-d8	136	3.999	4.008	(1.000)	261828	2.00000	
	7 Naphthalene	128	4.024	4.033	(1.006)	199465	1.57743	78.87
$	12 2-Methylnaphthalene-d10	152	4.730	4.740	(1.183)	129884	1.63791	81.90
	14 2-Methylnaphthalene	141	4.775	4.781	(1.194)	113910	1.55299	77.65
	15 1-methylnaphthalene	141	4.957	4.967	(1.240)	117669	1.63870	81.93
	21 Acenaphthylene	152	6.068	6.080	(0.977)	189129	1.63600	81.80
*	22 Acenaphthene-d10	164	6.210	6.219	(1.000)	150758	2.00000	
	23 Acenaphthene	153	6.254	6.263	(1.007)	133932	1.67068	83.53
	11 Dibenzofuran	168	6.399	6.408	(1.030)	190382	1.66218	83.11
	25 Fluorene	166	6.850	6.859	(1.103)	160893	1.77770	88.89
*	28 Phenanthrene-d10	188	8.118	8.124	(1.000)	263382	2.00000	
	30 Phenanthrene	178	8.147	8.159	(1.003)	286699	2.06439	103.2
	31 Anthracene	178	8.181	8.190	(1.008)	253247	1.94359	97.18
	36 Fluoranthene	202	9.670	9.679	(1.191)	330733	2.17990	109.0
	39 Pyrene	202	10.046	10.055	(0.825)	330458	2.18240	109.1

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
	46 Benzo(a)anthracene	228	12.074	12.089	(0.992)	299189	2.13232	106.6
*	47 Chrysene-d12	240	12.175	12.184	(1.000)	297625	2.00000	
	48 Chrysene	228	12.232	12.241	(1.005)	318649	2.17646	108.8
	51 Benzo(b)fluoranthene	252	14.433	14.442	(0.931)	344043	2.33252	116.6
	52 Benzo(k)fluoranthene	252	14.484	14.499	(0.934)	355014	2.44205	122.1
	251 Benzo(j)fluoranthene	252	Compound Not Detected.					
	54 Benzo(a)pyrene	252	15.313	15.323	(0.988)	255568	2.03558	101.8
*	56 Perylene-d12	264	15.503	15.518	(1.000)	288180	2.00000	
	63 Indeno(1,2,3-cd)pyrene	276	17.689	17.698	(1.141)	399557	2.39139	119.6
$	60 Dibenzo(a,h)anthracene-d14	292	17.651	17.657	(1.139)	307579	3.03767	151.9
	62 Dibenzo(a,h)anthracene	278	17.720	17.733	(1.143)	324182	2.51384	125.7
	61 Benzo(g,h,i)perylene	276	18.338	18.354	(1.183)	341105	2.16375	108.2
	57 Perylene	252	15.566	15.578	(1.004)	309628	2.21181	110.6

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 02291205.d
Lab Smp Id: UI96LCSDS1
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3080

Calibration Date: 29-FEB-2012
Calibration Time: 11:04
Client Smp ID: UI96LCSDS1
Level: LOW
Sample Type: Solid

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	261828	-23.80
22 Acenaphthene-d10	195804	97902	391608	150758	-23.01
28 Phenanthrene-d10	321226	160613	642452	263382	-18.01
47 Chrysene-d12	375207	187604	750414	297625	-20.68
56 Perylene-d12	400310	200155	800620	288180	-28.01

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	4.01	3.51	4.51	4.00	-0.23
22 Acenaphthene-d10	6.22	5.72	6.72	6.21	-0.15
28 Phenanthrene-d10	8.12	7.62	8.62	8.12	-0.07
47 Chrysene-d12	12.18	11.68	12.68	12.17	-0.08
56 Perylene-d12	15.52	15.02	16.02	15.50	-0.10

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: SLR
Sample Matrix: SOLID
Lab Smp Id: UI96LCSDS1
Level: LOW
Data Type: MS DATA
SpikeList File: pnalcss.spk
Sublist File: pnax.sub
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3080

Client SDG: UI96
Fraction: SV
Client Smp ID: UI96LCSDS1
Operator: JZ
SampleType: LCSD
Quant Type: ISTD

SPIKE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
7 Naphthalene	150.0	78.87	52.58	37-100
14 2-Methylnaphthalen	150.0	77.65	51.77	37-100
15 1-methylnaphthalen	150.0	81.93	54.62	30-160
21 Acenaphthylene	150.0	81.80	54.53	35-100
23 Acenaphthene	150.0	83.53	55.69	39-100
11 Dibenzofuran	150.0	83.11	55.41	39-100
25 Fluorene	150.0	88.89	59.26	42-100
30 Phenanthrene	150.0	103.2	68.81	47-100
31 Anthracene	150.0	97.18	64.79	41-106
36 Fluoranthene	150.0	109.0	72.66	52-109
39 Pyrene	150.0	109.1	72.75	47-111
46 Benzo(a)anthracene	150.0	106.6	71.08	47-114
48 Chrysene	150.0	108.8	72.55	51-106
51 Benzo(b)fluoranthe	150.0	116.6	77.75	30-160
52 Benzo(k)fluoranthe	150.0	122.1	81.40	30-160
54 Benzo(a)pyrene	150.0	101.8	67.85	44-111
63 Indeno(1,2,3-cd)py	150.0	119.6	79.71	41-114
62 Dibenzo(a,h)anthra	150.0	125.7	83.79	42-118
61 Benzo(g,h,i)peryle	150.0	108.2	72.12	37-115
57 Perylene	150.0	110.6	73.73	30-160

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 12 2-Methylnaphthalen	150.0	81.90	54.60	35-100
$ 60 Dibenzo(a,h)anthra	150.0	151.9	101.26	37-120

02/29/12

Data File: /chem3/nt4.i/20120229.b/02291205.d

Date : 29-FEB-2012 12:33

Client ID: UI96LCSDS1

Sample Info: UI96LCSDS1,

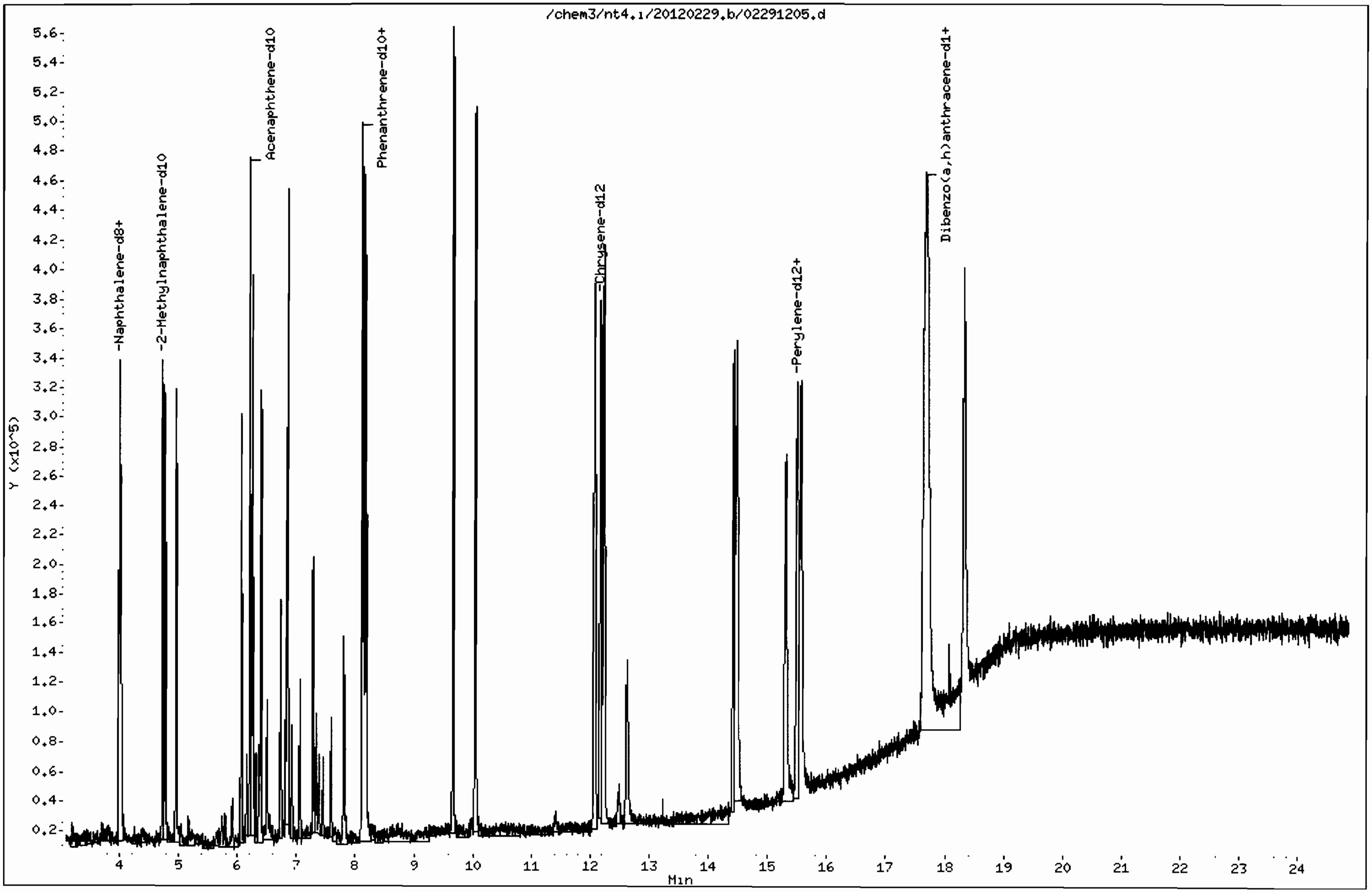
Volume Injected (uL): 1.0

Column phase: ZB-35

Instrument: nt4.i

Operator: JZ

Column diameter: 0.25



CO-ELUTION SUMMARY FOR FILE - 02291205.d

Lab ID: UI96LCSDS1, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 29-FEB-20

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Analytical Resources, Inc.

Semivolatile Report 801S Method SIMPNA

Data file : /chem3/nt4.i/20120229.b/02291207.d
Lab Smp Id: UI96A Client Smp ID: SP-E1-8
Inj Date : 29-FEB-2012 13:30
Operator : JZ Inst ID: nt4.i
Smp Info : UI96A
Misc Info : 12-3080
Comment : 1ul Injection
Method : /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Meth Date : 29-Feb-2012 14:54 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnax.sub
Target Version: 3.50

07/29/12

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	500.00000	Volume of final extract (uL)
Ws	13.15000	Weight of sample extracted (g)
M	17.90000	% Moisture

Cpnd Variable Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	FINAL (ug/kg)
*	6 Naphthalene-d8	136	4.000	4.008	(1.000)	219063	2.00000	
	7 Naphthalene	128	4.025	4.033	(1.006)	434546	4.10741	190.2
$	12 2-Methylnaphthalene-d10	152	4.732	4.740	(1.183)	117346	1.76868	81.91
	14 2-Methylnaphthalene	141	4.773	4.781	(1.193)	143107	2.33192	108.0
	15 1-methylnaphthalene	141	4.955	4.967	(1.239)	55202	0.91884	42.55
	21 Acenaphthylene	152	6.069	6.080	(0.978)	31212	0.30465	14.11
*	22 Acenaphthene-d10	164	6.208	6.219	(1.000)	133604	2.00000	
	23 Acenaphthene	153	6.252	6.263	(1.007)	59730	0.84074	38.94
	11 Dibenzofuran	168	6.397	6.408	(1.030)	144176	1.42038	65.78
	25 Fluorene	166	6.848	6.859	(1.103)	75530	0.94168	43.61
*	28 Phenanthrene-d10	188	8.116	8.124	(1.000)	236654	2.00000	
	30 Phenanthrene	178	8.148	8.159	(1.004)	424424	3.40125	157.5
	31 Anthracene	178	8.182	8.190	(1.008)	100373	0.85734	39.71(M)
	36 Fluoranthene	202	9.671	9.679	(1.192)	1021711	7.49477	347.1
	39 Pyrene	202	10.044	10.055	(0.825)	937191	5.98821	277.3

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
	46 Benzo(a)anthracene	228	12.075	12.089	(0.992)	422154	2.91090	134.8
*	47 Chrysene-d12	240	12.173	12.184	(1.000)	307623	2.00000	
	48 Chrysene	228	12.226	12.241	(1.004)	1008553	6.66479	308.7
	51 Benzo(b)fluoranthene	252	14.434	14.442	(0.931)	931932	5.54323	256.7
	52 Benzo(k)fluoranthene	252	14.485	14.499	(0.934)	463826	2.79918	129.6
	251 Benzo(j)fluoranthene	252	14.551	14.559	(0.938)	392492	2.69006	124.6
	54 Benzo(a)pyrene	252	15.315	15.323	(0.987)	248852	1.73896	80.54
*	56 Perylene-d12	264	15.510	15.518	(1.000)	328471	2.00000	
	63 Indeno(1,2,3-cd)pyrene	276	17.690	17.698	(1.141)	275824	1.44834	67.08
$	60 Dibenzo(a,h)anthracene-d14	292	17.652	17.657	(1.138)	334444	2.89784	134.2
	62 Dibenzo(a,h)anthracene	278	17.728	17.733	(1.143)	87938	0.59826	27.71
	61 Benzo(g,h,i)perylene	276	18.343	18.354	(1.183)	230977	1.28545	59.53
	57 Perylene	252	15.567	15.578	(1.004)	272704	1.70909	79.15

QC Flag Legend

M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 02291207.d
Lab Smp Id: UI96A
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3080

Calibration Date: 29-FEB-2012
Calibration Time: 11:04
Client Smp ID: SP-E1-8
Level: LOW
Sample Type: Soil

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	219063	-36.25
22 Acenaphthene-d10	195804	97902	391608	133604	-31.77
28 Phenanthrene-d10	321226	160613	642452	236654	-26.33
47 Chrysene-d12	375207	187604	750414	307623	-18.01
56 Perylene-d12	400310	200155	800620	328471	-17.95

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	4.01	3.51	4.51	4.00	-0.20
22 Acenaphthene-d10	6.22	5.72	6.72	6.21	-0.18
28 Phenanthrene-d10	8.12	7.62	8.62	8.12	-0.10
47 Chrysene-d12	12.18	11.68	12.68	12.17	-0.09
56 Perylene-d12	15.52	15.02	16.02	15.51	-0.05

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: SLR
Sample Matrix: SOLID
Lab Smp Id: UI96A
Level: LOW
Data Type: MS DATA
SpikeList File: pnalcss.spk
Sublist File: pnax.sub
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3080

Client SDG: UI96
Fraction: SV
Client Smp ID: SP-E1-8
Operator: JZ
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 12 2-Methylnaphthalen	138.9	81.91	58.96	35-100
$ 60 Dibenzo(a,h)anthra	138.9	134.2	96.59	37-120

Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

Client ID: SP-E1-8

Sample Info: UI96A

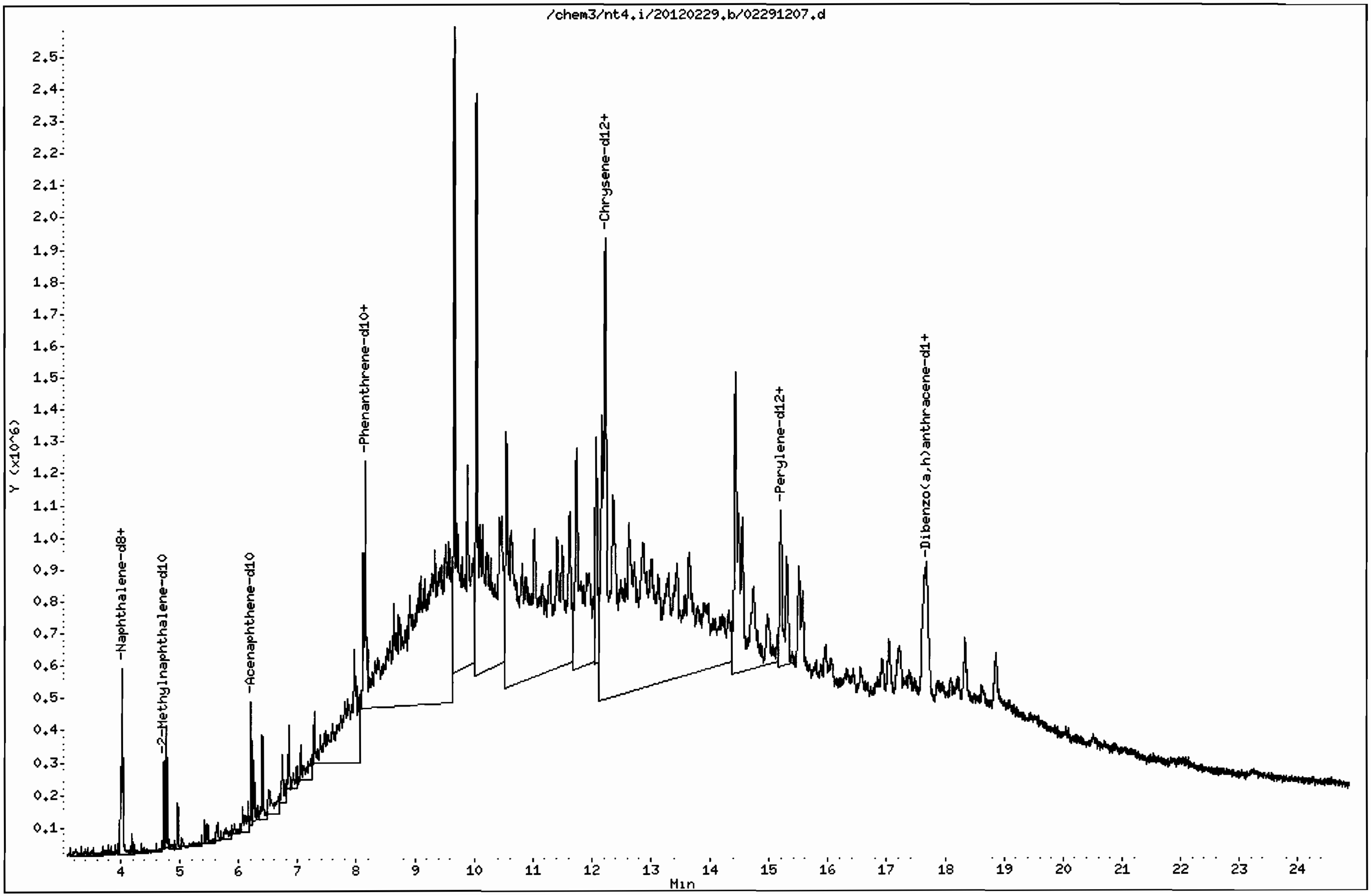
Volume Injected (uL): 1.0

Column phase: ZB-35

Instrument: nt4.i

Operator: JZ

Column diameter: 0.25



Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

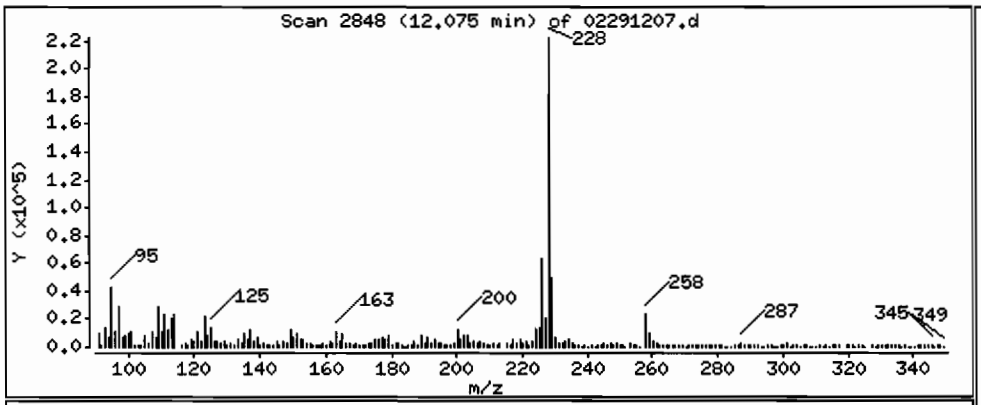
Client ID: SP-E1-8 Instrument: nt4.i

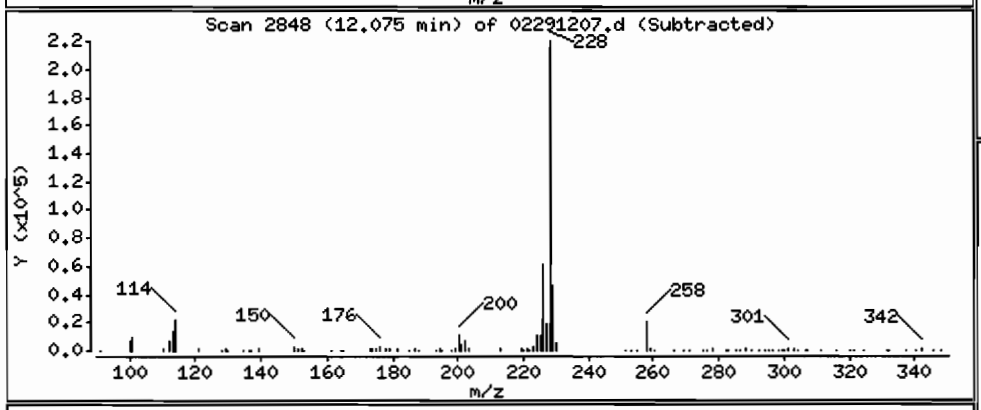
Sample Info: UI96A

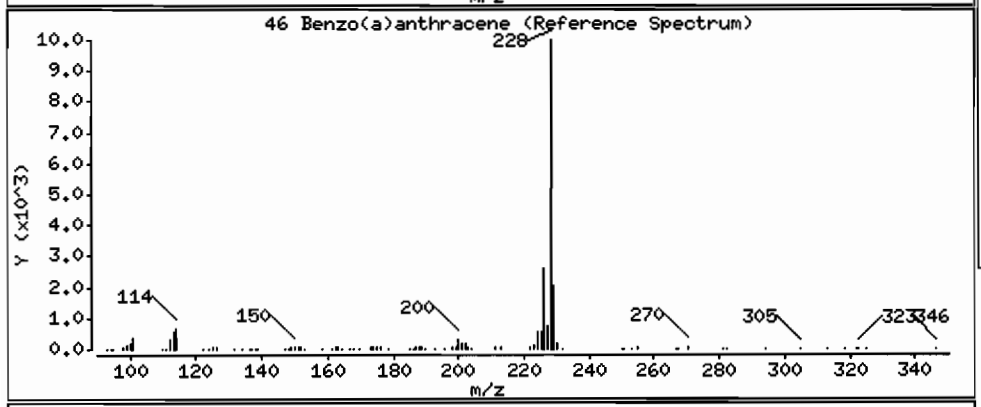
Volume Injected (uL): 1.0 Operator: JZ

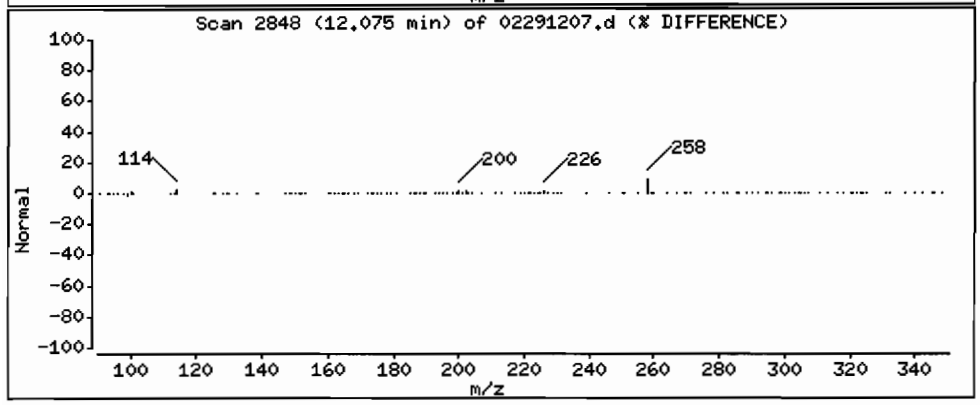
Column phase: ZB-35 Column diameter: 0.25

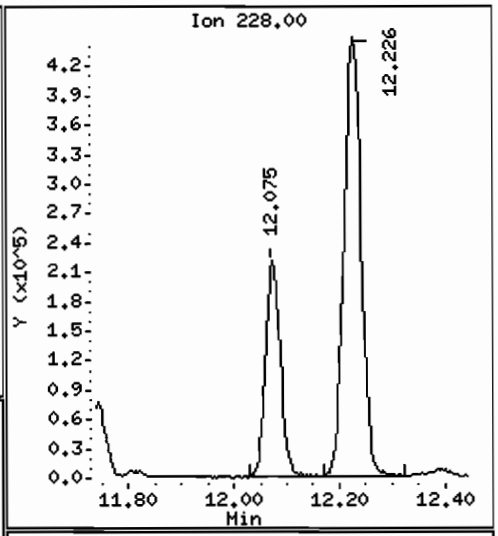
46 Benzo(a)anthracene Concentration: 134.8 ug/kg

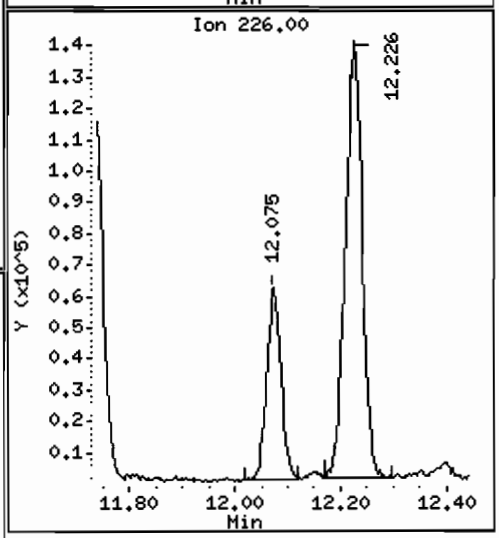












Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

Client ID: SP-E1-8

Instrument: nt4.i

Sample Info: UI96A

Volume Injected (uL): 1.0

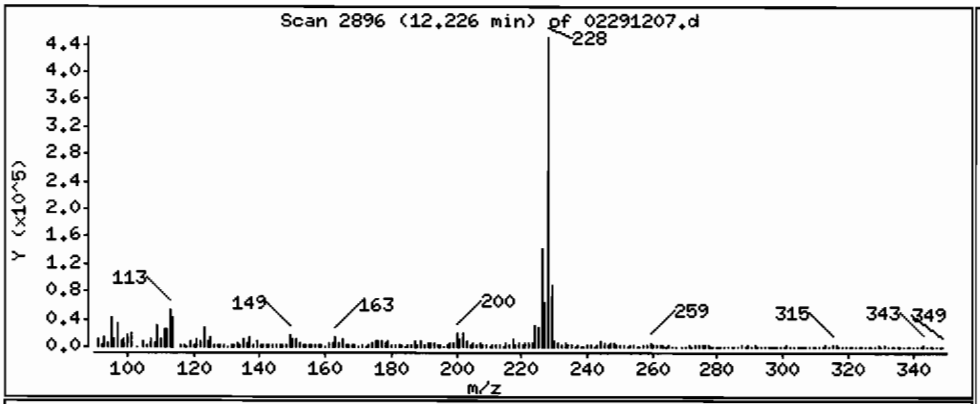
Operator: JZ

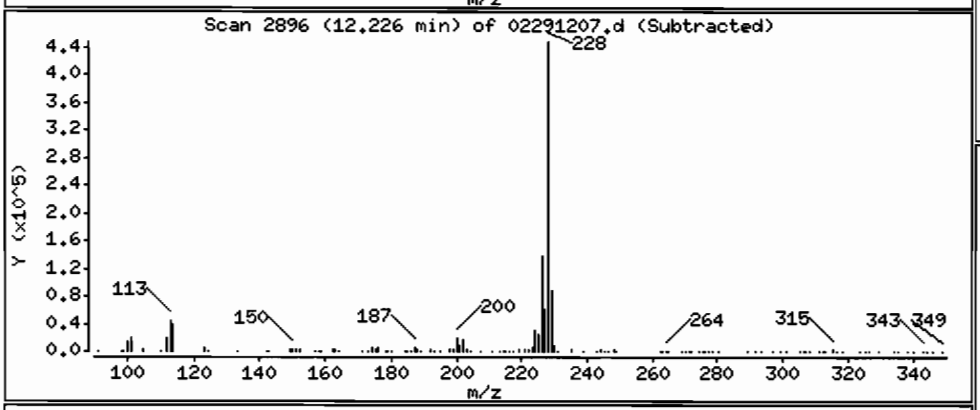
Column phase: ZB-35

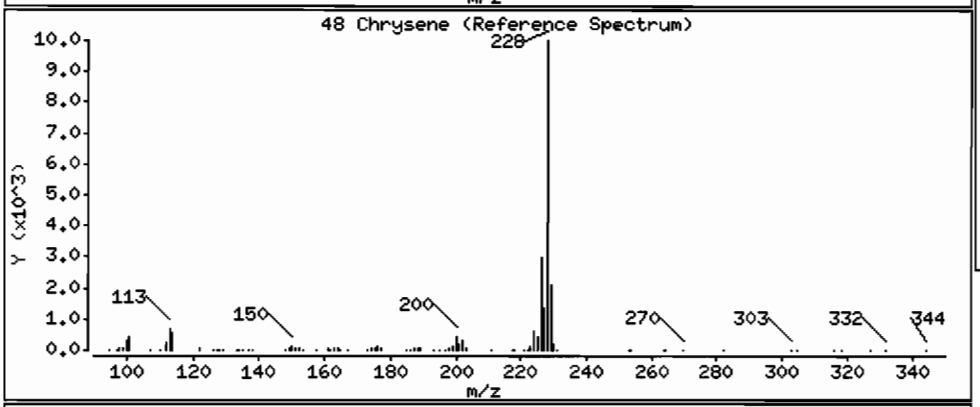
Column diameter: 0.25

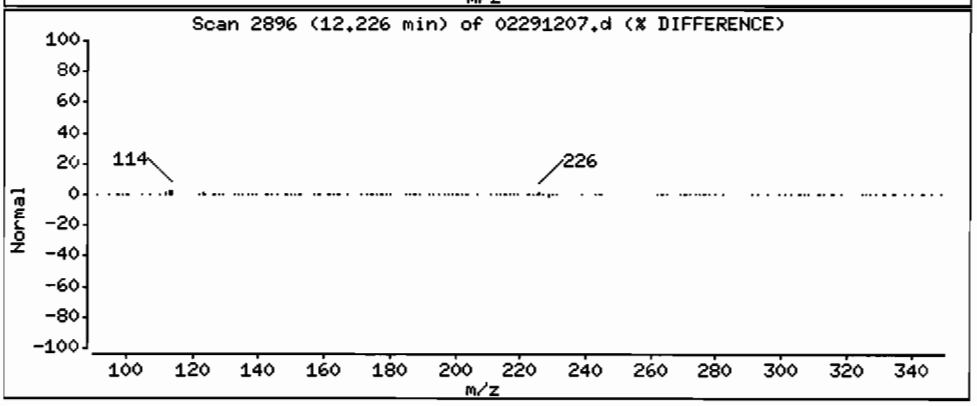
48 Chrysene

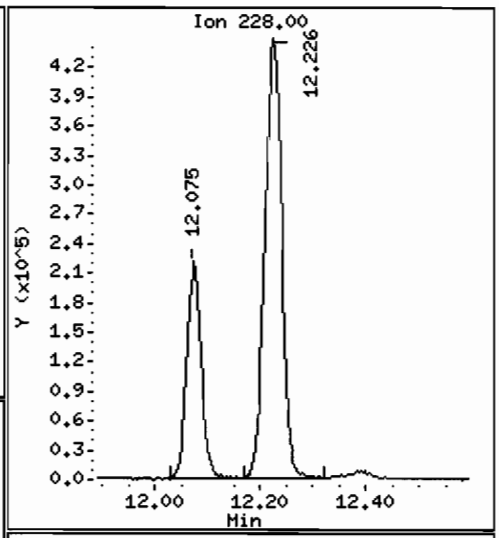
Concentration: 308.7 ug/kg

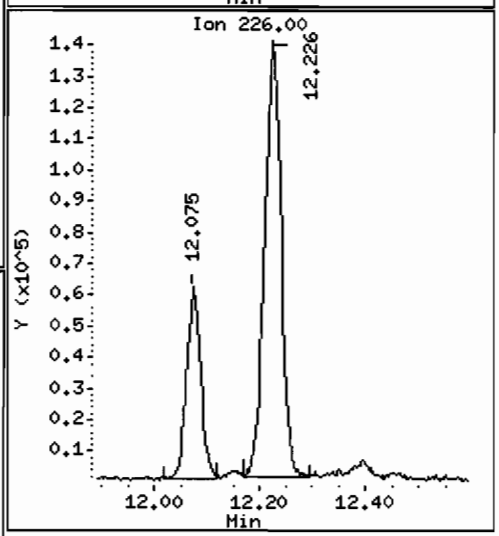












Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

Client ID: SP-E1-8

Instrument: nt4.i

Sample Info: UI96A

Volume Injected (uL): 1.0

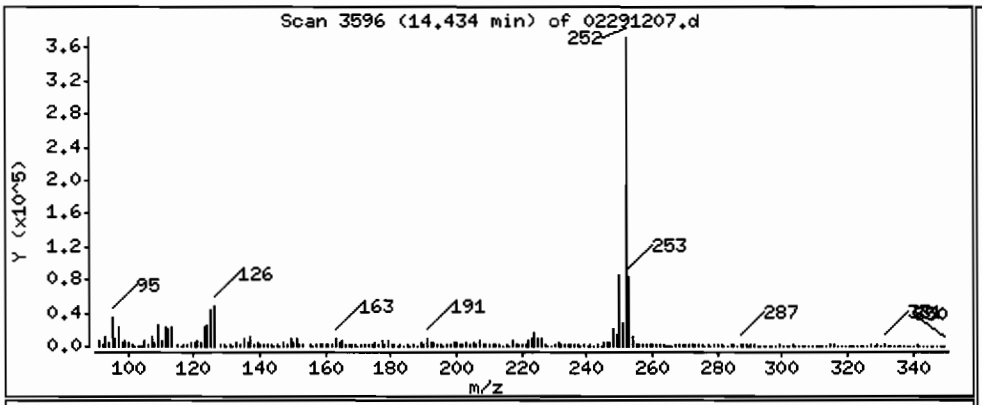
Operator: JZ

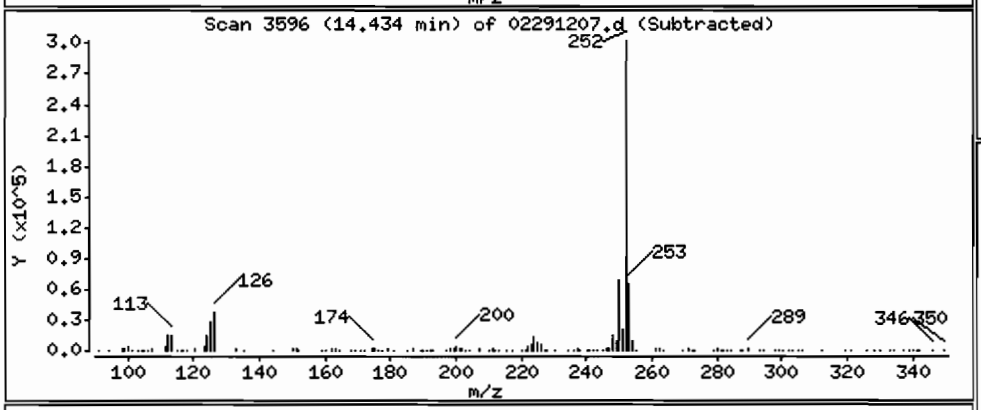
Column phase: ZB-35

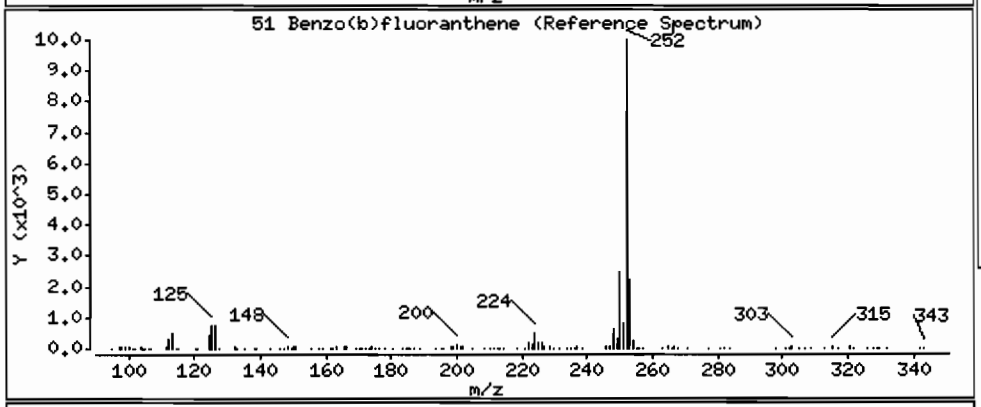
Column diameter: 0.25

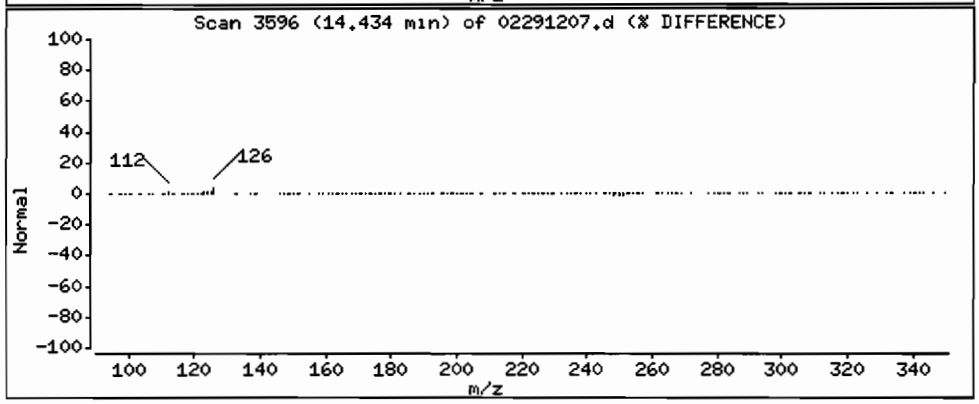
51 Benzo(b)fluoranthene

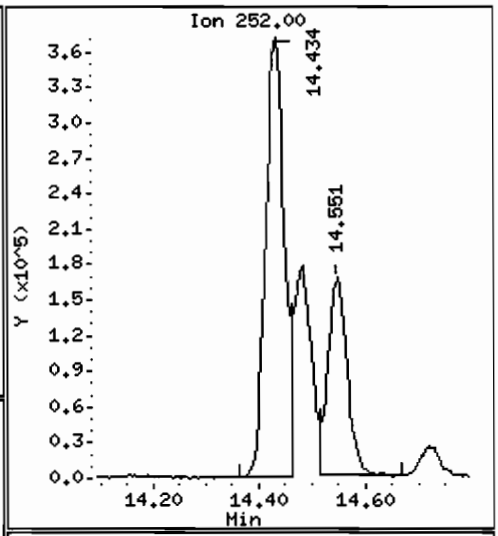
Concentration: 256.7 ug/kg

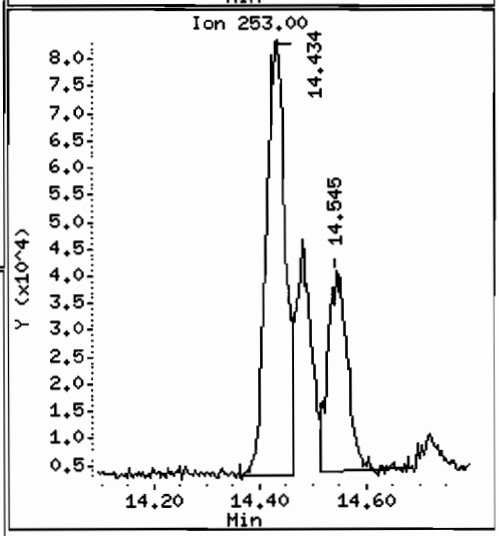












Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

Client ID: SP-E1-8

Instrument: nt4.i

Sample Info: UI96A

Volume Injected (uL): 1.0

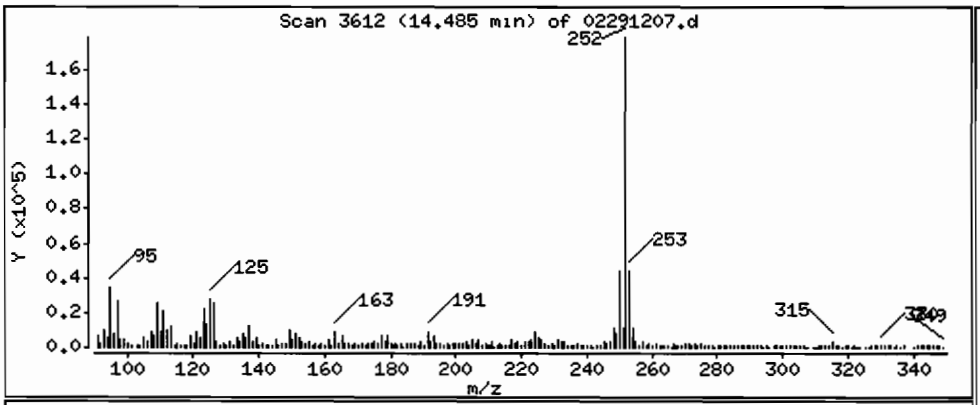
Operator: JZ

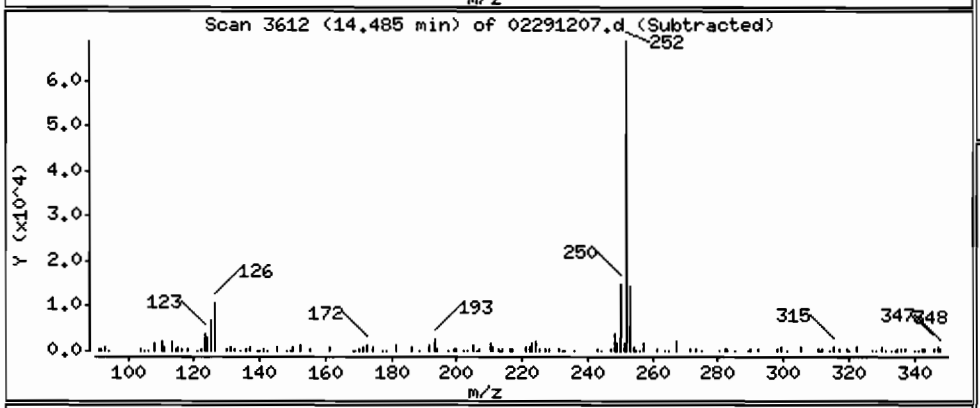
Column phase: ZB-35

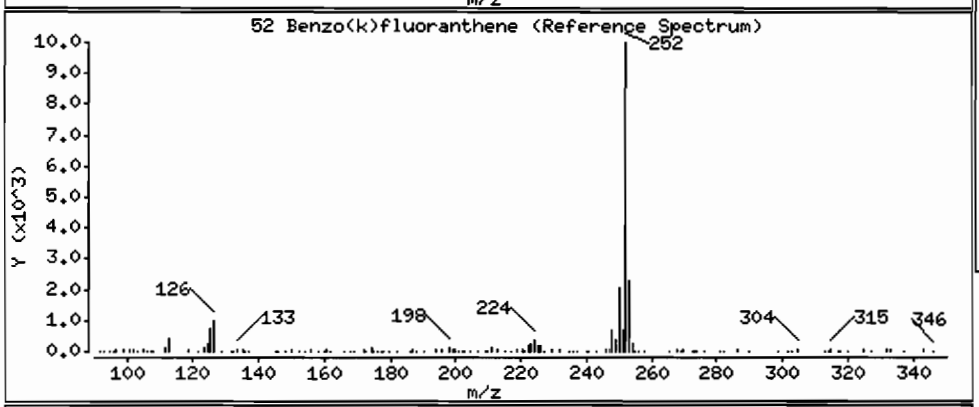
Column diameter: 0.25

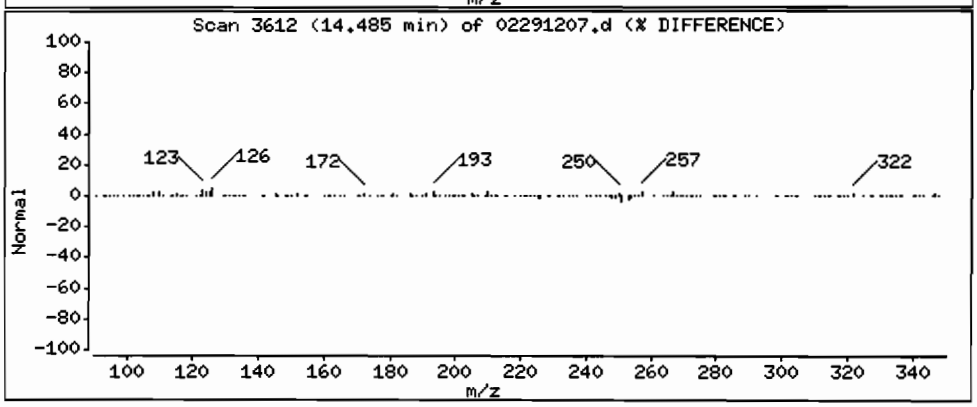
52 Benzo(k)fluoranthene

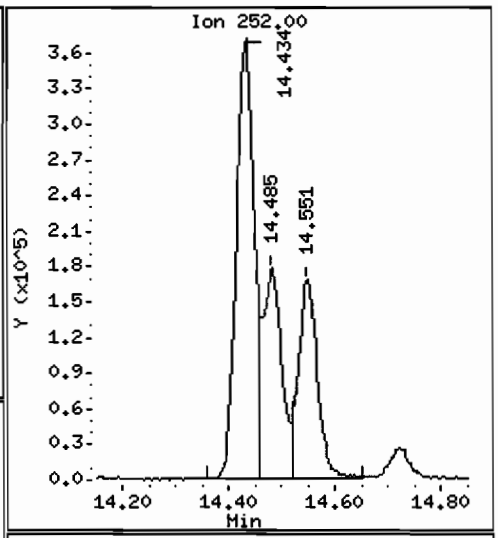
Concentration: 129.6 ug/kg

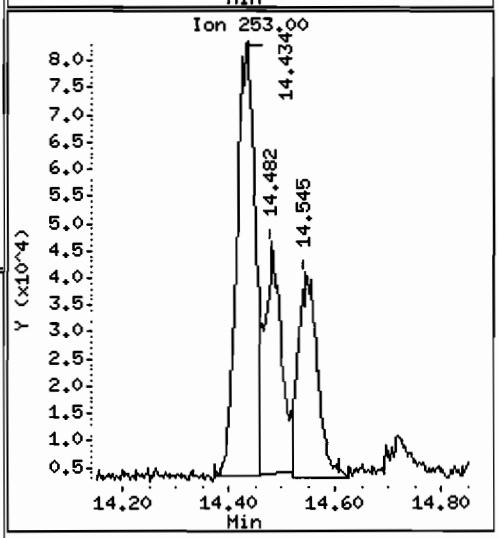












Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

Client ID: SP-E1-8

Instrument: nt4.i

Sample Info: UI96A

Volume Injected (uL): 1.0

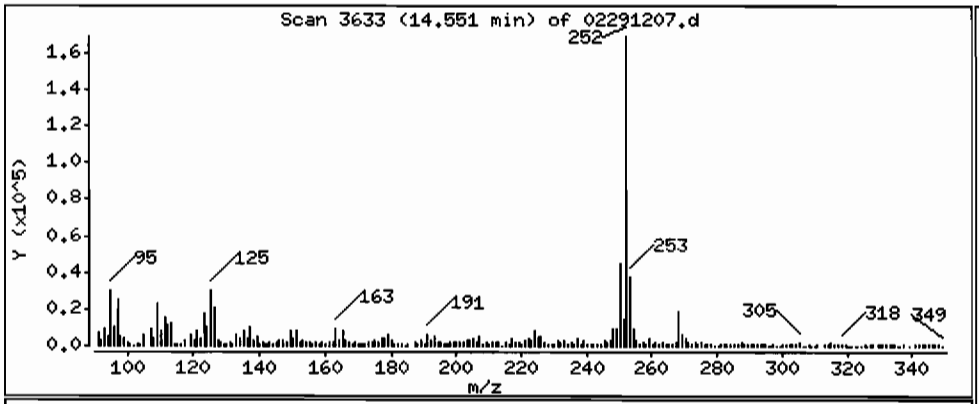
Operator: JZ

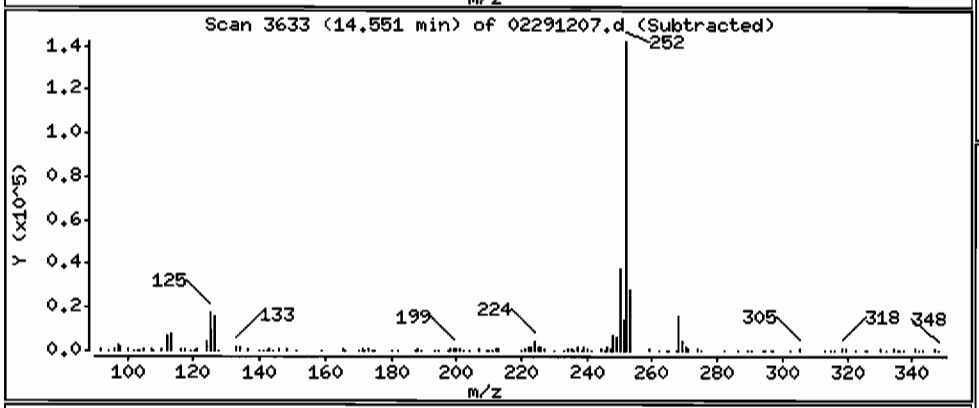
Column phase: ZB-35

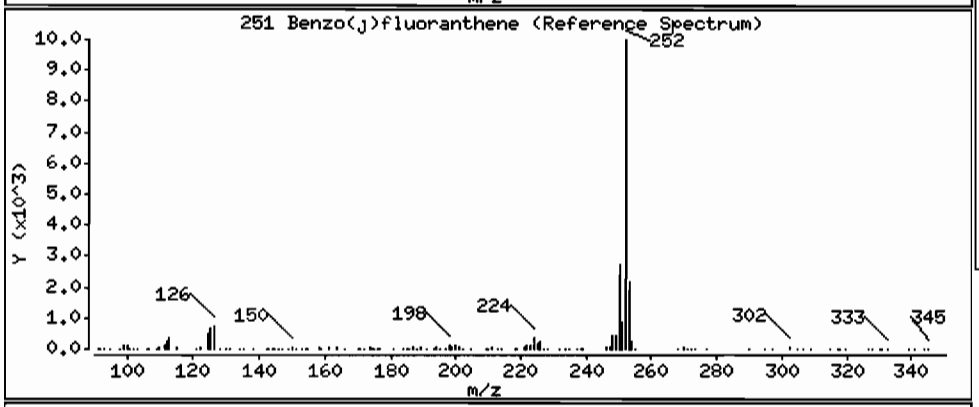
Column diameter: 0.25

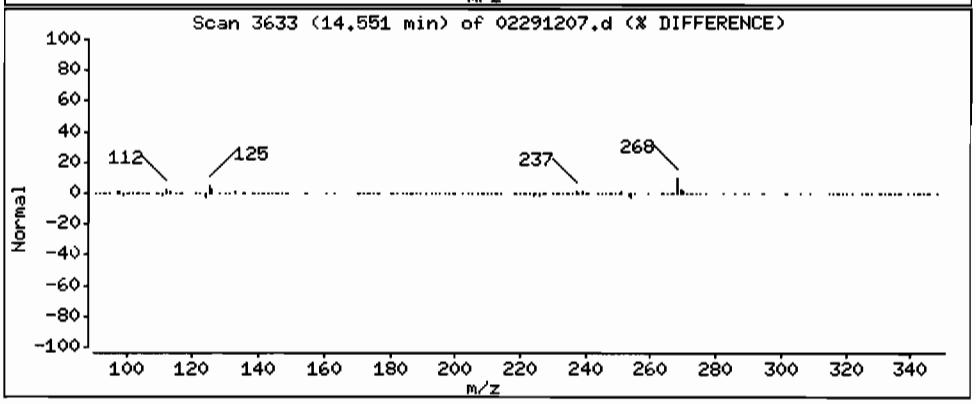
251 Benzo(j)fluoranthene

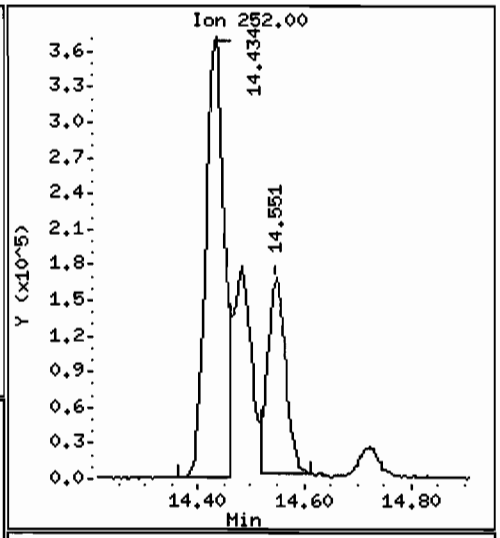
Concentration: 124.6 ug/kg

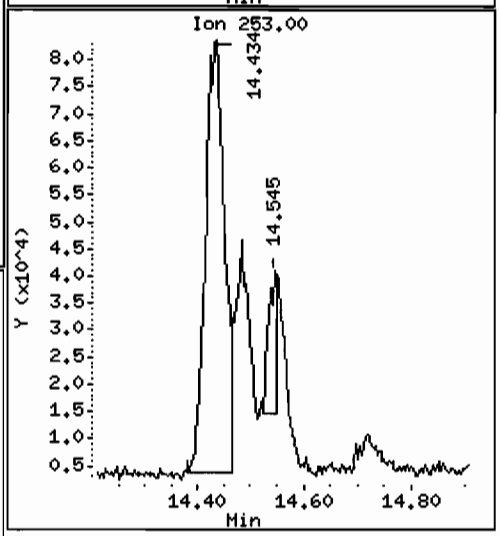












Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

Client ID: SP-E1-8

Instrument: nt4.i

Sample Info: UI96A

Volume Injected (uL): 1.0

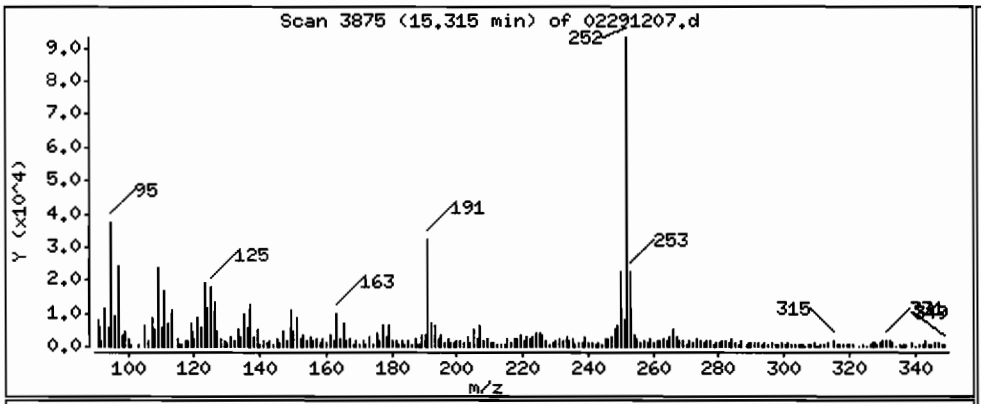
Operator: JZ

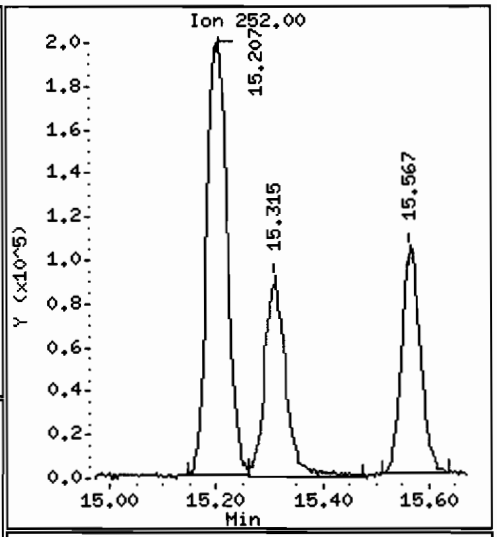
Column phase: ZB-35

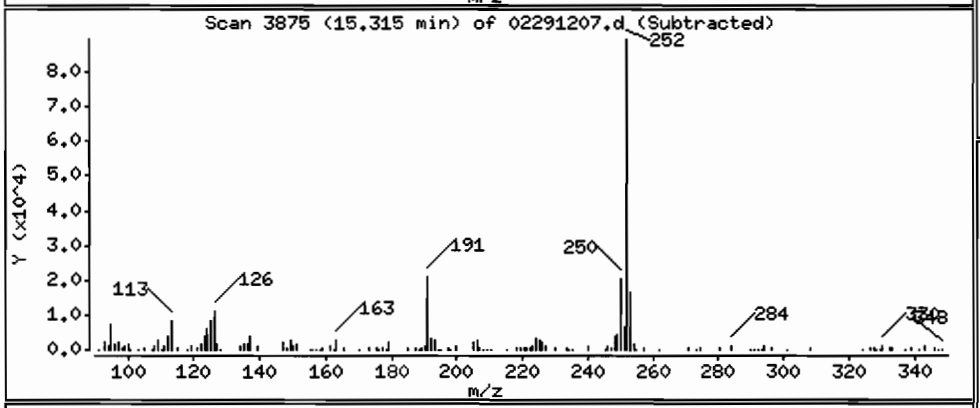
Column diameter: 0.25

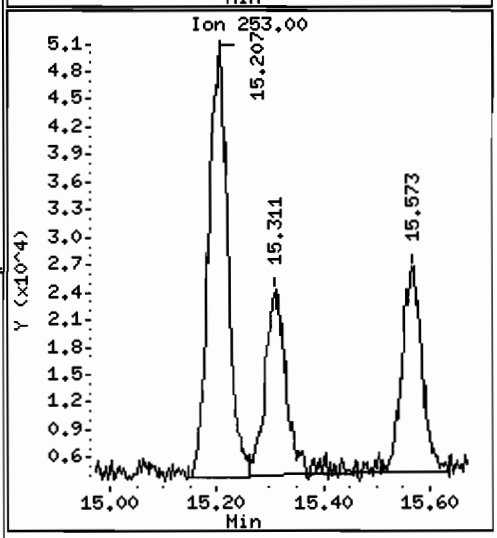
54 Benzo(a)pyrene

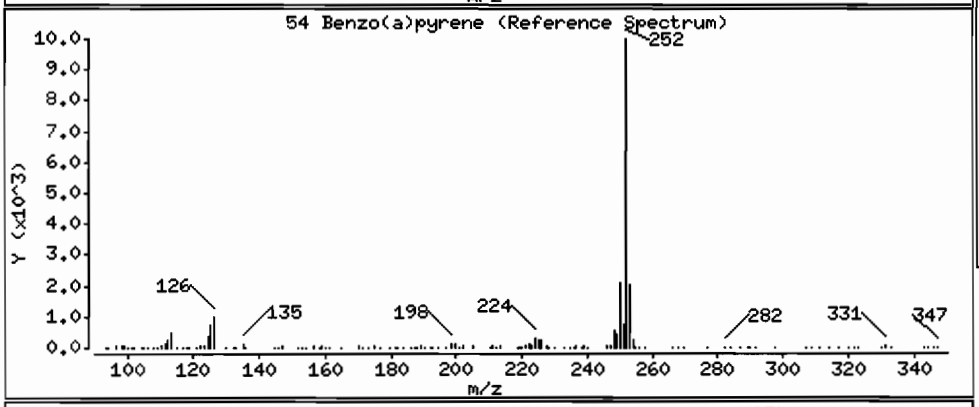
Concentration: 80.54 ug/kg

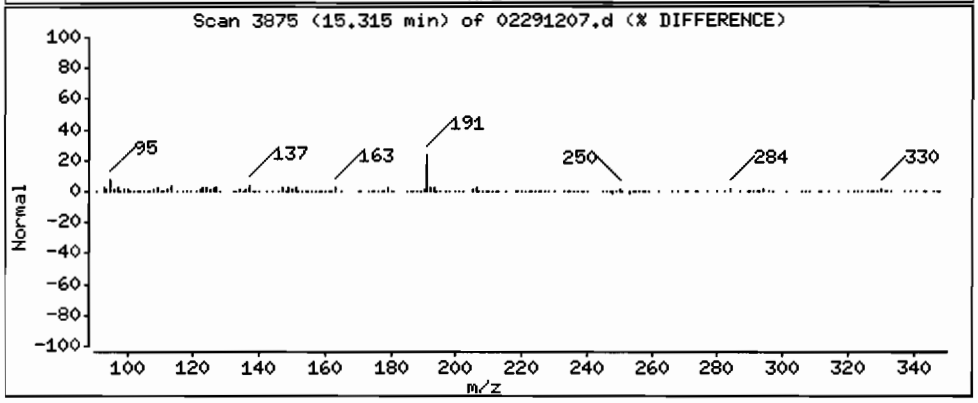












Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

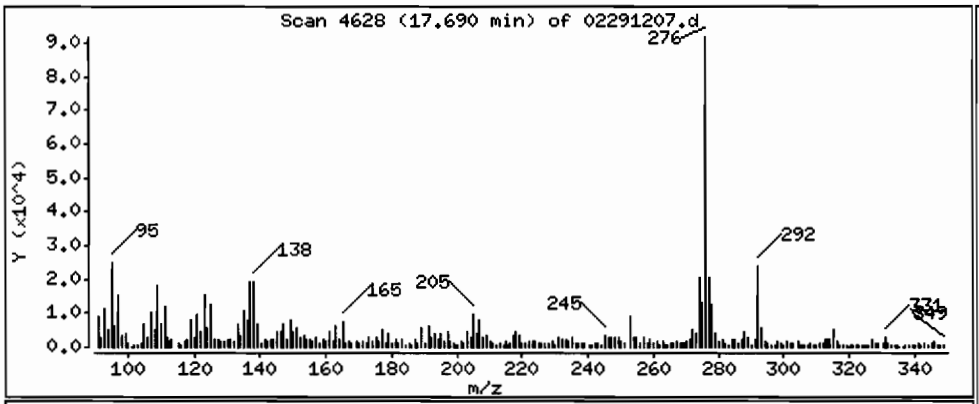
Client ID: SP-E1-8 Instrument: nt4.i

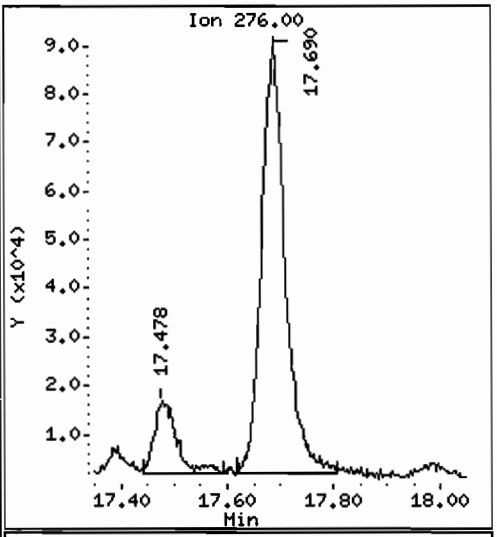
Sample Info: UI96A

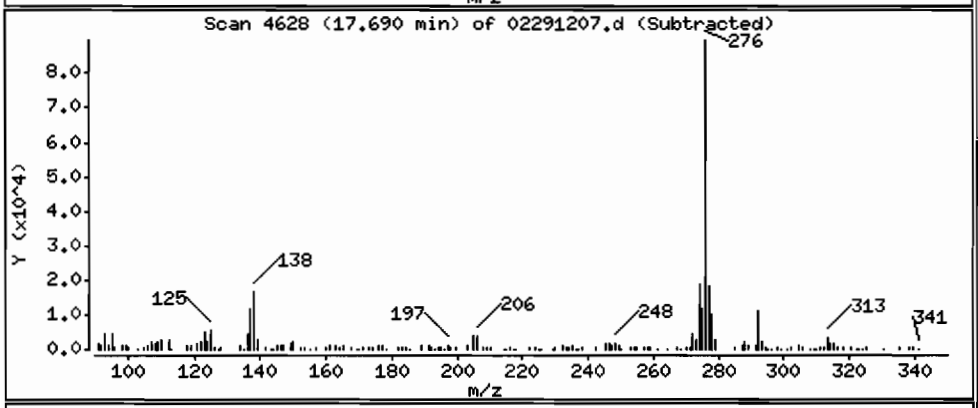
Volume Injected (uL): 1.0 Operator: JZ

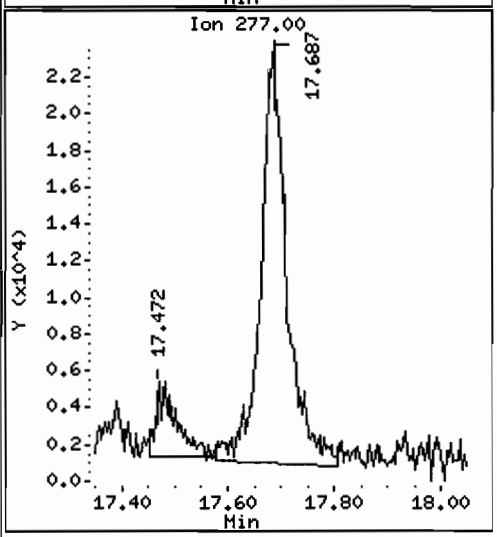
Column phase: ZB-35 Column diameter: 0.25

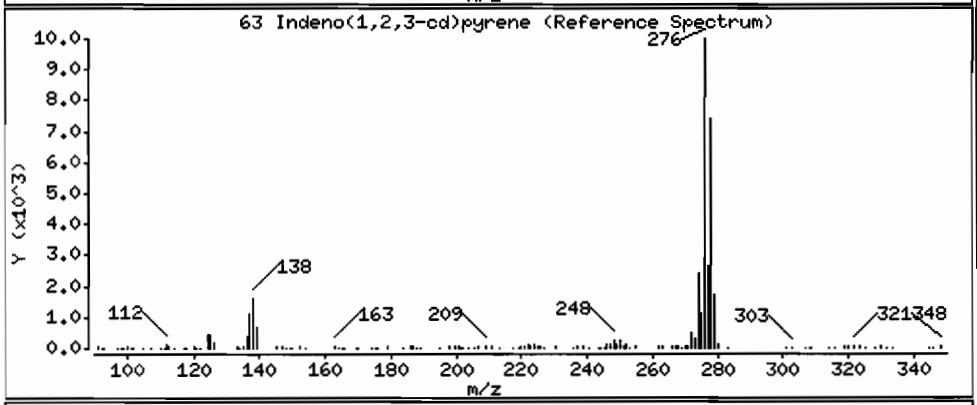
63 Indeno(1,2,3-cd)pyrene Concentration: 67.08 ug/kg

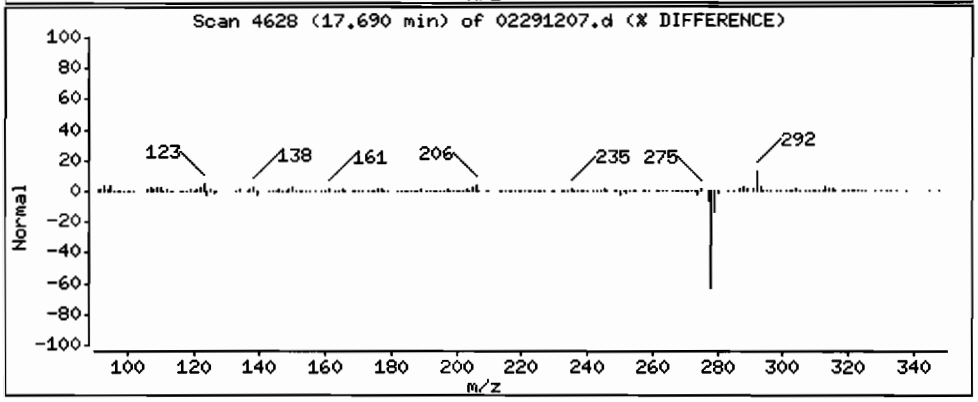












Data File: /chem3/nt4.i/20120229.b/02291207.d

Date : 29-FEB-2012 13:30

Client ID: SP-E1-8

Instrument: nt4.i

Sample Info: UI96A

Volume Injected (uL): 1.0

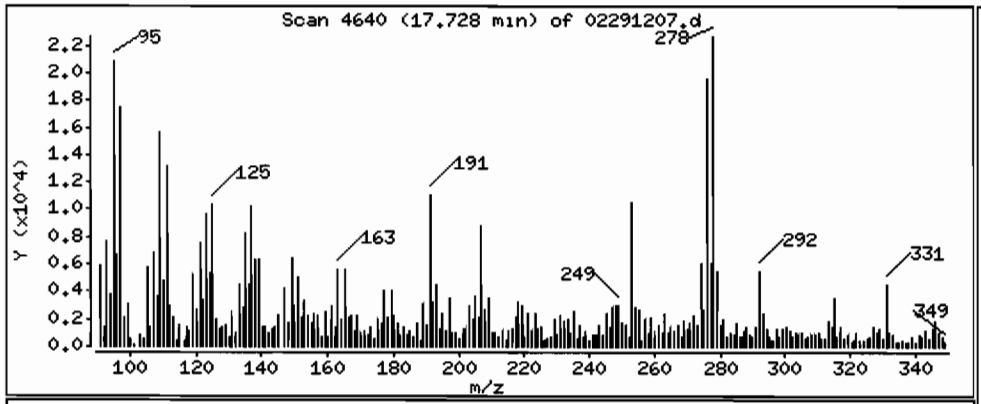
Operator: JZ

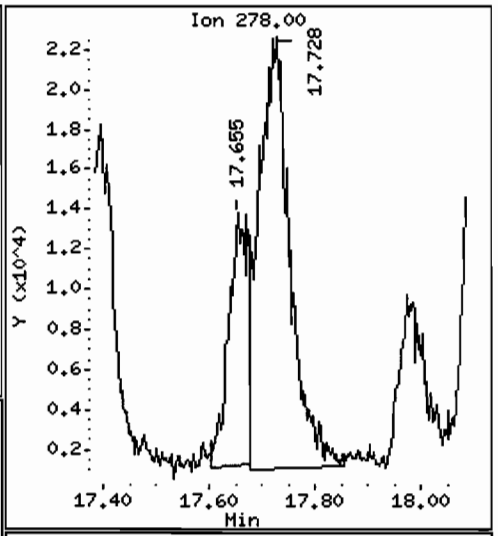
Column phase: ZB-35

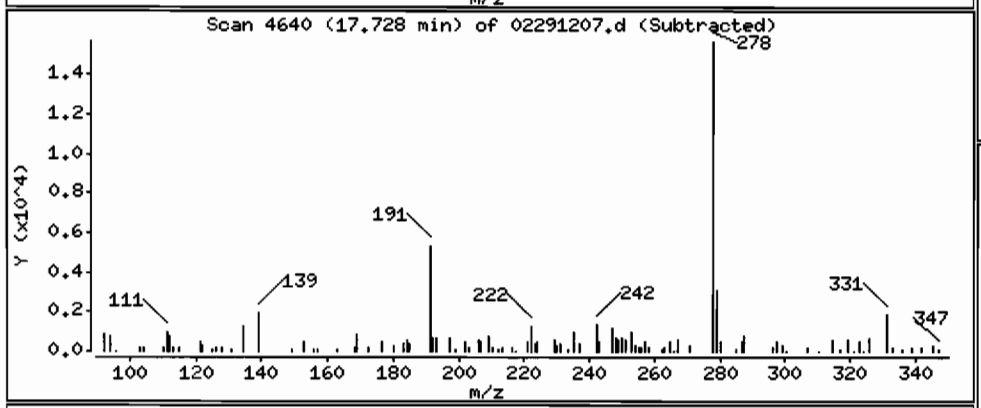
Column diameter: 0.25

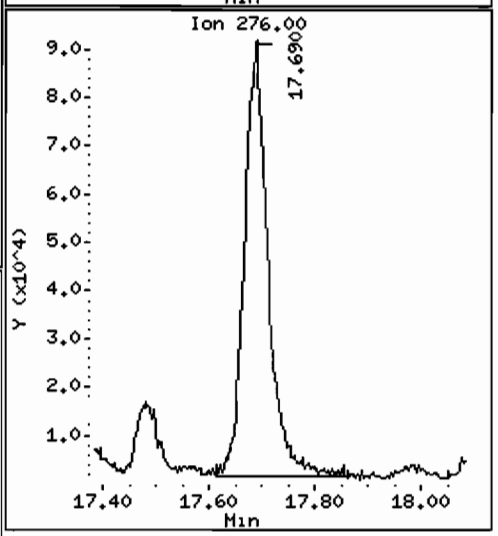
62 Dibenzo(a,h)anthracene

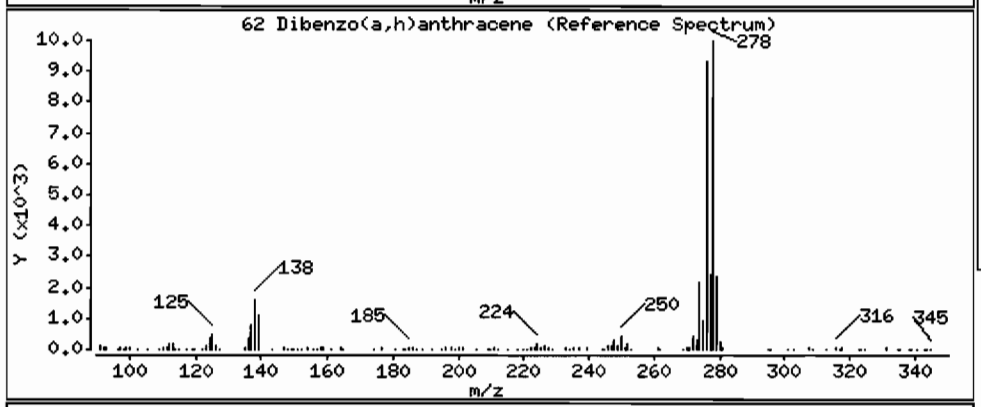
Concentration: 27.71 ug/kg

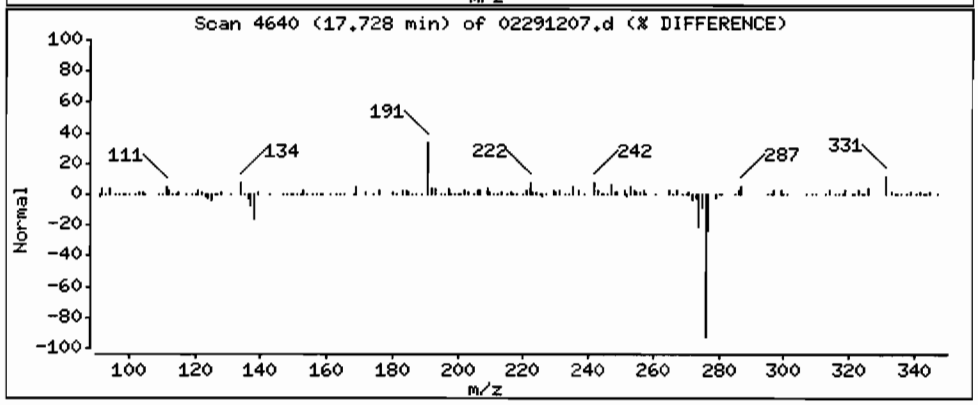












CO-ELUTION SUMMARY FOR FILE - 02291207.d

Lab ID: UI96A, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 29-FEB-2012

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

SIM PNA Sample-sm117s
Data By: Jianqing Zhou
Created: 2/29/12

Worklist: 9807
Analyst: JZ
Comments:

2. UI96B Soil 12-3081 SP-M2-5

Method: 8270D-SIM
Ext Date: 2/23/12
Ext Meth: SW3546-Microwave
Instrument: NT4

Sample Amt: 10.39 g-dry-wt
EFV (mL): 0.50
Dilution: 1.0
Date/Time: 2/29/12 13:59

Surrogate	On Col (ug/mL)	Spiked (ug/mL)	LCL-UCL (%)	Rec (%)	Q
d10-2-Methylnaphthalene	1.67	3.00	34-100	55.7	
d14-Dibenzo(a,h)anthrace	2.46	3.00	10-117	82.0	

Analyte	On Col (ug/mL)	MDL (ug/kg)	RL (ug/kg)	Final (ug/kg)	Q
Benzo(a)anthracene	0.770	1.540	4.812	37.1	
Chrysene	1.425	1.809	4.812	68.6	
Benzo(a)pyrene	0.524	1.684	4.812	25.2	
Indeno(1,2,3-cd)pyrene	0.324	3.340	4.812	15.6	
Dibenz(a,h)anthracene	0.135	2.291	4.812	6.50	
Total Benzofluoranthenes	1.970	1.781	4.812	94.8	

Analytical Resources, Inc.

Semivolatile Report 801S Method SIMPNA

Data file : /chem3/nt4.i/20120229.b/02291208.d
Lab Smp Id: UI96B Client Smp ID: SP-M2-5
Inj Date : 29-FEB-2012 13:59
Operator : JZ Inst ID: nt4.i
Smp Info : UI96B
Misc Info : 12-3081
Comment : 1ul Injection
Method : /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Meth Date : 29-Feb-2012 14:54 jianqing Quant Type: ISTD
Cal Date : 21-NOV-2011 12:06 Cal File: 11211104.d
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: pnax.sub
Target Version: 3.50

02/29/12

Concentration Formula: Amt * DF * Vt/(Ws * (100 - M)/100) * CpndVariable

Name	Value	Description
DF	1.00000	Dilution Factor
Vt	500.00000	Volume of final extract (uL)
Ws	13.24000	Weight of sample extracted (g)
M	21.50000	% Moisture

Cpnd Variable Local Compound Variable

		Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
*	6	Naphthalene-d8	136	3.997	4.008	(1.000)	219948	2.00000	
	7	Naphthalene	128	4.022	4.033	(1.006)	184218	1.73425	83.43
$	12	2-Methylnaphthalene-d10	152	4.729	4.740	(1.183)	111310	1.67095	80.39
	14	2-Methylnaphthalene	141	4.773	4.781	(1.194)	31381	0.50929	24.50
	15	1-methylnaphthalene	141	4.956	4.967	(1.240)	21584	0.35782	17.21
	21	Acenaphthylene	152	6.066	6.080	(0.977)	39321	0.37636	18.11
*	22	Acenaphthene-d10	164	6.208	6.219	(1.000)	136247	2.00000	
	23	Acenaphthene	153	6.252	6.263	(1.007)	22950	0.31677	15.24
	11	Dibenzofuran	168	6.397	6.408	(1.030)	61690	0.59596	28.67
	25	Fluorene	166	6.845	6.859	(1.103)	23962	0.29295	14.09
*	28	Phenanthrene-d10	188	8.113	8.124	(1.000)	229501	2.00000	
	30	Phenanthrene	178	8.148	8.159	(1.004)	393757	3.25384	156.5
	31	Anthracene	178	8.180	8.190	(1.008)	54508	0.48010	23.10(M)
	36	Fluoranthene	202	9.669	9.679	(1.192)	429100	3.24577	156.1
	39	Pyrene	202	10.044	10.055	(0.825)	401867	2.78202	133.8

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/mL)	CONCENTRATIONS FINAL (ug/kg)
	46 Benzo(a)anthracene	228	12.072	12.089	(0.992)	103108	0.77030	37.06
*	47 Chrysene-d12	240	12.173	12.184	(1.000)	283929	2.00000	
	48 Chrysene	228	12.227	12.241	(1.004)	199081	1.42537	68.57
	51 Benzo(b)fluoranthene	252	14.429	14.442	(0.931)	161281	1.05601	50.80(M)
	52 Benzo(k)fluoranthene	252	14.485	14.499	(0.934)	58633	0.38952	18.74(M)
	251 Benzo(j)fluoranthene	252	14.552	14.559	(0.939)	69499	0.52435	25.22(M)
	54 Benzo(a)pyrene	252	15.315	15.323	(0.988)	68072	0.52363	25.19
*	56 Perylene-d12	264	15.504	15.518	(1.000)	298394	2.00000	
	63 Indeno(1,2,3-cd)pyrene	276	17.687	17.698	(1.141)	56066	0.32407	15.59
$	60 Dibenzo(a,h)anthracene-d14	292	17.646	17.657	(1.138)	257482	2.45586	118.1
	62 Dibenzo(a,h)anthracene	278	17.728	17.733	(1.143)	18031	0.13503	6.496
	61 Benzo(g,h,i)perylene	276	18.346	18.354	(1.183)	63853	0.39118	18.82
	57 Perylene	252	15.564	15.578	(1.004)	271419	1.87249	90.08

QC Flag Legend

M - Compound response manually integrated.

Analytical Resources, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt4.i
Lab File ID: 02291208.d
Lab Smp Id: UI96B
Analysis Type: SV
Quant Type: ISTD
Operator: JZ
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3081

Calibration Date: 29-FEB-2012
Calibration Time: 11:04
Client Smp ID: SP-M2-5
Level: LOW
Sample Type: Soil

Test Mode:
Use Initial Calibration Level 4.

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	343604	171802	687208	219948	-35.99
22 Acenaphthene-d10	195804	97902	391608	136247	-30.42
28 Phenanthrene-d10	321226	160613	642452	229501	-28.55
47 Chrysene-d12	375207	187604	750414	283929	-24.33
56 Perylene-d12	400310	200155	800620	298394	-25.46

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
6 Naphthalene-d8	4.01	3.51	4.51	4.00	-0.27
22 Acenaphthene-d10	6.22	5.72	6.72	6.21	-0.17
28 Phenanthrene-d10	8.12	7.62	8.62	8.11	-0.13
47 Chrysene-d12	12.18	11.68	12.68	12.17	-0.09
56 Perylene-d12	15.52	15.02	16.02	15.50	-0.09

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.

Analytical Resources, Inc.

RECOVERY REPORT

Client Name: SLR
Sample Matrix: SOLID
Lab Smp Id: UI96B
Level: LOW
Data Type: MS DATA
SpikeList File: pnalcss.spk
Sublist File: pnax.sub
Method File: /chem3/nt4.i/20120229.b/FSIMPNA1121.m
Misc Info: 12-3081

Client SDG: UI96
Fraction: SV
Client Smp ID: SP-M2-5
Operator: JZ
SampleType: SAMPLE
Quant Type: ISTD

SURROGATE COMPOUND	CONC ADDED ug/kg	CONC RECOVERED ug/kg	% RECOVERED	LIMITS
$ 12 2-Methylnaphthalen	144.3	80.39	55.70	35-100
$ 60 Dibenzo(a,h)anthra	144.3	118.1	81.86	37-120

Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

Client ID: SP-M2-5

Sample Info: UI96B

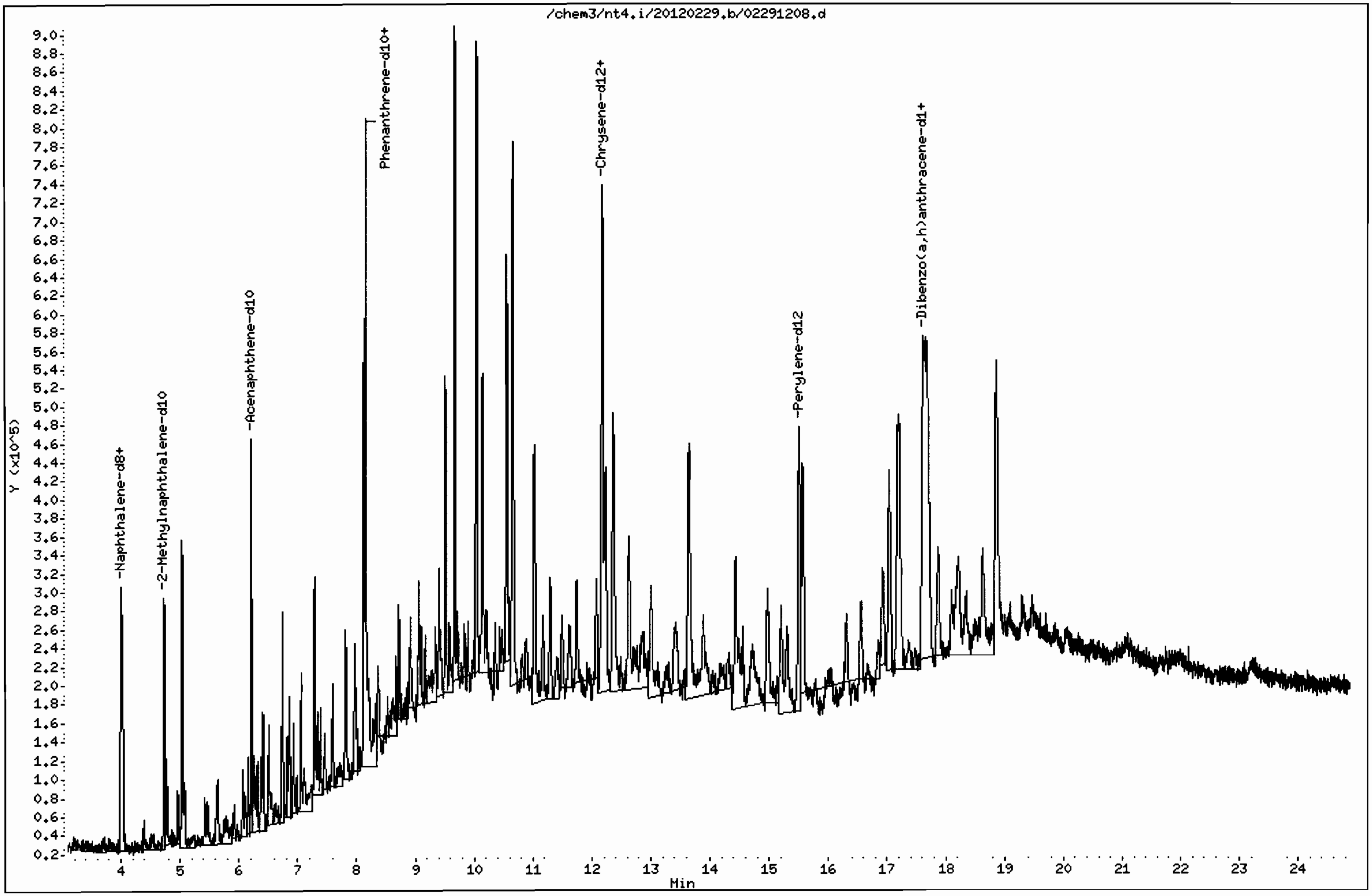
Volume Injected (uL): 1.0

Column phase: ZB-35

Instrument: nt4.i

Operator: JZ

Column diameter: 0.25



Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

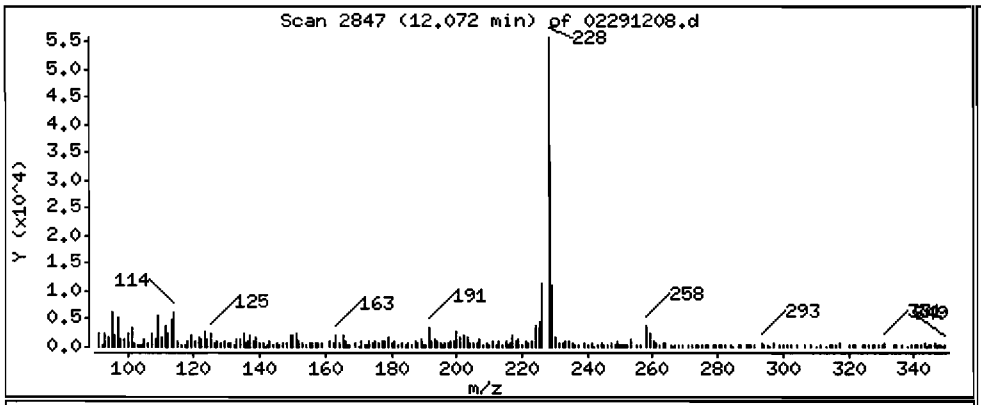
Client ID: SP-M2-5 Instrument: nt4.i

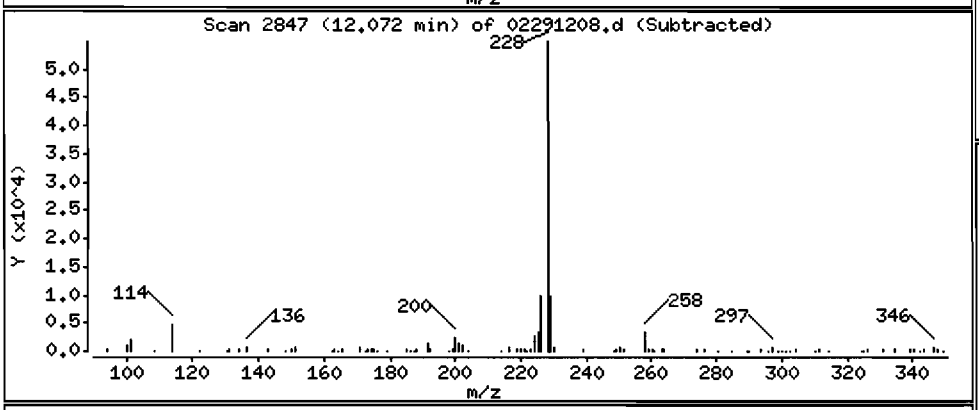
Sample Info: UI96B

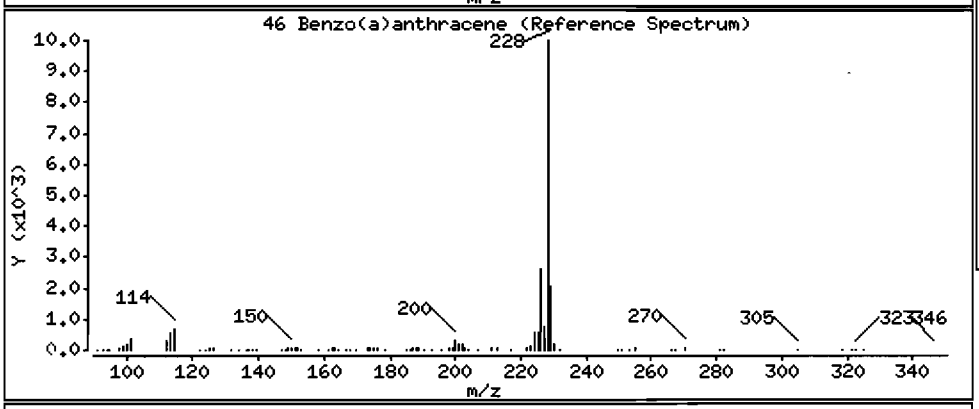
Volume Injected (uL): 1.0 Operator: JZ

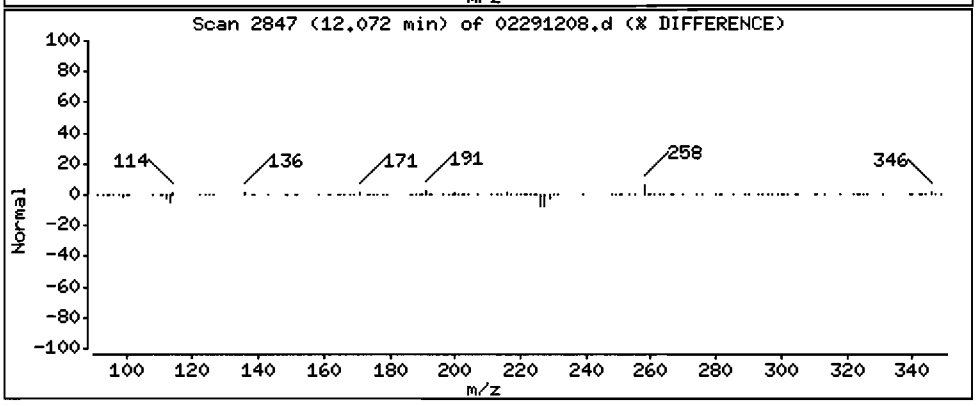
Column phase: ZB-35 Column diameter: 0.25

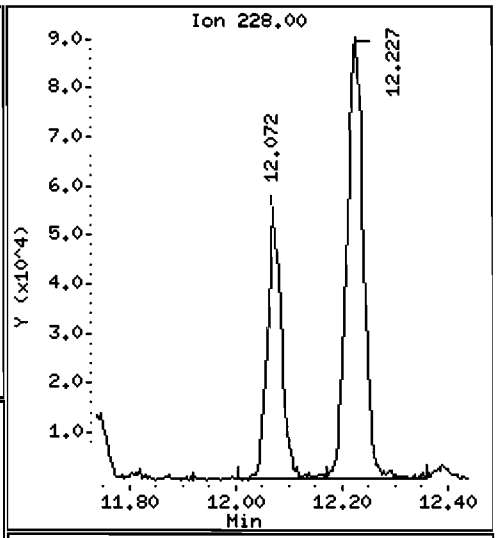
46 Benzo(a)anthracene Concentration: 37.06 ug/kg

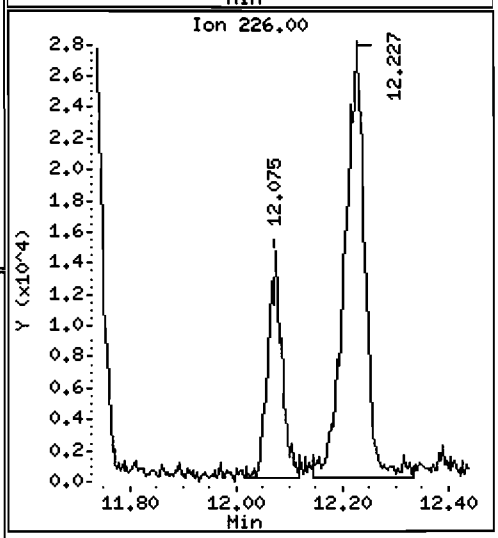












Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

Client ID: SP-M2-5

Instrument: nt4.i

Sample Info: UI96B

Volume Injected (uL): 1.0

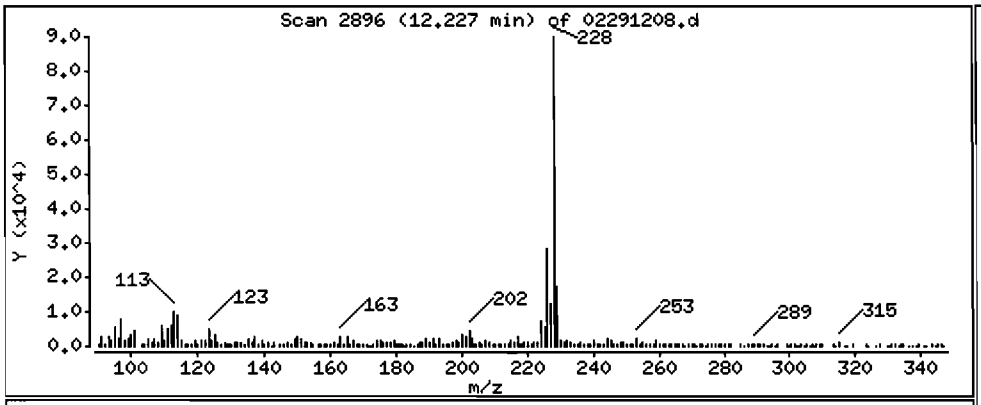
Operator: JZ

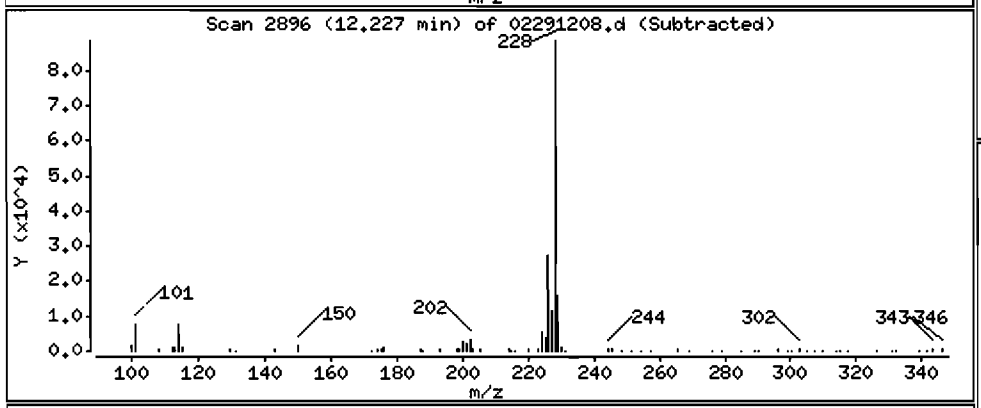
Column phase: ZB-35

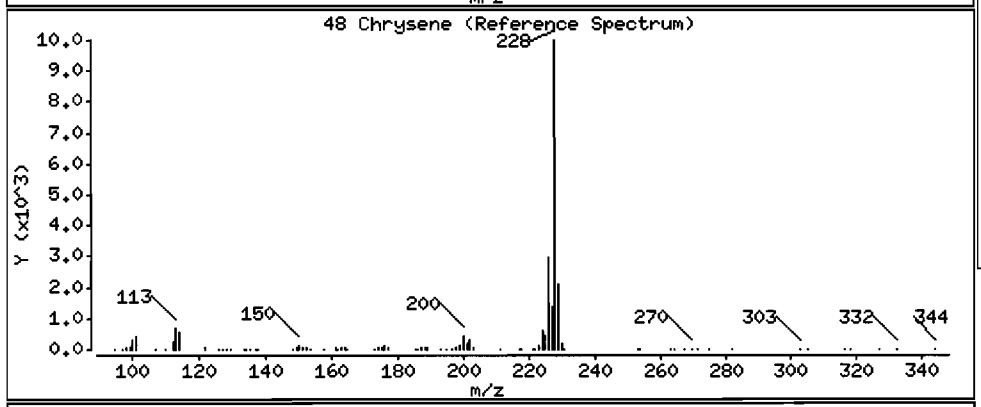
Column diameter: 0.25

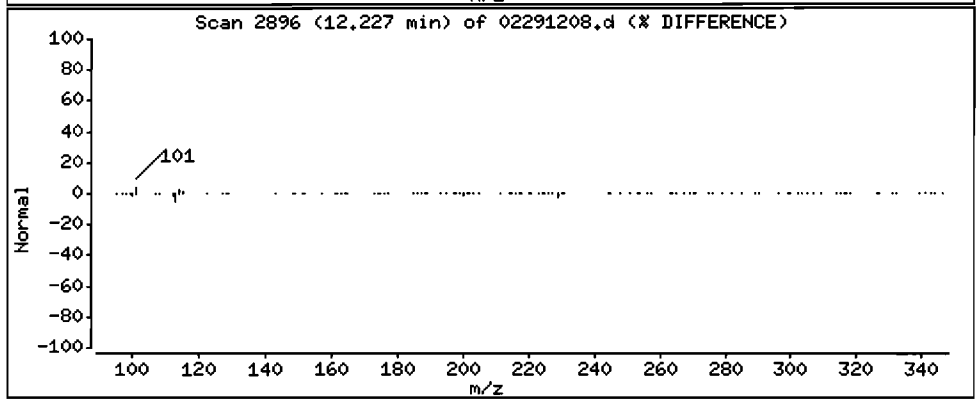
48 Chrysene

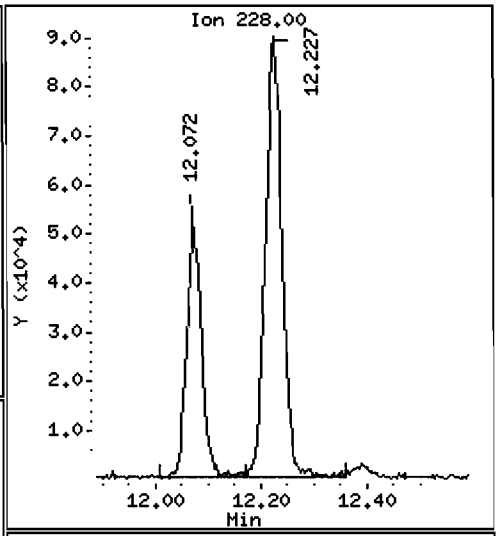
Concentration: 68.57 ug/kg

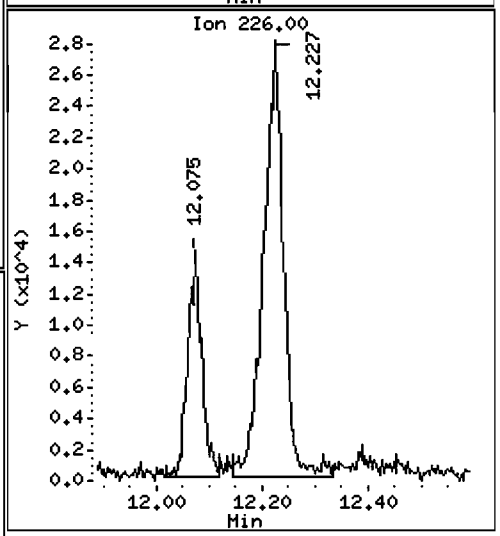






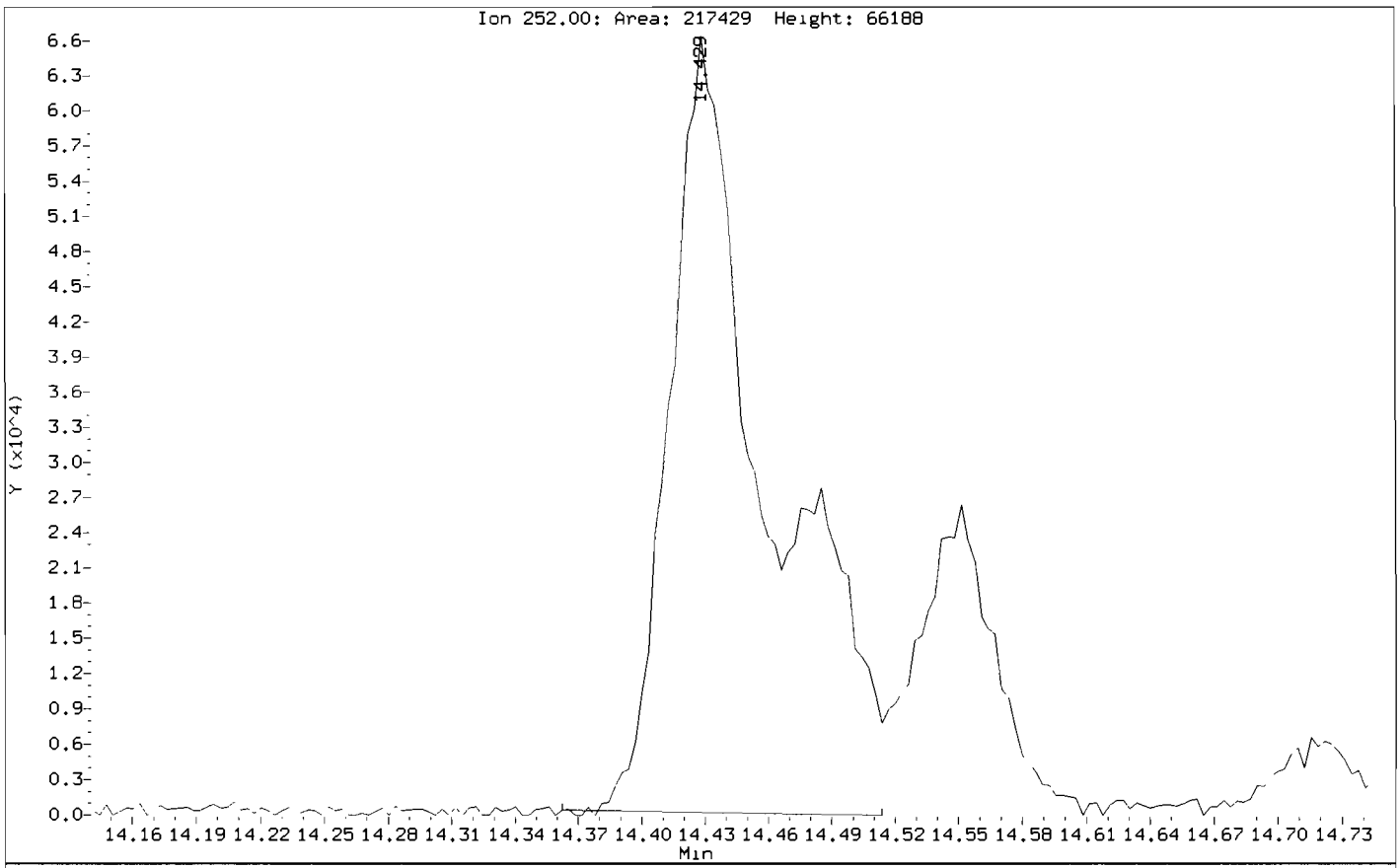


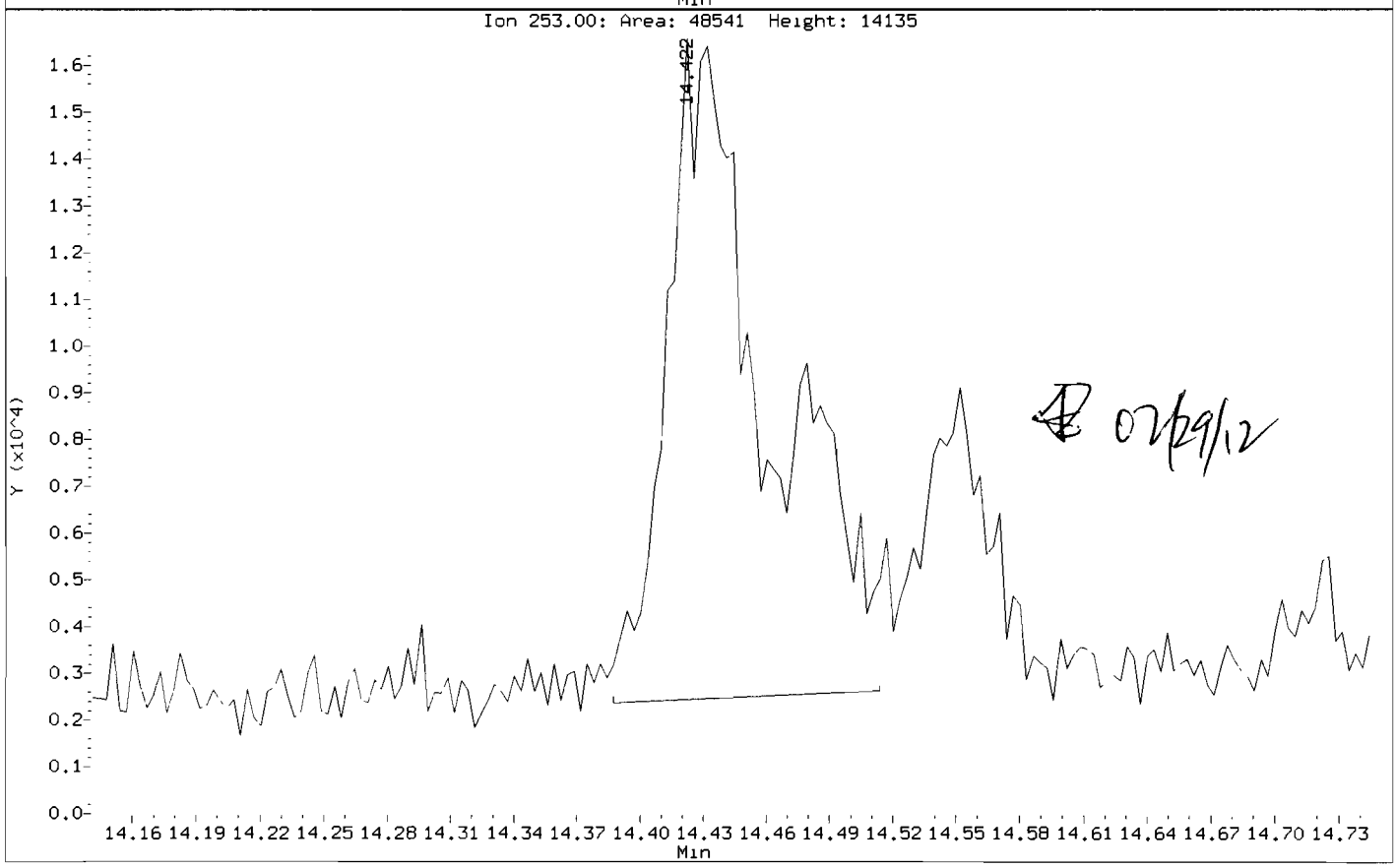




Data File: /chem3/nt4.i/20120229.b/02291208.d
Injection Date: 29-FEB-2012 13:59
Instrument: nt4.i
Client Sample ID: SP-M2-5

Compound: Benzo(b)fluoranthene
CAS Number: 205-99-2

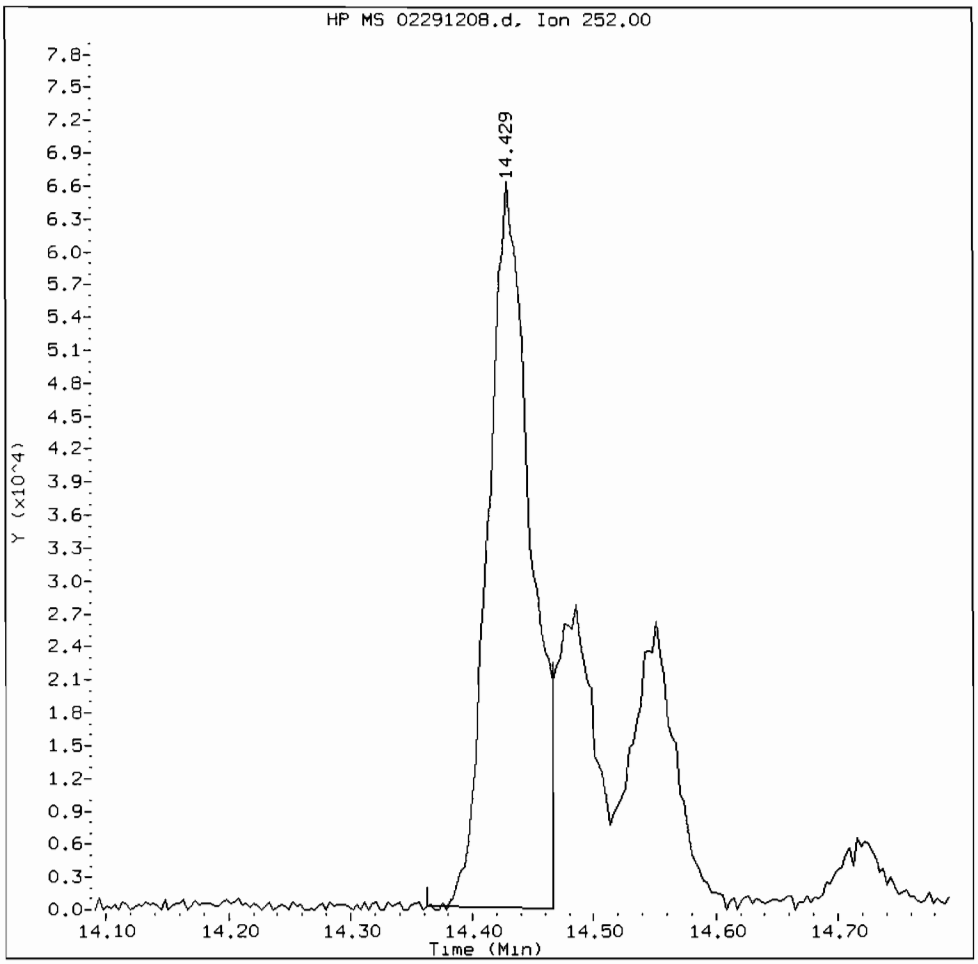




07/29/12

UI96B, /chem3/nt4.i/20120229.b/02291208.d

Benzo(b)fluoranthene Amount: 1.06 Area: 161281



MANUAL INTEGRATION for Benzo(b)fluoranthene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 02/29/12

Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

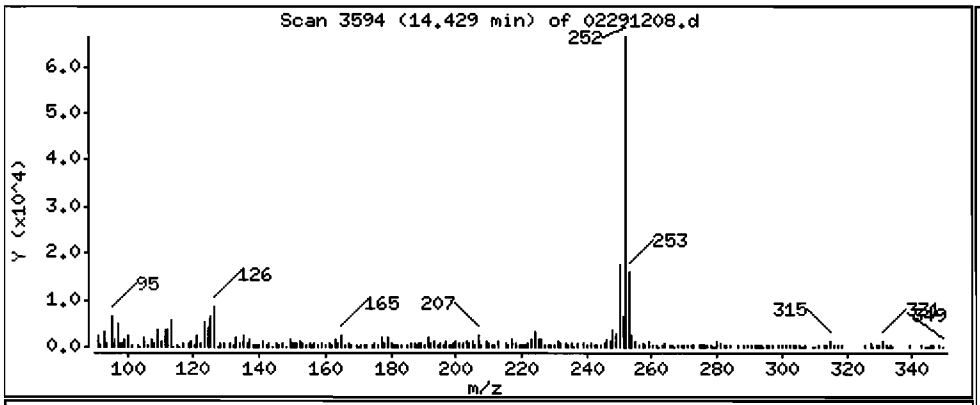
Client ID: SP-M2-5 Instrument: nt4.i

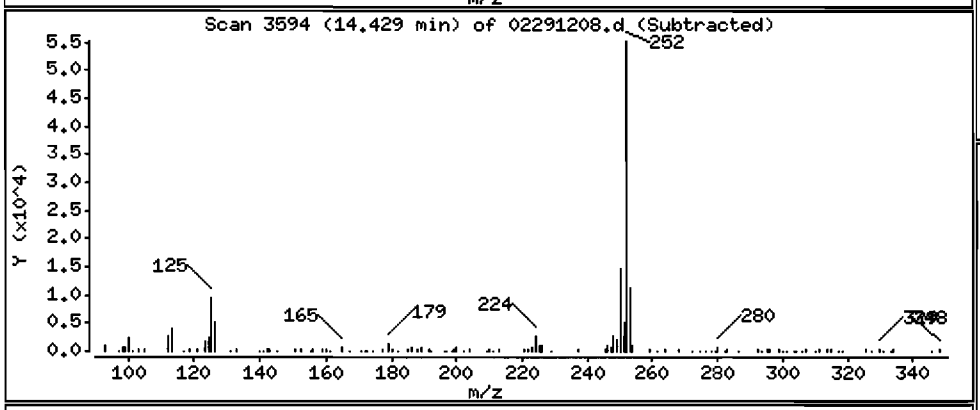
Sample Info: UI96B

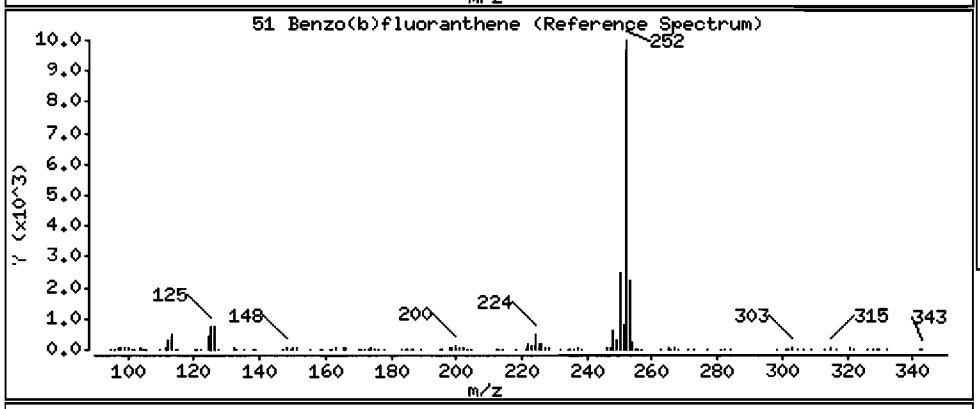
Volume Injected (uL): 1.0 Operator: JZ

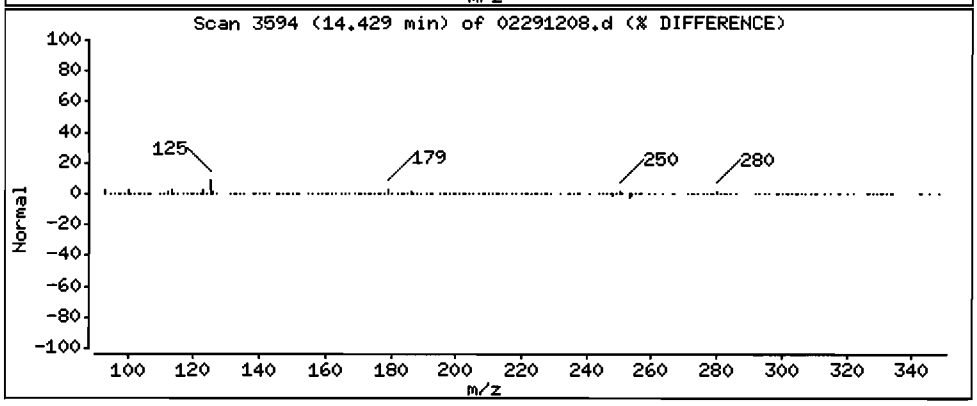
Column phase: ZB-35 Column diameter: 0.25

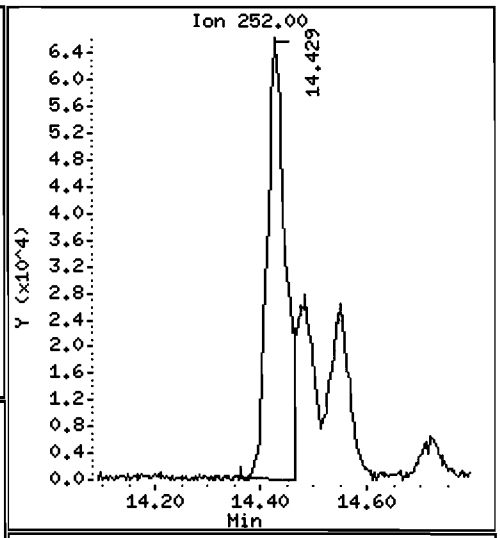
51 Benzo(b)fluoranthene Concentration: 50.80 ug/kg

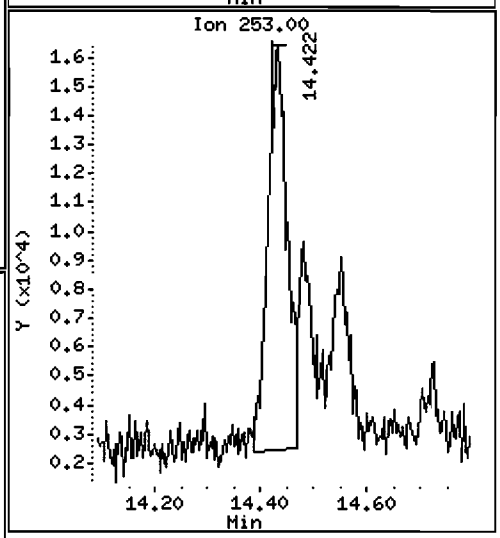






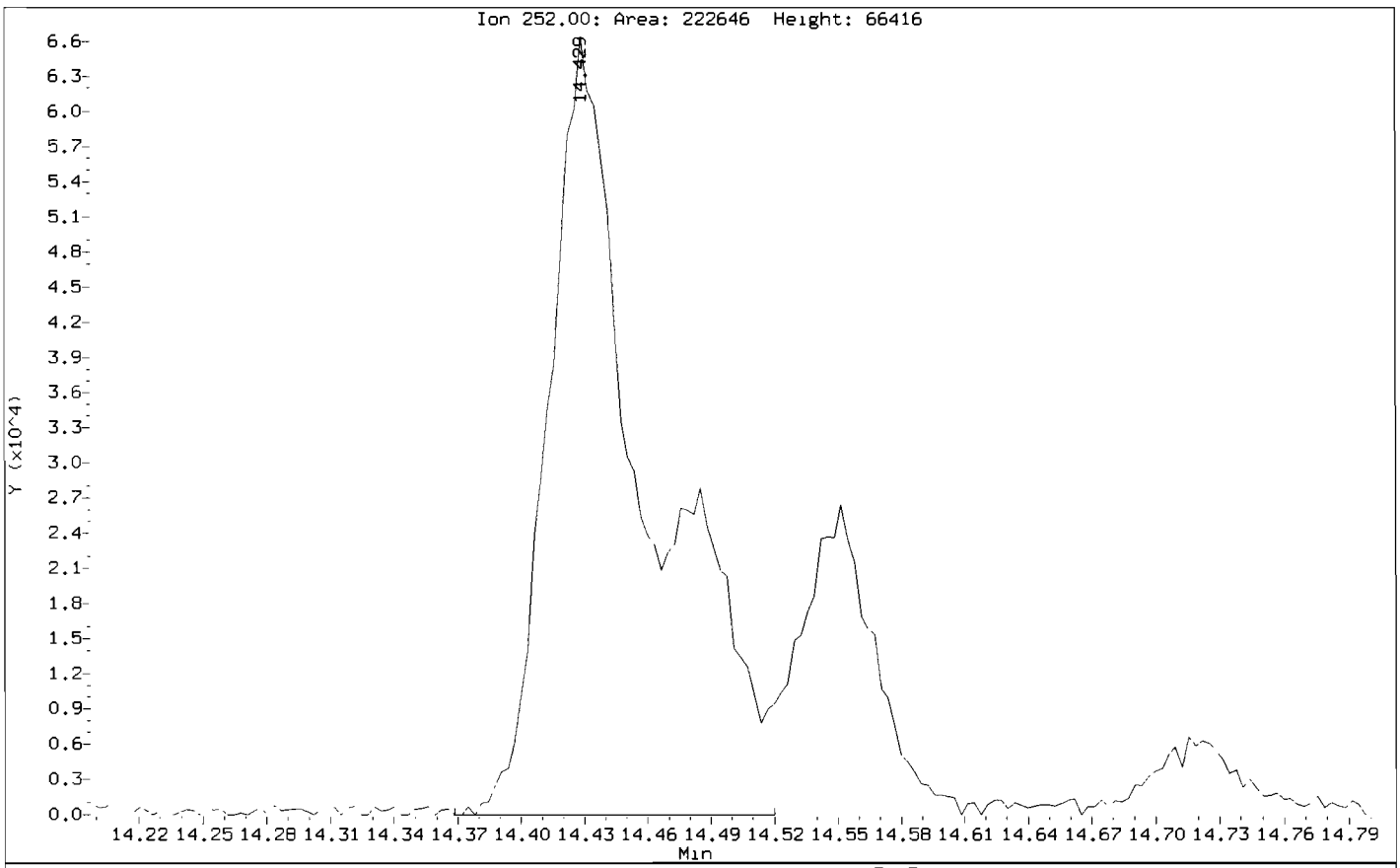


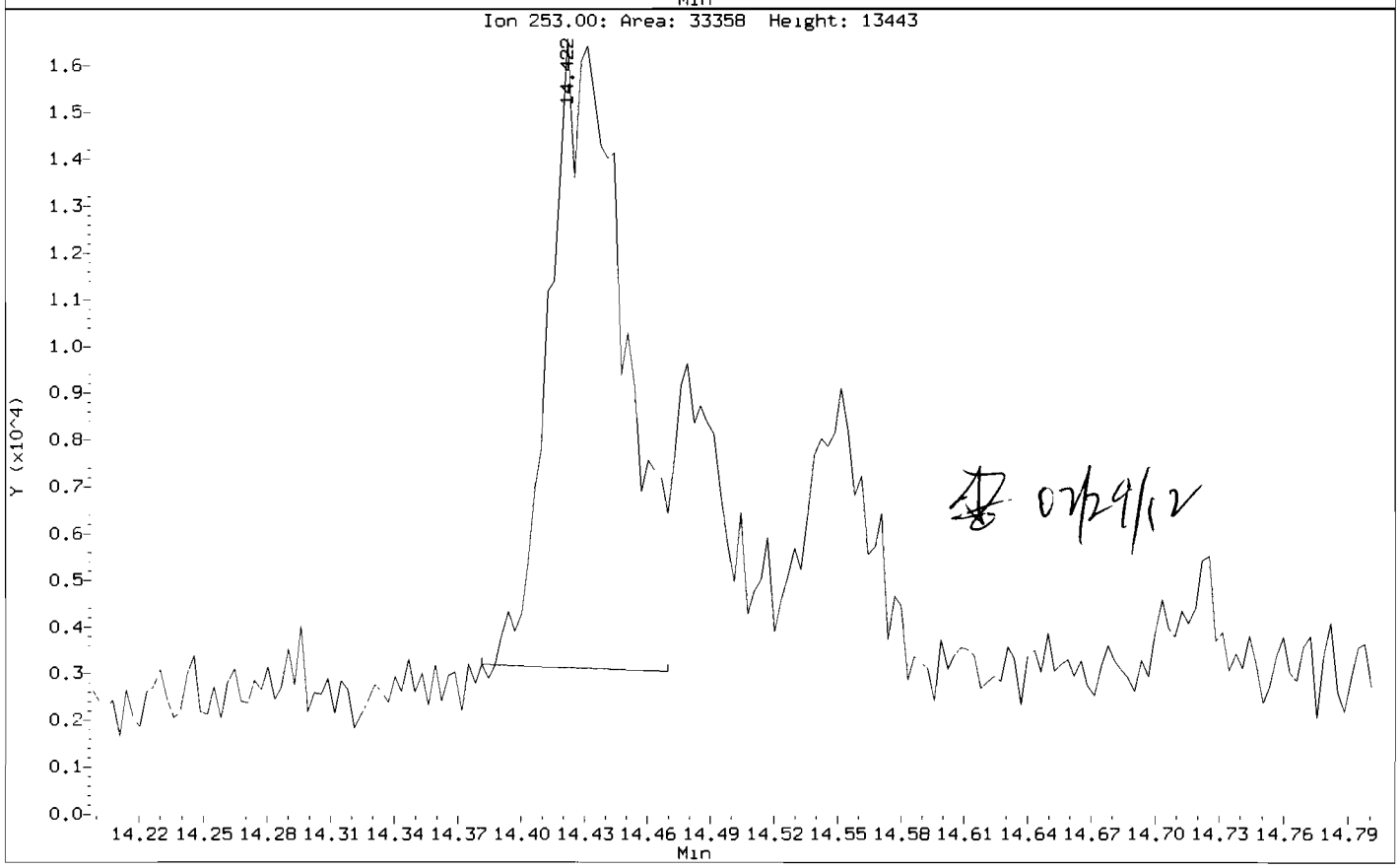




Data File: /chem3/nt4.i/20120229.b/02291208.d
Injection Date: 29-FEB-2012 13:59
Instrument: nt4.i
Client Sample ID: SP-M2-5

Compound: Benzo(k)fluoranthene
CAS Number: 207-08-9





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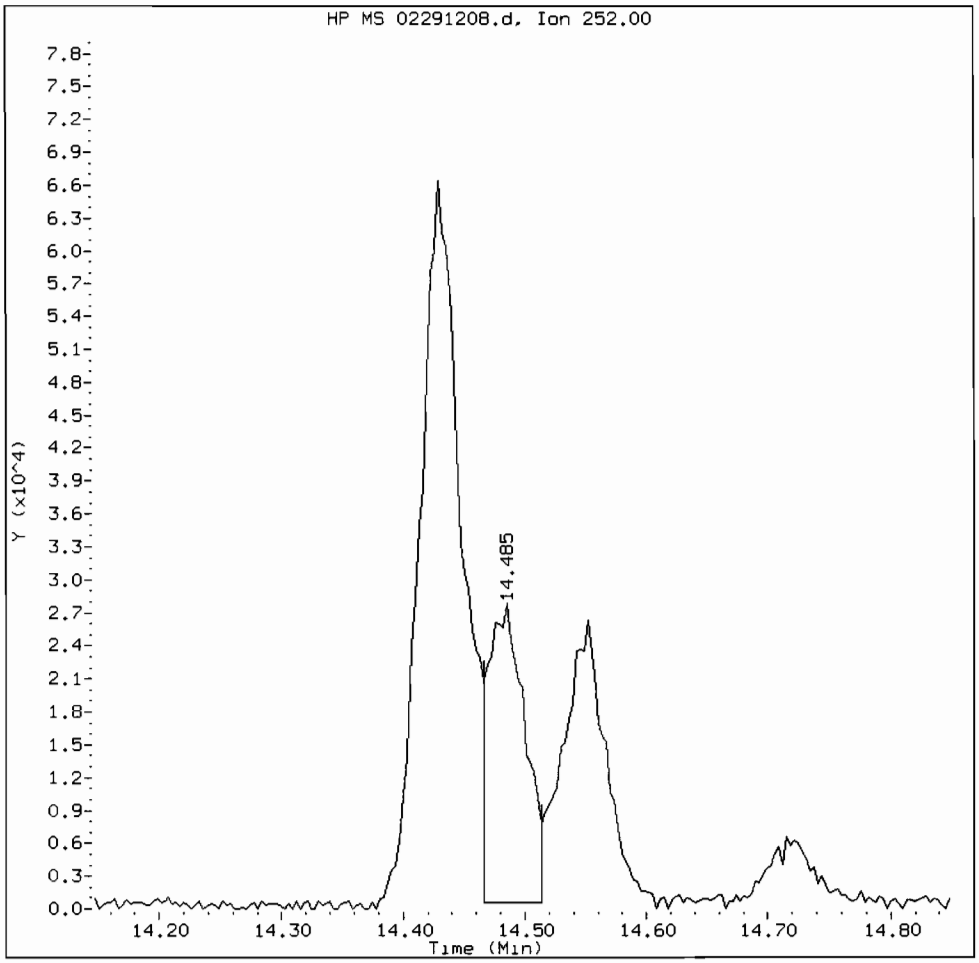
UI96B, /chem3/nt4.i/20120229.b/02291208.d

Benzo(k)fluoranthene Amount: 0.39 Area: 58633



MANUAL INTEGRATION for Benzo(k)fluoranthene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 02/29/12

Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

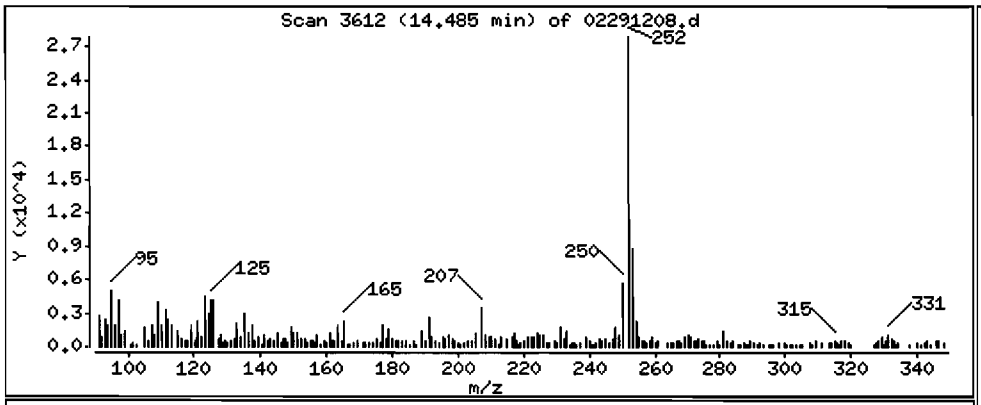
Client ID: SP-M2-5 Instrument: nt4.i

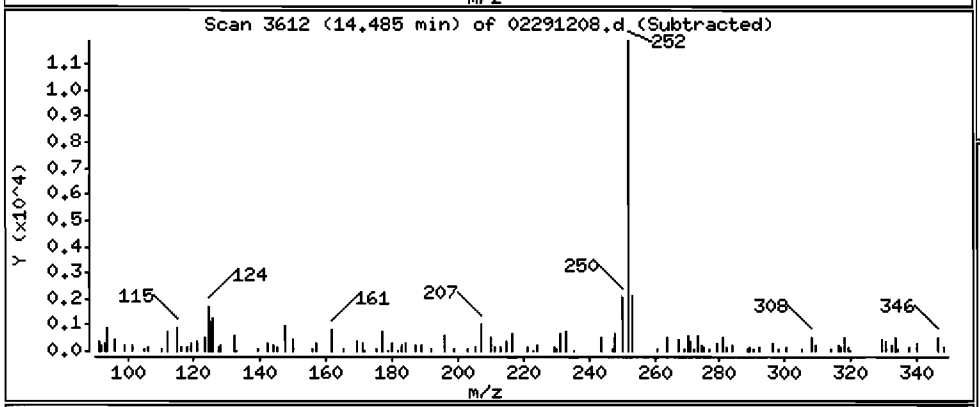
Sample Info: UI96B

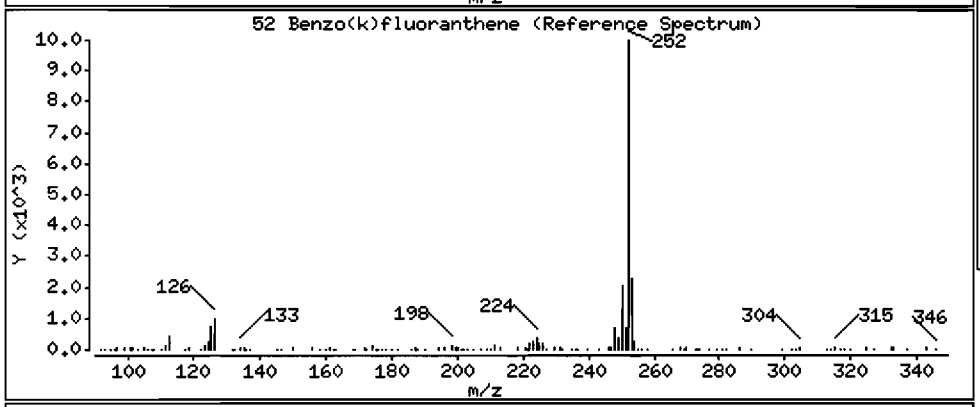
Volume Injected (uL): 1.0 Operator: JZ

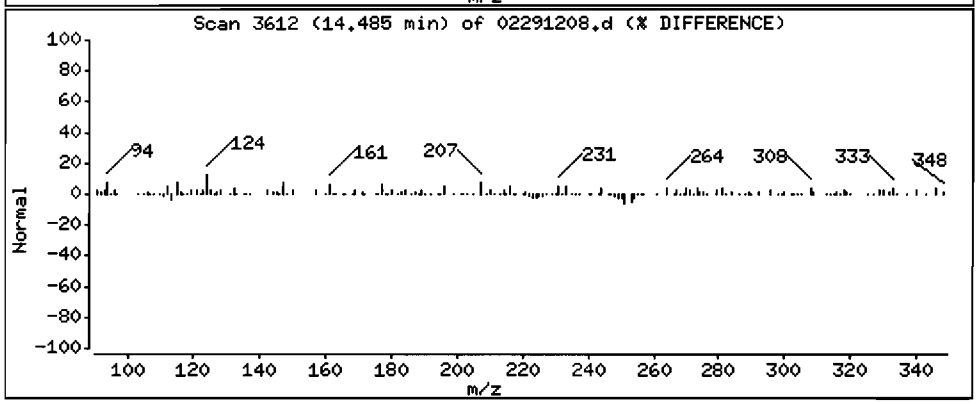
Column phase: ZB-35 Column diameter: 0.25

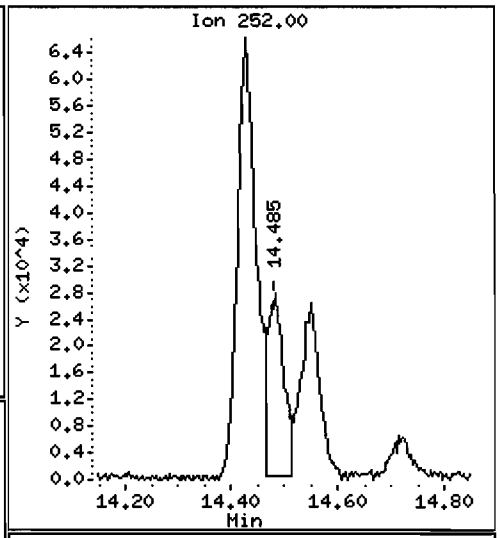
52 Benzo(k)fluoranthene Concentration: 18.74 ug/kg

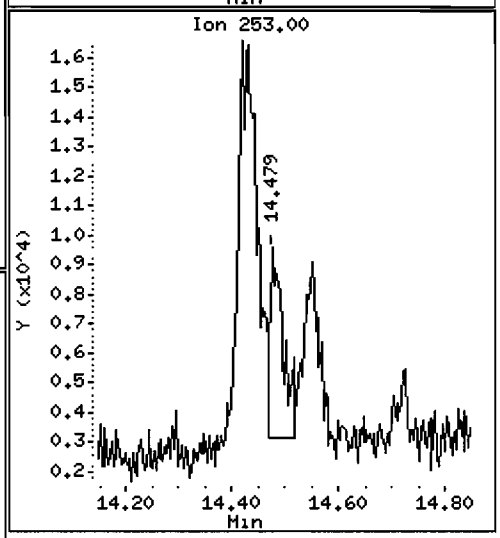






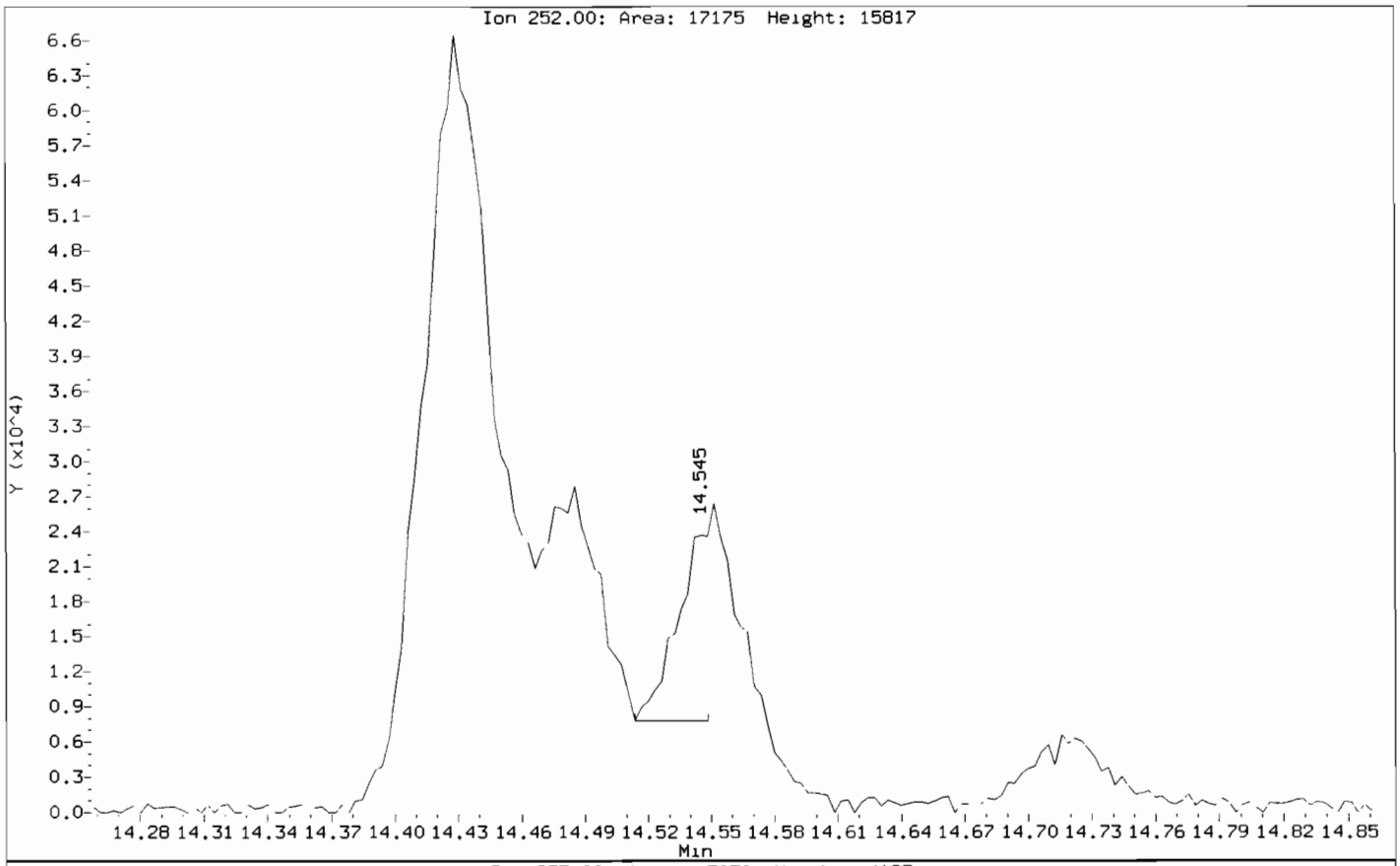


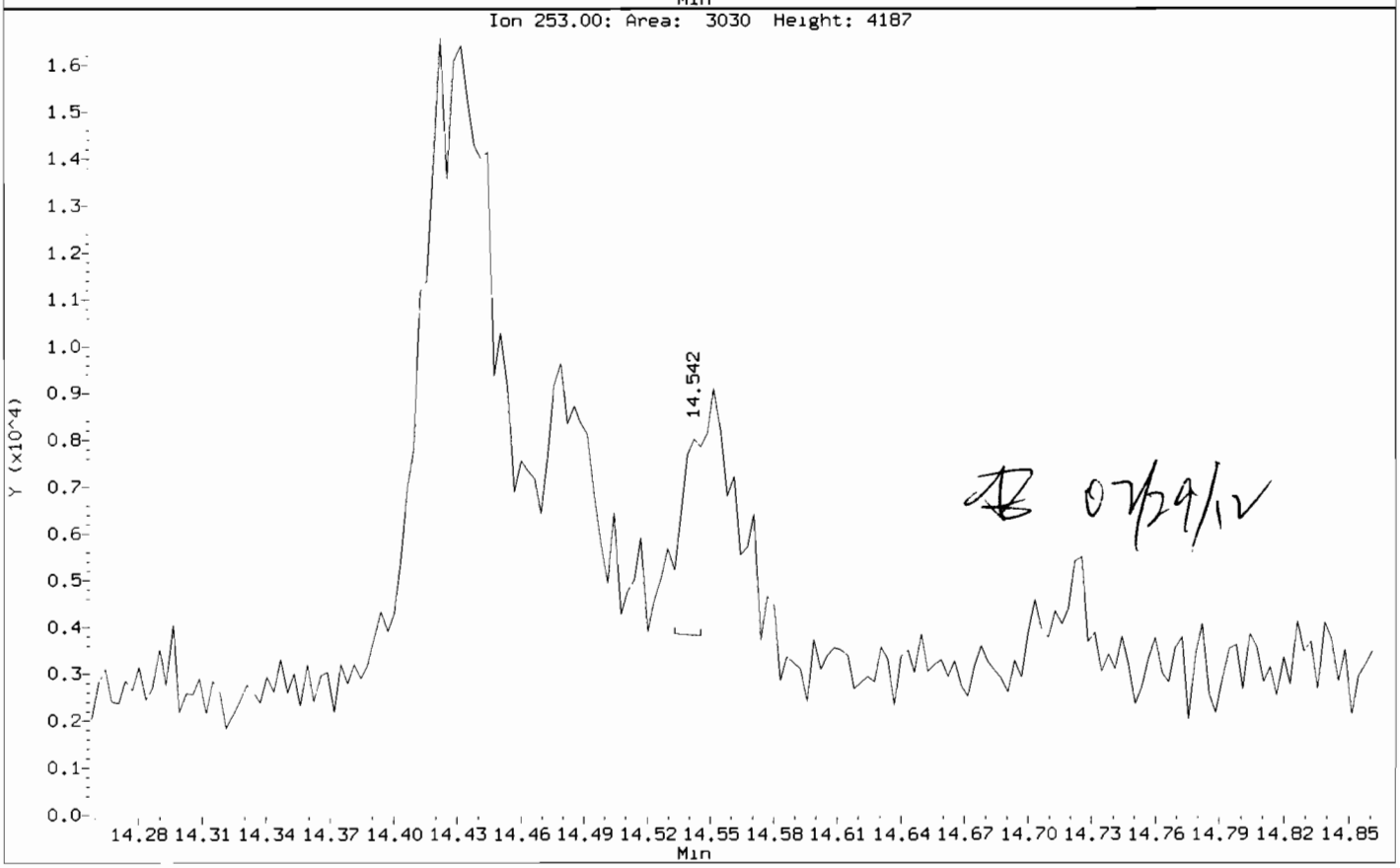




Data File: /chem3/nt4.i/20120229.b/02291208.d
Injection Date: 29-FEB-2012 13:59
Instrument: nt4.i
Client Sample ID: SP-M2-5

Compound: Benzo(j)fluoranthene
CAS Number:

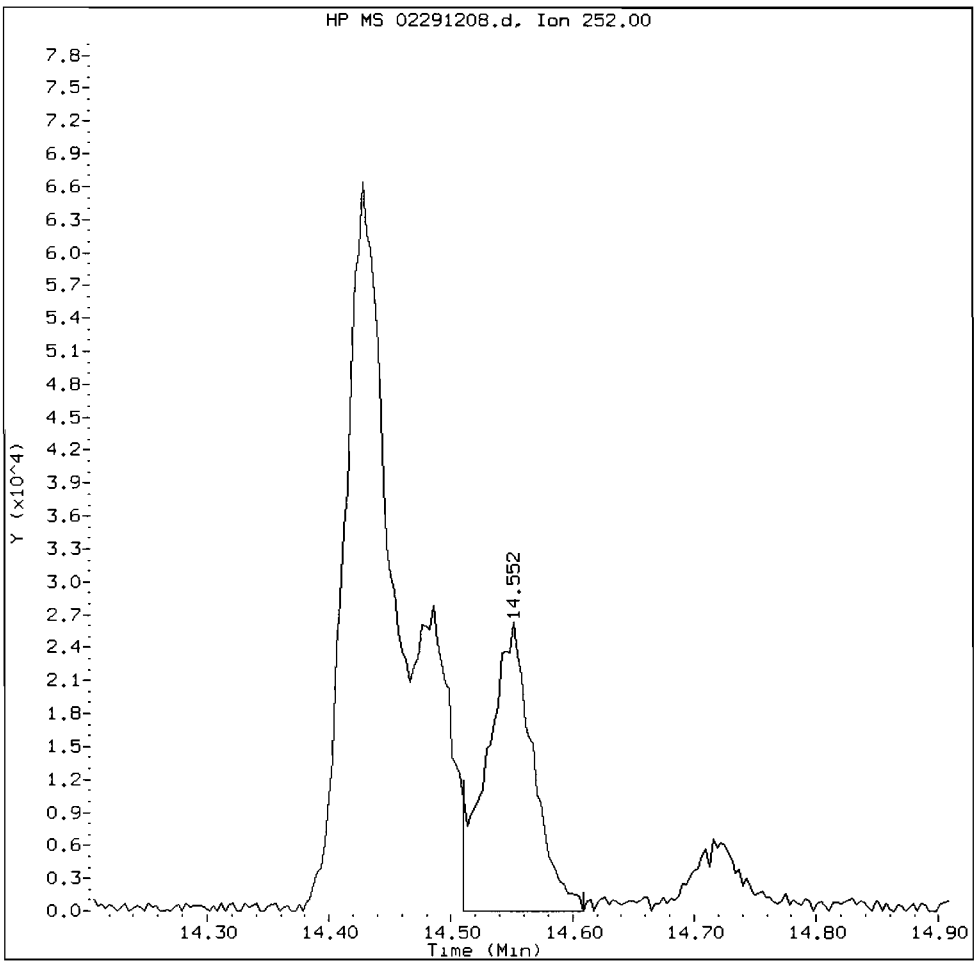




07/29/12

UI96B, /chem3/nt4.i/20120229.b/02291208.d

Benzo(j)fluoranthene Amount: 0.52 Area: 69499



MANUAL INTEGRATION for Benzo(j)fluoranthene

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 02/29/12

Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

Client ID: SP-M2-5

Instrument: nt4.i

Sample Info: UI96B

Volume Injected (uL): 1.0

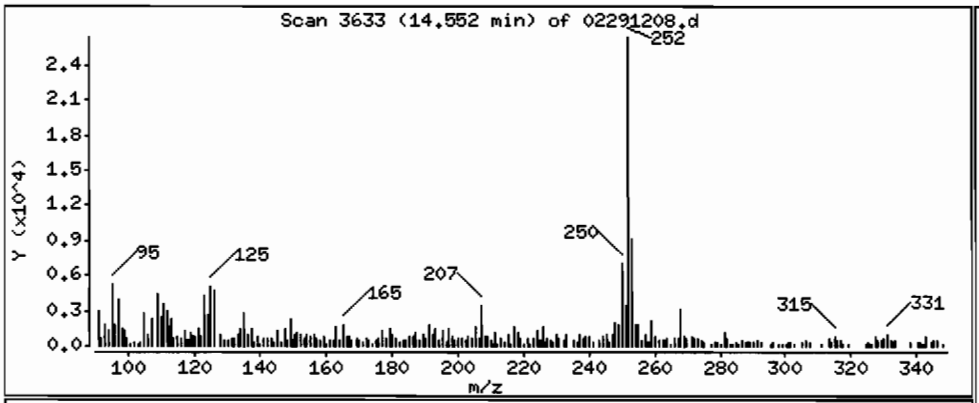
Operator: JZ

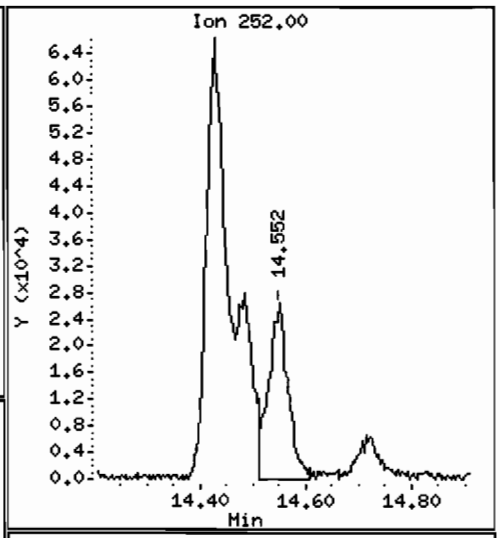
Column phase: ZB-35

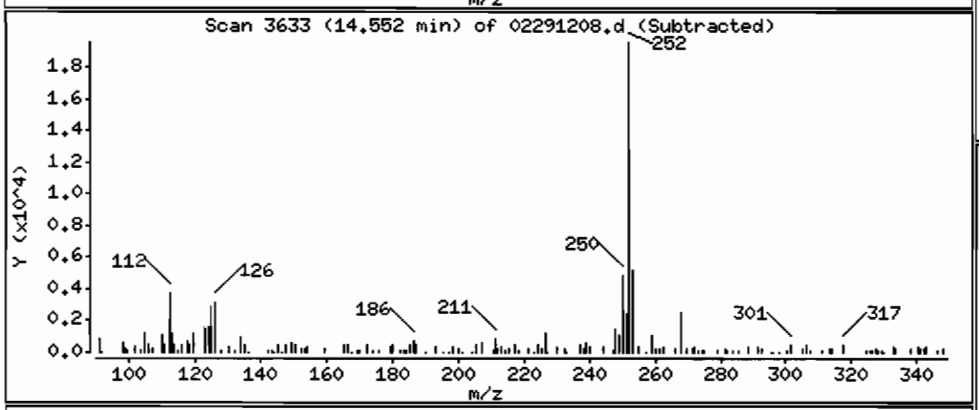
Column diameter: 0.25

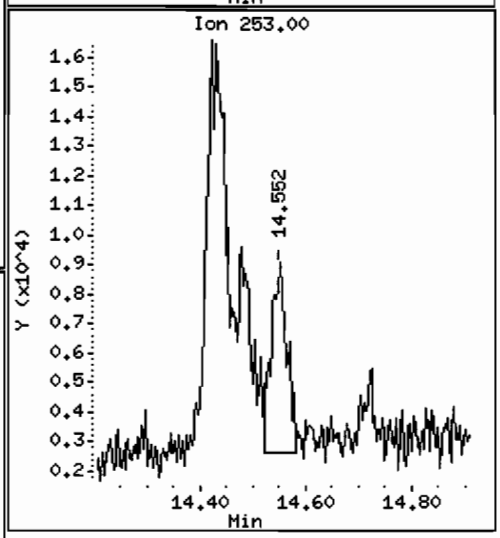
251 Benzo(j)fluoranthene

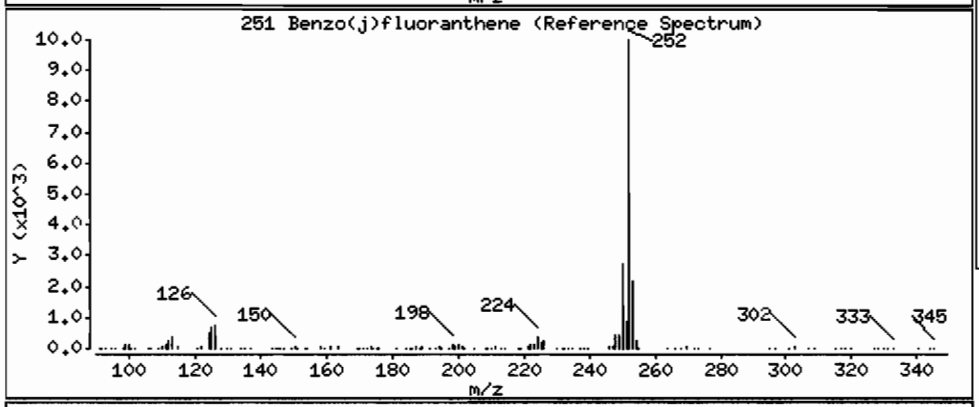
Concentration: 25.22 ug/kg

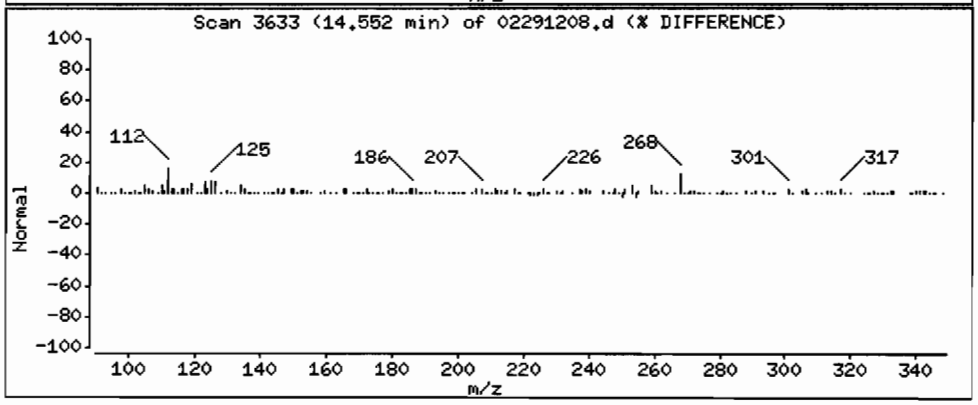












Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

Client ID: SP-M2-5

Instrument: nt4.i

Sample Info: UI96B

Volume Injected (uL): 1.0

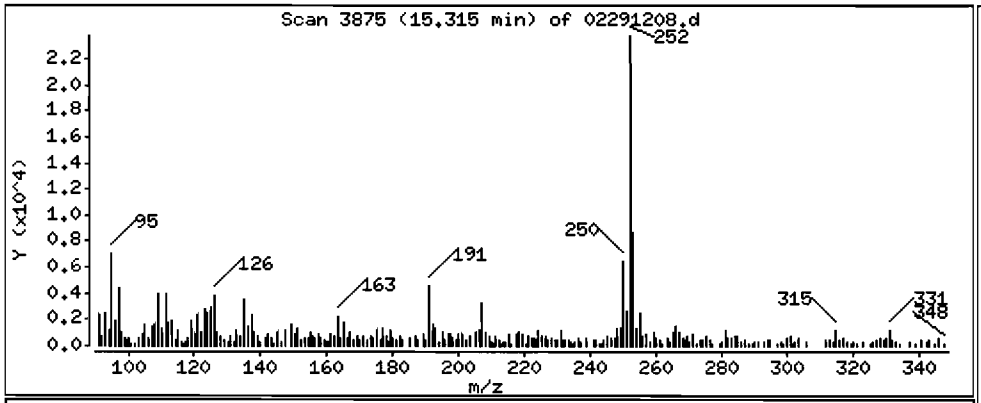
Operator: JZ

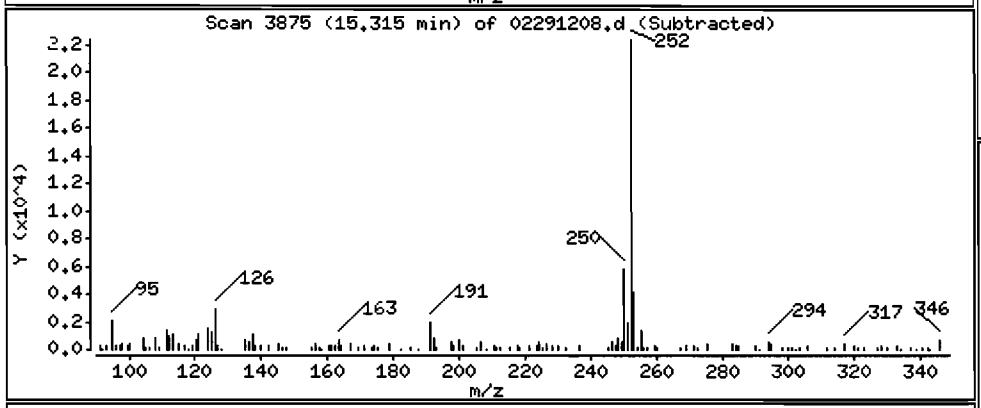
Column phase: ZB-35

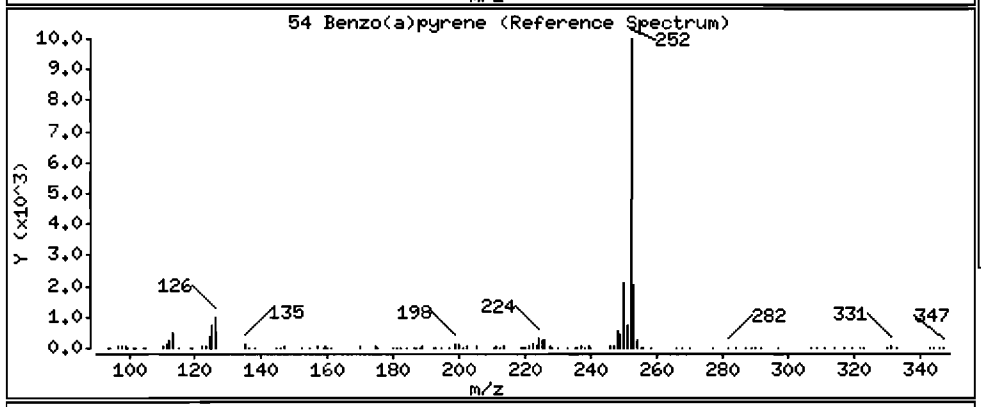
Column diameter: 0.25

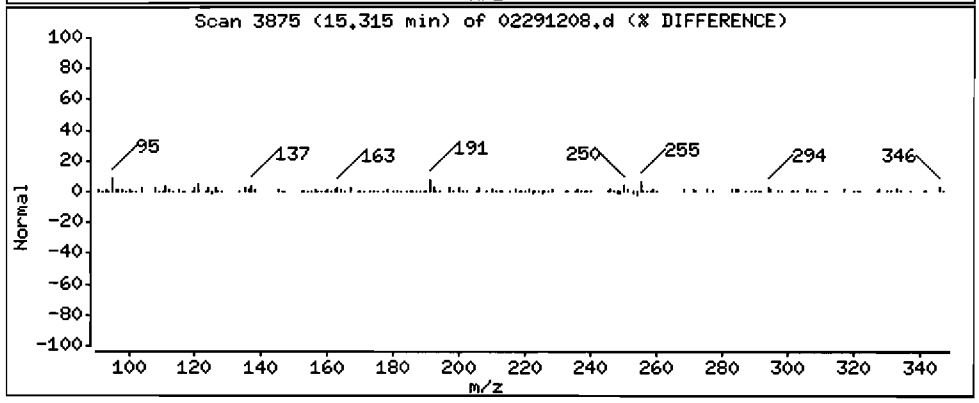
54 Benzo(a)pyrene

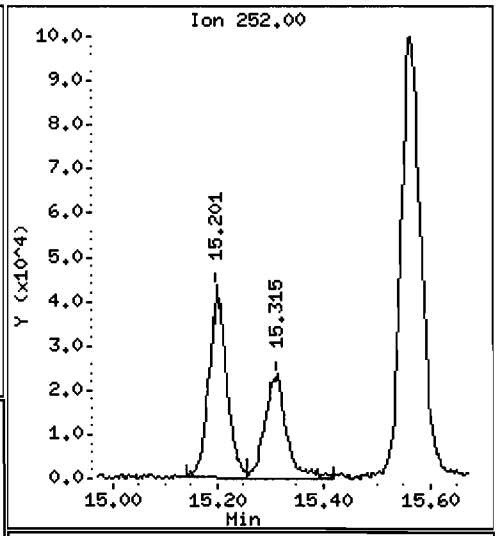
Concentration: 25.19 ug/kg

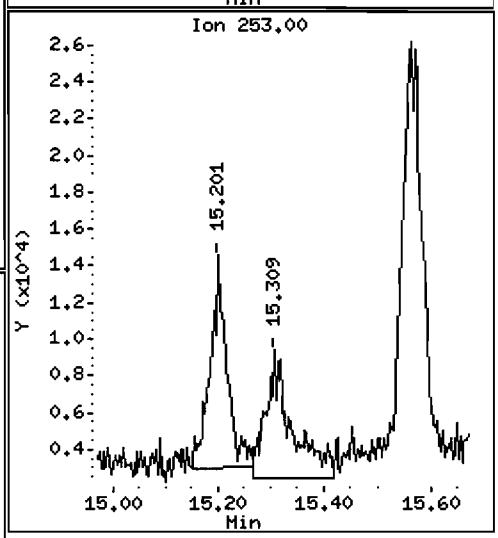












Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

Client ID: SP-M2-5

Instrument: nt4.i

Sample Info: UI96B

Volume Injected (uL): 1.0

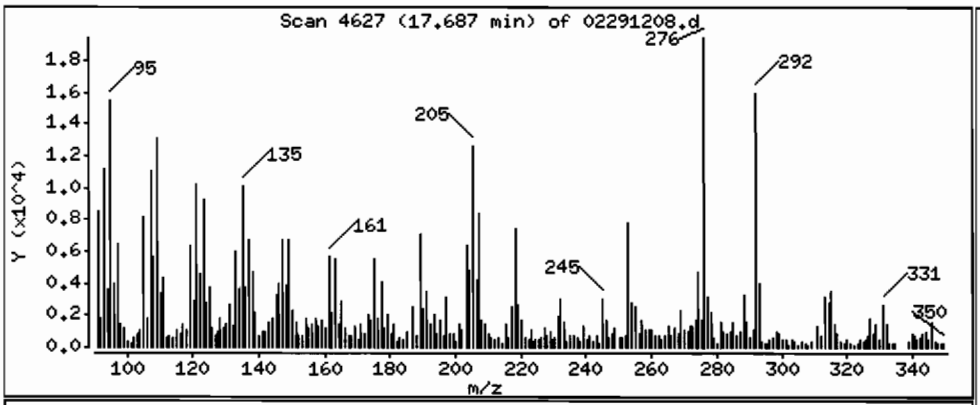
Operator: JZ

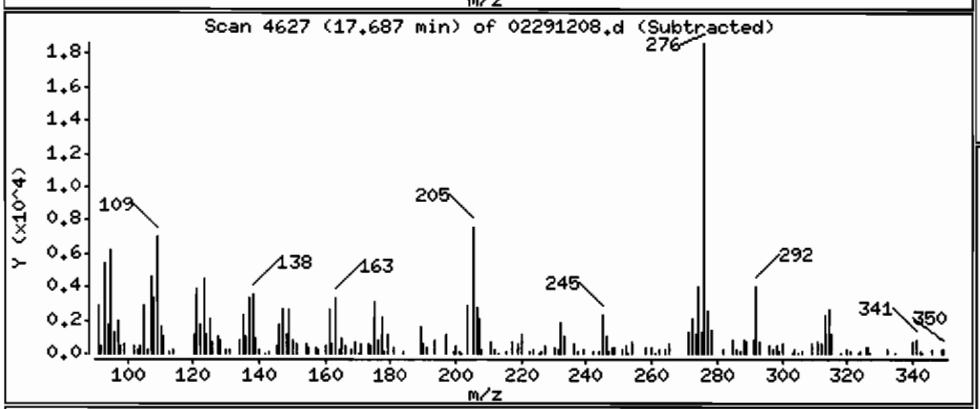
Column phase: ZB-35

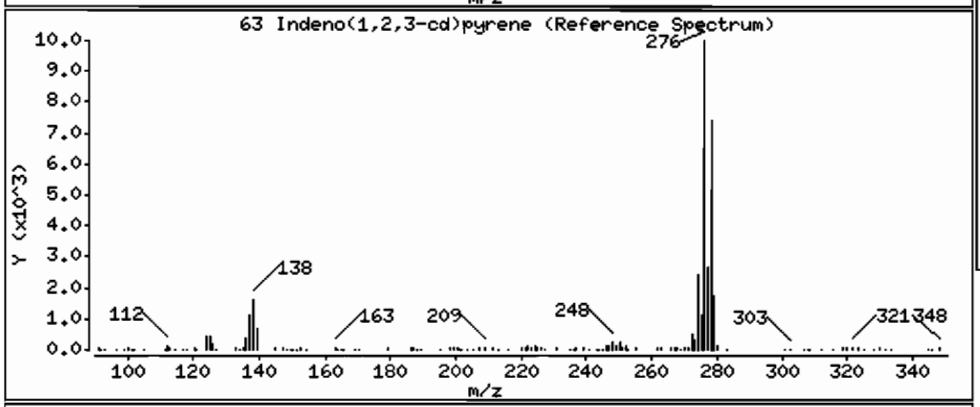
Column diameter: 0.25

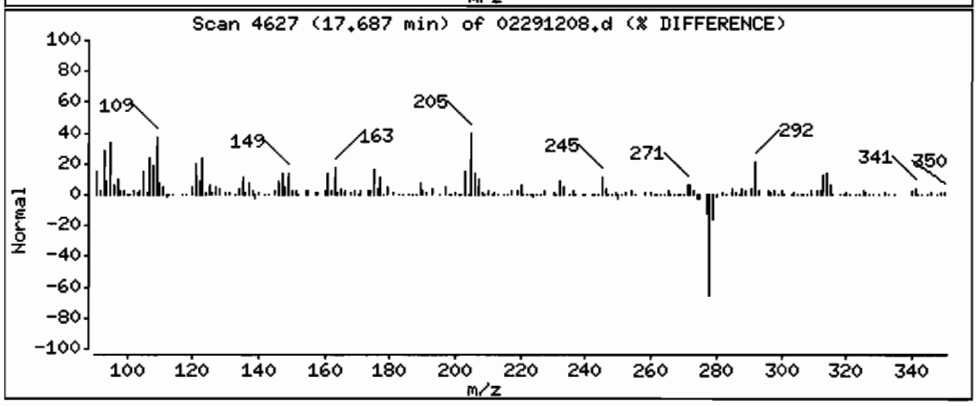
63 Indeno(1,2,3-cd)pyrene

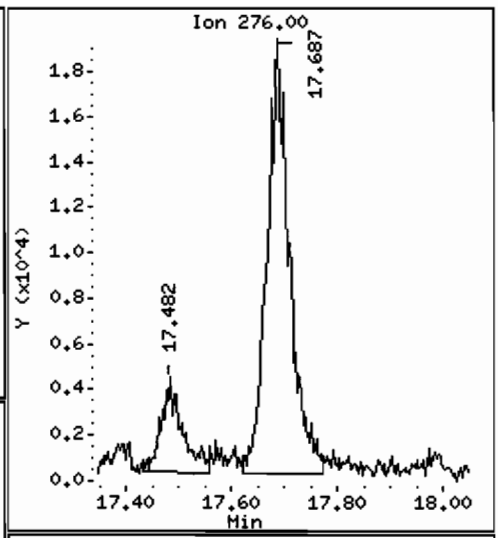
Concentration: 15.59 ug/kg

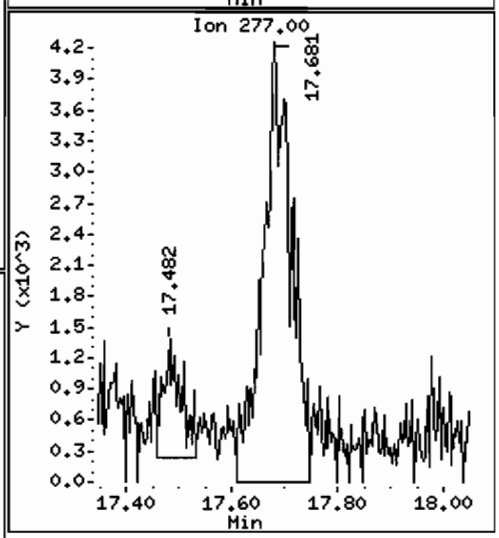












Data File: /chem3/nt4.i/20120229.b/02291208.d

Date : 29-FEB-2012 13:59

Client ID: SP-M2-5

Instrument: nt4.i

Sample Info: UI96B

Volume Injected (uL): 1.0

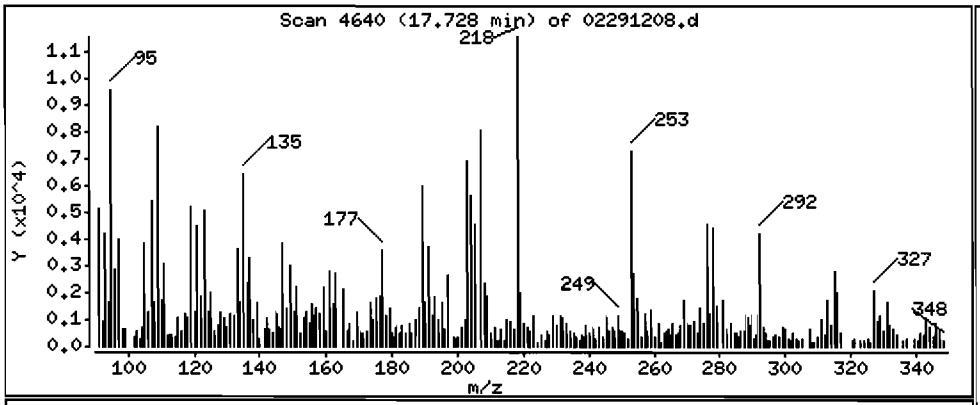
Operator: JZ

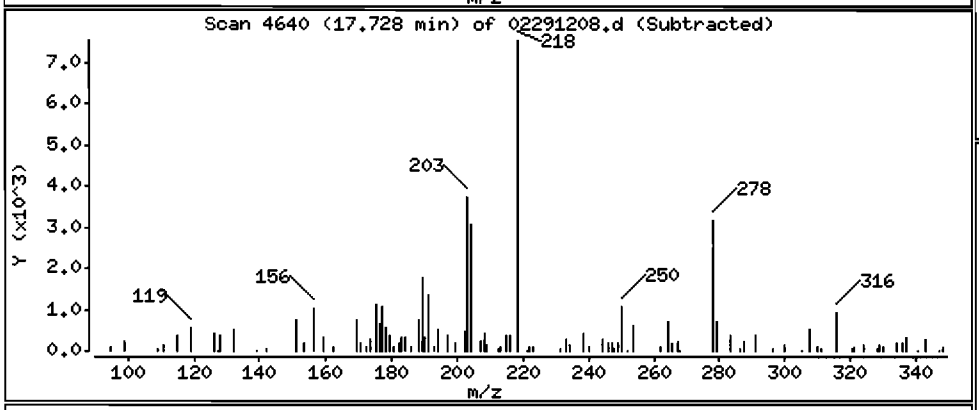
Column phase: ZB-35

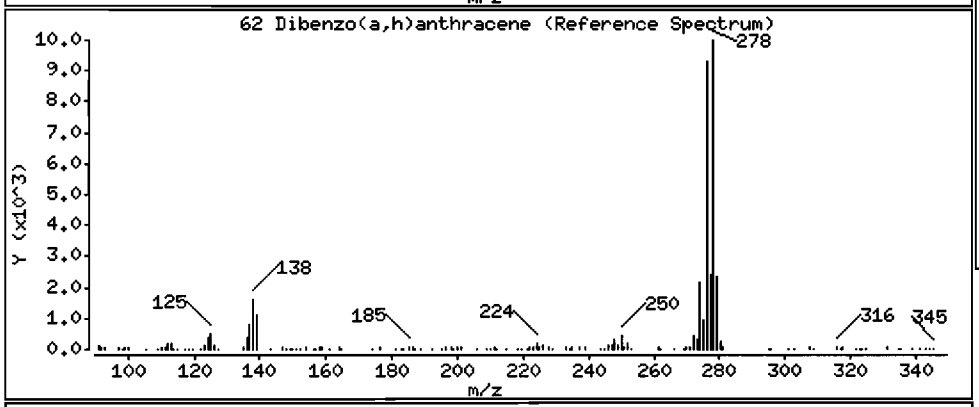
Column diameter: 0.25

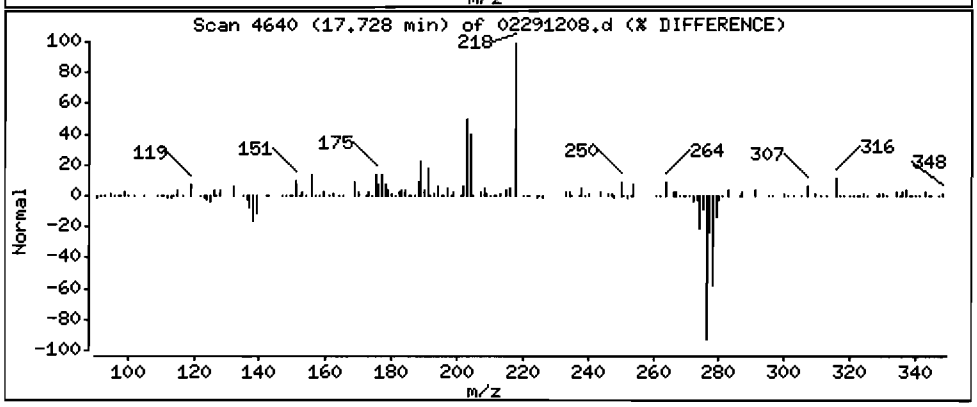
62 Dibenzo(a,h)anthracene

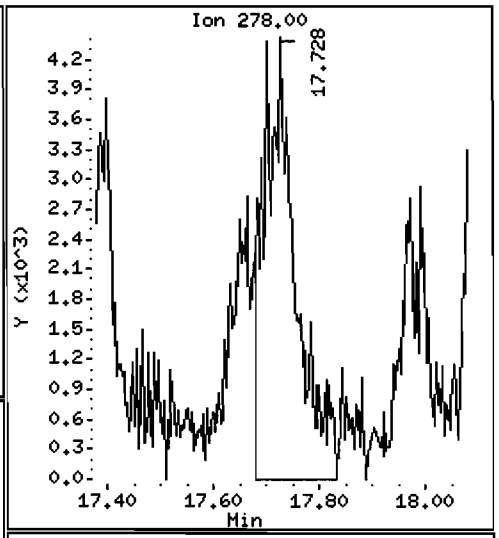
Concentration: 6.496 ug/kg

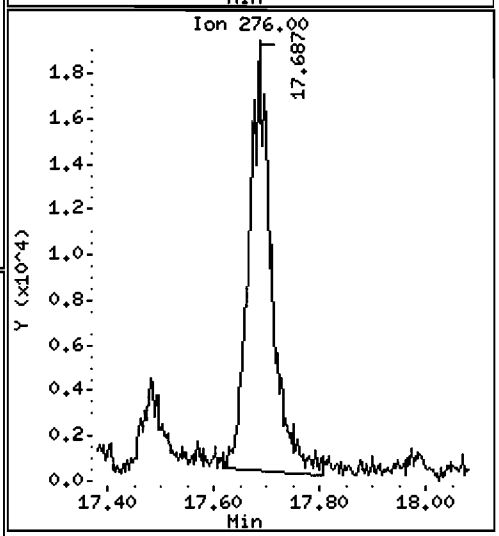












CO-ELUTION SUMMARY FOR FILE - 02291208.d

Lab ID: UI96B, Method: FSIMPNA1121.m, Instrument: nt4.i, Date: 29-FEB-2012

RT	CO-ELUTION COMPOUNDS

NO CO-ELUTIONS

Table of Contents: ARI Job UK84

Client: SLR International Corp. Project: 108.00339.00001 Bay Wood

EJ
Signature

March-09-2012
Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

March 14, 2012

Scott Miller
SLR International Corp.
1800 Blankenship Road, Suite 440
West Linn, OR 97068

RE: Bay Wood, 108.00339.00001
ARI Job No.: UK84

Dear Scott:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
-For-
Susan D. Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile UK84

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UK84

Subject: RE: UI96 Bay Wood Data Package
From: Megan Coracci <mcoracci@slrconsulting.com>
Date: 3/5/2012 4:02 PM
To: Cheronne Oreiro <cheronneo@anlabs.com>
CC: Chris Kramer <ckramer@slrconsulting.com>

Hi Cheronne - I need follow-up analysis on two more samples:

SP-M2-16
SP-E1-9

Thanks!

Megan Coracci
Senior Scientist
SLR International Corp

Email: mailto:mcoracci@slrconsulting.com
Mob: 503-927-7784
Tel: 503-723-4423
Fax: 503-723-4436

1600 Blankenship Road, Suite 440, West Linn, 97068, United States

www.slrconsulting.com

-----Original Message-----
From: Cheronne Oreiro [mailto:cheronneo@anlabs.com]
Sent: Friday, March 02, 2012 11:56 AM
To: Chris Kramer
Cc: Megan Coracci
Subject: UI96 Bay Wood Data Package

Hi Chris,

Please see attached.
Thanks,
-Cheronne

--
Cheronne Oreiro
Project Manager
Analytical Resources, Inc.
4611 S. 134th Place, Suite 100
Tukwila, WA 98168-3240
cheronneo@anlabs.com
(206)-695-6214

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard (see comments)	Page: 1 of 2	
ARI Client Company: SLR INTERNATIONAL CORP	Phone: (425) 402-8800	Date: 2/1/12	Ice Present?
Client Contact: CHRIS LEE		No. of Coolers:	Cooler Temps:
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CAL		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: cPAHs	Notes/Comments
SP-M2-6	2/1/12	1150	Soil	1	X	
SP-M2-7		1155			X	
SP-M2-8		1200			X	
SP-M2-9		1205			X	
SP-M2-10		1210			X	
SP-M2-11		1215				
SP-M2-12		1220				
SP-M2-13		1225				
SP-M2-14		1230				
SP-M2-15		1235				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Please extract all samples & then freeze for further analysis.	Printed Name: CHRIS LEE	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
	Company: SLR	Company: ARI	Company:	Company:
	Date & Time: 2/1/12 1533	Date & Time: 2/1/12 1533	Date & Time:	Date & Time:

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number:	Turn-around Requested: Standard (see comments)	Page: 2 of 2	
ARI Client Company: SLR International Corp	Phone: (425) 402-8800	Date: 2/1/12	Ice Present?
Client Contact: Chris Lee		No. of Coolers:	Cooler Temps:
Client Project Name: Bay Wood			
Client Project #: 108.00339.00001	Samplers: CAL		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs	Notes/Comments
SP-M2-16	2/1/12	1240	Soil	1	X	
SP-M2-17	↓	1245	↓	↓		

Comments/Special Instructions: Please extract all samples & then freeze for further analysis

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: Chris Lee	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
Company: SLR	Company: ARI	Company:	Company:
Date & Time: 2/1/12 1533	Date & Time: 2/1/12 1533	Date & Time:	Date & Time:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SLR Project Name: Bay wood

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: U642 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6 0 °C for chemistry) 1.5 0.3 ___ ___

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 2/1/12 Time: 1533

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: _____			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

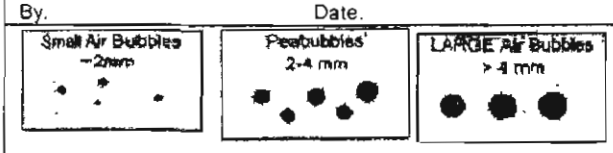
Samples Logged by: TG Date: 2-2-12 Time: 1031

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

~~UG82:00005~~
~~UG82:00005~~

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UC38	Turn-around Requested: ~~Seven days~~ 10 days Standard See Comments	Page: 1 of 2	
ARI Client Company: SLR	Phone: (425) 402-8800	Date: 12/21/11	Ice Present? Y
Client Contact: CHRIS LEE		No. of Coolers: 1	Cooler Temps: 1.7
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CAL / NB		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: CPAHs	Notes/Comments
SP-E1-1	12/21/11	1230	Soil	1		
SP-E1-2		1235				
SP-E1-3		1240				
SP-E1-4		1245				
SP-E1-5		1250				
SP-E1-6		1255				
SP-E1-7		1300				
SP-E1-8		1305				
SP-E1-9		1310				
SP-E1-10		1315				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Please extract samples & then freeze for further analysis	Printed Name: CHRIS LEE	Printed Name: Jose Ugas	Printed Name:	Printed Name:
	Company: SLR	Company: ART	Company:	Company:
	Date & Time: 12/22/11	Date & Time: 12-22-11 13:20	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: UC38	Turn-around Requested: ~~Seven days~~ Standard See comments	Page: 2 of 2	
ARI Client Company: SLR	Phone: (425) 402-8800	Date: 12/21/11	Ice Present? Y
Client Contact: CHRIS LEE		No. of Coolers: 1	Cooler Temps: 1.7
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CAL / NB		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: cPAHs	Notes/Comments
SP-E1-11	12/21/11	1320	Soil	1		
SP-E1-12		1325				
SP-M2-1		1330				
SP-M2-2		1335				
SP-M2-3		1335				
SP-M2-4		1340				
SP-M2-5		1345				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Please extract samples & then freeze for further analysis	Printed Name: CHRIS LEE	Printed Name: Jose Ugas	Printed Name:	Printed Name:
	Company: SLR	Company: ARI	Company:	Company:
	Date & Time: 12/22/11	Date & Time: 12-22-11 13:20	Date & Time:	Date & Time:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SLR
Project Name: Bay Wood
COC No(s): NA
Delivered by: Fed-Ex UPS Courier Hand Delivered Other:
Assigned ARI Job No: UC38
Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)	1.7	

If cooler temperature is out of compliance fill out form 00070F
Temp Gun ID#: 90941619

Cooler Accepted by: JM Date: 12-22-11 Time: 13:20

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI: NA YES Date/Time: Equipment: Split by:

Samples Logged by: JM Date: 12/23/11 Time: 740

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
		

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

UC38: 00005
AO-3144: 00005

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UK84

ANALYTICAL
RESOURCES
INCORPORATED

Case Narrative

Client: SLR International Corp.
Project: Bay Wood, 108.00339.00001
ARI Job No.: UK84

Sample receipt

One soil extract from ARI job UG92 and one soil sample from ARI job UC38 were removed from archive and logged under ARI job UK84. Both were analyzed for SIM PAHs as requested. For details regarding sample receipt, please refer to the Cooler Receipt Forms.

SIM PAHs by SW8270D

The soil sample was extracted and analyzed within the method recommended holding time for samples stored frozen. The soil extract was analyzed within the method recommended holding time.

The initial calibrations were within method requirements.

The continuing calibration (CCAL) on 3/12/12 was outside the 20% control limit high for Dibenz(a,h)anthracene. All detected results associated with this CCAL have been flagged with a "Q" qualifier. No further corrective action was taken.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limit. The LCS and LCSD percent recoveries were within control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UK84
Client: SLR International Corp.
Project Event: 108.00339.00001
Project Name: Bay Wood

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SP-M2-16	UK84A	12-3776	Soil	02/01/12 12:40	02/01/12 15:33
2.	SP-E1-9	UK84B	12-3777	Soil	12/21/11 13:10	02/01/12 15:33

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

SURR SOLUTIONS

LABEL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
A	1920-1	ABN	100/150	MEOH	06/09/12
B	1917-2	SIM PNA	15/75	ACETONE	05/30/12
C	NA	SIM ABN	25/37.5	MEOH	NA
D	1925-5	LOW PCB	0.2	ACETONE	05/28/12
E	1900-2	HERB	62.5	MEOH	10/06/12
F	1919-5	PCP	12.5	ACETONE	12/09/12
G	1906-3	d8-DIOXANE	100	MEOH	04/30/12
H	1847-2	OP-PEST	25	ACETONE	03/23/12
I	1896-3	LOW S. PNA	1.5	ACETONE	09/22/12
J	1915-4	TBT-PORE	0.125	MECL2	11/23/12
K	1925-4	MED PCB	20	ACETONE	05/28/12
L	1915-3	TBT	2.5	MECL2	11/23/12
M	1888-4	EPH	1500	MECL2	04/04/12
N	1914-2	PCB	2	ACETONE	05/28/12
O	1947-2	TPH	450	MECL2	09/28/12
P	1948-3	HCID	2250	MECL2	09/28/12
Q	NA	EDB	1	MEOH	NA
R	1886-3	RESIN ACID	250	ACETONE	02/19/12
S	1864-1	PBDE	.5	MEOH	05/21/12
T	1884-2	ALKYL PNA	10	MEOH	07/15/12
U	NA	CONGENER	2.5	ACETONE	NA
V	1925-2	LOW PCP	1.25	ACETONE	12/09/12

LCS SOLUTIONS

LABL	SOLN ID	TEST	CONC. UG/ML	SOLVENT	EXP.
1	1907-1	PCB 1660	20	ACETONE	11/01/12
2#		BCOC PEST	10	ACETONE	NA
3	1922-2	PEST	01/02/10	ACETONE	12/13/12
4	1922-3	LOW PEST	.1/.2/1	ACETONE	12/13/12
5	1902-4	EPH	1500	MECL2	10/04/12
6	1919-2	PCP	12.5/125	ACETONE	10/15/12
7	1926-2	ABN	100	MEOH	05/31/12
8	1916-2	TBT	2.5	MECL2	11/23/12
9	1918-2	PORE TBT	.125/.25	MECL2	11/23/12
10					
11	1860-4	TPHD	15000	ACETONE	05/12/12
12					
13	1948-1	LOW PCB	2	ACETONE	11/01/12
14					
15	1929-1	SIM PNA	15/75	MEOH	06/21/12
16	1906-4	1,4-DIOXANE	100	MEOH	04/30/12
17	1869-4	1248 PCB	10	ACETONE	06/14/12
18	1927-2	LOW SIM PNA	1.5	ACETONE	06/20/12
19	1931-1	AK103	7500	ACETONE	05/17/12
20	1930-1	PNA	100	ACETONE	06/23/12
21	1943-2	SKY/BHT	100	MEOH	07/27/12
22	1852-1	HERB	04 to 5000	MEOH	03/03/12
23	1887-2	EXTRA PNA	15	ACETONE	08/25/12
24					
25#		DIPHENYL	100	MEOH	NA
26	1904-2	OP-PEST	25	MEOH	02/10/12
27		STEROLS	200	MEOH	NA
28#		ADD. PEST	2	ACETONE	NA
29#		DECANES	100	MEOH	NA

LCS SOLUTIONS

30		EDB/DBCP	0.2	MEOH	NA
31	1944-1	TERPINEOL	100	MEOH	07/27/12
32	1876-1	GUAIACOL	50-200	ACETONE	01/05/12
33		RETENE	100	MEOH	NA
34	1867-3	CONGENERS	0.5	ACETONE	03/14/12
35	1875-3	ALKYL PNA A	10	MEOH	07/18/12
36		ALKYL PNA B	10	MEOH	NA
37		CAR/PERY	100	ACETONE	NA
38	1926-3	ABN ACID	200-450	MEOH	06/19/12
39	1853-4	BENZIDINE	500	MEOH	04/30/12
40	1851-3	PBDE	0.5	MEOH	04/22/12
50	1900-1	FULL RESIN	250	ACETONE	08/12/12
51		DDTS	0.01	ACETONE	NA
52		1232 PCB	20	ACETONE	NA
53	1919-1	DALAPON	50	MEOH	08/22/12
54		T-CHLORDANE	10	ACETONE	NA
55		TOXAPHENE	50	ACETONE	NA
56	1917-1	ABN BASE	50-200	MEOH	05/31/12
#=PROJECT SPECIFIC SOLUTION					

DL, LOD, LOQ and Control Limits Summary
Analysis of Solid Samples for PNA EPA Method 8270 – SIM

Microwave (EPA 3546) or Sonication (EPA 3550C) Extraction using 10 g sample with extract with 0.5 mL final volume. ARI Bench Sheet 3060F or 3051F ARI Analyses: PNSSMI & PNSSCI

Analyte	DL[1] µg/kg	LOD[1,2] µg/kg	LOQ[1] µg/kg	LCS Control Limit[3,4]	Replicate RPD[5]
Naphthalene	2.63	**5.0**	**5.0**	37 – **100**	≤ 40
1-Methylnaphthalene	1.71	**2.5**	**5.0**	30 – 160[6]	≤ 40
2-Methylnaphthalene	1.52	**2.5**	**5.0**	37 – **100**	≤ 40
Biphenyl	1.44	**2.5**	**5.0**	30 – 160[6]	≤ 40
2,6-Dimethylnapthalene	0.75	**2.5**	**5.0**	30 – 160[6]	≤ 40
Acenaphthylene	1.26	**2.5**	**5.0**	35 – **100**	≤ 40
Acenaphthene	1.32	**2.5**	**5.0**	39 – **100**	≤ 40
Dibenzofuran	1.51	**2.5**	**5.0**	39 – **100**	≤ 40
1,6,7-Trimethylnaphthalene	0.42	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluorene	1.29	**2.5**	**5.0**	42 – **100**	≤ 40
Benzothiophene	0.43	**2.5**	**5.0**	30 – 160[6]	≤ 40
Phenanthrene	1.98	**2.5**	**5.0**	47 – **100**	≤ 40
Anthracene	1.46	**2.5**	**5.0**	41 – 106	≤ 40
Carbazole	0.62	**2.5**	**5.0**	30 – 160[6]	≤ 40
1-Methylphenanthrene	0.70	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluoranthene	1.77	**4.0**	**5.0**	52 – 109	≤ 40
Pyrene	2.22	**4.0**	**5.0**	47 – 111	≤ 40
Benzo(a)anthracene	1.60	**2.5**	**5.0**	47 – 114	≤ 40
Chrysene	1.88	**2.5**	**5.0**	51 – 106	≤ 40
Benzo(b)fluoranthene	1.90	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(k)fluoranthene	2.05	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(e)pyrene	0.65	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(a)pyrene	1.75	**2.5**	**5.0**	44 – 111	≤ 40
Indeno(1,2,3-cd)pyrene	3.47	**4.0**	**5.0**	41 – 114	≤ 40
Dibenz(a,h)anthracene	2.38	**4.0**	**5.0**	42 – 116	≤ 40
Benzo(g,h,i)perylene	3.05	**4.0**	**5.0**	37 – 115	≤ 40
Perylene	2.99	**4.0**	**5.0**	30 – 160[6]	≤ 40
Surrogate Recovery			**MB / LCS**	**Samples**	**RPD**
2-Methylnapthalene-d_{10}			35 – **100**	34 – **100**	≤ 40
Dibenzo(a,h)anthracene-d_{14}			37 – 120	**10** – 117	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD), Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) LOD verification performed 8/26/11 ARI Sample TJ75I
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Control limits calculated using all data from 1/1/08 through 12/31/08.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(6) Default limits pending generation of historic limits.

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UK84

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-M2-16
SAMPLE

Lab Sample ID: UK84A
LIMS ID: 12-3776
Matrix: Soil
Data Release Authorized:
Reported: 03/09/12

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 02/01/12
Date Received: 02/01/12

Date Extracted: 02/06/12
Date Analyzed: 03/08/12 17:29
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.33 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 22.1%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	140
218-01-9	Chrysene	4.8	300
50-32-8	Benzo(a)pyrene	4.8	100
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	55
53-70-3	Dibenz(a,h)anthracene	4.8	23
TOTBFA	Total Benzofluoranthenes	4.8	380

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	67.7%
d14-Dibenzo(a,h)anthracen	88.0%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
MB-020612	37.0%	41.7%	0
LCS-020612	50.3%	67.0%	0
SP-M2-16	67.7%	88.0%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 12-3776 to 12-3776

FORM-II SIM SW8270

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-E1-9
SAMPLE

Lab Sample ID: UK84B
LIMS ID: 12-3777
Matrix: Soil
Data Release Authorized:
Reported: 03/13/12

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 02/01/12

Date Extracted: 03/07/12
Date Analyzed: 03/12/12 15:32
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.85 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 23.3%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	4.6	490	E
218-01-9	Chrysene	4.6	760	E
50-32-8	Benzo(a)pyrene	4.6	150	
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	110	
53-70-3	Dibenz(a,h)anthracene	4.6	50	Q
TOTBFA	Total Benzofluoranthenes	4.6	790	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	60.3%
d14-Dibenzo(a,h)anthracen	71.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-E1-9
DILUTION

Lab Sample ID: UK84B
LIMS ID: 12-3777
Matrix: Soil
Data Release Authorized:
Reported: 03/13/12

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: 12/21/11
Date Received: 02/01/12

Date Extracted: 03/07/12
Date Analyzed: 03/12/12 18:18
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.85 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 5.00
Percent Moisture: 23.3%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	23	480	
218-01-9	Chrysene	23	750	
50-32-8	Benzo(a)pyrene	23	150	
193-39-5	Indeno(1,2,3-cd)pyrene	23	110	
53-70-3	Dibenz(a,h)anthracene	23	49	Q
TOTBFA	Total Benzofluoranthenes	23	820	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	63.3%
d14-Dibenzo(a,h)anthracen	78.3%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
MB-030712	55.7%	82.3%	0
LCS-030712	62.3%	95.7%	0
LCSD-030712	59.7%	92.3%	0
SP-E1-9	60.3%	71.0%	0
SP-E1-9 DL	63.3%	78.3%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 12-3777 to 12-3777

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-020612
LAB CONTROL SAMPLE

Lab Sample ID: LCS-020612
LIMS ID: 12-3776
Matrix: Soil
Data Release Authorized:
Reported: 03/09/12

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 02/06/12
Date Analyzed LCS: 03/08/12 17:01
Instrument/Analyst LCS: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Benzo(a)anthracene	87.8	150	58.5%
Chrysene	84.8	150	56.5%
Benzo(a)pyrene	79.2	150	52.8%
Indeno(1,2,3-cd)pyrene	88.8	150	59.2%
Dibenz(a,h)anthracene	89.5	150	59.7%
Total Benzofluoranthenes	169	300	56.3%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	50.3%
d14-Dibenzo(a,h)anthracen	67.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-030712
LAB CONTROL SAMPLE

Lab Sample ID: LCS-030712
LIMS ID: 12-3777
Matrix: Soil
Data Release Authorized:
Reported: 03/13/12

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 03/07/12

Date Analyzed LCS: 03/12/12 14:09
LCSD: 03/12/12 14:37
Instrument/Analyst LCS: NT4/JZ
LCSD: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
LCSD: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
LCSD: 0.50 mL
Dilution Factor LCS: 1.00
LCSD: 1.00

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzo(a)anthracene	121	150	80.7%	122	150	81.3%	0.8%
Chrysene	115	150	76.7%	114	150	76.0%	0.9%
Benzo(a)pyrene	111	150	74.0%	108	150	72.0%	2.7%
Indeno(1,2,3-cd)pyrene	126	150	84.0%	118	150	78.7%	6.6%
Dibenz(a,h)anthracene	141 Q	150	94.0%	137 Q	150	91.3%	2.9%
Total Benzofluoranthenes	246	300	82.0%	247	300	82.3%	0.4%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

SIM Semivolatile Surrogate Recovery

	LCS	LCSD
d10-2-Methylnaphthalene	62.3%	59.7%
d14-Dibenzo(a,h)anthracen	95.7%	92.3%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UK84MBS1

Lab Name: ANALYTICAL RESOURCES INC Client: SLR

ARI Job No: UK84 Project: BAY WOOD

Lab File ID: 03081209 Date Extracted: 02/06/12

Instrument ID: NT4 Date Analyzed: 03/08/12

Matrix: SOLID Time Analyzed: 1634

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UK84LCSS1	UK84LCSS1	03081210	03/08/12
02	SP-M2-16	UK84A	03081211	03/08/12
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
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21				
22				
23				
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25				
26				
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28				
29				
30				

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: MB-020612
METHOD BLANK

Lab Sample ID: MB-020612
LIMS ID: 12-3776
Matrix: Soil
Data Release Authorized:
Reported: 03/09/12

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 02/06/12
Date Analyzed: 03/08/12 16:34
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	37.0%
d14-Dibenzo(a,h)anthracen	41.7%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UK84MBS2

Lab Name: ANALYTICAL RESOURCES INC — Client: SLR

ARI Job No: UK84 — Project: BAY WOOD

Lab File ID: 03121203 — Date Extracted: 03/07/12

Instrument ID: NT4 — Date Analyzed: 03/12/12

Matrix: SOLID — Time Analyzed: 1342

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UK84LCSS2	UK84LCSS2	03121204	03/12/12
02	UK84LCSDS2	UK84LCSDS2	03121205	03/12/12
03	SP-E1-9	UK84B	03121207	03/12/12
04	SP-E1-9	UK84B	03121213	03/12/12
05				
06				
07				
08				
09				
10				
11				
12				
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ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: MB-030712
METHOD BLANK

Lab Sample ID: MB-030712
LIMS ID: 12-3777
Matrix: Soil
Data Release Authorized:
Reported: 03/13/12

QC Report No: UK84-SLR International Corp.
Project: Bay Wood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 03/07/12
Date Analyzed: 03/12/12 13:42
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	55.7%
d14-Dibenzo(a,h)anthracen	82.3%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL, CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 03/08/12 DFTPP Injection Time: 1154

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	30.2
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	33.7
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	45.9
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 60.0% of mass 198	31.8
365	Greater than 1.0% of mass 198	4.09
441	0.0 - 24.0% of mass 442	24.3 (15.4)2
442	50.0 - 200.0% of mass 198	157.6
443	15.0 - 24.0% of mass 442	31.5 (20.0)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC250308	IC250308	03081202	03/08/12	1207
02	IC10308	IC10308	03081203	03/08/12	1234
03	IC50308	IC50308	03081204	03/08/12	1302
04	IC100308	IC100308	03081205	03/08/12	1330
05	IC500308	IC50308	03081206	03/08/12	1357
06	IC100308	IC100308	03081207	03/08/12	1425
07	UK84MBS1	UK84MBS1	03081209	03/08/12	1634
08	UK84LCSS1	UK84LCSS1	03081210	03/08/12	1701
09	SP-M2-16	UK84A	03081211	03/08/12	1729
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

FORM V SV

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 03/12/12 DFTPP Injection Time: 1250

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	28.8
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	32.4
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	43.9
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 60.0% of mass 198	32.0
365	Greater than 1.0% of mass 198	4.37
441	0.0 - 24.0% of mass 442	25.5 (15.0)2
442	50.0 - 200.0% of mass 198	170.3
443	15.0 - 24.0% of mass 442	33.1 (19.5)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0312	CC0312	03121202	03/12/12	1306
02	UK84MBS2	UK84MBS2	03121203	03/12/12	1342
03	UK84LCSS2	UK84LCSS2	03121204	03/12/12	1409
04	UK84LCSDS2	UK84LCSDS2	03121205	03/12/12	1437
05	SP-E1-9	UK84B	03121207	03/12/12	1532
06	SP-E1-9	UK84B	03121213	03/12/12	1818
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UK84 Project: BAY WOOD

Instrument ID: NT4 Calibration Date: 03/08/12

LAB FILE ID: RRF0.1=03081203 RRF0.5=03081204 RRF1 =03081205
RRF2.5=03081202 RRF5 =03081206 RRF10 =03081207

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	___ RRF	%RSD /R^2
Naphthalene	1.199	1.127	1.138	1.028	0.940	0.938	1.062	10.3
2-Methylnaphthalene	0.702	0.642	0.672	0.606	0.562	0.567	0.625	9.1
Acenaphthylene	1.281	1.360	1.499	1.554	1.468	1.618	1.463	8.5
Acenaphthene	1.300	1.154	1.233	1.149	1.032	1.108	1.163	8.1
Dibenzofuran	1.799	1.670	1.785	1.669	1.515	1.574	1.669	6.7
Fluorene	1.262	1.141	1.312	1.270	1.153	1.246	1.231	5.6
Phenanthrene	1.231	1.157	1.233	1.134	1.016	1.086	1.143	7.4
Anthracene	0.860	0.978	1.006	1.035	0.977	1.042	0.983	6.7
Fluoranthene	1.161	1.226	1.251	1.185	1.094	1.200	1.186	4.6
Pyrene	1.094	1.041	1.057	1.043	0.983	1.030	1.041	3.5
Benzo(a)anthracene	0.945	0.916	0.941	0.971	0.933	1.005	0.952	3.3
Chrysene	1.146	1.072	1.084	1.039	0.986	1.009	1.056	5.4
Benzo(b)fluoranthene	0.830	1.180	1.140	1.110	1.025	1.105	1.065	11.8
Benzo(k)fluoranthene	0.932	1.140	1.274	1.213	1.109	1.218	1.148	10.6
Benzo(j)fluoranthene	1.000	1.211	1.092	1.064	1.015	1.072	1.076	7.0
Benzo(a)pyrene	0.652	0.928	1.060	1.063	1.029	1.123	0.976	17.6
Indeno(1,2,3-cd)pyrene	0.844	1.027	1.203	1.312	1.296	1.432	1.186	18.1
Dibenzo(a,h)anthracene	0.734	0.704	0.843	1.020	0.940	1.134	0.896	18.6
Benzo(g,h,i)perylene	1.018	1.090	1.234	1.219	1.156	1.250	1.161	7.9
1-methylnaphthalene	0.632	0.619	0.635	0.568	0.531	0.531	0.586	8.3
Perylene	0.813	1.052	1.163	1.111	1.047	1.142	1.055	12.1
2-Methylnaphthalene-d10	0.720	0.633	0.687	0.624	0.574	0.572	0.635	9.4
Dibenzo(a,h)anthracene-d14		0.598	0.713	0.757	0.792	0.932	0.758	16.0

<-- Outside QC limits: %RSD <20% or R^2 > 0.990

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL, CORP

ARI Job No: UK84 Project: BAY WOOD

Instrument ID: NT4 Cont. Calib. Date: 03/08/12

Init. Calib. Date: 03/08/12 Cont. Calib. Time: 1207

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Naphthalene	1.062	1.028	0.700	AVRG	-3.2
2-Methylnaphthalene	0.625	0.606	0.400	AVRG	-3.0
Acenaphthylene	1.463	1.554	0.900	AVRG	6.2
Acenaphthene	1.163	1.149	0.900	AVRG	-1.2
Dibenzofuran	1.669	1.669	0.800	AVRG	0.0
Fluorene	1.231	1.270	0.900	AVRG	3.2
Phenanthrene	1.143	1.134	0.700	AVRG	-0.8
Anthracene	0.983	1.035	0.700	AVRG	5.3
Fluoranthene	1.186	1.185	0.600	AVRG	-0.1
Pyrene	1.041	1.043	0.600	AVRG	0.2
Benzo(a)anthracene	0.952	0.971	0.800	AVRG	2.0
Chrysene	1.056	1.039	0.700	AVRG	-1.6
Benzo(b)fluoranthene	1.065	1.110	0.700	AVRG	4.2
Benzo(k)fluoranthene	1.148	1.213	0.700	AVRG	5.7
Benzo(j)fluoranthene	1.076	1.064	0.010	AVRG	-1.1
Benzo(a)pyrene	0.976	1.063	0.700	AVRG	8.9
Indeno(1,2,3-cd)pyrene	1.186	1.312	0.500	AVRG	10.6
Dibenzo(a,h)anthracene	0.896	1.020	0.400	AVRG	13.8
Benzo(g,h,i)perylene	1.161	1.219	0.500	AVRG	5.0
1-methylnaphthalene	0.586	0.568	0.010	AVRG	-3.1
Perylene	1.055	1.111	0.010	AVRG	5.3
2-Methylnaphthalene-d10	0.635	0.624	0.010	AVRG	-1.7
Dibenzo(a,h)anthracene-d14	0.758	0.757	0.010	AVRG	-0.1

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UK84 Project: BAY WOOD

Instrument ID: NT4 Cont. Calib. Date: 03/12/12

Init. Calib. Date: 03/08/12 Cont. Calib. Time: 1306

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	1.062	1.021	0.700	AVRG	-3.9	
2-Methylnaphthalene	0.625	0.607	0.400	AVRG	-2.9	
Acenaphthylene	1.463	1.513	0.900	AVRG	3.4	
Acenaphthene	1.163	1.126	0.900	AVRG	-3.2	
Dibenzofuran	1.669	1.656	0.800	AVRG	-0.8	
Fluorene	1.231	1.232	0.900	AVRG	0.1	
Phenanthrene	1.143	1.154	0.700	AVRG	1.0	
Anthracene	0.983	1.083	0.700	AVRG	10.2	
Fluoranthene	1.186	1.184	0.600	AVRG	-0.2	
Pyrene	1.041	1.009	0.600	AVRG	-3.1	
Benzo(a)anthracene	0.952	0.974	0.800	AVRG	2.3	
Chrysene	1.056	1.041	0.700	AVRG	-1.4	
Benzo(b)fluoranthene	1.065	1.096	0.700	AVRG	2.9	
Benzo(k)fluoranthene	1.148	1.128	0.700	AVRG	-1.7	
Benzo(j)fluoranthene	1.076	1.036	0.010	AVRG	-3.7	
Benzo(a)pyrene	0.976	1.070	0.700	AVRG	9.6	
Indeno(1,2,3-cd)pyrene	1.186	1.406	0.500	AVRG	18.5	
Dibenzo(a,h)anthracene	0.896	1.141	0.400	AVRG	27.3	<-
Benzo(g,h,i)perylene	1.161	1.242	0.500	AVRG	7.0	
1-methylnaphthalene	0.586	0.575	0.010	AVRG	-1.9	
Perylene	1.055	1.102	0.010	AVRG	4.4	
2-Methylnaphthalene-d10	0.635	0.620	0.010	AVRG	-2.4	
Dibenzo(a,h)anthracene-d14	0.758	0.899	0.010	AVRG	18.6	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

FORM VII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: SLR INTERNATIONAL, CORP

ARI Job No: UK84 | Project: BAY WOOD

Ical Midpoint ID: 03081202 | Ical Date: 03/08/12

Instrument ID: NT4 | Cont. Cal Date: 03/08/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	256122	5.46	141904	7.75	238909	9.72
	UPPER LIMIT	512244		283808		477818	
	LOWER LIMIT	128061		70952		119454	
	CCAL	256122	5.46	141904	7.75	238909	9.72
	UPPER LIMIT		5.96		8.25		10.22
	LOWER LIMIT		4.96		7.25		9.22
01	UK84MBS1	328509	5.46	193784	7.75	339061	9.72
02	UK84LCSS1	276601	5.46	163150	7.75	275822	9.72
03	SP-M2-16	196440	5.46	114161	7.75	203349	9.72
04							
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25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL, CORP

ARI Job No: UK84 Project: BAY WOOD

Ical Midpoint ID: 03081202 Ical Date: 03/08/12

Instrument ID: NT4 Cont. Cal Date: 03/08/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	285147	14.94	286301	18.79		
	UPPER LIMIT	570294		572602			
	LOWER LIMIT	142574		143150			
	CCAL	285147	14.94	286301	18.79		
	UPPER LIMIT		15.44		19.29		
	LOWER LIMIT		14.44		18.29		
01	UK84MBS1	409943	14.94	392644	18.78		
02	UK84LCSS1	329798	14.94	326553	18.78		
03	SP-M2-16	253491	14.94	276720	18.78		
04							
05							
06							
07							
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IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC | Client: SLR INTERNATIONAL CORP

ARI Job No: UK84 | Project: BAY WOOD

Ical Midpoint ID: 03081202 | Ical Date: 03/08/12

Instrument ID: NT4 | Cont. Cal Date: 03/12/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	256122	5.46	141904	7.75	238909	9.72
	UPPER LIMIT	512244		283808		477818	
	LOWER LIMIT	128061		70952		119454	
	CCAL	201657	5.47	113160	7.75	180563	9.73
	UPPER LIMIT		5.97		8.25		10.23
	LOWER LIMIT		4.97		7.25		9.23
01	UK84MBS2	202125	5.46	111094	7.75	196344	9.73
02	UK84LCSS2	214097	5.45	119668	7.74	204774	9.72
03	UK84LCSDS2	217735	5.45	122118	7.74	210471	9.72
04	SP-E1-9	205433	5.45	118302	7.74	208080	9.72
05	SP-E1-9	191781	5.46	113434	7.74	190977	9.72
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IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-1

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UK84 Project: BAY WOOD

Ical Midpoint ID: 03081202 Ical Date: 03/08/12

Instrument ID: NT4 Cont. Cal Date: 03/12/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	285147	14.94	286301	18.79		
	UPPER LIMIT	570294		572602			
	LOWER LIMIT	142574		143150			
	CCAL	217745	14.95	217366	18.79		
	UPPER LIMIT		15.45		19.29		
	LOWER LIMIT		14.45		18.29		
01	UK84MBS2	228834	14.95	213664	18.79		
02	UK84LCSS2	248984	14.94	242657	18.77		
03	UK84LCSDS2	251707	14.93	247989	18.77		
04	SP-E1-9	281785	14.94	323308	18.78		
05	SP-E1-9	243614	14.93	263123	18.77		
06							
07							
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22							
23							
24							
25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

FORM VIII SV-2

Total Solids

ARI Job ID: UK84

Organics Dry Wt Repair Worklist: 1671
matt.wlf printed: 3/ 7/12

Data Analyst: Steve Potter Created: 3/ 7/12
Analyzed by: SDP Date Analyzed: 3/ 7/12
Comments:

---

1. UK84A Total Solids: 77.9
   12-3776

Data Entered/Distributed By: _____

Extractions Total Solids-extts
Data By: Yen Luu
Created: 3/ 6/12

Worklist: 1501
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UK84B 12-3777 SP-E1-9	1.18	11.76	9.29	76.7	NR

Extractions Total Solids-extts
Data By: Yen Luu
Created: 3/ 6/12

Worklist: 1501
Analyst: YL
Comments:

Oven ID: Φ15

Balance ID: B139298662

Samples In: Date: 3/6/12 Time: 19:20 Temp: 105 Analyst: YL

Samples Out: Date: ~~3/7/12~~ Time: ~~07:30~~ Temp: 107° Analyst: RR

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UK84B 12-3777 SP-E1-9	1.18	11.76	9.29		NR

UK84 : 00044

Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 10, 2012

Megan Coracci
SLR International Corp.
1800 Blankenship Road, Suite 440
West Linn, OR 97068

RE: Bay Wood, 108.00339.00001
ARI Job No.: UO24

Dear Megan:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Eric Branson
-For-
Susan D. Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile UO24

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UO24

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: U024	Turn-around Requested: STANDARD ~~SEE COMMENTS~~ (CRD 3/28/12	Page: 1 of 3	
ARI Client Company: SLR	Phone: (503) 723-4423	Date: 3/27/12	Ice Present? Y
Client Contact: MEGAN CORACCI		No. of Coolers: 1	Cooler Temps: 1.6
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CHRIS LEE & HANNAH KRAVITZ		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs by 8270-SIM	Notes/Comments
SP-J-1	3/27/12	1205	Soil	1	X	
SP-H-1		1212				
SP-H-2		1220				
SP-F-1		1227				
SP-F-2		1233				
SP-F-3		1240				
SP-F-4		1246				
SP-F-5		1252				
SP-F-6		1259				
SP-F-7	↓	1304	↓	↓	↓	

Comments/Special Instructions
PCRD 3/28/12

Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
Printed Name: CHRIS LEE	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
Company: SLR	Company: ARI	Company:	Company:
Date & Time: 3/28/12 12:30	Date & Time: 3/28/12 1231	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: U024	Turn-around Requested: STANDARD	Page: 2 of 3	
ARI Client Company: SLR	Phone: (503) 723-4423	Date: 3/27/12	Ice Present? Y
Client Contact: MEGAN CORACCI		No. of Coolers: 1	Cooler Temps: 1.6
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CHRIS LEE & HANNAH KRANITZ		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs by 8270-SIM	Notes/Comments
SP-F-8	3/27/12	1310	Soil	1	X	
SP-F-9		1317				
SP-F-10		1323				
SP-O-1		1338				
SP-O-2		1344				
SP-O-3		1357				
SP-O-4		1351				
SP-O-5		1404				
SP-O-6		1411				
SP-O-7		1420				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: CHRIS LEE	Printed Name: A. Volgardsen	Printed Name:	Printed Name:
	Company: SLR	Company: ARI	Company:	Company:
	Date & Time: 3/28/12 12 30	Date & Time: 3/28/12 1230	Date & Time.	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SLR Project Name: Bay Wood

COC No(s): _____ (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No. U024 Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)	1.6	

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 3/28/12 Time: 1736

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

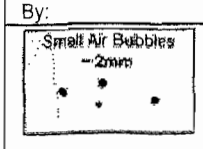
Samples Logged by: JM Date: 3/28/12 Time: 1349

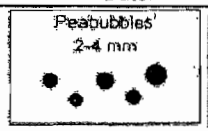
***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:





Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UO24

Case Narrative

Client: SLR International Corp.
Project: Bay Wood, 108.00339.00001
ARI Job No.: UO24

Sample receipt

Thirty soil samples were received on March 28, 2012. The cooler temperature measured by IR thermometer following ARI SOP was 1.6°C. The samples were analyzed for SIM PAHs as requested. The samples were divided into separate ARI sample delivery groups (SDGs) for quality control purposes – twenty under SDG UO24 and ten under SDG UO25. For details regarding sample receipt, please refer to the Cooler Receipt Form.

SIM PAHs by SW8270D

The samples and associated laboratory QC were extracted and analyzed within the method recommended holding times.

The initial and continuing calibrations were within method requirements. Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries and RPDs were within advisory control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UO24
Client: SLR International Corp.
Project Event: 108.00339.00001
Project Name: Baywood

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SP-J-1	UO24A	12-5346	Soil	03/27/12 12:05	03/28/12 12:30
2.	SP-H-1	UO24B	12-5347	Soil	03/27/12 12:12	03/28/12 12:30
3.	SP-H-2	UO24C	12-5348	Soil	03/27/12 12:20	03/28/12 12:30
4.	SP-F-1	UO24D	12-5349	Soil	03/27/12 12:27	03/28/12 12:30
5.	SP-F-2	UO24E	12-5350	Soil	03/27/12 12:33	03/28/12 12:30
6.	SP-F-3	UO24F	12-5351	Soil	03/27/12 12:40	03/28/12 12:30
7.	SP-F-4	UO24G	12-5352	Soil	03/27/12 12:46	03/28/12 12:30
8.	SP-F-5	UO24H	12-5353	Soil	03/27/12 12:52	03/28/12 12:30
9.	SP-F-6	UO24I	12-5354	Soil	03/27/12 12:59	03/28/12 12:30
10.	SP-F-7	UO24J	12-5355	Soil	03/27/12 13:04	03/28/12 12:30
11.	SP-F-8	UO24K	12-5356	Soil	03/27/12 13:10	03/28/12 12:30
12.	SP-F-9	UO24L	12-5357	Soil	03/27/12 13:17	03/28/12 12:30
13.	SP-F-10	UO24M	12-5358	Soil	03/27/12 13:23	03/28/12 12:30
14.	SP-O-1	UO24N	12-5359	Soil	03/27/12 13:38	03/28/12 12:30
15.	SP-O-2	UO24O	12-5360	Soil	03/27/12 13:44	03/28/12 12:30
16.	SP-O-3	UO24P	12-5361	Soil	03/27/12 13:57	03/28/12 12:30
17.	SP-O-4	UO24Q	12-5362	Soil	03/27/12 13:51	03/28/12 12:30
18.	SP-O-5	UO24R	12-5363	Soil	03/27/12 14:04	03/28/12 12:30
19.	SP-O-6	UO24S	12-5364	Soil	03/27/12 14:11	03/28/12 12:30
20.	SP-O-7	UO24T	12-5365	Soil	03/27/12 14:20	03/28/12 12:30

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

DL, LOD, LOQ and Control Limits Summary
Analysis of Solid Samples for PNA EPA Method 8270 – SIM

Microwave (EPA 3546) or Sonication (EPA 3550C) Extraction using 10 g sample with extract with 0.5 mL final volume. ARI Bench Sheet 3060F or 3051F ARI Analyses: PNSSMI & PNSSCI

Analyte	DL[1] µg/kg	LOD[1,2] µg/kg	LOQ[1] µg/kg	LCS Control Limit[3,4]	Replicate RPD[5]
Naphthalene	2.63	**5.0**	**5.0**	37 – **100**	≤ 40
1-Methylnaphthalene	1.71	**2.5**	**5.0**	30 – 160[6]	≤ 40
2-Methylnaphthalene	1.52	**2.5**	**5.0**	37 – **100**	≤ 40
Biphenyl	1.44	**2.5**	**5.0**	30 – 160[6]	≤ 40
2,6-Dimethylnapthalene	0.75	**2.5**	**5.0**	30 – 160[6]	≤ 40
Acenaphthylene	1.26	**2.5**	**5.0**	35 – **100**	≤ 40
Acenaphthene	1.32	**2.5**	**5.0**	39 – **100**	≤ 40
Dibenzofuran	1.51	**2.5**	**5.0**	39 – **100**	≤ 40
1,6,7-Trimethylnaphthalene	0.42	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluorene	1.29	**2.5**	**5.0**	42 – **100**	≤ 40
Benzothiophene	0.43	**2.5**	**5.0**	30 – 160[6]	≤ 40
Phenanthrene	1.98	**2.5**	**5.0**	47 – **100**	≤ 40
Anthracene	1.46	**2.5**	**5.0**	41 – 106	≤ 40
Carbazole	0.62	**2.5**	**5.0**	30 – 160[6]	≤ 40
1-Methylphenanthrene	0.70	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluoranthene	1.77	**4.0**	**5.0**	52 – 109	≤ 40
Pyrene	2.22	**4.0**	**5.0**	47 – 111	≤ 40
Benzo(a)anthracene	1.60	**2.5**	**5.0**	47 – 114	≤ 40
Chrysene	1.88	**2.5**	**5.0**	51 – 106	≤ 40
Benzo(b)fluoranthene	1.90	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(k)fluoranthene	2.05	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(e)pyrene	0.65	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(a)pyrene	1.75	**2.5**	**5.0**	44 – 111	≤ 40
Indeno(1,2,3-cd)pyrene	3.47	**4.0**	**5.0**	41 – 114	≤ 40
Dibenz(a,h)anthracene	2.38	**4.0**	**5.0**	42 – 116	≤ 40
Benzo(g,h,i)perylene	3.05	**4.0**	**5.0**	37 – 115	≤ 40
Perylene	2.99	**4.0**	**5.0**	30 – 160[6]	≤ 40
Surrogate Recovery			**MB / LCS**	**Samples**	**RPD**
2-Methylnapthalene-d_{10}			35 – **100**	34 – **100**	≤ 40
Dibenzo(a,h)anthracene-d_{14}			37 – 120	**10** – 117	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD), Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) LOD verification performed 8/26/11 ARI Sample TJ75I
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Control limits calculated using all data from 1/1/08 through 12/31/08.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then

$$RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$$

(6) Default limits pending generation of historic limits.

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UO24

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-J-1
SAMPLE

Lab Sample ID: UO24A
LIMS ID: 12-5346
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 17:44
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.52 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 13.3%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	12
218-01-9	Chrysene	4.8	22
50-32-8	Benzo(a)pyrene	4.8	15
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	11
53-70-3	Dibenz(a,h)anthracene	4.8	3.1 J
TOTBFA	Total Benzofluoranthenes	4.8	36

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracen	62.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-H-1
SAMPLE

Lab Sample ID: UO24B
LIMS ID: 12-5347
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 18:13
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.62 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 13.3%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.7	1,300 ES
218-01-9	Chrysene	4.7	1,800 ES
50-32-8	Benzo(a)pyrene	4.7	1,300 ES
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	950 ES
53-70-3	Dibenz(a,h)anthracene	4.7	300
TOTBFA	Total Benzofluoranthenes	4.7	3,800 ES

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.7%
d14-Dibenzo(a,h)anthracen	87.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-H-1
DILUTION

Lab Sample ID: UO24B
LIMS ID: 12-5347
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 17:34
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.62 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 10.0
Percent Moisture: 13.3%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	47	2,700	
218-01-9	Chrysene	47	5,200	E
50-32-8	Benzo(a)pyrene	47	2,000	
193-39-5	Indeno(1,2,3-cd)pyrene	47	1,100	
53-70-3	Dibenz(a,h)anthracene	47	290	
TOTBFA	Total Benzofluoranthenes	47	6,300	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	63.3%
d14-Dibenzo(a,h)anthracen	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-H-1
DILUTION

Lab Sample ID: UO24B
LIMS ID: 12-5347
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 19:29
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.62 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 30.0
Percent Moisture: 13.3%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	140	2,600
218-01-9	Chrysene	140	5,300
50-32-8	Benzo(a)pyrene	140	2,000
193-39-5	Indeno(1,2,3-cd)pyrene	140	1,000
53-70-3	Dibenz(a,h)anthracene	140	220
TOTBFA	Total Benzofluoranthenes	140	6,300

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	D
d14-Dibenzo(a,h)anthracen	D

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-H-2
SAMPLE

Lab Sample ID: UO24C
LIMS ID: 12-5348
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 18:42
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.94 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 9.6%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	130
218-01-9	Chrysene	4.6	400
50-32-8	Benzo(a)pyrene	4.6	200
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	160
53-70-3	Dibenz(a,h)anthracene	4.6	41
TOTBFA	Total Benzofluoranthenes	4.6	640

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.0%
d14-Dibenzo(a,h)anthracen	71.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-1
SAMPLE

Lab Sample ID: UO24D
LIMS ID: 12-5349
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 19:11
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.98 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 9.5%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	45
218-01-9	Chrysene	4.6	55
50-32-8	Benzo(a)pyrene	4.6	69
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	49
53-70-3	Dibenz(a,h)anthracene	4.6	13
TOTBFA	Total Benzofluoranthenes	4.6	120

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.3%
d14-Dibenzo(a,h)anthracen	71.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-2
SAMPLE

Lab Sample ID: UO24E
LIMS ID: 12-5350
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 19:39
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.66 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 13.0%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.7	41
218-01-9	Chrysene	4.7	57
50-32-8	Benzo(a)pyrene	4.7	58
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	39
53-70-3	Dibenz(a,h)anthracene	4.7	12
TOTBFA	Total Benzofluoranthenes	4.7	110

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.3%
d14-Dibenzo(a,h)anthracen	31.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-3
SAMPLE

Lab Sample ID: UO24F
LIMS ID: 12-5351
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 20:08
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 1.76 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 25.3%

CAS Number	Analyte	RL	Result	
56-55-3	**Benzo(a)anthracene**	**28**	**180**	
218-01-9	**Chrysene**	**28**	**300**	
50-32-8	**Benzo(a)pyrene**	**28**	**120**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**28**	**64**	
53-70-3	**Dibenz(a,h)anthracene**	**28**	**26**	**J**
TOTBFA	**Total Benzofluoranthenes**	**28**	**480**	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.7%
d14-Dibenzo(a,h)anthracen	65.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-4
SAMPLE

Lab Sample ID: UO24G
LIMS ID: 12-5352
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 20:37
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.72 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 23.9%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.7**	**230**
218-01-9	**Chrysene**	**4.7**	**370**
50-32-8	**Benzo(a)pyrene**	**4.7**	**140**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.7**	**75**
53-70-3	**Dibenz(a,h)anthracene**	**4.7**	**30**
TOTBFA	**Total Benzofluoranthenes**	**4.7**	**440**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.7%
d14-Dibenzo(a,h)anthracen	67.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-5
SAMPLE

Lab Sample ID: UO24H
LIMS ID: 12-5353
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 21:06
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.46 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 26.2%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.8**	**230**
218-01-9	**Chrysene**	**4.8**	**480 E**
50-32-8	**Benzo(a)pyrene**	**4.8**	**140**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.8**	**91**
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**25**
TOTBFA	**Total Benzofluoranthenes**	**4.8**	**600**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.7%
d14-Dibenzo(a,h)anthracen	61.0%

ANALYTICAL RESOURCES INCORPORATED

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PNAs by SIM SW8270D-SIM GC/MS
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Sample ID: SP-F-5
DILUTION

Lab Sample ID: UO24H
LIMS ID: 12-5353
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 18:03
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.46 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 26.2%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**14**	**270**
218-01-9	**Chrysene**	**14**	**560**
50-32-8	**Benzo(a)pyrene**	**14**	**180**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**14**	**100**
53-70-3	**Dibenz(a,h)anthracene**	**14**	**28**
TOTBFA	**Total Benzofluoranthenes**	**14**	**730**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	66.0%
d14-Dibenzo(a,h)anthracen	64.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-6
SAMPLE

Lab Sample ID: UO24I
LIMS ID: 12-5354
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 21:34
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.52 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 20.4%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	120
218-01-9	Chrysene	4.8	200
50-32-8	Benzo(a)pyrene	4.8	51
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	37
53-70-3	Dibenz(a,h)anthracene	4.8	13
TOTBFA	Total Benzofluoranthenes	4.8	280

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	57.3%
d14-Dibenzo(a,h)anthracen	61.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-7
SAMPLE

Lab Sample ID: UO24J
LIMS ID: 12-5355
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 22:03
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.47 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 19.9%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	180
218-01-9	Chrysene	4.8	320
50-32-8	Benzo(a)pyrene	4.8	110
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	70
53-70-3	Dibenz(a,h)anthracene	4.8	25
TOTBFA	Total Benzofluoranthenes	4.8	460

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	52.3%
d14-Dibenzo(a,h)anthracen	58.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-8
SAMPLE

Lab Sample ID: UO24K
LIMS ID: 12-5356
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 22:32
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.74 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 18.4%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.7	27
218-01-9	Chrysene	4.7	60
50-32-8	Benzo(a)pyrene	4.7	20
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	12
53-70-3	Dibenz(a,h)anthracene	4.7	4.2 J
TOTBFA	Total Benzofluoranthenes	4.7	88

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	55.0%
d14-Dibenzo(a,h)anthracen	65.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-9
SAMPLE

Lab Sample ID: UO24L
LIMS ID: 12-5357
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 23:00
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.27 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 9.1%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.9	64
218-01-9	Chrysene	4.9	69
50-32-8	Benzo(a)pyrene	4.9	91
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	60
53-70-3	Dibenz(a,h)anthracene	4.9	17
TOTBFA	Total Benzofluoranthenes	4.9	160

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	58.0%
d14-Dibenzo(a,h)anthracen	68.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-10
SAMPLE

Lab Sample ID: UO24M
LIMS ID: 12-5358
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 00:26
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.49 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 12.6%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	28
218-01-9	Chrysene	4.8	84
50-32-8	Benzo(a)pyrene	4.8	58
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	63
53-70-3	Dibenz(a,h)anthracene	4.8	18
TOTBFA	Total Benzofluoranthenes	4.8	180

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	44.0%
d14-Dibenzo(a,h)anthracen	65.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-O-1
SAMPLE

Lab Sample ID: UO24N
LIMS ID: 12-5359
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 00:55
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.31 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 26.6%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.8**	**150**
218-01-9	**Chrysene**	**4.8**	**290**
50-32-8	**Benzo(a)pyrene**	**4.8**	**100**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.8**	**72**
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**27**
TOTBFA	**Total Benzofluoranthenes**	**4.8**	**440**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	56.0%
d14-Dibenzo(a,h)anthracen	56.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-O-2
SAMPLE

Lab Sample ID: UO24O
LIMS ID: 12-5360
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 01:24
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.78 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 10.8%

CAS Number	Analyte	RL	Result	
56-55-3	**Benzo(a)anthracene**	**4.6**	**400**	
218-01-9	**Chrysene**	**4.6**	**580**	**E**
50-32-8	**Benzo(a)pyrene**	**4.6**	**650**	**E**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.6**	**440**	
53-70-3	**Dibenz(a,h)anthracene**	**4.6**	**130**	
TOTBFA	**Total Benzofluoranthenes**	**4.6**	**1,000**	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	56.3%
d14-Dibenzo(a,h)anthracen	72.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-O-2
DILUTION

Lab Sample ID: UO24O
LIMS ID: 12-5360
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 18:31
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.78 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 10.8%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**14**	**450**
218-01-9	**Chrysene**	**14**	**680**
50-32-8	**Benzo(a)pyrene**	**14**	**770**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**14**	**480**
53-70-3	**Dibenz(a,h)anthracene**	**14**	**140**
TOTBFA	**Total Benzofluoranthenes**	**14**	**1,200**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.0%
d14-Dibenzo(a,h)anthracen	86.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-O-3
SAMPLE

Lab Sample ID: UO24P
LIMS ID: 12-5361
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 01:52
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.59 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 12.3%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	14	170
218-01-9	Chrysene	14	360
50-32-8	Benzo(a)pyrene	14	160
193-39-5	Indeno(1,2,3-cd)pyrene	14	76
53-70-3	Dibenz(a,h)anthracene	14	27
TOTBFA	Total Benzofluoranthenes	14	430

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	70.0%
d14-Dibenzo(a,h)anthracen	67.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
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Sample ID: SP-O-4
SAMPLE

Lab Sample ID: UO24Q
LIMS ID: 12-5362
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 02:21
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 11.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 23.2%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	4.6	260	
218-01-9	Chrysene	4.6	710	E
50-32-8	Benzo(a)pyrene	4.6	160	
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	89	
53-70-3	Dibenz(a,h)anthracene	4.6	33	
TOTBFA	Total Benzofluoranthenes	4.6	710	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	56.0%
d14-Dibenzo(a,h)anthracen	64.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
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Sample ID: SP-O-4
DILUTION

Lab Sample ID: UO24Q
LIMS ID: 12-5362
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 19:00
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 11.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 23.2%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	14	300
218-01-9	Chrysene	14	830
50-32-8	Benzo(a)pyrene	14	180
193-39-5	Indeno(1,2,3-cd)pyrene	14	86
53-70-3	Dibenz(a,h)anthracene	14	35
TOTBFA	Total Benzofluoranthenes	14	790

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracen	63.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-O-5
SAMPLE

Lab Sample ID: UO24R
LIMS ID: 12-5363
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 02:50
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.48 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 25.8%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.8**	**160**
218-01-9	**Chrysene**	**4.8**	**480**
50-32-8	**Benzo(a)pyrene**	**4.8**	**130**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.8**	**100**
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**39**
TOTBFA	**Total Benzofluoranthenes**	**4.8**	**850**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	60.3%
d14-Dibenzo(a,h)anthracen	62.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
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Sample ID: SP-O-6
SAMPLE

Lab Sample ID: UO24S
LIMS ID: 12-5364
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 16:37
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.71 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 19.2%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.7**	**100**
218-01-9	**Chrysene**	**4.7**	**210**
50-32-8	**Benzo(a)pyrene**	**4.7**	**86**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.7**	**54**
53-70-3	**Dibenz(a,h)anthracene**	**4.7**	**19**
TOTBFA	**Total Benzofluoranthenes**	**4.7**	**310**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracen	63.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-0-7
SAMPLE

Lab Sample ID: UO24T
LIMS ID: 12-5365
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 17:05
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.99 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 9.6%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.6	33
218-01-9	Chrysene	4.6	43
50-32-8	Benzo(a)pyrene	4.6	40
193-39-5	Indeno(1,2,3-cd)pyrene	4.6	19
53-70-3	Dibenz(a,h)anthracene	4.6	6.1
TOTBFA	Total Benzofluoranthenes	4.6	87

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	47.3%
d14-Dibenzo(a,h)anthracen	51.0%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UO24-SLR International Corp.
Project: Baywood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
SP-J-1	59.0%	62.3%	0
SP-H-1	59.7%	87.7%	0
SP-H-1 DL	63.3%	100%	0
SP-H-1 DL2	D	D	0
SP-H-2	57.0%	71.0%	0
SP-F-1	57.3%	71.0%	0
SP-F-2	59.3%	31.0%	0
SP-F-3	59.7%	65.7%	0
SP-F-4	59.7%	67.3%	0
SP-F-5	59.7%	61.0%	0
SP-F-5 DL	66.0%	64.0%	0
SP-F-6	57.3%	61.3%	0
SP-F-7	52.3%	58.7%	0
SP-F-8	55.0%	65.3%	0
MB-040212	47.0%	40.7%	0
LCS-040212	47.0%	57.3%	0
SP-F-9	58.0%	68.7%	0
SP-F-9 MS	62.3%	75.0%	0
SP-F-9 MSD	58.7%	75.7%	0
SP-F-10	44.0%	65.7%	0
SP-O-1	56.0%	56.0%	0
SP-O-2	56.3%	72.7%	0
SP-O-2 DL	62.0%	86.0%	0
SP-O-3	70.0%	67.0%	0
SP-O-4	56.0%	64.3%	0
SP-O-4 DL	59.0%	63.0%	0
SP-O-5	60.3%	62.0%	0
SP-O-6	59.0%	63.7%	0
SP-O-7	47.3%	51.0%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 12-5346 to 12-5365

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-F-9
MATRIX SPIKE

Lab Sample ID: UO24L
LIMS ID: 12-5357
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted MS/MSD: 04/02/12

Date Analyzed MS: 04/04/12 23:29
MSD: 04/04/12 23:58
Instrument/Analyst MS: NT4/JZ
MSD: NT4/JZ

Sample Amount MS: 10.3 g-dry-wt
MSD: 10.2 g-dry-wt
Final Extract Volume MS: 0.50 mL
MSD: 0.50 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzo(a)anthracene	64.0	144	146	54.8%	143	146	54.1%	0.7%
Chrysene	69.4	147	146	53.2%	144	146	51.1%	2.1%
Benzo(a)pyrene	91.1	163	146	49.2%	160	146	47.2%	1.9%
Indeno(1,2,3-cd)pyrene	59.7	150	146	61.8%	146	146	59.1%	2.7%
Dibenz(a,h)anthracene	17.3	109	146	62.8%	110	146	63.5%	0.9%
Total Benzofluoranthenes	161	330	292	57.9%	325	293	56.0%	1.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-9
MATRIX SPIKE

Lab Sample ID: UO24L
LIMS ID: 12-5357
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 23:29
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.27 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 9.1%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.9	---
218-01-9	Chrysene	4.9	---
50-32-8	Benzo(a)pyrene	4.9	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	---
53-70-3	Dibenz(a,h)anthracene	4.9	---
TOTBFA	Total Benzofluoranthenes	4.9	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.3%
d14-Dibenzo(a,h)anthracen	75.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-F-9
MATRIX SPIKE DUPLICATE

Lab Sample ID: UO24L
LIMS ID: 12-5357
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 23:58
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.24 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 9.1%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.9	---
218-01-9	Chrysene	4.9	---
50-32-8	Benzo(a)pyrene	4.9	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	---
53-70-3	Dibenz(a,h)anthracene	4.9	---
TOTBFA	Total Benzofluoranthenes	4.9	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	58.7%
d14-Dibenzo(a,h)anthracen	75.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-040212
LAB CONTROL SAMPLE

Lab Sample ID: LCS-040212
LIMS ID: 12-5357
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 04/02/12
Date Analyzed LCS: 04/04/12 16:47
Instrument/Analyst LCS: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Benzo(a)anthracene	104	150	69.3%
Chrysene	108	150	72.0%
Benzo(a)pyrene	92.6	150	61.7%
Indeno(1,2,3-cd)pyrene	80.6	150	53.7%
Dibenz(a,h)anthracene	73.2	150	48.8%
Total Benzofluoranthenes	236	300	78.7%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	47.0%
d14-Dibenzo(a,h)anthracen	57.3%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UO24MBS1

Lab Name: ANALYTICAL RESOURCES INC

Client: SLR

ARI Job No: UO24

Project: BAYWOOD

Lab File ID: 04041203

Date Extracted: 04/02/12

Instrument ID: NT4

Date Analyzed: 04/04/12

Matrix: SOLID

Time Analyzed: 1618

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UO24LCSS1	UO24LCSS1	04041204	04/04/12
02	SP-J-1	UO24A	04041206	04/04/12
03	SP-H-1	UO24B	04041207	04/04/12
04	SP-H-2	UO24C	04041208	04/04/12
05	SP-F-1	UO24D	04041209	04/04/12
06	SP-F-2	UO24E	04041210	04/04/12
07	SP-F-3	UO24F	04041211	04/04/12
08	SP-F-4	UO24G	04041212	04/04/12
09	SP-F-5	UO24H	04041213	04/04/12
10	SP-F-6	UO24I	04041214	04/04/12
11	SP-F-7	UO24J	04041215	04/04/12
12	SP-F-8	UO24K	04041216	04/04/12
13	SP-F-9	UO24L	04041217	04/04/12
14	SP-F-9 MS	UO24LMS	04041218	04/04/12
15	SP-F-9 MSD	UO24LMSD	04041219	04/04/12
16	SP-F-10	UO24M	04041220	04/05/12
17	SP-O-1	UO24N	04041221	04/05/12
18	SP-O-2	UO24O	04041222	04/05/12
19	SP-O-3	UO24P	04041223	04/05/12
20	SP-O-4	UO24Q	04041224	04/05/12
21	SP-O-5	UO24R	04041225	04/05/12
22	SP-O-6	UO24S	04051203	04/05/12
23	SP-O-7	UO24T	04051204	04/05/12
24	SP-H-1	UO24B	04051205	04/05/12
25	SP-F-5	UO24H	04051206	04/05/12
26	SP-O-2	UO24O	04051207	04/05/12
27	SP-O-4	UO24Q	04051208	04/05/12
28	SP-H-1	UO24B	04051209	04/05/12
29				
30				

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: MB-040212
METHOD BLANK

Lab Sample ID: MB-040212
LIMS ID: 12-5357
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO24-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 04/02/12
Date Analyzed: 04/04/12 16:18
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	47.0%
d14-Dibenzo(a,h)anthracen	40.7%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

Instrument ID: NT4 Project: BAYWOOD

DFTPP Injection Date: 03/16/12 DFTPP Injection Time: 1132

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	34.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.8
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	48.8
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 60.0% of mass 198	28.9
365	Greater than 1.0% of mass 198	3.31
441	0.0 - 24.0% of mass 442	14.6 (17.2)2
442	50.0 - 200.0% of mass 198	84.4
443	15.0 - 24.0% of mass 442	17.0 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC010316	IC010316	03161202	03/16/12	1311
02	IC050316	IC050316	03161203	03/16/12	1340
03	IC100316	IC100316	03161204	03/16/12	1409
04	IC250316	IC250316	03161205	03/16/12	1438
05	IC50316	IC50316	03161206	03/16/12	1507
06	IC100316	IC100316	03161207	03/16/12	1536
07					
08					
09					
10					
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19					
20					
21					
22					

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

Instrument ID: NT4 Project: BAYWOOD

DFTPP Injection Date: 04/04/12 DFTPP Injection Time: 1534

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	35.3
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.5
70	Less than 2.0% of mass 69	0.1 (0.1)1
127	10.0 - 80.0% of mass 198	47.5
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 60.0% of mass 198	27.3
365	Greater than 1.0% of mass 198	2.85
441	0.0 - 24.0% of mass 442	12.3 (15.6)2
442	50.0 - 200.0% of mass 198	78.9
443	15.0 - 24.0% of mass 442	15.1 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0404	CC0404	04041202	04/04/12	1547
02	UO24MBS1	UO24MBS1	04041203	04/04/12	1618
03	UO24LCSS1	UO24LCSS1	04041204	04/04/12	1647
04	SP-J-1	UO24A	04041206	04/04/12	1744
05	SP-H-1	UO24B	04041207	04/04/12	1813
06	SP-H-2	UO24C	04041208	04/04/12	1842
07	SP-F-1	UO24D	04041209	04/04/12	1911
08	SP-F-2	UO24E	04041210	04/04/12	1939
09	SP-F-3	UO24F	04041211	04/04/12	2008
10	SP-F-4	UO24G	04041212	04/04/12	2037
11	SP-F-5	UO24H	04041213	04/04/12	2106
12	SP-F-6	UO24I	04041214	04/04/12	2134
13	SP-F-7	UO24J	04041215	04/04/12	2203
14	SP-F-8	UO24K	04041216	04/04/12	2232
15	SP-F-9	UO24L	04041217	04/04/12	2300
16	SP-F-9 MS	UO24LMS	04041218	04/04/12	2329
17	SP-F-9 MSD	UO24LMSD	04041219	04/04/12	2358
18	SP-F-10	UO24M	04041220	04/05/12	0026
19	SP-O-1	UO24N	04041221	04/05/12	0055
20	SP-O-2	UO24O	04041222	04/05/12	0124
21	SP-O-3	UO24P	04041223	04/05/12	0152
22	SP-O-4	UO24Q	04041224	04/05/12	0221

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

Instrument ID: NT4 Project: BAYWOOD

DFTPP Injection Date: 04/04/12 DFTPP Injection Time: 1534

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	35.3
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.5
70	Less than 2.0% of mass 69	0.1 (0.1)1
127	10.0 - 80.0% of mass 198	47.5
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.7
275	10.0 - 60.0% of mass 198	27.3
365	Greater than 1.0% of mass 198	2.85
441	0.0 - 24.0% of mass 442	12.3 (15.6)2
442	50.0 - 200.0% of mass 198	78.9
443	15.0 - 24.0% of mass 442	15.1 (19.1)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SP-O-5	UO24R	04041225	04/05/12	0250
02					
03					
04					
05					
06					
07					
08					
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22					

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

Instrument ID: NT4 Project: BAYWOOD

DFTPP Injection Date: 04/05/12 DFTPP Injection Time: 1424

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	40.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	47.9
70	Less than 2.0% of mass 69	0.4 (0.8)1
127	10.0 - 80.0% of mass 198	48.3
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 60.0% of mass 198	25.5
365	Greater than 1.0% of mass 198	2.58
441	0.0 - 24.0% of mass 442	10.4 (15.0)2
442	50.0 - 200.0% of mass 198	69.6
443	15.0 - 24.0% of mass 442	13.8 (19.8)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0405	CC0405	04051202	04/05/12	1511
02	SP-O-6	UO24S	04051203	04/05/12	1637
03	SP-O-7	UO24T	04051204	04/05/12	1705
04	SP-H-1	UO24B	04051205	04/05/12	1734
05	SP-F-5	UO24H	04051206	04/05/12	1803
06	SP-O-2	UO24O	04051207	04/05/12	1831
07	SP-O-4	UO24Q	04051208	04/05/12	1900
08	SP-H-1	UO24B	04051209	04/05/12	1929
09					
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17					
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20					
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22					

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

ARI Job No: UO24 Project: BAYWOOD

Instrument ID: NT4 Calibration Date: 03/16/12

LAB FILE ID: RRF0.1=03161202 RRF0.5=03161203 RRF1 =03161204
RRF2.5=03161205 RRF5 =03161206 RRF10 =03161207

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	$\overline{RRF}$	%RSD /R^2
Naphthalene	1.249	1.109	1.164	1.063	0.928	0.856	1.062	13.8
2-Methylnaphthalene	0.811	0.660	0.675	0.641	0.552	0.542	0.647	15.1
Acenaphthylene	1.608	1.650	1.669	1.658	1.466	1.543	1.599	5.0
Acenaphthene	1.263	1.194	1.228	1.155	1.025	1.070	1.156	8.0
Dibenzofuran	1.856	1.755	1.741	1.656	1.442	1.474	1.654	10.0
Fluorene	1.420	1.291	1.346	1.280	1.127	1.180	1.274	8.4
Phenanthrene	1.285	1.172	1.220	1.146	0.996	1.004	1.137	10.2
Anthracene	1.304	1.068	1.187	1.119	0.986	1.020	1.114	10.5
Fluoranthene	1.538	1.209	1.324	1.265	1.099	1.143	1.263	12.5
Pyrene	1.262	1.140	1.202	1.123	1.005	1.048	1.130	8.4
Benzo(a)anthracene	1.224	1.012	1.088	1.039	0.949	1.019	1.055	8.9
Chrysene	1.313	1.071	1.094	1.076	0.964	1.012	1.088	11.0
Benzo(b)fluoranthene	1.112	1.194	1.256	1.148	1.030	1.103	1.140	6.9
Benzo(k)fluoranthene	1.235	1.205	1.336	1.233	1.040	1.138	1.198	8.4
Benzo(j)fluoranthene	0.914	1.094	1.218	1.078	0.959	1.091	1.059	10.3
Benzo(a)pyrene		1.002	1.117	1.099	1.006	1.141	1.073	6.0
Indeno(1,2,3-cd)pyrene	1.256	1.245	1.363	1.322	1.209	1.364	1.293	5.1
Dibenzo(a,h)anthracene	1.176	1.014	1.110	1.079	1.017	1.147	1.090	6.1
Benzo(g,h,i)perylene	1.274	1.067	1.226	1.156	1.069	1.165	1.160	7.1
1-methylnaphthalene	0.742	0.607	0.639	0.602	0.525	0.516	0.605	13.7
Perylene	0.725	1.122	1.185	1.130	1.027	1.138	1.054	16.1
2-Methylnaphthalene-d10	0.803	0.619	0.705	0.649	0.553	0.546	0.646	15.1
Dibenzo(a,h)anthracene-d14	0.854	0.755	0.845	0.883	0.808	0.930	0.846	7.2

<- Outside QC limits: %RSD <20% or R^2 > 0.990

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

ARI Job No: UO24 Project: BAYWOOD

Instrument ID: NT4 Cont. Calib. Date: 04/04/12

Init. Calib. Date: 03/16/12 Cont. Calib. Time: 1547

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift
Naphthalene	1.062	1.173	0.700	AVRG	10.4
2-Methylnaphthalene	0.647	0.723	0.400	AVRG	11.7
Acenaphthylene	1.599	1.758	0.900	AVRG	9.9
Acenaphthene	1.156	1.347	0.900	AVRG	16.5
Dibenzofuran	1.654	1.958	0.800	AVRG	18.4
Fluorene	1.274	1.442	0.900	AVRG	13.2
Phenanthrene	1.137	1.287	0.700	AVRG	13.2
Anthracene	1.114	1.237	0.700	AVRG	11.0
Fluoranthene	1.263	1.388	0.600	AVRG	9.9
Pyrene	1.130	1.204	0.600	AVRG	6.5
Benzo(a)anthracene	1.055	1.108	0.800	AVRG	5.0
Chrysene	1.088	1.192	0.700	AVRG	9.6
Benzo(b)fluoranthene	1.140	1.307	0.700	AVRG	14.6
Benzo(k)fluoranthene	1.198	1.411	0.700	AVRG	17.8
Benzo(j)fluoranthene	1.059	1.257	0.010	AVRG	18.7
Benzo(a)pyrene	1.073	1.229	0.700	AVRG	14.5
Indeno(1,2,3-cd)pyrene	1.293	1.169	0.500	AVRG	-9.6
Dibenzo(a,h)anthracene	1.090	0.908	0.400	AVRG	-16.7
Benzo(g,h,i)perylene	1.160	1.082	0.500	AVRG	-6.7
1-methylnaphthalene	0.605	0.698	0.010	AVRG	15.4
Perylene	1.054	1.254	0.010	AVRG	19.0
2-Methylnaphthalene-d10	0.646	0.733	0.010	AVRG	13.5
Dibenzo(a,h)anthracene-d14	0.846	0.689	0.010	AVRG	-18.6

<- Exceeds QC limit of 20% D
* RF less than minimum RF

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

ARI Job No: UO24 Project: BAYWOOD

Instrument ID: NT4 Cont. Calib. Date: 04/05/12

Init. Calib. Date: 03/16/12 Cont. Calib. Time: 1511

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	1.062	1.218	0.700	AVRG	14.7	
2-Methylnaphthalene	0.647	0.537	0.400	AVRG	-17.0	
Acenaphthylene	1.599	1.914	0.900	AVRG	19.7	
Acenaphthene	1.156	1.313	0.900	AVRG	13.6	
Dibenzofuran	1.654	1.914	0.800	AVRG	15.7	
Fluorene	1.274	1.427	0.900	AVRG	12.0	
Phenanthrene	1.137	1.273	0.700	AVRG	12.0	
Anthracene	1.114	1.181	0.700	AVRG	6.0	
Fluoranthene	1.263	1.369	0.600	AVRG	8.4	
Pyrene	1.130	1.296	0.600	AVRG	14.7	
Benzo(a)anthracene	1.055	1.179	0.800	AVRG	11.8	
Chrysene	1.088	1.213	0.700	AVRG	11.5	
Benzo(b)fluoranthene	1.140	1.329	0.700	AVRG	16.6	
Benzo(k)fluoranthene	1.198	1.368	0.700	AVRG	14.2	
Benzo(j)fluoranthene	1.059	1.283	0.010	AVRG	21.2	<- OK on total (B,K,J)
Benzo(a)pyrene	1.073	1.263	0.700	AVRG	17.7	
Indeno(1,2,3-cd)pyrene	1.293	1.113	0.500	AVRG	-13.9	
Dibenzo(a,h)anthracene	1.090	0.882	0.400	AVRG	-19.1	
Benzo(g,h,i)perylene	1.160	0.940	0.500	AVRG	-19.0	
1-methylnaphthalene	0.605	0.513	0.010	AVRG	-15.2	
Perylene	1.054	1.289	0.010	AVRG	22.3	<- NTC.
2-Methylnaphthalene-d10	0.646	0.552	0.010	AVRG	-14.6	
Dibenzo(a,h)anthracene-d14	0.846	0.710	0.010	AVRG	-16.1	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

04/06/12

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

ARI Job No: UO24 Project: BAYWOOD

Ical Midpoint ID: 03161205 Ical Date: 03/16/12

Instrument ID: NT4 Cont. Cal Date: 04/04/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	364113	5.43	210739	7.72	347113	9.69
	UPPER LIMIT	728226		421478		694226	
	LOWER LIMIT	182056		105370		173556	
	CCAL	389731	5.32	229100	7.60	396312	9.57
	UPPER LIMIT		5.82		8.10		10.07
	LOWER LIMIT		4.82		7.10		9.07
01	UO24MBS1	379111	5.32	225733	7.60	404716	9.57
02	UO24LCSS1	402733	5.32	240445	7.60	421287	9.57
03	SP-J-1	343455	5.32	208281	7.60	376207	9.56
04	SP-H-1	375824	5.32	232856	7.60	418526	9.56
05	SP-H-2	324596	5.32	218685	7.60	380370	9.56
06	SP-F-1	332773	5.32	222519	7.59	382726	9.56
07	SP-F-2	367899	5.32	193635	7.60	350406	9.56
08	SP-F-3	289245	5.32	196974	7.60	340811	9.56
09	SP-F-4	309820	5.32	193308	7.60	336389	9.56
10	SP-F-5	303968	5.31	182857	7.60	311898	9.56
11	SP-F-6	312657	5.32	181776	7.60	323430	9.56
12	SP-F-7	289152	5.32	175643	7.60	274108	9.56
13	SP-F-8	225288	5.32	137660	7.60	235899	9.56
14	SP-F-9	221316	5.31	133356	7.60	242271	9.56
15	SP-F-9 MS	203675	5.32	121213	7.60	216311	9.56
16	SP-F-9 MSD	219015	5.32	137080	7.60	241658	9.56
17	SP-F-10	256962	5.31	124594	7.60	220044	9.56
18	SP-O-1	207455	5.31	128587	7.59	253506	9.56
19	SP-O-2	247207	5.31	155882	7.59	272494	9.56
20	SP-O-3	290092	5.32	176252	7.60	295042	9.56
21	SP-O-4	242049	5.32	146563	7.60	261842	9.56
22	SP-O-5	268122	5.32	164891	7.60	301953	9.56
23							
24							
25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

ARI Job No: UO24 Project: BAYWOOD

Ical Midpoint ID: 03161205 Ical Date: 03/16/12

Instrument ID: NT4 Cont. Cal Date: 04/04/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	412003	14.89	386633	18.72		
	UPPER LIMIT	824006		773266			
	LOWER LIMIT	206002		193316			
	CCAL	478074	14.67	419936	18.47		
	UPPER LIMIT		15.17		18.97		
	LOWER LIMIT		14.17		17.97		
01	UO24MBS1	431108	14.67	342482	18.47		
02	UO24LCSS1	485656	14.67	403583	18.46		
03	SP-J-1	447189	14.67	401297	18.46		
04	SP-H-1	579469	14.67	529369	18.47		
05	SP-H-2	452963	14.67	437926	18.47		
06	SP-F-1	454883	14.66	462971	18.46		
07	SP-F-2	414573	14.66	418917	18.46		
08	SP-F-3	397066	14.66	402591	18.46		
09	SP-F-4	445425	14.67	426540	18.46		
10	SP-F-5	403295	14.66	400984	18.46		
11	SP-F-6	397450	14.67	397390	18.46		
12	SP-F-7	348347	14.67	346433	18.46		
13	SP-F-8	278840	14.67	262455	18.46		
14	SP-F-9	266383	14.66	260303	18.46		
15	SP-F-9 MS	239322	14.66	224923	18.46		
16	SP-F-9 MSD	276813	14.66	262772	18.46		
17	SP-F-10	256916	14.66	244167	18.46		
18	SP-O-1	340204	14.67	316269	18.46		
19	SP-O-2	330395	14.66	334974	18.46		
20	SP-O-3	376821	14.66	410772	18.47		
21	SP-O-4	343414	14.67	334062	18.46		
22	SP-O-5	409453	14.67	385398	18.47		
23							
24							
25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

ARI Job No: UO24 Project: BAYWOOD

Ical Midpoint ID: 03161205 Ical Date: 03/16/12

Instrument ID: NT4 Cont. Cal Date: 04/05/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	364113	5.43	210739	7.72	347113	9.69
	UPPER LIMIT	728226		421478		694226	
	LOWER LIMIT	182056		105370		173556	
	CCAL	371234	5.12	166789	7.38	282918	9.33
	UPPER LIMIT		5.62		7.88		9.83
	LOWER LIMIT		4.62		6.88		8.83
01	SP-O-6	502004	5.12	225262	7.38	404057	9.34
02	SP-0-7	378800	5.12	243761	7.38	412338	9.33
03	SP-H-1	429649	5.12	259738	7.38	445242	9.33
04	SP-F-5	427790	5.12	263046	7.38	447538	9.33
05	SP-O-2	425003	5.12	256579	7.38	435601	9.33
06	SP-O-4	416825	5.12	257359	7.38	437207	9.33
07	SP-H-1	367549	5.12	211734	7.38	366591	9.33
08							
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22							
23							
24							
25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

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AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
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RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CROP

ARI Job No: UO24 Project: BAYWOOD

Ical Midpoint ID: 03161205 Ical Date: 03/16/12

Instrument ID: NT4 Cont. Cal Date: 04/05/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	412003	14.89	386633	18.72		
	UPPER LIMIT	824006		773266			
	LOWER LIMIT	206002		193316			
	CCAL	311742	14.27	272273	18.02		
	UPPER LIMIT		14.77		18.52		
	LOWER LIMIT		13.77		17.52		
01	SP-O-6	503393	14.28	479021	18.03		
02	SP-0-7	482391	14.27	472033	18.02		
03	SP-H-1	489946	14.27	453579	18.02		
04	SP-F-5	517538	14.27	479312	18.02		
05	SP-O-2	484525	14.27	459196	18.02		
06	SP-O-4	487405	14.28	461577	18.01		
07	SP-H-1	390735	14.27	348277	18.02		
08							
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21							
22							
23							
24							
25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

Total Solids

ARI Job ID: UO24

Extractions Total Solids-extts
Data By: Yen Luu
Created: 3/29/12

Worklist: 8555
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UO24A 12-5346 SP-J-1	1.13	12.69	11.15	86.7	NR
2.	UO24B 12-5347 SP-H-1	1.15	11.26	9.92	86.7	NR
3.	UO24C 12-5348 SP-H-2	1.13	12.44	11.35	90.4	NR
4.	UO24D 12-5349 SP-F-1	1.13	12.83	11.72	90.5	NR
5.	UO24E 12-5350 SP-F-2	1.15	11.90	10.50	87.0	NR
6.	UO24F 12-5351 SP-F-3	1.14	11.24	8.68	74.7	NR
7.	UO24G 12-5352 SP-F-4	1.13	11.60	9.10	76.1	NR
8.	UO24H 12-5353 SP-F-5	1.15	11.24	8.60	73.8	NR
9.	UO24I 12-5354 SP-F-6	1.12	12.52	10.20	79.6	NR
10.	UO24J 12-5355 SP-F-7	1.15	11.22	9.22	80.1	NR
11.	UO24K 12-5356 SP-F-8	1.16	12.67	10.55	81.6	NR
12.	UO24L 12-5357 SP-F-9	1.13	11.45	10.51	90.9	NR
13.	UO24M 12-5358 SP-F-10	1.14	12.45	11.03	87.4	NR

Extractions Total Solids-extts
Data By: Yen Luu
Created: 3/29/12

Worklist: 8555
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
14.	UO24N 12-5359 SP-O-1	1.13	12.69	9.61	73.4	NR
15.	UO24O 12-5360 SP-O-2	1.13	12.03	10.85	89.2	NR
16.	UO24P 12-5361 SP-O-3	1.13	11.14	9.91	87.7	NR
17.	UO24Q 12-5362 SP-O-4	1.12	12.69	10.00	76.8	NR
18.	UO24R 12-5363 SP-O-5	1.16	12.18	9.34	74.2	NR
19.	UO24S 12-5364 SP-O-6	1.16	11.90	9.84	80.8	NR
20.	UO24T 12-5365 SP-O-7	1.13	12.64	11.53	90.4	NR

Extractions Total Solids-extts
Data By: Yen Luu
Created: 3/29/12

Worklist: 8555
Analyst: YL
Comments:

Oven ID: Ø15

Balance ID: B#6426 14

Samples In: Date: 3/29/12 Time: 16:30 Temp: 161 Analyst: YL

Samples Out: Date: 03/30/12 Time: 06:10 Temp: 100° Analyst: RR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UO24A 12-5346 SP-J-1	1.13	12.69	11.15		NR
2.	UO24B 12-5347 SP-H-1	1.15	11.26	9.92		NR
3.	UO24C 12-5348 SP-H-2	1.13	12.44	11.35		NR
4.	UO24D 12-5349 SP-F-1	1.13	12.83	11.72 RR 03/30/12.		NR
5.	UO24E 12-5350 SP-F-2	1.15	11.90	~~8.68~~ 10.50		NR
6.	UO24F 12-5351 SP-F-3	1.14	11.24	8.68		NR
7.	UO24G 12-5352 SP-F-4	1.13	11.60	9.10		NR
8.	UO24H 12-5353 SP-F-5	1.15	11.24	8.60		NR
9.	UO24I 12-5354 SP-F-6	1.12	12.52	10.20		NR
10.	UO24J 12-5355 SP-F-7	1.15	11.22	9.22		NR
11.	UO24K 12-5356 SP-F-8	1.16	12.67	10.55		NR
12.	UO24L 12-5357 SP-F-9	1.13	11.45	10.51		NR
13.	UO24M 12-5358 SP-F-10	1.14	12.45	11.03		NR

Extractions Total Solids-extts
Data By: Yen Luu
Created: 3/29/12

Worklist: 8555
Analyst: YL
Comments: 14

Oven ID: 015

Balance ID: B#64 2614 YL 3/29/12

Samples In: Date: 3/29/12 Time: 16:30 Temp: 101 Analyst: YL

Samples Out: Date: 03/30/12 Time: 06:10 Temp: 100° Analyst: RR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
14.	UO24N 12-5359 SP-O-1	1.13	12.69	~~11.14~~ RR 03/30/12	9.61	NR
15.	UO24O 12-5360 SP-O-2	1.13	12.03	~~9.91~~ RR 03/30/12	10.85	NR
16.	UO24P 12-5361 SP-O-3	1.13	11.14	~~11.34~~ RR 03/30/12	9.91	NR
17.	UO24Q 12-5362 SP-O-4	1.12	12.69	10.00		NR
18.	UO24R 12-5363 SP-O-5	1.16	12.18	9.34		NR
19.	UO24S 12-5364 SP-O-6	1.16	11.90	9.84		NR
20.	UO24T 12-5365 SP-O-7	1.13	12.64	11.53		NR

Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 10, 2012

Megan Coracci
SLR International Corp.
1800 Blankenship Road, Suite 440
West Linn, OR 97068

RE: Bay Wood, 108.00339.00001
ARI Job No.: UO25

Dear Megan:

Please find enclosed the Chain-of-Custody (COC) records, sample receipt documentation, and the final data package for samples from the project referenced above.

Sample receipt and details of these analyses are discussed in the Case Narrative.

An electronic copy of this package will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Eric Branson
-For-
Susan D. Dunnihoo
Director, Client Services
sue@arilabs.com
206-695-6207

Enclosures

cc: eFile UO25

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Documentation

ARI Job ID: UO25

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 12025	Turn-around Requested: STANDARD	Page: 3 of 3	
ARI Client Company: SLR	Phone:	Date: 3/27/12	Ice Present? Y
Client Contact: MEGAN CORACCI		No. of Coolers: 1	Cooler Temps: 1.6
Client Project Name: BAY WOOD			
Client Project #: 108.00339.00001	Samplers: CHRIS LEE & HANNAH KRAVITZ		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: cPAHs by 8270 SIM	Notes/Comments
SP-O-8	3/27/12	1426	SOIL	1	X	
SP-O-9		1433				
SP-O-10		1440				
SP-N-1		1449				
SP-R-1		1456				
SP-R-2		1503				
SP-R-3		1510				
SP-L-1		1515				
SPK-1		1520				
SPK-2		1527				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: CHRIS LEE	Printed Name: A Volgardsen	Printed Name:	Printed Name:
	Company: SLR	Company: ARI	Company:	Company:
	Date & Time: 3/28/12 1280	Date & Time: 3/28/12 1230	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: SiR Project Name: Bay Wood

COC No(s): (NA) Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: U025 Tracking No: (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 1.6

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90941619

Cooler Accepted by: AV Date: 3/28/12 Time: 1736

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: Equipment: Split by:

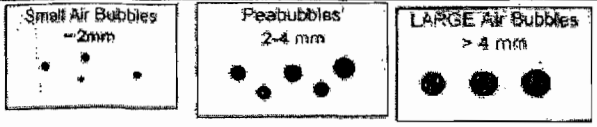
Samples Logged by: JM Date: 3/28/12 Time: 1355

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm"	
Peabubbles → "pb"	
Large → "lg"	
Headspace → "hs"	

Case Narrative, Data Qualifiers, Control Limits

ARI Job ID: UO25

Case Narrative

Client: SLR International Corp.
Project: Bay Wood, 108.00339.00001
ARI Job No.: UO25

Sample receipt

Thirty soil samples were received on March 28, 2012. The cooler temperature measured by IR thermometer following ARI SOP was 1.6°C. The samples were analyzed for SIM PAHs as requested. The samples were divided into separate ARI sample delivery groups (SDGs) for quality control purposes – twenty under SDG UO24 and ten under SDG UO25. For details regarding sample receipt, please refer to the Cooler Receipt Form.

SIM PAHs by SW8270D

The samples and associated laboratory QC were extracted and analyzed within the method recommended holding times.

The initial and continuing calibrations were within method requirements. Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limit. The LCS percent recoveries were within control limits.

The matrix spike and matrix spike duplicate percent recoveries and RPDs were within advisory control limits.

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: UO25
Client: SLR International Corp.
Project Event: 108.00339.00001
Project Name: Baywood

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	SP-O-8	UO25A	12-5366	Soil	03/27/12 14:26	03/28/12 12:30
2.	SP-O-9	UO25B	12-5367	Soil	03/27/12 14:33	03/28/12 12:30
3.	SP-O-10	UO25C	12-5368	Soil	03/27/12 14:40	03/28/12 12:30
4.	SP-N-1	UO25D	12-5369	Soil	03/27/12 14:49	03/28/12 12:30
5.	SP-R-1	UO25E	12-5370	Soil	03/27/12 14:56	03/28/12 12:30
6.	SP-R-2	UO25F	12-5371	Soil	03/27/12 15:03	03/28/12 12:30
7.	SP-R-3	UO25G	12-5372	Soil	03/27/12 15:10	03/28/12 12:30
8.	SP-L-1	UO25H	12-5373	Soil	03/27/12 15:15	03/28/12 12:30
9.	SP-K-1	UO25I	12-5374	Soil	03/27/12 15:20	03/28/12 12:30
10.	SP-K-2	UO25J	12-5375	Soil	03/27/12 15:27	03/28/12 12:30

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Data Reporting Qualifiers

Effective 2/14/2011

Inorganic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Duplicate RPD is not within established control limits

B — Reported value is less than the CRDL but ≥ the Reporting Limit

N — Matrix Spike recovery not within established control limits

NA — Not Applicable, analyte not spiked

H — The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible

L — Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U — Indicates that the target analyte was not detected at the reported concentration

* — Flagged value is not within established control limits

B — Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.

J — Estimated concentration when the value is less than ARI's established reporting limits

D — The spiked compound was not detected due to sample extract dilution

E — Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q — Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

M2 The sample contains PCB congeners that do not match any standard Aroclor pattern. The PCBs are identified and quantified as the Aroclor whose pattern most closely matches that of the sample. The reported value is an estimate.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A	The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
F	Samples were frozen prior to particle size determination
SM	Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
SS	Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
W	Weight of sample in some pipette aliquots was below the level required for accurate weighting

DL, LOD, LOQ and Control Limits Summary
Analysis of Solid Samples for PNA EPA Method 8270 – SIM

Microwave (EPA 3546) or Sonication (EPA 3550C) Extraction using 10 g sample with extract with 0.5 mL final volume. ARI Bench Sheet 3060F or 3051F ARI Analyses: PNSSMI & PNSSCI

Analyte	DL[1] µg/kg	LOD[1,2] µg/kg	LOQ[1] µg/kg	LCS Control Limit[3,4]	Replicate RPD[5]
Naphthalene	2.63	**5.0**	**5.0**	37 – **100**	≤ 40
1-Methylnaphthalene	1.71	**2.5**	**5.0**	30 – 160[6]	≤ 40
2-Methylnaphthalene	1.52	**2.5**	**5.0**	37 – **100**	≤ 40
Biphenyl	1.44	**2.5**	**5.0**	30 – 160[6]	≤ 40
2,6-Dimethylnapthalene	0.75	**2.5**	**5.0**	30 – 160[6]	≤ 40
Acenaphthylene	1.26	**2.5**	**5.0**	35 – **100**	≤ 40
Acenaphthene	1.32	**2.5**	**5.0**	39 – **100**	≤ 40
Dibenzofuran	1.51	**2.5**	**5.0**	39 – **100**	≤ 40
1,6,7-Trimethylnaphthalene	0.42	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluorene	1.29	**2.5**	**5.0**	42 – **100**	≤ 40
Benzothiophene	0.43	**2.5**	**5.0**	30 – 160[6]	≤ 40
Phenanthrene	1.98	**2.5**	**5.0**	47 – **100**	≤ 40
Anthracene	1.46	**2.5**	**5.0**	41 – 106	≤ 40
Carbazole	0.62	**2.5**	**5.0**	30 – 160[6]	≤ 40
1-Methylphenanthrene	0.70	**2.5**	**5.0**	30 – 160[6]	≤ 40
Fluoranthene	1.77	**4.0**	**5.0**	52 – 109	≤ 40
Pyrene	2.22	**4.0**	**5.0**	47 – 111	≤ 40
Benzo(a)anthracene	1.60	**2.5**	**5.0**	47 – 114	≤ 40
Chrysene	1.88	**2.5**	**5.0**	51 – 106	≤ 40
Benzo(b)fluoranthene	1.90	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(k)fluoranthene	2.05	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(e)pyrene	0.65	**2.5**	**5.0**	30 – 160[6]	≤ 40
Benzo(a)pyrene	1.75	**2.5**	**5.0**	44 – 111	≤ 40
Indeno(1,2,3-cd)pyrene	3.47	**4.0**	**5.0**	41 – 114	≤ 40
Dibenz(a,h)anthracene	2.38	**4.0**	**5.0**	42 – 116	≤ 40
Benzo(g,h,i)perylene	3.05	**4.0**	**5.0**	37 – 115	≤ 40
Perylene	2.99	**4.0**	**5.0**	30 – 160[6]	≤ 40
Surrogate Recovery			**MB / LCS**	**Samples**	**RPD**
2-Methylnapthalene-d_{10}			35 – **100**	34 – **100**	≤ 40
Dibenzo(a,h)anthracene-d_{14}			37 – 120	**10** – 117	≤ 40

(1) Detection Limit (DL), Limit of Detection (LOD), Limit of Quantitation (LOQ) as defined in ARI SOP 1018S
(2) LOD verification performed 8/26/11 ARI Sample TJ75I
(3) Highlighted control limits (**bold font**) are adjusted from the calculated values to reflect that ARI does not use control limits < 10 for the lower limit or < 100 for the upper limit.
(4) Control limits calculated using all data from 1/1/08 through 12/31/08.
(5) Relative Percent Difference between analytes in replicate analyzes. If C_O and C_D are the concentrations of the original and duplicate respectively then $RPD = \frac{|C_O - C_D|}{\frac{C_O + C_D}{2}} x100$
(6) Default limits pending generation of historic limits.

SIM PAH Analysis
Report and Summary QC Forms

ARI Job ID: UO25

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-O-8
SAMPLE

Lab Sample ID: UO25A
LIMS ID: 12-5366
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 16:47
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.58 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 18.9%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.7	130
218-01-9	Chrysene	4.7	230
50-32-8	Benzo(a)pyrene	4.7	82
193-39-5	Indeno(1,2,3-cd)pyrene	4.7	52
53-70-3	Dibenz(a,h)anthracene	4.7	17
TOTBFA	Total Benzofluoranthenes	4.7	250

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	66.7%
d14-Dibenzo(a,h)anthracen	69.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-O-9
SAMPLE

Lab Sample ID: UO25B
LIMS ID: 12-5367
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 21:23
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.25 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 22.2%

CAS Number	Analyte	RL	Result	
56-55-3	**Benzo(a)anthracene**	**4.9**	**290**	
218-01-9	**Chrysene**	**4.9**	**620**	**E**
50-32-8	**Benzo(a)pyrene**	**4.9**	**120**	
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.9**	**68**	
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**26**	
TOTBFA	**Total Benzofluoranthenes**	**4.9**	**580**	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracen	62.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-O-9
DILUTION

Lab Sample ID: UO25B
LIMS ID: 12-5367
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 17:16
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.25 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 22.2%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	15	340
218-01-9	Chrysene	15	730
50-32-8	Benzo(a)pyrene	15	140
193-39-5	Indeno(1,2,3-cd)pyrene	15	83
53-70-3	Dibenz(a,h)anthracene	15	30
TOTBFA	Total Benzofluoranthenes	15	650

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	68.0%
d14-Dibenzo(a,h)anthracen	68.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-O-10
SAMPLE

Lab Sample ID: UO25C
LIMS ID: 12-5368
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 21:52
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.34 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 26.4%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.8**	**180**
218-01-9	**Chrysene**	**4.8**	**450**
50-32-8	**Benzo(a)pyrene**	**4.8**	**120**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.8**	**72**
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**28**
TOTBFA	**Total Benzofluoranthenes**	**4.8**	**550**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.3%
d14-Dibenzo(a,h)anthracen	65.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-N-1
SAMPLE

Lab Sample ID: UO25D
LIMS ID: 12-5369
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 22:20
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.64 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 24.4%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.7**	**140**
218-01-9	**Chrysene**	**4.7**	**380**
50-32-8	**Benzo(a)pyrene**	**4.7**	**51**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.7**	**33**
53-70-3	**Dibenz(a,h)anthracene**	**4.7**	**12**
TOTBFA	**Total Benzofluoranthenes**	**4.7**	**210**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	61.0%
d14-Dibenzo(a,h)anthracen	61.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-R-1
SAMPLE

Lab Sample ID: UO25E
LIMS ID: 12-5370
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 22:49
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.43 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 26.2%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	75
218-01-9	Chrysene	4.8	120
50-32-8	Benzo(a)pyrene	4.8	48
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	28
53-70-3	Dibenz(a,h)anthracene	4.8	8.5
TOTBFA	Total Benzofluoranthenes	4.8	180

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	58.0%
d14-Dibenzo(a,h)anthracen	61.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-R-2
SAMPLE

Lab Sample ID: UO25F
LIMS ID: 12-5371
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 23:17
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.29 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 27.3%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.9**	**150**
218-01-9	**Chrysene**	**4.9**	**330**
50-32-8	**Benzo(a)pyrene**	**4.9**	**100**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.9**	**57**
53-70-3	**Dibenz(a,h)anthracene**	**4.9**	**22**
TOTBFA	**Total Benzofluoranthenes**	**4.9**	**390**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	58.3%
d14-Dibenzo(a,h)anthracen	62.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-R-3
SAMPLE

Lab Sample ID: UO25G
LIMS ID: 12-5372
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 23:46
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.41 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 20.5%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**4.8**	**48**
218-01-9	**Chrysene**	**4.8**	**110**
50-32-8	**Benzo(a)pyrene**	**4.8**	**57**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**4.8**	**27**
53-70-3	**Dibenz(a,h)anthracene**	**4.8**	**10**
TOTBFA	**Total Benzofluoranthenes**	**4.8**	**190**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.7%
d14-Dibenzo(a,h)anthracen	71.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-L-1
SAMPLE

Lab Sample ID: UO25H
LIMS ID: 12-5373
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 01:12
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 4.59 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 8.8%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	11	27
218-01-9	Chrysene	11	73
50-32-8	Benzo(a)pyrene	11	40
193-39-5	Indeno(1,2,3-cd)pyrene	11	55
53-70-3	Dibenz(a,h)anthracene	11	17
TOTBFA	Total Benzofluoranthenes	11	110

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	71.0%
d14-Dibenzo(a,h)anthracen	73.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-K-1
SAMPLE

Lab Sample ID: UO25I
LIMS ID: 12-5374
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 01:40
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.25 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 31.9%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	4.9	230	
218-01-9	Chrysene	4.9	550	E
50-32-8	Benzo(a)pyrene	4.9	94	
193-39-5	Indeno(1,2,3-cd)pyrene	4.9	46	
53-70-3	Dibenz(a,h)anthracene	4.9	14	
TOTBFA	Total Benzofluoranthenes	4.9	400	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	58.0%
d14-Dibenzo(a,h)anthracen	57.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-K-1
DILUTION

Lab Sample ID: UO25I
LIMS ID: 12-5374
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 17:44
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.25 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 31.9%

CAS Number	Analyte	RL	Result
56-55-3	**Benzo(a)anthracene**	**15**	**250**
218-01-9	**Chrysene**	**15**	**610**
50-32-8	**Benzo(a)pyrene**	**15**	**99**
193-39-5	**Indeno(1,2,3-cd)pyrene**	**15**	**52**
53-70-3	**Dibenz(a,h)anthracene**	**15**	**18**
TOTBFA	**Total Benzofluoranthenes**	**15**	**450**

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	63.0%
d14-Dibenzo(a,h)anthracen	66.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS
Page 1 of 1

Sample ID: SP-K-2
SAMPLE

Lab Sample ID: UO25J
LIMS ID: 12-5375
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 02:09
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.32 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 31.4%

CAS Number	Analyte	RL	Result	
56-55-3	Benzo(a)anthracene	4.8	460	
218-01-9	Chrysene	4.8	850	E
50-32-8	Benzo(a)pyrene	4.8	180	
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	97	
53-70-3	Dibenz(a,h)anthracene	4.8	35	
TOTBFA	Total Benzofluoranthenes	4.8	970	

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	62.0%
d14-Dibenzo(a,h)anthracen	52.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-K-2
DILUTION

Lab Sample ID: UO25J
LIMS ID: 12-5375
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 18:13
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.32 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 3.00
Percent Moisture: 31.4%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	14	520
218-01-9	Chrysene	14	1,000
50-32-8	Benzo(a)pyrene	14	200
193-39-5	Indeno(1,2,3-cd)pyrene	14	120
53-70-3	Dibenz(a,h)anthracene	14	41
TOTBFA	Total Benzofluoranthenes	14	980

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	65.0%
d14-Dibenzo(a,h)anthracen	61.0%

ANALYTICAL RESOURCES INCORPORATED

SIM SW8270 SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: UO25-SLR International Corp.
Project: Baywood
108.00339.00001

Client ID	MNP	DBA	TOT OUT
SP-O-8	66.7%	69.7%	0
SP-O-9	59.0%	62.0%	0
SP-O-9 DL	68.0%	68.0%	0
SP-O-10	62.3%	65.3%	0
SP-N-1	61.0%	61.3%	0
SP-R-1	58.0%	61.0%	0
SP-R-2	58.3%	62.0%	0
MB-040212	60.0%	66.7%	0
LCS-040212	54.7%	64.0%	0
SP-R-3	62.7%	71.7%	0
SP-R-3 MS	59.0%	68.0%	0
SP-R-3 MSD	59.3%	66.7%	0
SP-L-1	71.0%	73.0%	0
SP-K-1	58.0%	57.0%	0
SP-K-1 DL	63.0%	66.0%	0
SP-K-2	62.0%	52.7%	0
SP-K-2 DL	65.0%	61.0%	0

	LCS/MB LIMITS	QC LIMITS
(MNP) = d10-2-Methylnaphthalene	(35-100)	(34-100)
(DBA) = d14-Dibenzo(a,h)anthracene	(37-120)	(10-117)

Prep Method: SW3546
Log Number Range: 12-5366 to 12-5375

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: SP-R-3
MATRIX SPIKE

Lab Sample ID: UO25G
LIMS ID: 12-5372
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted MS/MSD: 04/02/12

Date Analyzed MS: 04/06/12 00:15
MSD: 04/06/12 00:43
Instrument/Analyst MS: NT4/JZ
MSD: NT4/JZ

Sample Amount MS: 10.4 g-dry-wt
MSD: 10.4 g-dry-wt
Final Extract Volume MS: 0.50 mL
MSD: 0.50 mL
Dilution Factor MS: 1.00
MSD: 1.00

Analyte	Sample	MS	Spike Added-MS	MS Recovery	MSD	Spike Added-MSD	MSD Recovery	RPD
Benzo(a)anthracene	48.2	137	144	61.7%	146	144	67.9%	6.4%
Chrysene	107	184	144	53.5%	195	144	61.1%	5.8%
Benzo(a)pyrene	56.6	134	144	53.8%	134	144	53.8%	0.0%
Indeno(1,2,3-cd)pyrene	27.2	111	144	58.2%	105	144	54.0%	5.6%
Dibenz(a,h)anthracene	10.1	87.5	144	53.8%	91.9	144	56.8%	4.9%
Total Benzofluoranthenes	190	347	288	54.5%	336	288	50.7%	3.2%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-R-3
MATRIX SPIKE

Lab Sample ID: UO25G
LIMS ID: 12-5372
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 00:15
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.41 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 20.5%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	---
218-01-9	Chrysene	4.8	---
50-32-8	Benzo(a)pyrene	4.8	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	---
53-70-3	Dibenz(a,h)anthracene	4.8	---
TOTBFA	Total Benzofluoranthenes	4.8	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.0%
d14-Dibenzo(a,h)anthracen	68.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: SP-R-3
MATRIX SPIKE DUPLICATE

Lab Sample ID: UO25G
LIMS ID: 12-5372
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: 03/27/12
Date Received: 03/28/12

Date Extracted: 04/02/12
Date Analyzed: 04/06/12 00:43
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.41 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: 20.5%

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	4.8	---
218-01-9	Chrysene	4.8	---
50-32-8	Benzo(a)pyrene	4.8	---
193-39-5	Indeno(1,2,3-cd)pyrene	4.8	---
53-70-3	Dibenz(a,h)anthracene	4.8	---
TOTBFA	Total Benzofluoranthenes	4.8	---

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	59.3%
d14-Dibenzo(a,h)anthracen	66.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SW8270D-SIM GC/MS

Sample ID: LCS-040212
LAB CONTROL SAMPLE

Lab Sample ID: LCS-040212
LIMS ID: 12-5372
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 04/02/12
Date Analyzed LCS: 04/05/12 20:26
Instrument/Analyst LCS: NT4/JZ

Sample Amount LCS: 10.0 g-dry-wt
Final Extract Volume LCS: 0.50 mL
Dilution Factor LCS: 1.00

Analyte	LCS	Spike Added	Recovery
Benzo(a)anthracene	102	150	68.0%
Chrysene	105	150	70.0%
Benzo(a)pyrene	80.0	150	53.3%
Indeno(1,2,3-cd)pyrene	89.7	150	59.8%
Dibenz(a,h)anthracene	86.8	150	57.9%
Total Benzofluoranthenes	221	300	73.7%

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	54.7%
d14-Dibenzo(a,h)anthracen	64.0%

4B

SEMIVOLATILE METHOD BLANK SUMMARY

BLANK NO.

UO25MBS1

Lab Name: ANALYTICAL RESOURCES INC — Client: SLR

ARI Job No: UO25 — Project: BAYWOOD

Lab File ID: 04051210 — Date Extracted: 04/02/12

Instrument ID: NT4 — Date Analyzed: 04/05/12

Matrix: SOLID — Time Analyzed: 1957

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
01	UO25LCSS1	UO25LCSS1	04051211	04/05/12
02	SP-O-9	UO25B	04051213	04/05/12
03	SP-O-10	UO25C	04051214	04/05/12
04	SP-N-1	UO25D	04051215	04/05/12
05	SP-R-1	UO25E	04051216	04/05/12
06	SP-R-2	UO25F	04051217	04/05/12
07	SP-R-3	UO25G	04051218	04/05/12
08	SP-R-3 MS	UO25GMS	04051219	04/06/12
09	SP-R-3 MSD	UO25GMSD	04051220	04/06/12
10	SP-L-1	UO25H	04051221	04/06/12
11	SP-K-1	UO25I	04051222	04/06/12
12	SP-K-2	UO25J	04051223	04/06/12
13	SP-O-8	UO25A	04061203	04/06/12
14	SP-O-9	UO25B	04061204	04/06/12
15	SP-K-1	UO25I	04061205	04/06/12
16	SP-K-2	UO25J	04061206	04/06/12
17				
18				
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29				
30				

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
PNAs by SIM SW8270D-SIM GC/MS

Sample ID: MB-040212
METHOD BLANK

Lab Sample ID: MB-040212
LIMS ID: 12-5372
Matrix: Soil
Data Release Authorized:
Reported: 04/09/12

QC Report No: UO25-SLR International Corp.
Project: Baywood
Event: 108.00339.00001
Date Sampled: NA
Date Received: NA

Date Extracted: 04/02/12
Date Analyzed: 04/05/12 19:57
Instrument/Analyst: NT4/JZ
GPC Cleanup: No
Silica Gel Cleanup: Yes
Alumina Cleanup: No

Sample Amount: 10.00 g-dry-wt
Final Extract Volume: 0.5 mL
Dilution Factor: 1.00
Percent Moisture: NA

CAS Number	Analyte	RL	Result
56-55-3	Benzo(a)anthracene	5.0	< 5.0 U
218-01-9	Chrysene	5.0	< 5.0 U
50-32-8	Benzo(a)pyrene	5.0	< 5.0 U
193-39-5	Indeno(1,2,3-cd)pyrene	5.0	< 5.0 U
53-70-3	Dibenz(a,h)anthracene	5.0	< 5.0 U
TOTBFA	Total Benzofluoranthenes	5.0	< 5.0 U

Reported in µg/kg (ppb)

SIM Semivolatile Surrogate Recovery

d10-2-Methylnaphthalene	60.0%
d14-Dibenzo(a,h)anthracen	66.7%

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 03/16/12 DFTPP Injection Time: 1132

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	34.7
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.8
70	Less than 2.0% of mass 69	0.2 (0.5)1
127	10.0 - 80.0% of mass 198	48.8
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.1
275	10.0 - 60.0% of mass 198	28.9
365	Greater than 1.0% of mass 198	3.31
441	0.0 - 24.0% of mass 442	14.6 (17.2)2
442	50.0 - 200.0% of mass 198	84.4
443	15.0 - 24.0% of mass 442	17.0 (20.2)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	IC010316	IC010316	03161202	03/16/12	1311
02	IC050316	IC050316	03161203	03/16/12	1340
03	IC100316	IC100316	03161204	03/16/12	1409
04	IC250316	IC250316	03161205	03/16/12	1438
05	IC50316	IC50316	03161206	03/16/12	1507
06	IC100316	IC100316	03161207	03/16/12	1536
07					
08					
09					
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22					

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 04/05/12 DFTPP Injection Time: 1424

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	40.4
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	47.9
70	Less than 2.0% of mass 69	0.4 (0.8)1
127	10.0 - 80.0% of mass 198	48.3
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.6
275	10.0 - 60.0% of mass 198	25.5
365	Greater than 1.0% of mass 198	2.58
441	0.0 - 24.0% of mass 442	10.4 (15.0)2
442	50.0 - 200.0% of mass 198	69.6
443	15.0 - 24.0% of mass 442	13.8 (19.8)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0405	CC0405	04051202	04/05/12	1511
02	UO25MBS1	UO25MBS1	04051210	04/05/12	1957
03	UO25LCSS1	UO25LCSS1	04051211	04/05/12	2026
04	SP-O-9	UO25B	04051213	04/05/12	2123
05	SP-O-10	UO25C	04051214	04/05/12	2152
06	SP-N-1	UO25D	04051215	04/05/12	2220
07	SP-R-1	UO25E	04051216	04/05/12	2249
08	SP-R-2	UO25F	04051217	04/05/12	2317
09	SP-R-3	UO25G	04051218	04/05/12	2346
10	SP-R-3 MS	UO25GMS	04051219	04/06/12	0015
11	SP-R-3 MSD	UO25GMSD	04051220	04/06/12	0043
12	SP-L-1	UO25H	04051221	04/06/12	0112
13	SP-K-1	UO25I	04051222	04/06/12	0140
14	SP-K-2	UO25J	04051223	04/06/12	0209
15					
16					
17					
18					
19					
20					
21					
22					

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

Instrument ID: NT4 Project: BAY WOOD

DFTPP Injection Date: 04/06/12 DFTPP Injection Time: 1548

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	10.0 - 80.0% of mass 198	32.9
68	Less than 2.0% of mass 69	0.2 (0.4)1
69	Mass 69 relative abundance	39.3
70	Less than 2.0% of mass 69	0.3 (0.6)1
127	10.0 - 80.0% of mass 198	45.4
197	Less than 2.0% of mass 198	0.0
198	Base Peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.9
275	10.0 - 60.0% of mass 198	28.0
365	Greater than 1.0% of mass 198	3.26
441	0.0 - 24.0% of mass 442	12.5 (15.6)2
442	50.0 - 200.0% of mass 198	80.1
443	15.0 - 24.0% of mass 442	15.5 (19.4)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	CLIENT SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	CC0406	CC0406	04061202	04/06/12	1608
02	SP-O-8	UO25A	04061203	04/06/12	1647
03	SP-O-9	UO25B	04061204	04/06/12	1716
04	SP-K-1	UO25I	04061205	04/06/12	1744
05	SP-K-2	UO25J	04061206	04/06/12	1813
06					
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19					
20					
21					
22					

6B

SEMIVOLATILE 8270-D INITIAL CALIBRATION DATA

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UO25 Project: BAY WOOD

Instrument ID: NT4 Calibration Date: 03/16/12

LAB FILE ID: RRF0.1=03161202 RRF0.5=03161203 RRF1 =03161204
RRF2.5=03161205 RRF5 =03161206 RRF10 =03161207

COMPOUND	RRF 0.1	RRF 0.5	RRF 1	RRF 2.5	RRF 5	RRF 10	RRF	%RSD /R^2
Naphthalene	1.249	1.109	1.164	1.063	0.928	0.856	1.062	13.8
2-Methylnaphthalene	0.811	0.660	0.675	0.641	0.552	0.542	0.647	15.1
Acenaphthylene	1.608	1.650	1.669	1.658	1.466	1.543	1.599	5.0
Acenaphthene	1.263	1.194	1.228	1.155	1.025	1.070	1.156	8.0
Dibenzofuran	1.856	1.755	1.741	1.656	1.442	1.474	1.654	10.0
Fluorene	1.420	1.291	1.346	1.280	1.127	1.180	1.274	8.4
Phenanthrene	1.285	1.172	1.220	1.146	0.996	1.004	1.137	10.2
Anthracene	1.304	1.068	1.187	1.119	0.986	1.020	1.114	10.5
Fluoranthene	1.538	1.209	1.324	1.265	1.099	1.143	1.263	12.5
Pyrene	1.262	1.140	1.202	1.123	1.005	1.048	1.130	8.4
Benzo(a)anthracene	1.224	1.012	1.088	1.039	0.949	1.019	1.055	8.9
Chrysene	1.313	1.071	1.094	1.076	0.964	1.012	1.088	11.0
Benzo(b)fluoranthene	1.112	1.194	1.256	1.148	1.030	1.103	1.140	6.9
Benzo(k)fluoranthene	1.235	1.205	1.336	1.233	1.040	1.138	1.198	8.4
Benzo(j)fluoranthene	0.914	1.094	1.218	1.078	0.959	1.091	1.059	10.3
Benzo(a)pyrene		1.002	1.117	1.099	1.006	1.141	1.073	6.0
Indeno(1,2,3-cd)pyrene	1.256	1.245	1.363	1.322	1.209	1.364	1.293	5.1
Dibenzo(a,h)anthracene	1.176	1.014	1.110	1.079	1.017	1.147	1.090	6.1
Benzo(g,h,i)perylene	1.274	1.067	1.226	1.156	1.069	1.165	1.160	7.1
1-methylnaphthalene	0.742	0.607	0.639	0.602	0.525	0.516	0.605	13.7
Perylene	0.725	1.122	1.185	1.130	1.027	1.138	1.054	16.1
2-Methylnaphthalene-d10	0.803	0.619	0.705	0.649	0.553	0.546	0.646	15.1
Dibenzo(a,h)anthracene-d14	0.854	0.755	0.845	0.883	0.808	0.930	0.846	7.2

<- Outside QC limits: %RSD <20% or R^2 > 0.990

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC | Client: SLR INTERNATIONAL CORP

ARI Job No: UO25 | Project: BAY WOOD

Instrument ID: NT4 | Cont. Calib. Date: 04/05/12

Init. Calib. Date: 03/16/12 | Cont. Calib. Time: 1511

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	1.062	1.218	0.700	AVRG	14.7	
2-Methylnaphthalene	0.647	0.537	0.400	AVRG	-17.0	
Acenaphthylene	1.599	1.914	0.900	AVRG	19.7	
Acenaphthene	1.156	1.313	0.900	AVRG	13.6	
Dibenzofuran	1.654	1.914	0.800	AVRG	15.7	
Fluorene	1.274	1.427	0.900	AVRG	12.0	
Phenanthrene	1.137	1.273	0.700	AVRG	12.0	
Anthracene	1.114	1.181	0.700	AVRG	6.0	
Fluoranthene	1.263	1.369	0.600	AVRG	8.4	
Pyrene	1.130	1.296	0.600	AVRG	14.7	
Benzo(a)anthracene	1.055	1.179	0.800	AVRG	11.8	
Chrysene	1.088	1.213	0.700	AVRG	11.5	
Benzo(b)fluoranthene	1.140	1.329	0.700	AVRG	16.6	
Benzo(k)fluoranthene	1.198	1.368	0.700	AVRG	14.2	
Benzo(j)fluoranthene	1.059	1.283	0.010	AVRG	21.2	<- ok on total (B,K,J)
Benzo(a)pyrene	1.073	1.263	0.700	AVRG	17.7	
Indeno(1,2,3-cd)pyrene	1.293	1.113	0.500	AVRG	-13.9	
Dibenzo(a,h)anthracene	1.090	0.882	0.400	AVRG	-19.1	
Benzo(g,h,i)perylene	1.160	0.940	0.500	AVRG	-19.0	
1-methylnaphthalene	0.605	0.513	0.010	AVRG	-15.2	
Perylene	1.054	1.289	0.010	AVRG	22.3	<- NTC
2-Methylnaphthalene-d10	0.646	0.552	0.010	AVRG	-14.6	
Dibenzo(a,h)anthracene-d14	0.846	0.710	0.010	AVRG	-16.1	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

AE 04/06/12

7B

SEMIVOLATILE 8270-D CONTINUING CALIBRATION CHECK

Lab Name: ANALYTICAL RESOURCES INC | Client: SLR INTERNATIONAL CORP

ARI Job No: UO25 | Project: BAY WOOD

Instrument ID: NT4 | Cont. Calib. Date: 04/06/12

Init. Calib. Date: 03/16/12 | Cont. Calib. Time: 1608

COMPOUND	CalAmt or ARF	CC Amt or RF	MIN RRF	CURVE TYPE	%D or Drift	
Naphthalene	1.062	1.170	0.700	AVRG	10.2	
2-Methylnaphthalene	0.647	0.713	0.400	AVRG	10.2	
Acenaphthylene	1.599	1.889	0.900	AVRG	18.1	
Acenaphthene	1.156	1.317	0.900	AVRG	13.9	
Dibenzofuran	1.654	1.924	0.800	AVRG	16.3	
Fluorene	1.274	1.454	0.900	AVRG	14.1	
Phenanthrene	1.137	1.303	0.700	AVRG	14.6	
Anthracene	1.114	1.310	0.700	AVRG	17.6	
Fluoranthene	1.263	1.367	0.600	AVRG	8.2	
Pyrene	1.130	1.266	0.600	AVRG	12.0	
Benzo(a)anthracene	1.055	1.125	0.800	AVRG	6.6	
Chrysene	1.088	1.201	0.700	AVRG	10.4	
Benzo(b)fluoranthene	1.140	1.321	0.700	AVRG	15.9	
Benzo(k)fluoranthene	1.198	1.424	0.700	AVRG	18.9	
Benzo(j)fluoranthene	1.059	1.244	0.010	AVRG	17.5	
Benzo(a)pyrene	1.073	1.254	0.700	AVRG	16.9	
Indeno(1,2,3-cd)pyrene	1.293	1.412	0.500	AVRG	9.2	
Dibenzo(a,h)anthracene	1.090	1.178	0.400	AVRG	8.1	
Benzo(g,h,i)perylene	1.160	1.262	0.500	AVRG	8.8	
1-methylnaphthalene	0.605	0.662	0.010	AVRG	9.4	
Perylene	1.054	1.270	0.010	AVRG	20.5	<- NTC
2-Methylnaphthalene-d10	0.646	0.711	0.010	AVRG	10.1	
Dibenzo(a,h)anthracene-d14	0.846	0.868	0.010	AVRG	2.6	

<- Exceeds QC limit of 20% D

* RF less than minimum RF

04/06/12

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UO25 Project: BAY WOOD

Ical Midpoint ID: 03161205 Ical Date: 03/16/12

Instrument ID: NT4 Cont. Cal Date: 04/05/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	364113	5.43	210739	7.72	347113	9.69
	UPPER LIMIT	728226		421478		694226	
	LOWER LIMIT	182056		105370		173556	
	CCAL	371234	5.12	166789	7.38	282918	9.33
	UPPER LIMIT		5.62		7.88		9.83
	LOWER LIMIT		4.62		6.88		8.83
01	UO25MBS1	365528	5.12	222026	7.38	377103	9.33
02	UO25LCSS1	386208	5.12	237410	7.38	404421	9.33
03	SP-O-9	410011	5.12	252137	7.38	440201	9.33
04	SP-O-10	390574	5.12	232213	7.38	424230	9.33
05	SP-N-1	363455	5.12	212314	7.37	375168	9.33
06	SP-R-1	372044	5.12	223990	7.38	389927	9.33
07	SP-R-2	309882	5.12	185098	7.38	325477	9.33
08	SP-R-3	363608	5.12	216439	7.38	379160	9.33
09	SP-R-3 MS	339832	5.12	208845	7.38	346650	9.33
10	SP-R-3 MSD	353666	5.12	218335	7.38	372168	9.33
11	SP-L-1	322715	5.12	198981	7.38	336758	9.33
12	SP-K-1	328024	5.12	200547	7.38	345098	9.33
13	SP-K-2	358644	5.12	221080	7.38	405745	9.33
14							
15							
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21							
22							
23							
24							
25							

IS1 = Naphthalene-d8
IS2 = Acenaphthene-d10
IS3 = Phenanthrene-d10

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UO25 Project: BAY WOOD

Ical Midpoint ID: 03161205 Ical Date: 03/16/12

Instrument ID: NT4 Cont. Cal Date: 04/05/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	412003	14.89	386633	18.72		
	UPPER LIMIT	824006		773266			
	LOWER LIMIT	206002		193316			
	CCAL	311742	14.27	272273	18.02		
	UPPER LIMIT		14.77		18.52		
	LOWER LIMIT		13.77		17.52		
01	UO25MBS1	387942	14.27	331450	18.02		
02	UO25LCSS1	426813	14.27	367489	18.02		
03	SP-O-9	536109	14.28	503269	18.02		
04	SP-O-10	520691	14.27	475146	18.02		
05	SP-N-1	432421	14.27	424272	18.02		
06	SP-R-1	470190	14.27	428530	18.02		
07	SP-R-2	394977	14.27	375714	18.02		
08	SP-R-3	446583	14.27	418839	18.02		
09	SP-R-3 MS	412579	14.27	380477	18.02		
10	SP-R-3 MSD	429858	14.27	404015	18.01		
11	SP-L-1	407307	14.27	408912	18.02		
12	SP-K-1	432319	14.27	390412	18.02		
13	SP-K-2	557165	14.28	497205	18.02		
14							
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25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UO25 Project: BAY WOOD

Ical Midpoint ID: 03161205 Ical Date: 03/16/12

Instrument ID: NT4 Cont. Cal Date: 04/06/12

		IS1(NPT) AREA #	RT #	IS2(ANT) AREA #	RT #	IS3(PHN) AREA #	RT #
	ICAL MIDPT	364113	5.43	210739	7.72	347113	9.69
	UPPER LIMIT	728226		421478		694226	
	LOWER LIMIT	182056		105370		173556	
	CCAL	356286	5.07	203089	7.34	350467	9.29
	UPPER LIMIT		5.57		7.84		9.79
	LOWER LIMIT		4.57		6.84		8.79
01	SP-O-8	363926	5.07	212983	7.34	374964	9.29
02	SP-O-9	382457	5.06	236236	7.33	401516	9.28
03	SP-K-1	334355	5.06	199367	7.33	348222	9.28
04	SP-K-2	370874	5.06	222946	7.33	391746	9.28
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IS1 = Naphthalene-d8
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AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
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RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ANALYTICAL RESOURCES INC Client: SLR INTERNATIONAL CORP

ARI Job No: UO25 Project: BAY WOOD

Ical Midpoint ID: 03161205 Ical Date: 03/16/12

Instrument ID: NT4 Cont. Cal Date: 04/06/12

		IS4(CRY) AREA #	RT #	IS5(PRY) AREA #	RT #	AREA #	RT #
	ICAL MIDPT	412003	14.89	386633	18.72		
	UPPER LIMIT	824006		773266			
	LOWER LIMIT	206002		193316			
	CCAL	391626	14.18	355309	17.91		
	UPPER LIMIT		14.68		18.41		
	LOWER LIMIT		13.68		17.41		
01	SP-O-8	465179	14.18	458934	17.91		
02	SP-O-9	489084	14.17	460012	17.90		
03	SP-K-1	428659	14.17	397233	17.90		
04	SP-K-2	500502	14.17	469496	17.90		
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25							

IS4 = Chrysene-d12
IS5 = Perylene-d12

AREA UPPER LIMIT = +100% of internal standard area from Ical midpoint
AREA LOWER LIMIT = - 50% of internal standard area from Ical midpoint
RT UPPER LIMIT = + 0.50 minutes of internal standard RT from Cont. Cal
RT LOWER LIMIT = - 0.50 minutes of internal standard RT from Cont. Cal

* Values outside of QC limits.

Total Solids

ARI Job ID: UO25

Extractions Total Solids-extts
Data By: Yen Luu
Created: 3/29/12

Worklist: 8557
Analyst: RVR
Comments:

Oven ID:_____

Balance ID:_____

Samples In: Date:_____ Time:_____ Temp:_____ Analyst:_____

Samples Out: Date:_____ Time:_____ Temp:_____ Analyst:_____

	ARI ID CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UO25A 12-5366 SP-O-8	1.15	11.67	9.68	81.1	NR
2.	UO25B 12-5367 SP-O-9	1.14	12.50	9.98	77.8	NR
3.	UO25C 12-5368 SP-O-10	1.16	11.17	8.53	73.6	NR
4.	UO25D 12-5369 SP-N-1	1.16	12.45	9.69	75.6	NR
5.	UO25E 12-5370 SP-R-1	1.13	11.76	8.97	73.8	NR
6.	UO25F 12-5371 SP-R-2	1.15	12.40	9.33	72.7	NR
7.	UO25G 12-5372 SP-R-3	1.14	12.28	10.00	79.5	NR
8.	UO25H 12-5373 SP-L-1	1.13	12.03	11.07	91.2	NR
9.	UO25I 12-5374 SP-K-1	1.11	12.56	8.91	68.1	NR
10.	UO25J 12-5375 SP-K-2	1.13	12.39	8.85	68.6	NR

Extractions Total Solids-extts
Data By: Yen Luu
Created: 3/29/12

Worklist: 8557
Analyst: YL
Comments:

Oven ID: 015

Balance ID: B1464261 4

Samples In: Date: 3/29/12 Time: 18:20 Temp: 103 Analyst: YL

Samples Out: Date: 03/30/12 Time: ~~06~~ 07:20 (RR 3/30/12) Temp: 103° Analyst: RR

	ARI ID / CLIENT ID	Tare Wt (g)	Wet Wt (g)	Dry Wt (g)	% Solids	pH
1.	UO25A 12-5366 SP-O-8	1.15	11.67	9.68		NR
2.	UO25B 12-5367 SP-O-9	1.14	12.50	9.98		NR
3.	UO25C 12-5368 SP-O-10	1.16	11.17	8.53		NR
4.	UO25D 12-5369 SP-N-1	1.16	12.45	9.69		NR
5.	UO25E 12-5370 SP-R-1	1.13	11.76	8.97		NR
6.	UO25F 12-5371 SP-R-2	1.15	12.46	9.33		NR
7.	UO25G 12-5372 SP-R-3	1.14	12.28	10.00		NR
8.	UO25H 12-5373 SP-L-1	1.13	12.03	11.07		NR
9.	UO25I 12-5374 SP-K-1	1.11	12.56	8.91		NR
10.	UO25J 12-5375 SP-K-2	1.13	12.39	8.85		NR

ATTACHMENT 2
Everett Marina PSDDA Sediment Characterization Report

Everett Marina PSDDA Sediment Characterization Report

14th Street Bulkhead Replacement
Everett, Washington

Prepared by:

The RETEC Group, Inc.
1011 S.W. Klickitat Way, Suite #207
Seattle, Washington 98134

RETEC Project Number: PORE1-18490-400

Prepared for:

Port of Everett
P.O. Box 538
Everett, Washington 98206

February 24, 2005

Everett Marina PSDDA Sediment Characterization Report

14th Street Bulkhead Replacement
Everett, Washington

Prepared by:

The RETEC Group, Inc.
1011 S.W. Klickitat Way, Suite #207
Seattle, Washington 98134

RETEC Project Number: PORE1-18490-400

Prepared for:

Port of Everett
P.O. Box 538
Everett, Washington 98206

Prepared by:

_____
Daniel J. Berlin, Environmental Scientist

Reviewed by:

_____
Joe Scott, Senior Engineer

February 24, 2005

Table of Contents

List of Tables

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List of Acronyms

AET	Apparent Effects Threshold
ARI	Analytical Resources, Inc.
ASTM	American Society for Testing and Materials
BT	bioaccumulation trigger
COC	chemical of concern
DAIS	Dredged Analysis Information System
DGPS	Differential Global Positioning System
DMMP	Dredged Material Management Program
DMMU	Dredged Material Management Units
DNR	Washington State Department of Natural Resources
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
MDL	method detection limit
ML	maximum level
MLLW	mean lower low water
MS/MSD	matrix spike/matrix spike duplicate
PCB	polychlorinated biphenyl
Port	Port of Everett
PSDDA	Puget Sound Dredged Disposal Analysis
PSEP	Puget Sound Estuary Protocol
QA/QC	quality assurance/quality control
SAP	Sampling and Analysis Plan
SL	screening level
SMARM	Sediment Management Annual Review Meeting
SMS	Sediment Management Standards
SQS	Sediment Quality Standards
SVOC	semivolatile organic compound
TBT	tributyl tin
TDL	target detection limit
TOC	total organic carbon
USACE	U.S. Army Corps of Engineers

1 Introduction

1.1 Project Description

This Sediment Characterization Report provides the results of sampling and analysis of sediments along the 14th Street bulkhead at the Everett Marina in Everett, Washington. The investigation was conducted in accordance with the Puget Sound Dredged Disposal Analysis (PSDDA) Program and the approved Sediment Characterization Sampling and Analysis Plan, 14th Street Bulkhead Replacement (SAP) (RETEC, 2004). The site location is provided in Figure 1-1. The testing was performed in support of maintenance dredging to be performed in conjunction with a bulkhead replacement project along the north side of Everett Marina (14th Street).

One dredged material management unit (DMMU) was evaluated on January 4, 2005. This report summarizes the characterization performed on the DMMU identified in Figure 1-2 and Table 1-1. The total dredged volume of sediment of the DMMU is approximately 4,000 cubic yards (cyds), including a one-foot overdredge allowance. This volume was previously estimated to be 3,800 cyds in the SAP but is closer to 4,000 cyds following additional volume calculations.

1.2 Sediment Description

PSDDA guidance identifies all marinas as areas of moderate concern for sediment contamination. In areas of moderate concern, no more than 16,000 cy of sediment may be represented by a single DMMU for surface sediment (less than 4-foot cut depth). One field sample may represent each 4,000 cy of surface sediment. One test sample was collected from composites of three cores for the entire DMMU due to its long, narrow shape. Sediment consists of silt and sand in the marina and mudline elevations of sediments in the dredge prism range from approximately 0 to -9 feet MLLW.

1.3 Sampling and Analysis Objectives

The sampling and analysis objectives are stated in the SAP (RETEC, 2004) and are also listed below. The primary objective of the characterization is to collect the necessary chemical, physical, and biological testing data to evaluate the suitability of open-water disposal for dredged sediments that will be dredged as part of the proposed project. This report characterizes the sediment to be dredged and outlines the procedures used to accomplish these objectives.

The sediment characterization program objectives and constraints are summarized below:

- To characterize sediments for dredging in conformance with PSDDA requirements to enable the PSDDA agencies to designate approved disposal option(s);

- To collect, handle, and analyze representative sediment core samples that characterize the full dredging prism in accordance with protocols, timing, and QA/QC requirements outlined in the PSDDA Evaluation Procedures Technical Appendix (June 1988), the updated procedures documented in Chapter 5 and Appendix A of the PSDDA Phase II Management Plan Report (September, 1989), modifications made through the PSDDA and Sediment Management Annual Review Meeting (SMARM) process, and procedures presented in PSEP Recommended Protocols for Measuring Selected Environmental Variables in Puget Sound.

- Sediment cores will be composited and analyzed in a timely manner to meet the remediation schedule and PSDDA requirements for sample holding times, including those related to possible biological analysis, if needed.

- Chemical and biological testing results will be compared to chemical guidelines or biological performance criteria presented in the Evaluation Procedures Technical Appendix – Phase I (PSDDA, 1988), the PSDDA Management Plan Report – Phase II (PSDDA, 1989), as well as any revisions to guidelines or performance criteria that have been incorporated as part of the SMARM process.

2 Investigation Methods

This section describes the methods by which the PSDDA sampling at the marina was performed. A total of three cores was collected from the DMMU on January 4, 2005. These sampling locations are shown on Figure 1-2 and on Table 2-1. Samples were composited on January 5, 2005 and delivered to the laboratory for analysis.

2.1 Sampling and Location Methods

Sampling was performed from gangways (ramps) passing over the maintenance dredging area. Sediment coring was performed using push-coring with 3-inch contaminant-free cellulose acetyl butyrate (CAB) liner tubes. Sampling was conducted from the ramps at the deepest expected dredge cut, which measured approximately 26 feet from the bulkhead. Precise measurements of sampling locations were made from the bulkhead and utility poles located on RETEC base maps. The measurements made with the measuring tape are more accurate than the error associated with a GPS. The coordinates of sampling stations were reported in Washington State Plane North (NAD83) and converted to World Geodetic System of 1984 (WGS 84). These coordinates are found in Table 2-1.

2.2 Sediment Coring Procedures

Sediment core samples were collected at three locations along the 14th Street bulkhead (Figure 1-2). Sampling was performed using a 3-inch contaminant-free CAB liner tube. A continuous sediment sample is retained within the tubing with the aid of a metal core catcher. There is no core liner. A completely new core tube was used for each sample. The core catcher was decontaminated between uses and reused for each core.

As mentioned in Section 2.1, coring was performed from ramps joining floating moorages to the bulkhead along 14th Street. Deployment from the ramp was thought to better maintain the core tube in a vertical position while pushing than if a flat-bottomed boat were used. Care was taken to prevent disturbance of the sediment surface prior to coring.

A 16-foot steel pole was attached to the core tube with a fitted joiner that allowed pushing and pulling of the entire assembly. The length of penetration was recorded by measurements made along the steel pole. The height of the sediment column inside the core was measured after retrieval. The percent recovery was estimated from the penetration depth and recovered length measurements and recorded on field log sheets. The recovery estimate is used to accurately determine the true sample depth. Individual core recovery information is used to determine the *in-situ* depth from which the sediments within a given analytical sample were collected. For the coring, 10-foot lengths of core tube were used and driven until refusal was encountered.

Criteria established in the SAP (RETEC, 2004) for cores included the following:

- Overlying water is present and the surface is intact
- The core tube appears intact without obstruction or blocking
- Recovery is greater than 75 percent of drive length.

Core tubes and the surface sediment interval were intact in all cores, and overlying water was present. No obstruction or blocking was present in the cores. Two cores did not meet the 75 percent recovery criteria: EC-2 (71 percent) and EC-3 (71 percent). Additional discussion of core recovery is included in Section 4.2. Core logs are included in Appendix A.

After the cores were recovered, they were sectioned in the field using a hacksaw into approximate sections of 4 feet for ease of transportation. As each section was cut, observations of the visible end of the sediment cores were recorded on the field core log sheet. Sections were capped with aluminum foil, a plastic end cap, and taped securely. Cores were labeled with the core location, core section, and the top of core on each section using a permanent marker.

The following field observations were recorded in the field core log for each of the cut sample ends:

- Sample location, time, and water depth
- Core tube penetration depth
- Sample recovery
- Physical sediment description-sediment particle size
- Sediment type, density/consistency, color
- Odor
- Visual stratification lenses
- Debris (wood, paint chips, etc.) or vegetation
- Biological activity (e.g., shells, tubes, presence of organisms)
- Presence of sheen or staining
- Other distinguishing characteristics or features.

2.3 Core Process Sample Handling

The core tube sections were transported on ice to RETEC offices in Seattle. At the laboratory, sample-coring tubes were push extruded onto a processing table lined with aluminum foil on top of plastic. Aluminum foil lining the table was replaced with each core. To prevent additional compaction during extrusion, the core tube migrated along the extruded sediment rather than the core tube remaining stationary while the sediment migrated out. During core sample logging and sub-sampling, a detailed record was kept regarding the

sediment stratigraphy within the sample on coring process logs. For each core section, the following information was recorded on core processing logs:

- Physical soil description – sediment particle size
- Sediment type, density/consistency, color
- Odor
- Visual stratification and lenses
- Debris (wood, paint chips, etc.) or vegetation
- Biological activity (e.g., shells, tubes, presence of organisms)
- Presence of sheen or staining
- Other distinguishing characteristics or features.

In-situ depths from 0 to 3 feet and 3 to 4 feet were sampled from EC-1. *In-situ* sample intervals of 0 to 2.6 feet and 2.6 to 3.5 feet were collected from EC-2 and from 0 to 2.5 feet and 2.5 to 3.5 feet in EC-3. The bottom of the core of each of these locations corresponds to the deepest dredge cut collected at -10 feet MLLW. The S1 and S2 layers of each core were combined with the same *in-situ* intervals of the other cores. The compositing scheme was identified in the PSDDA SAP (RETEC, 2004) and may be seen in Tables 1-1 and 2-2.

To reduce cross-contamination due to smear, the smeared sediments found along the sidewalls of the core tube were removed prior to compositing. Only sediment that is not touching the sidewalls or ends was collected for chemical analysis. Samples were composited under the direction of an experienced RETEC geologist per the compositing plan and in accordance with USACE guidelines. For sediment composite samples, equal volumes of sediment were removed from each core section comprising a composite.

Immediately upon extrusion of cores, a subsample volume was collected from EC-1 for volatiles and sulfide analysis without mixing by randomly selecting a sample that has not had contact with the core lining from one core representing each composite. Volatile and sulfide samples were collected from the S-1 intervals and volatile samples were collected from the S-2 intervals. Table 2-2 indicates the stations from which volatile and sulfide subsamples were collected. For sulfides, 5 ml of 2N zinc acetate was added to each sample using a pipette creating a thin film across the top of sediment in the jar. Separate containers were completely filled with sample sediment for volatiles. No headspace was allowed to remain in either container.

Sediments representing each composite sample were placed in a decontaminated stainless steel bowl and mixed using decontaminated stainless steel mixing spoons until homogenous in color and texture.

All sample handling, sub-sampling, judgment of sample acceptability, gear and utensil decontamination, compositing, storage, and chain-of-custody procedures were conducted in accordance with PSEP (1996a). All utensils and mixing containers used during sample preparation were decontaminated according to PSEP (1996a) protocols prior to use.

Sediment samples collected for chemical and physical analyses were placed in iced coolers and delivered to Analytical Resources, Inc. (ARI), of Seattle, Washington. All samples delivered to ARI were properly packed in coolers and maintained at 4°C. Original chain-of-custody forms and analysis request forms accompanied the samples to the laboratory. Extra samples, including z-samples (S2 samples), from each composite sample were archived at -18°C at ARI for possible future analysis.

2.4 QA/QC Samples

Additional matrix spike/matrix spike duplicate (MS/MSD) samples were collected for laboratory QA purposes. Samples were collected from one station with sufficient sediment volume for analysis of volatiles, SVOCs, PCBs/pesticides, and metals.

2.5 Sample Transport and Chain of Custody Procedures

Containerized sediment samples were transported to the laboratories after compositing was completed according to the guidance contained in the SAP (RETEC, 2004). Specific sample shipping procedures were as follows:

- Individual sample containers were packed to prevent breakage and transported in a sealed ice chest or other suitable container. Glass jars were separated in the shipping container by shock-absorbent material (e.g., bubble wrap) to prevent breakage.

- Coolers were packed with ice packs or crushed ice (sealed in plastic bags) to keep the samples at 4 °C ± 2 ºC.

- Cooler trip blanks were included with volatile samples at a frequency of one per cooler.

- Each cooler or container containing the sediment samples for chemical analysis was delivered to the laboratory within 24 hours of being sealed.

- The shipping containers were clearly labeled with sufficient information (name of project, time and date container was sealed,

person sealing the container, and consultant's office name and address) to enable positive identification.

- A sealed envelope containing chain of custody forms was enclosed in a plastic bag and taped to the inside lid of the cooler.

- Samples were not shipped and coolers were not out of the custody of the samplers at any time. Therefore, custody seals were not required.

Upon transfer of sample possession to the analytical laboratory, the custody form was signed by the persons transferring custody of the sample container. Custody forms were used internally in the lab to track sample handling and final disposition.

3 Chemical and Physical Testing

This section provides an overview of the chemical and physical testing results. Samples were analyzed in accordance with PSDDA guidelines by an Ecology-accredited laboratory using accredited methods. Table 3-1 presents the results of grain size analysis, and Table 3-2 presents chemical testing results.

3.1 Sediment Grain Size Results

Grain size was tested in the upper interval (S-1 samples) of PSDDA cores. These samples were composed of a single composite sampled from the surface layer (approximately 0 to 3 feet *in-situ* depth) from three cores. Grain size results are presented in Table 3-1. The S-1 interval consisted of slightly clayey sandy silt with traces of gravel.

3.2 Chemistry Testing Results

Chemical analysis was conducted on sample EC-1A-S1 for the list of constituents contained in Table 4-1 of the SAP (RETEC, 2004). Testing was not performed on the Z-sample EC-1A-S2 due to no screening level exceedances of chemicals in EC-1A-S1. Chemical testing results are contained in Table 3-2.

Laboratory testing procedures were conducted in accordance with the procedures specified in the PSDDA Evaluation Procedures Technical Appendix, June 1988; the PSDDA Phase II Management Plan Report, September 1989; and with the PSEP Recommended Protocols. Testing was conducted in accordance with the procedures identified in the SAP (RETEC, 2004). An aliquot (8-oz) of each sediment sample has been archived and preserved at –18 °C for additional analysis, if necessary.

3.2.1 PCB / Pesticide Distribution

PCBs

PCB concentrations are presented in mg/kg dry weight (dw) and normalized to organic carbon as ppm total organic carbon (TOC) in Table 3-2. Aroclor 1254 was detected above detection limits (2.2 ppm TOC). No other PCBs were detected above detection limits. The detected concentration of PCBs in is below the TOC normalized SMS Sediment Quality Standards (SQS) and the dry weight Screening Level (SL) criteria. All detection limits were below the PSDDA SL, and all carbon normalized detection limits were below the SQS total PCB criteria.

Pesticides

No pesticides were detected in EC-1A-S1. All detection limits were below all PSDDA criteria.

3.2.2 Metals

No metals included in PSDDA testing exceeded the SL in sample EC-1A-S1. All detection limits were below PSDDA and SMS criteria.

3.2.3 Volatile Organics

No volatile organics were detected in sample EC-1A-S1. All detection limits were below PSDDA criteria.

3.2.4 Semivolatile Organics

EPA Method 8270 semivolatile organics that were tested include PAHs, phthalates, phenols, and other miscellaneous extractables. No exceedances of semivolatiles above the SL criteria were measured in sample EC-1A-S1. All other semi-volatile organic compounds, including phthalates, phenols, and miscellaneous extractables were below PSDDA and SMS criteria for all samples.

3.2.5 Conventional Parameters

Conventional parameters analyzed in EC-1A-S1 included total solids, total organic carbon, total sulfides, and ammonia. Total solids content was 62.3 percent, and total volatile solids content was 5.3 percent. Total organic carbon content was 1.8 percent, and ammonia was 19.8 mg/kg. Total sulfides was measured at 580 mg/kg, however, this concentration is likely biased low due to low matrix spike percent recoveries. The data validation report contained in Appendix B explains that this concentration should be flagged as an estimate due to the low recovery. All conventional parameters are typical of Puget Sound sediment.

3.3 QA/QC

3.3.1 Validation

Data were validated against QA1, QA2, and project criteria for inclusion into the sediment characterization reports. Any qualifiers added to the data as part of data validation are included in Table 3-2. The data validation report is included as Appendix B. Hardcopy QA2 data will be submitted to the Sediment Management Unit at Ecology. A copy of the transmittal letter will be provided to the DMMO.

4 Quality Assurance Summary

Included below are a summary of deviations from the SAP and the expected effect of these deviations on the testing results. Other than these deviations, all sampling and analysis was performed according to procedures outlined in the SAP (RETEC, 2004).

4.1 Location

All cores were collected within 50 feet of the targeted location. Core EC-2 was 47 feet from its intended location because the core was collected from the elevated ramp connecting the floating moorages to the bulkhead. This method was determined to be more effective at keeping the core tube vertical than using a boat for push coring. The other two cores were collected from the ramps and were within 22 feet of the target locations.

The final locations coring were confirmed by measuring the distance from the collection location to the bulkhead and other landmarks contained on previously surveyed basemaps. This method is thought to be more accurate than using a GPS with an associated ±3 meter error.

4.2 Core Recovery

Criteria for sediment core acceptability are listed in the SAP (RETEC, 2004). These criteria include an intact surface sediment interval with overlying water present, no obstruction or blocking in the cores, and 75 percent recovery. All cores met these criteria with the exception of two cores. As shown on the core logs in Appendix A, core EC-1 met the 75 percent recovery criteria, but only 71 percent was recovered from cores EC-2 and EC-3. Each of these cores contained intact surface sediment intervals with overlying water present, and no obstruction or blocking was present. Each core was pushed until refusal, which was likely due to frictional resistance rather than changes in substrate. The poor recovery is not due to sediment loss from the bottom of the tube as the core catchers were plugged and retaining sediment. Coring in sediment containing high fines (58 percent) is likely the reason for slightly lower than targeted recoveries.

In each of these instances, the low recoveries are not expected to adversely affect the sampling and testing results. Each core was pushed into the sand or silty sand layers that are expected to represent the bottom of the maintenance dredging depth. Sampled intervals were adjusted to in-situ depths and are consistent with the targeted depths.

5 Conclusion

Collection and evaluation of the sediment data was completed using the Sediment Characterization SAP for the 14th Street Bulkhead Replacement Project prepared in accordance with PSDDA guidelines (RETEC, 2004). Deviations from the SAP are summarized in Section 4. These deviations do not substantially affect the testing results.

One DMMU was evaluated for suitability of unconfined, open-water disposal. Results of analytical testing indicate that DMMU-1A does not contain chemicals detected at levels greater than any of the PSDDA criteria (Table 3-2). This unit also does not contain chemical concentrations above any SMS criteria. Because no PSDDA criteria were exceeded, biological testing was not conducted. Therefore, DMMU 1A is suitable for unconfined, open-water disposal.

Chemical testing was not conducted on the Z-sample from the sediment interval of three to four feet *in-situ* for sample EC-1-S2. Testing was not required to characterize the post-dredge sediment surface because the surface unit is suitable for unconfined, open-water disposal and therefore complies with the anti-degradation policy in the SMS rule (WAC 173-204-120).

6 References

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PSEP, 1996a. *Puget Sound Estuary Program: Recommended Guidelines for Sampling Marine Sediment, Water Column, and Tissue in Puget Sound*. Prepared for the United States Environmental Protection Agency, Region 10, and the Puget Sound Water Quality Authority. Puget Sound Water Quality Authority, Olympia, Washington.

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Tables

Table 1-1 Everett Marina Maintenance Dredging Coring Plan

DMMU	Dredge Prism		Sediment Core ID	Compositing Scheme	
	Approximate Dredge Volume [1] (cy)	Approximate Dredge Surface Area (sq. yd)		Surface Sediment Composite ID (0 to 3 ft in-situ)	z-sample ID (3 to 4 ft in-situ)
1A	4,000	3,622	EC-1	EC-1A-S1	EC-1A-S2
			EC-2		
			EC-3		

[1] This volume was previously estimated to be 3,800 cy in the SAP but is closer to 4,000 cy following additional volume calculations.

Table 2-1 Everett Marina Push Core Locations Collected January 4, 2005

DMMU	Sediment Core ID	Target Locations [1]		Actual Locations [2]				Mudline Elevations, ft [4]	Approx. Distance from Target, ft
		Longitude [1]	Latitude [1]	Longitude [1]	Latitude [1]	Easting [3]	Northing [3]		
1A	EC-1	122.22174570	47.99918375	122.22182745	47.99918550	1300499	367539	-7.1	20
	EC-2	122.21970242	47.99915912	122.21989451	47.99916228	1300972	367522	-7.0	47
	EC-3	122.21736087	47.99913258	122.21727095	47.99913092	1301614	367499	-7.1	22

Notes:

[1] World Geodetic System of 1984

[2] Actual locations determined from ramp locations using CADD

[3] North American Datum of 1983, Washington State Plane North

[4] Mudline elevations estimated using tides calculated with tide and current software (WXTide32 version 2.7, http://wxtide32.com) for Everett.

Table 2-2 Summary of PSDDA Vibracore Sediment Sample Intervals and Analytical Testing

Core ID	Sample ID	Uncorrected Sample Interval	In-Situ Sample Interval	Analyses					
				Pesticides/ PCBs	Metals	SVOCs	VOCs	Conventionals	Grain Size
DMMU-1A									
EC-1 *	EC-1A-S1	0.0 to 2.3 feet	0.0 to 3.0 feet	X	X	X	X	X	X
EC-2		0.0 to 1.9 feet	0.0 to 2.6 feet						
EC-3		0.0 to 1.8 feet	0.0 to 2.5 feet						
EC-1 †	EC-1A-S2	2.3 to 3.0 feet	3.0 to 4.0 feet	Archived					
EC-2		1.9 to 2.5 feet	2.6 to 3.5 feet						
EC-3		1.8 to 2.5 feet	2.5 to 3.5 feet						

NOTE:

X - Sediment was collected and analyzed for the indicated analysis at this location.

* = Sulfide and volatile sampling conducted from these cores in the S1 interval

† = Volatile sampling conducted from these cores in the S2 interval

Table 3-1 Grain Size Data

Sample ID	Gravel	Sand						Silt					Clay			
		V. Coarse	Coarse	Med	Fine	Very Fine	Total	Coarse	Med	Fine	Very Fine	Total	8 to 9	9 to 10	<10	Total
EC-1A-S1	**2.4**	1.3	1.6	2.4	8.6	25.3	**39.2**	23.3	12.8	7.6	4.0	**47.7**	3.2	2.0	5.4	**10.6**
TRIP 1	**0.0**	0.8	3.9	2.9	2.0	8.0	**17.6**	16.6	19.6	15.9	10.8	**62.9**	6.4	3.7	9.3	**19.4**
TRIP 2	**0.2**	0.3	2.5	4.7	3.0	8.8	**19.3**	13.6	21.3	16.6	9.5	**61.0**	7.0	3.0	9.4	**19.4**
TRIP 3	**0.0**	0.1	1.2	5.8	3.2	8.5	**18.8**	14.2	21.5	16.3	10.0	**62.0**	7.1	3.7	8.5	**19.3**

Table 3-2 Summary of PSDDA Investigation Chemical Concentrations

Parameter	SMS Criteria		PSDDA Criteria			EC-1A-S1		
	SQS	MCUL	SL	BT	ML			
Conventionals								
Total Solids (%)	nv	nv	nv	nv	nv	**62.3**		
Total Volatile Solids(%)	nv	nv	nv	nv	nv	**5.3**		
Total Organic Carbon (%)	nv	nv	nv	nv	nv	**1.8**		
Ammonia (mg/kg)	nv	nv	nv	nv	nv	**19.8**		
Total Sulfides (mg/kg)	nv	nv	nv	nv	nv	**580**		J-
Metals	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		
Antimony	nv	nv	150	nv	200	<8		U
Arsenic	57	93	57	507.1	700	**11**		
Cadmium	5.1	6.7	5.1	11.3	14	**0.3**		
Chromium	260	270	nv	267	nv	**40.5**		
Copper	390	390	390	1,027	1,300	**52.4**		
Lead	450	530	450	975	1,200	**16**		
Mercury	0.41	0.59	0.41	1.5	2.3	**0.11**		
Nickel	nv	nv	140	370	370	**44**		
Silver	6.1	6.1	6.1	6.1	8.4	<0.5		U
Zinc	410	960	410	2,783	3,800	**75.8**		
LPAH	*(ppm TOC)*	*(ppm TOC)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(ppm TOC)*	
Naphthalene	99	170	2.1	nv	2.4	**0.055**	**3.1**	
Acenaphthylene	66	66	0.56	nv	1.3	<0.020	<1.1	U
Acenaphthene	16	57	0.5	nv	2	**0.140**	**7.8**	
Fluorene	23	79	0.54	nv	3.6	**0.110**	**6.1**	
Phenanthrene	100	480	1.5	nv	21	**0.360**	**20.0**	
Anthracene	220	1200	0.96	nv	13	**0.110**	**6.1**	
2-Methylnaphthalene	38	64	0.67	nv	1.9	<0.020	<1.1	U
Total LPAH	370	780	5.2	nv	29	**0.775**	**43.1**	
HPAH	*(ppm TOC)*	*(ppm TOC)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(ppm TOC)*	
Fluoranthene	160	1200	1.7	4.6	30	**0.850**	**47.2**	
Pyrene	1000	1400	2.6	11.98	16	**0.970**	**53.9**	
Benzo(a)anthracene	110	270	1.3	nv	5.1	**0.430**	**23.9**	
Chrysene	110	460	1.4	nv	21	**1.000**	**55.6**	
Benzofluoranthenes	230	450	3.2	nv	9.9	**0.760**	**42.2**	
Benzo(a)pyrene	99	210	1.6	nv	3.6	**0.230**	**12.8**	
Indeno(1,2,3-cd)pyrene	34	88	0.6	nv	4.4	**0.120**	**6.7**	
Dibenzo(a,h)anthracene	12	33	0.23	nv	1.9	**0.053**	**2.9**	
Benzo(g,h,i)perylene	31	78	0.67	nv	3.2	**0.120**	**6.7**	
Total HPAH	960	5300	12	nv	69	**4.533**	**251.9**	
Chlorinated Hydrocarbons	*(ppm TOC)*	*(ppm TOC)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(ppm TOC)*	
1,3-Dichlorobenzene	nv	nv	0.17	nv	nv	<0.001	<0.06	U
1,4-Dichlorobenzene	3.1	9	0.11	nv	0.12	<0.001	<0.06	U
1,2-Dichlorobenzene	2.3	2.3	0.035	nv	0.11	<0.001	<0.06	U
1,2,4-Trichlorobenzene	0.81	1.8	0.031	nv	0.064	<0.007	<0.39	U
Hexachlorobenzene	0.38	2.3	0.022	0.168	0.23	<0.020	<1.1	U
Phthalates	*(ppm TOC)*	*(ppm TOC)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(ppm TOC)*	
Dimethyl phthalate	53	53	1.4	nv	nv	<0.020	<1.1	U
Diethyl phthalate	61	110	1.2	nv	nv	<0.020	<1.1	U
Di-n-butyl phthalate	220	1700	5.1	nv	nv	<0.020	<1.1	U
Butyl benzyl phthalate	4.9	64	0.97	nv	nv	<0.020	<1.1	U
Bis(2-ethylhexyl)phthalate	47	78	8.3	nv	nv	**0.150**	**8.3**	U
Di-n-octyl phthalate	58	4500	6.2	nv	nv	**0.026**	**1.4**	U
Phenols	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		
Phenol	0.42	1	0.42	nv	1.2	0.083		UB
2-Methylphenol	0.063	0.063	0.063	nv	0.077	<0.020		U
4-Methylphenol	0.67	0.67	0.67	nv	3.6	**0.022**		
2,4-Dimethylphenol	0.029	0.029	0.029	nv	0.21	<0.020		U
Pentachlorophenol	0.36	0.69	0.4	0.504	0.69	<0.099		U
Miscellaneous Extractables	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		
Benzyl alcohol	0.057	0.073	0.057	nv	0.87	<0.020		U
Benzoic acid	0.65	0.65	0.65	nv	0.76	**0.220**		U
Miscellaneous Extractables	*(ppm TOC)*	*(ppm TOC)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(ppm TOC)*	
Dibenzofuran	15	58	0.54	nv	1.7	**0.026**	**1.4**	
Hexachloroethane	nv	nv	1.4	nv	14	<0.020	<1.1	U
Hexachlorobutadiene	3.9	6.2	0.029	nv	0.27	<0.020	<1.1	U
N-Nitrosodiphenylamine	11	11	0.028	nv	0.13	<0.020	<1.1	U
Volatile Organics	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*		
Trichloroethene	nv	nv	0.16	nv	1.6	<0.001		U
Tetrachlorethene	nv	nv	0.057	nv	0.21	<0.001		U
Ethylbenzene	nv	nv	0.01	nv	0.05	<0.001		U
Total xylenes	nv	nv	0.04	nv	0.16	<0.003		U
Pesticides	*(ppm TOC)*	*(ppm TOC)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(ppm TOC)*	
DDT	nv	nv	0.0069	0.05	0.069	<0.006	<0.3	U
Aldrin	nv	nv	0.01	nv	nv	<0.001	<0.06	U
alpha-chlordane	nv	nv	0.01	0.037	nv	<0.001	<0.06	U
dieldrin	nv	nv	0.01	nv	nv	<0.002	<0.11	U
heptachlor	nv	nv	0.01	nv	nv	<0.001	<0.06	U
alpha-BHC	nv	nv	nv	10 *	nv	<0.001	<0.06	U
gamma-BHC (Lindane)	nv	nv	0.01	nv	nv	<0.001	<0.06	U
Aroclor 1016	nv	nv	nv	nv	nv	<0.020	<1.1	U
Aroclor 1242	nv	nv	nv	nv	nv	<0.020	<1.1	U
Aroclor 1248	nv	nv	nv	nv	nv	<0.020	<1.1	U
Aroclor 1254	nv	nv	nv	nv	nv	**0.040**	**2.20**	
Aroclor 1260	nv	nv	nv	nv	nv	<0.020	<1.1	Y
Aroclor 1221	nv	nv	nv	nv	nv	<0.039	<2.2	U
Aroclor 1232	nv	nv	nv	nv	nv	<0.020	<1.1	U
Total PCBs **	12	65	0.13	38*	3.1	**0.040**	**2.20**	U

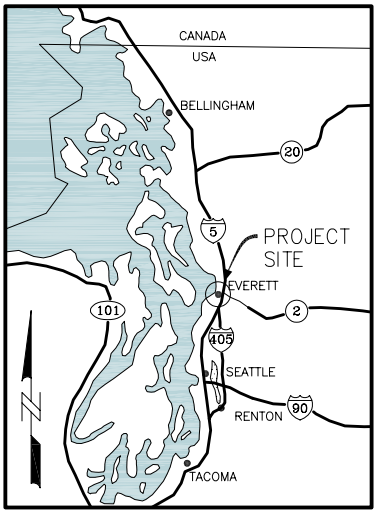
cPAH TEQ
= 0.3763 mg/kg

Notes:
Bold values at or above laboratory detection limit
Underlined values exceed the SQS value in SMS or the SL value of PSDDA
Data has been validated according to QA-2 protocols.

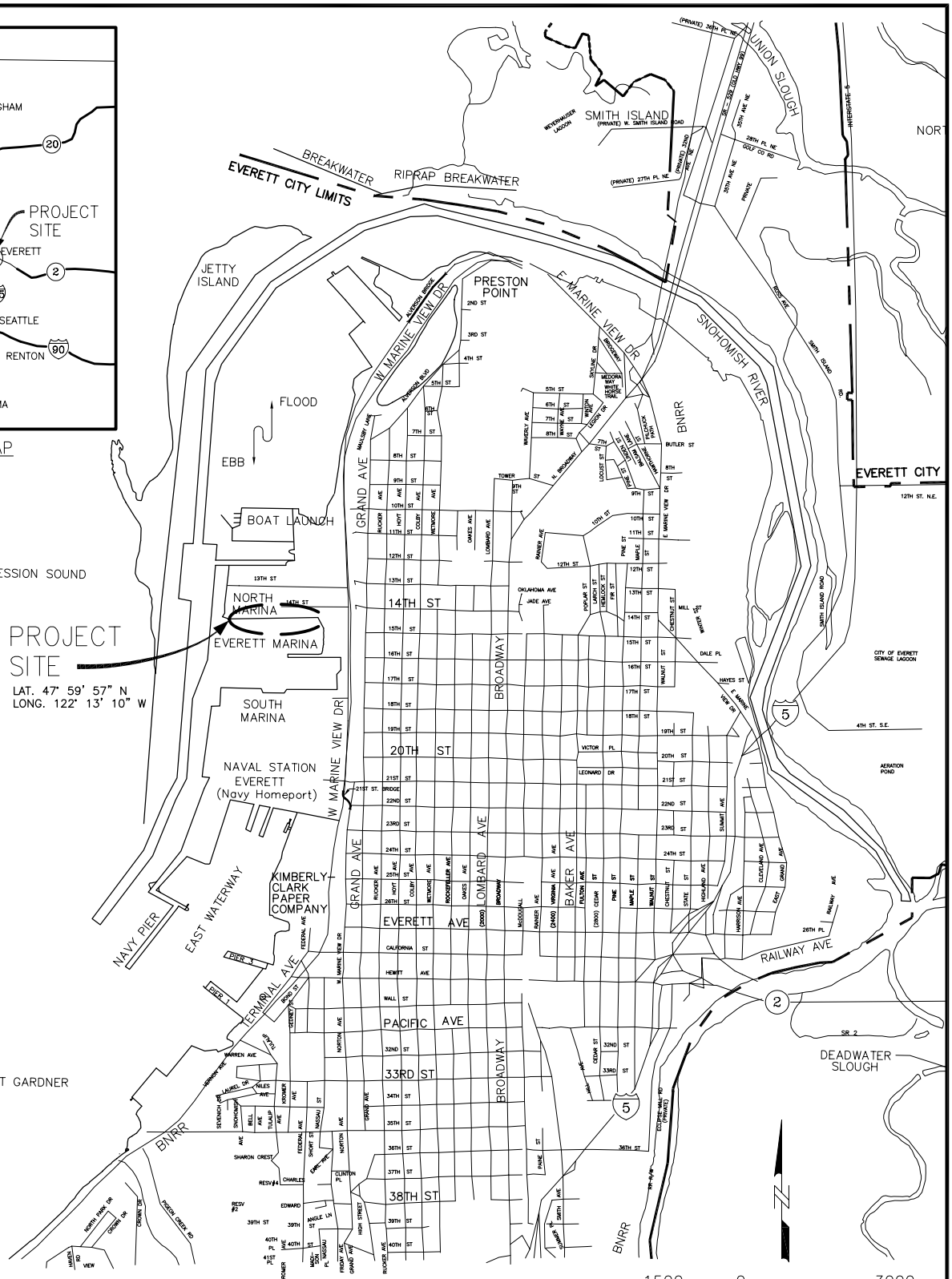
* This value is normalized to total organic carbon, and is expressed in mg/kg (TOC normalized).
** Total PCBs are calculated by summing detected concentrations of Aroclors.
nv - No value currently established under PSDDA.

U = Undetected
B = Possible/probable blank contamination due to detection in the blank
J- = Estimated concentration, biased low
Y = Reporting limit raised due to interference

Figures



LOCATION MAP
NOT TO SCALE



VICINITY MAP

1500 0 3000
SCALE IN FEET

SITE ADDRESS

NAME: PORT OF EVERETT MARINA
ADDRESS: 1720 W. MARINE VIEW DRIVE
EVERETT, WA 98206
PHONE: 206-259-3164

(SECTION 18, TOWNSHIP 29 NORTH, RANGE 5 EAST, W.M. IN THE CITY OF EVERETT, SNOHOMISH COUNTY, WASHINGTON)

RETEC

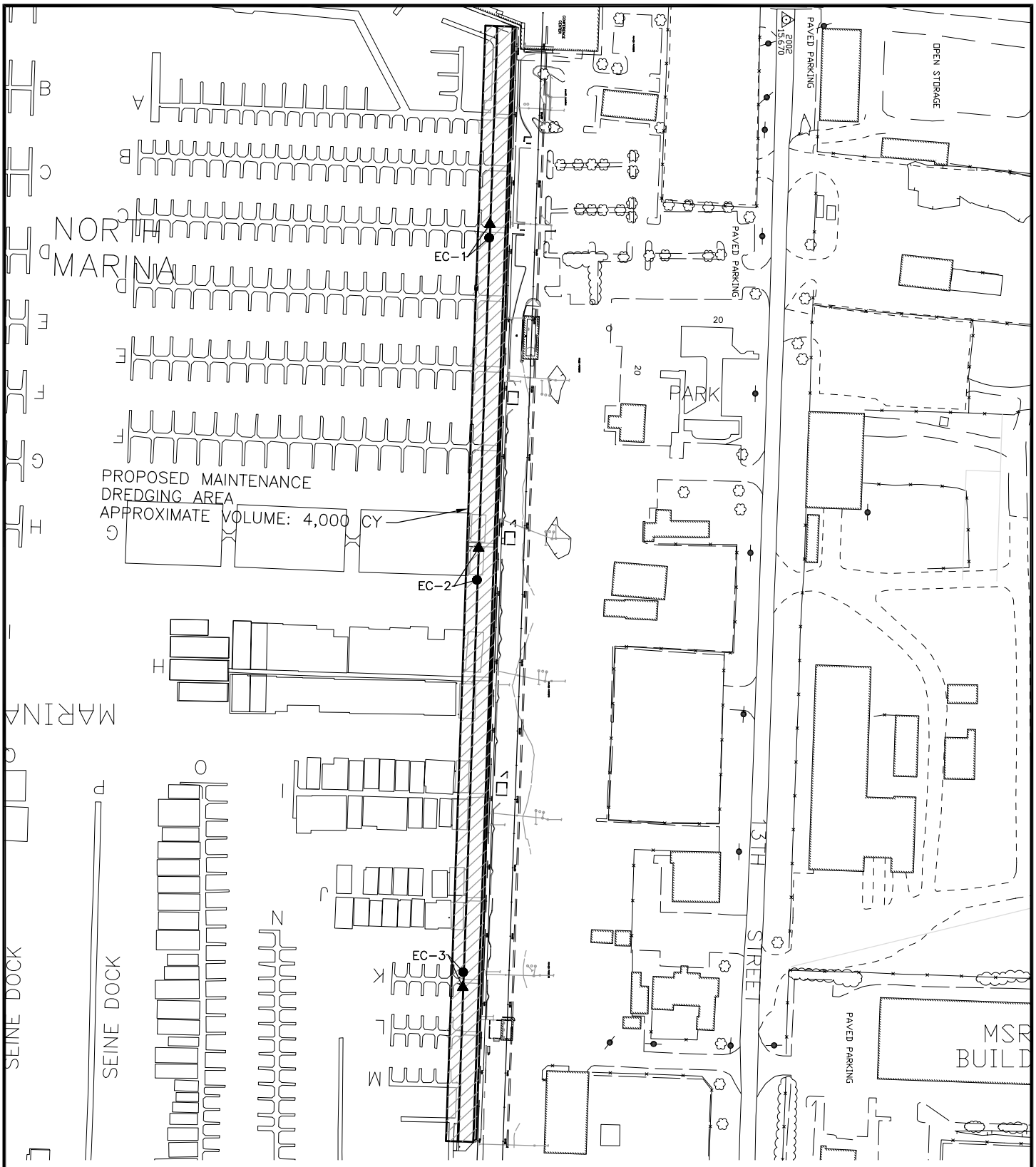
PORT OF EVERETT
14th STREET MAINTENANCE DREDGING
PORE1-18490-100

SITE LOCATION MAP

DATE: 10/25/04 | DRWN: A.S./SEA

FIGURE 1-1

File: H:\18490\18490S001.dwg Layout: ANSI_AVI-CP User: astenberg Plotted: Feb 10, 2005 - 3:48pm Xref's:



EXISTING CONDITIONS PLAN

LEGEND

- MAINTENANCE DREDGING AREA
- TARGET PSDDA SAMPLING LOCATIONS
- ACTUAL PSDDA SAMPLING LOCATIONS

100 0 200

SCALE IN FEET

RETEC

PORT OF EVERETT 14th STREET MAINTENANCE DREDGING PORE1-18490-100	**CORING LOCATIONS IN DMMU-1A AT EVERETT MARINA**
DATE: 02/02/05 | DRWN: A.S./SEA	**FIGURE 1-2**

File: H:\18490\18490S005.dwg Layout: FIGURE 1-2 User: astenberg Plotted: Feb 10, 2005 - 3:46pm Xref's:

Appendix A

PSDDA Core Sampling Logs

Sediment Core Log

Core: EC-1

Project: **Everett Marina**	Water Body Type: **Marine**	Tube Length: **10'**
Project #: **PORE1-18490-200**	SW Elevation (ft)/Tide: **+2.9 ft**	Penetration Depth: **4.0'**
Client: **Port of Everett**	Water Depth (ft): **10**	Sample Quality: **Good**
Collection Date: **01/04/05**	Mudline Elevation (ft): **-7.1**	Recovery in ft (%): **3.0' (75)**
Contractor: **RETEC**	N./LAT: E./LONG:	Process Date: **01/05/05**
Vessel: **None**	Horiz. Datum: Vert. Datum:	Process Method: **Push Extrusion**
Operator: **None**	Method/Tube ID: **3" OD Push Core**	Logged By: **D. Berlin**

Depth (ft) Below Mudline	Recovered Interval	Sample #	Analysis	Headspace PID	Sediment Description (Classification Scheme: USCS; Recalculated depth interval in feet)	Comments	Calc. In situ Depths (ft) & Graphic Log	Mudline Elevation (ft)
0	S1	S1	S2-, VOC		MH: (0-0.5') wet, soft, greenish gray slightly sandy (m-f grains) SILT w/ trace gravel to 1/2" thick and mussel shells. Strong H2S odor, grading sandier with depth.			
					SM: (0.5-1.8') moist, firm, dark gray SILTY SAND (f-m grains) w/ moderate shell frags. Trace wood frags (1/2") and strong H2S odor, grading to slightly silty sand with depth.			-8
1								
					SP: (1.8-2.25') moist, firm, dark gray slightly silty SAND (f-m grains). Moderate H2S odor, grading to drier slightly silty sand with depth.			-9
2	S2	S2	S2-, VOC		SP: (2.25-3.0') moist, firm, dark gray slightly silty SAND (f-m grains) w/ moderate shell frags to 1" diameter. Moderate H2S odor.			-10
3								

The RETEC Group, Inc.
1011 SW Klickitat Way, Suite 207
Seattle, WA 98134-1162
Phone: (206) 624-9349
Fax: (206) 624-2839

Remarks: **Core catcher is plugged**

Calculated Recovery
Sample Length/Penetration Length:
3.0' / 4.0' = **75** %

Sediment Core Log

Core: EC-2

Project: **Everett Marina**	Water Body Type: **Marine**	Tube Length: **10'**
Project #: **PORE1-18490-200**	SW Elevation (ft)/Tide: **+6.5 ft**	Penetration Depth: **3.5'**
Client: **Port of Everett**	Water Depth (ft): **13.5**	Sample Quality: **Good**
Collection Date: **01/04/05**	Mudline Elevation (ft): **-7.0**	Recovery in ft (%): **2.5' (71)**
Contractor: **RETEC**	N./LAT: E./LONG:	Process Date: **01/05/05**
Vessel: **None**	Horiz. Datum: Vert. Datum:	Process Method: **Push Extrusion**
Operator: **None**	Method/Tube ID: **3" OD Push Core**	Logged By: **D. Berlin**

Depth (ft) Below Mudline	Recovered Interval	Sample #	Analysis	Headspace PID	Sediment Description (Classification Scheme: USCS; Recalculated depth interval in feet)	Comments	Calc. In situ Depths (ft) & Graphic Log	Mudline Elevation (ft)
0	S1				SM: (0-1.1') wet, soft, brownish gray SILTY SAND (m-f grains) w/ trace leaves on surface and trace shell frags @ 0.7'. Strong H2S odor.			-7
1					SP: (1.1-2.5') wet, firm dark gray slightly silty SAND (f-m grains) w/ moderate rope fibers and trace shell frags. Moderate H2S odor, grading to moderate shell frags to BOC.			-8
2	S2							-9

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Remarks: **Core catcher is plugged**

Penetration until refusal @ 3.5'

Calculated Recovery
Sample Length/Penetration Length:
2.5' / 3.5' = **71** %

Sediment Core Log

Core: EC-3

Project: **Everett Marina**	Water Body Type: **Marine**	Tube Length: **10'**
Project #: **PORE1-18490-200**	SW Elevation (ft)/Tide: **+9.4 ft**	Penetration Depth: **3.5'**
Client: **Port of Everett**	Water Depth (ft): **16.5**	Sample Quality: **Good**
Collection Date: **01/04/05**	Mudline Elevation (ft): **-7.1**	Recovery in ft (%): **2.5' (71)**
Contractor: **RETEC**	N./LAT: E./LONG:	Process Date: **01/05/05**
Vessel: **None**	Horiz. Datum: Vert. Datum:	Process Method: **Push Extrusion**
Operator: **None**	Method/Tube ID: **3" OD Push Core**	Logged By: **D. Berlin**

Depth (ft) Below Mudline	Recovered Interval	Sample #	Analysis	Headspace PID	Sediment Description (Classification Scheme: USCS; Recalculated depth interval in feet)	Comments	Calc. In situ Depths (ft) & Graphic Log	Mudline Elevation (ft)
0	S1				MH: (0-1.0') wet, soft, greenish brown slightly sandy (fine grains) SILT. Strong H2S odor, grading firmer and sandier with depth.			
1					SM: (1.0-1.8') wet, firm, greenish brown SILTY SAND (f-m grains) w/ trace roots (2mm thick) and rope fibers. Moderate H2S odor.			-8
2	S2				SM: (1.8-2.5') wet, firm, greenish gray SILTY SAND (f-m grains) with trace wood frags. Moderate H2S odor, slight petroleum odor @ 2.0 ft.			-9

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Seattle, WA 98134-1162
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Fax: (206) 624-2839

Remarks: **Core catcher is plugged**

Penetration until refusal @ 3.5'

Calculated Recovery
Sample Length/Penetration Length:
2.5' / 3.5' = **71** %

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